

PROJECT FOR PROMOTING SUSTAINABILITY IN FUTURE CITIES OF THAILAND (STAGE 4-5)

FINAL REPORT VOL. 3: COVID-19 IMPACT AND RESPONSE ON IT IN THAILAND

December 2021

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**ALMEC CORPORATION
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN INC.**

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ABBREVIATIONS

AI	artificial intelligence
AOT	Airport of Thailand
ASF	African swine fever
BCL	Bangkok City Library
BMA	Bangkok Metropolitan Administration
BMA	Bangkok Metropolitan Area
BMR	Bangkok Metropolitan Region
BMTA	Bangkok Mass Transit Authority
BOI	Board of Investment
CAAT	Civil Aviation Authority of Thailand
CBD	central business district
CBT	community-based tourism
CCSA	Center for COVID-19 Situation Administration
CDCU	Communicable Disease Control Unit
COC	Chamber of Commerce
CODI	Community Organization Development Institute
COLA	College of Local Administration, Khon Kaen University
CSR	corporate social responsibility
CU	Chulalongkorn University
DASTA	Designated Area for Sustainable Tourism Administration
DDC	Department of Disease Control
DEQP	Department of Environmental Quality Promotion
DLA	Department of Local Administration
DLT	Department of Land Transport
DLTV	state distance learning television
DPT	Department of Public Works and Town and Country Planning
DRT	Department of Rail Transport
DTAC	Total Access Communication Public Company Limited
ER	emergency outpatient department
FREC	Ford Resource and Engagement Center
FTA	Free Trade Agreement
FTI	Federation of Thai Industries
IAS	Institute of Asian Studies
ICDC	International Communicable Disease Control
ICU	intensive care unit
KDO	Khlong Toei District Office
KKTS	Khon Kaen Transit System
KKTT	Khon Kaen Think Tank
KKU	Khon Kaen University
KPM	Krabi Pattana Mueang
KT	Krungthep Thanakom limited company
LAO	Local Administration Organization
LPN	Lumpini Property Management Company Limited

MHV	Migrant Health Voluntyeer
MOAC	Ministry of Agriculture and Cooperatives
MOE	Ministry of Education
MOI	Ministry of Interior
MOI	Ministry of Interior
MOPH	Ministry of Public Health
MOTS	Ministry of Tourism and Sports
M-Society	Ministry of Social Development and Human Security
MTR	motorcycle taxi rider
NESDC	National Economic and Social Development Council
NHA	National Housing Authority
NR	national road
PAO	Provincial Administration Organization
PCD	Pollution Control Department
PDQL	Project for Developing the Quality of People's Lives
PHV	Public Health Volunteer
PPE	personal protective equipment
PWA	Provincial Water Authority
RD	Revenue Department
SEP	Sufficient Economy Philosophy
SME	small and medium-sized enterprise
SRT	State Railway of Thailand
SSF	Social Security Fund
SSO	Social Security Office
TAT	Tourism Authority of Thailand
THPF	Thai Health Promotion Foundation
TRCS	Thai Red Cross Society
U3A	University of Third Ages
UHC	Universal Healthcare Coverage
USL	Urban studies Lab
VHV	Village Health Volunteer
WHO	World Health Organization
YEC	Young Entrepreneur Club
YoY	Industrial Production Index

Part I

Overview of COVID-19 Impact and Response on it
in Thailand

1. Overall Framework of the COVID-19 Survey

1.1 Background and Objectives

COVID-19 infection has spread worldwide since December 2019. Countries have imposed preventive measures, including refraining from going out of homes, restricting movement between provinces and cities, and blocking borders with foreign countries. The Thai Government also has implemented several preventive measures, such as the closure of specific facilities, refraining from gathering, and restriction of inter-provincial travel through the declaration of State Emergency and night curfew. Those restrictions have been flexibly lifted.

However, these preventive measures have immensely affected the activities of people and the economies of cities. The tourism industry, including hotels and other related services, has also been seriously affected due to a dramatic decrease in overseas and domestic tourists. The Thai Government has provided various rescue measures to mitigate damages caused by COVID-19.

As the COVID-19 infection preventive measures have been imposed, people are exploring new lifestyles, new businesses are being established, and local cities are required to find ways to survive as restrictions continue. In the future (post-COVID-19), incorporating a new perspective or so-called "new normal" is necessary into urban development to respond to the risks of such infectious diseases.

In this context, a COVID-19 survey (hereinafter the "Survey") was conducted to understand the actual impacts of COVID-19 on local cities and Bangkok Metropolitan Area (BMA), responses of relevant organizations on it, and emerging changes in the lives of people and urban development.

Since such a new perspective is closely related to the pilot projects in Tassaban Muang Chumphon and Tassaban Mueang Ranong, the Survey also covers a review of the impacts of COVID-19 and proposed necessary actions in the pilot projects.

The post-COVID-19 momentum needs to be integrated into the future directions of sustainable urban development as well, such as how to create a healthy city from the viewpoint of public health or how to create a self-sustaining city from the viewpoint of the regional economy. The Survey also aims to propose considering possible future urban development post-COVID-19.

1.2 Scope of the Survey

The Survey covers the following scopes.

- (i) **Infection status of COVID-19.** The historical change of the number of COVID-19 cases by region and city (from February 2020 to June 2020 in model cities and from January to July 2020 in Bangkok).
- (ii) **Infection prevention measures.** Containment measures include restriction of movement, closure of facilities, and social distancing.

- (iii) **Impacts of COVID-19** on economic, social, and environmental aspects.
- (iv) **Support measures** such as in-kind support and financial support by the government and other entities.
- (v) **Change of socio-economic activities.**
- (vi) **Setup of organizations** in response to COVID-19.

The Survey comprises two parts, (i) eight Sustainable Future City Initiative (SFCl) model cities and (ii) BMA. Both parts cover all of the above scopes.

1.3 Survey Methodology

1.3.1 Survey in Model Cities

The Survey in the eight model cities applied qualitative research, which is a systematic inquiry into social phenomena. The COVID-19 pandemic has affected the experiences of people, aspects of their lives, and urban society, i.e., how individuals or groups behave, how organizations function, and how interactions among them shape their relationships. Therefore, the Survey was conducted through qualitative research that focused on obtaining data through open-ended and conversational communication to examine the timeline of events that occurred, what happened, and what those events meant to the respondents interviewed. The Survey applied the two main research methods, which are in-depth interview and group interview (focus group), to understand what people thought and the why.

Respondents were selected by purposive sampling key informants to look for new angles of the pandemic that can improve, confirm, or correct earlier cases. The selected key informants were derived from a framework to ensure the heterogeneity of the perspectives. The three key entities were representatives from the public sector, private sector, and the community. The list of interviewees is summarized in Table 1.3.1.

The Survey was conducted from June to August 2020, when the restrictions started easing and Thailand maintained zero cases. It is important to note that the data and analysis reflected the situation at the specific timeframe since the situation and new cases count were changing daily.

Table 1.3.1 List of Interviewees (8 model cities)

Tessaban	Date	Organization	Persons
Chumphon	18 June	Tourist Authority of Thailand (Ranong-Chumphon Office)	- Director - Deputy Director
		Chumphon Provincial Office of Public Health Department	- Provincial Health Officer
		Chumphon Provincial Operation Center	- Chief of Provincial Office
		Chamber of Commerce	- Advisor to Chamber of Commerce
		YEC Chamber of Commerce	- President of YEC Chamber of Commerce
		Chumphon Tourism Business Association	
	19 June	Tessaban Mueang Chumphon	- Municipal Clerk - Planning Division Director

Tessaban	Date	Organization	Persons
			- Deputy Permanent Secretary
	19 June	Changwat Chumphon	- Governor
	19 June	Community	- Krom Luang 2 Community - Niramom Community - Baan Kon Ta Bua Community
Ranong	17 June	Tessaban Mueang Ranong	- Mayor
		Provincial Office of Tourism and Sport Department	
		Ranong Tourism Council	- Chairman
		Ranong Chamber of Commerce	- Chairman
	18 June	Tourism Authority of Thailand	- Director - Deputy Director
	20 June	Community Group	- Rong Krung Community - Ranong Land Community - Talad Burma Community - Talad Kao Community - Bang Song Pattana Community
Nan	8 Jul 2020	Tessaban Mueang Nan	- Mayor - Vice Mayor - 8 executive staffs - Directors of many divisions
		Village Health Volunteer (VHV)	VHVs in 6 communities - Ban Patu Pong Community - Ban Nam Lom - Phra Kerd Community - Hua Wiang Tai Community - Mahaphod Community - Ban Don Keaw Community
	9 Jul 2020	Vulnerable Group	- Elderly persons (3) - Disabled persons (2)
		Communities	Community leaders in 5 communities - Ban Don Keaw Community - Mahaphod Community - Phumin Thali Community - Chiang Khaeng Community - Puang Phayom Community
		Hotel Enterprise Club and Nan Boutique Resort and Hotel	- Head of the Hotel Enterprise Club - Owner of the Hotel
		Sood Kong Dee Cafe	- Owner
	10 Jul 2020	Tessaban Trainee (Sample of young generation)	- Two students from the Vocational School (Faculty of Information Technology)
		Devaraj Hotel	- Owner
	14 Jul 2020	Chamber of Commerce (COC) *phone interview	- Vice president
Krabi	15 Jul 2020	Tessaban Mueang Krabi	- Mayor - Vice mayors (3) - Deputy clerks - Mayor's advisor - Director of Public health - Director of Plan & Policy - Director of Social Welfare - Director of Education - School executives - Other heads of the municipal office
		Village Health Volunteers (VHVs)	14 VHVs from 11 communities - Ruam Jai Chon Community - Ban Tha Long Community

Tessaban	Date	Organization	Persons
			<ul style="list-style-type: none"> - Rak Huay Nam Deang Community - Pho Kha Samukkee Community - Mueang Kao Pattana Community - Saling Karn Pattana Community - Thong Lhong Community - Krabi Tha Rue Community - Ban Tha Deang - Ku Mueang Community - Pa Nu Rach Community - Mittraprab Thai-Jeen Community - Pak Nam Community - Ruam Chit Ruam Chai Community
		Tessaban Trainee (Sample of young generation)	- Student of Krabi Technical College
		[Site visit] Pu Dam Street Market	
	16 Jul 2020	Vulnerable Group	<ul style="list-style-type: none"> - Elderly persons (4) - Disabled persons (2)
		Communities	Community leaders in 4 communities <ul style="list-style-type: none"> - Ku Meuang Community - Phanuraj Community - Tha Khlong Community - Pho Ka Samukkee Community
		Urban Cafe and Bed (Sample of business of young generation)	- Owners (2)
		Restaurant (Sample of SMEs business)	- Owner
	17 Jul 2020	[Site visit] Suan Pruksa Sawan public park and two communities with Black Crab Nursery	
		Tourism Industry Council and The Verandah hotel and Peace Laguna resort and spa (Representative of the tourism sector and Sample of Luxury Hotel)	<ul style="list-style-type: none"> - President of the Tourism Industry Council - CEO of the Hotel
		Chamber of Commerce (COC) and Young Entrepreneur Club (YEC)	<ul style="list-style-type: none"> - Vice president of COC - President of YEC - Committee member of Agricultural Development - Committee member of Krabi Pattana Mueang (KPM)
Phanat Nikhom	20 Jul 2020	[Site visit] Municipal market	
		[Site visit] Public Park Community 9	
		Tessaban Mueang Phanat Nikhom	<ul style="list-style-type: none"> - Mayor - Vice mayor - Municipal clerk - Deputy municipal clerk - Deputy municipal clerk - Division of Public Works director - Division of Finance Director - Division of Education Director - Division of Public Health and Environment Director - Division of Technical service and planning Acting Director - Deputy Director of Tessaban 1 School - Acting Director of Tessaban 2 School - Acting Director of Tessaban 3 School - Director of Tessaban 4 School - Chief of Public Health - Chief of Administration

Tessaban	Date	Organization	Persons
	21 Jul 2020		- Community Developer Assistant
		Vulnerable Group	- Elderly persons
		Village Health Volunteer (VHV)	- VHVs
		Communities	Community leaders in 4 communities - Head of sub-community 1 - Head of sub-community 5 - Head of sub-community 10 - President of Save the Earth club
		Basketry Center	Head of Basketry Group
		Peera shop	Owner
Phitsanulok	22 Jul 2020	Tessaban Nakhon Phitsanulok	- Vice Mayor - Public Health Division - Director of Public Health and Environment Division - Director of Public Health Promotion Sub-Division - Sanitation Specialist - Public Health Specialist - Representative from Sanitation Department - 5 Nurses
		VHVs	
		Food Association	- Vice President - Food Business Owner (Chili Paste)
	23 Jul 2020	Vulnerable Group	Six elderly persons
		Tessaban Trainees (Sample of young generation)	Two students of Bungphra Phitsanulok Commercial College
		Community	- Representative of Sua Pim Community - Representative of Klong Mahathai Community
	24 Jul 2020	Chamber of Commerce	President
		Rattana Park Hotel	Owner
		Dragon River View (entertainment place)	Two people (Co-owners)
		Shinnabura Hotel	General manager
Chiang Rai	29 Jul 2020	VHVs and Medical Division of Tessaban	5 VHVs and a person from Medical Division
	30 Jul 2020	COC	- President of COC - Owner of Tha Nam Phu Lae Restaurant
		Tessaban Nakhon Chiang Rai	- Representative of Social welfare division - Representative of Finance division - Representative of plan and policy division - Permanent secretary (takes care of transportation) - Representative of public health division (takes care of restaurant, shop, and hotel) - Representative of education division
		Restaurant Association	- Head
	31 Jul 2020	Community	- Five community leaders
		Kanlaya Place Chiang Rai Hotel	- Owner of the hotel
		Tessaban 6 school	- Two high school students - Head of Student council - Member of Student council
Khon Kaen	5 Aug 2020	VHVs	- Head of VHV of Tessaban Nakhon Khon Kaen - Representative of VHV from Lang Sanam Kera 2 community

Tessaban	Date	Organization	Persons
			- Representative of VHV from Naka Pravej community - Representative of VHV from Sam Leam 1 community
		Community	Community leaders from 4 districts - District 1 Kan Nakorn - District 2 Kalayanawat School - District 3 Area around Bueng Kan Nakorn - District 4 Area around Khon Kaen University
		Chamber of Commerce	- Vice president
	6 Aug 2020	Hotel Association	- Head
		Restaurant Association	- Deputy chief
	7 Aug 2020	Vulnerable Group	- Six elderly persons
		College of Local Administration (COLA), Khon Kaen University	
		University Students from COLA	- Two students

Source: JICA Project Team

1.3.2 Survey in BMA

The Survey in BMA also applied qualitative research through the in-depth interview with organizations that have provided people, especially the vulnerable, with support measures and group interviews (focus group) with public health volunteers (PHVs), who have played key roles to support communities during COVID-19 epidemic. As the COVID-19 pandemic highly affected vulnerable people, the Survey in BMA was conducted to understand how they were affected by the pandemic.

1) Interview with Selected Organizations

From the organizations which provided support measures to vulnerable persons through their projects in BMA, the respondents were selected to cover various types of organizations, such as local/central government organizations and NGOs. A summarized list of interviewees from the selected organizations is in Table 1.3.2.

Table 1.3.2 List of Interviewees (organizations)

	Date	Interviewee			
		Name of Organization	Organization Type	Name	Position
1	1 Sep 2020	Ford Resource and Engagement Center (FREC) Bangkok	NGO / NPO (International)	Mr. Scott Chang	Director
2		Urban studies Lab (USL)	NGO/NPO (Domestic)	Dr. Pongpisit Huyakorn	Director
3	3 Sep 2020	Institute of Asian Studies (IAS), Chulalongkorn University	Others	Mr. Akkanut Wantanasombut	Researcher
4	9 Sep 2020	Community Organizations Development Institute (CODI)	Public organization	Ms. Chalerm Sri Radakool	Director of BMR and Eastern Office
5	8 Sep 2020	Khlong Toei District Office	Local government organization	Mr. Suchai Amorndararat	Director
6	3 Sep 2020	Thai Red Cross Society	NGO/NPO (Domestic)	Dr. Pichit Siriwan	Deputy Director of Relief and Community Health Bureau

Source: JICA Project Team

2) Group Interview with PHVs

To gain a deeper understanding of the situations the vulnerable have faced during the COVID-19 outbreak, group interviews with selected PHVs from 10 communities were conducted. The selected respondents were from various types of communities in BMA using the selection method described in Part 6. Summarized details of the selected communities are in Appendix 3.

Similar to when the survey in model cities was conducted, during the interview with the selected organizations in September 2020 and group interviews with PHVs in November 2020, the restrictions had been easing up, and there were no new cases within Thailand. It is important to note that the data and analysis reported reflect the situation at the specific timeframe, and the situation and number of new cases are changing daily.

1.4 Definition

1.4.1 Period of COVID-19 Measures

The status of COVID-19 infection changes each day, and restriction measures from the government have been modified accordingly. Therefore, specifying the timing of each perspective is important. The Survey defined the period, and a detailed description of each stage is in the next chapter.

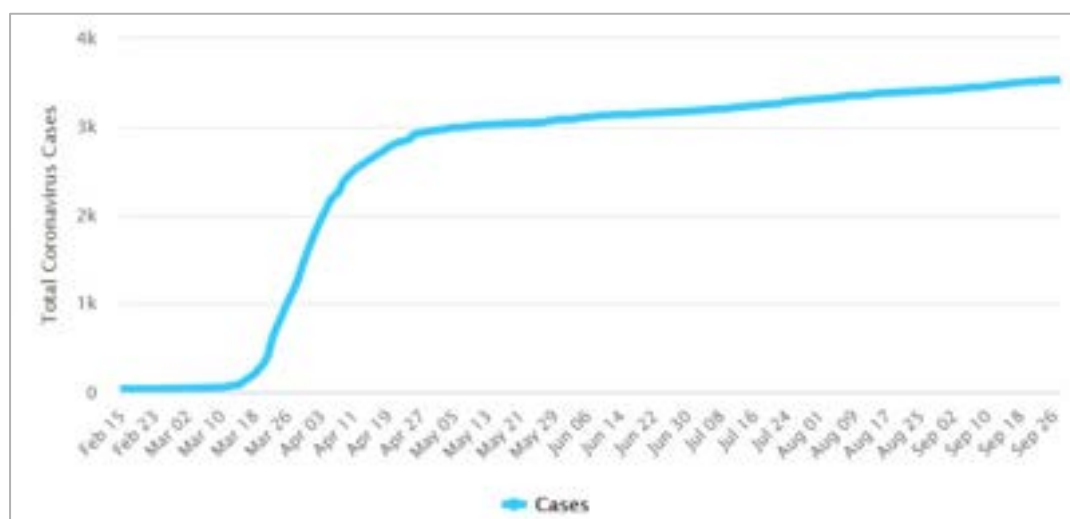
- **Preparation Stage.** Before declaring the state emergency, when some Changwat started their restriction measures.
- **Intensive Prevention Stage.** At the first stage of the state emergency and curfew period from the end of March to the end of April 2020, the Thai Government intensively conducted the containment measure.
- **Relaxing Prevention Stage.** The government started to relax preventive measures from early May to the end of the same month.
- **Recovery Preparation Stage:** Upon lifting of restriction measures, economic activities have gradually resumed.
- **Recovery Stage:** From early July onward.

It should be noted that the COVID-19 cases have increased since the end of December 2020, which is not covered in the Survey.

2. Overall Infectious Status of COVID-19 in Thailand

2.1 Overall Status in Thailand

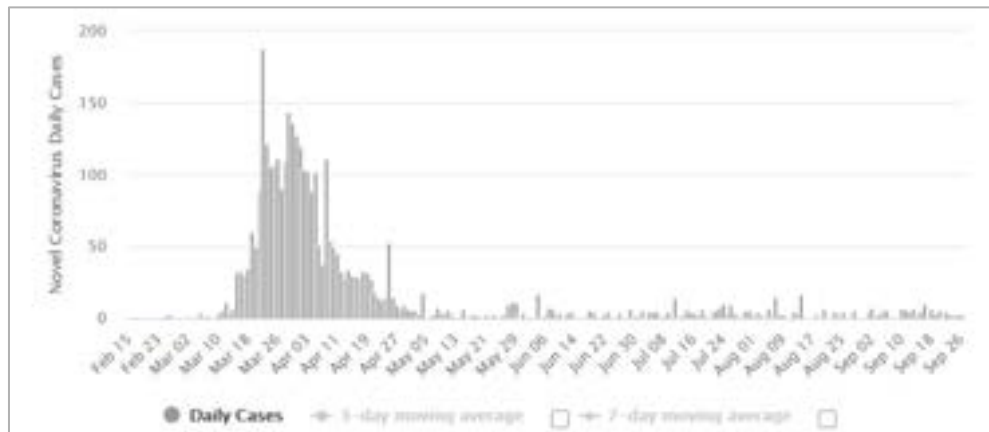
The coronavirus was confirmed to have reached Thailand on 13 January 2020, when the country made the first confirmed case outside China. Surveillance among incoming travelers revealed a small number of cases throughout January, of which almost all were visitors or residents returning from China. The first reported local transmission was confirmed on 31 January 2020. Cases remained low throughout February, with 40 confirmed by the end of the month. It increased rapidly by mid-March, attributed to several transmission clusters, the largest of which occurred at a Muay Thai fight at the Lumpinee Boxing Stadium on 6 March 2020. Figure 2.1.1 depicts the exponential growth of new cases by mid-March. The preventive measures were proven an effective effort to flatten the curve of cases around the end of April. On 28 September 2020, the total number of cases in Thailand was 3,523, as reported by the Ministry of Public Health (MOPH). About 95.5% (3,367) of these cases were recovered, 1.7% (59) died, and 2% (58) were still receiving treatment. The pattern of cases from 15 February to 26 September 2020 is shown in Figure 2.1.2, Figure 2.1.3, and Figure 2.1.4.



Source: World Meters (<https://www.worldometers.info/coronavirus/country/thailand/>)

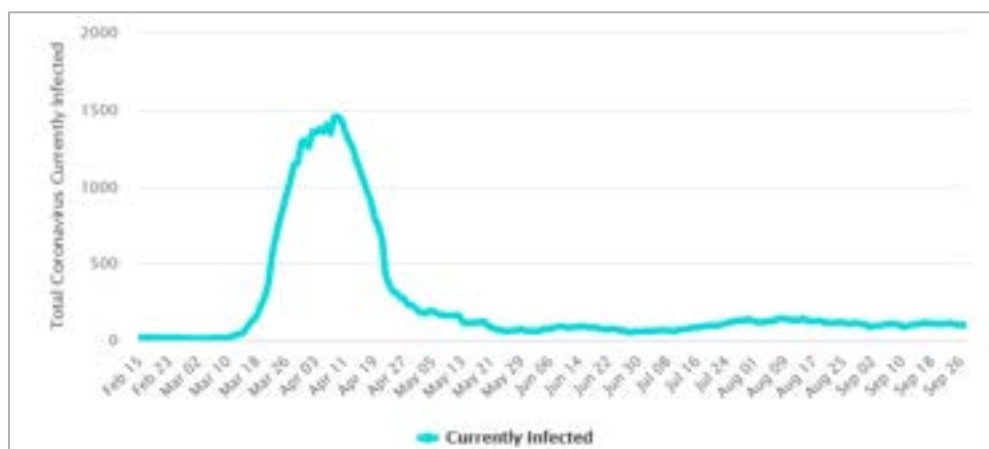
Figure 2.1.1 Total Coronavirus Cases in Thailand

As of September 2020, all cases were from returning residents or visitors from overseas, and the measures had been strict for all incoming Thais and foreigners while borders remained closed.



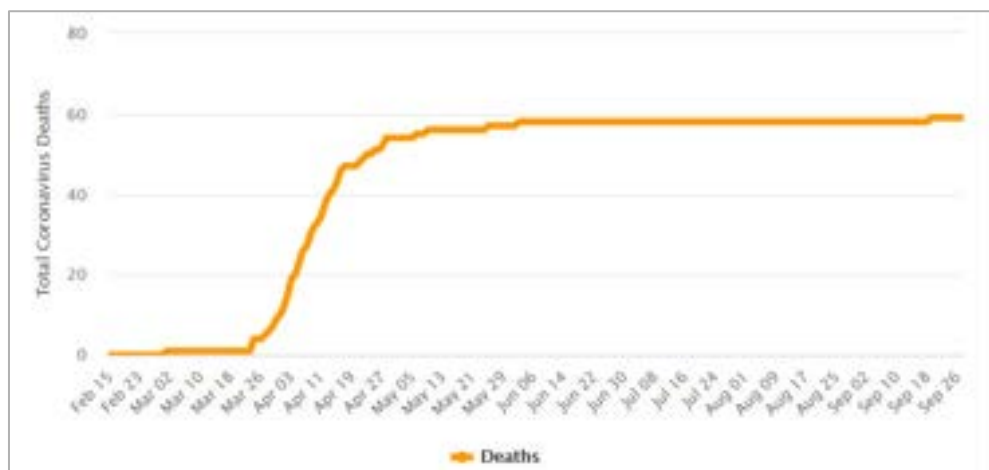
Source: World Meters (<https://www.worldometers.info/coronavirus/country/thailand/>)

Figure 2.1.2 Daily New Cases in Thailand



Source: World Meters (<https://www.worldometers.info/coronavirus/country/thailand/>)

Figure 2.1.3 Active Cases in Thailand

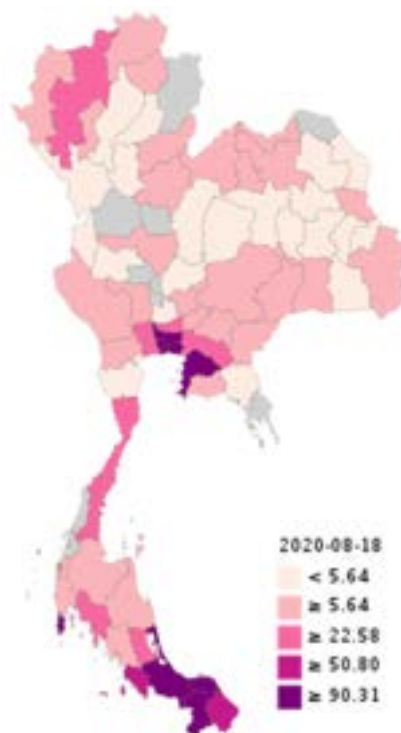


Source: World Meters (<https://www.worldometers.info/coronavirus/country/thailand/>)

Figure 2.1.4 Total Death by COVID-19 in Thailand

2.2 Regional Status of COVID-19 Infection in Thailand

Provinces marked in gray in Figure 2.2.1 were free of COVID-19 as of August 2020. MOPH reported that Kamphaeng Phet, Trat, Chai Nat, Nan, Beung Kan, Phichit, Ranong, Sing Buri, and Ang Thong had yet to report a confirmed case.



Source: Department of Disease Control, MOPH, 2020

Figure 2.2.1 Map of COVID-19 Free Provinces

Regionally, Phuket had the highest rate of infection in the country. COVID-19 cases were clustered in the main cities where accessibility from overseas and tourist arrivals was easy; for example, Bangkok and its vicinity in Nonthaburi, Phuket, Chonburi (Pattaya), Yala, and Narathiwat, which are in the vicinity of the Malaysian border.

Table 2.2.1 Number of Cases in Main Cities

Province	Number of Cases	State Quarantine
Bangkok	1,536	73
Phuket	227	0
Nonthaburi	158	0
Yala	125	9
Samut Prakan	112	31
Chonburi	86	48
Patthani	79	15
Songkhla	44	90
Chiang Mai	41	0
Pathum Thani	39	0
Narathiwat	34	9
Nakhon Pathom	22	0
Chumphon	21	0
Nakhon Rachasima	19	0

Surat Thani	18	0
Chachoengsao	17	3
Krabi	17	3
Prachuap Kiri Khan	17	0
Ubon Ratchathani	15	0
Samut Sakhon	14	0

Source: MOPH

3. Infection Prevention Measures by Thai Government

3.1 General

The sequential timeline is illustrated in Table 3.1.1, showing each event that occurred in the country in accordance with the World Health Organization (WHO) and the global situation. The MOPH is the focal point responding to COVID-19. Each response to the pandemic was mandatory and legalized by the state emergency declaration, to which all cities must strictly complied, on 26 March 2020. On 3 April 2020, all activities stopped, and a curfew was imposed. International flights were banned on the same day, and the closure of provincial borders, suspension of all aircraft, prohibition of going out, and the lockdown started and went on for a month. The first phase of easing the lockdown measures started on 3 May 2020 when the MOPH declared that Thailand effectively controlled the situation. Further relaxation of the lockdown in the second phase started on 17 May 2020, which included reopening all department stores and restaurants and resuming low-risk activities with precaution. The “Thai-Chana”¹ contact tracing application was launched. It is an app for users to log the places they visit. However, the state emergency has been extended several times until finally the end of October, which was announced on 28 September 2020.

Table 3.1.1 Timeline of the National Restriction against COVID-19

Activated date DD/MM/YYYY	Key Restriction	Period			
26/03/2020	State Emergency (SE1) Key Restrictions <ul style="list-style-type: none"> - Close and Prohibit access to the risk areas - Border Closures - Don't hoard goods - Prohibiting mass gathering - Prohibiting fake news about COVID-19 Inter-provincial restriction	Intensive Prevention Stage			
03/04/2020	Night Curfew from 10.00 pm to 4.00 am. (SE2)				
28/04/2020	1 st Extension of state emergency (SE4)				
03/05/2020	1 st Phase of Lifting restrictions (SE5 and SE6) <ul style="list-style-type: none"> - Some establishments² that are essential to daily life are allowed to open. Alcoholic beverages are allowed only for take-away. Additional restrictions <ul style="list-style-type: none"> - Prohibition of the use of the educational building. - Flight ban State quarantine for overseas flights	Relaxing Prevention Stage			
17/05/2020	2 nd Phase of Lifting restriction (SE7) <ul style="list-style-type: none"> - Change night curfew to 11.00 pm.-04.00 am. 				

¹ Chana in Thai means “winning.”

² Businesses or activities allowed to remain open, which must be considered essential, were divided into two groups. One group is businesses essential for daily life, such as restaurants allowed for take-aways, markets imposed with preventive measures (temperature checking or social distancing), supermarket, pharmacy, and barbershops (only wash, cut, set are allowed). The other is health-related facilities, such as hospitals, clinics, open spaces or fields, parks, and vet clinics.

Activated date DD/MM/YYYY	Key Restriction	Period		
	Allow more establishments ³ to resume their services.			
	Additional restriction Temporary closure of cattle field and flighting fish field or any similar business			
26/05/2020	2 nd Extension of state emergency (SE8)		Recovery Preparation Stage	
01/06/2020	3 rd Phase of Lifting restriction (SE9) - Change night curfew to 11.00 pm.-3.00 am. - Allow inter-provincial travel More establishments and services ⁴ are allowed to reopen.			
15/06/2020	4 th Phase of Lifting restriction (SE10) - Cancel the curfew period - More establishments in the high-risk group are allowed to resume their services. Lifting inter-provincial transport			
26/06/2020	3 rd Extension of state emergency			
01/07/2020	5 th Phase of lifting restriction (SE11 and SE12) - More establishments ⁵ in the high-risk group are allowed to reopen, including massage parlors. Allow 11 categories of international passengers, including non-Thai nationals to enter the Kingdom under certain restrictions.			
26/07/2020	4 th Extension of state emergency			
13/08/2020	6 th Phase of lifting restriction Reopening the foreigners granted entry to Thailand with 14 days of state quarantine, including migrant workers from Cambodia, Laos, and Myanmar, Elite Visa holders, medical tourists, film crew, convention exhibitors and select business visitors.			
26/08/2020	5 th Extension of State emergency			
			Recovery Stage	

³ Dine-in restaurants, restaurants or shops in the mall related to people's consumption (operate until 8 p.m.), wholesale/retail market, child/elderly care center (overnight), TV production studio with a maximum of 50 persons (no audience), meeting room/exhibition hall with limited participants from the same organization, beauty clinics (excluding facial treatment), fitness (only yoga and free-weight), indoor stadium (badminton, takraw, table tennis, squash, gymnastics, fencing, and rock climbing), swimming pool, and botanical garden/museum/learning center.

⁴ Mall and department store (operate until 9 p.m.), exhibition halls and meeting rooms (must be less than 20,000 m²), amulet center, salons or barbershops, beauty clinics, spas, fitness centers (limited users only), boxing stadium (for practice), sports stadium (football, futsal, basketball, and volleyball), bowling/skating, ballroom dancing, water sports, theaters, and zoo.

⁵ High-risk places like pubs or bars were allowed to reopen, including karaoke places, massage parlors, internet cafés, and fully opened shopping malls. Alcohol drinking in restaurants was allowed (before midnight).

3.2 Inspection and Medical Measures

Since early March 2020, when the COVID-19 began to spread in Thailand, the MOPH has created COVID-19 guidelines. The MOPH established a policy on virus testing and treatment, including PCR testing, that would only be conducted by the Department of Medical Sciences and its local agencies. However, as the infection spread more than expected, private hospitals equipped with advanced medical equipment as well as the institute were also allowed to do testing and treatment. As a result, Thailand succeeded smoothly in carrying out COVID-19 testing and treatment at medical sites of private hospitals. The healthcare system in Thailand did not collapse.

The public and private sectors worked together for the successful control of COVID-19 infections. Private hospitals took strict preventive measures and followed the guidelines for treatment prepared by the MOPH. For example, at Summitvict Sukhumvit Hospital, a major private hospital in Bangkok, patients who came to the hospital to take a COVID-19 test or treatment were divided into three zones, namely red zone, yellow zone, and green zone, depending on their symptoms. Patients with fever admitted to the emergency outpatient department (ER) were in the red zone. Those with other symptoms, such as coughs and shortness of breath, were taken to the yellow zone that is the Respiratory Symptoms Special Clinic (ARI). ARI was established in the parking lot, separating patients that could spread the virus in the hospital. Other patients went to the green zone. With this zoning system, Thai private hospitals could still do usual hospital operations while treating COVID-19 patients.

In addition, the entire ward of the hospital was devoted to COVID-19 treatment, and the intensive care unit (ICU) was significantly expanded. Other major hospitals took similar measures to block the spread of COVID-19.

In that period, the "THB 30 medical care" healthcare program worked significantly well, according to the MOPH. It is the Universal Healthcare Coverage (UHC) system in Thailand, in which people can receive medical services at low costs or free of charge. Public hospitals were its main target. The Thai Government decided to apply it to COVID-19 beginning 2 March 2020 before declaring the state emergency on 25 March 2020. It worked effectively to strengthen the healthcare system and prevent the spread of unprecedented infections.

In addition, the Thai Government put a lot of effort into strengthening capacities in medical care all over the country. The MOPH exempted import tariffs, from 20 April to 30 September 2020, on a total of 66 items of the following three categories to secure necessary drugs and medical devices: (i) pharmaceuticals, (ii) medical devices, and (iii) cleaning chemicals. The Board of Investment (BOI) adopted the following special tax exemptions to promote the production of medical equipment in Thailand: (i) reduction of corporate tax by 50% for an additional three years in manufacturing medical equipment; (ii) exemption from import tax of machines to switch to manufacturing lines for medical equipment and parts, and (iii) extension of corporate tax exemption for manufacturing raw materials for medical supplies.

3.3 Prevention Measures in Public Services

3.3.1 Transport Sector

International flights

One attempt of the Thai Government to prevent the spread of the virus was by listing countries that were considered COVID-19 high-risk, such as China (including Macau and Hong Kong), South Korea, Italy, and Iran (Nation, 2020). Subsequently, on 8 March 2020, the Civil Aviation Authority of Thailand (CAAT) required air operators and incoming passengers from these countries to remain in quarantine and strictly comply with the communicable disease prevention measures prescribed by the MOPH. Air operators were also required to provide a health certificate to prove themselves free of COVID-19. From 22 March 2020, more countries were added to the high-risk list, and more preventive measures were implemented for both foreign and Thai passengers (Airways, 2020). For example, the Thai Government required all foreign passengers to present a health certificate, report their state of health on the Airport of Thailand (AOT) application, and have health insurance covering all medical treatment expenses. Similarly, all Thai passengers were required to provide a health certificate confirming the passenger is fit to fly. Also, they must present a letter of return to Thailand issued by the Ministry of Foreign Affairs. They must follow the recommendations of the Thai Department of Disease Controls.

On 6 April 2020, the CAAT announced the temporary ban on all international flights to Thailand, except state or military aircraft, emergency landing flights, technical landing flights, humanitarian aid flights, repatriation flights, and cargo flights. According to the Bangkok Post, the ban remained enforced, and the resumption of internal flights depended on the global situation.

Domestic flights

The CAAT issued guidelines on domestic air travel, taking effect on 1 May 2020. Under these guidelines, the capacity of each flight was restricted. Seats must be arranged with an empty seat between passengers (seat spacing measure). For flights longer than 90 minutes, two rows of seats on one side were reserved for those suspected to be sick to prevent transmission. If a suspected case is onboard, the person would be moved to the window seat of the last row on the right side. The back restroom was reserved for possible quarantine. A crew would be assigned for it, keeping a distance of at least two meters from other crew members. Pilots had the responsibility to report such cases to air traffic control that, in turn, will inform the destination airport in advance.

In addition, airlines must provide alcohol as well as adequate cleaning supplies. Pilots must wear surgical masks, and aircrews must wear face masks as well as rubber gloves. Food and drinks could not be served on board, except for emergency cases in which aircrew may give water to a passenger in a specific place far away from other passengers. Passengers must follow the social distancing policy whether on-board the plane or bus, on jet bridges or even when they put carry-on bags into overhead bins. They must also have face masks on at all times and queue when using restrooms. After every flight, restrooms must be cleaned with a disinfectant.

In airports, temperature screening must be in place. If a passenger had a body temperature over 37.5°C or shows any respiratory symptoms, the airline must immediately report the person to a health official. Airlines had the authority to refuse to issue boarding passes if they determine the passenger could pose a risk.

From 15 June, the CAAT eased the seat spacing measure onboard, meaning airlines could sell all seats on each flight. Still, they must improve the in-flight ventilation system and regularly replace the high-efficiency particulate air filters. Other preventive measures mentioned above continued to be implemented. It is important to note that passengers may face legal action if they did not wear face masks while onboard.

Inter-city Rail Transport

In response to the government declaration of state emergency, the State Railway of Thailand (SRT) announced the temporary suspension of air-conditioned express, rapid, sleeper, and dining trains, taking effect from 1 April 2020. Twenty-two trains were suspended, with 6 in the north, 6 in the northeast, and 10 in the south (Table 3.3.1). Furthermore, more trains were suspended afterward. Some ordinary trains on the same routes ran under strict preventive measures. For instance, the second and third-class trains limited their number of passengers to only 25% of the total capacity and the first-class to 50%. In addition, passengers were required to maintain social distancing of 1 to 2 m and stand or sit only on designated areas. They must wear face masks at all times. Before entering the stations, their body temperature must be checked. If over 37.5°C, the passenger could not use the train systems and must seek medical attention. Before traveling, passengers must declare their personal information, reasons for travel, and destinations on a form prescribed by the government, which would help officials track them for medical checks (ibid).

Table 3.3.1 Air-conditioned Express, Rapid, Sleeper, and Dining Trains that was Suspended from 1 April 2020

Trains to the north	Trains to the Northeast	Trains to the South
<ul style="list-style-type: none"> • Bangkok–Sawankhalok line • Bangkok–Chiang Mai line • Bangkok–Sila At line 	<ul style="list-style-type: none"> • Bangkok–Ubon Ratchathani line • Bangkok–Nong Khai line 	<ul style="list-style-type: none"> • Bangkok–Surat Thani • Bangkok–Yala • Bangkok–Trang • Bangkok–Nakhon Si Thammarat

Remark: One line may have more than one train.

Source: Summarized by JICA Project Team based on Bangkok Post (2020u)

On 18 May 2020, SRT announced the resumption of train service as an experiment for 30 days, from 18 May to 17 June. For health and safety reasons, everyone must still strictly comply with the preventive measures. For example, SRT instructed all staff to wear masks or face shields and rubber gloves at all times while providing services. Alcohol sanitizer gel was provided in every station and on every train. All passengers must be screened before entering any train stations. SRT ensured everyone followed the social distancing measure by designating specific points for sitting and standing. Passengers were still limited to 50% of the capacity. No food and drink are allowed to sell on trains. At the beginning of the

resumption, only the fan carriages were useable.

Beginning 1 September 2020, the seat spacing measure was eased, allowing passengers to sit next to each other. Each train were able to carry passengers at its full capacity. Still, other preventive measures mentioned above had to remain implemented.

3.3.2 Education Services

The Ministry of Education (MOE) announced the closure of all schools, universities, and other educational institutions in Thailand from 18 March to 30 June to control the spread of COVID-19. During this period, the MOE recommended every school and university to move classes online, particularly focusing on high schools and university levels more than elementary schools.

On 18 May 2020, the MOE introduced the state distance learning television (DLTV) that students can access through the DLTV application and television. The DLTV was designed for students from elementary to high school.

3.3.3 Medical Services in Hospitals

On 5 March, the Department of Medical Services developed a guideline to prevent the spread of COVID-19 within hospitals, which everyone must strictly follow. For example, doctors, healthcare personnel, and other staff must use personal protective equipment such as hair cover, surgical mask, N-95 respirator, goggles, hand gloves, isolation gown, and boots. Still, this depended on the duties and positions performed at the time, which is summarized in Table 3.3.2. Also, their duties must be under the consideration of the risk of infection levels as follows:

- If the level of risk is considered low, the healthcare personnel must wear face masks, keep a distance of at least 2 m from the patient, and ask questions concisely when performing history-taking to avoid long conversation.
- If the risk level is assessed moderate, the healthcare personnel must leave the space of at least 2 m, perform concise history-taking in a specific area, and use better protective equipment, such as face shields and disposable gloves.
- If the risk level is considered high, the healthcare personnel must provide social distancing of at least 2 m from the patient and perform history taking thoroughly as well as physical examination. In this case, the healthcare personnel must use strong protective equipment such as an isolation gown, N-95 respirator, hair cover, gloves, and boots. Besides, the patient must be moved to an isolation room for further diagnosis.

Table 3.3.2 The use of personal protective equipment according to duties and positions

No.	Positions in hospital	Hair cover	Goggles	Surgical mask	N-95 respirator	Gloves	Isolation gown	Boots
1	Doctors	+/-	+	+	+	+	+	-
2	Healthcare personnel in the ambulance#	+/-	+	+	+	+	+	-

No.	Positions in hospital	Hair cover	Goggles	Surgical mask	N-95 respirator	Gloves	Isolation gown	Boots
3	Screening staff	-	-	+	-	-	-	-
4	Laboratory inspectors	+/-	+	+	+	+	+	-
5	History taking staff	-	+/-	+	+/-	+/-	+	-
6	Nurses	+/-	+	+	+	+	+	-
7	Hospital porters	+/-	-	+	+	+	+/-	-
8	Cleaning staff	+/-	-	+	+	+	+	+
9	Drivers	+/-	-	+	-	-	-	-
10	Laundry workers	+/-	-	+	-	+	+	+
11	Garbage collectors	+/-	-	+	-	+	+	+
12	Staff in laboratory	+/-	+	-	+	+	+	-
13	Radiologist	+/-	+	+	-	+	+	-

Remark: Positive (+) means it is compulsory, Positive or Negative (+/-) means it depends on situations and Negative (-) means it is not compulsory.

Source: Edited by JICA Project Team based on Department of Medical Services (2020)

During March and April 2020, patients with diabetes, high blood pressure, and heart disease should avoid visiting hospitals if possible because they were at risk of COVID-19. Then, all visitors must be screened and temperature-checked before entering the premises, wear face masks, and wash hands before and after visiting patients.

4. General Impact of COVID-19

4.1 Impact on Macro Economy

In response to the spread of COVID-19, the Thai Government closed schools and entertainment facilities from 18 March 2020 and issued a state emergency on 26 March 2020 to tighten restrictions on going out, social gatherings, and social activities. Economic activities were significantly suppressed as well. As the number of COVID-19 positive cases decreased, the gradual relaxation of restriction measures began on 3 May 2020, starting from establishments essential to daily life. Most commercial facilities were reopened in the fifth phase starting on 1 July.

By these preventive measures, the Thai economy have fallen into significant negative growth, the worst since the Asian currency crisis. Up to last year, the Thai economy continued moderate growth with an annual growth rate of 2% even though it had a continuous slump in its exports. In this year, the growth rate dropped sharply to -12.2% in the second quarter of the year, April–June. It was the lowest since the Asian financial crisis, which was -12.5% from April to June 1998, according to the announcement by the National Economic and Social Development Council (NESDC) on 17 August 2020.

The economic recession was primarily because of the decrease in tourists due to inter-provincial and international traffic restrictions and tourism service exports. There were no foreign tourists. As a result, Thailand significantly loses inbound demand, recoding -70.4% of service exports. Private consumption has fallen by 6.6% and private investment by 15.0%, as economic activities have been severely restricted, resulting in the stagnation of domestic economic activities.

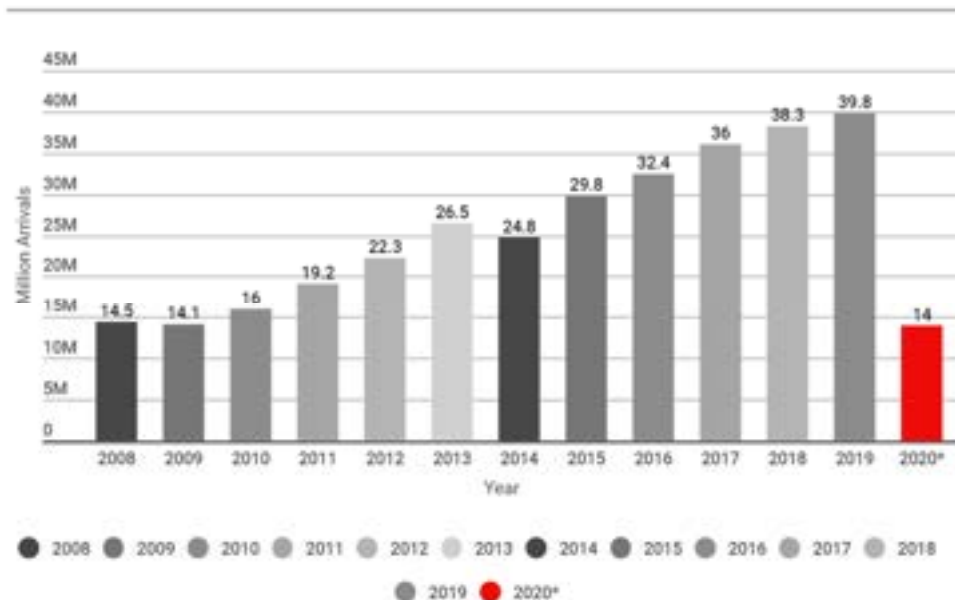
A decrease in exports due to the deterioration of the world economy was another big negative impact on the Thai economy. Exports of goods decreased by 15.9%. Export of food like canned fruits and preserved fish increased by 47.4% and 17.9%, respectively. The price of non-monetary gold soared in the world market increased as well. However, major export goods significantly decreased. Passenger cars decreased by 45.2% and automobile parts by 45.0% due to the temporary suspension of factories in other ASEAN countries and Australia. Machinery decreased by 23.4%, electronic equipment by 6.6%, and petrochemical products by 18.9%. Exports of a wide range of items decreased during the outbreak of COVID-19, which was mainly because of the shrinking overseas demand.

4.2 Impact on Tourism Sector

The borders of Thailand were mostly closed as part of the state emergency order imposed in March 2020 that lasted through May and June 2020, but it partially opened in July 2020 for Thai residents returning home. The outbreak of COVID-19 led to a decline in the number of foreign tourists entering the country. Foreign tourist arrivals plunged by 76% in March, with arrivals for the full year predicted to be dropping by 90%, according to the Ministry of Tourism and Sports (MOTS) figures. From January to March 2020, the number of foreign tourists was 6.69 million people, which was 38% less than 2019. The income generated from tourism, at THB 330 billion, was 40% less compared to the same period of 2019.

The economy of Thailand is highly dependent on Chinese tourism, with nearly 11 million

Chinese tourists coming to Thailand in 2019. In April, the Tourism Authority of Thailand (TAT) was optimistic there would be about 14 million to 16 million foreign visitors this year (Figure 4.2.1), which was already down from 33.8 million projected in March. However, the expected number seemed to be unrealistic at this point. As of July, the number of tourist arrivals to the country had been 0 since April. The situation remained uncertain as to when the border would reopen and whether the predicted number of tourist arrivals would be reached.



Source: Tourism Authority of Thailand, 2020

Figure 4.2.1 Prediction of Tourist Arrivals

The unexpected occurrence of the pandemic affected tourism and its related services at the national, regional, and community levels. Furthermore, the government's promulgation of the Emergency Decree with curfew measures continued to cause economic disruption in all cities and community tourism areas.

4.3 Impact on Manufacturing Sector

Stagnant economic activity due to the lockdown and decrease in exports due to the deterioration of the world economy greatly impacted the manufacturing sector. Although there were no operational restrictions in Thailand, most manufacturers had to adjust production in the factories since April due to a decrease in international demand.

For example, the Industrial Production Index (YoY) in May 2020 was:

- Overall: -25.7%
- Automobiles: -69.5% (small passenger cars at -73.4%, commercial vehicles -67.1%, and gasoline engine at -69.6%)
- Home appliances -22.1% (air conditioner -47.6%, refrigerator -22.9%, washing machine -44.3%)
- Electronic equipment -8.0% (semiconductor +, HDD -4.1%, integrated circuit -9.1)

According to the Federation of Thai Industries (FTI), the number of automobiles produced was 24,711 units in April and 56,035 in May 2020, which were lower or a decrease from the previous year by 87% in April and 69% in May 2020.

4.4 Impact on Supply Chain and Logistics

The Thai Government closed all land borders after the state emergency. Passenger traffic crossing the borders was prohibited. Cargo traffic was also prohibited from passing through Malaysia and Laos, while cargo passing through Cambodia is permitted with a limited stay at the Cambodian side. From 2 July 2020, truck traffic at the Thai-Malaysia and Thai-Laos borders reopened, which were closed due to Thai measures since April. Those measures largely affected export and import to/from those countries, especially the supply chain of industrial parts and materials, food, and agricultural products.

4.5 Impact on Agriculture

Agriculture in Thailand can have a negative growth rate due to the pandemic. According to the Ministry of Agriculture and Cooperatives (MOAC), the GDP of the agricultural sector in the first quarter of 2020 decreased by 4.8% and was expected to decrease by another 2% for the whole year.

The main reason was that rice and corn harvests fell due to the drought since last year, and exports significantly decreased due to the shrinking international market by the pandemic. The slump was notably serious with rice export. Vietnam would overtake Thailand among the major rice exporters in the world, and Thailand would fall third. Demand for chicken and sugar cane declined due to a decrease in restaurant dine-ins. However, the demand for pork was rising due to the African swine fever (ASF) outbreak in China and Southeast Asian countries. Casaba, which was used rubbing alcohol, demand also increased.

5. Supportive Measures

As soon as the restriction was imposed, various supportive measures were provided as remedies for those affected by lack of income and unemployment. Addressing public concerns on economic risks by offering loans and financial assistance helped the people and establishments to deal with the immediate problems.

On 4 March 2020, the Thai Government decided to issue an incentive to combat the outbreak across the nation. The package was valued at THB 100 billion or US\$3.2 billion, aiming to provide essential assistance to households and businesses in all provinces. The measure for the distribution of relief for the needy was through cash handouts and low-interest financial loans for a certain time. As of September 2020, Thailand already approved economic relief measures that cater to entrepreneurs, blue collars, and households so that sources of revenue, whether in the form of income, aid, or loan should be accessible by every vulnerable sector in the society.

5.1 Support for Households

In order to mitigate financial damage to households, the Thai Government provided various measures. It included a direct cash payment, exemption of utility bills, tax measures, a financial scheme to suspend loan payment and provide emergency loans, etc. Each person cannot apply for more than two types of cash-paid financial support. In other words, someone qualified for compensation under the Social Security Fund (SSF) was not qualified for other types of financial aid, such as informal workers. Summaries of each supportive measure are in the following tables.

Table 5.1.1 Unemployment compensation under the SSF

Name of measure	Unemployment compensation under the SSF
Purpose of the measure	To compensate people who lost income or lost their jobs due to the COVID-19 pandemic
Organization	Social Security Office (SSO)
Duration of the measure taken	1 March 2020–28 February 2022
Target group (s)	People who are insured by the social security system according to section 33 of the social security act
Summary of the measure	<p>The SSO has launched supportive measures for both employers and employees to mitigate the impacts of the COVID-19 pandemic, which can be classified into three categories (Krungsri, 2020).</p> <ol style="list-style-type: none"> 1. Unemployment due to the force majeure <ul style="list-style-type: none"> Insured employees are entitled to 50 percent of the normal salary for the maximum period of 180 days per year. Insured employees working for government agencies that order a suspension of work are entitled to 50 of normal salary for the maximum period of 60 days. 2. Unemployment due to resignation and forced unemployment <ul style="list-style-type: none"> In case of unemployment due to resignation, insured workers are entitled to compensation of 45 percent of normal salary with a maximum period of 90 days. In case of forced unemployment, insured workers are

	<p>entitled to compensation of 50 percent of normal salary with a maximum period of 180 days (ibid).</p> <p>3. Reduction in the SSF contribution rates for employers and employees (MAZARS, 2020)</p> <p>The first temporary reduction (March to May 2020)</p> <ul style="list-style-type: none"> • The SSO reduced the SSF contribution for employers from 5 to 4 percent • The SSO reduced the SSF contribution for employees from 5 to 1 percent <p>The second temporary reduction (September to November 2020)</p> <ul style="list-style-type: none"> • The SSO reduces the SSF contribution for both employers and employees from 5 to 2 percent (ibid)
Result (s)	N/A

Table 5.1.2 Financial Aid for Informal Workers

Name of measure	Financial aid for informal workers
Purpose of the measure	<ul style="list-style-type: none"> • To provide financial aid for informal workers affected by the COVID-19 disruption
Organization	The Ministry of Finance
Duration of the measure taken	From April 2020 to June 2020
Target group (s)	16 million informal workers such as temporary workers, self-employed, freelancers, small retailers, and employees not covered by the social security scheme.
Summary of the measure	<p>The Ministry of Finance prepared a budget of THB 240 billion to subsidize informal workers affected by the COVID-19 pandemic, wherein each can receive financial aid of THB 5,000 a month for three months (THB 15,000 in total). The ministry imposed that eligible workers must be Thai nationals and must be registered on the government website at www.socsec.go.th. Payments can be made via direct transfer to electronic wallets and bank accounts. People qualified for other types of aids or who have some benefits under SSF are not qualified for this financial aid. #</p>
Result (s)	Fifteen million informal workers were able to qualify for financial aid. There were 14.2 million who have received financial aid, while 0.8 million are still waiting (Bangkok Biz News, 2020i). This information was updated on 20 May 2020.#

Table 5.1.3 Financial Aid for Vulnerable People

Name of measure	Financial aid for vulnerable people
Purpose of the measure	<ul style="list-style-type: none"> • To provide financial aid for vulnerable people during the COVID-19 crisis
Organization	Ministry of Social Development and Human Security (M-Society)
Duration of the measure taken	From May 2020 to July 2020
Target group (s)	13.14 million people considered vulnerable to the economic impact

	of COVID-19, such as young children up to six years old, the elderly, and people with disabilities										
Summary of the measure	M-Society has reserved a budget of THB 39.42 billion to provide financial aid to those considered vulnerable to the economic hit of the COVID-19 outbreak. Each would receive the financial aid of THB 1,000 per month for three months, starting from May. However, since the payments could not be made in May, a THB 2,000 payment would be made in June and THB 1,000 in May. The vulnerable group includes 9.66 million children up to six years old and 2 million people with disabilities.										
Result (s)	Up until 21 July 2020, 6,781,881 vulnerable people have received financial aid of THB 3,000.# <table border="1"> <thead> <tr> <th>Groups of people</th><th>Number of people receiving the financial aid</th></tr> </thead> <tbody> <tr> <td>Children</td><td>1,394,756</td></tr> <tr> <td>Elderly</td><td>4,056,596</td></tr> <tr> <td>People with disabilities</td><td>1,330,529</td></tr> <tr> <td>Total</td><td>6,781,881</td></tr> </tbody> </table>	Groups of people	Number of people receiving the financial aid	Children	1,394,756	Elderly	4,056,596	People with disabilities	1,330,529	Total	6,781,881
Groups of people	Number of people receiving the financial aid										
Children	1,394,756										
Elderly	4,056,596										
People with disabilities	1,330,529										
Total	6,781,881										

Table 5.1.4 Financial aid for farmers

Name of measure	Financial aid for farmers
Purpose of the measure	<ul style="list-style-type: none"> To provide financial support for farming households affected by the COVID-19's economic repercussions
Organization	Ministry of Agriculture and Cooperatives (MOAC)
Duration of the measure taken	From May to July 2020
Target group (s)	10 million farming households
Summary of the measure	The MOAC introduced a financial aid of THB 150,000 million in total to subsidize 10 million farming families during the COVID-19 outbreak. Each family would receive THB 5,000 per month for three months. Eligible farmers are those who have registered with the Department of Agriculture Extension, the Livestock Development Department, the Fisheries Department, the Queen Sirikit Department of Sericulture, the Rubber Authority of Thailand, the Office of the Cane and Sugar Board, and the Tobacco Authority of Thailand. The financial aid is transferred through the Bank for Agriculture and Agricultural Cooperatives since approximately 7 million farmers are its customers.

Result (s)	The financial aid of THB 110,655.285 million has been made to farming households. Still, 125,774 farmers have not received it since they have not updated their bank accounts (Bangkok Biz News, 2020b). In addition, the MOAC found that there were farmers registered dead in June and July as well as other reasons, and therefore, there is a reduction of farming households in this period (ibid). This information was updated on 22 July 2020.		
	Months	Number of farming households (households)	Amount of money transferred to farming households (THB million)
	May	7,461,009	37,305.045
	June	7,443,417	37,21.085#
	July	7,226,631	36,133.155
	Total		110,655.285

Table 5.1.5 Tax Measures

Name of measure	Tax measures
Purpose of the measure	<ul style="list-style-type: none"> To alleviate the direct and indirect impacts of the coronavirus outbreak on the Thai economy To increase liquidity for taxpayers
Organization	The Revenue Department
Duration of the measure taken	<ul style="list-style-type: none"> From April to August 2020 for the postponement of the filling and payment deadlines From April to September 2020 for the reduction of withholding tax rates
Target group (s)	Individuals, corporates, and medical staff
Summary of the measure	<p>The Revenue Department has introduced tax measures based on four principles, which are postponement, acceleration, reduction, and motivation (Revenue Department, 2020), explained below.</p> <p>1. Postponement of the filling and payment deadlines</p> <p>The Revenue Department has postponed the deadline to file personal income returns from 31 March to 31 August 2020. Similarly, the submission of P.N.D. 50 and 55 for corporate income tax have been extended to 31 August 2020. The deadline for P.N.D. 51 from April to September has been postponed to 30 September 2020.</p> <p>2. Acceleration of the tax refund process</p> <p>The Revenue Department has accelerated the process of personal and corporate income tax refunds for the tax year 2019.</p> <p>3. The Reduction of withholding tax rates</p> <p>The Revenue Department has decreased withholding tax rates on certain types of taxable income from 3% to 1.5%. Furthermore, in line with the soft loan measure for SMEs, corporate with an annual</p>

	<p>turnover of not more than THB 500 million and not having over 200 employees can claim a tax reduction for 1.5 times the interest expense paid from 1 April to 31 December 2020.</p> <p>4. Motivation through tax incentives</p> <p>The revenue department has introduced tax incentives for individuals, businesses, and medical staff as follows:</p> <ul style="list-style-type: none"> • Tax deduction of 3 times the wage expenses from April to July 2020 for corporations with an annual turnover of not more than THB 500 million, does not have over 200 employees, and did not lay off employees or reduce staff. • Tax relief to support debt restructuring and ease the burden of both debtors and creditors affected by the coronavirus outbreak. • Exemption of value-added tax and corporate income tax on the import of medicines and medical supplies related to diagnosis or prevention of the coronavirus and donated to government hospitals, public organizations, or other related charities. • Lift tax deduction threshold for health insurance premiums from THB 15,000 to THB 25,000, which when combined with the deduction of life insurance premiums and living allowance deposits must not be over THB 100,000 per tax year. • Personal income tax exemption as compensation received from the MOPH for personnel at risk of occupational health and safety dealing with the coronavirus outbreak.
Result (s)	<p>For the acceleration of the tax refund process, personal tax refunds of approximately THB 28 billion have been made, representing 95% of around 3 million taxpayers submitting requests. Similarly, the amount of corporate tax refund was over THB 27,185 million between October 2019 and April 2020, increased by 45.7% compared to the previous year</p>

Table 5.1.6 Suspension of Housing Loan Payment

Name of measure	Suspension of housing loan payment
Purpose of the measure	<ul style="list-style-type: none"> • To increase liquidity for debtors affected by the COVID-19 disruption
Organization	Krungsri Bank, Krung Thai Bank, Government Savings Bank, CIMB, UOB, TMB, Thanachart Bank, Bangkok Bank, Kasikornbank, and Siam Commercial Bank
Duration of the measure taken	Depending on the banks, but they all began on 1 April 2020
Target group (s)	Banks' debtors

Summary of the measure	Ten banks have introduced halting payments of principal or interest to alleviate the impacts caused by the COVID-19 pandemic (Money Buffalo, 2020). Seven of the banks allowed their debtors to suspend both principal and interest payments for 3 months, except Krungsri Bank which gave up to 6 months. Details are included in the table below. However, eligible debtors must not be in arrears for more than 90 days and must not be in any legal processes. Besides, each debtor must be considered by banks too (ibid).			
	No.	Banks	Suspension of principal	Suspension of principal and interest
	1	Krungsri Bank	Up to 12 months	Up to 6 months
	2	Krung Thai Bank	Up to 12 months	Up to 3 months
	3	Government Savings Bank	-	Up to 3 months
	4	CIMB	Up to 3 months	Up to 3 months
	5	UOB	Up to 12 months	Up to 3 months
	6	TMB	-	Up to 3 months
	7	Thanachart Bank#	-	Up to 3 months
	8	Bangkok Bank	Up to 3 months	-
	9	Kasikornbank	Up to 12 months	-
	10	Siam Commercial Bank	Up to 6 months	-
Result (s)	No updates yet on the results.			

Table 5.1.7 Emergency Loans for People Working in Tourism Sector

Name of measure	Emergency loans for people working in the tourism sector
Purpose of the measure	<ul style="list-style-type: none"> To provide emergency loans for people working in the tourism sector directly and indirectly affected by the COVID-19 pandemic
Organization	Government Savings Bank
Duration of the measure taken	From March to September 2020
Target group (s)	People working in the tourism sector including business owners, self-employed, vendors, staff, and other employees
Summary of the measure	The Government Savings Bank provides emergency loans for people working in the tourism industry and those affected by the COVID-19 pandemic. Customers can borrow money up to THB 50,000 with an interest rate of 0.50% per month (flat-rate). These loans can be taken up to five years with no debt payment required during the first six months. However, those who have been in arrears of over THB 200,000, including this emergency loan, are not eligible to apply.
Result (s)	No updates yet on the results.

However, according to the questionnaire survey on COVID-19 infection conducted by NESDC in all 77 provinces from 9 to 13 April, 88% of the 8,929 respondents answered "not supported by the government's economic measures," and 89% of business owners and

91% of unemployed responded they did not receive any support.

Based on the results of the questionnaire survey, NESDC pointed out that any of the support from the government did not achieve sufficient results due to the complicated application process. NESDC recommended that application conditions, such as low-interest loans and repayment deferment of loans, should be simplified and the tax burden on companies should be reduced.

5.2 Supportive Measures for Enterprises

The first phase of the economic relief measures was approved by the cabinet on 10 March 2020. It focused on securing the financial foundation of the country and addressing the monetary, fiscal, and capital market measures. These included low-interest loans of up to THB150 billion and debt moratorium for entrepreneurs by the Government Savings Bank and Government Housing Bank, relaxing rules for granting commercial bank loans, and a credit line with low interest for three years from the Social Security Fund. Fiscal measures sought to assist small- and medium-sized enterprises (SMEs) through several means, including tax deduction and redemption for entrepreneurs. Other measures sought to reduce costs of businesses by refunding electricity usage deposits and reducing rental fees for state properties.

Eligible businesses can receive this interest rate only for the first two years on THB20 million or US\$612,000. The SSO of Thailand granted soft loans to SSO-registered entrepreneurs worth around THB 30 billion or US\$918 million.

Table 5.2.1 Relief Measures for SMEs affected by COVID-19

Name of measure	Relief measures for SMEs affected by COVID-19
Purpose of the measure	To assist SMEs affected by COVID-19 and alleviate the liquidity issue.
Organization	The Thai cabinet and Bank of Thailand
Duration of the measure taken	Depending on each measure
Target group (s)	Small and medium-sized enterprises (SMEs)
Summary of the measure	<p>On 10 March 2020, the cabinet approved a wide range of fiscal and financial relief measures to mitigate the impact of the COVID-19 pandemic on SMEs, which are summarized below (Tilleke & Gibbins, 2020):</p> <ol style="list-style-type: none"> 1. Allocating a total of THB 150 billion for low-interest loans (2 percent interest for two years with the limited amount of THB 20 million per customer). 2. Suspending principal payments and reducing interest rates for debts owed to Government Savings Bank and Government Housing Bank. 3. Relaxing the Bank of Thailand rules for granting loans by commercial banks. 4. Allocating the SSF of THB 30 billion for low-interest loans (3 percent interest for three years). 5. Deducting withholding tax from 3 to 1.5%. 6. Reducing rental fees for the state-owned property. <p>On 20 March 2020, the Bank of Thailand reduced the policy rate by 0.25 percentage points from 1 to 0.75%, which is the lowest up until now. This measure took effect on the 23rd of March to minimize the burdens of debtors and to mitigate the liquidity issue of the financial markets.</p> <p>On 7 April 2020, the Bank of Thailand added more supportive measures to assist SMEs affected by COVID-19, including:</p>

	<ol style="list-style-type: none"> 1. Allowing the postponement of loan payment for all SMEs with a credit line not over THB 100 million. 2. Providing soft loans to SMEs with a credit line of not over THB 500 million at a concessional interest rate of 2 percent per year and interest-free for the first six months (ibid).
Result (s)	N/A

The Revenue Department introduced tax-related measures to alleviate the impacts on business, which is also described in Table 5.1.5 as below;

- **Withholding Tax Deductions.** The rate of withholding tax deductions was reduced from 3% to 1.5%, issued from 1 April 2020 until 30 September 2020. Again, it would be reduced to 2% beginning 1 October 2020 until 31 December 2020.
- **VAT Refunds.** Businesses participating in the “Good Exporter” event would receive VAT refunds in just 15 days. Previously, it was 30 days. A Good Exporter was a VAT-registered business and can be a public or limited company that adheres to export regulations and promises a ratio of goods exported to not less than 50% of sales.
- **Reduction of land and building tax** rate by 90% in 2020.

Some other supportive measures for enterprises are summarized below.

- **Reduction and exemption of fees for IEAT industrial parks.** The industrial estate fee was reduced or exempted for companies in IEAT industrial parks affected by COVID-19.
- **Simplification of certificate of origin.** To mitigate the impacts of COVID-19, if it was difficult to present the original certificate of origin at the import customs clearance, a photocopy could be accepted from 16 April to 30 September 2020.
- **Exemption from customs duties for importing agricultural and civil engineering equipment.** One hundred forty-six machinery for agriculture and civil engineering works were added to the target items of tariff elimination. The exemption was limited to new machinery and those used directly for business from 15 April to 31 December 2020.
- **Extension of the deadline of corporate tax.** The deadline for submitting documents for the corporate tax exemption procedure at BOI was extended. The procedure included the submission of corporate tax exemption report and audit report to BOI and the submission of corporate tax return/ BOI corporate tax exemption permit notification to the Revenue Department.
- **Recording of personnel expenses for tax purposes.** Expenses up to THB15,000 per month per person from April to July can be accounted as the expense of the company with sales at THB500 million or less in the latest fiscal year and employees at 200 or less.

5.3 Economic-stimulus Measures

Tiaw Pun Suk (We Travel Together)

The MOTS carried out a tourism promotion called “Tiew Pun Suk” (We Travel Together), with a total budget of THB 22.4 billion. The Tiew Pun Suk project aimed to boost domestic tourism in Thailand and help people working in the tourism sector. It subsidized domestic flight fares, inter-provincial bus fares, car rental fees, accommodation, and food, starting from 1 July 2020 to 31 August 2020 and extended to the end of October 2020.

The government subsidized 5 million nights of hotel accommodation at 40% of regular room rates, with the subsidy limited to THB3,000 per night for up to five nights. Tourists would be responsible for the remaining 60%. Subsidies for other services, including food, were capped at THB600 per room per night. Subsidized tourist facilities must be outside the home provinces of the tourists to qualify and are limited to 40% of actual expenses, with tourists paying the rest. Hotels and restaurants should be registered to be part of the project and must have a certificate issued by the MOTS. Tourists would receive an E-Voucher for tourism-related spending, including food, capped at THB600 per room per night. The subsidy for aircraft covered 40% but was limited to THB1,000 per seat with a quota of 2 million seats in total.

Eligible tourists must be Thai nationals at least 18 years old on the date of registration. They must have a valid ID card and choose to travel in a province where they were not registered as residents. Additionally, they must register on the website www.tourism.go.th and download the Pao Tang application (ibid).

Up until 15 July 2020, 3.5 million people signed up on the website, but only 2.2 million received SMS confirmation. The rest were still being verified.

Travel Bubble Plan

The Thai government proposed a plan called the “Travel Bubble Plan.” The plan was to accept foreign tourists from countries with a low risk of COVID-19. It targeted Taiwan, Vietnam, Myanmar, New Zealand, Australia, China, South Korea, and Japan, all of which controlled the pandemic well. It intended to accept tourists from these countries without self-isolation after entering the country. However, due to the spread of the infection in China, South Korea, and Japan, it was unsure when the plan would start.

6. Organization Set-up in response to COVID-19

6.1 Organization Set-up at the Central Level

Once the state emergency was in place on 26 March, Dr. Taweessin Visanuyothin was appointed as a spokesperson of the government's Center for **COVID-19 Situation Administration (CCSA)** as a central response center. COVID-19 Guidelines, based on the regulations issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005), stipulated that all local governments must comply with the structural order of agencies, including Bangkok Metropolitan Administration, Provincial Operation Centers, District Operation Centers, Sub-district Operation Centers, and local administrative organizations. All of them shall have duties to supervise the operation of all measures and response to COVID-19.

An organizational structure was formed based on the guidelines. Figure 6.1.1 depicts the mandatory organizational structure from the national to local levels to combat COVID-19 in Thailand, a centralized top-down approach. Figure 6.1.1 shows all operations which are centralized under specific tasks, for example, Operation Center for the Distribution of Masks and Medical Supplies to the Public, Operation Center for Measures on the Entry into and Departure from the Kingdom, and the Protection of Thai Nationals Abroad, to list a few.

The centralized structure during COVID-19 was effective in dealing with the great uncertainty, elevated stress, and anxiety, and prompted a tunnel vision, meaning people focused only on the present rather than the future. During such a crisis, transparency and clear guidance were highly required since unavailable or inconsistent information made people unsure about the situation and unknowing of what they should do. A more authoritative structure was deemed effective, despite the frustration upon the lack of inputs from local people.

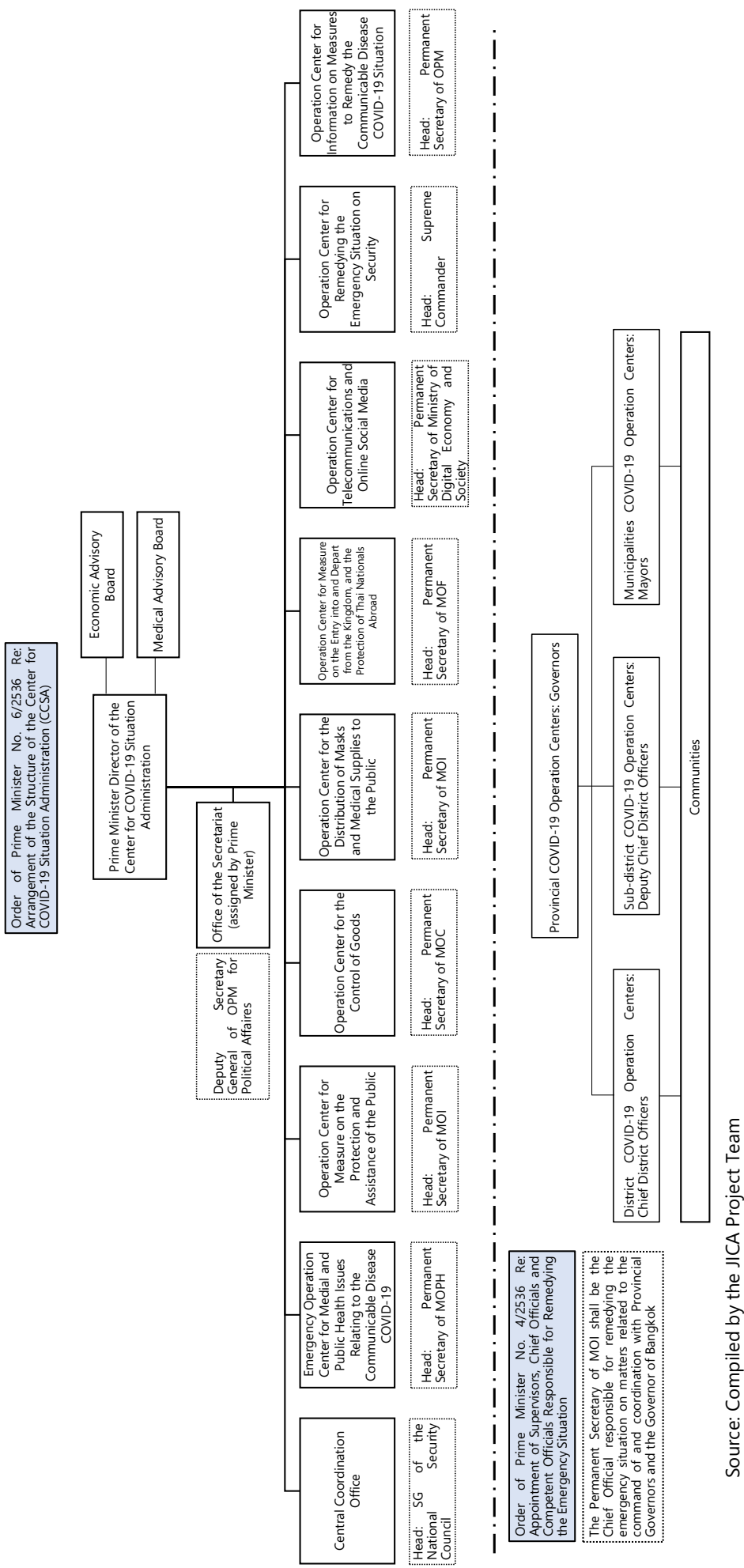


Figure 6.1.1 Organizational Structure for the Operation of Combatting COVID-19

6.2 Organization Set-up at Provincial Level

The governors were leading the operation under the command of the Minister of Interior (MOI). The Permanent Secretary of the MOI shall be the Chief Official responsible for remedying the emergency on matters related to the command of and coordination with provincial governors and the Governor of Bangkok. There were four main commanders at the provincial level, coordinating municipalities, the districts, and subdistricts.

- Provincial COVID-19 Operation Centers: Governors
- Municipalities COVID-19 Operation Centers: Mayors
- District COVID-19 Operation Centers: Chief district officers
- Subdistrict COVID-19 Operation Centers: Deputy Chief district officers

The Communicable Disease Act B.E. 2558 indicates that there must be National Communicable Disease Committee,⁶ Provincial Communicable Disease Committee, and Bangkok Communicable Disease Committee. Therefore, each province has a communicable disease committee. Apart from this committee, each province also established other teams, centers, or committees based on the governors' decisions. The institutional arrangement for combatting COVID-19 in Chiang Rai, Khon Kaen, Krabi, Nan, Chonburi, and Phitsanulok are summarized in Table 6.2.1.

Table 6.2.1 Institutional Arrangement for Combatting COVID-19

Institutional Arrangement for Combatting COVID-19	Khon Kaen	Krabi	Chiang Rai	Phitsanulok	Chon Buri	Nan
Establishment of Communicable Disease Committee (Provincial level)	✓	✓	✓	✓	✓	✓
International Communicable Disease Control (ICDC)			✓			✓
Establishment of Disease Control Operation Team in Provincial and/or district level			✓			✓
Establishment of Emergency Administration Center (YAE) (Including sub-committee)	✓					
Establishment of COVID19 Administration Center (Main committee only)		✓			✓	✓
Establishment of the Sub-working team for specific aspects; such as monitoring teams, Prevention, and Control of COVID-19 outbreak Team.	✓	✓				✓
Role-Sharing on prevention against COVID-19						
- Measure-based						
- Aspect-based (eg. Economy, education, and security)	✓			✓	✓	✓
- Inter-provincial Checkpoint (integrated organizations)						
- Active Finding Case Committee				✓		
- Suspected Patients Control			✓			

Note: A – Announcement, O - Order

Source: Compiled from various sources by JICA Project Team

⁶ The MOPH presides over committee at the national level. Its main role is to establish policies/ system/implementation plans and consider and monitor communicable disease preparation and prevention. The committee at the provincial level and Bangkok shall follow the instructions from the committee at the national level.

1) Provincial Communicable Disease Control Committee

The Provincial Communicable Disease Control Committee was established under the communicable disease control act B.E. 2558 (2015) in all provinces. The committee consists of the following:

- the provincial governor as chairperson;
- the deputy provincial governor, the Head of Provincial Public Relations, the Head of Provincial Livestock, the Chief of Provincial Office of Disaster Prevention and Mitigation, the Director of the Office of Disease Prevention and Control responsible for the province, and the Chief Executive of Provincial Administration Organization (PAO) as members;
- one mayor and one chief executive of Subdistrict Administration Organizations, appointed as members by the provincial governor;
- one director of medical center hospitals or general hospitals and two directors of community hospitals and two district health officers, all appointed as members by the provincial governor; and
- one manager of sanatoriums under the law on sanatoriums, appointed as a member by the provincial governor.

The power and duties of the Provincial Communicable Disease Control Committee are as follows:

- to implement the policies, systems, and guidelines on surveillance, prevention, and control of communicable diseases prescribed by the committee;
- to prepare an action plan for surveillance, prevention, and control of dangerous communicable diseases, under surveillance communicable diseases, or epidemics in an area of the province;
- to report to the director-general the situation of communicable diseases or diseases with exact unknown cause, which may develop into an epidemic in an area of the province;
- to support, promote, monitor, and evaluate the performance of the relevant agencies within the province and report to the committee;
- to establish a port of entry work team if there is an international communicable disease control checkpoint at the province;
- to summon any person to come to give statements of fact or express opinions or furnish any necessary information or documents or suggestions in support of consideration; and
- to perform any other acts related to communicable disease control as assigned by the Committee or the Provincial Governor.

2) International Communicable Disease Control (ICDC)

The ICDC was normally established in the border provinces to control international movements; thus, it was active only in Chiang Rai and Nan out of the first phase 6 model cities. The committee members are similar to Provincial Communicable Disease Control

Committee. However, the provincial governor should also appoint a communicable disease control officer for each international communicable disease control checkpoint and one person responsible for the port of entry at each checkpoint. These appointees would also be members of the committee.

ICDC has the power to patrol, control, and supervise the area outside the port of entry and notify a local officer to eliminate mosquitos and any disease carrier within a radius of 400 m around the port of entry. In this regard, owners or persons in the houses, tenements, or places in such areas shall render appropriate facilities to the communicable disease control officer posted at the international communicable disease control checkpoint and the local officer. Details of ICDC are summed up below.

- Require the conveyance owner or conveyance operator to notify the specified arrival date, time, and place of such conveyance at the international communicable disease control checkpoint to a communicable disease control officer stationed.
- Require the conveyance owner or conveyance operator whose conveyance has entered the country to submit documents to a communicable disease control officer stationed at the international communicable disease control checkpoint.
- Prohibit any person from entering or leaving the conveyance traveling into the country, which has not been inspected by a communicable disease control officer at the international communicable disease control checkpoint, and prohibit any person from bringing any other conveyance alongside such conveyance unless there is permission from a communicable disease control officer at the checkpoint.
- Enter the conveyance and examine travelers, physical items, or animals in the conveyance, and inspect and control the conveyance owner or operator to improve sanitation of the conveyance to ensure hygienic conditions, as well as to eliminate any materials possibly harmful to health. In this regard, the conveyance owner or operator shall provide convenience to the communicable disease control officer stationed at the international communicable disease control checkpoint.
- Prohibit the conveyance owner or operator from bringing travelers in without immunization as prescribed in the notifications by the minister and advice from the committee.

3) Other teams/ centers/ committees

Besides this, the provincial governor had an authority under the Provincial Communicable Disease Control Committee to establish the specific committee or center to take appropriate actions for COVID-19 control.

It should be noted that such committees or centers at provincial levels were established in different names but had similar powers and duties. The main power and duties were related and similar to the Provincial Communicable Disease Control Committee. The general roles and duties are summarized as follows:

- to implement, plan, and prepare the measures, action plan, and guidelines on surveillance, prevention, and control of COVID-19;
- to monitor and evaluate the situation of COVID-19;

- to report on the COVID-19 situation;
- to share information on the COVID-19 situation and preventive measures to the public; and
- to perform any other acts related to COVID-19 control as assigned by the Provincial Governor.

The key committee members included the Provincial Public Health Office, Provincial Office, Rural Police Office, Internal Security Operations Command, Provincial Public Relation Office, Provincial Department of Disaster Prevention and Mitigation, Chief of Provincial Administration, representatives of Local Administration Organizations (PAO and Tessaban), Provincial Department of Land Transport, Provincial Department of Industry, Provincial Department of Tourism and Sport, Provincial Department of Culture, Provincial Immigration Office, Provincial Department of Labor Protection and Welfare, Provincial Department of Commerce, Provincial Department of Education, Provincial Office of Human Security and Social Development, and other related departments.

The members, powers, and duties of each committee or center are summarized as follows.

Disease Control Operation Team in the provincial and/or district level

The Disease Control Operation Team was established at both provincial and district levels for intensive surveillance and control of the COVID-19 pandemic. The roles and duties of the team at both provincial and district levels are similar to each other. At the provincial level, Chiang Rai and Nan each had their Disease Control Operation Team.

The Disease Control Operation Teams at the provincial level of both provinces were chaired by the deputy governor consisting of the key members as mentioned above. However, at the district level, the district officer (like district office and headman), district offices, VHV, public health staff at district hospitals, and hospitals in each district or committee were appointed as the members.

Emergency Administration Center

An Emergency Administration Center was established at Khon Kaen. The role and members are similar to the other committees. However, the center also restructured organizations to control the COVID-19 pandemic and prepared the action plan integrally among different organizations.

COVID-19 Administration Center

The COVID-19 Administration Center was established in Krabi, Chonburi, and Nan. It has similar roles and members as in the centers in other cities. Mainly, the role of the center is to prepare the action plan to control and monitor the COVID-19 situation and assign the duties and actions to relevant departments.

Sub-working team for specific aspects, such as monitoring teams and prevention and control of COVID-19 outbreak team

Under Emergency Administration Center and COVID-19 Administration Center, a **sub-committee** was appointed to control measures in specific aspects and assist the different sectors during COVID-19 restrictions. Sub-committees for different aspects were

established in Krabi, Khon Kaen, and Nan. The sub-committees for Krabi and Nan were established under the COVID-19 Administration Center, while the sub-committee in Khon Kaen was under the Emergency Administration Center.

From among six provinces, Khon Kaen, Krabi, and Nan applied sub-working committees. In the case of Khon Kaen, eight (8) sub-committees were established under Emergency Administration Center, working similar to Krabi to control COVID-19 in different issues. Besides this, the Khon Kaen governor assigned the officers at the emergency administration centers to provide advice and assistance for the population. In Krabi, four sub-committees were working in different aspects, mainly to implement COVID-19 measures. In the case of Nan, four sub-committees worked on different aspects to implement COVID-19 measures in agriculture, commerce, industry, and tourism. Details of sub-committees in these three provinces are summarized in Table 6.2.2.

Role-Sharing on prevention against COVID-19

Proactive Finding Cases were applied in Phitsanulok to find COVID-19 cases in the residential areas and to monitor and evaluate patients or suspicious cases via an application. The application⁷ was also useful for people to do self-evaluation at home. The applicant must fill in their identification, like an ID number, and fill in their body temperatures. In case they had a high body temperature, they must also put in symptoms. After that, such information was evaluated and uploaded into the data center, and applicants received a report back.

The governor chaired the committee to control and manage the. Members of the committee were the provincial public health office, provincial Internal Security Operations Command, the mayor of PAO, the mayor of Tessaban Nakhon Phitsanulok, the head of Mueang Phitsanulok District, Provincial Department of Disaster Prevention and Mitigation, provincial immigration office, Special Branch Bureau, and provincial disease control office.

⁷ <https://polaris.cdg.co.th/survey/>

Table 6.2.2 Sub-committees established in Khon Kaen, Krabi, and Nan

	Name/ sector of sub-committee	Chairperson	Member	Main role
Khon Kaen				
1.	Public relation	Deputy governor	<ul style="list-style-type: none"> - Provincial Department of Public Relation - Broadcasting Services of Thailand - Provincial MCOT Radio Network - Provincial Office of Passport Division - Mass Media Association 	<ul style="list-style-type: none"> • To promote and distribute information and prevention measures of COVID-19 • To develop PR documents and materials for awareness and make the public understand • Check fake news and report the right information to the public
2.	Medical and public health	Deputy governor	<ul style="list-style-type: none"> - Provincial Public Health Office - Directors of Khon Kaen Hospitals - Representative of Specialized Doctors 	<ul style="list-style-type: none"> • Prepare an action plan on surveillance and prevention of COVID-19 • Report the situation of COVID-19 • Support, promote, monitor, and evaluate the COVID-19 situations in the province. • Prepare database, staff, equipment, and other necessary resources to cope with COVID-19
3.	Maintaining order and law enforcement	Deputy governor	<ul style="list-style-type: none"> - Rural Police Office - Provincial Internal Security Operations Command - Chief of Provincial Administration - Representatives Of Other Rural Polices 	<ul style="list-style-type: none"> • Maintain peacefulness and safety and solve social issues. • Check and control the operators or those who break the restrictions. • Setting checkpoints to screen and facilitate people
4.	Rapid practitioner	Provincial clerk	<ul style="list-style-type: none"> - Chief of Provincial Administration - All Administrative Officers and staff - Regiment Members - Provincial Defense 	<ul style="list-style-type: none"> • Prepare equipment for rapid actions on sites, especially on emergency cases.
5.	Goods/cargos checking and controls	Deputy governor	<ul style="list-style-type: none"> - Provincial Department of Commerce - Provincial Office of the Comptroller General - Provincial Department of Labor - Provincial Department of Industry - Damrong Dhrama Center - Provincial Office of Consumer Protection 	<ul style="list-style-type: none"> • Checking goods and cargo for daily life, including medicines, foods, waters, or other necessary goods. • Check and control the merchants and operators who stock the product or sell over prices.
6.	Legislation	Prosecutor of provincial Office for the Protection of	<ul style="list-style-type: none"> - Lawyer In Provincial Office - Lawyer In Provincial Justice Office - Lawyer In Provincial Disease Control Office 	<ul style="list-style-type: none"> • Provide advice to officers and populations related to any law enforcement in the province.

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		Rights and Legal Aid to People	<ul style="list-style-type: none"> - Lawyer In PAO and Tessaban Nakhon Khon Kaen - Lawyer in Provincial Public Health Office and in Provincial DOPA 	
7.	Public check and screening	Deputy governor	<ul style="list-style-type: none"> - Provincial Land Transport Office - Khon Kaen Airport - Head of Khon Kaen Train Station - Provincial Public Health Office - Clerk of Pao - Clerk of Tessaban Nakhon Khon Kaen, And Tessaban Tambon Mueang Kao - Provincial Defense Office - Director of Transport Division of Pao 	<ul style="list-style-type: none"> • Check and screen those who return from the other provinces at Khon Kaen bus terminals, train station, and airport. • Provide registration system and document and assist people to fill the forms.
8.	Secretariat	Provincial clerk	<ul style="list-style-type: none"> - Chief Of Provincial Administration - Provincial Defense Office - Other Clerks In Provincial Office - Assistant of Chief of Provincial Administration And Provincial Defense Office 	<ul style="list-style-type: none"> • Doing financial affairs and coordinating with relevant organizations to take action in the emergency administration center. • Budgeting management
Krabi				
1.	Integrated information center	Provincial Department of Public Relation	<ul style="list-style-type: none"> - Provincial Broadcasting Services of Thailand - Provincial MCOT Radio Network - Provincial Department of Disaster Prevention and Mitigation 	<ul style="list-style-type: none"> • To integrate information among relevant organizations in both public and private sectors • To communicate and distribute information and campaign to the public • To raise public awareness on COVID-19 preventions • To perform any other acts related to COVID-19 control as assigned by the Provincial Governor
2.	Facilitation and planning	Deputy governor	<ul style="list-style-type: none"> - Rural police office - Battalion Infantryman in the province - Department of highway Roads - Provincial Office of Natural Resources and Environment - Provincial Department of Public Works and Town and Country Planning (DPT) - Provincial Department of Land Transport - Provincial Office of Human Security and Social Development - Provincial Office of Tourism and Sport - Provincial Department of Irrigation - Provincial Department of Commerce - Director of Krabi International Airport 	<ul style="list-style-type: none"> • To be the center of integrating the situation of COVID-19 to analyze and coordinate with different organizations. • To prepare an action plan on surveillance and control COVID-19 pandemic in proper time manner. • To present information and situation of COVID-19 as assigned by the governor. • To control and monitor the situation and to provide the recommendation on COVID-19 control.

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			<ul style="list-style-type: none"> - Provincial department of education - PAOs - District head - Provincial department of industry - Provincial Department of Labor Protection and Welfare - Chief of Provincial Administration - Provincial marine department - Meteorology station - Hotel association - Provincial Department of Disaster Prevention and Mitigation - Medical staff of provincial public health office. 	<ul style="list-style-type: none"> • To prepare necessary documents coping with COVID-19
3.	Practitioner team	Deputy governor	<ul style="list-style-type: none"> - Provincial Department of Local Administration (DLA) office - Rural police office - Battalion Infantryman in the province - Provincial Department of Rural Roads - Provincial Department of Highway Roads - Director of Krabi international airport - Provincial marine department - Provincial department of land transport - Provincial immigration office - Provincial customs office - Other checkpoint officers. 	<ul style="list-style-type: none"> • Being on-site to observe and check the target and risk area • Manage the resources and proactively find the cases; focusing on tourism attraction, enterprises, medical services office, and high-density community • To implement the medical instruction and standard on COVID-19 prevention • To monitor situations and to prepare the plan together with the public and private sector • To prepare documents for the governor to prepare the surveillance system and public assistance
4.	Supportive team	Provincial clerk	<ul style="list-style-type: none"> - Provincial office - Red Cross office - Provincial Department of Disaster Prevention and Mitigation - Provincial office of the comptroller general - Clerk of PAO, provincial labor office - Provincial employment office, - Provincial social security office - PEA - EGAT southern region - PWA - Mayor of Tassaban - Provincial post office - TOT - Hotel association 	<ul style="list-style-type: none"> • To prepare common communication channels • To report the resources for supporting the duties of other committees • To provide any support the action on surveillance system; including donation, budget, and equipment

			<ul style="list-style-type: none"> - Tourism business association - Tourism guide association 	
Nan				
1.	Agriculture	Deputy governor	<ul style="list-style-type: none"> - Provincial public health office - Provincial fishery office - Provincial livestock office - Provincial agricultural and cooperative office 	<ul style="list-style-type: none"> • To evaluate and report the situation of COVID-19 affecting different sectors • To prepare assistant and surveillance plans for each sector (import, export, sell, and distribution) • To control the measures related to each sector.
2.	Commerce	Deputy governor	<ul style="list-style-type: none"> - Provincial public health office - Provincial office - Chamber of Commerce (COC) - Mayor of Tassaban Mueang Nan, Provincial Department of Commerce, and representative of other companies (like CP, Makro, and Betagro) as well as the owner of markets in the local 	
3.	Industry	Deputy governor	<ul style="list-style-type: none"> - Provincial clerk - Rural police office - Provincial public health office - Provincial office - Provincial department of industry - Provincial department of commerce - Provincial land transport office - Chief of district - PAO - Mayor of Tassaban Mueang Nan - Provincial industrial council - Provincial SME office - Cluster of agricultural and food processing industry - Representative of industry companies 	
4.	Tourism (hotels, accommodation, and restaurants)	Deputy governor	<ul style="list-style-type: none"> - Provincial public health office - Provincial office, provincial office of tourism and sport - Tourism business association - Tourism clubs, tourism industry council - Hotel associations - Restaurant club - Coffee club - Young Entrepreneur Club (YEC) - Tourism Authority of Thailand (TAT) 	

6.3 Public Health Volunteer, Village Health Volunteer, and Migrant Health Volunteer

In addition to the above centralized operational structure, Public Health Volunteers (PHVs), Village Health Volunteers (VHVs), and Migrant Health Volunteers (MHVs) helped guard communities and thus contributed in the control of the COVID-19 situation. They worked closely with relevant agencies, such as the Department of Public Health, Tassabans, and hospitals as well as communities.

6.3.1 Public Health Volunteers (PHVs)

1) General Information about PHVs

PHVs refer to volunteers promoting public health in their communities of residence in Bangkok. The Public Health Center, under the Health Department of the BMA, select and train volunteers. Once passing the training, they are certified and registered as PHVs with the main responsibility to take care of their neighborhood from a health care perspective. As of August 2020, Bangkok has approximately 15,000 PHVs on duty. Each PHV looks after 15 to 30 households, which are often bed-bound patients, persons with disabilities, and the elderly.

2) Qualification of PHVs

Qualifications of PHV candidates are as follows:

- Must be at least 18 years of age
- Must live in the community of residence for at least 6 months
- Must be literate
- Must be voluntary and willing to sacrifice for the sake of public health works
- Must be willing to participate in public health works and develop his/her community
- Must be polite and acceptable to the people in the community
- Must be physically and mentally healthy
- Must be willing to devote their time to promote public health works

3) Selection of PHVs

There are a few steps to selecting new PHVs. First, the Health Department announces the recruitment, clearly specifying the number and area of responsibility. Then, each community is required to propose potential PHV candidates based on the qualifications mentioned above. It is important to note that the potential candidates must be willing to promote public health and must be acceptable to at least 30 households in their community. Lastly, the Health Department will select the candidate with the most potential for the training.

4) Training programs

There are two types of training programs, one for new PHVs and the other for existing PHVs.

Training programs for new PHVs. Orientation and continuous training programs are designed for new PHVs. The former is designed mainly to shape the mindset of new PHVs toward public health service from a humanitarian perspective. The latter provides basic knowledge about public health works and explains the role of PHVs in providing services to people in communities.

Training programs for existing PHVs. Training programs to increase knowledge and on specific issues are designed for existing PHVs. The former training program is designed to maintain awareness and increase new knowledge about public health works. This program is generally organized yearly (at least once a year). The latter training program is organized when there is a specific health issue in a particular area. The program provides information about public health development policies at BMA and local levels.

5) Duration

Once passing the training programs, the potential candidate will be registered as a PHV and receive a two-year license issued by the health department. PHVs must renew their license every two years, but depending on their performance, which will be considered and reissued by the Director of the Health Department.

6) Roles of PHVs

Each PHV is expected to take care of 15 to 30 households in their community of residence. Pre-COVID-19, PHVs must provide basic public health services, such as disease protection, health promotion, basic medical treatment, and health restoration. Furthermore, they must oversee their communities to prevent problems related to public health. They must be the lead in changing the behavior of people toward a healthy community and developing the quality of life, using participatory approaches. PHVs must provide knowledge about public health benefits and access to public health. They must keep learning, developing their knowledge, and participating in workshops, especially those organized by the BMA. Last but not least, PHVs must liaise with staff, agencies, and relevant organizations in proceeding public health works in their communities.

During the COVID-19 period, PHVs carried out the surveillance, search, and tracking of people at risk of infection. They also knocked on doors of households under supervision to advise on COVID-19 protection, symptoms screening, and self-observation. Furthermore, they handed out face masks that they made by themselves as well as an alcohol-based sanitizer and biohazard bags. Apart from that, they helped measure blood pressure and deliver medicines to the homes of patients with chronic diseases.

7) Wages and Benefits

PHVs receive a monthly wage of THB 1,000. During the COVID-19 outbreak, the government provided a monthly bonus of THB 500 for 7 months, starting from March to September 2020. In fact, the government intended to give the bonus up to 19 months, but it was later considered impossible due to the limited amount of budget.

PHVs and their families are also covered by medical benefits following the Bangkok Metropolitan Act 1987 (Medical Treatment Support), meaning they can get access to any BMA-affiliated hospitals. In addition, PHVs receive the uniform to be used when they are

on duty. Last but not least, BMA organizes PHV award activities and provides prizes to PHVs who perform their tasks excellently. BMA also gives honor brooches to PHVs who have performed their duty continuously for 10, 15, 20, 25, 30, and 35 years respectively.

6.3.2 Village Health Volunteers (VHVs)

1) General Information about VHVs

VHVs refer to people who volunteer to promote public health in their communities of residence in local cities, and they are known as community health workers which play a key part in primary health care during the past four decades. At least 10 households select volunteers in their neighborhoods or communities and are trained and qualified by the MOPH. Currently, there are about 1.04 million VHVs in Thailand, and each VHV looks after 10 to 15 households. The purposes of VHVs are as follows:

- 1) to reduce the density of patients in hospitals and then reduce hospital burdens in its capacity as well as increase the self-reliance for the citizens in terms of public health;
- 2) to reduce the expenditure and additional cost of hospitals;
- 3) to reduce the expenditure of the patients who need to travel to hospitals; and
- 4) to reduce complications of patients

2) Qualification of VHVs

The following are the qualifications to become a VHV, which are almost the same as the PHV qualifications.

- Must be at least 18 years of age
- Must be recorded in the house registration and be a permanent resident in the selected village or community for at least 6 months.
- Must be a literate person.
- Must have a strong intention and willingness to sacrifice for the sake of public health works.
- Must be willing to or used to participate in public health works and willing to develop his/her community.
- Must be a well-behaved person and entrusted by the people in his/her community.
- Must be physically and mentally healthy
- Must be willing to dedicate time to work as VHV.

3) Selection of VHVs

VHV candidates will be selected from the community leaders or existing VHVs in the area whereas PHVs are selected by the Health Department. According to the instruction of the MOPH, firstly the role and responsibility of VHVs are introduced in the meeting with representatives of households, village, or community, which will be arranged by Public Health officials and the head of the community/village committee. Then, the VHV will be selected by the committee for the selection of the new VHVs comprising of the community/village committee and the existing VHVs.

Around 10–15 households will be grouped as a service area of each VHVs. In case there is more than one VHV candidate in one household group, the committee for the selection of new VHVs must set up a meeting with the representative of that household group to vote for the candidates. Those who get the highest votes will be selected as a VHV in that area.

After this selection, the candidate must be trained and evaluated their primary health care knowledge by MOPH. Once he/she passes the training and evaluation, the candidate is received the certification and license for being an official VHV.

4) Training programs

Similar to PHVs, it also has two types of training programs, one for new VHVs and another for existing VHVs.

Training programs for new VHVs. New VHVs must pass the training before they take care of the households of their responsibility. The training has been divided into the following two categories:

- 1) Compulsory courses, including 8 subjects with 37 hours, including 1) Primary public health and community public health system, 2) Village health volunteers' course, 3) Law for VHVs, 4) Good public health, 5) Basic public health services, 6) Communication for the primary health care, 7) Planning preparation and community project, and 8) Management.
- 2) Selective courses for 6 hours, depending on the existing issues and necessities in the context of a city.

Training programs for existing VHVs: Along with the roles and responsibilities of VHVs, training is essential to advance the public health knowledge to prevent health issues and instruct the primary health care in their responsible areas. The core series of training that will be taken before receiving the certification and license for VHVs are as follows.

- The plague or the infectious diseases in the community, such as (i) dengue fever, (ii) tuberculosis, (iii) rabies, (iv) opisthorchis viverrine, (v) leptospirosis, and (vi) malaria to provide information and knowledge to prevent these infectious diseases and also follow-up evaluation of the patients.
- Basic health knowledge on (i) mental health treatment, (ii) diabetes and high blood pressure, (iii) good ambience preparation and elderly, disabled persons, and in-bed patients facilitation, (iv) oral health care, (v) nutrition of pregnant women and elderly, (vi) primary health care and first aid provision and CPR in emergency case, (vii) prevention of the elderly from falling and evaluation and caring for the elderly, (viii) learning health consumer protection by scientific and local medicals course, and (ix) harm prevention from chemicals, pesticides together with first aid.
- Thai local wisdom, local herb, and use of Marijuana in medicine to promote and support both mental and physical health as well as promote quality of life of the citizens and their families.
- Telemedicine and the health application to communicate and coordinate in the public health service system in terms of health promotion, disease control, first aids, health rehabilitation, and health consumer protection.

- Leadership skills in order to create the health networks to promote public health, control the disease, provide the first aids, rehabilitate the public health, and protect consumers in terms of health.

5) Duration

The official VHVs will receive a four-year license from the MOPH. VHVs are required to extend their license by having their performances and achievements evaluated as well as by the consideration of citizens and village/community committees.

It should be noted that VHVs should not be disengaged by public health officials because they already voluntarily take care of and work for their community. If it is necessary to disengage any VHVs, the meeting among existing VHVs and village/ community committees should be set up to discuss and verify the facts of the situation. In addition to the disengagement process, the head or representative of households; at least two out of three of the VHV responsible areas should make an official letter with signatures to the Provincial Public Health Office or director of the public health office in Bangkok. The following misbehaviors of VHVs should be considered to disengage the VHVs;

- do not participate in any public health activities arranged by the MOPH without any acceptable reason or any necessary.
- do not maintain the ethics of VHVs or have misbehaviors that bring disgrace to the other VHVs.

6) Roles of VHVs

Each VHV is expected to take care of 10 to 15 households in the community of residence. Even pre-pandemic, VHVs play a key role as a public health leader to manage and solve public health issues together with the staff from Tambon Health Promoting Hospital. The main roles and works of VHVs are as follows;

1. Being a public health coach and manager to create the public health team and to manage the resources in its organizations.
2. Providing primary health instruction and being public health mentor to distribute health care knowledge to the responsible community and households.
3. Using telemedicine and communication to transfer the patients in public health systems and to promote, prevent, and control the disease. Also, VHVs should provide and share information about new cases, first aids, health rehabilitations, and health consumer protection.
4. Distribution of public health knowledge, visiting households at least twice a month to check public health in their communities, and connecting with the public health service system, comprising of the following.
 - *Provincial Level:* Provincial office of MOPH, Provincial doctor, and other related persons.
 - *District Level:* District Quality of Life development Committee, District office of public health, and community hospitals or health centers.
 - *Sub-district Level:* Tambon Health Promoting Hospital, community doctors' team, Tambon Administration Organization, and other related organizations.

- *Village Level:* VHVs, head of villages, career group, and other related networks.
- *Family Level:* household members, citizens, and other related persons.
- *Bangkok Level:* Public Health Office, Public Health Center, Community Health Center, hospitals in Bangkok, the MOPH, and any related organizations.

The public health networks with several sectors have been established to find the causes of disease, prepare a plan, and budget. Also, VHVs are expected to enhance public health care and promotion as well as health surveillance and rehabilitation.

During the COVID-19 pandemic, VHVs carried out surveillance, search, and tracking of people at risk of infection. They also knocked on doors of households under supervision to advise on COVID-19 protection, symptoms screening, and self-observation. Besides, they handed out face masks that they made by themselves as well as an alcohol-based sanitizer and biohazard bags. Apart from that, they helped measure blood pressure and deliver medicines to the homes of patients with chronic diseases.

7) Wages and Benefits

Each VHV receives THB 1,000 per month. During the pandemic, they received an extra THB 500 incentive starting from March 2020 for 7 months. Similar to PHVs, the government intended to give the bonus up to 19 months, but it was later considered impossible due to the limited budget. To support the further actions and roles of VHVs, the head of National VHV is now considering increasing their wage from THB 1,000 to THB 2,500 per month.

In addition, the following benefits and welfares are provided for VHVs and his/her family.

1. VHV license
2. Reduced train fares. The SRT has offered a 20% fare reduction of the fare of the third-class train only from June to September every year
3. Regarded as the position equivalent to the government officials' level 3
4. Elevated the level of basic education by the knowledge and experiences of VHVs
5. Disbursement of expenditure for public health works in emergency cases
6. Supported THB 600 for hospital fee, for VHV who are proactive works such as taking care of disabled persons and pregnant women.
7. Compensation for VHVs who has bachelor degrees and were selected to be a teacher for the VHVs group
8. Supported medical expenses for VHVs and their families
9. Provided courses in educational institutions under the MOPH

8) VHVs in model cities

Table 6.3.1 shows the general situation of VHVs in 6 model cities. While VHVs take care of 10 to 15 households on average as mentioned above, each VHV in some model cities such as Tessaban Nakhon Chiang Rai and Tessaban Nakhon Phitsanulok takes care of much more households. Moreover, during the emergency period, the VHVs have visited their households in charge more frequently while they usually visit once or twice a month. Therefore, in some cities, it seems that VHVs have to work much harder to take care of their communities or struggle with providing the service to their communities than other cities, especially during the emergency period. In particular, VHVs in Tessaban Nakhon

Phitsanulok mentioned that they need more support from government agencies, either Province or Tessaban or both to solve the workload issue.

Table 6.3.1 General Situation of VHV in each Model City

	Chiang Rai	Khon Kaen	Krabi	Nan	Phanat Nikhom	Phitsanulok
Population	77,672	114,459	32,644	19,783	10,296	66,106
Area	60.85 km ²	42 km ²	19 km ²	7.6km ²	2.76 km ²	18.26 km ²
Number of communities	65	90	14 (VHVs are in 11 communities)	28	12	65
Total number of VHVs	539	1,166	300-320	282 (official VHV: 264, volunteer: 18)	100	More than 600
Household each VHV takes care of	30-50	20	15-20	More than 15	20	45-50
Body who supervises VHVs	Tessaban	Tessaban	Tessaban	Tessaban	Tessaban	Phuttachinnarat Hospital

Source: DOPA (2019) and interview with VHVs in model cities

6.3.3 Migrant Health Workers (MHVs)

In addition to PHVs and VHVs, MHVs also play important roles in assisting migrant workers.

1) General information of MHVs

The MHVs were first initiated in 1997 by the World Vision Foundation of Thailand, replicating the model of the VHV program. The only difference is that an MHV is designed for individuals who can speak the language of migrant workers because of a language barrier when VHVs perform their duties as well as the trust issue. In other words, the MHVs program is made to help migrant workers specifically, from a health care perspective. However, currently, the MHV program is not under the MOPH system due to legal limitations. As of April 2020, Thailand had 4,145 MHVs in 9 provinces, but the large majority accounting for 3,098 MHVs lives in Samut Sakhon province.

2) Qualifications of MHVs

MHV candidates are required to possess the following qualifications.

- Must be at least 18 years of age
- Must be registered with the MOI and possess a 13-digit identification number, a passport number, or a border-pass number
- Must live in the migrant community for at least 6 months
- Must be selected by at least 10 migrant households in the community
- Must be literate in their native language and able to communicate in Thai
- Must have a full-time job with volunteer spirit
- Must be ready to work on migrant health services
- Must have leadership skills and a sense of responsibility
- Must be healthy without any history of substance abuse and crime

- Must possess good work records and coordinating experience

3) Training Programs for MHVs

MHVs are required to attend training programs provided by Provincial Health Office, health facilities, and NGOs. MHVs are trained by health staff and migrant health workers. The training programs are designed following national curriculum manuals, organizational objectives, and local contexts. It is expected that it will help MHVs have adequate levels of knowledge and therefore, the curriculum structure comprises of several subjects, such as the basics of Thai society, basic laws for migrants, essential skills for MHVs, assistance to Thai Health Officials in primary health care, essential health services and health communication. In addition to these subjects, there are more than three elective units, namely (i) assistance with the prevention, control, and surveillance of communicable diseases in the community, (ii) prevention of non-communicable diseases in the community, and (iii) disaster preparedness and crisis management.

Aside from the regular required training above, the MHVs were provided another training program by the Thai Red Cross Society (TRCS) in collaboration with the MOPH on how to use the Phonphai application⁸ so that the MHVs can use the application to notify TCRS if a foreign stranger enters their communities or a suspected case is found.

4) Roles of MHVs

MHVs work in parallel with VHV with the key role in communicating with migrant workers and helping them reach basic public health services including health promotion, disease control and prevention, medical treatment, and restoration of health. For instance, in the event of dengue hemorrhagic fever, VHV would go to the field and help Thai people, but they could not reach the migrants although they live in the same community due to the language barrier. Therefore, it is necessary to have MHVs who speak the language of migrants to keep them informed, provide knowledge on self-protection, eliminate mosquito breeding sites, and monitor the situation. In this way, disease control and prevention can be done more effectively.

During the COVID-19 outbreak, MHVs were the backbone of manpower who curb the spread of the disease in migrant communities. In other words, MHVs were at the frontline helping migrant workers by circulating information about COVID-19, disseminating information on how to detect the symptoms of COVID-19, handing out booklets written in languages that migrants can understand, bridging the gap between migrants and authorities, and interpreting medical officers' instructions to migrants. It is important to note that migrant workers trust MHVs and listen to whatever they are told mainly because MHVs have unrestricted access to workers with who they are close, speak the same dialect, and share the same culture.

⁸ TRCS developed a disaster warning mobile application so called "Phonphai" with the aim to allow users to report disaster occurrence, call for assistance in case of emergencies and serve as a tool for disaster response. In the event of COVID-19, this application has been used mainly by VHV to notify TCRS if there is a person in the need of food or a suspected person of COVID-19 is found. In addition, more foreign languages have been added to the application such as Burmese, Cambodian and Mon so that migrant workers can use it conveniently.

5) Wages and Benefits

There is no monetary benefit for MHVs, but the MOPH and NGOs provide a support system to create a good working environment for them which is in the form of non-financial incentives such as having their names under a government agency and giving certificates.

7. Emerging Changes of People's Life and Economic Activities: New Normal

7.1 Behavioral Change and New Normal

The state emergency issued on 26 March 2020 were extended several times and the latest announcement on 28 September 2020 extended it until the end of October 2020. In Thailand, the curfew and the regulation on business in 34 designated industries were issued on 2 April 2020. Those measures were gradually relaxed and economic activities were resumed for over three months. From 1 July 2020, the fifth phase of lifting restrictions began, where karaoke, pub, bar, private room bath massage, sauna, and game center resumed operations and all schools are opened.

Through 3 to 4 months of exercise of behavior with COVID-19, "New Normal" was firmly established among citizens in Thailand. It included keeping social distance, using the dedicated application "Thai Chana", and wearing face masks in the city. It was observed that about 90% wear a mask in the city. It greatly contributed to maintaining 0 COVID-19 cases in Thailand in the last 3 months.

7.2 Check-in and Behavior tracking Application

"Thai Chana" (Thai Wins)

"Thai Chana" is the government-recommended behavior tracking application developed as the new platform ensuring the safety of citizens and prompt response in the event of an infected person of COVID-19. This platform was available as a webpage (www.thaichana.com) and as a mobile application for IOS and Android smartphones. It was developed by the state-owned Krung Thai Bank to help businesses and other services safely resume operations after easing the lockdown measure. The Thai Chana covers several places such as department stores, markets, sports centers, restaurants, parks, clinics, cinemas, etc. Business owners and service providers were required to register on the platform and provide necessary information such as types of businesses or services, names and locations of premises, customer capacity, and frequency of cleaning. Once the registration was made, owners or service providers received a Thai Chana Quick Response (QR) code, which can be printed and placed at the front of their premises so people can check in and check out (Figure 7.2.1).



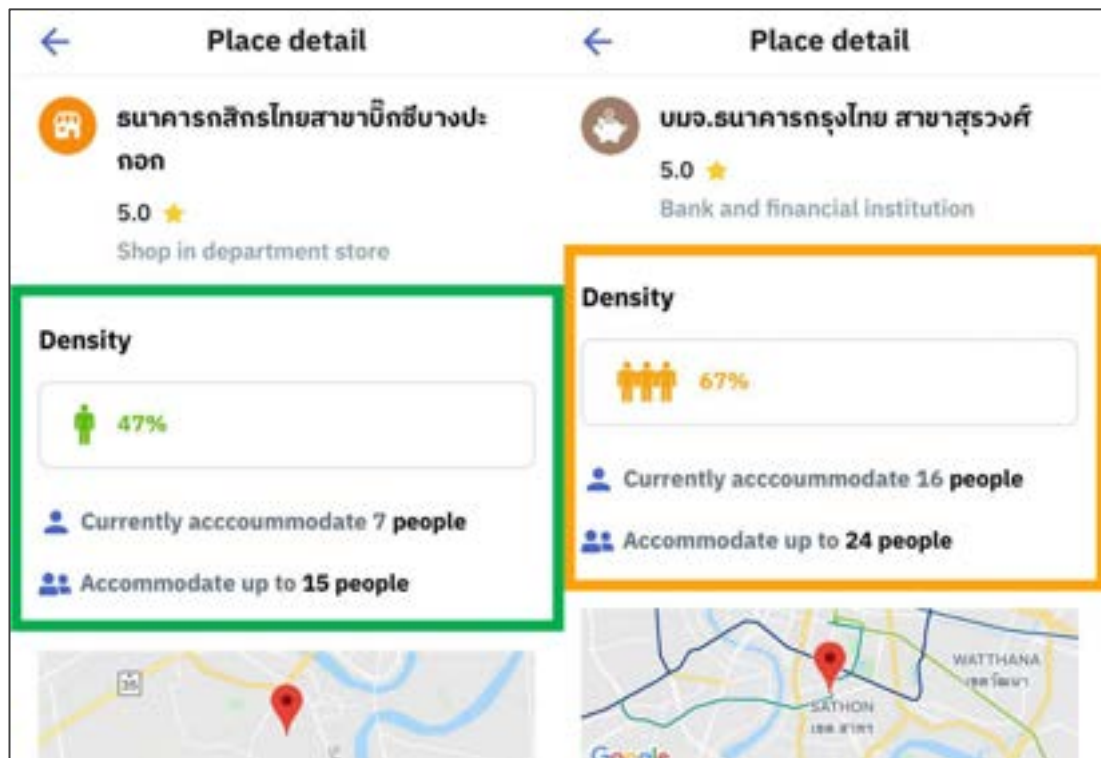
Source: JICA Project Team (2020)

Figure 7.2.1 Thai Chana QR Code

Likewise, customers and service users were required to scan the QR code using the Thai Chana webpage or application before entering and leaving the premises. The Thai Chana also has features allowing users to evaluate sanitation in places (Figure 7.2.2) and check the crowdedness they plan to go to (Figure 7.2.3). If found to be overcrowded, users can then avoid the place or adjust their trip accordingly. Up until 18 June 2020, Thai Chana had over 24 million users, out of which 355,000 were smartphone application users. More than 110 million check-ins were made, but only 60% check out when using the website and 90% through the application. Nevertheless, the system automatically checks out at midnight every day. Take into account, the Thai Chana is a just spot-checking app and not a contact tracing app since it has no function to record whereabouts.

Source: Taken from Thai Chana Application by JICA Project Team (2020)

Figure 7.2.2 Application Image to assess the service provider's compliance with public health measures



Source: Taken from Thai Chana Application by JICA Project Team (2020)

Figure 7.2.3 Application Image to check the Congestion of each Facility

“Mor Chana” (Doctors Wins)

For those who would prefer to keep a record of the place and time they checked in the last 14 days, they may need to consider using another platform called “Mor Chana (Doctors Win)” (Figure 7.2.4). It is a contact tracing application with a self-assessment feature, location-tracking via GPS and Bluetooth, and an alert function if users are in close contact with an infected person. It also helps healthcare professionals when COVID-19 patients hide or cannot recall their whereabouts. The Thai Chana and the Mor Chana complement each other.

Apart from these two platforms, there were others available, such as Thai Care by the Thai Chamber of Commerce, Skan & Go from Siriraj Hospital, and QR Checking by the Association of Thai Software Industry (ibid).

The figure displays eight screenshots of the Mor Chana application interface, arranged in a 2x4 grid. The top row includes: 'Notification' (showing a bell icon and a 'Turn on Notification' button), 'Bluetooth access' (showing a Bluetooth icon and a 'Grant permission' button), 'Start evaluation' (showing a doctor character and a 'Start Evaluation' button), and 'Answer question 1' (a symptom checklist with radio buttons). The bottom row includes: 'Answer question 2' (a question about occupation with 'Yes' and 'No' radio buttons), 'Answer question 3' (a question about contact with foreigners with multiple radio button options), 'Answer question 4' (a question about overseas travel with 'Went Overseas' and 'Did not go Overseas' radio buttons), and 'Result of the evaluation' (showing a 'LOW RISK' result, a QR code, and a risk level bar with 'Low', 'Medium', and 'High' indicators).

Source: Taken from the Mor Chana application by JICA Project Team (2020)

Figure 7.2.4 Mor Chana

7.3 Guidelines toward New Normal

The MOPH issued a series of guidelines related to COVID-19 prevention measures and practices toward the new normal initiative. The first series explains disease preventive measures for those allowed to reopen or operate again in the first phase of easing the lockdown like public transport. The second and third series provide information about preventive measures for allowed to reopen in the second and third phases like shopping malls, stores, and sports facilities. The last series explains controlling measures for game centers and clubs. It also provides assessment forms to monitor whether each place has complied with the disease prevention measures or not. Examples of prevention measures applied to each place are summarized below:



Source: Ministry of Public Health (2020)

Figure 7.3.1 Guidelines of COVID-19 Prevention Measures

7.3.1 Public transport

The guideline provides disease prevention measures for different types of public transport, including rail, road, and water. However, basic prevention measures are similar which can be explained as follow:

The responsible authorities must provide handwashing stations with alcohol-based hand sanitizer gel and set up initial screening tests at the entrance of premises. At ticket boots, responsible authorities must designate a clear standing point complying with the 1 m distancing and arrange a ventilation system. Every staff must wear a face mask or face shield while on duty. It was recommended to put plastic shields between seats and install surveillance cameras to monitor if people comply with the measures. Before starting work, every staff must be screened and have their body temperature checked. If their body temperature is over 37.5 °C coupled with difficulty breathing or other symptoms, the person must take self-observation. If the person does not feel better, he or she must seek medical attention. On vehicles, the number of passengers must be restricted to avoid

overcrowding and spread of the virus, and therefore, the physical distance must be at least 1 m. Responsible authorities must also ensure that vehicles are clean, especially handrails and hi-touch surfaces. Furthermore, waste must be disposed of every day. If staff was found to be infected, responsible authorities must close the premises or immediately suspend services.

For passengers, they must always wear a face mask and keep their distance within the standing points when queuing or waiting. If they had any symptoms such as fever, cough, or runny nose, they must not use any public transport. Passengers were recommended to avoid using public transport during rush hours as well as talking and touching their face while using public transport. Passengers must keep their distance from one another and are recommended to wash their hands frequently. They should also register via mobile application when using public transport. If they did not feel well after using public transport and later needed to seek medical attention, they must inform the doctor about using public transport recently as well, specifying the date and the time.

7.3.2 Shopping mall

The third series of the guidelines provide disease prevention measures for shopping malls and community malls, described below.

Owners of shopping malls were urged to provide the following systems and measures.

- **Registration system** for staff and customers for check in and check out. In the large shopping center, the registration should be at each sales area and each store. It can be done by using the application prescribed by the government, “Thai Chana,” or making a report instead.
- **Initial screening tests** at the entrance of premises with at least 1 spot per 100 meters at the queue and handwashing stations with soap or alcohol-based sanitizer gel.
- In the canteen, food must be sealed, especially for salads, donuts, and baked pastries.
- **Designated standing points and a line** that must not be over 5 persons.
- **Ventilation** must be well arranged with an air change rate of under 10 per hour.
- Ensuring that every staff is wearing either a face shield or face mask and provide face masks for those without.
- **Surveillance cameras** must also be installed to ensure that everyone is following the prevention measures.

Before entering a shopping mall, every staff and customer must be screened and receive a label sticker if they passed. In this case, the body temperature must not exceed 37.5 °C. Shopping malls must have a monitoring system to count the number of customers and display it on big screens. If the number reaches the limit, customers must queue, wait and keep a distance of 1 m from another. In common areas, owners must designate the space of 10m² for 1 person. In addition, owners should avoid overcrowding by providing an online reservation system and supporting their staff to work at home if possible. In shopping malls, staff must not shout, gather, and touch any customers. Owners should add an e-Payment

or QR code payment as an option to avoid direct contact with banknotes.

In terms of hygiene, cleaning staff must have protective equipment including a face mask or face shield, gloves, hair cover, and protective clothes. They must ensure that high-touch surfaces are clean, especially the floor, handrails, doorknobs, trolleys, chairs, and baskets. Air-conditioning must also be cleaned at least once a day whereas waste disposal must be conducted every day.

For **customers**, they were recommended to use online platforms as well as e-Payment for shopping. If they could not avoid coming to a shopping mall, they must ensure that they are not sick. Furthermore, customers were recommended to prepare their shopping list or make a plan so they can save time. They should also avoid using public transport, especially during rush hours. They must always wear a face mask and have alcohol-based sanitizer gel. Last but not least, they should avoid taking children and elderlies to any shopping malls since they can get infected easily.

7.3.3 Store

The second series provides a guideline for disease prevention measures in retail stores and wholesale stores which can be summarized as follows:

Owners must provide a registration system for checking in and out, using smartphones, or making a report. Owners must also provide basic symptoms screening tests at the entrance of premises. If passed, the person must receive a label sticker. Owners must prepare a handwashing station with soap or alcohol-based hand sanitizer gel. On the floor, there must be clear standing points designated to keep a physical distance of 1 m. Ventilation must be well arranged, and every staff must wear a face mask or face shield. Using transparent acrylic shields at payment counters and installing surveillance cameras to ensure that people are following the prevention measures are recommended. The number of customers must be restricted by allotting a space of 5 m² per person. Owners should provide shuttle service specifically for their staff to avoid them taking public transport, and they should provide a work from home opportunity if possible. Owners should restrict entry to those without a face mask. e-Payment or QR-Code payment options must be available as payment options to avoid people having direct contact with banknotes.

For cleaning, staff must have the proper equipment, including hair cover, face mask or face shield, gloves, and proper clothes. They must clean floor and hi-touch surfaces frequently, especially doorknobs, handrails, baskets, trolleys, and counters. Toilets must also be properly clean whereas waste must be disposed of every day. It is recommended for owners to organize "Big Cleaning Days."

Regarding **customers**, if they were sick, they were not allowed to enter the premises. If possible, they were urged to use online platforms for shopping as well as e-Payment for buying. They should prepare their shopping list to save their time spend in stores. They should avoid using public transport, especially during rush hours. Customers must always wear face masks and should not take children or the elderly with them when shopping since they can get infected easily. These were the measures that owners, staff, and customers must strictly comply with.

7.3.4 Fitness center

The third series provides guidelines to prevent the spread of the virus for different types of sports facilities. However, the core ideas of the prevention measure are similar which can be explained as follow:

Owners of fitness centers must provide a registration system for those who enter and exit the premises, using “Thai Chana.” Owners must provide only one entrance as well as one exit and set up initial symptom screening tests for staff, trainers, and service users. Owners must also designate clear standing points in compliance with 1 meter on the floor in the waiting zone and common areas. Similarly, a distance of 2 m must be kept between exercise machines. If the distance of 2 meters was impossible, owners must use dividers to protect the spread such as plastic shields or plastic pods. Owners must provide signboards to keep reminding users to always follow the prevention measures. Ventilation in fitness centers must be properly arranged with an air change rate of under 10 per hour. It was recommended to install surveillance cameras for monitoring people complying with the measures.

At the entrance, everyone must be screened. Only those with a body temperature of less than 37.5 should be allowed. Other symptoms, such as a runny nose and difficulty breathing, should be taken into consideration. Owners must avoid overcrowding by providing online reservations and bookings and limiting users to 2 hours each. When exercising, owners must ensure that users maintain a distance of at least 2 m. All trainers must wear a face mask or face shield and keep washing hands frequently with soap or alcohol sanitizer gel. E-Payment and QR-Code payment should be added to avoid touching banknotes.

For cleaning, staff must have the proper equipment, such as a hair cover, face mask or face shield, and gloves. Hi-touch surfaces must be frequently cleaned, especially handrails, exercise machines, and dumbbells. Toilets must be cleaned every 2 hours whereas air-conditioning must be cleaned at least once a day. Waste must be properly segregated and disposed of every day.

Regarding **users**, they must first ensure that they are in good condition. They should also make a reservation before coming. They were recommended to use e-Payment or QR-code. They should avoid using public transport, especially during rush hours, and always keep an alcohol-based hand sanitizer gel with them. Before entering and exiting, they must register on the Thai Chana application. They must keep themselves clean and wear face masks all the time. They should avoid talking in fitness centers and must not sneeze near others. Last but not least, users should clean exercise machines after use, keep their belongings in lockers and avoid using shared items.

7.3.5 Other Guidelines and Instructions Toward New Normal

New Normal at hotels

The TAT established guidelines for COVID-19 infection control measures and requires each hotel to comply with the following:

- frequent washing of hands and use of hand sanitizers, such as a disinfectant gel.

- wearing face masks and maintaining a distance of 2 m from others
- protecting cough etiquette
- not sharing tableware with others, using personal utensils, etc., and
- preventing infection when you go out.

New Normal at Restaurants

Thai restaurants also needed to follow the above TAT guidelines. Registration with Thai Chana was required at entrances of restaurants. Inside, customers try to maintain social distancing by blocking seats and using partitions. The restaurants offered food separately for each person.

New Normal at Office

Many offices introduced remote work during the lockdown. According to the questionnaire survey to Japanese companies in Thailand in April 2020, 15% of the companies introduced some remote work, mainly clerical. However, in the manufacturing industry, introducing remote work was difficult. There were 54% of companies that introduced remote work in the non-manufacturing sector, and 21% are considering introducing it in the future. Many companies introduced "video conferencing" for remote work. LINE was the most frequently used video conferencing application, followed by Zoom (50 companies) and Microsoft Teams (41 companies).

New Normal at House

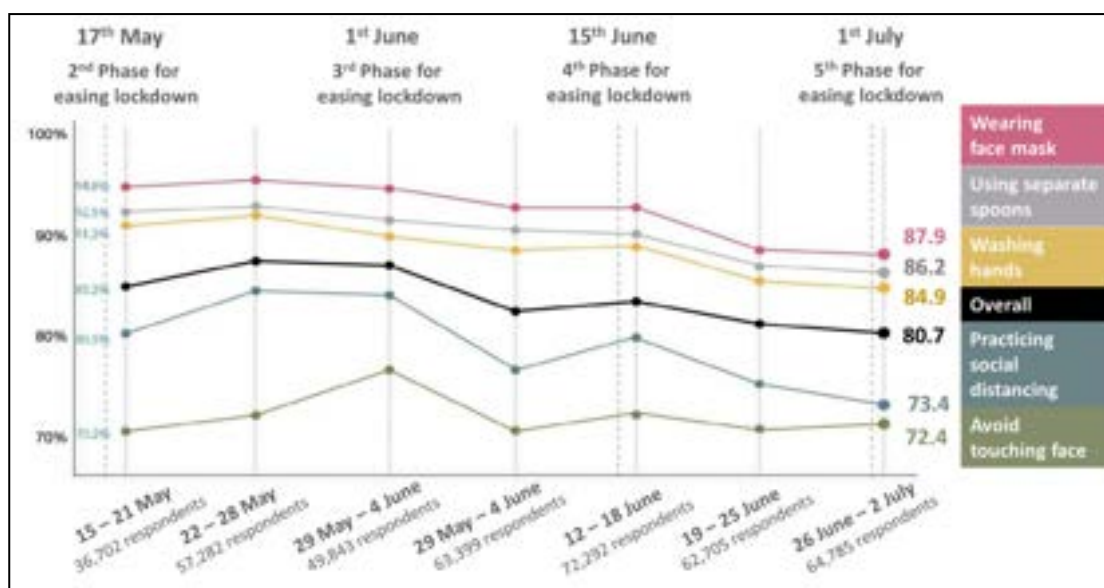
The MOPH recommended regular house cleaning, avoiding crowded areas, and avoiding touching the face with hands.

7.4 Voluntary Behavioral Change

MOPH and medical authorities carried out seven weekly surveys between 15 May and 2 July 2020 to observe behavioral changes of people against the COVID-19 pandemic after some lockdown measures were eased (Royal Thai Government, 2020). The data were obtained by site surveys, phone interviews, and online questionnaires with total respondents of 410,014 people.

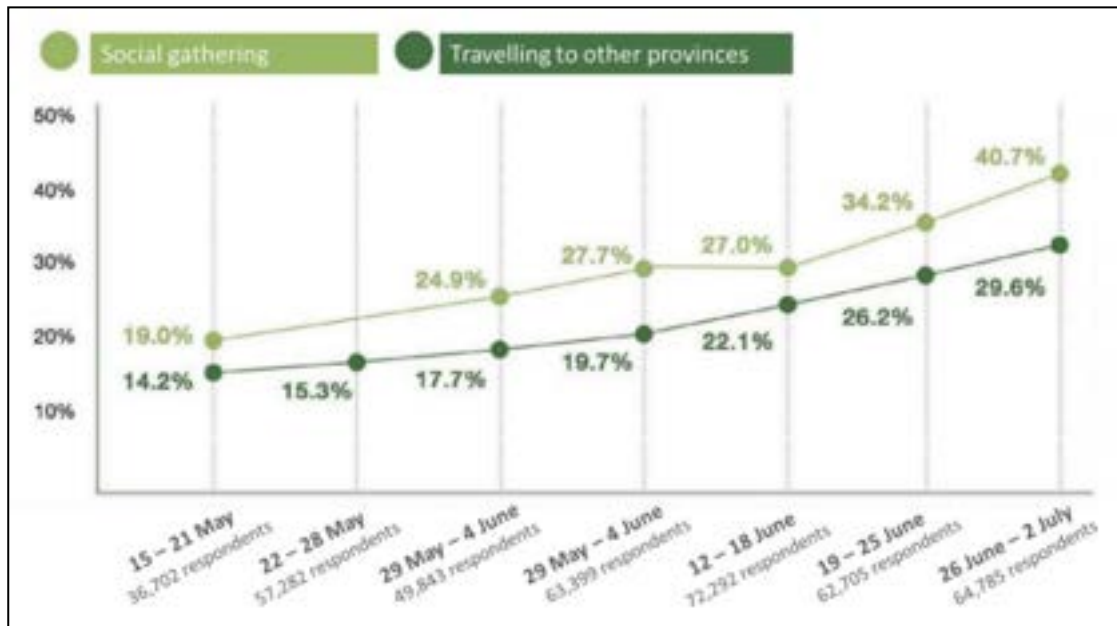
The most recent survey was conducted from 26 June to 2 July with 64,785 respondents. It revealed that 87.9% still wore face masks although the lockdown was relaxed. Furthermore, 86.2% used separate or personal utensils whereas 84.9% regularly washed hands. In addition, 73.4% practiced social distancing of 2 m all the time while 72.4% avoided touching their faces. The survey concluded that, overall, 80.7% have maintained anti-virus behaviors despite easing the restrictions.

However, the survey in July 2020 implied that people have begun to lower their guard since these percentages were lower than in the first survey week from 15 to 21 May (Figure 7.4.1). Considering social gathering and traveling to other provinces, both presented upward trends, increasing by 21.7% and 15.4% respectively (Figure 7.4.2). In addition, many premises did not strictly comply with COVID-19 preventive measures MOPH, 2020e). For example, staff did not wear face masks and handwashing stations were not provided. When using public transport, passengers kept their distance from one another.



Source: Edited by the JICA Project Team based on the Royal Thai Government (2020)

Figure 7.4.1 Behavioral Change against COVID-19 Pandemic



Source: Edited by the JICA Project Team based on the Royal Thai Government (2020)

Figure 7.4.2 The Change of Social Gathering and Travelling to Other Provinces

7.5 Emerging New Business: On-line Services

7.5.1 Increasing On-line Business

The COVID-19 pandemic has changed consumer purchasing, shifting from physical markets to online platforms. This became clear when the userbase of Lazada, an online marketplace, doubled between March and May 2020 with 90,000 new online vendors joining the SME package. Furthermore, it was found that customers spent more time (30% increase) shopping on Lazada.

Regarding food delivery service, this business has grown massively during the crisis. Orders in Foodpanda, a mobile food delivery marketplace, increased by 20–25% compared to in 2019 (Siam Rath, 2020d). Similarly, orders in LINE MAN, which is another service provider, tripled compared to pre-pandemic (ibid). In addition, Suan Dusit Poll surveyed to observe consumer behaviors and trends of food delivery service after the COVID-19 situation. It revealed that 96.03% (of respondents) will continue using food delivery services even if there without travel restrictions (Siam Rath, 2020c).

Online payments, according to MGR ONLINE (2020a), increased significantly between March and May 2020, with AirPay becoming the most common application among first jobbers and jobbers. This information was in line with the Bank of Thailand (2020), revealing that e-Payment transactions grew continuously by an average of 46% compared to 2019 (Figure 7.5.1), implying that Thailand was moving toward a cashless society, which is part of the new normal initiative.



Source: Summarized by the JICA Project Team based on the Bank of Thailand (2020)

Figure 7.5.1 The growth of e-Payment between 2019 and 2020

7.5.2 Government efforts to promote electronic payments

Although cash remains the preferred choice of payment, its share was on a gradual decrease in light of efforts pushed by the government to promote electronic payments

under the National e-Payment Master Plan (Bangkok Post, 2019). It is expected that the share of cash payments will decline from 85.6% in 2018 to 77.8% in 2022. In addition, the PromptPay system and Thai QR Code Payment plays an important role in moving Thailand toward a cashless society (ibid).

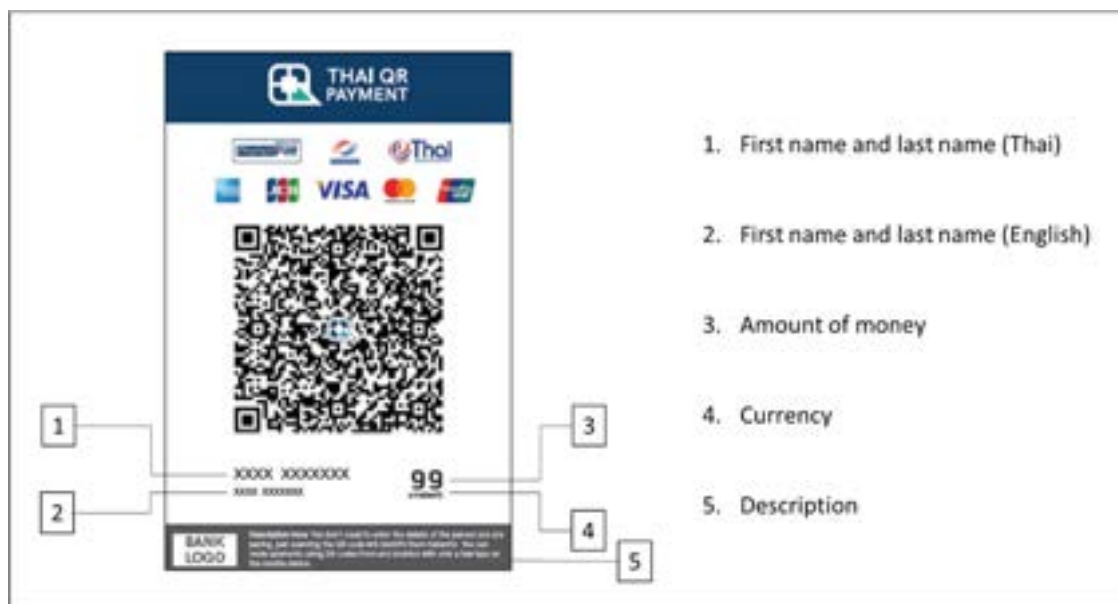
PromptPay system

In 2016, the Bank of Thailand launched PromptPay that is a fast payment channel allowing users to make peer-to-peer transactions through their smartphones (Bangkok Post, 2019). The system only requires a mobile number or national ID number which is linked to a bank account. According to the Bank of Thailand (2016), the PromptPay is an important step toward the development of national e-payment infrastructures as well as services because it would reduce cash use, allowing users to verify past transactions and enhance the financial competitiveness of Thailand.

In 2017, the government provided personal income tax returns to over 2 million people, and instead of cheques, over 70% received them via PromptPay (Bank of Thailand, 2019). The system has rapidly grown in popularity, proven by 46.5 million users with an average transaction of 4.5 million per day as of December 2018 (ibid). Furthermore, in March 2020, the coronavirus outbreak pushed the demand higher for this system which is evident when the number of transactions made via the PromptPay system averaged about 11 million per day (Bangkok Post, 2020i).

Thai QR Code Payment

In 2017, the Bank of Thailand collaborated with JCB International, American Express, Mastercard, Visa, UnionPay, and other financial service providers to introduce the Thai QR Code Payment standard, aiming to create an open and interoperable payment infrastructure (Bangkok Post, 2019). The Thai QR Code Payment standard is a payment method via smartphones, which is fast, convenient, and economical (Bangkok Post, 2020b). The PromptPay system allows customers to use banks' applications on smartphones to scan the QR code of merchants when making a payment. The QR code payment is very suitable for merchants or service providers with basic payment transactions such as small shops fresh markets, food stalls, and taxis (ibid).



Source: Edited by the JICA Project Team based on VEEDVIL (2017)

Figure 7.5.2 The change of social gathering and traveling to other provinces

8. Post COVID-19 Urban Development Perspective: Required Actions toward Resilient City

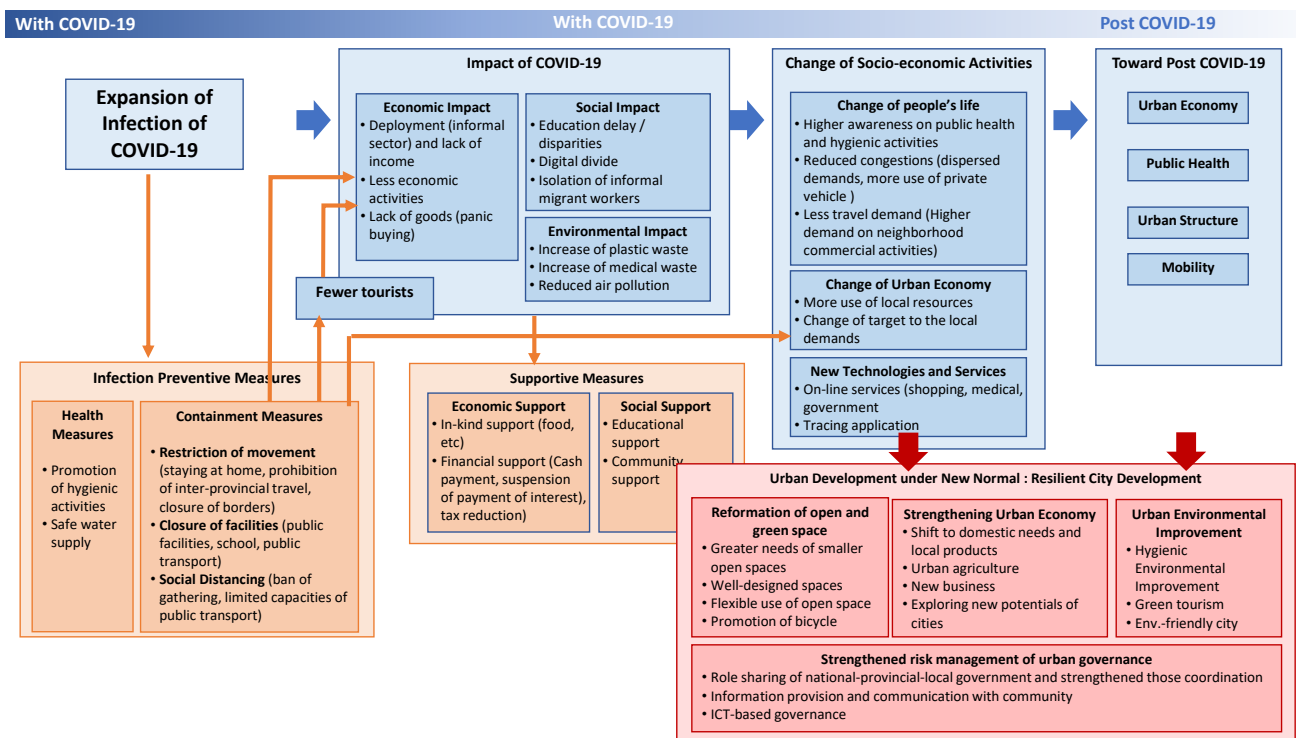
The outbreak of COVID-19 is changing Thailand's economic, social and political structures as people try to cope with "new normal". Many policy makers and scholars predict further macro-level impacts that can affect people in both urban and rural areas. However, it should be clearly noted that the range and impacts of infections of COVID-19 and responding containment measures are still far from being fully understood.

Nevertheless, responses to the COVID-19 in the last several months have changes people's life and sense of values as shown in the previous section, which now affect state of city itself. It is clear that the containment measures have affected urban economies seriously, particularly for tourism activities. Such challenges will continue, considering the borders are still closed as of November 2020. The following section describes what kinds of changes can be observed in people's life, urban economy, and urban governance, which can be "New Normal" in future.

8.1 Overall Context of COVID-19 in the Survey

In Thailand, the spread of COVID-19 infection within a county had been subsided, where there had been almost zero local cases within Thailand from July to November, except for those from other countries. It seemed that people's life and economic activities had gradually resumed, along with phased lifting of restrictions. However, on 17th December 2020, a new coronavirus-infected person was found in the marine market in Changwat Samut Sakhon, west of Bangkok, the number of COVID-19 has increased and the Thai Government started to applied restriction measures to prevent further spread of COVID-19.

In order to prevent spread of COVID-19, Thai Government has applied closure and containment measures as well as hygienic measures. Those corresponding containment measures have significant impact on social, economic, and environmental aspects of people's life and urban activities. Even after socio-economy of each city resumed, some of changes can be observed in people's behavior, social awareness, and actual economic activities in the city. Overall COVID-19's status. Its impact, and responses to them are summarized in Figure 8.1.1.



Source: JICA Project Team

Figure 8.1.1 Summary of the COVID-19 Impact, Response and Urban Development Perspective

8.2 Needs to Strengthen Urban Governance to Cope with Unexpected Risks

Increasing resilience thinking demands cities plan holistically so that they are prepared for whatever shocks and stresses may arise or COVID-19 may arise again. At the same time, urban governance framework specifically aimed at operationalizing the resilience-building process is increasingly required.

8.2.1 Lessons Learned from Operation under COVID-19

The experiences of COVID-19 have highlighted institutional management capacities in each city, which can be the key to cope with COVID-19. It includes strong leadership to take actions in a timely manner and role sharing and coordination among relevant organizations.

COVID-19 Operational Centers were set up at each province, which is headed by Governor. Under Provincial COVID-19 Operational Centers (PCOC), District COVID-19 Operation Centers headed by Chief District Officers, Sub-district COVID-19 Operation Centers headed by Deputy Chief District Officers, and Tassabans COVID-19 Operation Centers headed by Mayor were established. Under the emergent and uncertain situation with COVID-19, such centralized structure of the government has worked well to respond to COVID-19 promptly and to prevent the spread of infection effectively.

At the same time, various local actors played important roles to respond to the COVID-19 flexibly, particularly for Village Health Volunteers. Many tassabans evaluated that good coordination between Changwat office, tassaban and VHVs have contributed a lot to prevent COVID-19. Major and important roles of each actor can be summarized as below;

Governor: Each Governor played a key role to make a decision promptly, particularly for preventive measure to restrict people to come from outside of the province or to close commercial facilities. Since such containment measures always cause damages on specific groups, such as restaurant, hotel, etc. it is difficult for Mayor or other government officers to make such decisions. Each governor applied necessary containment measures and released them, of which target and timing differ by province. Governor is also responsible for setting up working groups with the specific tasks, such as surveillance, protection, control, treatment, etc.

Tessaban: Tessaban is mainly in charge of operation of preventive measures decided by the Governor, such as setting up the check point for health check-up and checking prevention measures at market or public facilities. Tessaban also prepared face masks and provided them to the communities.

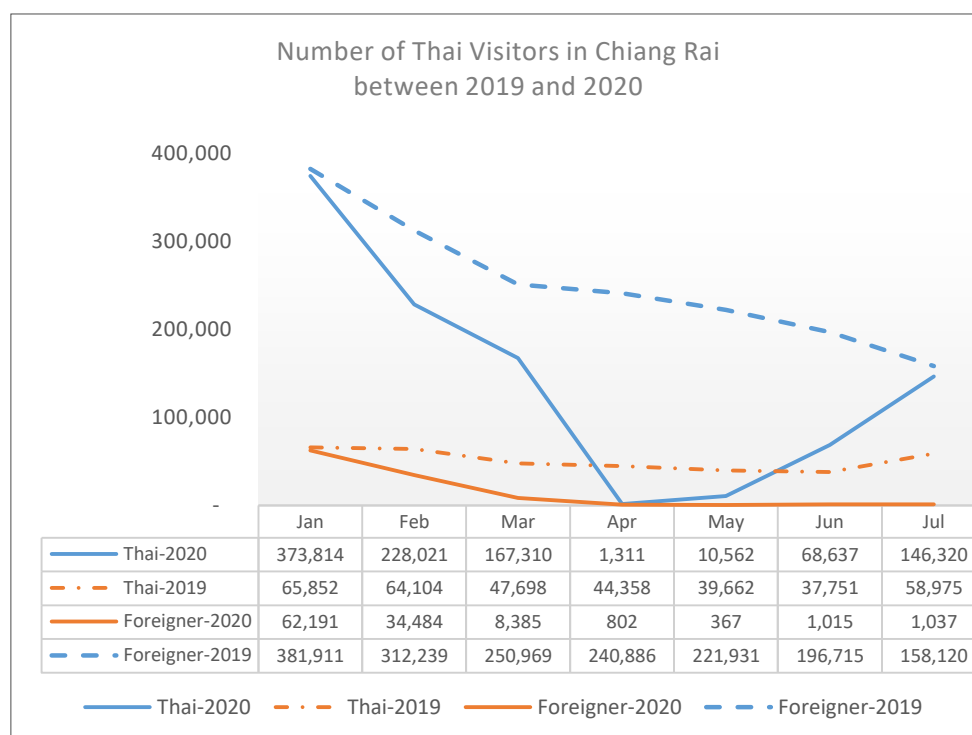
Tessaban is in charge of dissemination of necessary information, such as distributing leaflet about preventive actions. Information sharing is one of the keys to prevent infections. Prevent. Each tessaban utilized several channels to provide formation to the people, such as radio, advertising trucks, website, facebook page, LINE groups. Tessaban coordinated with community and village health volunteers (VHVs) in order to make sure all the necessary measures are given to the communities.

Village Health Volunteers (VHVs): One of the key parts to prevent COVID-19 nationwide is about 1 million VHVs. During COVID-19, they visited each household to provide advice on COVID-19 preventive measures and monitor their health conditions. They also monitored people during self-quarantine and supported mental conditions as well. In some cities, VHVs can also support to carry medicals for normal patients to avoid them going to the hospitals. VHVs have supported the Government to disseminate necessary preventive measures to the communities, and to trace COVID-19 cases and quarantine. The government provided a bonus of THB 500 for 7 months, from March to September 2020, in addition to their basis allowance of THB 1,000 per month.

8.3 Strengthening Urban Economy

8.3.1 Shift to Domestic Tourism

Tourism Sector: As seen in most of cities, tourism sector has the most significant impact, such as hotel, transport services, restaurant particularly those targeting foreign tourists. It caused large number of employees laid off. Tourism affiliated industries have been also affected, such as farmers to supply products to hotels and restaurant. Even if there is no official request to close hotel business by the Governor such as in Chiang Rai, most of hotels closed their operation due to fewer number of visitors from April to May. Since most of the model cities do not rely heavily on foreign tourist, tourists already came back to the cities since June 2020 to those cities.



Source: Ministry of Tourism and Sports, 2020 edited by JICA Project Team

Figure 8.3.1 Changes of Number of Thai Visitors in Chiang Rai

Hotels and restaurants have applied their own preventive measures to reopen the business, such as reducing capacities of rooms, wearing face mask, and surface cleaning. Market, walking street and other commercial shops reopened as well with keeping the distance.

Shift to Domestic Needs and Local Product: As of the end of November 2020, Thai government has not opened its border, since COVID-19 has not been subsided in other countries. Or some of countries are being attacked by the third wave of its infection. Such situation can show that international visitors may not return to Thailand for a while. Therefore, tourism sector needs to shift to domestic demands, including development of products tailored to Thai tastes and promoting tourist activities for Thai nationals.

In order to make cities self-reliant, it is necessary to promote locally owned and local produced products and support local income generation through community-based tourism. Strengthening of local knowledge is also inevitable to encourage community to deal with future crises caused by external factors. This can help build the confidence of community members to create learning process to strengthen the solidarity and spirit of the community after the COVID-19 and to be more prepared for the next crisis.

Exploring New Potential: Economic stagnation due to containment measures during COVID-19 has made cities consider seriously about needs to explore new potential of their own, as responded by Mayor or officers of tessaban. For example, Tessaban Nakhon Chiang Rai intends to strengthen connectivity with surrounding areas through neighboring trading points, and to become tourism hub and logistics hub in the region. It also promotes medical-hub concept by coordinating with hospitals and clinics in surrounding cities and provinces, which will benefit citizens as well. Tessaban Nakhon Phitsanulok will try to strengthen transportation network as a logistics hub.

8.3.2 Increasing Needs of Urban Agriculture

Impact on Agriculture Sector: Agriculture sector has not been seriously affected in terms of domestic demand. As for cities which rely more on agricultural sector, such as Chumphon, there have been not significant impact on their economy. Those cities can be self-sufficient with its agricultural sector. On the other hand, closure of logistics network has affected distribution of agricultural products. For example, in Phitsanulok, as a regional hub of agriculture products in the northern Thailand and even across countries, vegetable cannot be exported to Myanmar through Mae Sot or transported to Bangkok.

Integrated Agricultural Development: Self-sustaining economy has gained more importance under economic closure during COVID-19, while it has been identified as one of the key factors of Sustainable Future City. In this sense, strengthened agriculture sector becomes one of the key development agenda of the city, such as diversification of agricultural product in the province to reduce the risk of price down of the specific products and promotion of employment in agricultural sector. Tessaban Mueang Krabi promoted to convert palm field to cultivate fruits and vegetable mainly for local consumption, which was imported from other areas. It will

Promotion of Urban Agriculture: Department of Community Development under Ministry of Interior promoted planting vegetables in their home garden along with Sufficient Economy Philosophy. The urban farm has been also introduced by converting the unused landfill into the farm in order to support the livelihood of the poor, who has lost jobs due to COVID-19. The urban farm also improves food security and can be a model to utilize unused land in the city, such as rooftop farms, spaces below expressway and viaduct.

8.4 Reaffirmed Essential Needs of Urban Society

8.4.1 Education Services

All educational institutions were closed from March to July. Central government promoted online classes and online class is also provided through DLTV. Some of students have limited access to the internet to join online class, which cause digital divide. Even though they have access to the online classes, they cannot study at home, due to insufficient environment and difficulty to learn without any interaction with teachers. It is widely recognized that learning at home have caused delay of education.

8.4.2 Increasing Needs for Better Urban Environment

COVID-19 made people more conscious about urban environmental issues, which can be good opportunities for cities to do urban environmental improvement project. It also encouraged private sector promote environmental-friendly services. ECO or Green concept can add values on the services as below;

No Foam City: In Tessaban Mueang Nan, food delivery services introduced paper and biodegradable materials for delivery packaging, since they have promoted “No Foam City” before COVID-19 break and people are more conscious about increasing plastic waste caused by emerging delivery services.

Green Tourism: Green tourism originally targeted only European tourist but it has become more popular among Thai tourists recently. COVID-19 has further strengthened such tendency as people become more concerned about environmental issues. Tessaban Mueang Krabi promoted the concept of Green Hotel. While green tourism It intends to focus on quality tourism rather than quantity tourism and thus to attract higher-class customers. Green tourism concept can be applied to restaurants and tourism activities as well as hotels.

Safe Food: Through the response to the COVID-19, people have higher concern on safety as well. Tessaban Mueang Krabi started to promote farmers to plant organic vegetables to develop Krabi as a Safe Food Hub.

Food Bank Project: Governor of Khon Kaen initiated to Food Bank Project in order to promote safe food in the city. Food Bank works as a center to disseminate organic products and green products within a city and thus to provide people safe food with reasonable price. With collaboration of public, private and tessabans, and civil sector support communities for vegetable planting, fish feeding, and chicken feeding.

8.5 Reformation of Public Space and Open Space

The lifestyle to prevent COVID-19 infection has changed the types and distribution of open space and green spaces that people want, as well as their expectations about what open and green spaces should provide. People become to have greater demands for smaller open and green spaces or neighborhood parks which serve as places of refuge from the louder and bustling city. Such changing preferences and expectations about open and green spaces lead to re-consideration of designs, uses and practices in smaller open and green space planning. For example, pilot project in Tessaban Mueang Ranong considered to create more spaces for individualized and introspective use over large spaces, such as pocket park. Several secluded spaces have been well designed for Chumphon's park in the pilot project.

Well-designed spaces: Desirable social interaction and appropriate hygiene conditions should be also considered, such as running trails, due to the new expectations regarding social distancing. It requires to zone the limited space more effectively and creatively to ensure that exercise infrastructure within the existing park in Ranong and stadium spaces in Chumphon.

Flexible use of space: A post COVID-19 will shift value for public park and space. Public spaces are key feature of a resilient city, in part because of their abilities to be transformed for emergency health purposes. Public health emergency during COVID-19 period has demonstrated the value of flex spaces, as large green spaces and convention centers have been converted into emergency field hospitals, as seen in Vancouver, New York, and London. In India, the empty malls are being turned into shelters for migrant workers who are unable to return to their villages.

Part II

COVID-19 Impact and Response on it
in the Model Cities

1. COVID-19 Impacts and Response on it in Tessaban Nakhon Chiang Rai

1.1 Overview of Chiang Rai

1.1.1 Socio-Economic Characteristics



Source: JICA Project Team

Figure 1.1.1 Location of Chiang Rai

Tessaban Nakhon Chiang Rai is at the northernmost part of Thailand with a mountainous area on the west, flatlands on another side, and Kok River in the city center. The border of Chiang Rai province connects with Laos and Myanmar.

There are two (2) international flights connecting to Kunming and Hongkong as well as a domestic flight connecting to Bangkok. Moreover, there are many national roads (NR) connecting from Chiang Rai to Phayao, Chiang Mai, Mae Sai (Myanmar border), and Chiang Khong/Huay Xai (Laos border), which are NR1, NR118/109, NR1 and NR 1123/1152/1174, respectively. NR1 and NR1020 are main roads within Tessaban Nakhon Chiang Rai.

Table 1.1.1 Overview of Chiang Rai Province and Tessaban Nakhon Chiang Rai

Population	
Province	1,298,304 The annual growth rate is about 0.40%
Tessaban	77,672 The annual growth rate is about 1.42%. It should be noted that the number of unregistered populations which are students and foreign workers has been increasing.
Aging rate (60+)	
Province	245,232 which is about 18.9%
Tessaban	14,004 which is about 18 %
Area	
Province	11,678 km ²
Tessaban	approximately 60.85 km ²

Economy	
Province	Agriculture, tourism, and cross-border trade are the three major industries of Chiang Rai Province. About 3,070,000 tourists visited Chiang Rai province, of which 2,520,000 are domestic tourists and 550,000 people are foreigners.
Tessaban	Tourism, agricultural products/ agricultural materials distribution, processing of agricultural products, retail, and service are the main industries in Tessaban Nakhon Chiang Rai. The increasing number of tourists causes the rapid development in Tessaban Nakhon Chiang Rai. At the same time, Tessaban Nakhon Chiang Rai is the hub of administration, service industry, and economic activities.

Note: The growth rate was calculated based on the data of the population in 2019 and 2015.

Source: Department of Provincial Administration (DOPA), 2019

Tessaban Nakhon Chiang Rai has schools for all education levels including higher education which four (4) universities and four (4) technical schools are located within the tessaban area. There are several job opportunities in the tourism, trade, logistics, and service industry in Tessaban Nakhon Chiang Rai particularly for the young generation who choose to remain in the city and work in tourism industries.

Even though the water and air quality of Chiang Rai meet the environmental standards, there is smoke from straw burning from February to April. There is an issue of lack of coordination with the surrounding TAO causing the limitation on the facility for separating the type of garbage. Tessaban Nakhon Chiang Rai also focuses on climate change issue since the "Climate Change Center" has been established for creating people's awareness on climate change and adaptation together with the "urban Ecosystem and Biodiversity Project".

1.1.2 Overview of Infection Status of COVID-19 in Chiang Rai

There were nine (9) cases of infection found in Chiang Rai until June 2020. The first infected case in Chiang Rai was announced on 21 March 2020. However, all the patients recovered within May 2020. It should be noted that they were all Thai people. Details of infectious status are shown in Table 1.1.2.

Table 1.1.2 Overview of Infection of COVID-19 in Chiang Rai¹

1.1	Infectious Cases Number	1 st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	0	9	9	9
	Active Cases	0	0	9	0	0
	Recovered Cases	0	0	0	9	9
	Death number	0	0	0	0	0
	Testing Number	0	0	133	242	271
	Local quarantine	N/A	N/A	N/A	N/A	N/A
1.2	Gender					
	Female	4				
	Male	5				

¹ In the table of COVID-19 Infectious Status for each model city, the number of a certain month is counted from the 1st of the previous month. For example, the number in April is counted from 1st to 31st March 2020.

1.3	Age	
	Minimum	15
	Maximum	65
	Average	36
1.4	Nationality	
	Thai	9
	Others	0
1.5	Date of first confirmed cases (Announced date)	21/03/2020
1.6	Transferred from other provinces	-

Note: The number of infected cases was collected on the first date of each month.

Source: MOPH, 2020 (provincial office) edited by JICA Project Team

1.2 Infection Prevention Measures²

1.2.1 Infection Prevention Measures taken by Province and Municipality

1) Province

To prevent an outbreak, the provincial governors throughout Thailand were assigned to impose provincial lockdown and screening. Before the State Emergency was declared, the Chiang Rai governor imposed the advance step of prevention measures. International Communicable Disease Control (ICDC) was formed to detect the suspected patients and considered for 14 days quarantine. The self-check record must be done throughout quarantine. The reports were submitted to the Department of Disease Control (DDC). It should be noted that the suspicious patient must be charged all expenses.

Accordingly, around 20 March 2020, temporary place closure was imposed by the governor. This mainly covered entertainment business, massage, and spa as well as street markets. Also, the number of participants in some activities had to be limited and the inter-provincial travel was suspended. All actions were imposed together with prevention guidelines. After that, the other places were also closed along with the state emergency.

In addition, only one entrance of the borders to Myanmar and Laos was remained to mainly facilitate the border trade in Mae Sai and Chiang Khong districts on 21 March 2020. Accordingly, the people could travel until 25 March 2020. The traveling of migrants, especially Burmese, was limited throughout April. The inbound migrants who had a valid reason to travel must be listed and reported to the Ministry of Interior (MOI) and provincial office two days in advance. Also, the travelers must have traveling certificates and do 14-day local quarantine. The travelers must follow the in-out date identification in the inbound traveling certificates and arrive at the crossing borders before noon. On 2 May 2020, moreover, the international freight drivers who could not get back in the same day must do the local quarantine for 14 days at Viang Inn Riverside Resort. The owner of the business or the driver must be charged all expenses. Similar to the seaports at Chiang Sean, the border checkpoints were set to screen the freight drivers. With the border trade, all freight drivers were required by the Laotian government for COVID-19 testing and had to wait for the result for five days before entering the country.

According to the activation of the State Emergency, the Chiang Rai governor has gradually imposed more actions. The infectious area was identified together with the prevention measure as area-based risk prevention³ on 24 March 2020. Continually, after three new COVID-19 cases were uncovered on 2 April the first lockdown was taken in Ban Pang Pak hee village by Mae Chan district chief. All the accesses to the village were limited to a single entry with checkpoint and registration. The village were also imposed a night curfew from 9 p.m. to 5 a.m. to block arrivals.

Furthermore, the Communicable Disease Control Unit (CDCU) was established at both

² Infection prevention measures include 1) measures to avoid infections, and 2) measures to strengthen medical care.

³ Area-based risk prevention is an announcement that imposes special restrictions to some areas considered as a risk for citizens to get infected by COVID19 such as market, salon, beverage shop and the others relevant businesses. This means that such businesses can be operated but must strictly comply with the prevention measures; such as setting check-points and disinfecting the place.

provincial and district levels to observe and plan the preventive measures as well as to report and monitor the outbreak situation.

From 9 April to mid-May 2020, a partial lockdown was imposed in Chiang Rai province with only four routes to adjacent provinces, Chiang Mai and Phayao, remaining. All vehicles and passengers must be strictly checked at the entrance and exit checkpoints. Those with high fever and without face masks were restricted entry to the province. In addition, travels within the province were also restricted with nine checkpoints.

In May, local quarantine was strictly imposed on those who returned from Phuket while the home quarantine was required for those who returned from high-risk provinces, Bangkok, and vicinities that are Yala, Pattani, Songkla, and Narathiwat. To do home quarantine, they must comply by:

- prohibiting to be in crowded places;
- avoiding infections to other household members by maintaining physical distance, staying isolated in a room, closing mouth and nose when sneezing, avoiding dinner with household members and using personal utensils, washing hands, and avoiding talking with people especially the elderly and patients with medical conditions; and
- reporting to public health staff and seeing a doctor if they have a fever over 37.5 or symptoms.

2) Tessaban

In order to reflect the provincial prevention measures, the Tessaban has actively taken action. In fact, the Tessaban recognized the COVID-19 crisis when the first case was found in Wuhan in December 2019. By that time, they provided COVID-19 information and preventive measures as well as distributed face masks.

Since the outbreak became more serious in March 2020, the role sharing from each division was clarified to prevent the infection within the tessaban area (Table 1.2.1). In this context, the medical division took the main responsibility for this prevention. The Center of Coordination for Situations of COVID-19 Prevention and Control was formed under the medical division to survey the 323 returnees from high-risk provinces and record them on the COVID-19 CR website, and visit the risk group. At the same time, the COVID-19 voluntary team was created at the community level to work with Village Health Volunteers (VHVs)⁴ that mainly do preliminary healthcare.

⁴ Tessaban Nakhon Chiang Rai has 539 VHVs and each of them takes care of 30-50 households. While they originally visit their responsible households twice a month, they have visited more frequently since COVID-19 started to be concerned.

Table 1.2.1 Role Sharing of Tessaban for COVID-19 Prevention

Tessaban Division	Role and Actions
Division of technical planning	- Public Relation on prevention measure
Clerk Office	- Screening at Tessaban office, Tessaban business (Fresh Market and Pawnshop), and activities - Screening at bus terminal 1 (downtown)
Division of Social Welfare	- Community Reorganization (to control people community tidiness) - Distributing 6,000 face masks to communities - Providing survival bags for the underprivileged groups, 2,000 sets
Division of public health and environment	Checking prevention measures at <ul style="list-style-type: none"> - Fresh markets - Restaurants - Entertainment Services - Any enterprises related to the provincial restriction
Division of education	- Searching and observing the suspicious cases at Tessaban school - Following the prevention measures and controls by setting checkpoints for screening students' temperatures.
Medical Division	- Setting the Center of Coordination for Situations of COVID-19 Prevention and Control - Preparing equipment for COVID-19 prevention - Distributing leaflets for prevention measures - Coordinating with VHV's - Visiting the community households - Screening point at the food distribution

Source: Tessaban COVID-19 structure edited by JICA Project Team.

Together with the medical division, VHV's and community leaders played an essential role to observe and take care of community members. While Tessaban provided thermometers to check body temperatures and materials to make fabric face masks, VHV's and community leaders distributed these households in the municipality. Some members of the communities also helped sew face masks, which were around 500–2,000 masks depending on the size of communities. Even though VHV's provided essential support for households and returnees, some did not understand the roles of VHV's, thinking VHV's do not have enough knowledge about medicine and treatment, especially those asked to quarantine. In this case, VHV's contacted the medical staff from the hospital and the Tessaban to help them understand the situation and preventive measures.

For the in-bed patients and elderly, VHV's had to suspend visits because they would like to prevent the patients from getting sick. However, they still provided support if there are issues if requested. In the case of returnees, VHV's coordinated with community leaders to recheck the numbers, record their activities, and ensure they are home. New returnees were reported by VHV's to the medical division via LINE application. In addition, VHV's provided a life survival bag and medication for the returnees to continue monitoring their health during home quarantine. Communities also kept watch and reported strangers or new

returnees to VHVs.

Along with this collaboration, the medical division prepared a plan to prevent the outbreak in three stages. The first stage, the stage of crisis, aimed to provide prevention to each household by visiting and providing information. The second stage, the recovery stage, prepared medical services and builds awareness on self-prevention measures, such as social distancing, hand washing, and face mask-wearing. The last stage, the development stage, took the lessons learned from the pandemic situation and created prevention measures with several partners like MOPH staff, communities, and teachers.

1.2.2 Prevention Measure given from others

Viang Inn Riverside Resort offered a voluntary spot for local quarantine and reporting for those returning to their hometown. Freight drivers and those returning from Phuket were covered. The quarantined person must be charged all expenses.

1.2.3 Provision of Information

1) Information Provision Channel

Similar to the other cities, residents in Tessaban Nakhon Chiang Rai received information on the COVID-19 situation, restrictions, and prevention measure from various channels.

National and provincial restrictions were officially announced through the website, covid.chiangrai.net, and social media via Facebook of the Provincial Public Health Office. These channels also posted the COVID-19 situation, including the number of cases and prevention measures. As some government activities have been suspended, they updated both via their website and these channels.

Tessaban Nakhon Chiang Rai, on the other hand, the division of technical planning had published the prevention measures together with the medical division who distributed leaflets in the communities. This was not only to inform the people about this virus but also to cultivate self-awareness in the communities. In addition, the self-preventions like hand washing, social distancing, and face masks-wearing, were announced via podcasts by each community leader and local radio channels. However, some people did not hear the podcast because their house is far from the audio source. Therefore, VHVs and community leaders visited households to announce prevention measures. Also, the community members shared and updated situations via social media, especially LINE and Facebook. In this way, people were updated and they could discuss and analyze the information before accepting it.

Similar to community members, tribes and foreign migrants obtained information from VHVs and community leaders. Also, neighbors helped those who cannot understand Thai. In case that they live with family who can speak Thai, their family shared any information updates. All things considered, information dissemination faced no issues.

2) Evaluation on Information Provision

While the most efficient communication channel is social media, especially LINE because it is convenient and quick, people also found some information unreliable. The podcast became the most reliable way for updates on preventive measures. The news on TV seemed

reliable, especially for the national situation, however, those who did not trust the government preferred to analyze first before accepting the information. Such rational analysis was supportably confirmed by the medical division and VHVs to avoid panic in society.

1.2.4 Provision of Public Service

1) Transport Services

International and Domestic Flight: The ban on international flights has been since the end of March 2020 by the Civil Aviation Authority of Thailand (CAAT). According to the Airports of Thailand (AoT), the domestic passengers, especially locals at Mae Fah Luang-Chiang Rai International Airport were required to follow travel requites and restrictions to prevent the spread of COVID-19. Initially, all passengers, either inbound or outbound, must pass a checkpoint for fever checking and always wear face masks at the airport and during a flight. A passenger with a body temperature higher than 37.3 or without a face mask could get refused by the airport officials.

In addition, Mae Fah Luang Chiang Rai International Airport required all passengers to fill out a document via QR code conducted by the province's administration and public health before entering Chiang Rai province. For those who were domiciled in Bangkok and vicinities, Phuket, Yala, Pattani, Songkla, and Narathiwat and returned to Chiang Rai, they had to report their residential area to the disease control officer. Also, they must strictly comply with the 14-day quarantine measure.

Land Transport: To initiate the partial lockdown in April 2020, the national highways were ordered to close. Only four routes connecting to Chiang Mai and Phayao remained open with checkpoints. Checkpoints limited entry for those with a valid reason to travel. Also, it checked body temperature or fever and enforced the wearing of face masks. In addition, nine district checkpoints were set to limit people to travel inside the province.

Public Transport: Due to the travel restrictions, public transport were highly affected, particularly the number of ridership. As public transport users had dramatically dropped from 3,000 to 800 per day, the number of trips of inter-district buses had also reduced from 344 to 200 and the trip frequency from 20 to 5. Another reason for this reduction was the revenue margin. The number of ridership could not sustain the operation costs, especially gas and driver wage. Due to risks from the pandemic, travel to and from provinces, such as Bangkok, was suspended.

Noticeably, the reduced ridership have impacted not only inter-district buses but also paratransit, like songteaw and tuk-tuk. Such services mainly serve both Thai and foreign tourists, whereas the locals usually take their private vehicles. Therefore, the provincial lockdown and travel restriction had greatly reduced the number of riders.

In addition to the preventive measures, the bus terminal set a checkpoint to screen body temperature, provide hand sanitizers, and disinfect waiting areas and buses. Also, physical distancing measure was imposed by blocking some seats in the waiting area. Similarly, inside the bus, the riders must comply with physical distancing as some seats are blocked.

2) Medical Services

Along with the preventive measures taken by Tessaban, the medical division also coordinated with Chiang Rai Prachanukroh Hospital to prevent further spread and take care of patients who had a medical condition. Due to provincial lockdown and stay-at-home measures, the hospital and the MOPH provided medicine delivery services for patients with medical conditions. Also, right after the COVID-19 outbreak, the medical center in the community started a new service for those who want medical advice so they do not have to go to hospitals. This is mainly to reduce the number of hospital visits, especially to hospitals caring for COVID-19 patients. Therefore, the hospital during the provincial lockdown was less busy than usual.

At the hospital, the temperature screening point was set to detect people with suspicious symptoms or fever over 37.3. Also, wearing a face mask was imposed as basic prevention. As the number of visitors to see patients was also limited, only one from the family or close relatives could visit.

VHVs were essentially checking the basic health of people in communities and reported to the hospital particularly for elderly aged over 70 years. Also, they gave basic medical advice and coordinated with the hospitals for emergency cases.

3) Education Services

During the closure of educational institutions, an online course were provided as additional support for the students from 1 June 2020. It was similar to a normal class, which took 5 days with all curriculums. Google Meet was the platform used, so students could rerun the course and communicate with the teacher. In this case, the student could post their questions and get clarifications from the teacher under the shared platform. However, such an online course was not compulsory but mainly supported students for a better understanding of the course. It was really helpful especially for high school students as they prepare for university entrance examinations.

As for kindergarten and junior high schools, the Tessaban provided free lunch during the provincial lockdown. It was distributed at the school, so parents could come and take it for their kids. The Tessaban used LINE Group with parents to inform when and where to get the free lunch. The group was also used for contacting and updating students' situations.

In some cases, like those without online access or with issues from the online course, teachers would visit their houses to assist with the lessons once a week. Teachers also provided some homework for the students to follow up on the lesson.

After school reopening on 1 July 2020, the schools implemented preventive measures, especially physical distancing. Students were divided into two groups. The groups alternated in the use of classrooms. The groups were also classified under consideration of family members. If the students had siblings, they would come and study at school on the same day. In this case, the teacher must work double as they need to provide the lesson twice for each student group. Checkpoints were also put up at the school entrance for body temperature screening and providing hand sanitizer by VHVs.

4) Waste Management

Tessaban continued to collect waste even during the pandemic. For infectious waste such as surgical masks, the Tessaban provided separate bins even though people mostly used washable face masks. VHV's informed people to pack, roll, and wrap used face masks in plastic bags separately before discarding, while community leaders instructed people where to dump the infectious waste in the communities.

5) Government Services

To reflect the prevention measure, the provincial government offices had ordered a suspension of their activities in each department. In line with state emergency, the suspension of government activities had started from 3rd April to the end of April 2020. This mainly involved the Department of Land Transport (DLT), Department of Land, Registration Office of District Administration, Local Administration Organization (LAO), Provincial Administration, and employment department. Some departments have provided an online service during the suspension of the services. DLT provided an online driver training course for a license extension. Details of suspended activities are summarized in Table 1.2.2.

Table 1.2.2 Suspension of Provincial Government Services

Department	Suspended/Alternative Government Services
Department of Land Transport	<ul style="list-style-type: none"> - Suspending driver license training - Suspending extended driver license training - Suspending driver school - Suspending car license plate and car taxes issues - Suspending driver license issues - Opening online courses for driver extension training
Department of Land	<ul style="list-style-type: none"> - Right and juristic registration - Request on building, land readjustment, and all types of real estate
Registration Office of District Administration, Local Administration Organization, and Provincial Administration	<ul style="list-style-type: none"> - Suspending services of provincial, district, and LAO registration office that is not necessary except for birth, death, and other urgent registration
Employment Office	<ul style="list-style-type: none"> - Using online recruitment for both employer and employees - Unemployed persons should register and report on the website

Source: Chiang Rai Provincial Office, 2020 Edited by JICA Project Team

1.3 Impacts of COVID-19

1.3.1 Economic Impacts

1) Overall

Agriculture, tourism, and border trade are the three main industries of Chiang Rai. The tourism sector seems to be the most affected by the pandemic. The Chiang Rai governor announced the suspension of activities with people's movements between provinces and migrant movement on 19 March 2020. Two days later, inter-provincial movement and night bazaar were suspended. Therefore, many businesses in Chiang Rai instigating movement of people have been affected. Businesses like hotels, restaurants, and shops located around the Chiang Rai bus terminal were quite affected also since that location has a lot of people's movement.

The decreasing number of tourists and the government policy for staying at home caused an economic downturn. Although Chiang Rai tourists are mostly domestic tourists, the loss of international tourists has affected the tourism businesses and trade in the city particularly at the night bazaar, one of the province's tourist destinations.

Apart from the tourism sector, another main economic sector in Chiang Rai is domestic and international trading, particularly border trading, which were also affected by the restrictions of the Thai government and neighboring countries. It should be noted that businesses that pay rent were likely to collapse compared with businesses with their own properties. On the other hand, there was one type of business that continued to make some profits despite the pandemic, and it is the fabric shops. There was a high demand for fabric because of the demand for fabric masks. The price of fabric material was increased from THB 20 per meter to THB 60. Other materials were also necessary to make fabric masks like elastic bands and threads. The details of the impacts in each sector are described in the following sections.

2) Tourism Sector

In response to the outbreak, the government imposed several measures including the travel restriction, leading to a decrease in tourists. Even though the number of tourists started to decrease beginning in January, it was not because of the outbreak since the number of tourists started to decrease in January 2019. The outbreak has affected the number of tourists since March 2020. As shown in Figure 1.3.1, the number of visitors rapidly dropped from March 2020 since the travel restriction on 19 March 2020. However, the number of tourists picked up in May because the travel restriction was lifted. According to the interviews, most people have the same perspective that the tourism sector got the highest impact.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 1.3.1 Number of Chiang Rai's Visitors

According to Figure 1.3.2, the number of foreigners decreased in January 2020 because of the border closure and international flight ban. There were about 58,975 foreigners in July 2019 while there were only 1,037 people in the same month of 2020, which is about a 98% decrease.

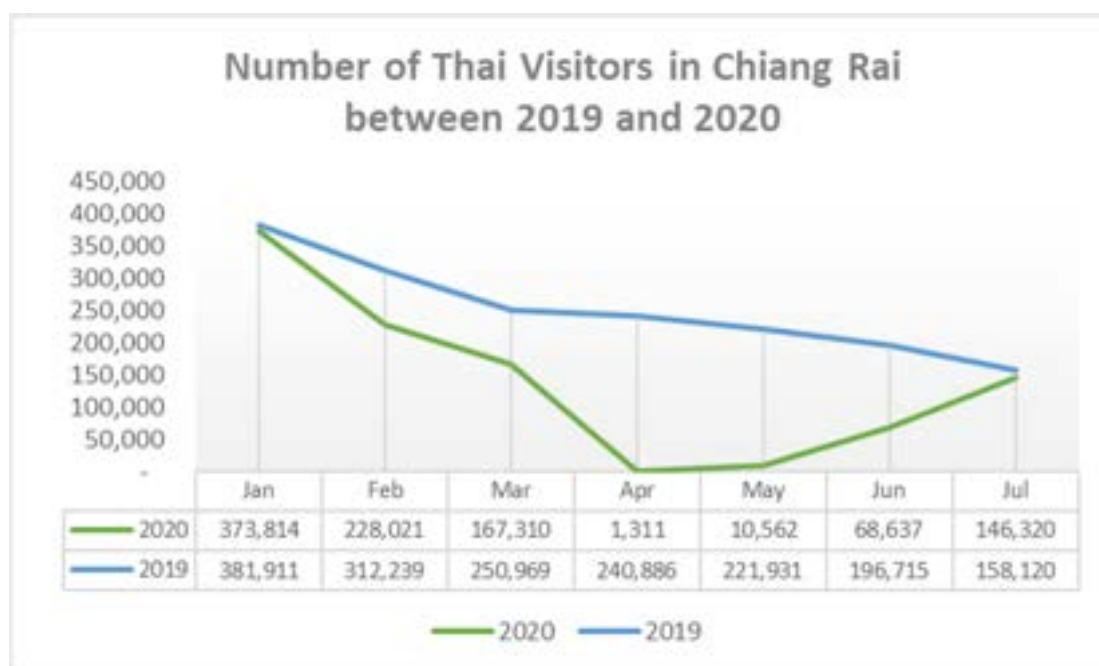


Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 1.3.2 Number of Thai visitors in Chiang Rai between 2019 and 2020

For the situation of Thai visitors, on the other hand, Figure 1.3.3 shows it increased after the travel restrictions were lifted. Similarly in 2019, the number of Thai tourists in July 2020 was 146,320. However, the income from visitors remained a deficit possibly due to the

decrease of purchasing power. Table 1.3.1 shows that the percentage of income changes in each month between 2019 and 2020 is still a deficit.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 1.3.3 Number of Foreign visitors in Chiang Rai between 2019 and 2020

Table 1.3.1 Income from Thai and foreign visitors between 2019 and 2020

Month	Income from Thai Visitor (million baht)			Income from Foreign Visitor (million baht)		
	2019	2020	%Change	2019	2020	%Change
Jan	2,611.22	2,547.25	-2.45	566.62	530.70	-6.34
Feb	2,132.01	1,618.63	-24.08	552.33	297.46	-46.14
Mar	1,688.44	623.02	-63.10	402.59	38.60	-90.41
Apr	1,568.35	7.16	-99.54	556.55	21.30	-96.17
May	1,438.25	53.93	-96.25	501.19	9.75	-98.05
Jun	1,280.66	363.02	-71.65	478.68	4.54	-99.05
Jul	1,178.50	865.52	-26.56	639.45	5.05	-99.21

Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Even though businesses in the tourism sector have been affected, the situation in Chiang Rai was better than in other touristy provinces like Chiang Mai and Phuket because about 70% of Chiang Rai visitors are domestic. However, travel control measures also stopped Thai people from traveling from April to mid-May 2020, meaning during those months, hotels and other related businesses like car rental companies, transportation services, and travel agencies, have also been affected in terms of losing income. It is interesting to note that long holidays stimulate about a 40–50% increase in the number of tourists compared to a normal weekday. However, one of the interviewees said that most tourists are from the northern part, which can be indicated by their accents. People may not travel too far away from the city instead of to another city within the same region.

Hotel business: Even though the governor did not order hotels to close, many still decided to because the number of visitors was few. Notably, luxury hotels where fixed costs and

expenditure are quite high temporarily stopped operating their businesses before the smaller hotels did so. Some chain hotels closed for 2–3 months before reopening in July. Bigger hotels had to bear higher fixed costs like utilities, employee salaries for various service functions, etc.

Night Bazaar: Even though the night bazaar was not ordered to close, no shops opened during the pandemic because there were no tourists. The bazaar was popular among foreign tourists before the pandemic, but the merchants were afraid of getting infected. It started getting a slight impact by the end of January or around Chinese New Year since their main targets are Chinese people. By that time, the virus already spread in Wuhan, China. Although the bazaar reopened, few tourists were visiting. From April to July 2020, the income of most shops reduced by 90% from their normal income generation.

The bazaar located near the bus station had been quite empty since the outbreak started. The decreasing number of visitors to the bazaar and bus station also impacted the income generated from the nearby paid toilets. Originally, people must pay THB 3 per use. Apart from the decreasing number of users, the cleanliness of the public toilet was another factor causing concern even if promoted to be sanitized.

3) Commercial Sector

Apart from tourism-related businesses, many other businesses have also been impacted on both macro and micro scales. The decreasing number of people entering Chiang Rai and strict preventive measures caused an economic downturn in the city. Many shops and entertainment businesses have also been affected. Businesses that were not ordered to close had to follow the preventive measures on area-based risk prevention, which were screening people, cleaning, managing wastes, wearing face masks, providing hand sanitizer, keeping distance, and limiting users. These measures caused additional costs for shops and businesses.

Restaurant: Many restaurants and bars in the city were grouped to mutually decide if they would temporarily close. However, many restaurants at the bazaar closed permanently because they have no returns on their investment.

Market: people preferred using delivery services rather than going to the market. One reason is the many preventive measures, like checking body temperature, checking in via an application, or wearing of face mask. Market entrances had to be limited so preventive measures could be imposed. For example, the entrances of one market were reduced from 19 to 7, inconveniencing many. People had to walk longer to enter the market because the gate closest to them was temporarily closed. Thus, people tried to avoid going to the market, causing a decrease in sales. The tessaban decided to reopen most gates beginning 1 August 2020 to stimulate economic activities in the area.

Walking Street: The walking street had been closed since 20 March 2020 due to the governor's order. It used to operate every Saturday, and the temporary closure affected more than 1,400 shops. Merchants definitely lost their incomes. While the Tessaban considered reopening the walking street, there was still a concern about the safety. Therefore, instead of fully reopening, it partially opened the food section on 16 May to stimulate some economic activity. There were only about 3,000 visitors in that section. It

led to the concern of density if the walking street would be fully opened. For reopening the street market, Tessaban had to consider how many staff would be needed for the 11 entrances/exits of the market and how to maintain distancing within the market. Therefore, the number of shops must be reduced from 4 rows to 2–3 rows or half the merchants had to operate every other Saturday.

Entertainment shops (pub/bar and massage shops): Pubs, bars, and massage parlors, mainly targeting foreigners, had fewer customers. Many shops had to reduce their expenditures by temporarily closing or reducing their staff. However, the business owners had to follow the preventive measures upon reopening, which somehow caused inconvenience for customers, particularly the checking in or signing in on paper before entering. It may have also caused difficulty for some people who preferred to avoid showing their identification at certain places, especially people who secretly visit. Overall, only about 25% of massage parlors and spas reopened because their main customers are foreigners who still could not enter Thailand.

Salon and barber: Although some businesses like salons and barbers were not forced to temporarily close, most of these businesses did not have a financial backup for handling the economic crisis. The number of customers during the outbreak from April to July decreased, affecting their incomes. It should be noted that they also had to pay additional costs for the preventive measures. One of the interviewees said that this group of businesses was greatly affected because they did not have extra money for expenditures that required income compared to hotel owners that are likely wealthy.

Border trade: Border trade, which is another important economic driving force of Chiang Rai, was also affected. Cross-border trade was also affected by the closure of international border imposed by the state emergency since three main borders in Chiang Rai have been closed: (i) Mae Sai border checkpoint, a permanent border checkpoint connected to Myanmar, (ii) Chaing Saen border checkpoint for connecting and transporting products to China and Myanmar, and (iii) Chiang Khong border checkpoint connected to Laos. Chiang Rai normally exports consumer goods through the Mae Sai border checkpoint whereas, edible products such as rambutans, durians, mangosteen, pineapple, and frozen chicken are carried via the Chiang Saen border checkpoint. The border closure also caused difficulty in domestic shipments because Chiang Rai is a gateway before transiting products to the other provinces.

In addition, there were also preventive measures given by the neighboring countries, which caused a delay in shipment. For example, Laos required all drivers from Thailand to be tested for COVID-19, and they had to wait for the result for five days before entering Laos. As a result, products such as fruits got spoiled in containers after waiting at the border for many days. The product could not be sold anymore. To solve this problem, the Chamber of Commerce (COC) suggested the Laotian government accept the COVID-19 test results in Thailand that take only three hours. However, the Laotian government refused and only allowed their staff to take the fruit containers to the country from the border. For this reason, no foreigner could enter Laos, but it put more burden on Thai entrepreneurs since they needed to pay more for the transportation costs.

All logistics within the country were also suspended due to the curfew. Trucks could not run from midnight to 5 a.m. After that, product transits were allowed even during the curfew period. However, transportation costs became higher because trucks could not be in full capacity due to some restrictions. Some products were hard to be transported because one truck takes a long time to pass each checkpoint established following the disease control. Even though there were no problems with market supply, people chose to stay home instead of going out shopping for safety issues.

On the other hand, some businesses benefited during the provincial lockdown. Cactus increased in sales, and plantation business had an increase in orders from China. These showed people became more aware of tree planting, too.

4) Industrial Sector

Most industrial businesses in Chiang Rai are small agricultural processing industries. The outbreak has also impacted the industrial sector with the decrease in orders of agricultural processing products due to the border and restaurant closures, resulting in lower demand.

5) Agricultural Sector

The main agricultural products in Chiang Rai are jasmine rice and fruits, such as Phu Lae pineapple, durian, mangosteen, and rambutan. Although there was no big impact on the agricultural sector, there were impacts on agricultural product exports and drought, which limited farmers from cultivation.

6) Employment

Since businesses in Chiang Rai could only earn little or had no income after the many restrictions announced, it has indirectly forced business owners to reduce their expenses by laying off some staff or reducing the salary or working hours. Many had lost their jobs or salaries since many businesses suspended their services, particularly the hotels and restaurants. For example, a hotel in Chiang Rai decided to reduce the salary of their employees from THB 12,000 to THB 6,000 per month as well as the working hours to only 15 days per month. Moreover, some hotel employees were asked to return to their hometowns to work in the agricultural sector, and some were asked to resign yet return after six months to work.

Many staff of transportation services also lost their jobs due to the decrease of services. It was caused by the decreasing number of passengers avoiding using public transportation due to cleanliness and safety concerns during the inter-provincial travel prohibition period.

Closure of entertainment shops, like pubs, bars, and massage parlors, did not affect only the owners but also the employees, especially those over 18 not highly educated. Besides losing their job, they may also have difficulty finding a new one in the other services. It is interesting to note that this type of business was the last allowed to reopen. The longer period that businesses cannot generate income, the higher impact on the owners and employees.

However, if the employees were included in SSO systems, they could receive primary compensation. It should be noted that most Thai and foreign laborers in factories are covered by the system; hence, they could only be slightly affected by the situation. In

contrast, people without permanent jobs like general daily workers, carpenters, construction workers, or even part-timers are most likely to be highly affected, besides tourism-related employees, since they are not covered by the system. Therefore, workers without a backup plan or savings may face difficulties harder than others.

In an economic crisis like that caused by COVID-19, most people spent as little as possible, affecting job opportunities, particularly unskilled jobs. For example, people may choose to clean their houses by themselves instead of hiring some daily housekeepers.

On the other hand, government officers and office workers seem to have the least impact. Even though their salaries are reduced, they still have fixed incomes.

7) Tax Revenue

Tessaban's fiscal year budget was also affected by the reduction of tax collection this year (by 90%) and loss of rent from the Tessaban's property that was suspended to help people for three months.

8) Newly Emerging Services

Online business: Quarantine and staying at home policies created a chance to enhance and promote the businesses of people online. Since people had nowhere to go due to the closure of businesses and did not want to risk shopping outside their homes, the online market has become more popular since the outbreak has started. One of the reasons that sales in the market decreased is people started to order products and food online. In addition to the safety issue, people preferred online services for the various payment options, such as cash on delivery and credit card, providing convenience for customers.

Although the online market is useful and convenient, the products may be different from customers' expectations. Online channels are an additional market where a larger group of people can see the product. However, this online platform may only be useful for the young generation who take advantage of this opportunity. Old-fashioned people do not understand this platform as much, so as a consequence, they could not see the opportunities in starting e-commerce businesses.

Delivery services: Food delivery services are another new wave of business. Grab and Foodpanda service Chiang Rai, and some restaurants joined these service providers whereas others run the delivery services themselves. In addition, the delivery service addressed the closure of dining in restaurants. However, a restaurant owner said that online delivery could not generate higher profits than dine-in or even the same. Some big hotels without customers opened a restaurant section to sell food in front of the hotel and joined in the delivery program. #

1.3.2 Social Impacts

1) Health

The COVID-19 pandemic has caused health issues, both physically and mentally, which are described as follows.

Mental health: Even though people feared getting infected, losing jobs, or the business downturn, their stress did not reach the point they had to see a doctor or was regarded as

a problem. However, a stressed family member may lead to family arguments. For example, a Thai Airways staff was stressed from losing a job, also causing stress to other family members that turned into an argument within the family. Some people who had to isolate themselves for 14 days may get stressed being alone. It should be noted that the medical division also has concerns about mental health. They provided psychological rejuvenation services for the unemployed and those needing advice on adapting new activities, such as learning to plant vegetables at home.

Physical health: Since the public parks were closed during the provincial lockdown and some types of exercises, especially dancing and aerobics, were suspended, people did not have a place to exercise. Some chose to go to other open spaces, like an old airport that has sufficient area to use as a running track. Moreover, people also walked and rode their bikes around their neighborhoods. Another optional location for exercising is at home. People who worked out at home watched clips on social media or purchased exercise equipment, resulting in the increasing number of people exercising at home during the provincial lockdown.

Some people had concerns about weight gain, diabetes, and blood pressure since they could not exercise as usual. Moreover, staying at home influenced them to eat more than their regular eating habit. Although some have gained weight, it did not seriously affect their body condition. Many people always asked community leaders when the public parks would reopen because they wanted to work out like usual. Noticeably, the outbreak has increased health awareness of Chiang Rai locals because they feared getting infected. After the public park reopened, people resumed their exercises like usual but with social distancing.

Health issue related to alcohol selling ban: The alcohol selling ban affected alcoholic people in some cases since some VHVs were asked to buy alcoholic drinks for them. Sometimes VHVs had to buy them because they were afraid the person would have an alcoholic chronic disease. According to the interview with the community leaders, there were two cases that people died from alcohol banning.

2) Education

From 1 June 2020 to the beginning of August 2020, schools separated students into two groups. While one group could study at school, the other must stay home to study online. They alternate their classes according to the schedule by going to school every other day.

Online classes started from 1 June 2020 were optional for students to learn. According to Tessaban's interview, the majority of students in Tessaban school have devices to access online classes. They at least have a smartphone. Only a few students did not have available devices. Moreover, most of the students have been taken care of by their guardians. Therefore, the majority of students were ready to take online classes. If students are faced with an unstable internet connection or power outages, they could re-watch the lesson as much as they want.

However, there were some difficulties in learning online. Students' concentration was easily disturbed by the surrounding environment. For example, one of the students said that sometimes students were called by their parents to do some other things while studying

the online classes at home. Besides, the contents and lessons were harder than studying in an actual classroom, especially an English class that was taught by a foreign teacher. Students could not have much interaction with their teachers. Hence, some students, particularly senior high students, could be more stressed because the online lessons were too hard to understand while they prepared for college or university entrance exams.

There was no impact on their relationship with friends since they still communicated via social media. They still met their friends at the Central Festival even if they could not meet at school. In addition, there is a LINE Group for exchanging information and informing online class schedules to students.

3) Social Activities

According to the restrictions by the state emergency, many activities where people gather had to be postponed or refrained. Therefore, community activities were suspended except for funerals. Even if the funerals could be arranged, there were restrictions that people must follow, such as temperature checking and minimizing guests. VHV's had a responsibility to go on-site and check the temperature of guests before entering the funeral. Some religious activities were also refrained, which affected some temples. Without temple-goers, the temples could not get merit or donations. It should be noted that the annual festival, like Songkran Days, was also postponed. The COVID-19 outbreak prohibited people from seeing each other, particularly at night due to the curfew.

4) Relationship of People in Community

Interestingly, the outbreak has strengthened relationships of people in the communities at both the community and family levels. People have helped each other by observing newcomers entering the community and informing the VHV's. Therefore, people got to know each other better than before the pandemic, resulting in stronger community relationships. This circumstance provided opportunities for people to be more open-minded, particularly on problems caused by COVID-19. The difficulties some have faced created empathy, and the people supported each other to cope with the crisis. There was also a positive perspective on the relationship within the family. People had more time with each other because they stayed home. Although people could not meet each other face-to-face, they could still communicate with friends via social media like LINE. It should also be noted that the young generation strengthened their friendships since they could communicate with friends through online gaming.

5) Migration

Chiang Rai had workers from other provinces and other countries who decided to stay in the city or returned to their hometown. Most foreign migrants in Chiang Rai are registered workers and have long-stay permission. Some foreign workers from businesses that had to close did not have family staying in Chiang Rai. They decided to return to their countries, while some remained in the city. It was not easy for some foreign workers to return to their country since their countries also had strict entry restrictions. For example, Myanmar workers needed to quarantine for 14 days after entering the country. Those who returned to their home countries could not come back to Chiang Rai because Thailand did not open the border yet even though businesses reopened according to the lifting restrictions.

Since some migrant workers could not come back to Chiang Rai, some shops could not fully reopen due to the lack of staff. Some Thai people returning to their hometown in the mountains or outside the city could not also come back to Chiang Rai. One example is the indigenous people who previously worked in spas or massage shops in the city. They have not returned to their jobs because the shop had few customers since their main market are foreigners, and the income they would earn may not be enough or worth living in the city. Therefore, some business owners had to run businesses by themselves. There was another case of two guesthouses that were bankrupted due to a lack of foreign workers.

On the other hand, some people came back to Chiang Rai because they lost their job in other places like Bangkok. It is interesting to note that some planned to work continuously in Chiang Rai in the future because it may be difficult to find new jobs in Bangkok. Besides, working in Chiang Rai would cost lesser than in a big city like Bangkok.

6) Security of City

Traffic Accident: The number of traffic accidents significantly decreased during the provincial lockdown. In addition, the postponement of Songkran Days is one of the major factors that reduced the traffic volume of travelers to other provinces and reduced traffic accidents because of people drinking alcohol. People said that they did not have to worry about the traffic accidents that occurred during the day.

Crime and Domestic Violence: Overall, there was no huge issue with violence since most people stayed at home. But there were cases of burglary within the community due to economic pressures and alcoholism. While there were some issues on disruptive teenage groups before the outbreak, the COVID-19 outbreak has positively prevented teenagers from gathering together.

1.3.3 Environmental Impacts

There are both positive and negative impacts on the environment. Air and noise pollution have decreased whereas, the amount of waste may have increased due to safety reasons of avoiding contact with likely infected materials.

Air pollution: Chiang Rai has faced the PM 2.5 issue causing air pollution for many years. To control the amount of PM 2.5, the governor extended the date of burning prohibition from 60 to 120 days this year. Since the closure of many businesses and reduction of travels reduced combustion of fuel, the PM 2.5 rate has clearly decreased. Recently, the pollution from burning was from Myanmar.

Noise pollution: Not only air pollution but also noise pollution has been reduced. The curfew directly decreased the noise during the nighttime, particularly from pubs, bars, or entertainment shops normally open until dawn. People enjoyed the quietness of the city during the curfew period.

Waste management: On the other hand, the COVID-19 pandemic indirectly forced people to generate more waste from face masks or delivery packaging. The delivery services for online shopping and food delivery generated more plastic waste in the communities even though the Tessaban banned foam and plastic containers before the pandemic. However, many stores and shops used environmentally friendly packages/containers. Therefore, the

waste issue may not be that much of a concern. One of the interviewees added that it was hard to estimate the difference in the amount of waste now from before since Tessaban has collected the waste every day while hotel owners noticed a reduction because most people stayed home and cooked.

1.3.4 Impacts on the Vulnerable People

1) Elderly People

Even though there was no interview with a representative of the elderly in Chiang Rai, other interviewees, such as community leaders, VHVs, and the owner of Kalaya Place Resort, provided some inputs. The elderly is one of the vulnerable people sensitive to the outbreak. They are acknowledged to stay home and go out as little as possible. Staying most of the time at home may have caused them some stress; however, some elderly preferred it over going out. Notably, some elderly enjoyed staying at home with their kids by ordering food delivery to eat together with the other family members. Thereby, this group of elderly may not have been too stressed from only staying at home.

In addition, hospitals were concerned about the elderly's safety and sent medical staff to take care of them in case blood pressure testing was needed. Those who take monthly medicine could make an appointment at a neighboring pharmacy and let other family members collect it. In case the elderly stay at home without any family members, VHVs help them. Fortunately, most elderly in Chiang Rai stay with their family.

On the other hand, the COVID-19 outbreak may have caused a little impact on the elderly's feelings. The suspension of religious activities caused stress on the elderly group since they often visited the temple. Financial pressure within the family somehow caused anxiety to the elderly since they relied on their family's income. If one of the family members lost their job, they might not be able to support their elderly.

2) Tribes

Chiang Rai has many tribes that moved from the mountain to the city. For example, about 14 tribes are living in Nam Lat Community. Normally, they are local freelancers who work and get paid day-to-day. However, many of them lost their jobs due to the pandemic. Most did not get any support from the government since they are an unregistered population. Some of them moved into the community and most lived in rental houses. In that case, the rental owner did not inform the community leaders. Some brought lands and settled their home in the city.

Language and traditional beliefs are big barriers. Some can understand Thai, but others cannot. For those who cannot understand Thai, their family members who can communicate in Thai usually supported them by being an interpreter when VHVs and community leaders gave them activities and information. Some tribes in the city have a traditional belief in medical prevention. Therefore, they had to be carefully informed of COVID-19 and preventive measures. Particularly for dengue prevention, the tribes believe they should use powder to prevent the mosquito lava, while VHVs and community leaders suggested using sand. These tribes needed to be visited and be informed more than other groups in the community.

1.4 Supportive and Rescue Measures for Recovery

1.4.1 Supports for Household

Along with the impacts on society, both public and private sectors have provided means of support to recover and assist communities.

1) Supportive Measure by Tessaban

As mentioned in Section 1.2.1, the Tessaban provided 2,000 survival bags for underprivileged groups and 60,000 face masks to the communities. In addition, it distributed 5,000 care packages for the elderly, the quarantined, and those with a medical condition or needing primary care. Meanwhile, Poh Teck Tung Foundation, in cooperation with other philanthropists, donated around 4,000 survival bags for the communities and vulnerable groups identified and listed by VHV and Tessaban.

The medical division established psychological rejuvenation services to reduce the stress and pressure of unemployment in the city. It advised on jobs for the unemployed and self-readjustment to relax from the financial crisis. For instance, new activities like planting a vegetable garden have been promoted through this service. It helped people have fresh vegetables for their households, and they could sell them if they had too much for their consumption. The Kalaya Place Resort owner applied this new activity, promoting vegetable gardening to their employees. As the salaries of employees were decreased, the owner provided the employees with space for vegetable planting. The employee could plant and take it either for their households or sell it in the market. It helped mainly to relieve the financial difficulties of employees.

2) Supportive Measures given from Others

Government: The government also initiated a campaign to provide financial aid for the communities, especially vulnerable groups such as the elderly and disabled. The financial aid was THB 2,000 for each household. VHV and the Tessaban (medical division) selected the vulnerable households, especially the low income, based on their information so they could get the aid.

Since VHV have been working hard during the outbreak, the MOPH offered additional compensation of THB 500 for 19 months starting from March 2020. It would encourage and support the work of VHV for the communities.

Private sector and individuals: The private sector and individuals had several food distributions in communities, held at various spots in the community. People only had to go to the most convenient spot for them so they could receive food. However, distributors must contact the medical division before distributing food to apply preventive measures and to find the proper spot. For the in-bed patients and elderly living alone to receive such support, the medical division and VHV separated food for them and directly brought it to their homes. Also, at the food distribution spot, VHV were at the checkpoint to check people's temperature and arrange a queue for people coming to receive the support.

United States Government: Furthermore, there was a donation from United States Government for vulnerable migrants and ethnic communities. Handwashing and personal

protective equipment, equivalent to approximately THB 450,000, were provided through Mae Fah Luang University's School of Social Innovation's Area-based-Social Innovation Research Center (Ab-SIRC) to protect the vulnerable groups from COVID-19. In addition, Ab-SIRC established the Aid Coordination Center for Migrant Workers in Chiang Rai to ensure the vulnerable group could access national preventive measures by providing humanitarian assistance and personal protective equipment. The support enhanced the close relationship with U.S. Consulate and contributed to the health, safety, and prosperity of Thai and international communities throughout northern Thailand.

Others: Similar to other cities in Thailand, happiness cupboards were set up around the city to facilitate donators to provide any essential goods, such as food and clothing, for those struggling from the place closure. In theory, the happiness cupboards were expected to be useful for everyone; however, some people took too many things from them. As the happiness cupboard was in a public area, controlling the people and imposing preventive measures was hard.

1.4.2 Recovery of Businesses

In addition to the national measures, several sectors in Chiang Rai have provided various support to recover businesses in the city. Such projects have been promoted mainly by the Tessaban, private sector, and business owners to overcome the crisis together.

3) Suspension of Rent

The first business recovery effort was offered by Tessaban Nakhon Chiang Rai. They suspended rent in their local business. For instance, the rent of the fresh market was suspended for three months, mainly to facilitate and motivate the merchants in this economic decline. Similar to the night bazaar owned by the private sector, the landlord has offered the suspension of rent for three months from April to July 2020. Moreover, in August, the landlord offered a 50% discount for rent.

4) Market Platform

To promote the local businesses and products, "Chiang Rai Focus" was established in Facebook Marketplace to allow SMEs and local businesses to advertise their products. Along with this, some Chiang Rai locals, especially the new generation, have introduced and sold their products via this platform. There are two other marketplaces called "Khong Aroi Chiang Rai," meaning Chiang Rai delicious food, and "Pi Kat Khong Aroi Chiang Rai," meaning delicious food spot. Their function is to recognize and advertise local delicious foods. These platforms are not limited to dine-in restaurants or places but also home businesses operating only on delivery.

5) Platform for the Delivery Service

The COC formed a local delivery platform to compete with delivery services like Foodpanda and Grab. It was also an affordable service option for local businesses in the city. This local delivery platform was established with an application called YIM Delivery, which means smile delivery. COC collaborated with Yong Entrepreneur Council (YEC) and the Rajamangala University of Technology Lanna to design and initiate the service. Although this application is similar to Grab and Foodpanda, it focuses on high-quality local food and

places. Such places and food would be first under the consideration of the platform owner before the business can join the platform. This also allows a chef's table and home-cooked business to join the application. With this distinctive concept, this application is highly helpful for start-ups and local businesses in terms of market competition.

1.5 Behavioral Change and New Normal

1.5.1 Business Sector

Online Platform: Online services have become more popular during the provincial lockdown and place closure. The social distancing and staying at home measures facilitated people to use delivery platforms. Delivery services are considered an option for both sellers and buyers. Sellers have more channels to sell their products in, while buyers have more buying options. With the crisis, many businesses, even street vendors, started delivery services.

Restaurants, in particular, became more involved in delivery services like Grab and Food Panda. They must manage and balance their costs to sell food at the same price as they need to spend a commission fee to join such delivery platforms. Evidently, the delivery platform has increased the competitiveness among restaurants as the buyer has more options to select where and what to buy. Such services have provided opportunities for new and home-cooked businesses to be more advertised. Meanwhile, it may be hard for large-scale businesses like a restaurant garden to promote their business because their selling point is the ambiance, especially for family occasions.

Several businesses have gone online to promote and advertise their products. Facebook is the most efficient platform for sellers because of its features, such as live streaming and a marketplace for any business and product. These features encouraged the young generation to begin selling at the new market. For example, in an interview, the students said they joined Facebook live stream to sell their second-hand clothing and receive positive feedback in sales. Also, some of the students began new activities, such as baking and cooking, to sell in the online marketplace.

Both sellers and buyers considered the online platform as the most convenient channel to do shopping. For sellers, even with a small investment, they didn't need to worry about costs. They can produce products according to the demands. Meanwhile, buyers have more product options to see and select. Such a platform became more popular among the young generation and benefits them more, however, as they got more familiar with it than the elderly or middle-aged.

Hotel Business: As hotels were more affected by the pandemic, they must adjust their business strategy. They have promoted through social media, especially Facebook, during the provincial lockdown. Their target market shifted from foreign to Thai tourists. Definitely, the hotel entered the Red Ocean Market. Price competition influenced them to become available to more online channels. They are now available via Booking and Agoda. Simultaneously, hotel services and activities, as well as rooms, have been highly highlighted. #

In addition, the hotels have collaborated with other industries, such as restaurants and even tourist attractions to provide guests an optional travel plan. It would not only attract tourists back to the city but also strengthen networks to drive the city in the same direction.

Hotels also had to impose preventive measures. All hotel staff must wear face masks, and hotels must have a checkpoint for screening body temperatures of guests before they enter the hotel and disinfect rooms, facilities, etc. Buffet-style restaurants have been adjusted in

different ways, such as offering boxsets or menu sets, reducing the variety of foods in the buffet service, or allocating staff to serve food to reflect physical distancing.

Other Businesses: Due to the provincial lockdown and place closure, several businesses, like restaurants, hotels, massage shops, and others greatly impacted, have downsized by reducing employees. By doing so, they became a family business where the family members now work in it to sustain their businesses. Meanwhile, some shops renovated their buildings and spaces and created new products, showing creativeness to sustain their business and readiness before restrictions were lifted.

Although some businesses were closed permanently, this situation provided some opportunities for Chiang Rai locals, especially those who returned to their hometown, to operate new businesses in the city. The main reason is the investment and costs are lower than operating businesses in the other provinces without worrying over living costs like home rent. Working in their hometown has given them security.

1.5.2 Social Activities

Funeral: The preventive measures, such as physical distancing, wearing face masks, using hand sanitizers, and setting up checkpoints, were applied at entrances at funerals. VHVs operated the checkpoints, providing a hand sanitizer, checking body temperature, and checking those without face masks. Also, seats in funerals were blocked to keep distancing. Food provided at funerals was changed to a boxed set instead of hot food. Guests were also limited to close family members, and operation times were shortened to avoid people gathering in a small space.

Community Activities: People in communities became more transparent during the provincial lockdown. The financial pressure influenced community members to be more united. They freely shared their problems, expecting they can receive support through money, food, or encouragement. They have also become closer with one another because they want to share and update information in their communities. Community leaders became the main connection and supporter. For example, some foreign migrants who have never informed the community leader about their children have asked for social welfare for them, which is around THB 600 during the provincial lockdown. Thus, community leaders could get more real information, and at the same time, they could help and support them.

1.5.3 Peoples' Awareness and Behaviors

People in the city have shifted their lifestyle and increased awareness of financial balance and health in accordance with the restrictions.

Shopping and saving behavior: People plan their shopping by prioritizing and listing up the necessary things to avoid going to several places and passing through several checkpoints. Due to financial difficulties, people must balance their income. Most have applied the Sufficient Economic Philosophy by planting a vegetable garden and began living simply. For more savings, some began cooking at home instead of eating outside.

Communication channel: Since people must stay home, they were often on their smartphones and social media to communicate with friends and discover new activities,

such as online shopping, online learning, and online gaming. Both the young and old generations have been using online services. The elderly have learned new skills to use gadgets. In addition, people have learned to do online conferences. For example, VHVs had to arrange online meetings instead of face-to-face meetings, making them realize the benefits of social media and the importance of becoming more familiar with such systems.

Health consciousness: During the provincial lockdown, people wore face masks, carried hand sanitizers, and used alcohol. Those without face masks would be regarded as black sheep in society. Noticeably, people have become more concerned about their health, not only because of COVID-19 but also of other health issues that could affect their immune systems. According to VHVs, the people were keen to get an annual vaccine for influenza. As the symptoms are similar to COVID-19, people have tried to avoid getting sick during the provincial lockdown as people in their communities could get disgusted with them.

Application of the prevention measures: Even after lifting the restrictions beginning July 2020, people still wore face masks and checked body temperature, especially when they went outside. But became more relaxed on such measures, meaning people still carry face masks and hand sanitizers or alcohol when they go out.

Travel behavior: Due to the stay-at-home and social distance measures, people have gradually shifted their travel behavior. Noticeably, ridership of any public transportation has been reduced. People in the city traveled using their vehicles, such as motorbikes and bicycles, or by walking. This is partly to avoid getting crowded and also to keep exercising.

1.6 Further Needs

1) Continuous Prevention Measures

The second wave of the outbreak was highly concerning in Chiang Rai since it connects to Myanmar and Lao PDR. Most of the concerns were posed by illegal migrants smuggling into the city through natural routes. Many people said that the second wave of the pandemic would return to the country since the virus was still spreading all around the world. However, people still believed in the preventive measures provided and imposed by the government. Thereby, people in communities had to maintain their level of awareness and apply preventive measures. Meanwhile, the government should also keep its standard of disease control. Once the vaccine is completely developed, people will lower their level of consciousness.

2) Economic Recovery Assistance

Besides the financial support from the government for those impacted by the pandemic, interviewees shared many indirect ways to boost the economy. For example, the president of COC shared an idea to develop Chiang Rai as a logistics and tourism hub. As a border city, Chiang Rai offers opportunities for foreign investors, especially the Chinese, to invest in it because of its good logistics by land, air, or water. For example, Chiang Khong to Luang Prabang (Laos) only takes 12 hours, and there were over 50 flights pre-pandemic. About THB 60 million was the approved budget for the extension of Chiang Rai airport. In addition, the railway is planned to connect to Chiang Rai. There are various tourism resources as well, such as the popular artist and sacred temples. All in all, Chiang Rai is ready to promote both tourism and logistics. However, conditions of border development in Thailand are more complicated compared to neighboring countries. Therefore, investors always finance in other countries when the new border checkpoint is planned. For example, a casino, which attracts money flow, cannot be developed in Thailand, resulting in casino development in the neighboring country.

3) Promotion of agricultural products

Regarding agriculture, Chiang Rai is abundant and well known for the jasmine rice, which should be supported and promoted. According to COC's interview, there is a plan to open a new market for fruits, especially durian because of the high demands of exports. In addition, organic agricultural products should also be promoted.

4) Medical Hub Promotion

The president of COC also added that Chiang Rai has the potential to be a medical hub. There are almost 10 hospitals in the provinces, both private and public. In addition, Chiang Rai is well-known for its Thai medical centers and Thai massages. Those medical services, in addition, have been promoted and collaborated with Mae Fah Luang University where many competent doctors have been produced.

1.7 Future Development Perspectives

The experience of COVID-19 highlighted the capacity of the Tessaban in terms of COVID-19 management. Strong leadership has prominently been shown in the ability to energize tessaban staff. Role-sharing under the Tessaban was clarified at the beginning of the pandemic. Advance action has been taken in a timely manner. Therefore, these are the key success of the Tessaban to cope with the COVID-19 situation.

Even though the Tessaban was affected by tax reduction by 90%, their projects and development have been consistently promoted through stable leadership coupled with a strong network among the provinces. Such projects have been driven in the same direction. Particularly in COVID-19 management, the Tessaban was highly coordinated with the provincial office and provincial hospital to encourage people in the society. This coordination strengthens the network of the Tessaban among the public health division. The head of COC also has the same direction as Tessaban in terms of contributing income generation and jobs for communities.

1.7.1 Future Development Projects

1) Tourism Promotion

Along with this crisis, the Tessaban realized the importance of promoting the tourism sector. Tourism is regarded as a primary source of income, not only for the business owners but also for the communities. Tessaban has promoted the eco-tourism concept to keep the local identities and uniqueness. Local tourist attractions in the city center are being planned by the Tessaban. The existing resources have been enhanced to add value. The Tessaban also established facilities to support the sales of the local resources. For example, a skywalk project in Keereechaiyama and four trams were provided to support city tourism.

As many interviewees mentioned, Chiang Rai should promote tourism during high and low seasons because it has several tourist attractions, especially temples and national artists. Art in the city should be developed as a new attraction, while the sacred places should be promoted together with art.

In action, the Tessaban now promotes city tourism in different ways, such as a website and Facebook Page called "Chiang Rai City is our home" and a tourism information center. The tourism information center at the bus terminal has been renovated, placed with artworks and an art gallery inside. There is also a kiosk providing information to tourists. The kiosk will suggest the best tourism route depending on the theme that the tourist wants to go. The attraction will be shown in a 3D image and a street view.

2) TOFEL Test Center

In addition, education has been consistently promoted by the Tessaban. Tessaban plans to establish the TOFEL Test Center at the Tessaban School 6 for students in Chiang Rai to develop competency in English. Instead of traveling to Bangkok for the test, they can easily apply and have a test in their areas. This creates opportunities for students in Chiang Rai to pay more attention to the English language. Since there is only an IELTS Test center in Chiang Mai, the establishment of the TOFEL Test Center in Chiang Rai will not only serve students in the city, but also those in surrounding areas in the same region.

1.8 Implications to SFCI

1.8.1 Current Situations of Projects under SFCI

1) University of Third Ages (U3A)

Current U3A status: The U3A is the center providing the elderly with lifelong learning opportunities. Fortunately, the U3A had no activities or classes during March 2020 thereby, it was not affected as much by the pandemic. However, the new batch for U3A, supposedly to start on 27 April 2020, was postponed due to safety issues. It affected the elderly using U3A since they could not see their friends and do activities.

Regarding JICA's support of technology equipment like computers, it is very useful for the elderly to understand how to use the website and program. Particularly, during the pandemic, they can apply that knowledge on using social media to exchange information and contact with friends.

Further development: The idea of strengthening the communities by a people-centered approach has been applied as a basis of U3A management. Tessaban has collaborated with the Thai Health Promotion Foundation to extend the outcomes of this project. The Thai Health Promotion Foundation has provided a budget to promote community initiatives, which are expected to contribute to the health of locals and involve public participation. Tessaban Nakhon Chiang Rai has reflected this proposal to the operation of U3A.

Together with the SFCI experiences and Thai Health Promotion Foundation opportunities, the Tessaban extended such knowledge and experiences of U3A to five other communities. It also established the same kind of centers using the location of schools or temples in the communities, under the concept of SMART-NET, referring to SMART Network, S-Share value, M-Management, A-Accountability, R-Relationship, T-Transformation, N-Networking, E-Enthusiastic, and T-Technology. One center will take care of around 10 communities to encourage the people to think about future development. The centers do not only focus on the activities for the elderly group but also serve all generations.

Community development has also been promoted through these centers. In other words, the communities can share their ideas and needs in the centers and make plans together with the Tessaban as a bottom-up approach. Such an approach is now being promoted because Tessaban regards the communities as vital because of their familiarity with local contexts and problems. Therefore, communities are potentially able to propose development projects related to increasing public wellness. Their ideas collected in the centers will be proposed to the mayor for approval during each fiscal year budget. The head of the center is a volunteer who wants to develop the city.

2) Camping Activities for the Students

Recently, to support the camping activities for the students, the Tessaban has already established the bathroom in Doi Saken to facilitate student activities. The students in Tessaban 6 School are the pilot for this camping. Tessaban keeps promoting outdoor learning for students through these activities, so they can gain more experiences with nature and local contexts. During the pandemic, the Tessaban can improve and upgrade the camping area to support camping once the province is reopened.

3) Organic Vegetation Training based on Sufficiency Economy for Community People

The knowledge from the training gained during the JICA pilot project has been extended to the safety food center project. Tessaban is now planning to establish a new food distribution center to promote the local economy through organic products. The communities can sell their organic products to the center at stable prices. In the initial stage, Tessaban was planning to let the municipal school use those organic products for student lunch. Then, Tessaban has planned to extend the project and sell organic products to restaurants. This will decrease the health risk for people in the city. As this project has just started this year, the center is now being established and is expected to finish by the end of this year. Once the project is finished, the farmers can manage their selling products and gain more income. Now, around 60 farmers joined this project. The farmers are now taking training sessions on safe food and organic food provided by Mae Fah Luang and Ratchamongkol University. These universities also exercise quality control of the farmers' productions.

4) Doi Saken Development and Activities

Doi Saken has been promoted by the Tessaban as a learning center for all ages under the ecotourism concept. Even though Doi Saken has now no distinctive activities, Tessaban has several ideas and projects to complete the development of Doi Saken. There are three main projects.

- Skywalk Project: Designing the new route of the skywalk at Doi Saken has been proposed to promote community-based tourism. This project was inspired by Skywalk in Taiwan. The design of the skywalk is now in collaboration with Ratchamongkol University and Mae Jo University. The construction of the skywalk is expected to start next year and finish in the next two years.
- Science Learning Center: Tessaban has planned to establish a new building with the observatory. Its design is in a collaboration with Mahidol University. The project is now in the process of study and observation.
- Learning center and distribution center of community products: The old building in Doi Saken is now being considered for renovation along with the Skywalk and Science Learning Center projects. The learning center is expected to provide a space for communities to sell their products and facilitate student activities during camping.

Such have similar goals of promoting ecotourism and community-based development in Doi Saken to attract tourists, generate additional income, and create jobs for the locals.

1.8.2 Implications to SFCI

Tessaban has learned to develop knowledge and strengthen the communities throughout the implementation of SFCI. The planning process of SFCI has motivated Tessaban Nakhon Chiang Rai to promote a people-centered approach. This potentially strengthens people in the communities and creates a sense of belonging. According to the Tessaban, once the community becomes strong, they can be resilient for unexpected issues and crises, especially in the COVID-19 situation.

1.9 Other Issues Raised

Apart from the pandemic, other diseases like dengue fever are more dangerous because it has a higher death rate. The rainy season is also the dengue fever season. Tensions from the COVID-19 pandemic have been decreasing, so VHVs can now check for dengue fever and take care of people in the communities. They must inform how to eradicate mosquito larvae. VHVs are personally concerned a lot about this fever since there were about 19 people in one community with dengue fever last year. Besides, some tribes who return to their hometown in the mountain areas during the weekend and come back to the city on the weekday have somehow brought dengue fever into the city. The red-flagged area is mostly around Doi Tung, Mae Fah Luang.

2. COVID-19 Impacts and Response on it in Tassaban Nakhon Khon Kaen

2.1 Overview of Khon Kaen

2.1.1 Characteristic of Socio-Economic Status



Source: JICA Project Team

Figure 2.1.1 Location of Khon Kaen

Khon Kaen Province is a flat area in the center of Northeast Thailand. It is about 152 km from Nakhon Ratchasima and 137 km from Udon Thani. Khon Kaen only has domestic flights to Bangkok, Chiang Mai, and Hat Yai. The main road access is via NR2 and 12, which can connect to Vientiane and Mawlamyine. The urban area of Khon Kaen is within a circular bypass road (NR 230) located 10 km from the center, making it a border of the metropolitan area of the province. Bangkok, Laos, and Laem Chabang (via Kaeng Khoi and Khlong 19) are connected to Khon Kaen via railway.

With its potential location, Khon Kaen has become the center of Northeast Thailand and strategic investment because of Friendship Road (NR2) and the first National Economic and Social Development Plan. The main industries are manufacturing and trades while regional commercial activities are growing in the center of Khon Kaen. In 2015, Khon Kaen has around 3.8 million visitors annually. A big percentage of the visitors are business visitors since Tassaban Nakhon Khon Kaen doesn't have many tourist attractions. Khon Kaen urban area has many higher educational institutions and many job opportunities for the young.

Population, aging rate, area, and main economic activities of the Province and the Tassaban are summarized in Table 2.1.1.

Table 2.1.1 Overview of Khon Kaen Province and Tassaban Nakhon Khon Kaen

Population	
Province	1,802,872 with a growth rate of about 0.07%.
Tassaban	114,459 with a growth rate of about -1.08%

Aging rate (60+)	
Province	There are 245,232 people 60 years old and over, which is about 17.7%.
Tessaban	There are 19,766 people 60 years old and over, which is about 17.3%.
Area	
Province	28,195 km ²
Tessaban	42 km ²
Economy	
Province	Regional Center, MICE City, Educational and Medical Hub
Tessaban	CBD and Commercial center, a hub for agricultural products processing, and a hub for logistics

Note: The calculation of growth rate was based on the population data in 2019 and 2015.

Source: DOPA, 2019

Tessaban Nakhon Khon Kaen is under the strong leadership of a mayor and top administration officials. It also has a strong network among the public, private, and civil sectors.

2.1.2 Overview of Infection of COVID-19 in Khon Kaen

As shown in Table 2.1.2, Khon Kaen had six cases as of June 2020, of which the first was found on 15 March 2020. The average age in the infected cases was 39 years old, with the youngest at 19 years old and the oldest at 70 years old. The infected cases have been treated in the provincial hospital but were now all recovered.

Table 2.1.2 COVID-19 Infectious Status: Khon Kaen Province

1.1	Infectious Cases Number	1 st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	0	3	6	6
	Active Cases	0	0	0	2	0
	Recovered Cases	0	0	3	4	6
	Death number	0	0	0	0	0
	Testing Number (PUI)	N/A	N/A	N/A	158	242
	Local quarantine	N/A	N/A	N/A	N/A	N/A
1.2	Gender					
	Female	3				
	Male	3				
1.3	Age					
	Minimum	19				
	Maximum	70				
	Average	39				
1.4	Nationality					
	Thai	6				
	Others	0				
1.5	Date of first confirmed cases (Announced date)	15 March 2020				
1.6	Transferred from other provinces	0				

Note: Collection of the number of infected cases was on every 1st date of the month.

Source: MOPH, 2020 (provincial office) edited by JICA Project Team

2.2 Infection Prevention Measures

2.2.1 Infection Prevention Measure Taken by the Province and Municipality

As the central government assigned governors in all provinces to impose the restrictions applicable to provincial situations, the Khon Kaen governor actively and promptly applied the government measures and instructions. A summary of the key restrictions are as follows:

The first infected cases were found on 15 March 2020. By 23 March 2020, the governor announced the provincial lockdown measures. From then on to the end of April 2020, the governor imposed temporary closures of 28 types of businesses and places, including dine-in restaurants and beverage shops, department stores, amusement parks, educational institutions, health businesses, entertainment stores, and sports stadiums. In the same period, infection prevention measures, such as temperature checks and bus disinfection, were imposed in both international and inter-provincial buses. Checkpoints were placed along the national road to limit inter-provincial travel. Also, the governor has restricted the foreign migrants to return to their countries.

Since the 29 April, donations and distributions have been controlled with prevention measures. Donators must disclose their donations (money, food, or other essential items) to the Emergency Administration Center in Khon Kaen Province, district chief, or the local administrative organization (LAO) three days in advance. In case the donation was for Tessaban Nakhon Khon Kaen, the donors must follow the measures below.

- Donation (non-edible) or distribution (food) of items not more than 100 pieces may be distributed to homes or any proper areas.
- Donation (non-edible) or distribution (food) of items not more than 300 pieces may be distributed on spots provided by the government.
- Donations (non-edible or cash) or distribution (food) of items over 300 pieces may be distributed at Khon Kaen train station.

During the donation or distribution, donators must follow the following measures.

- Donation spots must have enough space for social distancing (1.5–2 m).
- LAOs or districts must provide staff at checkpoints (for temperature checks and distribution of hand sanitizers).
- Donors and receivers at donation spots must wear masks and gloves and must have their temperature checked. Donors must promote before giving items.
- Donors, distributors, and receivers must register with their name-surname, ID number, and contact number and then send the registration list to LAO or district chief.
- In case the donors/distributors cannot follow these measures, they must inform the LAO or district chief to give or distribute the items on their behalf.
- All donations and distributions processes must not encourage any social or public gathering.

By mid-May, the governor lifted restrictions on the temporary closures of businesses and places and the health safety measures. The first to reopen were eateries, retail shops, and

department stores because imposing prevention measures on these places is easy, especially social distancing. Meanwhile, businesses requiring physical contact with customers, such as hair salons, massage spas, or beauty clinics, remained closed. These businesses must first upgrade their safety measures before they were allowed to resume operation. In mid-June, most restrictions on businesses were relaxed, but still limiting the number of people in a venue to maintain social distancing.

Tessaban actively implemented provincial restrictions and supported the prevention measures. The main action of Tessaban was to provide information about prevention measures, especially wearing face masks, using hand sanitizers, and social distancing. Additionally, Tessaban distributed two fabric masks for each household and hand sanitizers for the people in the community.

During the reopening of businesses, the Tessaban rechecked them to ensure health safety measures were in place. For example, the public health division staff of Tessaban Nakhon Khon Kaen visited dine-in restaurants to check no customers are sitting inside.

Businesses, such as the fresh market and street market, also applied preventive measures. Persons without face masks were forbidden entry, businesses set up a registration system using the Thai Chana application, checked body temperature, and handed out hand sanitizers. A one-way circulation had been imposed in the fresh market by closing some entrances and exits. Even after the reopening of the street market on mid-May, Tessaban imposed the following preventive measures for vendors and buyers.

- Releasing PR about preventive measures to all entrepreneurs and vendors. Entrepreneurs and vendors must notify their needs to Tessaban for booking a space.
- Organizing a space (block) from Lang Meaung Road to Thepparak road and arranging social distancing measures. The number of blocks has decreased from 1,069 to 525.
- Limiting the regular open hours of 5 p.m. to 10 p.m. to 3 p.m. to 9 p.m.
- Determining the entrance and exit for six spots (originally eight) with checkpoints for temperature check and hand sanitizer distribution.
- Setting a one-way flow.
- All merchants, vendors, entrepreneurs, and customers must wear masks.
- Prohibiting the use of dining tables.

In addition, the merchants and users must follow the public health instructions against COVID-19, especially wearing masks, maintaining social distancing of 1–3 m, prohibiting the elderly aged over 70 and children aged less than 5 years old, and following the one-way flow.

VHVs¹ who work under Tessaban have played an essential role to curb the further spread of COVID-19. They are also the main distributor of face masks and other essential items from donations and provisions. Not only do they visit households regularly, but they have data on household status. So, any donors and supporters can coordinate with them for

¹ In Tessaban Nakhon Khon Kaen, there are 1,166 VHVs and each of them basically take care of not over 20 households.

the distribution of essential items and food for the vulnerable group.

VHVs took temperature checking seriously. They would visit households twice a week, which was more than usual. They would be in any entrances of establishments or venues, like fresh markets, temples, and funerals. In addition, VHVs were responsible for people that came from other places. These people must be reported to VHVs while VHVs must monitor their health and guide them for the 14-day home quarantine. In this case, the VHVs coordinated with the Department of Health of the Provincial Office to count and gather the personal information of these people.

Anyone with a body temperature over 37.5 degrees Celsius or had suspicious symptoms were sent to the medical center before the hospital. The diagnosis from the medical center would be directly relayed to VHVs. In support of the VHVs, the Tessaban had provided thermometers.

Bedridden patients are considered a high-risk group. A caregiver, originally a VHV but received special training for bedridden patients, provided special care for them. Since the number of caregivers depends on the number of bedridden patients, Tessaban Nakhon Khon Kaen has about 200 caregivers.

2.2.2 Prevention Measure given from others

Hotels volunteered/offered rooms for state quarantine, especially in the case of hospitals that have insufficient capacity. Some of these hotels are Avani Khon Kaen Hotel & Convention Centre, Hotel La Villa, and KOSA Hotel. However, since the governor imposed sufficient restrictions, the number of COVID-19 infectious cases could be controlled at the beginning of the pandemic. Thus, Khon Kaen did not use the space of voluntary hotels.

2.2.3 Provision of Information

Several communication channels provided citizens with information regarding COVID-19, such as infection situations, restrictions, or preventive measures.

Television news became the most efficient and reliable way to inform people on the national and provincial restrictions imposed in different periods and the situation of COVID-19. The main reason is people opened their televisions more often having to stay at home. In addition, since people were only at home and with social distancing, online communication became more common. LINE was particularly most used (by all ages).

Preventive measures, especially hand washing, wearing face masks, and social distancing, have been advertised mostly by the Tessaban via billboards and podcasts. Billboards were raised along streets in communities while a podcast was announced every day in the morning and evening. Even though citizens viewed the podcast as the most efficient way to build awareness on preventive measures, some citizens still had some difficulties with its access, mainly due to the area coverage. It was too loud for the households close to the audio source while those far from the source can barely hear it. Interviewees assumed only 70 to 80% of the citizens could clearly hear the podcast.

In addition, the citizens obtained information from VHVs regularly visiting people twice a

week. VHVs also provided health and hygienic instructions.

The reliability of information became a main concern for the citizens. The sources of information were highly considered for the majority of people. Even though television news is likely the most reliable source, some citizens still questioned its validity. Fake news had caused panic and controversies among citizens, especially when the American military went to Thailand without undergoing the 14-day quarantine. In this case, the people cannot completely trust some official news from the government. They verified news in several ways by rational analysis and confirming the information from other sources.

2.2.4 Provision of Public Services

1) Transport

International and Domestic Flights

International and domestic flights were banned since the announcement of the state emergency decree. On 1 May 2020, Thailand reopened domestic flights to recover the local economy. Flights to Khon Kaen resumed but with restrictions. Passengers must wear face masks on board, and there were no food and drinks service. In addition, the airport terminal required all passengers to register their personal information for COVID-19 tracing and pass the temperature checks. Those without face masks or have a temperature higher than 37.5 degrees Celsius were restricted entry to the city.

Land Transportation

As the regional center, public transportation in Khon Kaen strictly implemented preventive measures since 20 March 2020. While all flights had been, buses at international and inter-provincial bus stations at the Bus Terminal 3 imposed the following for arrivals and bus drivers.

- Passengers must pass the arrival checkpoints for temperature checks and hand hygiene with hand sanitizers.
- Passengers must register their name, address, and contact information, using the official registration official form.
- Drivers and staff must wear face masks, check their temperature, and use hand sanitizer.
- All buses must be disinfected after services.

Once the travel restriction was lifted, the inter-provincial transportation, including bus, van, songteaw, train, and plane, must follow and impose social distancing by blocking seats between each passenger.

2) Medical Services

Hospital operations continued, while elderly daycare and children development center were closed. Most people still had access to the hospitals; however, it became less busy especially from April to May mainly because hospitals provided medicine delivery services for those staying at home with medical conditions as a way of social distancing. It would not have been possible without assistance from VHVs. Meanwhile, others can avail

themselves of medicine through a nearby pharmacy. For the elderly, family members were recommended to avail or collect the medicines for them.

In support of the health of the community, the medical center functioned like a sub-service of hospitals. The medical center coordinated with hospitals to understand the details of the patient, while the hospitals provided medical support through the center. Accordingly, VHV also coordinated with the medical center. The medical center provided some equipment and medicines requested by communities through VHV, acting as intermediaries to deliver such requests. In addition, the community can get healthcare services and advice when they got any symptoms.

Moreover, VHV provided primary healthcare, like general blood tests and diabetes examinations, to reduce people in hospitals. Nurses also provided basic health checkups. If the results of the checkup are normal, the patient will not need to go to the hospital. These efforts kept the hospital's capacity at a minimum.

Tessaban Nakhon Khon Kaen also provided COVID-19 Call Center for citizens, operated by the Division of Disease Control and Prevention, with phone numbers 063-7122319, 0637122318, 063-7122317, and 063-7122316. It was like a hotline service that informs about COVID-19 prevention and self-care.

3) Education

Online courses were offered due to the closure of educational institutions at all levels. However, the online course was not compulsory as the access for some students was difficult. Therefore, some schools had teachers visit students to help with their lessons. Also, the Tessaban handed out lunch to students at schools during this (closure) period, especially for students attending the children's development center and primary school as food provision was specified in their fiscal year budget.

When educational institutions reopened, they imposed several preventive measures. Schools reduced the number of students attending by grouping them into two and going to school alternately to maintain social distancing. Also, all students must wear face masks in classrooms and have their temperature checked before entry.

2.3 Impacts of COVID-19

2.3.1 Economic Impacts

1) Overview of Economic Impacts

Khon Kaen announced the provincial lockdown on 23 March 2020 to prevent the spread of COVID-19, greatly impacting all economic sectors as a chain effect. The greatest impacts have posed in the service sectors, especially hotels that rely on visitors and tourists. As Khon Kaen is the designated MICE city, the suspension of seminars and meetings also affected its economy throughout the provincial lockdown. Although there was no order to close hotels by the governor, hotels could not operate their business while they were being charged the fixed cost. Obviously, the impact of the business shutdown highly affected the income of people in the city. Consequently, the purchasing power has greatly decreased. Along with this trend, commercial sectors, like retails and restaurants, have been highly impacted due to the measure of staying home, social distancing, and avoiding crowded places. In addition to the decline of purchasing power, the number of orders in each business has reduced. With the position as the logistic hub, the supply chain, both within the country and crossing international borders, has been directly disrupted by the shutdown measure. The agricultural sector seemed to have the lowest impacts and there are not located in the city center. However, it greatly affected the social value through the purchasing power. Consequently, this situation highly caused the issue of unemployment and closing of business.

2) Tourism Sector

Khon Kaen is strategically designated as a MICE city where highly relies on government meetings. The service sector has been directly affected amid the outbreak by the shutdown, since the beginning of April 2020, particularly due to the travel limitations. The number of visitors dramatically decreased especially between April and May. Similarly, the hotel occupancy rate from February to June dropped. Comparing the hotel occupancy between 2019 and 2020, the second peak of the former was in April at 70,000 and reached the lowest in the same month in 2020, as shown in Figure 2.3.1.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 2.3.1 Khon Kaen Visitors in 2020 and Occupancy Rate between 2019 and 2020

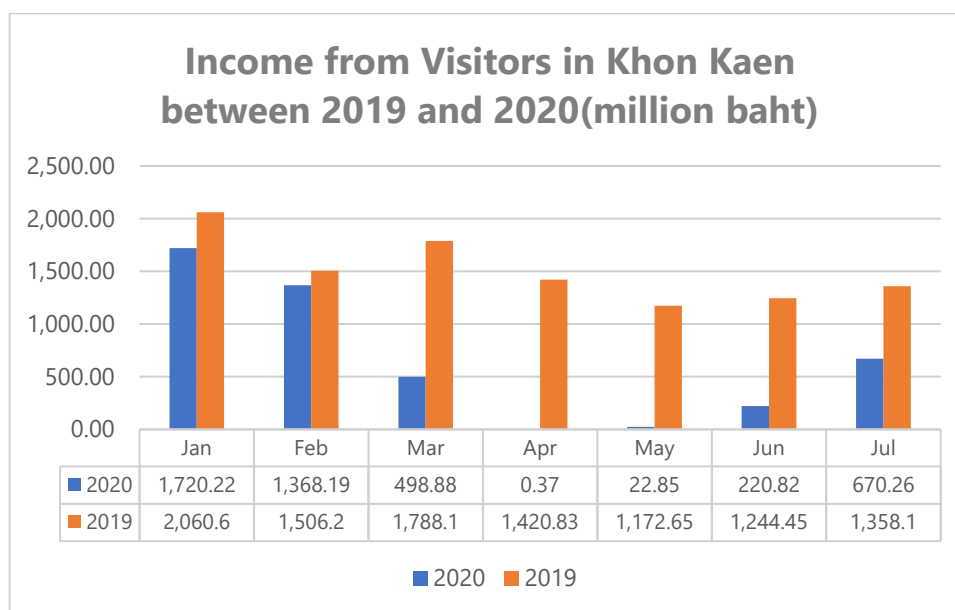
While Khon Kaen has no tourist attractions, the majority of the hotels target business visitors, sellers, and officers. But there have been no visitors due to the restriction on inter-

provincial and international borders, whether land or air travel movement. Moreover, the government cut the seminar budget to support COVID-19 prevention. Consequently, hotels faced a huge drop in occupancy and revenue because of the decline in travelers and visitors as well as the cancellation of bookings. Large hotels with convention halls, in particular, had high expenditures for the maintenance and staff without any revenue.

When inter-provincial restriction was lifted, a surge in domestic travel and tourism was expected with the reintroduction of domestic flights and the gradual reopening of international borders in the coming months. Even if hotels have gradually reopened, the preventive measures caused several challenges to bring guests back. The importance of health and safety added costs. Examples of these additional costs involved purchasing thermometers and hand sanitizers for the checkpoints as well as the disinfection of facilities and rooms. In addition to social distancing, the hotels must limit the capacity of meetings, seminars, and conference rooms, meaning they must readjust layouts of these rooms to accommodate only half of their original capacity. Since buffet and drinks are one of the main revenues of seminars, hotels could not profit from these anymore. They could now only provide lunch boxes for participants.

Given these reasons, the marginal revenue no longer covered the cost of operations. Accordingly, hotels have faced varying degrees of financial impact depending on how they adapted to this crisis. On one hand, some hotels, like Pullman, decided to stay close to save operation costs, and some hotels have adjusted their operations in different ways to secure operation costs and balance revenues. An example of adjusting operations was by reducing the available rooms by closing a certain number of floors. Accordingly, in this case, they might reduce staff or arrange shifts. Another way of adjusting was by creating a new service or business. For instance, Kosa Hotel began a new grilled chicken delivery business and allocated all hotel staff to grill and deliver during the provincial lockdown. Even though revenue did not completely cover the fixed expenditures, they could still keep their staff until the reopening of the hotel.

On a provincial scale, Figure 2.3.2 shows that Khon Kaen has lost a big amount of income generated from visitors in 2020. In April 2019, Khon Kaen earned about THB1,400 million April 2019, but it dropped to THB3 million in April 2020.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 2.3.2 Khon Kaen's income from visitors between 2019 and 2020

3) Commercial Sector

Fresh Market

While Tessaban Nakhon Khon Kaen restricted the operations of the municipal markets to prevent the further spread of COVID-19, Tessaban operated and managed the market while following the preventive measures. For effective management of the market, a managing committee was established, which controls entry and unnecessary products and position of the screening points and one-way flow. These measures have restricted the movements of sellers and buyers. As the types of products were limited, the number of sellers has decreased by about half. Meanwhile, the buyers changed their shopping habits by only staying at home and avoiding crowded areas. Moreover, fresh markets were perceived as a risk location because an infected case was found within the market. Some of them spent lesser time shopping than usual by preparing a shopping list with only the necessary items, especially food, that are good for 3–4 days.

Although the fresh markets were less busy with the declining number of sellers and buyers, food shortage was not a problem. Maybe because Khon Kaen is the center of the supply chain being the location of several factories. For example, at the beginning of the COVID-19 pandemic, most cities in Thailand had an egg shortage because of panic buying. However, Khon Kaen Province didn't face this issue because it has chicken farms and distributors. Preventing egg shortage, some distributors, like Betagro, shared and donated eggs for the people in the city.

Restaurants, Bars, Café

Since dine-in restaurants could not open due to restrictions, they were greatly affected by the declining number of customers. The restrictions that affected restaurants were liquor bans, social distancing, and take-away services, and the shift of purchasing habits of customers. Consequently, the restaurants shifted to delivery and online services. Some restaurants started their delivery services, some joined delivery platforms like Foodpanda

and Grab, while some did both.

It should be noted that delivery services have additional costs, which restaurant owners considered a marketing cost. Particularly with delivery platforms, the restaurant must deduct around 30% from the original price of the food. Thus, restaurant owners must manage the proportion of food in line with the price because they can only receive 70% of the original price when using the platforms. Consequently, the regular income of those restaurants dropped by around 90–95% while earning around only 5–10% from delivery and take away services.

Even though restrictions have been lifted, it was hard for some restaurants to reopen, especially those that rely on tourists. Evidently, the preventive measures also have additional costs to restaurants, such as purchasing thermometers, hand sanitizers, and items for disinfection.

Once the restriction has been lifted around June, some restaurants also faced staff shortages. In response, restaurant owners preferred hiring part-time students, especially for lunch and dinner peak hours. Not only would restaurant owners secure staff and save costs, but students would also have more income opportunities.

Similar to restaurants, bars have been affected by the restrictions, especially the liquor ban. In Khon Kaen, most bars served tourists and students originally residing outside the city. Bars still could not reopen, while some have suspended operations because it was not worth reopening for only a few customers.

Another impact was the permanent closure of restaurants, bars, and cafés, mainly due to unpaid rent. Even though the landlord suspended rent payments, most tenants still could not afford other costs with just a few customers. Since most tenants did not permanently reside in the province, they consequently have returned to their hometowns once they terminated their businesses. But despite the increasing vacancies in commercial buildings, it was an opportunity for Khon Kaen citizens, especially the young generation, to start their businesses with affordable rent.

Retails and Shops

Most retails and shops could still operate, being only groceries, salons, massage parlors, and spas are more affected than large stores, like hypermarkets, department stores, and community malls.

Some retail and shops must be closed in line with the restriction measures. As the spending power was declining, the number of customers has dramatically declined, particularly inessential goods like clothing and jewelry. Some retail stores decided to downsize by laying off employees while some temporarily closed. Local groceries, meanwhile, could still regularly operate, yet they have been struggling in earning and in operation costs. It is undeniable that groceries relied on alcohol and liquor so profits dropped in during the liquor ban. At the same time, restricted businesses, like salons, massage parlors, and spas, had to limit the number of customers, causing a decline in income.

Even though the restriction had to close the department stores and community malls, the supermarket remained open. After lifting the restriction, the department stores and malls

could recover and reopen easier than retail stores, according to the COC. One reason is that imposing social distancing was easy. People were more willing to shop in supermarkets rather than small grocery stores because of the sense of protection from the pandemic. However, some retailers in malls remain closed as it is difficult for them to balance the fixed overhead and sale revenues.

Real Estate and Student Accommodation

During the state emergency, the school suspension and inter-provincial shutdown also greatly affected student accommodations, especially for university students. However, most students did not terminate their contact. Landlords offered rent reductions by 10 to 20%. It is an incentive from landlords to secure their tenants to let them return to such properties.

In terms of real estate properties, the demands in the real estate market in any province were expected to be dramatically dropped because of the reduction of citizens' spending power. However, in Khon Kaen, such demands were likely to remain stable and gradually increase. Mega projects like the LRT and double track have positively stimulated such residential demands. In addition, the potential of regional centers and medical hubs, as well as educational hubs, have increased the opportunity in the residential market. Meanwhile, investing in real estate properties continued the residential project.

For example, Ocean Grand Residence Mittraphap-Khon Kaen extended their project after receiving good feedback from the first phase. Despite being COVID-19 crisis, the project owner expected the half of project to be sold out within 3 months. As Khon Kaen does not rely on tourism and foreigners, the targets of such properties are medical staff and students' families.

According to the real estate information center, there were 11 residential projects with 2,140 units in the last quarter of 2019. Only 615 units remained in the market. Khon Kaen University had the most potential, followed by Nai Mueang District, Bueang Kaen Nakhon, Bueang Nong Khot, and Kasikorn-Thung Sang, respectively. The common price range was THB1 to 1.5 million followed by THB1.5 to 2.5 million successively. In fact, Khon Kaen had the highest land price among 20 provinces in the northeast. Recently, it can be seen that the demands have increased in line with the land price. Compared to 2011, the land price in Khon Kaen is now increasing three times. According to Nikkei Asian Review in DD property, 2020, the four-story commercial building in Khon Kaen can increase from THB2.4 million in 2014 to THB8.6 million in 2020.

4) Industrial Sector

The industrial sector was also impacted by the COVID-19 pandemic. Despite having no restrictions or suspension of factories, there were restrictions on international and domestic transport that made manufacturing and exports difficult. The industry that relies on export faced higher costs on transportation as well as delays. Khon Kaen is the center of manufacturing and trade; therefore, the impacts have been felt in several industries, like automotive, food processing, and fishing nets.

Factories that relied on external capital have experienced major impacts, such as a shortage

of some parts and raw materials used in their industry. In Khon Kaen, an example of this would be the automotive industry. According to the head of the Federation of Khon Kaen Industries, the risk in this industry was the closure of their assembly and production lines because of lacking automotive parts supply. Sales in automotive manufacturing have dramatically dropped by approximately 29.5% in the overall region. Consequently, the factories were forced to lay off some labor to balance their revenue margin.

Even though other factories could sustain their business, the impact of the pandemic on the global economy affected production orders. Coupled with difficulties on exports, factory orders had sharply declined since the provincial lockdown started. In food processing industries, like rice mills and sugarcane factories, the impacts went beyond manufacturing and export in the agricultural sector, particularly excess inventory and stock, which the owner had to deal with. Without sufficient storage, the agricultural products have deteriorated. On the other hand, the export slowdown lowered the price of agricultural products and crops.

Prevention measures increased the management costs for factory workers. As Khon Kaen leads the fishing net industry in Thailand, it accepted many foreign migrant laborers, especially from Myanmar, during the provincial lockdown. The governor prohibited migrants from returning to their hometowns. Even though the fishing net industry was slightly impacted, it had to secure its workers and implement prevention measures, increasing the costs. The factories must provide workers with transportation while also practicing social distancing by blocking space between seats. In addition, they arranged alternating work schedules for their staff, however causing production delays.

According to the head of the Federation of Khon Kaen Industries, the COVID-19 crisis posed greater impacts than the Asian Financial Crisis in 1997 because no one knows when it will end and how long the economy will recover. Even if the economy recovers, it will not be in the same conditions.

5) Agricultural Sector

Most farms and agricultural areas are outside the city area. The agricultural sector had slight impacts from the pandemic. Even though the farmers could not sell or transport their crops and products as usual and were (indirectly) affected by the decrease in orders from related factories, such as rice mills and sugarcane factories as mentioned above, the price of their crops and products (rice, potato, and sugarcane) has mostly been secured by the government.

6) Employment

Permanent Employees

Travel restrictions and temporary closures affected the revenue of many businesses. Most businesses manage their staff in different ways. The reduction of salary has generally been applied in many sectors. Some employers have decreased the salaries of their staff by 10% to 40%, while some reduced staff by discharging them. For example, restaurant owners anxiously negotiated with their staff to leave their jobs. Most migrant workers from other provinces were offered to quit their jobs voluntarily because their salaries could not cover

their living costs, especially accommodation. Most of them thought it would be safer to stay with their family in their hometowns. Even though permanent employees were willing to be laid off, they will receive compensation from SSO. Thus, the impacts to them were still lower than for part-timers or temporary staff.

In addition, the employers were keen to keep the employees who have high experiences, especially in businesses that require special skills. In this case, owners were pressured to find new activities to replace the gap in their income. For instance, at KOSA hotel (having over 200 employees), even though the owner cannot open their hotel, he keeps hiring all their staff by initiating new business (selling grilled chicken) to survive the travel restriction period. All employees must help with selling and grilling chicken. Some of them delivered the chicken to surrounding areas.

Temporary Employees/Part-timers

Part-timers were greatly affected because they were not covered in the SSO system. From April to June, several employers stopped hiring temporary or part-time employees. Most were in the service sector, like restaurants, bars, and hotels. Similar to permanent employees, some were migrants who had to return to their hometowns. After lifting the restrictions in early June, businesses in the service sector faced a shortage of employees.

Foreign Migrants

There are few foreign migrant workers in Khon Kaen, mostly from Myanmar, Laos, and Vietnam, working in the fishing net industry. As the governor restricted foreign migrants from returning to their hometown, the migrants in this sector were more secure in this type of job. However, some returned to their country before the restriction, and they could not come back to their jobs. For this reason, the impacts to foreign migrants have greatly affected business owners, causing a shortage of laborers.

7) Tax revenue

The revenue of Tassaban Nakhon Khon Kaen dramatically dropped because they could not collect local tax during the provincial lockdown and temporary closures. The affected places must be government-supported. Rent at the fresh market, walking street, and pawnshop must be suspended. Obviously, the reduced revenue of Tassaban impacted development projects, especially investment projects, meaning their suspension until the next fiscal budget. However, the Tassaban now uses its reserved budget to support households immensely affected by the restrictions and provincial lockdown.

8) Newly Emerging Services

Due to the temporary closures and travel restrictions, most businesses have adjusted to generate income in different ways. The most popular way was to have an online platform for marketing or to offer delivery services. Some began offering new products, and some opened small businesses.

Online delivery platforms became more popular in Khon Kaen, with Grab and Foodpanda as the main delivery platforms available. Many restaurants have joined these platforms. Due to the cause of alarm from the pandemic and stay-at-home measures, more people use this service. Apart from being able to avoid going out, it is also convenient, and people

have more food options via the applications.

With this trend, Khon Kaen established its local service called Khon Kaen Dinoverly. However, it is not as popular as Grab and Foodpanda because it lacks advertising. Not many people know of it, and most restaurants have not joined, so food options are fewer compared with Grab and Foodpanda. In addition, some restaurants already offer delivery, especially for regular customers that would typically just place orders via phone call.

New businesses have opened during the provincial lockdown. While staying at home, some people have learned new skills and even created a business out of it. An example is shown in the aforementioned grilled chicken by KOSA Hotel. They have shifted their hotel business to a grilled chicken delivery. Currently, this became a new income for their hotel. Moreover, since the closure of universities, some students started online selling with their family businesses, such as selling vegetables and crops from their family farm via the online market.

2.3.2 Social Impacts

1) Health

Due to the adverse impacts of the pandemic on the economy, the reduction or loss of income and jobs have continually increased stress and anxiety levels. However, the people did understand the situation that the stress level from the economic crisis is still relatively low. But the pandemic has a high impact on mental health, causing panic among society. Most are afraid they could get the virus wherever they go. Even though people are willing to self-isolate at home, they feel more depressed and paranoid. Panicking from the situation, people not only force themselves but also their family members to isolate themselves. However, not many people have sought advice from a doctor via the hotline, implying that their stress levels and panic are still manageable.

In terms of physical health, people gained more weight due to the stay-at-home measure and closure of exercise places and facilities such as public parks. The main reason is people could not go out for exercise as usual. The collective energy from the exercise group was gone. Even though they could exercise at home, the people felt less motivated to do. Accordingly, some people with the health conditions like diabetes and high blood pressure were riskier during the lockdown period.

2) Education

From mid-March 2020, the educational institutions were closed. Without face-to-face classes, educational institutions were compelled to offer online courses. Even though no schools and universities needed to offer it, parents and students considered it as a potential option to enhance the learning and understanding of students. However, both parents and students had issues with online courses. The major reason is the lack of devices, like computers or tablets. If a household only has a single device, each family member needs to use it at a time. It would be particularly difficult in the case of families with more than one child at different education levels. They must share the device to join different classes.

The level of understanding of the lesson of students is another issue. Undoubtedly, some parents would have difficulty teaching and having their children understand the lesson.

Also, they still must work to provide for their household. They do not have enough time to help their children. Meanwhile, from a student's perspective, concentrating on the online class is difficult. Some must help with housework while some prefer to do other things, like playing games, rather than study.

The last issue is the lack of IT skills by their parents. Similar to students, some parents could not fix technical issues during the online course. Internet is also sometimes unstable, and students would lose internet connection. This obstructed the continuity of lessons.

Apart from the online courses, the reopening of school posed several difficulties and added costs for the parents. With schools limiting the number of students, parents needed to manage their time to drop them off at school. It was also hard for students to catch up with the lessons as they could not attend face-to-face classes daily. Self-learning turned to be their responsibility to understand the classes well.

3) Social Activities

Although all social activities have been suspended, the people were not affected as much. Only family and close relatives could attend funerals that can only be held for three days (normally, it is 5–7 days). Social distancing must still be practiced. VHV must also be at the entrances of the funerals for the screening process.

4) Home Economy

Along with the pressure of the economy, the income of many households was affected. The first reason is that members of some families have returned to their hometowns due to job loss. Secondly, the home business was struck with the lockdown measure. Some households had to use their savings account while some sell their home furniture or secondhand things to cover their daily spending. Starting new businesses or doing new jobs was still difficult for them to be achieved due to the uncertainty of lockdown measures. Thus, the household incomes were not stable as usual. The obvious impact showed in agricultural households where mostly relied on their family members' income. To cope with this, the King philosophy, Sufficient Economy Philosophy (SEP), was applied in several households. Back to the simple life, people planted the local vegetable garden for making a living.

5) Relationship of People in Society

Even though the restriction from the end of March to early June 2020 adversely stressed people in several aspects, the community and family relationship were positively strengthened. In the family, most people felt that they could have more quality time with each other. As all of them must be home, the members had more time to speak, did activities together like cooking, and supported each other. For example, teenagers could help their grandparents to use social media and online platforms. Also, those who returned to their hometown could get more supports from their family during home quarantine. Noticeably, they spent longer time with their family compared to when they worked in the other provinces. However, such quality times were accepted only for short period, like 3 to 4 months, according to the community leaders. Otherwise, they could have been more stressed in terms of lifestyles and household income.

In terms of community, the relations among people have been the same even though they could not contact in person. Most of them were keen to use social media and keep in touch with their community. In addition, the supports in the community were noticeably highlighted. The interview showed that people in the community recognized the generosity of society. Particularly, during the provincial lockdown, the people helped each other by sharing their food. The obvious option was to share food through happiness cupboards. VHVs also played an important role to deliver those supports. In case that anyone wanted to share their food with the neighbors but did not want to go out, VHVs became a representative of them to drop those things for their neighbors.

Also, the COVID-19 outbreak increased people's awareness to protect their community. The community actively surveilled the newcomers reporting such cases to the VHVs and Tessaban.

6) Migration

Due to unemployment, around 20% of Khon Kaen people who had worked in other provinces returned. The main reason is that they can save more money when they are home. With the local quarantine measure, they needed to do a home quarantine for 14 days. In this case, not only VHVs have a record of them, but also the community did surveillance and reported to the community leaders, VHVs, and Tessaban. Noticeably, in some cases, migrants have caused a panic in the community by causing fear of infection among people.

To self-isolate, the family must provide them with food and a private room while VHVs continue to check their health. A low-income household may unlikely provide a private room, so instead, all family members must wear face masks in their home and avoid talking with them. Once the quarantine finished without any symptoms, they could freely go out.

Those who came back to Khon Kaen, especially those who previously worked in Bangkok or Chonburi and were laid off, have opened small businesses such as bakery shops, coffee shops, and small restaurants. They decided to find new job opportunities in their hometown rather than going back to work in Bangkok or Chonburi because they realize that it would not be stable.

7) Security of City

Traffic Accident: Travel restriction, curfew, alcohol ban, and stay-at-home measures have positively reduced the number of vehicles on the roads. Consequently, traffic accidents in Khon Kaen have greatly decreased, especially from the end of March to early June 2020.

Crime and Domestic Violence: From March to June, the people were more concerned about violence in the community. The stress and pressure of COVID-19 have possibly influenced burglary, assault, and harassment in society. In Khon Kaen, however, concern for this is still low. Khon Kaen residents feel safe in their hometowns, and they know their community members and neighbors. Also, it is hard for them to do burglary in this situation as most of them stay at home.

2.3.3 Environmental Impacts

Despite adverse impacts showing on the economy and society, the environment positively improved. During the lockdown, the value of PM 2.5 dust particles constantly decreased. While the PM 2.5 in Tassaban Nakhon Khon Kaen was expected to reach the peak in March following the 2019 data, the lockdown slightly reduced the value from the average of 69 to 50 in March. Consequently, the lockdown continually decreased the value of PM. 2.5 to an average of 15 in June (Pollution Control Department, 2020).

Along with air quality improvement, noise pollution was also prominently improved. With the travel restriction and night curfew, the city became quieter at night. This positively contributes peaceful time for the people. Noticeably, the reduction in people movement continually reduced the amount of traffic on roads and the frequency of public transport services. The noise level decreased, as noticed by the community and people.

However, the negative impacts posed in the increasing number of medical and plastic wastes. There was a significant increase in the number of medical wastes, especially used surgical masks. The main reason is Khon Kaen is the medical center. The hospitals have highly raised the number of infectious wastes. However, the governor managed the waste collection and disposal together with the local governments. In terms of community, even though the Tassaban and VHV provided the instructions to separate those infectious wastes from general wastes and designated the spots for infectious waste disposal, most of them could not completely follow such instructions. This is mainly because it is difficult for them to shift their habits and self-awareness in a short period. the instructions to all households were incomplete. Some households did not know how to manage the infectious wastes. However, it should be noted that most people in the community use fabric masks, so impacts from infectious wastes to the community are considered of low level.

Regarding plastic wastes in Tassaban Nakhon Khon Kaen, the delivery services, coupled with the online shopping platform, have rapidly increased. Due to the restrictions, most people were urged to stay home. They preferred to order food online to prevent themselves from getting infected, increasing the generation of single-use food and drink containers. Even though the government has promoted reusable containers in food distribution, the number of plastic wastes keeps increasing. According to Pollution Control Department (PCD), plastic waste from delivery services has increased from 5,500 to 6,300 tons per day, approximately 15% per day (esanbiz, 2020). Apart from delivery and online platforms, the people were keen to clean up their houses which has partly increased the number of wastes in the city.

However, it should be noted that despite increasing the number of plastic wastes, the food wastes have continually declined because of the temporary closure of restaurants and bars. Also, the reduction of spending power has contributed people to save more money and cook at home rather than wasting food.

2.3.4 Impacts on Vulnerable People

The elderly over 60 years of age, infant-toddlers from 0 to 5 years, and the disabled were

considered as a high-risk group by the government since they are prone to infection. The restrictions and instructions posed several difficulties on their livings. Obviously, such difficulties have limited their routines and activities in their daily lives. As most of them stayed with their family during the lockdown, their family usually limited their movement, protecting them from the risk of infection.

1) Elderly People

Although the elderly panicked and were not able to go out during the first state emergency, they showed positive feelings when they must stay home. They felt happier and safer because they were aware of the pandemic and considered that they were easier to get an infection. Moreover, they did appreciate the support from their family. Instead of worrying, they felt happier because they had more quality time with their children and grandchildren. At the same time, they felt safer because of the information and instructions provided by the government.

In terms of economic pressure, their concern mostly posed in their family members' lives as some of them are unemployed and losing their jobs. Even though some of them do rely on their household income, most of them do not worry about the extra expenditure because they saved money and pension which partly sustain their family during the crisis.

Elderly people do have difficulties accessing the hospital and medical care because they were afraid of getting an infection. Considering they are regarded as the high-risk group, most of them do have a medical condition, especially diabetes and high blood pressure. Even though they could take their medicine from the pharmacy, or let their family members take it, they still did panic as they could not see and talk with the doctors.

As the measure of staying home, temporary closure of elderly daycare, and suspension of social events made elderly people feel lonelier, yet they still understood the situation and followed all instructions from the government. Such restrictions made them change their behaviors and rely on their family more than usual. Firstly, when they could not contact their friends in person, this made them use social media to keep in touch with their friends. In addition, the suspension of social events made them more depressed because they usually make merit at temples. Also, some activities, like cleaning and chatting, must be suspended because they needed to keep distancing and not talk with people, especially at funerals. Another impact is shown in shopping behaviors. Staying home made it difficult for them to freely buy their goods and foods by themselves. With these behavior changes, their family must support them by teaching them to use social media, uplifting them at home, and buying stuff for them during the lockdown.

2) Infant-toddler aged 0-5 years

The impacts on infant-toddler aged 0-5 years posed to their parents, especially single mothers. Obviously, the parents got more burden on the cost of taking care of infant-toddler, like milk baby food, and diapers. Such costs have driven more financial pressures on the parents. Particularly, the poor family, with a part-time job, greatly struggled due to job loss. Unaffordable costs for their child have increased the parents' stress, adversely it led to the further social problems, especially burglary. To illustrate, the Bangkok Post released the news on "A woman in Khon Kaen forced out of work by the coronavirus crisis

arrested and charged with stealing money she said she desperately needed to feed her hungry baby.”

On the other side, middle to the high-class family would have difficulty with spending time rather than money. Due to the temporary closure of the nursery, some parents have difficulties looking after their kids. However, it should be noted that most of them stayed with their relatives and grandparents who can support and look after their kids when their parents went out for their works. In the case of those who do not live with family, they may ask their neighbors or VHVs to help them.

3) Youths and Students

Apart from the high-risk group, the young generations, especially newly graduated, have faced several difficulties in their lifestyles, courses, and job opportunities. Regarding the lifestyle, the youths could not go out with their friends due to the temporary closure of department stores. Mainly, they did feel more distant from their society because some of them must return to their hometown or other districts. Additionally, the restrictions forced them to stay at home. Positively, some of them could spend more quality time with their families and help with housework. Despite using online channels, they did feel bored and miss the good old days with their friends.

The online course has also been concerned by the students because they cannot catch up with the lesson. Also, it is hard for them to keep concentrating on the course. Some understanding cannot be clarified in the course. When they have a question, some of them are afraid of asking the teachers. Technical issues cannot be solved by themselves and family. They may miss some parts of the lesson and feel that they cannot catch up well when the school or university has been reopened. For the university student, they feel more stressed because they need to spend more time for reading. Also, some of them do have a final exam that they cannot discuss or exchange understanding among their classmate. Similarly, the groupwork must be suspended. This makes them feel that they cannot gain the maximum benefits from their university life.

The newly graduated students have greatly concerned on their job opportunities. Due to economic crisis from COVID-19, it is difficult for them to find the job. In their perspective, secured jobs have been highly prioritized especially in the government offices and agricultural sector. This is because they would get stressed from the job security less than working in private company. For example, the interviewees want to get job in government sector because they have realized it is more secured than the other jobs. Meanwhile, some of them perceived the crisis as their opportunity to start a new business. According to College of Local Administration (COLA), Khon Kaen University, some students started selling hydroponic vegetables. This is not only able to generate satisfied income, but also, they can learn how to manage start-up businesses.

2.4 Supportive and Rescue Measures for Recovery

2.4.1 Support for Household

In addition to the Tessaban, several sectors have provided various support, mainly to prevent hunger with the concept of no food shortage.

1) Supportive Measure by Tessaban

The Tessaban provided food and survival bags, especially for those who suffered from COVID-19 among low-income households, persons with disabilities, and the elderly. Food donations, in particular, made people from vulnerable group feel better.

2) Supportive Measures given from Others

Apart from the Tessaban, other sectors, including public and private, also provided support for households. In case other parties donated to the communities, Tessaban took the role of coordinator. The Tessaban prioritized registered citizens, especially the weakest group, could get those support.

A summary of the received key support from other sectors is as follows.

A) Public Vegetable Garden in Bueng Thung Sang

Name of Project	Public Vegetable Garden in Bueng Thung Sang
Purpose	<ul style="list-style-type: none"> • To promote sufficient lifestyles in the city • To reduce food insecurity by providing the free food option for people • To provide a free space for people to plant the vegetables
Organization	Governor of Khon Kaen
Duration	Ongoing
Target Groups	All people
Project Summary	The governor initiated the idea of establishing the public vegetable garden at Bueng Thung Sang ² for the people to get free vegetables. This project is expected to support food for people and be a good example/inspiration for citizens to plant a vegetable in their garden.
Impact (s)	People, especially those residing near Bueng Thung Sang, appreciated the project. Other than food security, it also promotes green areas and environmental awareness. In addition, people have explored new activities. However, the accessibility to the area and information dissemination are still issues because some people do not know about this project.

B) Khon Kaen Royal Kitchen


Name of Project	Khon Kaen Royal Kitchen
Purpose	<ul style="list-style-type: none"> • To prevent food shortage in Khon Kaen households • To reduce hunger
Organization	Thai Red Cross Society
Duration	11 to 20 June 2020
Target Groups	Those who incurs from COVID-19
Project Summary	Royal Kitchen was set up at Khon Kaen train station to provide freshly cooked food for citizens suffering from COVID-19. In addition, the Thai Red Cross

² Bueng Thung Sang is a public park; health garden, located in Nai Meaung sub-district. There is also an open space with a large pond. Most people visit the park for an exercise and walk.

	Society also donated 700 sets of royal food to Tessaban Nakhon Khon Kaen and 1,200 to Muang Khon Kaen District, with a total of 1,900 sets.
Impact (s)	<p>It was a good project for the citizens in Khon Kaen, however, accessibility was difficult. People must travel to receive this support, so not everyone has access, except those residing near the station.</p> <p>Many people went to the train station, but the food supply was insufficient. For instance, the unemployed residing far from the train station must come earlier at 7 a.m. and wait for the queue that started at 11 p.m. In the end, the food supply has run out. Also, there was hardly social distancing because too many people were in a queue, which was a concern for many.</p>

Reference: <https://www.redcross.or.th/news/information/11121/>

C) Pum Phung Car, Mobile Market

Name of Project	Pum Phung Car, Mobile Market
Picture	
Purpose	<ul style="list-style-type: none"> • To encourage those who want to avoid getting crowded to do shopping in the community • To provide options for farmers and sellers in sales of products
Organization	KK Collaboration Network (Khon Kaen Think Tank (KKTT))
Duration	Ongoing since 13 April 2020
Target Groups	Communities in Khon Kaen
Project Summary	<p>During the temporary place closure, staying at home and social distancing have limited people to go out. The Pum Phung Car, Mobile Market is an initiative together with Sri Mueang Market, a medium-size market in Khon Kaen. Pum Phung Market is a mobile market driving throughout the community and the products offered are affordable.</p> <p>The project has four cars that do two rounds a day. Its service routes are in the urban areas, including Khon Kaen, Ban Ped, and Sila municipality inside the ring road. Also, the target communities are those without a fresh market or community market because they do not compete with the existing market.</p> <p>The introductory list of the mobile market includes 80 items, such as vegetables, chili, garlic and fresh produce, fresh pork, and fresh chicken.</p> <p>Buyers can pay by QR code and cash.</p>
Impact (s)	<p>People can get fresh and good quality food every day from this service, and it is convenient. However, it is sometimes difficult to know when the car will come. People require more information about the car and the introductory list in advance to plan their shopping list. Also, its coverage is limited so not everyone has access to it.</p>

Reference:

https://khonkaenthinktank.com/news_view.php?id=83&fbclid=IwAR00FL4azgFNaqP8IUelXuxU6vEYt8MxIP4nB9I0cgfbhy3Ge4M1KpMAAzw

2.4.2 Recovery of Business

In addition to national recovery measures, Khon Kaen initiated several projects to support businesses during the COVID-19. Several sectors supported these projects, and the public, private, and civil sectors have collaborated to help one another. A summary of the projects is as follows.

A) Creation of Business Network Platform

Name of Project	Creation of business network platform
Purpose	Create a platform for business owners to exchange experiences and build connections.
Organization	Khon Kaen Chamber of Commerce
Duration	N/A
Target Groups	Business in Khon Kaen
Project Summary	Business owners can make connections and future opportunities through this platform. COC has grouped similar businesses into one platform and let them exchange information. The businesses can promote their products, while they can get more information to improve and adjust their businesses. For example, the government housing bank has provided information and channels to related businesses. The business can have more opportunities to develop and improve their business especially in a crisis.
Impact (s)	The creation of a business network has posed good feedback.

B) Business Advice Center

Name of Project	Business Advice Center
Purpose	Help the business sector in Khon Kaen during the temporary closure.
Organization	Khon Kaen Chamber of Commerce
Duration	N/A
Target Groups	Businesses in Khon Kaen
Project Summary	The business must share its issues and impacts from the lockdown. The COC will find the right person to advise on how to improve their own business.
Impact (s)	This project does not work well because the business owners do not want to share their problems (like having an ego). Also, the COVID crisis is a hard time for everyone. People prefer to deal with problems in their way.

C) Creation of Job, Creation of Life

Name of Project	Creation of job, Creation of life
Purpose	<ul style="list-style-type: none"> • Create job opportunities for those who lost jobs during provincial lockdown and closures and had to return to their hometown • Maximize local resources and livelihood assets by adding value to the products • Enhance the quality of life for citizens in Khon Kaen. • Transfer knowledge on innovation and technology to the community.
Organization	Ministry of Higher Education, Science, Research, and Innovation and Stock Exchange of Thailand. Khon Kaen Collaboration networks; governor, KKU, private and public sectors.

Duration	June 2020
Target Groups	Those who lost their jobs during COVID-19
Project Summary	<ul style="list-style-type: none"> • The project has recruited those affected by the impacts of the pandemic, like employees and farmers, mainly to add value to the livelihood asset in each area and to change the mindset on job creation. It will provide an online course teaching how to find livelihood assets and how to add value to them. This is to promote using the resources of the people in their area and to use innovations for adding value to their resources as well as PR (such as the creation of storytelling). Simultaneously, it will encourage people to work in the area. • In addition, the project provides staff with advice for the people to find the livelihood asset and create new value on it. The staff will be volunteers and networks collaborating in this project, such as doctors and lecturers. They will visit the community once a week. • Even though the project provides an online course, there have been no accessibility issues. The project has provided training for using computers and technology in each community. For some communities where do not have an electronic device, the head of the village support the public device to share with all people in the community. In some cases, they got the computer/devices from the donation. So, this helps the community get closer and can learn together. The interviewee said that if people have a problem with accessibility, the government should provide those services, not change the way for doing training. It is time for the government to develop technology infrastructure in the city with equal access. • This project has provided a platform to sell those local products by using their connection in Khon Kaen. For example, COC in Khon Kaen will promote these local products. Also, they have collaborated with department stores to provide a space for selling local products.
Impact (s)	<ul style="list-style-type: none"> • Now, about 1,355 people are joining this project. 80% of them are university students and another 20% are people in the communities. Those who join this project will get THB 9,000. The condition to join this project is taking all training and courses. Also, they must make a profit from their products of about THB 3,000. • Along with this project, people can create their network and share experiences. In some communities, they have invited experts to give training and share the local wisdom. Thus, people can apply that knowledge to their products. • The benefits of this project are not only the creation of job opportunities in the locality and creating business connections. But also, people will have a sense of belonging with the city as they can get benefits and see the value of the local resources. • This project has inspired people to work in their hometowns. • Now, this project has become more popular, there are about 5,000 people who are waiting to join this project. • Also, the German Foundation has been interested in this project especially the course to help the people to find their livelihood assets. Also, it is a new marketing and a new way of creating shared value in the community. So, they provided a budget to support the management of this project.

Reference: <https://www.banmuang.co.th/news/region/197114>

D) Food Bank Project

Name of Measure	Food Bank Project
Purpose of	• Establish a center with safe food

measures	• Promote food security in the city
Organization	Governor of Khon Kaen
Duration	4 May 2020–Present
Target Groups	Those who are laid off, unemployed, and homeless
Summary of the measure	<p>The Food Bank Project was initiated to promote safe food in the city by establishing a center that distributes organic products and green products. The center also promotes “No Foam and No plastic.” A learning center for organic products is also planned for development.</p> <p>There are two pilot areas, as of present: Sufficient Learning Center 19 Sufficiency Baan Non Sawan and Don Du Health Rehabilitation Center, Khon Kaen Ratchanakarin Psychiatric Hospital.</p> <p>With the collaboration among the public sector, private sector, LAOs, and civil sector, the Don Du Health Rehabilitation provided an area of 7 Rai to support the activities of the project. The main project activities are vegetable planting, fish feeding, and chicken feeding.</p>
Impact (s)	<p>Currently, 30 households participate in the project. It is a new way for them to sell their products, and people have access to safe food at a reasonable price.</p> <p>Through the activities in this project, it is expected that around 2,404 people and 1,347 households from the Ban Don Du community and surrounding areas will have access to local food resources, cut their expenses, increase household income, and mitigate the misery of the people.</p> <p>The food bank is now only in the city center, but they have planned to extend the project to the other districts. This also creates networks in the provinces and provides equal access to all sectors.</p>

Reference: <https://khonkaenlink.info/home/news/10555.html>

E) Khon Kaen Grilled Chicken KCU1

Name of Project	Khon Kaen Grilled Chicken KCU1
Purpose of measures	<ul style="list-style-type: none"> • To create the job for farmers with secured prices of chicken • To create the new business on grilled chickens • To build the signature of grilled chicken in Khon Kaen
Organization	Collaboration between Khon Kaen University (KCU), Faculty of Agriculture, Private Sector (KOSA Hotel owner), Civil State: Community Enterprise section.
Duration	N/A
Target Groups	Farmers
Project Summary	<p>The project has initiated under the principle of “Sufficiency Economy.” The Faculty of Agriculture genetically modified chicks to expand manufacturing feed so they could help more farmers have income by providing them chicks to feed for five weeks. Afterward, the chicks will be delivered to slaughterhouses, processed, and vacuum-packed for delivery across the BMA area. The chickens, which have low uric acid and low fat, will be cooked grilled. It is sold in packs of four at an affordable price of THB999, including the shipping fee.</p>
Impact (s)	<ul style="list-style-type: none"> • The project has been ongoing for 2 years, and farmers earn THB6,000–7,000 every 5 weeks. For one year, it could generate an income of around THB 60,000 for the farmer. • A hundred households are joining this project. Feeding areas are at Tambon Nong Thum, Tambon Ubonrat. • This project is expected to expand its market to Muslims, so the slaughterhouse needs Halal certification that is now under process.

2.5 Behavioral Change and New Normal

Experiencing COVID-19, the people in Khon Kaen gradually adapted to the new normal.

2.5.1 Business Sector

Online platform. The provincial lockdown and temporary place closure have contributed to the adjustment of several businesses. Firstly, social distancing and stay-at-home measures have persuaded businesses to set up an online platform. Not only is it for delivery services, but also for marketing their business. Obviously, the online platform has posed both negative and positive impacts on the business. The negative impacts have greatly shown in the business where have an ambiance as a selling point, like café. Also, due to several online platforms, high competitiveness has pressured such businesses. At the same time, it is a good and new channel for new businesses because their business/products can be advertised and recognized more. As buyers have a variety of shops and more options to choose from, they can try most new products and have more ways to compare and value the quality of products among online shops. Thus, the quality of the product has been prioritized coupled with the reasonable price.

Hotel business. As Khon Kaen is a MICE city, hotels with conference rooms must adjust to the new normal. The conference hall has reflected the measure of social distancing by reducing half of the room's capacity with a space. Also, the buffets have been changed to a boxset to avoid contact. In addition, the checkpoint (fever checking and hand sanitizer provision) is set at the entrance with the registration desk. Actually, there are two registrations points at the hotel. One is at the entrance of the hotel and the other at the entrance to the conference room. Hotels use the Thai Chana QR code to record visitors while the conference room will require specifically the names and numbers of the participants. Also, all visitors must wear face masks before entering the hotel. The staff and waiters will also put on face shields and gloves, besides face masks, when they provide a service. In addition, the participants and event owners are likely to stay in the hotel with the conference to avoid going out. At this point, the cleanliness, quality of services, and prevention measure have been highly prioritized for their decision making. According to the interview, the Spiritual Healthcare Award (SHA), certified by TAT since 2018, has evidently reflected on the safety and cleanliness of the hotel.

Other businesses: The registration via Thai Chana, fever checkpoint, and provision of hand sanitizers have been applied in most businesses as an initial prevention measure. The department store, community malls, fresh markets, and other hanging out places have forced people to wear face masks before getting inside and all the time spent in such a place. Similar to restaurants and retails, the Thai Chana QR code was put up at entrances. Also, they have the staff check the body temperature of customers. Noticeably, it is more difficult for people to wear face masks in restaurants as they have to eat. Thus, most restaurants have blocked seats, imposing the physical distancing measure. In case it is not practical for the customers, the restaurants must rely on the cleanliness standard. Supported by the MOPH, the 'Green Food Good Health' has been promoted among restaurant owners to achieve the standard.

2.5.2 Social Activities

All social activities have to be adjusted with the social distance and checkpoint. From the end of March until the present, the funeral event has to provide the checkpoint and keep blocking seats. VHV's operate the checkpoint to check the body temperature of the people and provide hand sanitizer as well as a registration sheet at the entrance. Funeral hours were also limited. At the same time, snack boxes have been provided instead of a buffet to keep distancing among guests at funerals. Similar to temple and Buddhism activities, the checkpoint and registration are set at the entrance while monks must wear a face mask when they pray. Also, to offer food or to give alms to the monks, people must keep distancing and wear masks. For those who want to do activities in the temple, like cleaning, they need to change their time to avoid crowding. For example, elderly persons went to the temple at 4 am. instead of the evening to clean the temple courtyard.

2.5.3 Peoples' Awareness and Behaviors

All restrictions have definitely affected the lives of people. People must change their lifestyles according to the crisis and restrictions. The economic pressures let them do more saving. The Sufficient Economic Philosophy has been more recognized and applied throughout the lockdown period. As the income has been reduced, people do spend money less than usual and avoid buying unnecessary things. For example, they prefer to cook at home rather than buy foods from outside.

Moreover, the anxiety from the pandemic forced people to stay at home, shifting their lifestyles in different ways. Firstly, people spend less time shopping by preparing a plan and list. Some people shop twice a week instead of every day. Additionally, the one-way flow in the fresh market has compelled them to plan their shopping.

In order to relieve their anxiety, they have to spend more time with themselves and their family. Since people need to stay at home, they can spend time with their families and do activities together, like cooking and housework. Other activities people can do during the lockdown are listening to music, watching TV, exercising, or playing games. These activities can also help get rid of depression.

Once the restrictions have been lifted from May until June, people had to wear face masks, practice proper hand hygiene, and maintain social distancing. Now that people have become more relaxed in practicing these safety measures, there are still concerns about the new cases, especially those from overseas. Consequently, most people still wear face masks when they go outside.

2.6 Further Needs

1) Continuous Prevention Measure

Even though many interviewees are afraid of the second wave of infection, most still believe and rely on the central and local governments to prevent the outbreaks.

Needless to say, the COVID-19 is a global pandemic. The second wave of infection can happen anytime, so it is not completely safe at the moment. Citizens are highly concerned about those from overseas. They feel more comfortable and safer continuing the 14-day state or home quarantine. Although self-preservation is essential to prevent an outbreak, information dissemination and government action are also essential. An advanced prevention plan has been required by several sectors to promptly cope with the impacts. Communities and citizens in Khon Kaen do trust the action of VHV and Tassaban to prevent the spread of the disease.

Despite wanting to continue prevention measures, the damage in the economy from the provincial lockdown and temporary closure of businesses and places have stressed people. From the end of March to early June, most businesses have been struggling and spending their savings to sustain their business as much as they can. The repeated restrictions and provincial lockdowns will likely discourage business owners. Without income, most businesses will run out of savings and will not have enough to sustain their business, leading to bankruptcy.

2) Economic Recovery Assistance

Even though the government provides several support options to recover businesses, it is still insufficient for many sectors. Due to the complicated conditions, many people were unable to access this support. Also, the support does not respond to the actual needs and problems of the businesses.

For SMEs, in particular, the conditions of financial aids have only motivated investments instead of securing their businesses. With their financial difficulties from travel restrictions and closures, it is hard for them to invest more or loan money from banks. Even though SMEs can take advantage of the suspension of financial payment, it still depends on their financial balance. Some businesses did not loan from banks, so they have no bank statements required for getting a loan. Meanwhile, due to the uncertainty of the pandemic, some businesses think that a loan is a financial burden. There is no guarantee when they can repay.

Several sectors suggest that the government should support employment in the city instead of the unemployed. Without supporting or securing the existing businesses, the issue of unemployment will be more critical because the existing businesses do not have enough capacity to employ people. After lifting the travel restrictions, MICE city should be more promoted to boost the economy and diversify income to regions and local cities. MICE city not only involves the professionalism and business but also local products and city attractions. With the new normal, prevention standards should be provided for the hotel business. Due to the closure of international borders, Thai hotels should be promoted more than international hotel chains. Thai nationalism should be cultivated in the sense of

society to sustain Thai-owned business and national financial flow.

In the agricultural sector, crops and animal products should be encouraged. The government should provide more channels for distribution and sales. Smart Farmer is a key idea in Khon Kaen to get promoted. Upgrading crop quality at the safe and organic standard will increase the price and sales and enhance the health awareness of the citizens. Consequently, the livelihood resources will be maximized to generate income and mitigate misery and poverty in Khon Kaen.

3) Continuous Pollution Control

With the positive impacts on air quality and noise, many people want an efficient plan to sustain the air quality and keep noise level in the city. Air and noise pollution are mainly caused by traffic density. During the curfew period, people had more awareness of environmental issues. It is an opportunity for Khon Kaen to develop its transport projects. When reducing vehicles on roads, public transport development has become an essential option. Besides the LRT and Double Track Project, the tram is also considered for development. A mini tram project is expected to be proposed to the governor to enhance connectivity among places from the Rajamangala University of Technology Isan to Bueng Kaen Nakhon and facilitate the mobility of citizens.

4) Promotion of Medical Hub

Along with the increasing health awareness during the COVID-19 pandemic, Khon Kaen citizens require upgrading healthcare services. The quality and capacity of hospitals are highly prioritized, especially now with the COVID-19 pandemic. Taking advantage of the medical center, the city encouraged more people to visit and, indirectly, revive attractions and businesses. Accordingly, being a health and wellness city has attracted the interest of many citizens. The improvement of medical care and services should be simultaneous with an online platform. With the Smart City concept and the new normal, the online platform should show real-time data, like hospital capacity and medical advice.

2.7 Future Development Perspectives

The COVID-19 crisis highlighted the importance of Khon Kaen Collaborative Networks, which is an unofficial collaboration among the public, private, and civil sectors. Even though the network has been informally initiated among the public, private, educational, and civil sectors, it is a key to relief from the crisis. To illustrate, the information and research of COVID-19 impacts in each period have been prepared by the collaborative network, such as Provincial Statistics, National Economic and Social Development Council (NESDC), Thai Bank, COC, and Khon Kaen University. The data supported the decision of the government for the imposed provincial restrictions, proving that the network is the key to the success of city development.

Khon Kaen Transit System (KKTS)³ is one of the best practices of the collaboration of LAOs. KKTS is regarded as a representative of the citizens. It has several projects responding to the needs of the citizens. At the same time, Khon Kaen Think Tank (KKTT)⁴ is a representative of the private sector. With the COVID-19 pandemic, both KKTT and KKTS have discussed adjusting the future direction of Khon Kaen. The safe food learning center under the concept of Smart Farmer is now a priority. Currently, they have a project studying organic vegetable planting and analyzing and balancing the demands and supplies in the province. For example, the province currently uses the IoT system to control soil quality, which is expected to rescue people from poverty.

In addition, the “Khon Kaen model” is a core concept to develop Tassaban Nakhon Khon Kaen. The model is considered a fundamental development, covering economic, social, and environmental aspects. In this crisis, it potentially benefits all sectors to move Khon Kaen in the same direction.

³ KKTS is a company operated by five Tassabans, namely Tassaban Nakhon Khon Kaen, Tassaban Mueang Sila, Tassaban Tambon Mueang Kao, Tassaban Tambon Samran, and Tassaban Tambon Tha Phra. Its main purpose is to operate the Light Rail Transit (LRT) project and develop TOD following the LRT stations through Khon Kaen Smart City (Phase 1). The company was officially established on 24 March 2017. KKTS is responsible for the maintenance and operation costs of LRT as well as the facilitation of KKTT investment.

⁴ KKTT is a private company promoting urban development in Khon Kaen. Similar to KKTS, its first and key project is promoting LRT in Tassaban Nakhon Khon Kaen and developing TOD following the LRT stations. However, KKTT is more active in terms of investment and development to add value in such areas.

2.8 Implication to SFCI

2.8.1 Current Situations of Projects under SFCI

In the JICA Pilot Project, Tessaban Nakhon Khon Kaen focused on songteaw to promote the use of public transportation since it is the main mode of the citizens. During the project, some songteaw operators became partners, but the partnership did not last. Therefore, Tessaban Nakhon Khon Kaen needs to talk with songteaw operators to give further insight and make them understand to involve them in efforts promoting public transport in Khon Kaen.

1) Transit Database and Datacenter

The transit database can be used by several sectors for further research and study.

2) Place-making in Transit System Service

Seats at the bus stops are still fine since their installation was at just a few points under the JICA Pilot Project. It answers the needs of the users. Although mobile chargers are installed to light posts at bus stops, people rarely use them, likely due to poor security.

The private sector intended to construct more bus stops following the supposed design of bus stop facilities, such as seats and lighting poles with mobile chargers. If so, it would enhance convenience for users by linking with the KK Transit application. However, the private sector is restrained by a law that first requires acknowledging their use of the area that is under the jurisdiction of the national government.

2.8.2 Implication to SFCI

The main issue after the completion of the JICA Pilot Project in Tessaban Nakhon Khon Kaen is the continuous budgeting support. The city cannot extend the bus stop project due to budget shortage.

2.9 Other Issues Raised

1) Dengue Fever

Besides COVID-19, dengue fever also caused panic among communities especially during the rainy season, around the beginning of June 2020. Dengue fever is easily more transmissible than COVID-19. Also, people can get infected more than once.

Dengue fever cases noticeably increased each year. As means to prevent infection from dengue, VHVs took necessary actions when they visited households. During the onset of the COVID-19 pandemic, VHVs were also informed of dengue fever preventive measures. They distributed sand to put in areas with waterlogging to get rid of mosquito larvae.

From a citizen's perspective, however, dengue fever is more severe, with cases now higher than COVID-19's. Evidently, these cases also added to the capacity of hospitals. Considering the COVID-19 pandemic, it posed a concern for the citizens to get treatment and healthcare from the hospital.

2) Drought

The water level in Ubol Ratana Dam was low in the past 30 years. Water decreased from 500 to 300 m³. Even if it rains, the dam has not stored rainwater. At the moment, the dam is drying, unavoidably affecting the agricultural sector.

Water shortage greatly threatens several agricultural productivities. Even if there is demand in the city, crop growing and agricultural production have been restricted and suspended. Consequently, some farmers have decided to stop cultivating because they cannot keep row quality and price when they sell in the market.

If this situation continues until the end of 2020, the water supply would be insufficient to serve people in the city, according to a representative of the Provincial Water Authority (PWA).

To cope with this, COC has a plan to develop water resources and promote tourism in the Keng Nam Ton cataract with a size of 6,200 Rai. Not only is it expected to solve drought but also to provide new income resources through tourist attractions.

3. COVID-19 Impact and Response on it in Tessaban Mueang Krabi

3.1 Overview of Krabi

3.1.1 Socio-Economic Characteristics



Source: JICA Project Team

Figure 3.1.1 Location of Krabi

Krabi is in an undulating area surrounded by mountains and a coastal line in the southern part of Thailand with borders that connects to Phang-Nga, Surat Thani, Nakhon Si Thammarat, and Trang. Krabi is the fourth place that generates income from tourism since it has many beautiful tourist destinations, attracting people from around the world.

Krabi has many international flights to Singapore, Kuala Lumpur, Penang, Shanghai, Kunming, and Guangzhou. Meanwhile, domestic flights to/from Krabi are Bangkok, Chiang Mai, and Ko Samui. Moreover, NR 4 from Krabi connects to other provinces that are tourist destinations, like Phuket, Phang-Nga, and Trang. The main roads of Tessaban Mueang Krabi are NR 411 and 4034. Road NR 4034, 4204, 4201, and 6024 lead to major beach resorts in the southwest of the Tessaban.

Table 3.1.1 Overview of Krabi Province and Tessaban Mueang Krabi

Population	
Province	476,739 Increases about 0.78% every year
Tessaban	32,644 Increases around 0.99% annually
Aging rate (60+)	
Province	There are 57,437, or about 12%, that are 60 years old and over.
Tessaban	There are 4,041, or about 12.4%, that are 60 years old and over.
Area	
Province	4,709 km ²
Tessaban	19 km ²

Economy	
Province	Main economic characteristics are agriculture (rubber and palm oil), fisheries, and tourism. The number of tourists in 2015 was about 5.6 million, which is 3.5 million and 2.1 million foreign and domestic tourists, respectively. The growth in the tourism sector led to a 30% increase in hotels in the province.
Tessaban	Tessaban Mueang Krabi is the center of the tourism industry, and this industry supports business travels, transportation, hotels, restaurants, services, consumer goods, food supplies, and repair and maintenance. It drives the economic growth of Tessaban Mueang Krabi. The Tessaban area also has a role as an administrative and service center in the province.

Note: The growth rate was calculated based on the data of population in 2019 and 2015.

Source: DOPA, 2019

Although Krabi has many schools, from nursery to high school (including vocational), there is no college or university within Tessaban Mueang Krabi. Even though there is a hospital in Krabi, people have to go to Hat Yai, Trang, and Phuket for tertiary medical care because it only has up to secondary health care services. In addition, Krabi offers many employment opportunities in local industries for the young generation, such as tourism, attracting about 40% to remain in Tessaban Mueang Krabi.

Krabi has sufficient forest coverage and water resources to produce good air and water quality that meets environmental standards. Although, toxic materials from a waste incineration area pose a risk to the air quality in Krabi.

A home vegetable garden has been promoted to communities as an additional income by selling the vegetables to restaurants and hotels.

3.1.2 Overview of Infection of COVID-19 in Krabi

Krabi had a total of 20 COVID-19 infected cases, all of which recovered in June 2020. The first infected case was found on 4 February 2020. Interestingly, most of the infected cases were not found in the Tessaban area. Detail of infection status is shown in Table 3.1.2.

Table 3.1.2 Overview of Infection of COVID-19 in Krabi

1.1	Infectious Cases Number	1 st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	7	19	20	20
	Active Cases	0	6	9	7	0
	Recovered Cases	0	1	10	13	20
	Death number	0	0	0	0	0
	Testing Number	0	154	688	1073	2191
	Local quarantine	N/A	N/A	N/A	N/A	N/A
1.2	Gender					
	Female	12				
	Male	8				
1.3	Age					
	Minimum	20				
	Maximum	62				
	Average	39				

1.4	Nationality	
	Thai	13
	China	1
	Denmark	2
	France	2
	United of America	1
	United Kingdom	1
1.5	Date of first confirmed cases (Announced date)	4/02/2020
1.6	Transferred from other provinces	-

Note: The number of infected cases were collected every 1st date of each month.

Source: MOPH, 2020 (provincial office) edited by JICA Project Team

3.2 Infection Prevention Measures

3.2.1 Infection Prevention Measures taken by Province and Municipality

1) Province

The COVID-19 Disease Control and Prevention Center was established on 10 March 2020 for the province's readiness to handling the pandemic. Members of this center are from government offices of Krabi, divided into five teams, namely Krabi Royal Volunteer Center, Public Relations Information Center Team, Administrative and Planning Team, Operations Team, and Support Team. It should be noted that the center was established before the announcement of the first state emergency.

In addition, Krabi prepared to minimize the impacts of the outbreak. Government officers and staff were informed to refrain from international travel. Similar to other provinces, many risk areas and activities in Krabi were suspended. Apart from the preventive measures similar to most cities mentioned in Chapter 1, such as temporary business closure, curfew, restriction on some types of businesses, etc., the province has some outstanding preventive measures.

Public transportation services. The governor announced on 18 March 2020 requesting DLT to increase the frequency of bus services but follow other preventive measures, like temperature checks for passengers and blocking seats. However, the Krabi Bus Station was closed from 4 April to 31 May 2020 in accordance with the inter-district travel ban.

Airport Closure. The Krabi International Airport was not permitted landing or take-off from 3 May 2020, and its operations resumed on 1 June 2020.

Provincial Lockdown. Inbound and outbound travel to/from Krabi province was banned from 4 to 30 April 2020. There were some exceptions, as follows:

- Krabi residents who will stay until 30 April 2020.
- Krabi non-residents who have a duty in Krabi and will also stay until 30 April 2020.
- Emergency patients transiting to certified hospital.
- Patients who cannot postpone their medical appointment due to treatment conditions.
- People who have appointments of court proceedings and cannot postpone.

People who could leave Krabi were the same as mentioned above: residents and non-residents who would not return to Krabi until 30 April 2020, people who had emergency issues with a medical appointment, or people with court proceedings.

Districts and Specific areas lockdown. Krabi had another special preventive measure to control the movement of people apart from provincial lockdown: the district-lockdown measure to ban people from traveling among districts. People were also prohibited from traveling to/from specific areas such as some sub-districts. Notably, Koh Lanta District had a high number of infections, which resulted in strict sub-districts lockdown. Overall, the lockdown was implemented in areas where infected cases were found. Details of the districts and specific lockdown dates are in Table 3.2.1.

Table 3.2.1 Districts and Specific areas lockdown in Krabi

Period	District
4–30 April 2020	<ul style="list-style-type: none"> • Mueang Krabi District (Phi Phi island and Ao-nang Subdistrict) • Lanta District • Plai Phraya District
10–30 April 2020	<ul style="list-style-type: none"> • All districts <p>Specific areas</p> <ul style="list-style-type: none"> • Ao Nang Subdistrict • Moo7, PP Island Village, Ao Nang Subdistrict • Moo 3, Nai Nang village, Kao Kram Subdistrict • All subdistricts in Klong Tom District • Koh Lanta Yai
22–30 April 2020	<ul style="list-style-type: none"> • Saradan Subdistrict, Lanta district • Koh Lanta Yai Subdistrict, Lanta district

Source: Edited by JICA Project Team based on the Krabi Provincial Office website

The period of lockdown was extended from 3 May 2020 onwards in some areas, including the following:

- Krabi Province and all districts
- Moo7, PP Island Village, Ao Nang Subdistrict
- Lanta district (only island area)

After the lockdown, the governor canceled the lockdown on 15th May 2020, excluding the provincial lockdown of Lanta District and Moo 7 PP Island Village. All lockdown measures were cancelled on 31 May 2020.

Religious Activity Regulation. On 18 March 2020, there was an announcement to postpone or refrain some religious activities particularly for Buddhism. For Islam, people must follow the instruction from Chief of Muslim in Thailand.

MorChana Application. Using an application to track and check a user's health before entering Krabi began on 31 May 2020. After the provincial lockdown was cancelled, people wanting to enter Krabi must install MorChana for the declaration of any possible COVID-19 symptoms and health issues. After filling in information, the application will generate a QR code showing the user's health status. Three colors represent the health status of the user.

- Green: user is allowed to enter Krabi
- Yellow: user is allowed to enter Krabi but will be monitored for 14 days
- Orange/Red: user is not allowed to enter Krabi and will be hospitalized

2) Tessaban

Firstly, Tessaban has promoted preventive measures such as washing hands, social distancing, and wearing a face mask in all communities. Interestingly, Tessaban Mueang Krabi also produced a music video on the seven steps of handwashing, using the instructions as lyrics and combined dance steps with the song. The dancers in the video are Tessaban staff. Not only was the video posted online, but the Tessaban administrative staff and community leaders demonstrated the song and dance on this video in many

communities. The video¹ was published on YouTube on 10 March 2020. The results show that most people in the communities have followed these instructions. Besides, the checkpoints were increased in public spaces, especially in markets. Moreover, a disinfectant was sprayed all over the community, particularly in areas where the suspected infections were. The Tessaban also provided a budget to create fabric masks, and community leaders and VHVs² help each other distribute face masks within the communities.

VHVs under the Tessaban have a very important role in preventing the further spread of COVID-19 in communities. They must take care of basic public health matters by visiting the communities every day. Currently, they still check on communities for dengue prevention. Research showed that people, particularly in-bed patients, felt safer because of VHVs' visits. Patients got support from VHVs, and they did not feel alone. In the case of those entering the city, VHVs checked the newcomers right after arriving home. After a 14-day quarantine, the newcomers must inform their health status to VHVs, Public Health Division of the Tessaban, and hospital via phone. If there were any suspect cases, they must be reported for the VHVs to check on them. Should people not follow the instructions provided, VHVs must report to the Provincial Public Health Office to handle it.

Likewise, the Tessaban have applied many preventive measures at the Tessaban office. Examples of these measures are as follows:

- Temperature checks in front of Tessaban office
- People entering the Tessaban office must check-in via the application Thai Chana
- Tables and chairs were adjusted with the distancing
- There are markers on the floor for people to maintain distance from one another.

3.2.2 Prevention Measure given from others

The community collaborated for the preventive measures given by the public sector. Most of the time, community leaders joined the Tessaban when they visited communities to announce instructions, and they repeated the preventive measures and messages from Tessaban to other community members.

3.2.3 Provision of Information

1) Information Provision Channel

Tessaban mainly distributed information on preventive measures or received requests on issues from communities through online communication channels, particularly LINE. There is a LINE group for Tessaban and community leaders not only for the former to provide information to communities but also for communities can request their needs. Moreover, there is another LINE group for each community so that community leaders can continuously repeat the data given by Tessaban into the group chat.

Other online channels like Facebook were also used to share information. Social media is popular among the young generation and working people. Having a smartphone is

¹ The link to the video is https://www.youtube.com/watch?v=L_zZWKgs1tw.

² There are 300 to 320 VHVs in 11 out of 14 communities in Tessaban Mueang Krabi. Each VHV takes care of about 15 to 20 households. Since not all communities have VHVs, some would take care of two communities.

essential for the working group who work the whole day, so that they can receive information or updates. Thereby, using Facebook or LINE is the easiest way of communication for them.

The Tessaban and Provincial Administrative Organization (PAO) also used advertising trucks for distributing information. However, this way of communication was rarely used.

Another method used to spread information is podcasting that was played in communities. Community leaders speak with community members this way. Furthermore, some people, particularly the elderly, who stayed at home received information on the overall COVID-19 situation from watching television.

2) Evaluation on Information Provision

Importantly, word of mouth is still powerful. VHV and community leaders talk with people in the communities in person, which is two-way communication. They can exchange information with each other. Many interviewees also said that they have shared and received news and information from friends and families.

People believed that news and information from Tessaban are reliable. Basically, if they got unverified information that was forwarded to them, they double-checked with trustworthy sources like the Tessaban website or the governor's Facebook Page.

3.2.4 Provision of Public Service

1) Transport Services

On 18 March 2020, there was an announcement for the public transportation from the Provincial Office of DLT to follow the instructions from MOPH and to do temperature checks of passenger and staff. All passengers must always wear face masks. Moreover, as mentioned above, the service frequency was increased to lessen passenger density in each vehicle. There should be at least a 1-meter distance between each passenger whether sitting or standing.

After the announcement of prohibiting inter-district travel on 3 April 2020 and accordingly suspending operations of all inter-provincial public transportation, the Krabi Bus Station was closed from 4 April 2020. Thereby, people could not travel between districts. Although public transport in the city like songteaws still operated during that time, there were few users and so is service frequency. At a consequence, most people who wanted to travel within the city during that time, they had to use their own private vehicles. The bus station in Krabi has reopened on 1st June 2020 according to the lifting restriction announcement from the governor.

Originally, most international visitors always use taxi while local tourists prefer car rental. The president of Krabi Chamber of Commerce thought that paratransit, like open-air songteaw, was safer for people to use during the pandemic. Songteaw is also convenient for dropping off passenger at the passenger's exact destination. Still, Krabi people hardly use public transportations. The reason is routes of public transportation do not cover all the main roads.

2) Medical Services

The hospital in Krabi continued normal operations but had to minimize visitors and patients during the state emergency. The hospital asked people to stay at home and only visit when necessary. Although the original capacity of the hospital cannot accommodate all people in Krabi, it still has to prepare to handle emergency and COVID-19 cases. Hence, there is a collaboration with VHVs to do primary medical checkups for people considered non-serious cases. In unavoidable cases, there is an appointment system to manage the number of visitors at a certain time. Patients visiting the hospital have to follow the instructions and maintain social distance.

It is interesting to note that people avoided the hospital and went to nearby clinics and medical centers in their neighborhoods. Some people were afraid of visiting any medical services asked community's nurse to visit them at home.

3) Education Services

Schools in Thailand were closed from 18 March 2020 according to the announcement of MOE, and the semester was delayed for two months. During the closure of schools, online learning was provided but as a trial. Eventually, it was not successful because some students did not have electronic devices and imposed more costs students more costs for the internet. It was also hard for students to keep concentrating on the online course, which was another reason not to work the course well. Schools made preparations by following the instructions by MOPH for the coming semester, like temperature checks before school entry and social distancing.

Upon the resumption of schools, they have strictly applied the preventive measures. One of the interviewees said that students must use both face mask and face shield in school. Each class was divided into two groups to reduce density per classroom. Students have to go to school every other day. Meanwhile, these instructions also applied for college and university.

4) Government Services

To respond with the preventive measures, the governor announced to suspend some government services from 26 March to 15 April 2020 to reduce people in government offices. There were still services at the Provincial Office of DLT, Department of Land and Registration Office. Most of the services were temporary suspended except for some services in each office which are described in Table 3.2.2.

More government officers were suspended from 28 March to 15 April 2020. These offices are Krabi Social Development and Human Security Office and Damrong Dharma Center. Details of the services is explained in Table 3.2.3.

Table 3.2.2 Suspension of Provincial Government Services

Department	Suspension of Government Services
Provincial Development of Land Transportation	<ul style="list-style-type: none"> Services for training or testing for a new driving license were suspended, while the application for extension for an expired driving license could be through e-learning training.

	<ul style="list-style-type: none"> • Mobile units for vehicle registration, taxes, and issuance of driver's license were suspended.
Department of Land	<ul style="list-style-type: none"> • Right and juristic registration services were suspended.
Registration Office	<ul style="list-style-type: none"> • District Registration Office was open for birth reporting, death reporting, and issuing new ID in case of lost or severely damaged card. • Subdistrict Registration Office was open only for birth and death reporting.

Source: Edited by JICA Project Team based on the website of Krabi Provincial Office

Table 3.2.3 Additional Suspension of Provincial Government Services

Department	Suspension of Government Services
Krabi Social Development and Human Security Office	<ul style="list-style-type: none"> • Elderly fund: Refraining loan request service. Consulting via online and call center (Line and Facebook) • Empowering Independent Living for Persons with Disabilities Fund: Refraining loan request service. Consulting via online and phone (Line and Facebook) • Disability Identification: Refraining ID card service. Consulting via online and phone (Line and Facebook) • Adoption: appointment via phone, Line and Facebook. Consulting via online and phone (LINE and Facebook) • Subsidies for raising a newborn: Consulting, checking rights, or summiting additional documents via online and phone (LINE and Facebook)
Damrong Dharma Center	The center serviced via phone, hot line 1567, website www.krabi.go.th , Line and post

Source: Edited by JICA Project Team based on the website of Krabi Provincial Office

3.3 Impacts of COVID-19

3.3.1 Economic Impacts

1) Overall

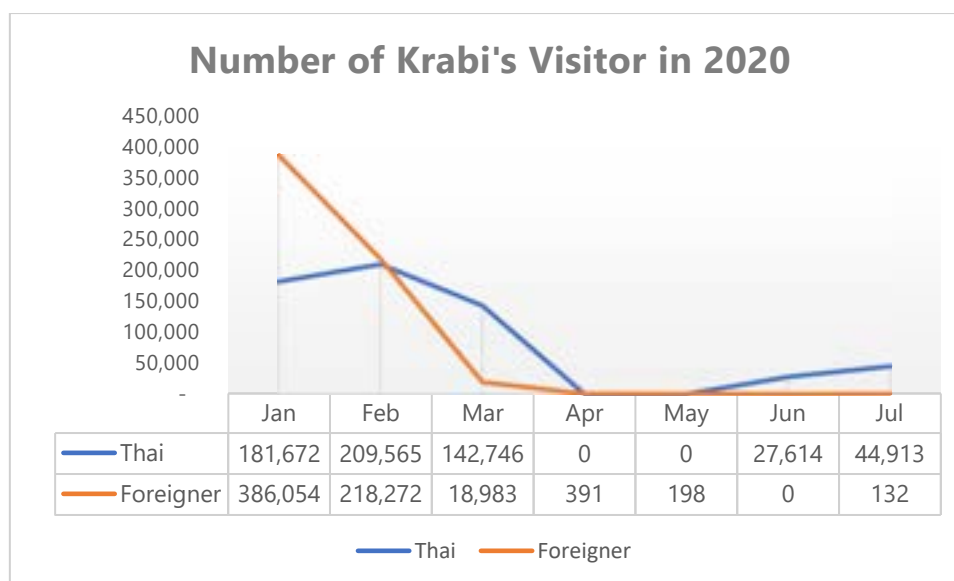
The lockdown was strictly applied at the district level due to the high number of infectious cases found in Krabi compared to the other provinces in Thailand. Since Krabi is the main tourist destination in Thailand that generates a lot of income, the lockdown affected tourism-related businesses such as hotels and tour agencies. Many employees in the tourism sector were laid off or could not receive their salaries until businesses resumed operations. The district lockdown stopped entry to Krabi. It also prevented workers in the city from returning to their hometowns and commuters among city residents to travel to work in nearby districts. For example, some workers who lost their jobs had to remain in the city and could not return to their hometown.

Other preventive measures have also impacted market users and services like dine-in restaurants, contributing to a decrease in sales. People cannot travel across districts, causing fewer customers of fresh markets and walking streets located in the city area. Moreover, agriculture, another main industry of Krabi, is the second to be most affected by the pandemic according to the Krabi COC because of difficulties in domestic and international product transit. Interestingly, the local fishery may not get much affected because the lower the tourist disturbing the marine resources, the higher the marine resources recovered. On the other hand, new online platforms for food delivery and online shopping became more popular, especially during the lockdown period.

2) Tourism Sector

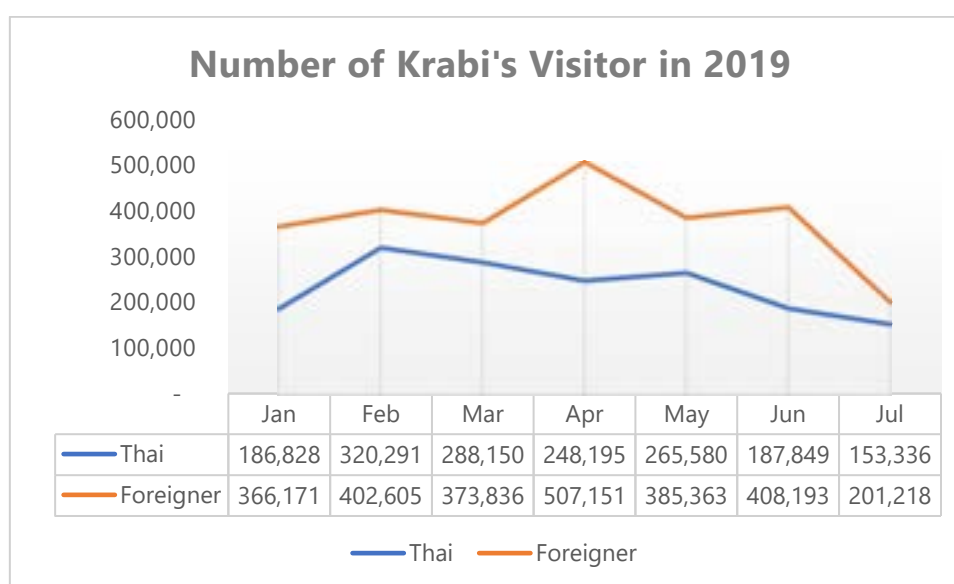
Most businesses in Krabi are connected to tourism as well fishery and agricultural industries. All these tourism-related businesses were the most affected, particularly hotels of which their main targets are foreigners. While clear impacts on tourism appeared from March 2020, Krabi has realized the impacts of COVID-19 since December 2019 because the high season is between December and February. According to COC, there are about 80% of foreign tourists while 20% are domestic. Due to the lockdown and other preventive measures, no visitors entered Krabi during that time. Tourism businesses almost completely shut down for at least 3 months. Even after the restriction has been lifted from July, hotels and tourism-related businesses cannot be fully reopened since there were few visitors during that time. However, about 30% of the tourism sector has slightly recovered because Thai tourists began traveling again to the province. The opinion of the Krabi Tourism Council president is that although many Thai tourists visit Krabi because of the circumstances, the lifestyle and behavior of European tourists, which are the main targets in tourism, are different. Europeans relax and use most of the facilities in the hotel while Thai tourists travel around the province as much as possible. It means luxury hotels with facilities like spas and saunas definitely have to pay a lot for maintaining their facilities. As the pandemic causes uncertainty and unpredictability when the border can reopen, many high-class hotels and resorts decided to remain closed. Those hotels relying on international tourists have to pay the fixed costs like maintenance and utility costs for many months without any income. They are most likely to collapse anytime soon. In addition,

tour agencies and boat services were highly affected by having lost their customers and income. It should be highlighted that the tourism sector is the main sector that generates the highest profit for the province. The loss of this income will have a "butterfly effect" in all sectors in Krabi.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 3.3.1 Number of Krabi Visitor in 2020



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

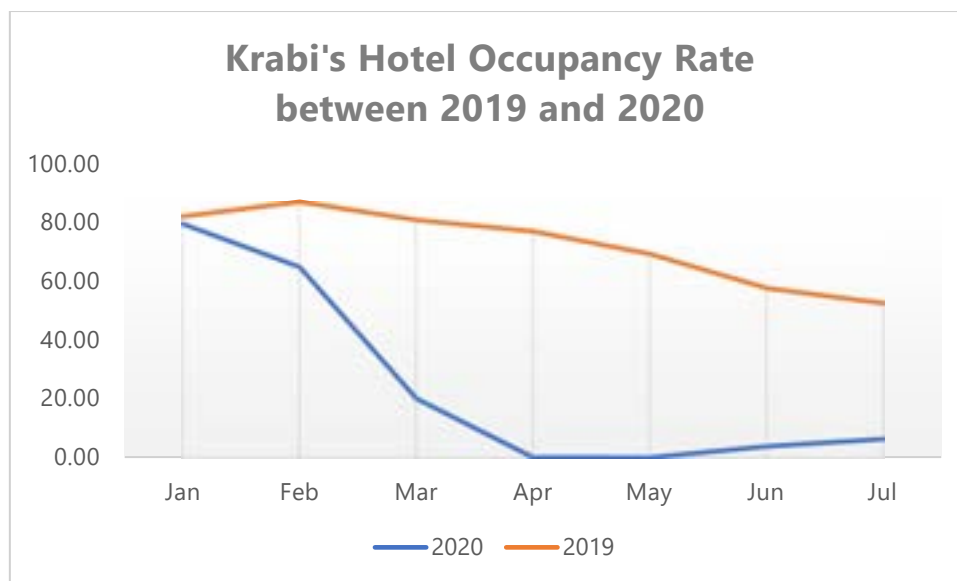
Figure 3.3.2 Number of Krabi Visitor in 2019

According to Figure 3.3.1 and Figure 3.3.2, the number of foreigners dramatically dropped in March when the emergency announcement for the outbreak control began. The number of foreigners in March 2019 was 373,836 while in March 2020 it was 18,983 accounting for 95% reduction. It should be noted that there were no foreigners entering Krabi in June 2020. The figures show that the number of foreigners has decreased, and it cannot recover unless international flights resume. Even though the number of Thai visitors slightly

increased in June 2020, it did not relieve the tourism situation in Krabi. There was about 70% of Thai tourists that was decreased in July 2020 compared with the number of Thai tourists in July 2019.

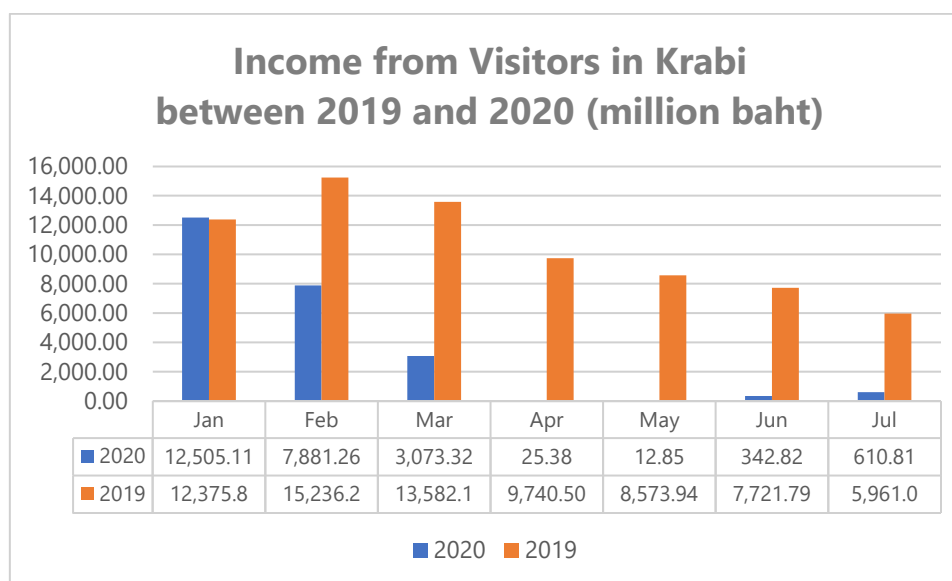
One of the reasons why Thai tourists have not travel to Krabi is the safety issue. People seem to travel by car rather than by plane out of fear of infection. The President of Krabi Tourism and COC said that tourism destinations, like Pattaya Hua Hin, Khao Yai, and other locations near Bangkok, might become more popular than far away tourist destinations, like Krabi and Phuket, where it is too far to travel by car. Hence, banning international flights and reducing domestic flights have influenced the number of tourists in Krabi. Airlines have still limited flights. The number of tourists were expected to increase if the airlines resume their flights at least for domestic flights.

Hotel Businesses. Figure 3.3.3 shows that the hotel occupancy rate in Krabi was approximately 6% in July 2020, while it was about 52% in July 2019. Accordingly, Figure 3.3.4 shows that Krabi barely generated income from April to July 2020, particularly in April and May, comparing with the income generated in 2019. Consequently, it emphasizes that hotel or tourism-related businesses in Krabi, particularly the ones relying on foreign tourists, have the highest impact.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 3.3.3 Hotel Occupancy Rate in Krabi between 2019 and 2020



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 3.3.4 Krabi's Income from Visitors between 2019 and 2020

Many hotel owners could not generate high profits anymore. They were likely to only get through this crisis. If the ban on international flights lasts longer, it will also cause employees who were discharged during the outbreak to not return to work.

Apart from the fixed costs that hotel enterprises have to pay regularly, cleaning costs and following the preventive measures are additional costs that hotel businesses have to cover. Hotels have to at least provide alcohol or hand sanitizers for guests at many points of the hotel, face masks for all staff, and thermometers for temperature checks of guests before checking in. From the perspective of the president of the hotel association and hotel owners, the government should regulate prices and set quality standards of the equipment to use in accordance with the preventive measures. Thermometers may be inaccurate to detect the infected, but face masks and hand gels are more necessary. Accordingly, it would be more useful if the government provided effective instructions and regulated the prices of the products to save unnecessary costs for hotels entrepreneurs.

3) Commercial Sector

Markets and Commerce

Customers in the Mueang Krabi district markets rapidly dropped due to the district lockdown measure. Moreover, the decreasing number of tourists also affected some markets popular to tourists, such as the Pu Dam Street Market and Chao Fah Market. Likewise, the number of customers in Maharaj Market, which the locals are its target market and have businesses like restaurants and hotels, has also decreased. Even though the Pu Dam Street Market and Maharaj Market have slightly recovered after the lockdown, sales have not been the same. Nowadays, customers at the Chao Fah Market, where Chinese and Europeans are its target markets, are only about 30-40%.

Preventive measures somewhat inconvenienced the livelihood of the people. Many people avoid going to the market because they do not want to pass all the screening process when entering. Furthermore, markets are regarded as risk areas, so people have planned to visit

as less as possible or order food and fresh food via delivery services instead.

Curfew also changed the daily lives of sellers. Pre-pandemic, sellers prepare their shops in the early morning from around 3 a.m., but the curfew made that impossible. The sellers had to adjust the operations of their business accordingly.

In general, the price of products in Krabi is quite higher than in other nearby provinces because they are mostly all transited from other provinces. Markets in Krabi provided supplies to both locals and tourists. On one hand, the demand for supplies from markets, like seafood, has reduced relating with the decreasing number of tourists. It caused a drop price drop in some types of food, such as shrimp that went from THB 1,200 to THB 700 per kilogram. The price for some products increased, however, especially vegetables. For example, one restaurant used to buy lettuce at THB 80 per kilogram, but it went up at THB 120 per kilogram.

Café and Restaurant

SMEs in the city related with tourism, such as travel agencies, restaurants, souvenir shops, community enterprises, and cafés, were also affected. Those businesses generated huge money flow. Employees in this sector were also affected. SMEs may not have much reserve funds unlike some foreign company-invested luxury hotels with big amounts of money flow. Likewise, rescue measures from the central government are insufficient particularly for SMEs.

Many from the younger generation in Krabi have businesses within the city. An interview with them revealed they have lost about 90% of their customers since the restriction of dine-in in restaurants and cafés started at around end of March. Modern restaurants and café are designed for users to use the space. The restrictions and preventive measures also affected them. Cafés and restaurants could offer take-aways, which was not their primary offer. Their customer and income have decreased. A restaurant where people often visited with friends and family said that they have lost about 90% of customers after dine-in restrictions. Any income earned of these types of businesses were only able to cover fixed costs like utility costs. The owner sometimes used their savings to pay the salaries of their employees.

However, business owners found some positive impacts after the lockdown. A café owner said they had more customers once they could accept dine-in customers, maybe because people have gotten tired of staying home for months.

When restaurants could already accept dine-in customers, the liquor ban and social distancing still affected them. Grill restaurants where people usually eat with alcohol have decreased sales. Restaurants received many complaints from families because they cannot sit together at the same table due to social distancing. Even though restaurant owners would like to follow all the mandated preventive measures, some are too hard to follow.

4) Agriculture

The agricultural sector, which is one of the main economic activities in Krabi, was also affected by the pandemic. The perspective on the impacts on agriculture is different between the Tessaban and COC. The former does not see that it affected the industry,

whereas the latter sees it as the second most impacted industry. Delays in product import and export to/from Krabi province have mostly affected the agricultural sector. Rubber and palm oil are the main agricultural products in Krabi. Some rubberwood, in particular, had difficulty in being exported to the US where it has a market. However, while air transportation was suspended, export products could still be transported by road and ferry with some restrictions.

Aside from the delay of product transit, another issue in the agricultural sector in Krabi is the price drop. It should be noted that the price of rubber and palm oil has dramatically decreased for many years, even pre-pandemic. For example, the price of rubber has dropped from THB 120 per kilogram in the last 15 years to THB 20–30 per kilogram this year. One of the reasons for this is the higher competition in the market because the Chinese started planting rubber trees and expanding them into Vietnam. In addition, solar cells have become more popular since before the pandemic, making less demand for palm oil.

Due to these impacts and issues, farmers cannot sell their products at the expected price, resulting in less spending capacity in the city. Farmers were also affected once the tourism sector stopped operations since most agricultural products in Krabi also serve tourists and the unregistered population.

Export and import delays also caused issues on the consumption side. Krabi has few small-size fruit farms that can only serve at the household level. Farms in the province cannot provide for the locals and tourists. Most fruits and vegetables have been transported from other provinces, particularly Nakhon Si Thammarat, a distribution center. Some fruits are transported from Chiang Mai and Chiang Rai, and some agricultural products are imports from other countries. Corn and coconuts are imported from Myanmar and Indonesia, respectively. Some preventive measures that have been applied to control people's movement caused delays of inter-provincial product transit, resulting in a higher price of some fruit and vegetable products even if people have less spending capacity. In contrast, the prices of local vegetables, for example, were lower than usual with less demand from hotels and restaurants. For farmers who have over-supply and cannot keep products for long, those products have been distributed to their neighborhoods, communities, and temple instead of selling it. Lastly, it is interesting to note that the number of people who grow vegetables at home is increasing.

5) Fishery

Two levels of fishery in Krabi are commercial and local. While the commercial level may have more impacts than the local, it could not operate during the annual closure of the bay due to the fish spawning season for three months from 1 April to 30 June 2020. Therefore, it may be impacted in terms of lower demand for consumption. Curfew did not affect much on the fishery sector. Most fish caught in Krabi are sent to Samut Sakhon, while fish consumed within the province are from Ranong and Myanmar.

On the other hand, several tourist boats sailing in the bay turned to the school of fish coming back into the bay. Therefore, the local fishery got less impact. For example, a representative from among community leaders with an aquaculture farm said that even

though they cannot sell their fishery products, they still have fish and crabs for household consumption.

6) Industrial Sector

According to the president of COC, there are few factories in the industrial sector in Krabi. Those are rubber and palm oil processing factories. They were not affected as much by the pandemic.

7) Employment

It should be highlighted that both employees and employers working in the tourism sector have faced the biggest impact. From the employer's side, they cannot have income without any tourists. Business owners cannot continue operations when they do not have money. Most hotel owners did not have enough money to pay for their staff, living costs, and even rent. They had to reduce their staff, cut salaries, or reduce working hours. Some hotel owners requested their employees to resign because they would have to receive compensation per the labor law, but hotel owners promised they would be rehired should businesses recover. However, many interviewees said that skilled laborers would be the first to be rehired after business reopening, particularly those who can communicate in English since Krabi is a destination for international tourists.

Employees in the tourism sector have definitely earned much lower incomes. In the case of having SSO, some employees are willing to resign to get rescue money from the SSO rather than continue working with lower wages or without salaries.

Besides employees in the tourism sector, those in other businesses such as restaurants and convenience stores have been facing a financial crisis. The staff of 7-Eleven, for instance, had their working hours reduced because of the curfew. Restaurants and cafés have also been affected by dine-in restrictions. Owners have tried hard to adjust and survive this difficult time by letting their employees do delivery services instead of discharging them. Even though many businesses have tried to compromise with their employees, some employees still have to stop working, especially part-timers. Many part-timers are students working at restaurants that had to close their dine-in areas lost their jobs.

8) Tax Revenue

The Tessaban could not reach their expected fiscal revenue of THB 400 million because they could not collect taxes from businesses. Therefore, some projects of Tessaban must be suspended. They can only spend the budget for municipal officials and staff.

9) Newly Emerging Services

Online platform. Several online applications became more popular during the lockdown for many reasons, such as dine-in prohibition, safety concerns, and stay-at-home measures. Food delivery via an online application is an outstanding new service that has been used often by all generations. There are three food delivery services in Krabi, and these are Foodpanda, Lineman, and WESERVE. Foodpanda seems to be the most popular because it is the pioneer in the area. According to an interview with community leaders and locals, they are likely to order food online instead of going out to buy food themselves. It is more convenient, and the price is similar to store pick-up. It should be highlighted that people

have still ordered food delivery even if the dine-in was already allowed.

Moreover, online shopping were used frequently during the restrictions. People ordered or shopped via online shopping applications, such as Shopee and Lazada, because of not being able to go anywhere during the lockdown. Owners of restaurants and hotels also bought some supplies online. One café owner said they had to order their supplies online because products they usually buy at Macro were out of stock. Furthermore, 7-Eleven provides delivery services if the orders meet the minimum requirements.

Online platforms also create an opportunity for people to sell their products at the convenience of their homes. Facebook and LINE are the most commonly-used apps where people sell their products. For example, Ku Mueang residents sell their fisheries products via Facebook and LINE. This is one example of successful online selling because they get many orders and can expand their customer base.

Adjustment of occupation type: People have adapted their occupations to be suitable for the current situation. For example, people who have run tourism boat services have turned their boats into local fishery boats due to the low number of tourists. Some people who lost their job due to the outbreak have started to learn some new knowledge from online platforms like YouTube and be able to adapt to their new business by selling it via an online platform like Facebook Page where they can start without having the store.

One of the restaurants came up with an idea to expand their services by creating a pop-up bar to be able to set up a store at events like funerals or weddings. Food, like barbecue, will be cooked at the event that is preferred by the food safety policy as hot food prevents disease spread.

3.3.2 Social Impacts

1) Health

Mental health: People seemed to get stressed during the outbreak because of economic reasons. For example, some people had stresses due to loss of their jobs, which led to the loss of their incomes. Although government officers had little impacts during that time, they still got stressed because they could not get job promotion in this year. Besides, landlords of rental houses also had stresses because their tenants lost their jobs and could not afford for the payment. Meanwhile, business owners also got stressed for maintaining their businesses. For example, one of the café owners stressed due to prevention measure that the dine-in section which is their main part of the business had to be closed and they did not know when they could reopen it. However, business owners could not show or express their stresses for the reason that their employees may get more stresses since they also had their responsibility at home. Second reason of causing the stresses is social reason. Some elderlies may feel lonely because they cannot meet their friends at the elderly center as usual due to the safety reasons that the center had to be temporally closed.

Even though there are many tensions within the community, they have found that staying with family is somehow relieve their tautness. Besides, people have shared their stresses and exchanged advices to help with each other whenever they have gathered together.

Physical health: Some people got insomnia and problem with digestion system since they had not exercised for 2 months. Nevertheless, there were low impacts on physical health in general. This is because most people have done exercises at home or around their neighborhoods. Some people have walked around their houses, communities or even along the streets where there were loose of traffic. In addition, there are also Khao Tham Suea Pahksa Sawan Park located on top of the mountain where people can exercise by trekking to the top of the mountain for about 8 kilometers round-trip.

In conclusion, people may be stressed and have some minor health issues during this crisis, but it is not too hard for them to deal with it.

2) Education

The outbreak has impacted on education in many dimensions. The school semester was postponed for 2 months for the safety reason. Online classes have been promoted for students to study while staying at home during the outbreak. However, it should be noted that online education was not successful due to several difficulties. First of all, students could not understand the contents of the lesson since they could not concentrate to the class particularly for young students in primary and kindergarten level. There are many distractions at home such as noise from the neighbors or family members. It means that there should be someone to guide or teach children while studying at home. However, some families had to work and did not have time to take care of their kids, or some guardians could not even understand the contents to guide their children. Secondly, some low-income families did not have electronic devices for their kids to use and learn from online classes. Online studying needs internet usage, but sometimes the cost is too high for some families to use. In addition, some families which limited number of devices also had the problem when there were many children in the family who study in the different classes and they had to access online classes at the same time. Those families could not equally afford electronic devices for their children. Therefore, some students had to go to their friend's houses for attending those online classes. Thirdly, even though government tried to provide free online education for children equally via DLTV which broadcast on free TV network, ability and skill to understand the content of the lesson of each student were different. Not everyone could understand the lesson. Besides, there is another problem with DLTV program. The lessons broadcasting on free TV may differ from current curriculum in each school. It should be noted that online education is not a two-way communication and it is hard for students to understand or concentrate on the lesson.

Nonetheless, the online class was not a compulsory class, but it was launched in order to see how it works. It has no impact on their grades either even if they have attended the online classes or they have not attended.

3) Household Economy

Losing income is the main issue affecting households. Some families may rely on only one household member's job. For those families, the loss of that household member's job means loss of household income. During the outbreak, people and households working in the tourism sector have been definitely affected. Fortunately, some communities in Krabi have resources to utilize during a difficult time. For example, a community located near

mangroves can fish and catch crabs for their household consumption. Another example is households with a community forest that has remodeled the front of their house for selling, creating like Local Home Street Market. Visitors of the forest will automatically visit the street market as well.

Krabi locals realized that saving is important, but even if they want to, they do not have enough to save now. In the past, locals could easily generate income since the province was full of heavy-pocket tourists and had competitive pricing of palm oil and rubber products. Krabi locals, therefore, became less conscious of having savings. Currently, the locals are more careful about their spending. They will spend only on essential products. It should be noted that people have started planting home vegetables in their homes for household consumption, helping lessen their household expenses.

4) Relationship of People in Community

In general, people seem to have stronger relationships within the community as they have helped each other by sharing essential stuff and information. Even though social activities have been suspended in accordance with preventive measures, they understood and thought that pandemic control was more important. Hence, the restriction on social activities did not affect the relationships within communities. Despite meeting each other face-to-face at social events, they communicate via online channels, which became the primary way of maintaining connections with each other in that period.

Moreover, the relationship within the family seems to be strengthened more than before the pandemic, with family members staying at home and spending more time with each other. For example, elderlies staying at home were asked to take care of their grandchildren, occupying their time and making them not feel lonely.

5) Migrants

Krabi has a high number of unregistered employees who are both Thais and foreigners. There were many foreign migrants before migrant worker regulations have been passed. About 6,000 foreign workers live in Tassaban Mueang Krabi out of about 15,000 people in the province. Workers in the tourism and agriculture sectors are mostly from Myanmar, Laos, Indonesia, and the Philippines. Those from English-speaking countries seem to work in tourism since they can communicate with tourists.

Before the lockdown, some workers decided to return to their hometowns, whereas some did not. Approximately 300-500 foreign migrants have returned to their hometowns, according to the interview with COC, and about 300 registered migrants have been laid off during the outbreak based on records by the Tassaban. On the other hand, some could not return to their hometowns due to the lockdown. Krabi faced this issue harder than other provinces because the lockdown prohibited inter-district travel. It left the unemployed unable to return to their hometowns and struggle with living costs in the city. It also caused issues with the employed residing in the city and working in surrounding districts. They have more difficulty keeping their work routine due to the home quarantine measure because if they go to work, they have to quarantine at home for 14 days when returning from work. For example, a VHV representative who works in Ao-Nang District stays in Mueang District and cannot return to work.

6) Security of City

Traffic Accident. Interestingly, the number of traffic accidents during the curfew period was reduced, from about 47 cases to only 10 cases per day. It may be because of banning the sale of alcohol and the curfew, as most accident cases are from the drinkers.

Crime and Domestic Violence. There were no cases of violence in Tessaban Mueang Krabi. The liquor ban is also the reason. Normally, people in the communities help each other to prevent crime and violence. But there are only arguments from minor issues, such as dog bites or car parking that blocked other people's houses, which can all be easily compromised.

3.3.3 Environmental Impacts

Overall, the environment in Krabi seems to be well despite the pandemic. The lesser number of tourists, the lesser amount of pollution and waste generated. Therefore, air and noise pollution has significantly decreased. On waste management, the collected waste has dramatically decreased at less than 50 tons due to the closure of restaurants and hotels, and around 60% of the waste generated is now food scraps.

Tessaban has provided separate bins for infectious wastes, like face masks, in each community. Having separate bins, however, has not been quite successful. People sometimes did not separate infectious wastes. Tessaban has also found that infectious waste has been rarely collected.

The higher number of delivery services during the outbreak resulted in huge amounts of plastic and container wastes. Although Krabi campaigns no use of foam and promotes using compostable containers, the plastic wastes are increasing.

3.3.4 Impacts to the Vulnerable People

1) Elderly People

The number of elderly in Tessaban Mueang Krabi is about 10% of the total population, or approximately 3,300. It should be noted that Krabi will completely turn into an aging society in 20 years. Generally, there is no issue with the health of the elderly because Krabi has good environmental conditions.

Sense of loneliness and fear. The elderly might have felt lonelier than other groups when the elderly school and elderly club were temporarily closed because few places give opportunities to meet with their friends. Families did not let their elderly that is older than 60 years old go outside for safety concerns. They are considered vulnerable and high-risk in this pandemic. If the elderly needed or wanted to buy something, a family member would buy it for them.

Preventing the elderly from visiting temples during the lockdown also affected them as they worried no one has been offering food to monks. The atmosphere at temples during the outbreak was quite quiet comparing when people could pray out loud before.

Additionally, some elderlies were afraid to go to hospitals, considering it is a high-risk infectious area. Normally, a family member takes the elderly to the hospital, but if no family

member is available, the VHVs assume the responsibility and takes them by car.

Financial issue. Moreover, one of the issues of the elderly, when they visit the hospital, is the time they have to spend there. Since the pandemic, the hospital visit takes as long as most of the day. If they are a seller, it means they lose income for that day.

Also, as most of the elderly rely on their children's and grandchildren's incomes, they don't have enough money for their daily needs if their children or grandchildren lose their jobs. It also seems the elderly have more expenses than the young. It is difficult for them to use public transportation, so they have to pay for private transportation or hire someone like a housekeeper.

2) Persons with Disabilities

People with disabilities, also considered as vulnerable, have also faced difficulties during the outbreak. Some of them have lost their income due to the emergency decree. For example, disabled persons who sell lottery have been affected because lottery selling was also suspended. They also did not have other options to earn money during the lockdown. However, one of the interviewees said they were not affected as much in terms of the economy. They have relied on other family members to take care of them by buying stuff and food for them. Most of the disabled people in Krabi have stayed with the other family members. In case of having no one to look after them, VHVs help and ask if they need anything. They were most affected by not being able to go out. They, especially blind persons, could not go outside during the outbreak since it is difficult for them to avoid touching things and social distance. On the other hand, the disabled did not have problems receiving information on the prevention measures. Blind associations have used the LINE with the voice speaking function to communicate with others and receive updates.

3) Students

Students or the young generation, important for driving the future of the city, have also been affected by the pandemic, although differently. Some students still rely on family income or allowance from parents, while some have part-time jobs. Unfortunately, student part-timers in restaurants have been laid off and could not find a new job during the outbreak. Those students have struggled with living costs. Moreover, those who live in the other districts in Krabi and dormitories near their university could not return to their hometowns because of the district lockdown when inter-district van services were suspended. Those services were stopped without any notification to the students. Therefore, they have to continue staying in the city without any classes at the university. Still, some owners of dormitories gave a discount of THB 1,000 per month to help the students. It should be noted that the young generation, who mostly love to hang out with friends, felt so bored at home during the lockdown. Many have complained about the cancellation of Songkran Days and the closure of pubs.

University students have not been affected much by school activities and lessons since it was the end of the semester when the outbreak occurred in Krabi. However, after the school reopened, university students who had to join online classes have struggled because it was harder to understand and learn than lessons in a physical class. Younger students also have problems with online courses, especially those with no one to guide and teach them at

home. It resulted in being incomprehensible content for kids.

Job opportunities for new graduates are quite lower than usual because the tourism sector, which most of the young generation wants to work in, has faced huge impacts hard to recover from in a few years. If graduates cannot find a job, their household income in the future will be affected.

3.4 Supportive and Rescue Measures for Recovery

3.4.1 Support for Household

There was plenty of support for households in Tessaban Mueang Krabi in terms of donations from various sectors, such as the public and private sectors and NGOs, and even mutual help from people in the communities. However, most of the donation distributions have been managed and facilitated by Tessaban for safety reasons. Tessaban had to prepare the area for social distancing. Moreover, Tessaban wanted to distribute the help for the vulnerable group first. Therefore, the vulnerable group received tickets to exchange for food. Without a ticket, people living near the location would receive the food instead and troubled people cannot. Since Krabi has many unregistered populations, the registered populations were prioritized to receive help from Tessaban. Mostly, 70% of help went first to the registered people in the community before sharing the 30% to others.

Community leaders and VHVs are the key persons familiar with the people in the community. They observe and prioritize those who need help. Most of the time, bedridden patients are prioritized. VHVs brought the donations and gave them to bedridden patients at home.

Examples of which provided essential items are as follows:

- Public sector: (i) Tessaban provided food, instant food, rice, survival bags, and other necessities, (ii) Chamber of Commerce distributed survival bags, and (iii) Provincial Electricity Authority provided survival bags to persons with disabilities.
- NGOs: Krabi Red Cross distributed face masks and alcohol to every district in Krabi.
- Private sector: Red Bull provided food to communities.

In addition, there were mutual help from people in the community. People who still have money or jobs have shared items or foods by putting it in a cupboard for people who were in trouble like losing jobs so that they can collect and use those items for surviving through their difficult time. This kind of cupboards were established nationwide and it is called as "Happiness Cupboard". Moreover, there are other helps within the community in term of mentality support especially for those who had to stay at home and got stress. For example, neighbors always talked with each other to check whether they needed help or not. If there were any problems that community could not help, they informed Tessaban or VHVs to support them.

3.4.2 Recovery of Businesses

To get through this crisis, Krabi has come up with many strategies for businesses apart from the support from the central government. Various sectors, such as the private sector or locals, created strategies to help people still have income during the restrictions. Measures gathered from many interviews were described in the tables below.

A) Recovery of Businesses: Creation of Online Platform “Krabi Market Place”

Name of Project	Creation of online platform “Krabi Market Place”
Purpose	Create an online market platform that allows all enterprises in Krabi to promote or sell products
Responsible Organization	Established by Krabi Tourism Business Association and promoted by Krabi Chamber of Commerce
Duration	Established in April 2020
Target Groups	All enterprises and sellers in Krabi
Project Summary	This kind of online market enhanced the opportunity for people to sell their products and promote their businesses to Krabi locals far from the businesses’ location. One of the restaurant owners said that their restaurant has new customers living in other districts and visit the shop because of seeing restaurant promotions via Krabi Market Place. Online channels also provide a chance for people who want to start their businesses without a physical store.
Impact(s)	The online platform received good feedback and helped many businesses get through the difficult time during the lockdown and curfew.

B) Recovery of Businesses: Creation of “Local Home Street Market”

Name of Project	Creation of “Local Home Street Market”
Purpose	Provide free spaces for sellers by remodeling the front of their house into venders
Responsible Organization	Established by people in Phanuraj Community
Duration	-
Target Groups	Sellers in the community and surrounding areas
Project Summary	It has started with a small sale in front of a house in the community. Products at this market are cheaper than usual because selling intends to help people in a rough time. People without jobs can buy cheap products from this market, and sellers can sell cheap because they do not have to pay rent. However, Tessaaban needs to adjust and manage this market to be more appropriate in the future.
Impact(s)	The street market is really helpful for people in Krabi and small shops.

3.5 Behavioral Change and New Normal

1) Business Sector

Telework. Working from home has been imposed if applicable. Some jobs can be done remotely like auditors and some government officers, while others cannot.

Hotel business. As a tourist destination full of tourists, the pandemic has caused a big change in Krabi. It was forecasted that there will be no foreign tourists for a year, meaning that Krabi people cannot earn money from those tourists and they must rely on money flow within the country. Some luxury hotels have to adapt their marketing plan shifting from international market to domestic market. The president of Krabi Tourism Council gave an example of luxury hotel in Phuket that succeeded with this marketing. For example, Sri Panwa provided discount to attract Thai people after the restrictions have been lifted and allow people to travel across provinces. The original price of the hotel was about THB 10,000 per night and it was decreased to about THB 5,000 per night. People, especially Thai people, who would like to experience luxury hotel in affordable price were interested. Hotel businesses have to adjust their strategies to get through the crisis. However, every hotel cannot attract people successfully just by reducing the price. Only unique hotel may be successful. General hotel where its normal price is reachable may not attract people much like the unique one. These types of hotels may have to attract and adapt their business in the different way. Many hotels have to change or adapt their facilities to suitable with Thai people instead unpredictably waiting for foreigner to come back.

Online platform. Online platforms have become an option for businesses to promote their products. Many hotels have used online channels for promoting hotel packages for many years. It was good options to promote the goods to people who were staying at home. Online medias became more popular when people gave good collaboration to government policy for staying at home. Some business owners have changed from buying items at supermarkets to online markets due to the lack of product stock at the supermarket. This may provide an option for businesses people to look for new channel to run their businesses. People not only purchase goods via online platform like Shopee, but also order via food delivery. It is interesting to note that drivers of food delivery services can generate income up to THB 30,000 to 40,000 during the provincial lockdown because the number of users during that time were high. The increase of users ordering food delivery also attracted other service providers to invest in Krabi. Only Foodpanda was available in the beginning, but Lineman and Wserve also started this delivery market in Krabi. Restaurants was complained on the big percentage that restaurant needs to pay for the service provider and decided to unjoin the that services. Since there are newcomer of delivery service providers with the lower fee, some restaurants plan to join the delivery platform to increase their customer base and prepare for the worst-case scenario of the second wave of the outbreak.

New business. Furthermore, people who lost their jobs have adapted or came up with new businesses, which might become their permanent job. For instance, those who have learned to bake from YouTube started to sell bakery via online platform. It may generate higher income than their previous jobs.

2) Social Activities

People understood that refraining from all the social events and activities during a state emergency is important. Suspension of some activities may impact some people, especially the elderly. Social activities could return to normal after lifting the restrictions, but preventive measures will be in place, like temperature checks, hand washing, and social distancing. VHV always help by screening people before entering events, such as funerals and markets. For example, when the street market reopened, representatives of VHV were in charge of temperature checks and provision of alcohol hand sanitizers.

3) Peoples' Awareness and Behaviors

Every Krabi local is willing to follow the preventive measures. There were only a few instances when people did not follow. People always wear a face mask when outside except those in big open spaces, like a farm. Having a face mask is another necessary item for them when going outside. People have also avoided going into crowded spaces like markets. They also planned their shopping list to minimize their time outside at a crowded location. One of the interviewees said that she spends less time in a place when they see foreigners. The market is not only where people want to spend the least time, but also in restaurants. Interestingly, people preferred to go to local grocery stores where it is more crowded rather than markets.

Applications like Thai Chana and MorChana have been used by some people. Most people in Krabi are likely to use Thai Chana when entering buildings. One of the interviewees said these applications are helpful because they are not too complicated and they can track risky people. Even with these applications, people can still register on paper if they do not prefer to use new technology.

3.6 Further Needs

1) Continuous Prevention Measures

Many interviewees are afraid of the second wave of infection. Krabi is a city that cannot be without foreign tourist. Even if there is no domestic outbreak, as soon as the border opens, foreign visitors may carry the virus into the country again because the pandemic is still ongoing around the world. Preventive measures must continue to be implemented. Besides, people still believe in the instructions of MOPH. To be sure that the outbreak will not come back within the country, they cannot be reckless on the prevention measures. Somehow, the exaggeration of the Center of COVID-19 Situation Administration on the situation has an upside.

On the other hand, very strict measures are limits and discourages business operations. If a second wave occurs, people would not be able to deal again with the pressure of economic crisis and do not want to follow the preventive measures.

2) Economy Recovery Assistance

Apart from the economic support from the center government, like SSO and taxes and principal suspension, some interviewees in relevant organizations gave some ideas for economic recovery in Krabi.

MICE city development. It begins with the ideas to help tourism sectors that got the highest impact. MICE city concept is a great idea to attract more visitors. MICE city does not have to be referred in the large scale, but it can be developed in the smaller scale. In short-term, the government can support inter-provincial seminars of government officers to drive the economic. It can be the seminars at the provinces within the same region in the beginning. For example, people from Surat Thani could have seminar in Nakhon Sri Thammarat. The government should invest on human capacity development which will not only help city to generate a cash flow but also help officer to develop their skills. Hotel business will have customers whereas local shops can also sell some products again. Therefore, it will help every sector and people in Krabi's economic activities.

Green Hotel/Restaurant. The concept of Green Hotel has become more popular. About 20% of hotels in Krabi have joined this campaign. Applying this concept may attract more higher-class customers. It can lead the province to focus on quality tourism rather than quantity tourism. European tourists have only shown interest in the Green Concept, but it recently has also become popular among Thai tourists for environmental concerns. To promote this, the government should encourage government officers to stay in green hotels rather than in cheaper hotels to show support for environmental concerns. Notably, hotels should not compete by decreasing rates, but instead maintain their quality standards. Creating a green concept can also apply to restaurants and other businesses. Krabi has the potential to achieve this green concept since there is a higher number of restaurants willing to participate.

3) Online Education

Considering online education, some interviewees suggested that if the government intends to promote it, the government should provide more support in terms of devices and

internet access as well as the quality of online courses taught by high-skilled teachers. At the same time, the local teachers should also support their students.

4) Employment Opportunities

While the pandemic caused more people to be unemployed, businesses will need the workforce after everything resumes operations. Many businesses hired foreign workforce able to communicate in English, and most were laid off during the outbreak. Reopening of businesses might be the opportunity for the locals to reemploy the necessary workforce. Language and other skills training are really needed to improve the human capacity in Krabi.

It is also a lesson for people who have not been laid off from their current work. They appreciated their luck of still having jobs while the others lost theirs. One of the business owners noticed their employees are more active and pay more attention to their work skills than before the pandemic. They would likely develop and improve their abilities to maintain their employment status.

5) Agricultural Product Balance

Prices of rubber and palm oil have been decreasing for almost a decade. Meanwhile, the demand for fruit and vegetable consumption has rapidly increased. Krabi has relied on consumption supplies imported from other areas with expensive prices. Agricultural products in Krabi have to be diversified to balance the risk of price drops. Hence, the Provincial Agricultural Land Reform Office came up with an idea to expropriate agricultural areas for palm oil to prepare for provincial integrated agricultural development. Expropriation areas will be given to interested farmers. Vegetables and fruit seeds for consumption demand in Krabi will be distributed to those farmers and instructed for planting in the provided areas. This project is expected to increase agricultural products to serve the provincial demands.

Moreover, there is a campaign to encourage the locals to plant organic vegetables to develop Krabi into a safe food hub, which will also generate higher income.

3.7 Future Development Perspectives

3.7.1 Future Development Projects

Many development plans of Tessaban can boost economic and social activities. Even though those projects were not initiated for solving the impacts of the pandemic, they can at least stimulate and mitigate them. Examples of Tessaban's future development plans are as follows.

1) Waste to Energy Power Plant

Tessaban has a project to build a waste-to-energy power plant with a capacity of 5,000 tons, planned to open at the end of 2020 or the beginning of 2021. The existing landfill will be renovated as a flower garden and a study tour site for waste management. All plastic waste and containers, including medical waste generating in the future, will be turned into electricity by the power plant. This will help Krabi overcome with waste management problem and attract more interested people to visit the landfill site.

2) Goat University

Goat University Project was established in 2013. It became more popular during the provincial lockdown because people had more free time and were unable to generate income from other sources. The Goat University provides a training course on breeding and selling goats. The goal of the project is to reach 1 million goats and make Krabi a "Global Goat City" in 10 years. The goats will be exported to other countries like Qatar. The course fee is about THB 300, but if the trainee pays attention in class, they will get their money back once the course is done. When a trainee passes the course, they will get 10 goats for breeding with the condition that they must breed at least 15 goats at the end of the course finishing year, creating goat flow in the city. Tessaban plans to build a slaughterhouse, in collaboration with Betagro, for goat meat export. Currently, the course is being improved for feeding goat milk as they can be priced higher. However, it is more complicated to handle goat milk. Interestingly, the project provides an option for the unemployed. It will provide jobs, incomes for households, and income for the city.

3) Medical Center

The Medical Center Project has been proposed and approved with a budget of THB 18 million. Construction of the center will be near the hospital to serve non-serious cases to reduce user density in the hospital. Tessaban has seen the struggle of people who have to spend all day at the hospital just waiting to get their regular medicines. Having this center will reduce the overload and time spent in the hospital. People afraid of going to the hospital because of the infection will have an alternative service.

4) Local Fishery Network

Tessaban has created local fishery networks to serve demand of Krabi consumption. This do not only enhance the charm and uniqueness of Krabi lifestyle but also control illegal fishery outside the bay.

5) Public Transportation Development

There is an idea to develop a sky train from the airport to the city center, which can address

the demands of tourists. However, it is a long-term project. For the short term, there will be inter-city buses serving tourists between the airport, city center, and Ao-nang.

3.7.2 Collaboration between Public and Private Sector

The direction of future development of Tessaban Mueang Krabi and private sectors are the same, resulting in a compatible work that they can collaborate on in the future. According to COC, most people and the private sector trust Tessaban Mueang Krabi and Krabi Province that Krabi can be covered soon. They think Tessaban has a good vision and has many resources to utilize in developing and promoting the city.

An example showing that Krabi has a good collaboration between the public and private sectors is Krabi Pattana Mueang (KPM) Company. It is a collaboration between groups of private sectors interested in city development. It was established because the government has many obstacles and limitations, especially budget, to develop some projects. So, this company leads the government to initiate projects and motivate the private sector while the private sector can invest in those projects. This way, those projects will respond to the demands of the private sector and serve the needs of the public. The parking lot project at Krabi Airport that KPM supported by sponsoring a security system like CCTV is an example. As a new company, KPM did not have any concrete project yet, but with COVID-19, both public and private sectors need to adjust some of their plans to respond to the current demands and needs. Overall, Krabi has already done the best in developing the city, and the public sector has gained trust. Collaborations from every sector will be a good opportunity for Krabi to develop in the city.

3.8 Implications to SFCI

3.8.1 Current Situations of Projects under SFCI

1) Andaman Cultural Center

The main impact on the Andaman Cultural Center that can be clearly seen is the decreasing number of visitors. The center attracted about 300 visitors every day before it was temporarily closed due to the pandemic. Most of the visitors are from study tours. While the center reopened in June 2020, visitors continued to decrease and reached only about 300 on weekends. Activities and other facilities have also been affected. Even when the OTOP shop and Ton Kla school have opened, there have been few tourists and study tours. There was an art exhibition for artists who had died in Amsterdam due to the COVID-19.

2) Coffee Shop at Andaman Cultural Center

Originally, the coffee shop was supposed to be in cooperation among Tessaban, the private operator, and local communities to sell community products. However, according to the vice mayor, Tessaban does not take part in operating the coffee shop with the community committee, and they now let the locals sell and operate their coffee at the shop. The current operator and also the owner of the coffee shop who took over must buy all the stuff by themselves, from coffee machines to operation costs. In fact, the products in the shop are not community products. The owner has found products themselves to sell. To operate this shop, the owner pays only water and electricity costs as a donation to the Andaman Cultural Center. In this context, it looks like Tessaban gives a free place (coffee shop) to the owner while the owner has to invest in the decoration and products.

3.8.2 Implication to SFCI: Sustainable Development of Tessaban Mueang Krabi

Participating in SFCI has influenced Tessaban to be active and to plan, which means they could handle another issue like the pandemic easier. Tessaban can quickly respond to the central government, asking LAOs to submit project proposals under the emergency decree to address the COVID-19 impacts in a framework of the country's economic and social rehabilitation. Tessaban has applied and developed a plan that has been discussed while in the SFCI project in Program 3.3: Establishment of operation and management system under Strategy 3: Promotion of integrated community-based tourism (CBT).³ Even though Tessaban cannot confirm if they will get the budget, they have proposed the project about the CBT promotion, which will at least provide job opportunities for people in the communities. The CBT promotion project includes a tourism route, starting from the Andaman Cultural Center, where tourists can visit Andaman Beads Museum and purchase local goods at the OTOP shop and stores nearby. However, the project budget approval is still under consideration processes.

3.9 Other Issue Raised

Dengue fever is another concern in the area, especially during the rainy season when it is

³ The project was proposed by Tessaban Muang Krabi via the Provincial Office of the Department of Local Administration with a budget of THB 8,638,000, aiming to rehabilitate the local economy. It was proposed under the 400 billion loan framework. Progress of project approval can be checked via <http://thaim.nesdc.go.th/>.

common. Patients may get the disease from areas outside Tessaban and spread it within. Community leaders and VHVs take part in inspection, while Tessaban handles it by spraying mosquito repellent in the communities.

4. COVID-19 Impacts and Response on it in Tessaban Mueang Nan

4.1 Overview of Nan

4.1.1 Socio-Economic Characteristics



Source: JICA Project Team

Figure 4.1.1 Location of Nan

Nan Province is in the northern region of Thailand and is bordered by Lao PDR. NR 101, the major trunk road of tessaban, connects with the border. Major economic activities of the Nan Province are agriculture, silver mining, and tourism.

Tessaban Mueang Nan, on the other hand, has been historically a center of the northern region and currently a typical, local, provincial center in Thailand, serving as a center of public services and commercial activities in its province. As one of the major industries is tourism since the early 2000s, Tessaban Mueang Nan has been developed as a center for regional tourism as part of the provincial tourism development strategy.

Population, aging rate, area, and main economic activities of the province and the Tessaban are summarized in Table 4.1.1.

Table 4.1.1 Overview of Nan Province and Tessaban Mueang Nan

Population	
Province	478,227 Provincial growth rate is about -0.07%
Tessaban	19,783 It has continuously decreased in the last decade. Tessaban growth rate is about -0.90%
Aging rate (60+)	
Province	98,457 people are 60 years old and over, about 19.8%
Tessaban	5,092 people are 60 years old and over, about 25.7%
Area	

Province	11,472 km ²
Tessaban	7.6km ²
Economy	
Province	Agriculture (corn, tobacco), silver, and cotton woven fabric Currently, tourism is being promoted (730,000 in 2015)
Tessaban	Public service Commercial activities as the center of the province Tourism with its typical lifestyle of slow life, mixed with hill tribes & cultures; "Nan's way"

Note: The growth rate was calculated based on the data of the population in 2019 and 2015.

Source: DOPA, 2019

As an award-winning environmental town, there are many environmental activities such as scheduled solid waste collection, solid waste segregation in the household (from source), waste recycling market, and use of LED bulbs for streetlights.

Furthermore, communities in Tessaban Mueang Nan are very active and have a strong community spirit, where residents readily collaborate with the Tessaban administration. Many people love and are proud of their hometown, and retired people work as volunteer tour guides at various tourism spots like temples.

4.1.2 Overview of Infection Status of COVID-19 in Nan

As shown in Table 4.1.2, Nan had no infectious case of COVID-19 as of June 2020.

Table 4.1.2 COVID-19 Infectious Status: Nan Province

1.1	Infectious Cases Number	1 st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	0	0	0	0
	Active Cases	0	0	0	0	0
	Recovered Cases	0	0	0	0	0
	Death number	0	0	0	0	0
	Testing Number	0	0	28	116	201
	Local quarantine	N/A	N/A	N/A	N/A	N/A
1.2	Gender					
	Female	0				
	Male	0				
1.3	Age (years)					
	Minimum	-				
	Maximum	-				
	Average	-				
1.4	Nationality					
	Thai	0				
	Others	0				
1.5	Date of first confirmed cases (Announced date)	-				
1.6	Transferred from other provinces	-				

Note: The number of infected cases was collected on every 1st date of each month.

Source: MOPH, 2020 (provincial office) edited by JICA Project Team

4.2 Infection Prevention Measures

Based on the instructions by the central government, Nan Province, as well as Tessaban Mueang Nan, have implemented infection prevention and supportive measures agreed by the central government. Nan Province and Tessaban Mueang Nan took additional measures to meet the local needs as well.

4.2.1 Infection Prevention Measures taken by Province and Municipality

As mentioned in Chapter 1, the central government has taken strong preventions and supportive measures, including restriction of traffic (closure of the border, prohibition of inter-provincial traffic, and curfew) and restriction of certain businesses (such as the closure of large commercial facilities, sports events, and night entertainments, etc.). The central government also provided support for medical care, including distributing guidelines on the prevention of COVID-19 to medical facilities and PCR tests.

Even before the first State Emergency was declared by the central government, Nan Province began issuing announcements and orders to prevent the outbreak of COVID-19 and has taken strict preventive measures. In particular, Nan Province restricted border crossing and entering to Nan by setting village and border checkpoints, imposing closure of highways, and controlling both international and inter-provincial freight.

As Tessaban Mueang Nan has followed prevention measures by the Province, it has another important role as a moderator to some extent, connecting people in communities and VHVs¹ with the MOPH. VHVs interpret medical language into understandable messages for the communities. Tessaban also acts as the disease controller in the town.

In this regard, the Mayor of Nan demonstrated strong leadership. The mayor announced all the COVID-19 related measures to be taken by advertising trucks every day. It made the communities feel safe and created trust for the Tessaban, making people willing to follow the instruction from the Tessaban. Overall, most of the interviewees expressed their satisfaction with Tessaban's prevention measures. Especially, Tessaban Mueang Nan paid careful attention to the following actions;

- social distancing in Tessaban office (to avoid infection in Tessaban office)
- establishment of a screening checkpoint
- provision of hand sanitizing spots in Tessaban
- collaboration with shop staff in the market to always wear masks and wash hands
- community-based infection prevention measures, where Tessaban distributed thermoscans, face masks, and alcohol-based sanitary gels, etc., to all communities with a total budget of around THB200,000.
- special registration for people entering Nan at Tessaban office, and
- temporary employment of laid-off persons, elderly, and disabled.

¹ In Tessaban Mueang Nan, there are 282 VHVs which can be divided into two groups; 264 official VHV, who get cash subsidy, and 18 volunteers. In principle, each VHV takes care of 10-15 households depending on the size of the household. However, VHV in Tessaban Mueang Nan must take care of more households in reality. Most of VHV in Nan is aged person.

To carry out the above measures, VHVs took important roles and closely collaborated with the Tessaban. For example, the VHVs strictly controlled citizens to enter the market. If someone did not wear a face mask, they were not allowed to enter the market. VHVs sometimes gave a spare face mask to the citizen who came to market without it. VHVs selected priority citizens who need support. VHVs also supported the Tessaban to select laid-off persons or those who returned to Nan to be hired for cleaning the street and other Tessaban's works. Tessaban provided THB8,000 per month.

4.2.2 Provision of Information

1) Information Provision Channel

Tessaban have a strong initiative to provide information regarding COVID-19 with citizens, such as infectious status, preventive measures, information on public support and services through newspapers, podcasts, billboards, and advertising trucks. It also has to increase people's awareness of preventive measures. The radio has a link with the public relations department. Tessaban's advertising trucks went around the municipal area every evening, which has become less frequent since July. In order to make sure to distribute information and news regularly, the village head repeated the information via community podcasts within the communities.

Social media, such as Facebook, is also used to provide and disseminate information. Infographic is also used for this purpose. LINE application is additionally used for staff who closely work with the Tessaban such as VHVs and community leaders to pass the information to local people.

Some elderly who have to stay home during COVID-19 usually watch TV to get news about COVID-19. In addition, the elderly council provides knowledge about the new normal as the elderly must be careful and be able to take care of themselves. It includes (i) wearing of face masks, (ii) maintaining social distancing, (iii) exercising, (iv) using hand sanitizer, and (v) eating hot food and using their cutlery. It is important to protect the elderly from infection, resulting in no cases of COVID-19 in Nan. The hill tribe has no TV or any electronic devices, but it is assumed they could get information from people in their community.

VHVs play the important role of taking care of people in communities and sharing all information and preventive measures among other VHVs through a LINE group chat. VHVs mentioned that they received sufficient information from the Tessaban frequently. Beginning of the COVID-19 pandemic, VHVs visited all houses in communities to inform them about those measures.

2) Evaluation on Information Provision

The Tessaban evaluated podcast as the most effective method since it covers all areas and sends the message quickly. Among three main points of the podcast, i.e., Tessaban office, the village head, and the advertising truck, the easiest and most effective was the advertising truck. The Tessaban managed an advertising truck to provide 31 communities with all important information before and after the peak of the outbreak. Since people sometimes could not listen to the end of its message due to its fast driving, the advertising truck was operated more frequently. Its messages were made in short sentences for people

to understand easily.

People in communities evaluated that information on preventive measures provided by tessaban and VHVs, including keeping washing hands, wearing face masks, and keeping social distancing, as most indispensable for them. For the working group and young generation, social media could be the most efficient way to get updates. Some businesspersons pointed out that information sharing via social media, especially LINE, was the most effective. LINE is easy and convenient to use and update news.

4.2.3 Provision of Public Service

Public services in Nan were provided as usual even during the lockdown period while were stopped during night-curfew time. People could go out to public places, malls, banks, and others through screening points. Tessaban Mueang Nan, as well as Nan Province, also worked as usual. People in Nan could access any administrative services like licensing, issuing of certificates, registration, etc.

1) Transport Services

Local public transport services, which are provided by private companies, were operated as usual except for long-distance (inter-city) bus services. Long-distance bus services were closed due to the restriction of traffic across provinces. Tourism tram services managed by the Tessaban were suspended for 3 months since there were no tourists. Since people in Nan usually use their own vehicles and motorbikes, quite a few people faced inconvenience on traffic services.

2) Medical Services

The hospital continued operations as usual. No issues were observed on hospital accessibility because there have been no cases of COVID-19 in Nan. Centers for children and the elderly were closed. Therefore, parents had to take care of their children by themselves. The elderly might feel lonely when they cannot attend any activities. However, VHVs took care of those who needed help. Most elderly relied on each other in their neighborhood.

3) Education Services

School closure led to online classes at the beginning of the curfew period. However, some students did not have any electronic devices to access online classes. Therefore, satellite teaching via DLTV was introduced, which did not have a good result. Few households could ensure a good environment for studying at home, resulting in that most students playing games instead of studying. After school was reopened, the Tessaban invited the Ministry of Tourism and Sports (MOTS) to share and train kids/students about the prevention measures. While the central government provided standard measures to prevent infection, it sometimes cannot be applied, for example, kids in the nursery. MOTS instructed alternative preventive measures instead.

4) Other Public Services

Regarding solid waste management during the pandemic, the Tessaban provided a specific trash bin (see Figure 4.3.3) for infectious waste and collected them to the incinerator.

4.3 Impacts of COVID-19

4.3.1 General Impacts

Many interviewees pointed out that Tessaban Mueang Nan got relatively limited impacts from COVID-19 compared to other cities. There were no fatal damages to businesses and people's livelihood, although overall impacts still cannot be seen totally and clearly as of July 2020. However, it was also pointed out that there were large impacts on cultural activities, especially temples.

4.3.2 Economic Impacts

1) Overall

During the curfew period, the central government introduced basic prevention measures to request people not to go out and not to go beyond provinces. Therefore, local shops and tourism businesses, including hotels, and bus/van drivers were strongly affected due to fewer customers and there were no tourists. However, the tourism sector in Nan got relatively smaller damages compared to other cities because most hotels operate as a family business with minimum fixed expenditures and target local markets. While no tourists came to Nan during the curfew period, they eventually returned, and hotels have been fully booked since June 2020.

Similarly, grocery stores have been less affected. Even though they could not reach sales as before the pandemic, they have not complained as much as the tourism business and restaurants did.

The agricultural sector seems to be one of the economic sectors which got the largest impacts due to the loss of market during the lockdown period in Nan as well. There were many comments that agriculture might have a larger impact than the tourism and commercial sector in Nan. Farmers got damages due to fewer orders from restaurants and hotels. Another serious difficulty in agriculture was caused by the restriction on traffic across provinces during the curfew period. The supply chain was shredded, so it was difficult to get some products from other provinces and to send local products to markets in other provinces and Laos.

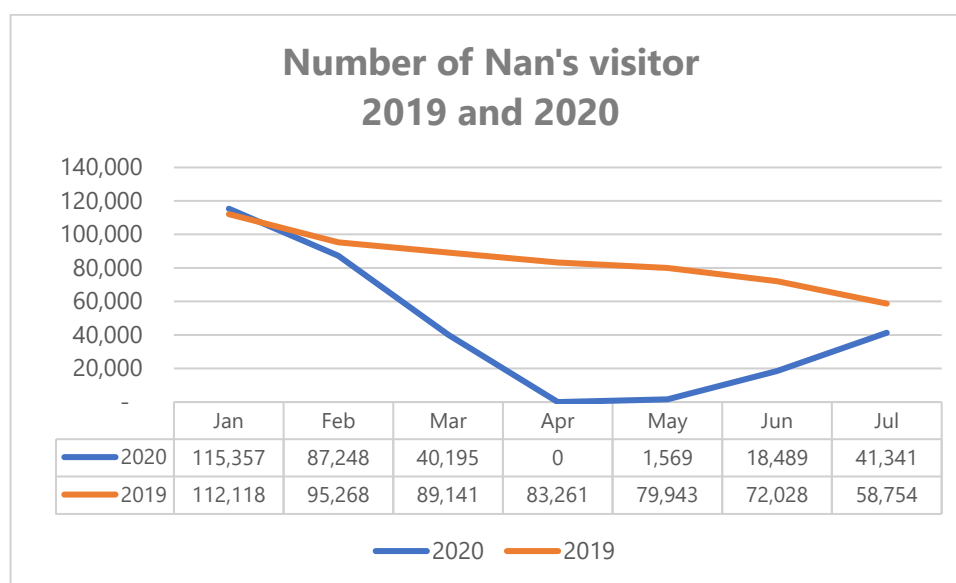
Online platform services such as online shopping, delivery services, online travel agents, and video distribution services became popular and continuously increased.

As for employment, the government officials were likely to get fewer impacts than other sectors as they still got the salary even though their salaries were cut down. Daily employees and part-timers were seriously affected because they were the first to be let go. Social Security Office (SSO) benefits were pointed out to ease the burden of employers in laying off their employees. It decreased the cost of businesses and protected local businesses. It seems that no business was bankrupt until now (August 2020).

2) Tourism Sector

Tourism sector, including restaurants and travel agencies, was the most affected among the economic activities due to no incoming tourists. Temples and other tourist attractions

were closed, resulting in reduced income in related businesses such as food supply, hotel support business like cleaning, laundry service, flower supply, etc. The number of visitors to Nan in 2020 has dramatically dropped compared with the number of visitors in 2019, especially in April, as shown in Figure 4.3.1.



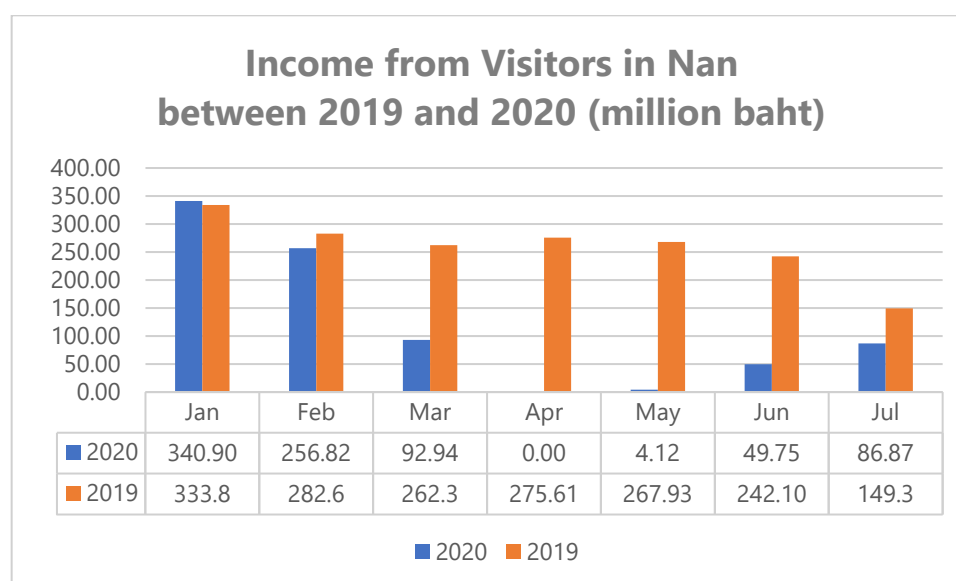
Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 4.3.1 Number of Nan Visitors in 2019 and 2020

Hotel Business: Nan Hotel Association requested the governor to order to close down the hotel business. The governor approved it, and hotels were closed from April to the end of June 2020. Hotel businesses highly evaluated it because their employees could get support from the SSO. If the governor had not approved it, they would have let go of all their employees and compensated all of their permanent employees.

Hotel businesses tried to minimize the expenditures during the closure. However, there were some fixed costs such as salary of employees, interests of loan, utility costs, and internet. Moreover, they needed to pay additional expenditures to apply prevention measures, including the COVID-19 prevention training for their staff and provision of prevention measures such as hand sanitizer gel, thermometer, and face masks. They also needed to pay maintenance costs for the pump and A/C to clean them when they opened the hotel again.

After reopening, hotel owners could not increase room rates to cover the additional cost or moreover needed to set a discount rate to encourage people to stay. Therefore, it was hard for them to manage their business. The central government did not provide any useful rescue measures to the tourism sector during the curfew period.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 4.3.2 Nan's income from visitors between 2019 and 2020

Income from visitors to Nan province in 2020 has been dropped compared with the income generated in 2019 (Figure 4.3.2). Accordingly, the financial situation of the tourism business in Nan was really serious, but they were not likely to be bankrupt. This is partly because most of the hotels in Nan are managed by local people as a family business and because most of the hotels are small and medium-size targeting the local market and are operated with minimum capital investment and fixed expenditure. It is also because hotel owners have other income sources at the same time. For example, some hotel owners are pensioners or retired government officials, and others have construction companies as a second business.

The central government carries out the "Tiaw Pun Suk (Travel Together) project" (hereinafter Tiaw Pun Suk Project) for encouraging the tourism sector after the curfew period was over (see Chapter 5.3 of Part I in detail). Before COVID-19, the target of tourists in Nan was comprised of 80% of Thai high-class tourists and 20% of Thai middle class with less than 10% of foreign tourists. Therefore, after the curfew period was over, the number of tourists in Nan have recovered quickly to the same level before the COVID-19 thanks to Tiaw Pun Suk Project. Some hotels have re-started to organize events such as conference meetings, wedding ceremonies, products exhibition with a smaller number of attendees with social distancing measures, where the capacity of a room has reduced to half in number.

Restaurant: Restaurants that sell coffee and food in addition to alcohol reopened in April 2020 from 9 a.m. to 5 a.m. Customers could not dine-in but could order take-out services. Some shops started delivery services while others sold cooked food (like a bakery) both online and at markets, which were promoted via their Facebook fan page. Similar to the hotel businesses, regular fixed costs such as car payments affected their profits seriously. Some other impacts on the restaurants in Tassaban Mueang Nan include the following.

- Many restaurants in Tassaban Mueang Nan hire Laotian employees. Several Laotian workers did not want to return to their hometown because they would at least not

starve as long as they stayed in Nan.

- During the curfew period and even after, ingredients are more difficult to buy due to the insufficient supply volume.

During the long holidays in July 2020, after the curfew period, more customers returned. However, the shops targeting tourists still cannot get sufficient customers yet. The actual impacts after reopening would be seen after September 2020, which does not have any holidays.

Phumin Thali community has many entertainment businesses such as pubs and bars. Even though all entertainment businesses reopened in July 2020, people and tourists still have not returned, so workers of those businesses have lost their income.

3) Wholesale and Retail shops

Some middlemen could not distribute their products, resulting in the overstock of the products, and thus were forced to drop off the prices. The merchants' income, particularly for consumer goods, dropped down as they could not sell their products since most people avoid buying unnecessary stuff. However, some groceries got more customers as it is easy to access to buy necessary things.

At the beginning of the outbreak, before the curfew started, there was no announcement for closing shops. However, many shop owners were afraid of the COVID-19 and closed their shops by themselves. During the curfew period, the market could not be opened at nighttime, especially wholesale market.

Some communities like Chiang Kheang Community which relies on the market got a large impact. Sellers in the market generated smaller income due to the reduction of customers. The infection prevention measures caused sellers to pay the additional cost. It inevitably has resulted in some unemployment.

However, in general, the market seems not to have much impact from the COVID-19 situation. People bought products and food from the market as usual. The frequency of shopping might be lesser, but the buying volume was larger than as usual.

Nan has many small retail shops. The impacts on these small retail shops were limited because they target the locals. But sales in retail have decreased because people in the communities only bought necessities, while shops targeting tourists got bigger damages because there were no tourists.

4) Agriculture

Farmers who deliver crops to the restaurants and hotels got damaged since they got fewer orders. Flower markets were also affected due to the closure of hotels and restaurants.

Another problem with agriculture was the suspension of transportation of farm products caused by the prohibition of traffic across provinces during the curfew period. Originally, farm products in Nan have been transported to the distribution center in Phitsanulok. However, all outgoing/incoming products were suspended during the curfew period. It affected major farm products in Nan, such as lagoon, mango, and lychee, which got rotten before being delivered and overflowed in the market. The price of those fruits rapidly

decreased, for example, that of 1kg of Mango was dropped at only THB 5.0. Some farmers focused on the online market rather than selling it in the other provinces. In addition, Nan has an export business of farm products to Luang Prabang of Laos. It still cannot be operated due to the closure of the land border as of July 2020.

Some in-coming products such as eggs and livestock have decreased in Nan. Eggs were scared in Nan. While there was an egg farm in Nan, it was of lower quality. Therefore, the shops/restaurants that use eggs could not continue.

5) Manufacturing

While Nan has a few small industries like food processing, supply chain across provinces was shredded by traffic restriction, so there were difficulties to get some products from other provinces, as well as to transport products to another province.

6) Construction

Construction business got impact from COVID-19. Most construction businesses in Nan basically depend on the public sector from the government. Under the COVID-19 situation, the budget of construction works has been drastically cut off, canceled, or postponed. Other difficulties on construction businesses during COVID-19 were the increase in expenditure on infection prevention measures and difficulties to gather workers.

7) Employment

About 30% of the population in Nan is government staff, who didn't get much impact under COVID-19. The other 70% of people got some impact. Most companies have faced a decrease of turn-over during the lockdown, resulting in the lay-off in several businesses, especially hotels, restaurants, and retail shops. Particularly, daily workers and part-time workers in pubs and bars had to find new jobs in the daytime. However, the recruitment of daytime businesses didn't have enough capacity to employ more staff. Thus, the job supply (those who want to find jobs) was over the job demands (capacity of enterprises that can employ a staff). It resulted in fewer reemployments even after the curfew was over.

Many people came back to Tassaban Mueang Nan during COVID-19. Among them, approximately 70-80 % lost their job and looked for new jobs in Nan. Many unemployed who came back to Nan got few jobs at food delivery like Foodpanda and Foodman, Mostly, they are the younger generation.

Workers who were suspended or laid off their work are paid by social security for 50%² of their salary. Some of the employees quit their job to get compensation as unemployed, after considering the owner's situation of reducing expenditure on their business for survival. In the SSO system, the owner pre-pays part of the SSO premium (sort of a premium of employment insurance) for their staff while the employee also pre-pays some of the premium (adoption and SSO money depend on criteria and salary). With this system, when laid off, the unemployed can get the benefits from SSO, while the owner does not need to compensate the employee.

² Fifty percent of the salary will be covered by social security if people are laid off, while 30% of their salary will be compensated for those who resign from their job.

8) Tax Revenue

The Tessaban usually gets a rental fee from sellers in the public markets (Tessaban has 5 markets), which is one of the largest revenues of Tessaban. Since Tessaban decided not to collect rent in the market for 3 months during COVID-19, Tessaban lost the revenue. The closure of walking streets and tourism trams, which generate more than THB40,000 per week also impacted Tessaban's revenue. This affects Tessaban's budget for the next year.

9) Newly Emerging Services

Most businesses have been adjusted to online services, such as delivery services, travel services, and online video services. Some new products and marketing have emerged under the new normal lifestyle, such as face shields and medical equipment.

The delivery services have continually increased and become more popular in Nan. In Nan, there are two delivery services, namely Foodman and Foodpanda which have been operating for around 3 years. These delivery services were helpful for local restaurants and businesses during the lockdown. Foodman is a local service created by Nan people and now expanding its services to Mae Hong Son and Phrae. The main customers are middle-aged people who know the local foods and businesses. The cost of delivery service can be negotiated and flexible depending on how each shop deals with this platform. Principally, the sellers can get 80% of their original price while 20% will be deducted by Foodman (middle-man). On the other hand, Food Panda is operated by a foreign company. The sellers can get only 70% of their original price, and 30% will be deducted from FoodPanda. The main customer is the young generation. Foodman is less popular than FoodPanda even though Foodman has operated before FoodPanda for around 8 months. It is because Foodman is less famous and has smaller coverage than Food Panda.

Online travel services, such as Agoda and other online platforms also became more popular. TAT developed its online platform as a tourism application, called Tag Thai, which is operated by an online travel agency like Agoda. However, this platform has not been popular and less promoted by the government.

Online video service like Netflix became more popular quickly since many people stay home during COVID-19. The users of these online platforms are mainly the young generation.

4.3.3 Social Impacts

1) Health

Mental health: Mental health is one of the social concerns during the first period of the emergency decree requesting to stay at home. People may have slightly get stressed from COVID-19. In fact, there were few mental health issues for the elderly due to the closure of services and activities such as elderly care/center, parks, aerobic club, etc. Some people got stressed due to the lack of income, while it was limited. Another stress was observed with family issues as they did not get along with each other, especially during the stay at home period. As a whole, Nan people well understood the situation and maybe relatively less stressed because Nan has no case of COVID-19 infected.

Physical health: Physical exercise facilities had been closed since March 2020, which affected people to lose opportunities to do exercise. Some elderly clubs and activities were shifted to online sessions, such as aerobics, where the leader used video calls to lead the dance/exercise for other members to follow at home. After the curfew was over, these services have gradually got back to normal. Many people go out for exercise in the morning and evening, like using the exercise bars or doing traditional dance at parks.

2) Education

During COVID-19, the Central Government promoted online classes, instead of face-to-face classes, which somehow limited the learning opportunities of students. For example, some students faced difficulty accessing online classes due to the instability of internet connection. Other students did not have any devices. The online class was also opened through DLTV for those who do not have devices. In some communities, teachers provided necessary materials, such as homework and lecture sheets when they visit students' homes.

The learning environment at home is different from that at school. Students could not concentrate on lessons when studying at home due to turbulence such as construction noise in the neighborhood. Moreover, some students felt that relationship with friends was also affected during the closure of schools. While they usually meet their friends in the classroom before COVID-19, they could only meet each other via LINE or other online tools. In conclusion, students prefer to study at school because they can meet their friends and ask teachers for difficult parts.

The delay of the semester affected some students who have registered for practice classes that students have to learn from actual practices. After reopening the school, schools provide courses for 7 days a week to recover the delay of classes.

3) Social Activities

Religious events are closely related to the elderly as they usually visit temples. Therefore, it was hard for the elderly to suspend social activities particularly going to the temple on Buddhist Sabbath. In the Buddhism lent, elderly people usually have a meditation at the temple. During COVID-19, temples suspended those activities, limited the number of visitors, and requested to keep social distance on other occasions. Even now social-distancing restrictions have been maintained. Accordingly, some interviewees feel inconvenienced in social activities. For example, when they go to the temple, they need to maintain social distancing and cannot talk with people like usual.

The funeral was allowed with keeping social distance. Songkran festival was canceled to avoid the risk of infection. VHV's have strictly controlled those events to avoid infection.

4) Relationship of People in Community

People in Tassaban Mueang Nan have kept strong relationships within communities/villages because most of the families and relatives live together in the same community. During the COVID-19 outbreak, people still enjoyed chatting with their neighbors and helping each other in their community. The relationship within the communities was the same as it usually is. Also, people still meet each other with keeping protecting themselves by wearing masks and using hand sanitizer. Even though someone

returned from Bangkok, they were interacted as normal after a 14-days quarantine period of self-isolation. As for households with a baby, they prohibited visitors as the baby cannot be protected properly.

COVID-19, therefore, did not affect much on the relationship within society. People care for each other, which can be seen as “sharing cupboard (Happiness Cabinet)” for people to share food and stuff by putting them inside for people in need.

Another impact of COVID-19 is voluntary restraint of visiting family members or relatives, particularly because of the suspension of Songkran holidays. For example, the son of one interviewee working in Bangkok decided not to visit Nan because he was afraid that he might bring COVID-19 back to his hometown. Normally, they video call every day.

5) Migration

Many people in Nan who had worked in other provinces decided to return to Nan due to unemployment. While inter-provincial travel was restricted, only Nan people were allowed to enter Nan with the condition that they had to do self-isolation at home for 14 days. VHVs have a list of persons for ensuring self-isolation and keeping checking their health and symptoms every day. After the quarantine period was over, people did not need to quarantine themselves at home, but the VHV kept checking for their health.

After the lockdown was over, many people continued to stay in Nan instead of going back to work in the company that they had worked before COVID-19, because they felt instability of the company and insecurity of their previous job status.

There are a few numbers of foreign workers in Tessaban Mueang Nan. In the past, there were a large number of Laotian workers but have been decreasing at present because of new job opportunities in Bokeo of Laos. Accordingly, few Laotians work in shops in Nan.

6) Security of City

Traffic Accident: The number of traffic accidents decreased since people “stay at home” during the lockdown period.

Crime and Domestic Violence: There was no increase in crime and no drug problem and DV reported during COVID-19. There is one case who posted on social media that she/he want to suicide because he/she cannot make money for paying the school. However, the Provincial Office of the Ministry of Social Development and Human Security (M-Society), Tessaban, and VHVs visited his/her home to talk and to help the family to solve the issue.

4.3.4 Environmental Impacts

Tessaban Mueang Nan originally has faced problems of drought, flood, and solid waste management, which have no additional changes due to COVID-19.

The Tessaban has taken care of both infectious waste and general waste since the Tessaban originally introduced waste separation into the municipal area. Under the COVID-19 situation, MOPH and Tessaban collaborated to separate medical waste from general waste and Tessaban provided special trash bins (red color, see Figure 4.3.3) for separating infectious trash for every community. Each household keeps used masks in a water bottle

and discards them in the special trash bin every week. The Tessaban collects infectious trash every Friday and incinerates them.



Source: JICA Project Team

Figure 4.3.3 Special Trash Bin for Separating Infectious Trash

The amount of plastic waste increased during the COVID-19 outbreak, due to the increase of waste from food delivery like boxes and cutlery. Since Tessaban has promoted Nan as the city with no foam before the COVID-19 outbreak, paper and biodegradable material have been designed and used for delivery packaging. As a whole, the total amount of waste during COVID-19 decreased because many businesses were suspended. There was only waste from the residential areas.

In the Mahaphod community, they started a campaign on waste separation before COVID-19. The campaign encouraged people to separate waste generated from their households and donate it to the community, then the community leader sold it to the waste collection center and returned the money to these households. During the lockdown, as the center stopped receiving any waste donation for 3 months, the Mahaphod community kept waste for 3 months and received about THB 4,000 after the collection center has reopened.

4.3.5 Impacts on the Vulnerable People

Vulnerable persons such as disabled people were economically affected. On the other hand, they were carefully protected by the public and family members to avoid infection of COVID-19. They could minimize the frequency of going out with help of a volunteer or/and family members. The family connection in Tessaban Mueang Nan has maintained strong as before by supporting each other. For the elderly or disabled people who live alone, their grandchildren or relatives would buy a smartphone to support them. However, even though the elderly and disabled people can contact other people via LINE or Facebook, they prefer face-to-face communication.

1) Elderly People

The elderly people were requested by their kids and relatives to stay home as much as possible during COVID-19. While only 9% of elderly people do not have any relatives,

people in Tessaban Mueang Nan always support each other based on the existing strong neighboring networks.

One of the economic impacts on the elderly was the loss of their income. Some elderlies work as volunteers and usually sell or exchange their stuff at the elderly center. Since the elderly centers were closed during COVID-19, elderly people lost opportunities to sell the goods. Other elderlies work as an employee and part-time, but they were rejected to work during COVID-19.

Elderly people are likely to join Buddhism activities. However, their children and grandchildren did not allow them to go out during COVID-19 because they were worried about their health. Instead, some communities invited the leader of those events if they intended to arrange any religious activities.

2) Disabled People

Most disabled are lottery sellers. During COVID-19, the lottery was suspended so they were unable to sell and lost most of their income. Some wanted to return to Bangkok as a group, about 20 persons, to sell lottery but they could not due to the restriction of interprovincial travel. It also resulted in them losing their income.

It should be noted that most disabled people do not have permanent jobs. Their lives much rely on government support. Even though lottery selling was suspended during COVID-19, it was difficult for them to find other jobs or activities.

There are many types of clubs for the disabled, such as disabled sewing club, lottery club/association, and Thai traditional massage. Some clubs were not closed to maintain the relationships of the members. Some clubs also joined the making of fabric face masks activity.

4.4 Supportive and Rescue Measures for Recovery

4.4.1 Supports for Household

1) Supportive Measure by Tessaban

Tessaban Mueang Nan has provided several supportive measures for the citizens such as food and survival bag. However, those supports could not cover everyone in the communities. VHVs selected citizens to be provided.³ Tessaban also supported communities outside the Tessaban area such as hill tribes.

There were some issues with the implementation process. Some people who got impacts from COVID-19 were disqualified by the government criteria to get the rescue money because they did not know their status. Also, some elderly people who do not have children and mobile phones could not get rescued from the central government because they did not know how to register, what are their rights and qualifications to get the support.

VHVs supported those who could not access the government support and reported to the Tessaban. Then, the Tessaban made a letter to M-society to support such disqualified persons. Finally, M-society provided support to them.

2) Supportive Measures given from Others

While the central government, the province, and the Tessaban provided major supportive measures, those were still limited in terms of variety or coverage. Accordingly, the private sector provided support as a supplement, which can be roughly divided into two types: donation through Tessaban and mutual help by communities. Most interviewees highly evaluate those help of the private sector and persons. Although the private sector could not generate any profits during the COVID-19 outbreak, they greatly helped society with cash and food donations.

Donation through Tessaban

Private sectors providing donations include local companies and shops in Nan. Most of the supports are food, coupons that can be used at some restaurants, and survival bags. Money, face masks, and other essential goods were also donated by them. Donors firstly contacted Tessaban and then Tessaban managed to distribute donations fairly and equally to the community leaders or asked VHVs to distribute food boxes or coupons to the communities. If donors distributed stuff by themselves, it might not equally reach everyone in the communities, which could not meet the demand.

There was also support from the private sector to offer lunch boxes for disabled persons or people in need of assistance through helps from VHVs. The distribution covered 3 areas which are 500 lunch boxes for the Puang Phayom community, 400 lunch boxes for the Don Keaw community, and the Ban Nam Rong community. The ingredient of food has been donated by various people.

Government officials usually donate money to the communities to buy food and distribute

³ Tessaban has obstacles with laws and regulations in distributing food. They might get in trouble with the State Audit Office.

it within communities.

Mutual Help by Community

Anyone who would like to donate anything, such as food, can contact VHV to distribute it to the communities. VHV has household information and understand who need support, so they can give donations to them effectively. Communities tried to help some unemployed people who returned to Nan by providing some food and daily stuff.

There was a fundraising project to rescue people, namely the “Pun Kan Im” project, to give food coupons for people in need of assistance. Pun Kan Im extends to three communities; Ban Nam Rong community, Ban Chiang Kheang community, and Mahapod community. This fund-raising project has been advocated via radio and the Facebook Page of many organizations in Tassaban Mueang Nan. It is expected to be continuously implemented.

There was a “Neighboring Helping” Project for supporting in-bed patients and the disabled by donating dry food and rice in the communities.

In the Mahaphod community, there is an owner who provided his vacant land for the community farm. The community members planted vegetables for their consumption there. Anyone in the community can use it and help each other take care of it. It started before COVID-19, but it got much attention during the COVID-19 outbreak.

3) Financial Supportive Measure by Financial Institutions

Some financial institutions provided suspension of principal and interest for 6 months, such as for car and house installments. It enabled the companies to have some survival time until normalizing their income and to encourage people to spend more money in the city. However, this measure is effective only for salaried workers or government officials who have job security.

There are several types of funds available in communities such as village funds, one baht per day fund, housewife fund, and elderly fund. Those funds in communities help people a lot by using dividends of funds for food distribution, suspending fees and interests, etc., during COVID-19. People might be interested in those funds and would like to continue membership in the future because they deeply experience the benefits of those funds.

4.4.2 Recovery of Businesses

1) Suspension of Repayment

The commercial bank offered the suspension of repayment of principal and interest for 6 months. Businesspersons thought many businesses might be bankrupt if there was no suspension of repayment. However, they also considered it too short because it may take more time for economic recovery.

2) Tourism Promotion

The hotel club has mainly collaborated with TAT and Designated Area for Sustainable Tourism Administration (DASTA). In general, DASTA is in charge of capacity building for the hotel such as occupation training and setting standards for green hotels while TAT supports it for marketing in the overall province. Related to COVID-19, TAT has the Amazing Thailand

Safety and Health Administration (SHA) campaign that certificated the hotel of which products and services meet the COVID-19 prevention standard. The hotel must register for this campaign. As of July 2020, there are only 6 certificated hotels in Nan province.

Another tourism promotion is the "Moral Support" project, which targets health volunteers and officials of sub-district hospitals. One example is the "Capacity Building for Nan enterprise," in collaboration with DASTA and TAT, introducing marketing techniques during COVID-19. Basically, DASTA has worked for the knowledge management for tourism development and standard (such as green hotel standards).

4.5 Behavioral Change and New Normal

Experiencing COVID-19, people in Tessaban Mueang Nan have gradually adapted new normal.

1) Business Sector

Telework: Currently, telework is sort of booming in big cities like Bangkok. However, there were not many companies introducing telework in Tessaban Mueang Nan. Only a few occupations could introduce telework such as programmers or computer-related jobs. Tessaban office tried to change the working style as well. A teleconference was introduced to communicate with other public organizations. However, most of Tessaban's works are the provision of services to people, which requires confidentiality. Therefore, Tessaban staff could not apply telework system to most of their works, resulting in working at Tessaban office as before.

On-line services: On the other hand, there is an increasing number of delivery service businesses; Food Pandas and Foodman. People use such a service since they can save more money rather than going out to buy it and they do not want to take a risk when going outside. Online shopping became more popular in Nan. However, it is relatively slow, because not so many services started in Nan.

Tourism Sector: The tourist preference has changed from relaxation to safety. Hotels have shifted their services to prioritize more on the quality of services than the number of visitors. Accordingly, the marketing strategy of the hotels has slightly changed.

- Hotels focus more on safety, cleanliness, and prevention measures to make tourists or visitors feel secure against COVID-19.
- Some hotels have started a new trial to emphasize "Eco." It includes recycling and reusing activities, such as making soap from waste oil. Many middle-aged generations prefer to join those activities.
- Online marketing is encouraged. Normally, bookings are from travel agencies, like Agoda and Booking. Currently, they get more bookings by phone calls and Facebook Page, probably because the travel agencies have not updated new prevention measures adopted in the hotel.
- Hotels have changed from buffet breakfast to set-menu breakfast. This is mainly to follow the government measures and keep social distancing. They also provide the set-menu breakfast in the room, contributing to the safety of guests and reducing food waste or excess.

Shift to new business: Due to COVID-19, some people have adjusted their jobs to generate money. For example, those working in the learning centers have changed their job from a study tour to selling face masks. Similarly, some hotel employees changed their job to delivery services. Also, the massage staff changed their job to be volunteers for fever checking and introducing prevention measures for the visitors at the hospital, which can earn money THB 50 per hour and work for 8 hours per day.

Restaurant business: Restaurants have been eager to adopt several prevention measures such as wearing face masks, using hand gel sanitizer, cleaning surfaces, etc., even though

the operating costs increases. Some restaurants change from serving at the table to self-picking up at the counter to clean tables more frequently and quickly.

Hospital business: Some people worry about going hospital for getting their medicines due to COVID-19. For such people, hospitals started a service to send the medicine via post. Furthermore, VHVs sometimes receive medicine at the hospital and deliver it to the communities. If people are not feeling well, VHVs preliminarily check for them.

2) Social Activities

Many social activities have changed to avoid infection. For example, the Tessaban has initiated new regulations for funerals. While food and snack are normally provided for the guests of the funeral, the Tessaban recommends using a lunch set for the funeral to serve food and snack as COVID-19 prevention measures. It is easier and safer, but the waste of lunch boxes dramatically increases. The Tessaban prohibits serving food and snacks using ordinal material of food containers in funerals but the Tessaban allows to use of biodegradable food containers. Moreover, the Tessaban also request to use man-made flowers in the funeral, where fresh flowers are normally used and changed in every funeral. It does not only save cost but also produces a small amount of trash.

3) People' Awareness and Behaviors

Nan's lifestyle has not changed as much either before or after COVID-19 as they do not have many activities encouraging crowding and activities at night. Many people have recognized the importance and usefulness of community and mutual sympathy.

People are willing to follow all prevention measures to avoid congestion, wear masks, and spend a shorter time at the market. Even now, people still wear face masks, wash their hands, and avoid going to crowded areas. Now people are back to normal life, but they keep prevention measures by themselves.

The elderly care centers have applied new normal concepts to receive only a small number of elderly persons to keep social distancing. Also, VHVs screen fever at the entrance.

4.6 Further Needs

1) Continuous Prevention Measures

Many interviewees are afraid of the second wave of the outbreak. The number of tourists to Nan is increasing at present. Although tourists will be a big risk to cause the second wave, some businesses/shops in Nan need tourists. Accordingly, it is necessary to keep a certain level of restriction because now VHV's are gradually unable to screen visitors in Nan like the beginning of COVID-19.

2) Economic Recovery Assistance

The government provides SSO benefits to lay-off persons, but there is no rescue measure to companies except for suspension of repayment. Companies cannot keep their employees, which makes them unable to secure businesses. In addition, such rescue measures make unemployed persons lazier as they can get money without doing any jobs. Accordingly, there is an opinion that the government should provide a financial incentive for business owners and SMEs. Particularly, the government should provide low-interest rates in a loan for businesses so that they can keep employment. This is not only to create more employment but to keep business for further quick recovery of the economy.

3) Provision of more easy-to-understand Information

Provision of more easy-to-understand information is necessary. There are some comments that the government provided several rescue measures and business recovery measures, and also updated them occasionally to meet the needs of people/companies. It sometimes made confusion on the procedure, documentation, etc. For example, many laid-off people are confused on qualification whether they can get the support or not and on registration procedure and necessary documents to be prepared.

4) Basic Infrastructure for IT

Online shopping and delivery service increased in Nan during COVID-19. The school introduced online classes to avoid infection and the community also introduced IT for talking and exercising as well. IT is one of the keys to overcoming the COVID-19 situation. However, the IT network is not sufficiently cover the entire Tassaban area and there are some difficulties reported. The basic infrastructure of IT shall be developed to solve problems as well as to encourage new businesses.

4.7 Future Development Perspectives

Creative economy: “Creative City” is driven by the Creative Economy Agency (CEA) together with DASTA. Tessaban Mueang Nan is selected as one of five pilot cities, including Sukhothai, Nan, Supanburi, Phetchaburi, and Chiang Rai, to promote a sustainable creative city. It aims to enhance tourism together with historical and cultural conservation and to promote connection with the UNESCO network. The value of local resources will be added to drive sustainable tourism and enhance the quality of life. In Tessaban Mueang Nan, creative tourism is prioritized to become a creative city. The history, art-culture, local lifestyle, and distinctive attraction are mainly promoted to build and link tourist experiences into the locals. Income generation is not the priority, but the value of community must be emphasized.

Safe city: The impacts from the COVID-19 outbreak have made the Tessaban aim to create a safe city. During COVID-19, the Tessaban have learned how to improve their knowledge on safety. And at the same time, COVID-19 also provides an opportunity for people to absorb knowledge on safety.

Smart City: Tessaban Mueang Nan is selected as one of the Smart Cities in Thailand, as initiated by the central government. The Tessaban is focusing on Smart Environment, Smart People, and Smart Living out of the “7 Smarts” dimensions of Thailand Smart City Development. Based on its original direction toward sustainable development, the Tessaban especially focuses on solid waste management and electronic tram.

4.8 Implications to SFCI

4.8.1 Current Situations of Projects under SFCI

1) Long Nan Center

Long Nan Center was closed during the COVID-19 outbreak. After it reopened, there were some visitors. Tourism Tram was also closed. Tessaban still operates Long Nan Center with a bicycle rental service to which the Rotary Club just donated a new bicycle.

2) Lighting System for Promoting Nighttime Tourism

The lighting system of which detailed design was prepared under the JICA pilot project has been requested by the Provincial Department of Culture. Tessaban gets a positive response now.

3) Solid Waste Management

Waste segregation activities, which have been promoted using JICA Pilot Project, help the community with disease control. For example, dengue fever that spread in the communities has disappeared. Not only does waste segregation and management help with disease control, but also for shaping people's behaviors. However, it takes a long time to achieve this practice. After completion of the JICA Pilot Project, the Tessaban has expanded this best practice to 19 communities. The Tessaban expects to apply this practice for all 31 communities within the next year. The budget for this project is not that much because it is about creating awareness. The JICA Pilot Project has inspired the Tessaban to create awareness to communities for sustainability in the future.



Source: JICA Project Team

Figure 4.8.1 Waste Separation Activities by Community

Waste Donation Fund is continued. People in the communities have collected all recyclable waste and sold it. The money that they get will be saved and used for social activities such as supporting funerals.

4.8.2 Implication to SFCI: Sustainable Development of Nan

Based on the experience of COVID-19, many interviewees seem to have opportunities to consider their future and Nan's future, as well as the sustainability of the society and economy. Young people and businesspersons pointed out that Nan needs a variety of jobs. They would like to see Nan with more job opportunities, particularly in-service sectors such as hotels and restaurants and IT businesses supporting and promoting tourism in Nan. At the same time, they would like to keep Nan's lifestyle and tradition too.

On the other hand, the tessaban said that they have learned how to improve people's knowledge/awareness and consensus through the experience of promoting prevention measures. Tessaban also recognizes that safety is one of the important factors of a city's sustainability.

4.9 Other Issues Raised

Most of the interviewees in Tessaban Mueang Nan expect tourism would be a key economic sector in the future. However, the Tessaban has not a consistent strategy for tourism promotion. Green tourism has been introduced and promoted by the Department of Environmental Quality Promotion (DEQP) with criteria of green tourism and driven by hotels for 7 years. However, it has not well penetrated. Some small hotels have a different concept of "Tee Pak Ruk Nan," meaning "Be Love Nan Hotel." Restaurants do not join this concept because they must spend more on green management, such as staff training, data collection of waste and energy, and reporting. If tourism and related sectors do not employ the same strategy, it may be difficult to integrate all activities/ sectors on the same page to promote green tourism. Currently, DASTA expects Tessaban Mueang Nan to be Green Destination, so it is necessary to encourage restaurants, hotels, and other related businesses to apply it. The other sectors should also join this concept to raise Nan's value and popularity of products as Nan's brand.

The Tessban has put a higher priority on solid waste management for a long time. Experiences of the Tessaban on solid waste management under JICA's SFCI, especially public relations and awareness campaigns, could contribute to promoting green tourism by assisting waste management of restaurants and small hotels.

5. COVID-19 Impacts and Response on it in Tessaban Mueang Phanat Nikhom

5.1 Overview of Phanat Nikhom

5.1.1 Socio-Economic Characteristics



Source: JICA Project Team

Figure 5.1.1 Location of Phanat Nikhom

Tessaban Mueang Phanat Nikhom is in the north of Chonburi Province with an area of 2.76 km². Tessaban Mueang Phanat Nikhom is in a flat inland area, around 100 km from Bangkok and around 30 km from Chonburi City. Some industrial estates, including Amata Nakorn, are nearby.

Tessaban Mueang Phanat Nikhom functions as a small economic center in inland Chonburi Province. This tessaban is known as the city of commerce and transport, and logistics business. In the past years, its main industries were agro-businesses such as seeds, fertilizer, machinery, goods, and transportation of local products, and local distribution/logistics. However, Tessaban's function as a hub to distribute products has declined due to changes in the business model and flow of goods.

The tessaban has been managing the city properly with the strong leadership of the mayor. Tessaban Mueang Phanat Nikhom also has a good relationship with the communities. It has worked with surrounding areas in the provision of waste collection vehicles and the construction of a river dike. The communities are also active and organize activities, especially for business opportunities. It has many awarded projects with a high reputation.

Table 5.1.1 Overview of Chonburi Province and Tessaban Muang Phanat Nikhom

Population	
Province	1,558,301
	Provincial growth rate is about 1.73%

Tessaban	10,296 Tessaban growth rate is about -1.33%
Aging rate (60+)	
Province	213,253 are 60 years old and over or about 13.7% of the population
Tessaban	2,525 are 60 years old and over or about 24.5% of the population
Area	
Province	4,363 km ²
Tessaban	2.76 km ²
Economy	
Province	Industrial, tourism, regional economic hub
Tessaban	City of Commerce and Transport, logistics business

Note: The growth rate was calculated based on the data of the population in 2019 and 2015.

Source: DOPA, 2019

5.1.2 Overview of Infection Status of COVID-19 in Chonburi

Table 5.1.2 shows the overall infection status in Chonburi Province. The province had 112 infected cases with 100 recoveries and 2 deaths as of June 2020. Among the two deaths, the youngest was 9 years old and the oldest was 77 years old. The testing number is quite high compared to other SFCI model cities.

Table 5.1.2 COVID-19 Infectious Status: Chonburi Province

1.1	Infectious Cases Number	1 st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	1	57	87	112
	Active Cases	0	1	50	14	12
	Recovered Cases	0	0	7	71	98
	Death number	0	0	0	2	2
	Testing Number	N/A	N/A	1,000	2,389	4,110
	State quarantine	N/A	N/A	N/A	N/A	27
1.2	Gender					
	Female	45				
	Male	67				
1.3	Age					
	Minimum	9				
	Maximum	77				
	Average	39				
1.4	Nationality					
	Thai	96				
	Russia	7				
	United Kingdom	3				
	Others	7				
1.5	Date of first confirmed cases (Announced date)	08/02/2020				
1.6	Transferred from other provinces	-				

Note: the number of infected cases was collected every 1st date of each month.

Source: MOPH, 2020 (provincial office) edited by JICA Project Team

5.2 Infection Prevention Measures

5.2.1 Infection Prevention Measures taken by Province and Municipality

1) Province

As the central government imposed COVID-19 preventive measures on 3 March 2020 and imposed for every province around Thailand to comply with, the preventive measures in Chonburi Province focused on the closure of entertainment spots and similar businesses. Health-related establishments, except hospitals, such as health spas, beauty salons, massage parlors, gyms, or fitness centers, were also closed on 18 March 2020 yet allowed to reopen on 15 May 2020. Even after reopening, they needed to ensure they complied with the preventive measures: setting up a screening checkpoint, providing hand sanitizers, wearing face masks, and checking in and out using the Thai Chana application. These businesses were allowed to reopen under the condition customers inside must be limited at a time.

Hotels and all daily accommodations were ordered to close, too, except those for state quarantine from 2 April 2020. The announcement to close down all markets and street markets was unclear at first, but on 7 April 2020, it was clarified, and markets and street markets remained open but could only sell dry food, fresh food, finished food, pet food, agricultural products, and pharmaceutical products.

Even at places allowed to open during COVID-19, such as flea markets, there were concerns about sanitation. Every place needed screening checkpoints, including in every city passway, and hand gel sanitizer. Restaurants were allowed to operate by delivery service only, but some agreed to temporarily close because they could not afford the monthly expenditures.

Some activities needed to be prohibited and temporarily suspended, such as public gatherings and activities with inter-provincial movements. Funeral was allowed, but people had to follow the physical distancing measure of at least 1 m away from every individual.

Curfew was in place until 30 June 2020. From 1 July 2020, curfew, all closures, and prohibited activities were lifted. This included educational institutions, interprovincial travels, and all businesses have been re-opened with no limits of timing and they were fully operated under social distancing measures and ensure the hygiene of the place.

2) Tessaban

The mayor complied with the prevention measures imposed by the province and the central government. Some restrictions were also applied depending on the mutual agreement of tessabans, such as extending the reopening of school. The obvious measures implemented within the Tessaban area during COVID-19 were as follows. While only one infected case returning from a boxing stadium in Bangkok was found in Phanat Nikhom, the communities actively followed the preventive measures, especially at the onset of the pandemic.

- Distribution of fabric masks and alcohol gels to all citizens
- Set up temperature checkpoints at the city entrance and entrances of each place
- Prohibition of entry of people from outside Phanat Nikhom, e.g., vendors from

Chonburi City Center or Bang Sean to sell seafood at the markets. Those who wanted to enter the city must be granted permission on paper.

- Close down public spaces and schools
- Prohibition of inter-provincial traveling
- Prohibition of selling alcohol during the Emergency Decree announcement
- Hospitals provided medication delivery services for the vulnerable, with the cooperation of VHVs¹
- Promotion of all kinds of delivery services in the area, e.g., restaurants must provide delivery service
- Promotion of online courses for the students.
- Information sharing regarding the COVID-19 regularly from the Ministry of Interior (MOI) through wireless voice, advertising car, and medical information provided by VHV.
- Every person returning to the Tessaban needed to inform VHV, and the VHV will inform public health staff in Tessaban then inform the person to quarantine at home for 14 days.
- Reduction of public transportation trips per day.

VHVs were the main person that implement the measures in the communities. They were the main person to interpret the prevention guidelines and gave supports to the communities under the supervision of Tessaban and other local government sectors.

5.2.2 Provision of Information by Tessaban

The Tessaban provided information by various channels; wires voice, advertising car, and online channel. Overall, as Tessaban Muang Phanat Nikhom has a small area of 2.76 km², the information shared with the citizens is considered convenient to access.

Wireless voice seems to be the primary device to communicate with its citizens although there was still an inaccessibility issue because the device itself could not cover the entire area. Tessaban also provided advertising cars to ensure every household got access to the important information retrieved from MOI regarding the prevention measures and information of public supports.

The online channel became the most effective tool for Phanat Nikhom since the lockdown started because physical interaction was prohibited. Tessaban has actively provided information on their Facebook Page. Even the mayor was very active on his personal Facebook. There were a lot of people in the communities following Tessaban's Facebook Page and the mayor's, so Tessaban ensured everyone could report to them online if they had any concerns. Facebook was also used to provide the information retrieved from MOI to promote people's health awareness.

¹ Tessaban Mueang Phanat Nikhom has 100 VHVs and each of them takes care of around 20 households. There are 3-5 groups of VHV visiting homes of the elderly to inform them about health care. During this emergency, VHVs have visited the elderly in communities once a month. In case patients didn't have any caregivers, VHVs have visited more frequently.

LINE has been commonly used within groups of communities, and the Tessaban uses it to communicate with citizens since the pandemic. There are different LINE groups invented whether the groups were integrated between public sectors or between private and public sectors. For example, apart from Tessaban's LINE group that was used to communicate directly to people, there was another LINE group that was used by Tessaban to communicate with VHV as a community engaging person. Most elderly with smartphones know how to use LINE, at least to type messages. Tessaban always updated the information through the application and the elderly can report issues to Tessaban.

VHVs were the key person also to generate 'Word of Mouth' and to cultivate awareness among people. They are the closest group to the community. VHVs regularly visited the elderly home once a month, hence they were able to share and inform on news on health care including health prevention guidelines. VHVs also have to collect the data of elderly people while they visit communities by using the SMART VHV application, which can calculate and evaluate the APL measure of the elderly.

5.2.3 Provision of Public Service

During COVID-19, the Tessaban always opened but they enforced strict social distancing starting from the entrance, such as temperature checks and wearing face masks in meetings.

Some public services, such as educational institutions and public parks, were ordered to suspend. Other services were allowed to open with strong preventive measures. This section will describe the main public services mentioned in the interview since they directly affected people's lives.

3) Transport Services

Most people in Phatnat Nikhom always travel within the district using their vehicles. Some elderly commute from place to place by bike or motorbike. There is also a city bus traveling between districts, for example, the Chonburi City Center to Phatnat Nikhom.

This city bus continued operations even during the pandemic, but the number of trips per day was reduced because passengers were decreasing. Social distancing measure was also enforced at the time.

After the central government lifted some restrictions, the number of trips has been increased to normal. However, public transport has to comply with social distancing measures when they operate.

4) Medical Services

There is only one hospital in Tessaban Mueang Phatnat Nikhom to accommodate the people within and nearby areas. During the pandemic of COVID-19, the hospital became crowded because people were aware of the infection. Although there were some people tend to avoid going to the hospital because there was the belief that the hospital was an infectious place. People who had a symptom that could be relevant to COVID-19 went to the hospital for health check-ups.

Hospital management was re-arranged due to COVID-19. The medical staff prioritized patients based on their symptoms. Although the classification and prioritization of the

patients based on the severity of the symptom have always been done previously, it became even more strict due to COVID-19.

The role of VHVs became to be more important as they had to engage themselves more with the hospital. VHVs is the person that is closest to the community, hence they always observe the wellness of the people in the community especially the elderly people and the bed patients. The vulnerable group tended to avoid going to the hospital because they felt concerned about the infection of COVID-19 while some of them still had to take medicine regularly. Hence, the hospital collaborated with VHVs to launch a 'delivery program' to distribute the medicine to the patients. VHVs were the persons who distributed medicines to the patients as prescribed by the doctor.

5) Education Services

School was regarded as a place that could assemble possible infections. Since there were health-sensitive children in schools, the central government announced to close all schools and universities in Thailand. Hence, the online courses and DLTV were promoted. It caused a commotion for many people in the country regarding the efficiency and standards of the curriculum. Accessibility was also an issue for some students due to the lack of knowledge on technology and electronic devices to access the internet. In Phatnat Nikhom, the online course was also promoted but could hardly be accessed by the students. Students were asked to stay at home, and they did not get to the lesson because the online courses were not well prepared. There were only DLTV by the central government, but the students did not need to watch.

After the deregulation on 1 June 2020, schools reopened with restriction measures of social distancing, condensing time of classes, arranging different lunch schedules for the students, and setting up checkpoints at all gates to ensure safety for the students.

6) Public Spaces

Public parks were asked to close during COVID-19 for 2-3 months due to the measure and awareness of the people. In normal situations, most people in the communities always went out to the stadiums and parks but due to the pandemic, they preferred staying at home and working out at home.

5.3 Impacts of COVID-19

5.3.1 General Impacts

The government imposed strong prevention measures, which led to the closure of the businesses. Later, it caused unemployment issues of the young people who worked outside Tessaban resulting in the loss of their family income during COVID-19. Some of the young people came back to start a small business in the area.

The downturn of the economy was the factor that spread the issues to society and public services. However, as the businesses in Phanat Nikhom have been focusing on local markets – no exports or imports to and from other provinces, the economy was still regarded as maintainable during COVID-19.

5.3.2 Economic Impact

Compared to other SFCI model cities, although Phanat Nikhom also received similar impacts from COVID-19 in the level of the economy, the magnitude of the impact was regarded as not so significant because of the city's nature that relies on local and domestic consumption, not tourism.

1) Commercial Sector

Wholesale and Retails

Wholesale and retail were the most economically influential sector of the city. Basketry is the key wholesale and retail business in Phanat Nikhom, and they normally distribute basketry and bamboo products across the country. After the central government announced to enter Phase 5, the basketry business around Phanat Nikhom became quiet, and some of the small basketry shops closed down. Basketry centers and other related businesses were generally regarded as 'unnecessary products,' and were ordered to close for around 2 months. This led to insufficient income while the monthly expenses were still the same. The income was less than normal because the retail shops could not make sales, and this caused the downturn in the wholesales.

However, there was a positive situation of a wholesaler in their B to B business. Therefore, there were still some businesses going on within this industry. The wholesalers from other cities still could purchase materials and finished goods from the basketry center even when the basketry center was asked to close due to COVID-19. There was some trading going on as there were needs for consumption from other cities.

The owner of the basketry center understood that COVID-19 is a temporary pandemic that would be demolished someday, so she wanted to try to maintain and secure the element that benefits her business in the long run as a supplier. During the lockdown, she still needed to procure bamboo materials from her suppliers as they requested although there was not much consumption from her customers at the time. She tried to preserve the relationships with her suppliers through this circumstance.

Other entrepreneurs also thought the COVID-19 was a temporary situation. The mayor does not regard the closedown of small businesses in the area as bankruptcy but thought

these small businesses are just temporarily closed and will reopen when the situation gets better.

Fresh Markets#

In addition to the basketry industry, fresh markets were also affected, although they were allowed to open during the announcement of the Emergency Decree. In the tessaban area, there is a large community fresh market of which products mostly are fresh vegetables, meats, and seafood transported from Chonburi City Center and Bang Sean area. For example, vegetables and eggs are transported from Chonburi Market Center, while seafood, crabs, and shrimp are transported from Bang Sean. The market is positioned as a sub-distributor for surrounding areas and restaurants. During COVID-19, there were fewer vendors at the markets because those originally not from Phanat Nikhom were prohibited to come into Phanat Nikhom especially when they did not have a permission paper provided by Tessaban. There were fewer customers, and vendors earned less income. The transportation of the products from Chonburi or Bang Saen was still allowed during COVID-19.

Most buyers are the people outside the city who can be classified as a daytime unregistered population. During the lockdown, the vendors, as well as buyers from outside of the city without permission, were not allowed to enter the city due to the prevention measure. There were only the vendors in the city who remained at the fresh market as well as few buyers.

Restaurants

As the restaurants were ordered to close during the emergency decree, some restaurants and coffee shops shifted that offline business to delivery business. However, the delivery business in Phanat Nikhom was not popular during that time because there were no huge online delivery services like Grab Food, Foodpanda, etc., in the city. The owner of a coffee shop hired a local motorbike to deliver their products during the lockdown. This circumstance affected their income to be reduced by 50% of the normal gross revenue.

The platform for the promotion was another concern. While the restaurants have both offline and online promotion channels, it is just on their platform. For example, they set up signage in front of their restaurant announcing they have a delivery service available and update this new service through Facebook. Since this promotion was too weak to attract customers, it affected the restaurant's income to reduce by 50% during the lockdown.

After the restrictions were lifted and restaurants have already been allowed to reopen, they must still practice the preventive measures. Income has been getting better so far although it does not meet the same level as pre-COVID-19. The mayor commented that the commerce in the Tessaban is still able to maintain a good performance after all.

2) Industrial Sector

The factories are located outside of the Tessaban area and some people living in Tessaban worked in those factories. The Tessaban revealed that there were some spare part factories gone bankrupt due to the economic downturn because their resources turned to be their burdens during COVID-19 such as human resources and maintenance cost of the machines.

3) Agricultural Sector

There was no issue with the transportation of agricultural products because most products are transported within the province, and the buyers are the people in the Phanat Nikhom area. There was also no agricultural products shortage issue that happened due to the pandemic of COVID-19.

A person returning to Phanat Nikhom due to losing their job decided to open a shaved ice shop in Phanat Nikhom said that there was no 'lack of goods' issue for his business as he could buy some fruits at the fresh market.

However, there was an issue that is relevant to another disease found in other countries, causing a shortage of pork. Due to this, pork from Thailand was exported to other countries, which led to a higher price of pork at the time.

4) Employment

During the pandemic of COVID-19, there were young people in Phanat Nikhom who got laid off because of workplace downsizing or closing down. Many people in Phanat Nikhom work outside the area, such as at the spare part factories and SKD/CKD factories in Chonburi. Those factories became bankrupt and closed down, which led to more unemployment. The unemployment of young people also affected the vulnerable group because they rely on the income of their children. These people decided to return to their hometowns to rest with their families, and some decided to start their businesses.

However, from the Tessaban's perspective, most people have their businesses or freelance careers, such as gardening, trading, agriculture, and merchants at the fresh market. Therefore, COVID-19 has affected people more in the economic picture than employment.

Jobs under the government sector, such as tessaban officials, were the most secure during the time. However, as the mayors mentioned, there was a lot of internal management in terms of finance in the Tessaban because the budget was insufficient. At some point, that could lead to job insecurity for the government officers.

5) Tax Revenue

The tax revenue postponement measure also affected the Tessaban, and they were not able to provide sufficient support to their citizens. As the central government tried to support people by slowing down tax collection and delaying it until August 2020, Tessaban then did not have enough budget to support their urban development projects. For example, Tessaban earlier expected to collect the land and construction tax for THB5.2 million by August, but in the end, they can collect only 10% of the entire amount. There was nothing much the Tessaban could do with THB520,000 for urban development. Therefore, all urban and infrastructure development projects had to be suspended and postponed until 2021. For instance, the establishment of a daycare center to which Tessaban received a THB20 million budget from the provincial office had to be delayed because of the payment process.

Another issue was raised on the collection of excise tax, VAT, and business tax that were also asked to be postponed. It led to the low income of Tessaban, and they received only 20% of all expected income in July 2020.

The mayor also had a concern about Tessaban's internal management because there were expenditures such as the office equipment or tools that Tessaban office had to purchase and pay for maintenance fee. These fixed costs also had to be slowed down at the moment until there would be tax collection completed.

6) New Created Services

There are new services created in Phanat Nikhom: (i) service extension to the same business and (ii) the new business by those who returned to Phanat Nikhom.

Service extension: delivery service

More restaurants put more focus on how to make their business more effective on delivery service. However, there is no big delivery service such as Grab food and Food Panda in Phanat Nikhom because the area is so small. Therefore, the restaurants hired their motorbike to provide delivery service.

New business

Some supposed newcomers in Phanat Nikhom were born there yet only worked outside the city. They only returned to the city because they lost their jobs. These mostly were young people who decided to start their small businesses in the city as temporary income to take care of their families. Some considered the value of their hometown more and how they could start a permanent business.

The income these young people generated per day after starting a business could not be compared to their previous salary. However, it was fine for them because they did not have high expectations of their business that started during the pandemic.

5.3.3 Social Impacts

1) Health

Mental Health: Elderly people especially got stressed due to the reason that they did not get to do activities with their friends as usual. The lack of income and the unemployment of their children affected them emotionally. However, these depressions did not create any harm to anyone on a physical level. There was a fear of the second wave and some concern about their expenditure because their savings may not last long.

In another perspective, Tessaban officers felt stress that happened from people having too high expectations of them. Some people requested support from Tessaban instantly without considering their self-capacity first. Tessaban had to work very hard internally to find a way to prevent the people from COVID-19 although there was a prevention basic guideline already shared with the people.

The economic downturn also effects to the people's mentality, and people were worried about the situation and the second wave.

Physical health: Working out at home was also an issue for the elderly because some of the houses do not have space to do activities. So, some of them could not work out at all during the pandemic, and that affected their physical health like weight gain.

2) Education

All educational institutions needed to close due to the preventive measures. The students had to stay at home and did not have clear activities. The central government provided an online course through DLTV. However, accessibility was a problem because some students, especially one in primary school, had no electronic device to access the lesson. Although some of them were able to access the course, the lesson did not fit with all students because some schools had different core curriculum. Also, some students could easily be distracted at home because they were asked by their family to help with the housework.

After studying at home for a long time, the Tessaban was concerned that the students would not want to come to the school because they did not want to get monitored by the teachers.

The schools were reopened in July 2020 with some prevention measures. Schools needed to arrange a conference for getting the parents trained about the prevention measures. Schools also needed to change the time such as time for each class to finish school, and time for each class to use the canteen to reduce congestion in those hours. General prevention measures were also applied such as social distancing, QR code scanning at the school's entrance. Students were asked to provide their dish and spoon to the school.

3) Social Activities

Tessaban Mueang Phanat Nikhom promoted to suspend events if they were not necessary, and some social activities were prohibited to arrange such as religious activities except the funeral, Songkran water festival, and annual basketry festival. The awareness of the people toward COVID-19 was so strong that somehow not much control was needed because people, especially the elderly abstained from those activities by themselves. For the funeral, it was allowed to organize with social distancing measures.

People also reduced the time to do the routine outside, such as to buy some food at the fresh market. Interaction between people was also reduced. All symptoms that could be interpreted as the possibility of infecting COVID-19 was noticed and monitored. Especially, as elderly people normally coughed sometimes because of their physical conditions, it might be considered as the symptom of COVID-19. This is one of the reasons why the elderly did not want to go outside as they did not want other people to think that they were infected.

4) Household Economy

Households have faced a decrease in household income. Most people in Tessaban Muang Phanat Nikhom are merchants and have their businesses as freelance. Some businesses like restaurants were ordered to close or stop operations because of monthly expenditures. But the income decreased and was too low during COVID-19. Vendors at the fresh market still had their business ongoing, but the income was not the same due to fewer buyers. For those reasons, the income of each household was reduced by 50–60%. Some young people who were laid off returned to Phanat Nikhom to start a small business also realized the income was still less than their previous salaries.

The elderly rely on the income of their children, so the unemployment or job loss of their children meant a decrease of income to all individuals in the family. While they were

somehow satisfied with the government's financial support of THB3000 per person, they understood that it would not be sufficient in long term.

5) Relationship of People in Community

During COVID-19, people in the city could maintain a good relationship through this circumstance and some of them mentioned that they found themselves and people around them to be more compassionate to support each other than ever because the awareness of giving was cultivated. For example, they always updated each other about the newcomers to the city and looked after each other.

COVID-19 caused people to have less communication even with their neighbors during that time since they had limited opportunities to communicate face to face. Some of the people were not able to see their friends and that caused stress over them. To address this situation, people have communicated with others through the LINE application. Most of the elderly people in Phanat Nikhom know how to text via the application and that could relieve the stress. Some families saw this as a good chance to be able to spend time with their children.

The Tessaban also promoted their Facebook Page to be a channel for the people in case there were any requests regarding COVID-19. It was a part of the reason that Phanat Nikhom has a strong community as that platform gathered people together.

6) Migration

The citizens were afraid and worried that some migrant workers who were going to return from other countries or provinces would be infected with the virus. In Phanat Nikhom, many migrant workers are working at factories located outside the city. Most are Cambodian and Burmese. Since the pandemic, some of them decided to return to their country and have not made the way back to work due to the prohibition of international traveling from the central government.

In contrast, the citizens were not afraid of the migrant workers who have always been staying in Phanat Nikhom. In case the migrant workers were sick, their boss was responsible because the migrant workers are not under the supervision of VHVs.

People, especially the young came back from other provinces to Phanat Nikhom to start a new job. For these people, VHVs made sure that they had done a quarantine for 14 days before living normal routines.

7) Security of City

Traffic Accident: There were fewer traffic accidents during COVID-19 because people did not go out, following staying at home measure.

Crime and Domestic Violence: The number of crimes decreased due to the Emergency Decree and curfew time, which includes stealing or robbing. There were still some social problems, such as brawls and teenage harassment.

5.3.4 Environment Impact

Air, water, and noise pollution: The air and water quality of Phanat Nikhom has been

always meeting the environmental standard and had no pollution issues reported. People in Tessaban noticed that air pollution and noise pollution became better because the commuting and the number of trips of public transport per day were reduced.

Waste management: Tessaban Mueang Phanat Nikhom normally collects garbage at 4 am every day and manages all the waste disposal by themselves without a private contractor. During COVID-19, the amount of rubbish in the city was reduced. The infected waste such as surgical masks was not found much at the time because the Tessaban promoted people to use fabric masks. The amount of plastic waste was reduced while the delivery services increased. The delivery service was not so promoted in Phanat Nikhom because restaurants did not use the delivery platform but hired a local motorbike to deliver to customers' homes. Also, the reason the plastic waste was reduced was the campaign to reduce the use of plastic bags by the central government. The convenience stores in the area did not give people plastic bags, instead encourage people to bring their bags to pack the stuff.

However, the Tessaban found there was a garbage issue caused by the people outside Tessaban. They brought litter, especially to around sub-community 1 area. This was calculated to be 50 bags of waste bags.

In summary, the Tessaban still can maintain a good system in air pollution and waste in the city and found the pollution became better during COVID-19.

5.3.5 Impacts on the Vulnerable People

Tessaban Mueang Phanat Nikhom has been facing the issue of an aging society because the young people moved out to work in other provinces to earn income for their families. Most of the vulnerable groups, both elderly people and bed-sick people normally stay with their families.

During COVID-19, the Public Health Division advised the vulnerable group to stay at home and asked their family to monitor them. They faced stress issues because they were not able to do many activities. Even when they needed to go outside, they tended not to spend much time completing tasks; buying food from the market, going to the temple. The elderly people have been very careful with protection measures by wearing face masks and social distancing. Some of the elderly people believed in the quality of the surgical mask more than the fabric mask because they were aware of the sensitivity of their health.

Elderly people in Phanat Nikhom were engaged in selling food at the market or selling some Thai sweets at the market. COVID-19 outbreak caused the economic issue not only for their own business but also for their whole households because most of them relied on the income of their children while their children got laid off during COVID-19. Some of the elderly entered to depressive illness due to the economic downturn and the less income.

The factor that affected the elderly on an emotional level the most was healthcare concern. Some of the elderly needed to see the doctor regularly. However, during COVID-19, the frequency to see the doctor was reduced because they believed that they could get infected with any kind of disease at the hospital very easily. Therefore, there was strong support provided to the elderly people in medication delivery.

Access to rescue money was another issue. The central government provided THB3,000 as rescue money for the elderly even though the amount was insufficient for daily living for a long time. There were also some limitations in the accessibility. Most elderly do not understand technology, and some of them do not have a smartphone. So, if their children were not home, they could not register to claim their rescue money. The only technology that the elderly people in Phanat Nikhom mentioned a lot during the interview was the LINE. They can type the message to their friends on the application, which seems to be the only channel of communication they understood the most.

VHV played an important role in taking care of elderly people as well. VHVs tried to deliver the medicine to the elderly's homes during COVID-19. Public Health Division also visited their home regularly to do the health checks. There has been health records of the elderly people kept in the application called 'SMART VHV' which is an important tool to understand their health condition. The health records also can be shared with the hospital.

5.4 Supportive and Rescue Measures for Recovery

5.4.1 Support for Household

1) Supportive Measure by Tessaban

The Tessaban received the budget from the provincial office as support to provide for the citizens. The Tessaban supported THB 1,000 per household with poverty. The community leaders also had to work closely with Tessaban on this project to identify the right family to receive this benefit because they know the background of the people in the communities. As of July 2020, 1,800 households received this support.

Tessaban also set up some donation kiosks to be the center to support in organizing the donation events. VHV's helped to organize the people to pick up the food and ensured that everything was controlled under the protection measure.

2) Supportive Measure given from Others

Central government: The central government provided THB 5,000 as the rescuing money to Thai citizens under the project called 'Rao Mai Thing Gun (We Stay Unite)' for three months. interviewees commented that this project was only for the people who had agricultural careers while there were the people other sectors also got impacted. In Phanat Nikhom, some people did not receive this remedy because they are not farmers. This project did not cover all people who received the impacts in Phanat Nikhom.

There was also another project launched to support the elderly people who are 60 years old and above to provide THB3,000 as a one-time remedy in July 2020. Most of the elderly people in Phanat Nikhom received this remedy while they were few people who did not receive it because they did not understand how to register.

Donations: During COVID-19, there were some donations made from both the private and public sectors. The hospital donated rice, dried food, canned fish, and eggs packed in a bag to distribute to the people.

There were 13 sharing cabinets set up within the Tessaban area. The concept of this 'Sharing Cabinet' was to promote compassion in the communities. Anyone could share the food put into in cabinet and anyone could take some stuff from the cabinet. It was found that some people took advantage of this benefit by taking a lot of food in the cabinet and stocking them. Moreover, the elderly people could not reach the sharing box because once they get there, all the food was already taken.

5.4.2 Recovery for Businesses

Since there were many small businesses closed down during COVID-19 in Phanat Nikhom, the recovery plan for the economy in Phanat Nikhom started after the government lifted the restriction. The mayor explained that the Tessaban had an economic boosting plan proposed to the central government. Market Village Project was proposed to the central government by the Tessaban at that time the government announced to provide the remedy of THB 400,000 million allocated to many municipalities. The Tessaban then decided to submit the proposal by using this project. Market Village project will be focusing

on OTOP products to sell at the market over the weekend. If this project is approved, the tentative date to start is in the fourth quarter of 2020.

Apart from Market Village Project, the Tessaban was also considering launching a walking street project because there is an interesting area for this project in Phanat Nikhom. The mayor commented that this could be an alternative project to help boost the economy.

Although the Tessaban was considering recovering its economy, the Basketry Centre mentioned there was no financial support from Tessaban. There was only 'Soft Loan' support from the banks, but there were too many conditions that made this project unattractive for people. The entrepreneurs thought this economic issue is a global issue, so it was understandable even though Tessaban does not support the businesses.

5.5 Behavioral Changes and New Normal

5.5.1 Business Sector

1) Online Business

Some businesses have been trying to shift their business online. People in Phanat Nikhom use the LINE application to text messages to their clients and supplier to sell and purchase stuff. There are not any other applications used due to the limitation that some services could not access into the area such as Foodpanda, Lineman, and Grab Food. However, this trend is not yet promoted well in Phanat Nikhom due to the lack of IT knowledge of the people as well as lack of knowledge on the online marketing of sellers.

2) New business

People who are from Phanat Nikhom and went to work in other provinces came back to start a small business, e.g., restaurant, café, and online business. For example, some people who worked in the factories and got laid off have come back to Phanat Nikhom to start their restaurant business and see the opportunity in the market of local people. Since Phanat Nikhom is a small area, the way to do promotion is mostly found offline, for example, through Words of Mouth and the signage in front of the restaurants.

People also started a second job, mostly online, for more security. Some of them imported stuff from China and sell on the online platform.

3) Employment

There were changes in the perspective of employment. A lot of businesses are planning on human resources restructure. Some restaurants that normally employed the people and paid the staff monthly salary turned to give the staff the daily wage and ask the staff to come on a different day to be able to support everyone.

5.5.2 Social Activities

Few people were joining social events. Even after lifting some restrictions, elderly people do not want to go out or just spend less time in social activities such as exercising, buying some stuff at the market, going to the temple.

Elderly people tended to be more careful than other groups of people by following the prevention measure strictly during COVID-19 and even after the announcement of deregulation. The Tessaban also promoted social distancing when there was a conference that needed to be held. Some meetings were organized with a limited number of people to engage in each topic.

5.5.3 Peoples' Awareness and Behaviors

1) Online Communication

People started to apply online channels into their daily communication to communicate with each other even when they keep staying home or social distancing. LINE application has been using in updating news. Also, Tessban has their Facebook page for the citizens to report any problems.

Telecommunication has been promoted tremendously whether through Zoom or Teams meeting. For example, teachers at the schools arrange classes through Zoom or Teams meetings. However, there was still a difficulty for some students because they don't have a proper electronic device to access.

2) Health Consciousness

In Phanat Nikhom, people became more concerned about their healthcare. Even now, people wear face masks before going out and some of them carry hand sanitizers all the time. The elderly maintain distance in crowded areas and spend less time at a certain place and events. They also use delivery service provided by the restaurants to avoid going to crowded places. While not all restaurants have this service because Phanat Nikhom is small, they tend to take out food to eat at home. They also avoid using public transportation and use their vehicle such as motorbikes to commute around the Tassaban as much as possible. Even after lifting the restrictions, fewer people use the public park than before to avoid getting crowded.

Some people go out to the park more or do more cycling because they would like to exercise to boost their immunity. One of the cycling club members in Phanat Nikhom mentioned that after lifting the restrictions, he got interested to do more cycling to boost his immunity against COVID-19. He noticed that people are now turning to take care of their health by themselves more.

3) Saving

People in Phanat Nikhom became more concerned about their savings and some of them start the financial plan. They reduce spending on food and stuff because they are aware of being more cost-effective. Saving become more important for them.

5.6 Further Needs

1) Collaboration to Apply Prevention Measures

While there was only one infected case found in Phanat Nikhom, it increased people's awareness of health care especially at the beginning of the outbreak. After lifting the restrictions, there was a possibility that the people would let their guard down by not wearing masks and taking care of their health. Therefore, the government sectors to private sectors should collaborate to cultivate the people's awareness on following the prevention measures.

2) Promotion of Economic Activities

The economy in Phanat Nikhom entered to economic downturn during COVID-19. Some retailed basketry shops closed and some of the restaurants faced the issue of not having customers due to the prevention measure and people do not want to go out. The mayor mentioned that the economy needs to be boosted because the restriction of inter-provincial travel has been lifted and Thailand already entered "zero cases" of COVID-19 infection. Therefore, Phanat Nikhom expected to attract the local people and people outside the city by starting Market Village Project which gathers all OTOP products to sell over the weekend. This project is under proposing process to the central government. Besides, there is also another project which is 'Phanat Nikhom Walking Street' which is under discussion of its feasibility. The mayor believed that if he could launch these two market projects, more people will come out, which will help to enhance Phanat Nikhom's economy.

3) Knowledge of IT

Due to the economic downturn, people have to adjust their business concept. However, a lot of people in Phanat Nikhom cannot understand IT and digital tools to do business. Therefore, there is no variety of business in Phanat Nikhom and businesses become more traditional. People need to understand more about IT to generate benefits for them. Since Phanat Nikhom is a small city, some new services such as Food Panda and Grabfood do not enter to support the enterprises. Therefore, channels for the consumers to access restaurants are not various. IT knowledge will help the enterprises to access the different groups of customers.

5.7 Future Development Perspectives

Although people in Phanat Nikhom relied on Tessaban's potential to support them during the pandemic, some other perspectives lead to the expectation toward future development as below.

1) Maintenance of City Tradition

Some of the development such as the construction of new buildings could eliminate the tradition of the city. The concern toward the development is that, if the city becomes too prosperous, there would be less local wisdom reserved. While Phanat Nikhom could be a good area for cycling if roads with the cycling lane are developed because the small size of the city area is suitable to go around by bicycle. However, it is important to consider how to maintain the city characteristics and traditions because new constructions may obstruct maintaining it and also a proper area for developing the city in line with the city context.

2) Strengthening of Elderly Network

The Tessaban has entered an aging society where the number of elderly is more than the young (of ages 25-45 years old). VHV's have always been trying to strengthen the network of the elderly. For this, they believe that the elderly network could be a platform for the elderly people to support each other and to support the coming age society soon.

3) Livable City for Young People

Since Phanat Nikhom entered an aging society, the Tessaban needs to develop the city to be livable for young people to maintain the city's energy. To respond to the young people's expectations, the support to boost the economy, including job opportunities for them should be promoted.

4) City with Compassion and Self-Awareness during Circumstances

COVID-19 has left a lesson with people that to fight with the circumstance, there is compassion needed within communities. In addition, the people in Phanat Nikhom have to respect the safety of themselves and others by having self-awareness on the prevention.

5.8 Implications to SFCI

Before the arrival of COVID-19, the public parks were regularly used by the elderly people and there had been aerobic dancing activity arranged at the park in the evening.

5.8.1 Current Situations of Projects under SFCI

The public park at Sub-Community 9 was closed and people were not allowed to use it from the beginning of March to 2 May 2020. However, during that time, the Tessaban asked the staff to take care of the park and clean it regularly.

The Tessaban purchased the exercise equipment in the park and established the public toilet outside the park. As discussed with the cleaning staff, most people use this park in the morning and the evening before COVID-19, particularly to do aerobics together.

On 3rd May 2020, the park reopened with the prevention measure; set-up of health checkpoint in front of the entrance. Since then, people do activities as normal such as line dancing in the evening together. Most of the users come by car, motorcycle, and by walk.



Source: JICA Project Team

Figure 5.8.1 Exercise Equipment installed in Public Park 9

5.8.2 Implications to SFCI

Tessaban Muang Phanat Nikhom raised the issue of how to respond to the expectation toward the development of the city to be a livable city. To respond to this issue, the result of the interviews highlighted the following two major parts that need to implement to support the elderly people and attract the young people back to the city;

1) Promotion of Establishment of Elderly Network

VHVs have been trying to promote the establishment of the elderly network. This elderly network is important for the elderly to have a platform to support each other and to be more self-reliant through emergencies. However, VHVs still need strong support to establish this network from the government sectors.

2) IT Knowledge Guideline

There is no variety in business in Phanat Nikhom because the main focused market is the

local people, even though Phanat Nikhom could be a center of commerce for inter-provincial people. As the challenge is the lack of IT knowledge of people, they could not distribute their products to other markets. IT knowledge guidelines will help businesses in Phanat Nikhom to create various businesses that could attract young people to come back and live in the city.

6. Impacts and Measures regarding COVID-19 in Phitsanulok

6.1 Overview of Phitsanulok

6.1.1 Characteristic of Socio-Economic Status



Source: JICA Project Team

Figure 6.1.1 Location of Phitsanulok

Tessaban Nakhon Phitsanulok is a flat area along the Nan River in the lower northern region of Thailand and the intersection between the North–South and East–West Corridor (221 km to Myanmar border). It is 60 km from Sukhothai, a famous tourist destination, 380 km from Bangkok, and 250 km from Chiang Mai.

Phitsanulok is not only a historical town but also a tourism destination and gateway to Sukhothai. It is a center of the lower northern provincial cluster in terms of economy, public service (higher education and healthcare), transportation, and logistics. The NESDC and Department of Public Works and Town and Country Planning (DPT) recognized Phitsanulok as a core urban center of the lower northern region and hub or intersection of Indochina North–South and East–West Corridors.

The Phitsanulok Province is an important agricultural product center known as the “Breadbasket of Thailand.” Tessaban Nakhon Phitsanulok, on the other hand, is an urban center functioning as the provincial administration and business center and public services center for education and medical care. As a tourism destination, in 2015, Phitsanulok had 1,666,000 domestic tourists and 148,000 foreign tourists.

An overview of Phitsanulok Province and the Tessaban Population, including aging rate, land area, and main economic activities, are summarized in Table 6.1.1.

Table 6.1.1 Overview of Phitsanulok Province and Tessaban Nakhon Phitsanulok

Population	
Changwat	865,247 with a provincial growth rate of about 0.05%
Tessaban	66,106 with a growth rate of about -1.39%
Aging rate (60+)	
Changwat	There are 166,057 people who are 60 years old and over which is about 19.2 %
Tessaban	There are 15,479 people who are 60 years old and over which is about 23.4 %
Area	
Changwat	Around 10,816 km ²
Tessaban	Around 18.26 km ²
Economy	
Changwat	Agricultural center, business center of lower norther region, tourist destination, transport and logistics, center of education
Tessaban	Provincial administration, business center, public services (education, healthcare)#

Note: Calculation of the growth rate used the data of population in 2019 and 2015.

Source: DOPA, 2019

Tessaban Nakhon Phitsanulok has strong leadership by the mayor and his management team. Together, in great collaboration with businesspersons, academics, and military men, Tessaban keeps a good relation by sharing the same vision.

6.1.2 Overview of Infection of COVID-19 in Phitsanulok

As shown in Table 6.1.2, Phitsanulok had a total of six cases as of June 2020. The first case was in March 2020. These infected cases were treated in the provincial hospital, and all have recovered.

Table 6.1.2 COVID-19 Infectious Status: Phitsanulok Province

1.1	Infectious Cases Number	1st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	0	3	6	6
	Active Cases	0	0	3	1	0
	Recovered Cases	0	0	0	5	6
	Death number	0	0	0	0	0
	Testing Number	0	0	146	250	301
	Local quarantine	N/A	N/A	N/A	N/A	N/A
1.2	Gender					
	Female	4				
	Male	2				
1.3	Age					
	Minimum	20				
	Maximum	59				
	Average	36				
1.4	Nationality					
	Thai	6				
	Others	0				

1.5	Date of first confirmed cases (Announced date)	26/03/2020
1.6	Transferred from other provinces	1 (BKK-PHS)

Note: The number of infected cases were collected on every 1st date of each month.

Source: MOPH, 2020 (provincial office) edited by JICA Project Team

6.2 Infection Prevention Measures

6.2.1 Infection Prevention Measure Taken by the Province and Municipality

1) Province

The central government authorized the provincial office to impose the preventive measures; thus, the Phitsanulok Province announced and began its preventive measures on 18 March 2020.

Since then, the international travels of government officials and state enterprises were prohibited. An exemption could be made only when necessary. In addition, people were prohibited from inter-provincial travel. Those from other provinces must quarantine for 14 days.

Public spaces closed as well, such as the boxing stadium, public parks, educational institutions, until April 2020. Wellness establishments, such as spa and massage parlors, and entertainment places, such as karaoke, cinemas, and game shops, as well as shopping malls and flea markets were also ordered to close. On 25 March, another order was announced to close and restrict the entry and exit of “At Three” Condominium residents because of an infected case. All residents of the condominium had to quarantine for 14 days. They received assistance from officers for food deliveries. Moreover, three cases were found in Phitsanulok on the same date.

The places ordered to close were gradually allowed to reopen in May 2020 following some preventive measures, such as social distancing and temperature checks. But they could not operate in the evening because of curfew. When bars and nightclubs were allowed to reopen on 7 May, they could not sell all alcoholic drinks. On 1 June, all businesses were allowed full operations, but some preventive measures, like social distancing and temperature checks, were still mandated for establishments and other places.

Apart from businesses and places, restaurants and coffee shops could only do deliveries. Beginning 31 March 2020, all convenient stores, namely 7-Eleven, Mini Big C, Lotus Express, and 108 Shop, were ordered to close from 11:00 p.m. to 5:00 a.m. Convenient stores also had to limit customer entry at a time and enforce social distancing. Banks and supermarkets remained open and fully operational as these were essential for the people’s daily life. Fresh markets also remained open to sell only food, including for pets.

In addition to imposing these preventive measures, Phitsanulok Province also provided ThermoScans to LAOs so they could work on their own and help prevent the further spread of the virus. LAOs set up health screening checkpoints at the entrance of all districts, including all communities that had to be supervised by village headmen and VHVs.¹

2) Tessaban

The Tessaban have worked closely with VHVs at the onset of the COVID-19 pandemic to fully support communities. The Tessaban, with support from VHVs, did temperature checks

¹ There are more than 600 VHVs responsible for 65 communities in Tessaban Nakhon Phitsanulok. Each VHV takes care of 45–50 households. Initially, the Tessaban supervised the VHVs, but now in Tessaban Nakhon Phitsanulok, the Phuttachinnarat Hospital does.

and medicine delivery. The Tessaban also prepared materials for VHVs to create fabric masks and distribute them to communities. Meanwhile, the VHVs on their own surveyed the communities to monitor newcomers.

VHVs have worked closely with the Tessaban and Department of Disease Control to manage migrants. For example, VHVs would monitor the quarantine of anyone coming from outside the city and provide health screening. VHVs were also asked by Provincial Office to standby at every temperature checkpoint. Besides creating fabric face masks, they also helped in ensuring people wore face masks.

According to the measures to close some businesses imposed by the province, the Tessaban has directly taken care of the fresh market and walking street. For the fresh market, the Tessaban disciplined people to follow the prevention measures such as wearing face masks, hand sanitizing, and keeping social distancing, and also limited the number of the market users by setting 4 m² per person and reducing the sellers by 50%. For the walking street, the sellers were reduced to 400 from 800. While the sellers sold products at the walking street every Saturday, they could sell only twice a month due to that measure.

The Tessaban also sent staff to check if all businesses impose all preventive measures, particularly during the peak of the pandemic. The staff also advised businesses of preventive measures recommended by MOPH.

Another preventive measure established during the pandemic was the surveillance system based on the idea from the vice mayor. It is like an online database system that records inbound and outbound travel. The database is linked to the hospital for the issuance of quarantine documents. A total of 239 cases from 53 communities were recorded who returned from risk areas.

6.2.2 Prevention Measure given from Others

Hotels in the city, namely Palapoma Hotel with a capacity of 80 rooms and Thepnakorn Hotel with 68 rooms, offered to become field hospitals. Lithai Hotel also offered temporary accommodation of 10 rooms for the medical staff.

6.2.3 Provision of Information

3) Information Provision Channel

During COVID-19, there were several channels to get information regarding COVID-19. Information on preventive measures is available on the official websites, Facebook Pages, and LINE groups of Tessaban Nakhon Phitsanulok and Phisanulok Province. The Tessaban, in particular, promoted their LINE group by posting its QR code in the Tessaban Office from the registration room to the toilets.

If people, including the vulnerable, in Phitsanulok could use LINE, they could join groups to receive updated information regarding COVID-19 infection cases and preventive measures. If they cannot use LINE, the children took on as an information source since they could access news updates and other necessary information via the LINE and Facebook mobile applications.

VHVs have been significant in helping promote and campaign preventive measures, such as wear face masks and regular hand washing. Moreover, they have also helped the government sectors in organizing screening checkpoints and distributing brochures. Having a strong relationship with communities, the VHVs is a good offline media source to interpret the preventive measures and medication information to the people.

4) Evaluation on Information Provision

Some people are still not quite knowledgeable on technology that offline channels were still preferred and seemingly the most reliable source for the people in Phitsanulok. The most reliable source in Tassaban Nakhon Phitsanulok at the height of the COVID-19 pandemic is television news, especially from the COVID-19 Center arranged by the Ministry of Public Health. It seemed to be the most popular, especially for the vulnerable, as they did not understand using mobile phones for news updates. The COVID-19 Center gave daily infection cases updates at 11:00 a.m. every day.

While the Tassaban also provided a car podcast to announce the news in Phitsanulok at 3:00 p.m. every day, the students commented on its limited accessibility because it covered only some communities. The elderly also complained because it disturbs their rest time.

6.2.4 Provision of Public Services

1) Transport Services

The pandemic had a huge impact on the transport sector in Phitsanulok because of the restriction on inter-provincial travel and international travel.

Flights. All flights were suspended during the lockdown. Although domestic flights eventually resumed, people from other provinces must still quarantine for 14 days upon their arrival.

Inter-provincial bus. There were no passengers, so inter-provincial bus trips were reduced from 20–30 rounds a day to only 2–4. Bus trips from Phitsanulok to Maesot and Myanmar were also reduced due to the restriction. With few travelers, the decrease in bus services caused an issue in agricultural exports of Phitsanulok, in turn, decreasing profits.

Songtaew. Both airconditioned and non-airconditioned songtaew that operates within the city and between cities was also affected. During the lockdown, the number of trips a day of songtaew was reduced. Not many people used it. Even though some people still needed to travel using it, social distancing could not be enforced due to the vehicle design. People sit in two rows and face each other. However, according to the vice mayor, the songtaew is not as effective, even pre-pandemic. There are few passengers, and DLT limits the routes. Only students and office workers use it during rush hour.

After the restriction was lifted, social distancing was implemented for all public transportation to lessen the number of passengers at a time, and wearing face masks in public transport was still enforced.

2) Medical Services

At the onset of the COVID-19 pandemic, the hospital operated with a more strict

management policy. For example, the hospital managed queues by postponing some non-critical appointments and required the vulnerable group who needed regular check-ups to receive prescribed medication in cooperation with each Tambon Health Promoting Hospital for medicine distribution without examination as well as the patients who did not need check-ups. The hospital asked VHVs to send medicines for those who could not pick them up, especially for the vulnerable. By doing this, the hospital could avoid crowdedness and prevent this high-risk group from COVID-19 infection. Alternatively, the relatives could pick up the medicine, or the hospital could arrange delivery. Moreover, relatives were prohibited from patient visits. Density in the hospital decreased by up to 50%.

For patients under investigation (PUI), as not all suspected cases were tested for COVID-19, those who want to get tested must meet the criteria required by the hospital. An example is if the patient went to an area with high transmission. There was a primary screening and online consultation via LINE.

3) Education Services

As imposed by the provincial office, all educational institutions were closed for a few months, so students could not study in schools. Online learning was offered to support primary, high schools, and college students, but it was not mandatory.

While the educational institutions fully reopened in July 2020, some measures like wearing face masks are still enforced. The public health division of Tassaban advised schools to apply preventive measures before the semester started, such as seating arrangement in classrooms, social distancing in school buses and classes, and allocating the number of students per class. Classes, especially those with more than 40 students, had to be divided into two groups, and the groups had to alternate class schedules. Their teachers were compelled to teach the same lesson twice.

6.3 Impacts of COVID-19

6.3.1 Economic Impacts

1) Overview of Economic Impacts

During the provincial lockdown announced in March 2020, Phitsanulok encountered economic issues similar to Khon Kaen. A threat caused by reduced logistics due to the Emergency Decree. The reduction of logistics limited transport time, eventually causing the downturn of the agricultural sector, which led to decreasing amount of export. Similar to Khon Kaen, the Phitsanulok Province positioned itself as a distribution center, especially on agriculture. It usually distributes products to markets in Bangkok. But some markets in Bangkok were only allowed shorter operating hours, so some vendors decided to close temporarily. Thus, Phitsanulok, as a distribution center, was unable to distribute agricultural products. Instead, it focused on selling domestically, leading to vendors' price-cutting and a decrease in farmers' income and profits.

The tourism sector, particularly hotels, was also highly affected. There were no tourists in the province, mainly the European and Chinese tourists or MICE tourists and businesspersons. One of the well-known hotels in Phitsanulok permanently closed. The owner decided to permanently close because he felt a potential economic downturn in three years, and COVID-19 had made that clearer. Some hotels targeting the Group Inclusive Tour (GIT) customers confirmed the same statement. However, other hotel operators continuously come up with and start other businesses.

To respond and cope with issues caused by the COVID-19 pandemic, some businessmen wanted to shift from their fields, such as hotels and restaurants, to organic farming under the principle of "Sufficiency Economy." A businessman currently running "Khok Nong Na Model"² (meaning the combination of agricultural area, pond, and rice field) turned his collapsed hotel business to rental property business. He considered starting a Khok Nong Na project after realizing he could only sell food as it is a basic need of people. Therefore, the hotel was turned into an organic farm aiming to sell organic vegetables to the local community and use them for his restaurants.

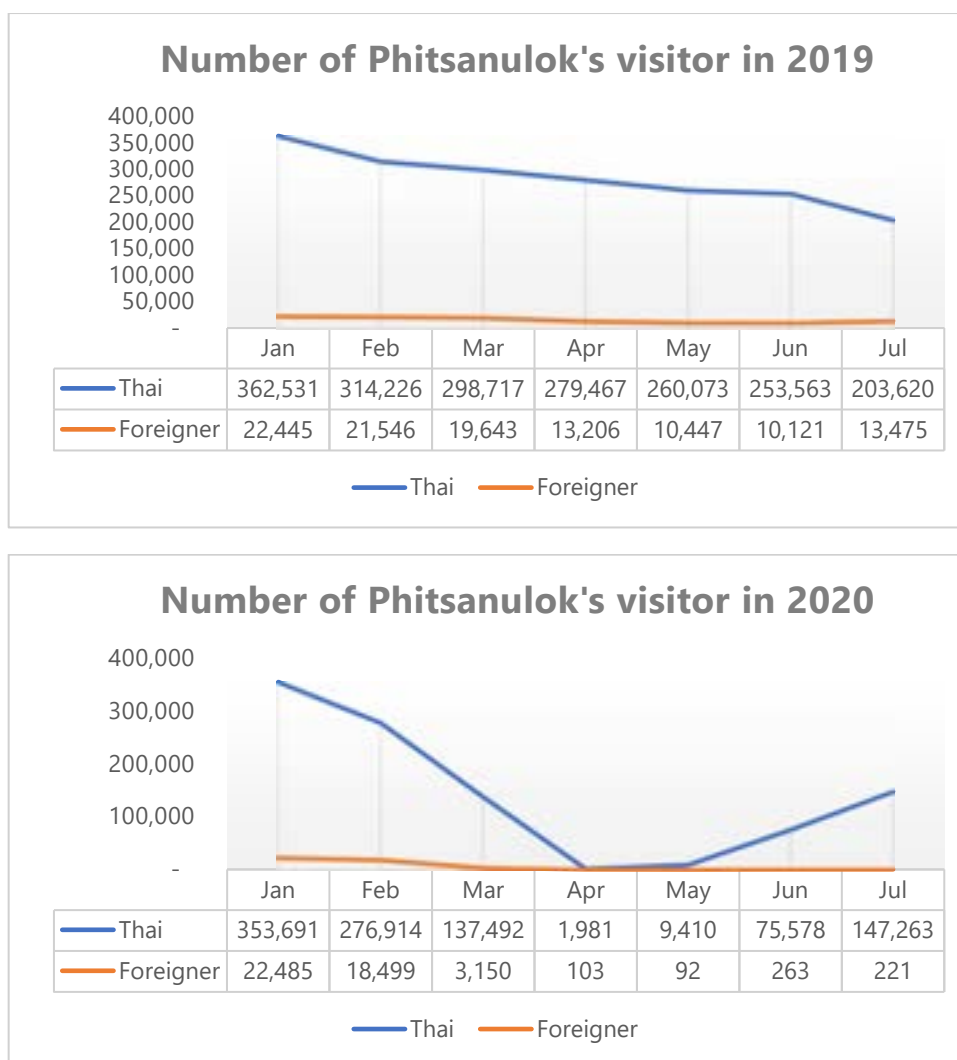
Some businesses believe they can still operate as usual after the lockdown. They decided to wait until the restriction was lifted and applied new strategies such as collaborating with their business partner to launch and promote interesting business concepts. For example, Shinnabura Hotel with their hotel business partner launched a tour program. Shinnabura Hotel did not only focus on their income but also how to help their business partners and makes the business become more interesting.

Overall, the impacts from the COVID-19 pandemic exist in various sectors, explained as follows.

² The Khok Nong Na Model is an approach for farmers to cultivate organic plants with the concept of sustainability through the sufficiency economy theory by creating areas that have suitable environment for agriculture, such as having a pond and rice field combining with nature in the area. It is a royal initiative of King Rama 9, with local wisdom, that revitalizes the local economy by creating jobs and generating income for farmers. #Khok" means a molded mound, "Nong" is a catchment where it forms a pond or small canal in the land, and "Na" is a rice field.

2) Tourism Sector

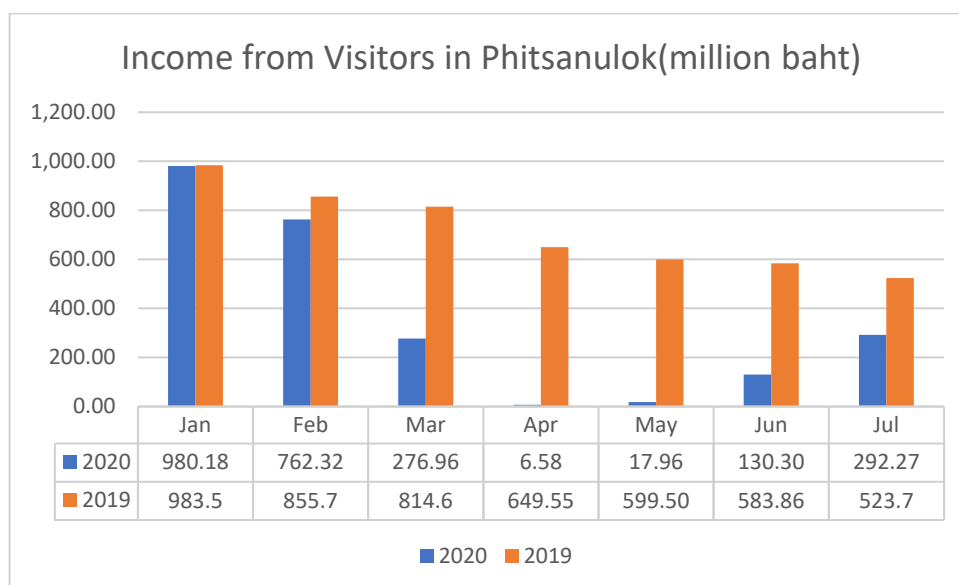
The tourism sector in Phitsanulok had the highest impact. Due to the restrictions in inter-provincial travel and international travel and closure of tourism spots (including Phra Sri Mahatatt Temple), Phitsanulok had no tourists. In 2019, Phitsanulok had 1,972,197 domestic tourists and 110,883 foreign tourists, as shown in Figure 6.3.1. The number of visitors had significantly decreased in 2020, especially in April and May.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 6.3.1 Number of Phitsanulok's Visitors in 2019 and 2020

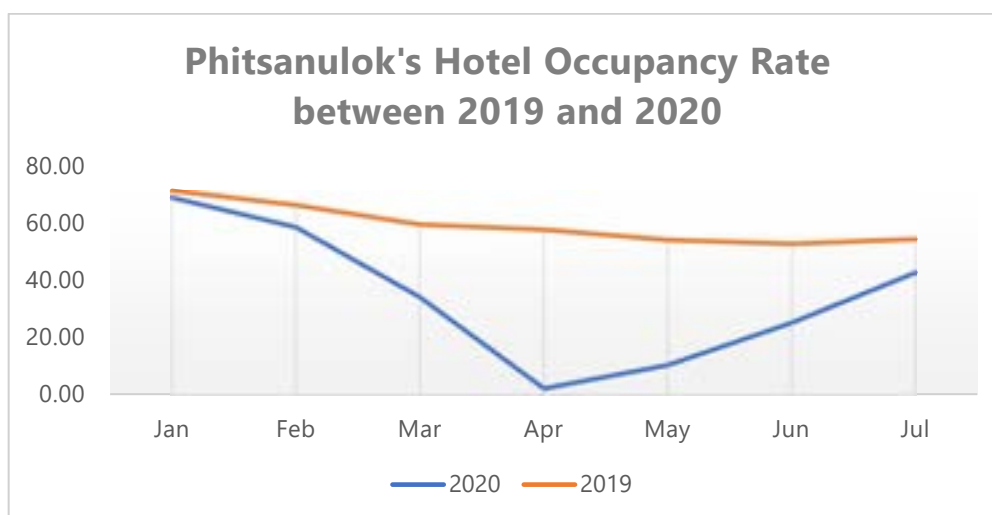
While the tourism sector in Phitsanulok was highly affected, as commented by the vice mayor, the structure of tourism in the province has always been an issue, even pre-pandemic. The province is full of historical tourism spots but lacks promotion for international travelers. Only Thai tourists come to the city, but only to pass for a different destination. Moreover, Thai tourists always spend less compared to international tourists. According to Figure 6.3.2, income generated from visitors sharply decreased in 2020 compared in 2019.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 6.3.2 Income from visitors in Phitsanulok between 2019 and 2020

Hotel business. As the number of foreign tourists dropped to zero due to border closure, the hotel businesses with a target market of European and Chinese tourists traveling from Phitsanulok to Sukhothai and Chiang Mai were highly affected. Three large hotels in Phitsanulok mainly serve foreigners, namely Imperial Hotel and Convention Centre Phitsanulok, the Grand Riverside Hotel, and Topland. During the provincial lockdown, income declined because hotels had to close, and foreign tourists canceled bookings. European countries, in particular, had many infection cases, and international travel in Thailand was restricted. In general, the hotel occupancy rate in 2020 in Phitsanulok has started to drop since February, as shown in Figure 6.3.3.



Source: Ministry of Tourism and Sport, 2020 edited by JICA Project Team

Figure 6.3.3 Phitsanulok Hotel Occupancy Rate between 2019 and 2020

Hotels that relied on MICE tourists and businesspersons were highly affected. The Dragon River View Hotel is one example. It is near Nan River, and its target market is Thai tourists, business group tours, and individual workers who come to Phitsanulok as it is a distribution

center. The owner of Dragon River View Hotel also runs nightclubs. His businesses fully engage in tourism. It could be interpreted that his businesses declined during the height of the pandemic. When the government ordered hotel businesses to close, the Dragon River View Hotel owner had to use savings to cover expenses. As a matter of fact, the hotel did not close during the outbreak. Hotels operating even during the outbreak could not receive any rescue monetary support from the central government.

After the central government lifted the restrictions and hotels reopened, hotels had to apply a cost-cutting strategy to attract customers. For example, the room rate per night was reduced from THB 1,200 to THB 950. Small-sized hotels can reduce rates easier than big hotels that prefer to maintain a high-class level for their customers. When comparing room capacities between small and big hotels, the former seems better. Small-sized hotels may hold a high market share in the daily lodging industry in Phitsanulok. However, cost-cutting could not be applied to every hotel, supposing some might prefer to maintain their branding. So far, room rates have returned to normal as Thai people began traveling again within the country in June, and the budget for conferences from the government is starting to be allocated. Hotels in Phitsanulok must think of ways to accommodate Thai tourists that could be further referenced for their development plan.

As another way to respond and cope with the situation, some hotels came up with a co-tourism package with other hotels using the history of Phisanulok as the selling point to promote tourism to foreign tourists. Online marketing has always been used for promotion but had not been beneficial at the height of the pandemic because the hotels could not estimate when they could reopen.

3) Commercial Sector

Flea Market and Fresh Market

During the COVID-19 outbreak, the government ordered the closing of the markets except those selling fresh food products, pet food, and medicines. Due to this, SMEs and vendors of clothes and gift shop products at the flea market on Mondays to Thursdays and walking street on Saturdays cannot sell and have no income. Therefore, some of them had to shift to online selling such as via Lazada and Shopee as well as Facebook Live.

On 3 May 2020, the provincial office allowed the walking street to reopen with the condition only 600 shops can open and sell every other week. It means each seller sold twice a month at most only. The provincial office also limited the flea market to accommodate only 1,500 customers at most.

The Public Health Division at the Phitsanulok Provincial Office provided the preventive measures to the vendors through their Facebook Page, which later changed the behavior or routine of the vendors and consumers. For example, when setting up their booths, they needed to follow social distancing measures by securing more space between each booth. The time for customers to purchase items at each booth was also limited, which means some vendors had generated less income. One of the measures also requested the vendors to prevent the customers touch the items to reduce the risk of infection, which affected the buying decision. In addition, the pandemic caused the customers to be mindful of purchasing items and realize the importance of savings. They did not want to buy

unnecessary products.

Although the fresh markets could open, they were permitted to sell only necessary products, such as fresh food, cooked food, take-away food, pet food, and medicines. The curfew also limited their business hours, which decreased some of the income of the vendors. Vendors could only earn just about half of the usual amount.

Restaurants, Bars, Café

As restaurants, bars, and cafés in Phitsanulok must close their dining area and only offer takeaway and delivery during the lockdown, according to the vice mayor, some decided to join online delivery platforms, such as Grab and Foodpanda. However, the restaurants must pay a high commission fee for these platforms.

Some restaurants also started to sell food online, such as chili paste shops. People became more interested in the non-interactive channels, such as Facebook Pages or other online marketplaces, although the restaurants could not reach their typical income.

After restaurants, bars, and cafés were allowed to reopen, they were faced with the issue that customers could stay for a limited time at only 2–3 hours. It meant less income for them. Salaries of the staff of restaurants were reduced by 50%, and some of them got laid off.

Retails and Shops

Some flea market shops and regular retail stores, especially the small ones, needed to close in March 2020. Only convenient stores opened to sell essential items, such as food, personal care, and medicines. Businesses with international tourists as the target market, such as the souvenir shops in flea markets, also needed to close. Closing flea markets caused the loss of income to sellers, especially when they had no other place to sell their items. According to interviews with some food business owners, they struggled with insufficient income when they had to close their business.

After lifting the restriction, some business owners did not want to reopen right away, knowing they would only have few customers. Their profits would not be able to cover expenses such as monthly rental and electricity fees. One interviewee stated that their income after the reopening had decreased by about 50%.

4) Agricultural Sector

As Phitsanulok is an agricultural hub in the northern part of Thailand and even across the country, the agricultural sector has had a huge impact from the pandemic. Since markets in Bangkok could only open for a limited time because of curfew, some agricultural retailers decided to close their shops. The Phitsanulok Province could not sufficiently distribute agricultural products. Around the same time, the province had to release products out as soon as it could since it was peak season. Thus, the prices of some fruits and vegetables dropped.

The issue happening to the logistics generated impacts to the agricultural sector. Phitsanulok typically exported vegetables to Mae Sot and Myanmar. However, during the outbreak, borders were closed and drivers must quarantine for 14 days at the immigration,

reducing the number of transport trips to the borders. Consequently, the vegetables could not be transited until the drivers were arranged, and the vegetables sometimes could not be exported and delivered in good conditions. That also caused the price deduction of vegetables, such as chili and lime.

5) Employment

With most hotels closed, many employees were discharged. In Rattana Park Hotel, only 15 of the staff were retained for maintenance because it wanted to change its business to rental property. Some hotels asked their staff to resign so hotels would not have to pay any separation or termination pay. Freelance workers had the problems once they resigned because they were not covered by the SSO system. Small restaurants also discharged their employees, and some restaurants reduced the salaries of their staff to half.

However, those hotels that opened even during the outbreak let some of their staff shift to other business units. For example, Shinnabura Hotel let some staff work on their food truck business. The compensation was per hour instead of per day or month. The owner must pay the minimum wage of THB 300 for eight working hours a day. Some small businesses could not afford the minimum wage because the business was not doing well during the onset of the pandemic, which also increased the rate of unemployment.

Migrant workers doing physical work at hotels also faced employment issues. According to the vice mayor, there were around 1,000 migrant workers in Tessaban Nakhon Phitsanuloks, mostly in ice factories, farms, constructions, and big restaurants. Normally, big restaurants can hire migrant workers because they know some officers that can help them expedite the hiring process. Small restaurants tend not to hire them. While some migrant workers returned to their home country, such as Myanmar, others stayed in Phitsanulok and asked their employers to keep supporting them by keep hiring because they had no jobs in their hometown. In that case, they had to accept the deduction of their wage and salary.

The stable careers, which could be regarded as "survivors" during the COVID-19 outbreak, were government officers and property owners, to name a few.

6) Tax Revenue

The problem with the revenue of the Tessaban was similar to other provinces. The Tessaban could not collect taxes due to the tax postponement. While LAOs had many orders to adopt and implement preventive measures, there was no budget.

7) New Created Services

Online business. Due to COVID-19 and the preventive measures, some businesses had to close. Instead, they focused on going online to maintain their business. Food shop owners, such as chili paste shop, started online marketing.

Delivery service. Restaurants focused on doing delivery services by using online platforms like Grab and Foodpanda. A local online food delivery platform, I-IMM Delivery, was also developed. The Youth Entrepreneur Camber of Phitsanulok decided to develop it to serve people in Phitsanulok. The concept of I-IMM Delivery is to promote local restaurants. The application targets to open the market in the provincial areas in Thailand such as Rayong, Phetchaboon, Prachinburi, Saraburi, Nakorn Phranom, Trat. Phitsanulok is one of the

provinces that brought this application to use in the area. I-IMM delivery did not collect commissions from the restaurants but takes a cut from delivery service, starting at a minimum of THB 29 for a trip. Around 50 restaurants in Phitsanulok joined I-IMM Delivery, such as Fah Thai Farm, Penang Steak, 350cal, and Feel Good Café. This service is only available in the Tessaban area and does not have many conditions for the restaurants to apply.

New business. Business owners who permanently shut down their business considered other kinds of business. For example, the owner of Rattana Park decided to start a business related to food and agriculture by applying the principle of "Sufficiency Economy." He also turned his hotel into a property rental business considering sustainability, and it is considered more stable than running a hotel, even if the income generated is lesser.

6.3.2 Social Impacts

1) Health

Mental health. The COVID-19 pandemic caused mental health impacts to people in Phitsanulok, but it varies for every individual. College and university students are the most stressed among other student levels because they were afraid the pandemic would affect any potential job opportunities after graduation. Some in the working class were not as stressed, having lesser burdens than others, while some were more stressed with the inadequate income to cover their monthly expenses. The owner of Rattana Park Hotel commented that people were stressed because they were not prepared for this kind of situation. It made them feel that they were swimming in the ocean with no shore in sight because the end of this situation was unknown.

The vulnerable was the least stressed for several reasons. Firstly, they hardly had concerns about their economic situation since they rely on the income of their children. Secondly, they saw the situation as beneficial for them, like with less noise pollution they could have a better sleep. VHVs also increased their visits for health checks, making them feel more secure. Still, the vulnerable group was worried about the second wave of COVID-19.

Fortunately, no alcoholic cases and issues were found in Phitsanulok during the COVID-19 outbreak.

Physical health. Physical health seems the only issue of the vulnerable group because of concerns on weight gain and unable to have regular health checkups at the hospital. Only VHVs visited for primary health checks. Even though people did not have physical health issues during the outbreak, there was still increased concern on health.

2) Education

All educational institutions were closed from March to June 2020. Since Phitsanulok is a center of education, impacts were seen among students, especially college and university students. University students in Phitsanulok mostly come from other provinces to study at Naresuan University. Due to the closure of schools, students had to return to their hometowns.

The university provided students with online classes and tests. However, due to some home

conditions with their families, it was not entirely conducive for learning. Also, some courses required group works, and students had difficulties arranging meetings with each other. Online lessons were somewhat ineffective for university students.

For college students, some schools could only provide certain online courses such as English. Since the college curriculum is not as intensive compared with a university course, the students were unable to study efficiently. But an online channel for college students to communicate with their supervisors was made available.

Even though schools provided online courses, especially for primary and high school, the students could not concentrate well on the lessons because of distractions such as housework, games, and online chats. Parents could not also help well on the lessons, so students communicated with their friends and teachers online instead. Accessibility is another issue. Some students have no devices to use to access the online courses.

Students were more stressed being unable to meet up with friends during the lockdown. Not to mention, they had to stay home with family members whose generations are different. The students only spent more time on their electronic devices.

While educational institutions reopened on 14 June 2020, strong preventive measures had to be implemented. Social distancing was practiced. For example, arrange alternating schedules for classes while reducing the number of student attendees. But this compelled teachers to teach the same lesson twice. Students were also divided into two groups for lunchtime. For some time, not all students could attend school after reopening, until the 1st of July when schools fully reopened with enforced preventive measures like wearing face masks and frequent washing of hands.

Students, especially the university and college students, had a sense of insecurity of finding good job opportunities after graduation let alone a permanent job.

3) Social Activities

All social activities were prohibited during the COVID-19 outbreak. The usual traditional dancing of the elderly at the public park was not allowed anymore, so the elderly had to stay home and did not communicate much with people. When the public park reopened, people returned but had to wear masks wherever they went. The time spent outdoors is also limited.

During the restrictions, funerals were allowed but needed to do social distancing. VHV's took care of health screening at the entrance of the event. Although most activities were suspended during COVID-19, people still maintain strong relationships with each other.

4) Household Economy

Another economic effect of COVID-19 is on household income. Some workers in the agricultural sector could not export agricultural products to other countries, such as rice for Myanmar. Those who worked in other cities got laid off. These are few reasons that sharply decreased incomes of households. Although the central government gave financial support of THB 5,000 for each person, it was still insufficient for households.

Most workers in Phitsanulok who lost their jobs (by being discharged) are part of the

hidden population, so this could not indicate that dismissals of people in Tessaban Nakhon Phitsanulok would directly affect the household income of people in the Tessaban. People originally from Phitsanulok or registered as citizens tend to continue their business during COVID-19, while some businesses shut down. For example, the vendors at the flea market could not generate the same amount of income as before.

5) Relationship of People in Society

Although communities in Phitsanulok were stressed over the COVID-19 pandemic, the relationships among the people became stronger with a fundamental sense of compassion. Even if total lockdown of establishments and suspension of activities forced people to stay home and made vulnerable people feel lonely, social relationships were maintained using online channels to communicate.

The elderly enjoyed spending time at home with their children when they needed to move back to Phitsanulok as they lost their jobs and schools closed. Some began planting vegetables in front of their houses and shared them with their neighbors.

After the lockdown, people began to support each other's businesses. For example, the Food Association arranged the flea market in shopping malls. They consulted a plan for business development each other. In summary, the relationships the communities strengthened because they looked after each other more.

6) Migration

Around 40,000–50,000 non-registered population work in Tessaban Nakhon Phitsanulok. Most persons in the service sector are in the hidden population. During the lockdown, these workers did not return to their hometown because they did not want to quarantine. So, they tried to seek working opportunities in Phitsanulok as a freelance or business owner.

If workers returned to their hometowns in areas included in the red flag list of the Tessaban, they had to be reported to the Department of Disease Control for health checks. They would then be quarantined at the hospital or field hospital provided by the provincial office while waiting for the health check results.

Many of the students from outside Tessaban and the province go to Phitsanulok as an educational city, but during the outbreak, the students returned to their hometown while some returned to Phitsanulok.

There were around 1,000 migrant workers in Tessaban area, mostly from Myanmar. During COVID-19, some of them returned to their country while some remained to work in restaurants doing only take-aways.

7) Security of City

The Tessaban noticed no crimes occurred during the lockdown because people stayed at home. The city became safer. Also, with fewer cars on the road, traffic accidents decreased.

6.3.3 Environmental Impacts

Noise and air pollution. Because of the curfew announced by the central government, which asked everyone to stay home after 8 p.m., the noise pollution improved. The closure

of the nightclubs also improved noise pollution. As the traffic decreased, air pollution also became better.

Waste management. The only negative environmental impact of COVID-19 in Phitsanulok is waste. Most of the waste generated since the pandemic was from food deliveries. Even if “no foam packaging” was promoted in Phitsanulok, most of the wastes were general or residual wastes, such as paper and plastic. But even if the wastes generated from delivery service increased, the total amount was reduced by about 15%. So far, communities do not segregate wastes, although the government has tried to promote it by putting bins in streets for different types of wastes. Used disposable face masks were still disposed of together with other wastes in plastic bags. However, as more people in Tassaban use fabric masks, there was less concern on the waste management issue of the possible infectious waste.

6.3.4 Impacts to Vulnerable People

The elderly in Phitsanulok rely on the income of their children. Some of them have businesses such as fruit and vegetable selling at the markets or the center for the elderly. During COVID-19, some of them faced financial issues because their children lost their jobs. As the center for the elderly was also closed during the COVID-19 outbreak, the elderly who normally sell fruits and vegetables there could not anymore. They needed to find another way to sell, so they mostly relied on their connections to distribute the products.

Interaction among the elderly and with others was reduced. As the elderly had to be more careful, they went to the market in the morning to avoid the crowd and spent limited time outdoors.

The elderly also experienced health issues from the pandemic, essentially feeling stressed because they could not communicate with friends. They had to stay home, and the elderly center was closed. However, this does not compare to other age groups. Although they only stayed home and watched TV, it could compare with interacting with people of the same age. Also, with public parks closed, they could only exercise at home. But some could not, leading to gaining weight.

In terms of the care for the elderly, VHVs would do health checks every 15 days. Their families would closely monitor, providing more sense of security. The elderly could get access to medication through VHVs or their family. Prescription medicines would be from the pharmacy. There were instances their doctor's appointments had to be postponed, but they did not want to go to the hospital during COVID-19 anyway.

Nonetheless, the lockdown had some positive impacts on the elderly. They had more time with their children while their children would normally be away working outside the city. Their children or grandchildren also had a positive impact, especially for the elderly who would like to understand more about technology. The elderly learned how to use chat apps or social networks. They were able to connect with their friends online.

6.4 Supportive and Rescue Measures for Recovery

6.4.1 Support for Household

1) Supportive Measure by Tessaban

The Tessaban, supported by VHVs, distributed survival bags to people in communities. It coordinated with the community leaders to select the people who could receive the survival bags. For the poor, the Tessaban provided coupons for free food.

Happiness cupboards were set up around the Tessaban. However, VHVs claimed that this concept might not work because it could not reach the poor.

For those not knowing how to access the financial support from the central government, Tessaban set up a booth for three days to teach people how to put details into the system. However, the problem was Tessaban received short notice from the provincial office, limiting the support they could give the people.

2) Supportive Measures given from Others

Central government. Although there were some criticisms of the financial support from the central government, which could not solve the problems in the long term, some people still needed it because they lost their income. However, it was limited; not everyone had access to it.

Other donors. Many outside donors provided life-saving bags for the people in the community by coordinating through the Tessaban. The community leaders helped check the life-saving bags. Some donors came and distributed food. Some had set up their donation booths at the temples with direct coordination with the temple, and the monks helped in food distribution.

Food distribution points were set up by private donors and government sectors at the temples and schools. There were around 10 distribution points per day, and VHVs stood by at each booth to check the temperature of the people, ensured social distancing, and helped in food distribution.

6.4.2 Recovery of Businesses

According to COC, SME businesses received the highest impact during the situation. However, the Tessaban stated in an interview that it could not give enough support to businesses or communities due to the many limitations, such as the conditions set by the central government. Therefore, there was no solid plan from Tessaban to boost the economy in its area apart from just following the central government policies. To sustain businesses and communities, many have followed and integrated the Sufficiency Economy Principles into their lives. In fact, business recovery will depend on the measures and further plans of the government. Entrepreneurs need strong support from the government; meanwhile, the government measures imposed have so far not met their needs.

The central government launched a program, "Tiew Pun Suk (We Travel Together)," to boost tourism. People had to register in this program to get discounts like a hotel discount. Hotels in Phitsanulok participated in the program. An interview with a student revealed

they do not find the program useful, and they do not want to register for it when previous programs by the government have not been useful for them. COC commented that the program is a waste of money when only the rich can use it for traveling around Thailand. Several areas without tourism spots cannot enjoy the benefits of Tiew Pun Suk, so the hotels in such areas did not participate in it.

6.5 Behavioral Change and New Normal

People have adapted to the new normal after becoming more aware of COVID-19 and its likeliness of a second wave.

6.5.1 Business Sector

Online platform and delivery. Since the COVID-19 outbreak, the interaction between people has reduced, prompting businesses to join online channels to continue to respond to the needs of their customers. Restaurants in Phitsanulok joined online delivery platforms, such as Grab and Foodpanda. People, especially the younger generation, ordered food through those online platforms. However, as third-party online delivery services charge high commission rates, it was seen as a limitation. Therefore, some took this opportunity to launch a new local platform called I-IMM delivery. It does not collect any commission from restaurants. Sellers who sold goods only at offline shops began to consider using online channels. They created Facebook pages to reach more customers because the shopping behavior of people has changed. A chili paste shop in Phitsanulok opened its Facebook Page for customers to order online. However, people in Phitsanulok had limited knowledge of online channels, especially the elderly who are only familiar with LINE would like to start an online business to sell items to their contacts.

Hygiene Concerns. Restaurants, cafés, massage parlors, shopping mall, and hotels have been more concerned with hygiene and sanitation. Each establishment must increase the frequency of cleaning. The shopping mall needs to clean the toilets every hour. Hotels and massage parlors must wash and change bed sheets after use. Alcohol gels are provided at entrances of these establishments, and customers must wear face masks before entering.

Time Concern. After lifting the restrictions, businesses reopened with the condition of limited operation time. Salons could serve a customer only for 2 hours at most, so the available services are limited. Some customers were not able to have a hair spa or hair dye. Massage parlors, similarly, could accommodate a customer for 2 hours at most. People, generally, spent less time outside even after the restriction was lifted.

6.5.2 Social Activities

When people did any social activities, checkpoint(s) and seat blacking needed to be provided. People began wearing face masks and spent less time doing social activities. For example, when people gathered at the public park to dance, VHV's were at checkpoints for temperature checks. People were more careful talking with each other, and they did not want to stand close together. The elderly who normally go to temples spent less time and did not want to go often. Places like markets limit the number of people to avoid crowdedness.

6.5.3 Peoples' Awareness and Behaviors

People in communities came together to collaborate by taking actions to prevent the spread of COVID-19. Newcomers were monitored, but at the same time, they tried to know people in their area. Relationships in the community became strengthened. It encouraged

working together to protect communities even after the lockdown.

With the compassion created because of the situation, people grouped more often to brainstorm ideas to sustain their businesses. They realized the importance of locality and tried to promote local wisdom. For example, the hotels collaborated to create a tour program, and members of the food association organized a meeting to set up a flea market in the shopping mall. Also, the food association wanted the young generation to join the group because they understand that more people will be more interested in the food business.

The availability of online channels changed the minds and behavior of people. When online channels were used for education, the students found being in school is not only the way to learn. For businesses, sellers began to look at online sales channels, such as Lazada and Shopee.

Phitsanulok locals have become more aware of saving and being financially prepared in this circumstance. People spend less money when they go outside.

6.6 Further Needs

1) Continuous Prevention Measure

The second wave has become a concern of Phitsanulok locals. Hotels, so far, still compete on rates to revive their business just after reopening. Tourism is still being promoted, and businesses, like hotels, are trying to support that process. Even though people rely on their local government, which has enough potential to manage the second wave, Phitsanulok has to cultivate awareness on self-protection and community protection until the global pandemic stops. For this to happen, the simple action is to strictly follow the preventive measures by wearing a face mask and care for hygiene in every place .

VHVs still need to monitor the health of people and promote primary protection measures. They also still need to standby at checkpoints of any events. According to the comments by VHVs in Tessaban Nakhon Phitsanulok, they still need strong support from the provincial office, such as being provided with sufficient medical equipment.

2) Economic Recovery Assistance

Agriculture, tourism, and SMEs are the business sectors that were greatly affected by the preventive measures. COC mentioned that the recovery for businesses must depend on the measures and further plans of the government. Entrepreneurs need strong support from the government, but the measures imposed so far by the government have not met their needs.

Supports for employers/ business owners and SMEs

COC stated that the current measures from the central government do not respond to the needs of the business owners as it only targeted helping employees. For example, employees would receive benefits from SSO after being discharged from work; whereas employers do not get any benefits to support their business. Therefore, COC suggested for the central government to support employers to boost the economy and employment.

Two types of loans are available as rescue measures: (i) the loan for economic revitalization with an overall budget of THB 1 trillion, and (ii) "soft loan" with an overall budget of THB 500,000 million and interest of 1%–2%. According to COC, the loan for economic revitalization has three categories for compensation allocation, one of which is for the people, farmers, and business sector. However, it mainly supports the big-sized businesses with high investment. Examples are big FMCG, foreign investors, and big industries. So, it was difficult for SMEs in Phitsanulok to avail of this support even though they were seriously affected by the pandemic. While businesses in Bangkok and foreign companies could access this loan, none in Phitsanulok could.

The soft loan aims to help small businesses and SMEs, and each company must negotiate with their bank to avail it. The Bank of Thailand has set conditions for the soft loan, limiting those that can access it. Mainly, businesses with negative financial accounts are blacklisted. Only 15 businesses in Phitsanulok were able to acquire a soft loan. It should be noted that such conditions may provoke a negative impact in the future. Businesses that do not qualify for the soft loan could get into a "shark loan," which is illegal outside the formal system. Shark loan cases could increase after October, and in the long term, this could affect all

businesses and their lives.

COC suggested for the government to consider promoting small businesses and SMEs, so they could employ or keep staff. Financial support provided by the central government is wasted because it could not fix the problem in the long term. Also, the loan that the government provides to SMEs has too many conditions. In Phitsanulok, there are only 15 entrepreneurs that could apply for a soft loan.

Employment promotion in the city

Employment in the city should support those who lost their jobs during the outbreak. Phitsanulok receives support from the central government for the many infrastructure development projects opportunities, but the contractors that won the biddings are from Bangkok. Phitsanulok lost any potential profit and income from those infrastructure development projects. COC suggested that the local contractors in the province should take these projects to increase employment for the locals.

3) Promotion of Online Course

During the COVID-19 outbreak, a problem seen in online learning was not all subjects could be available for college students. There was only an online course for English. For the rest of the subjects, the students had to self-study. Schools must prepare online courses for all subjects in case a second wave happens, so the education sector will not get affected as much again.

4) Continuous Pollution Control

Phitsanulok is a city of transport and logistics. During the lockdown, there was a reduction in traffic-generated air and noise pollution. Many people, especially the elderly, could have a quality of sleep. People expect the local government to sustain this environment quality even after COVID-19.

5) Supports for VHVs

Even VHVs play important roles in communities because they must ensure that people are in good health and maintain it. However, there were only around 600 VHVs in Tassaban Nakhon Phitsanulok, and the quota of VHVs is limited to only 700 persons. Meanwhile, there is a workload issue that each VHV has to take care of 45-50 households, which is relatively higher than in other cities. Several people in the community commented that they did not get their health check from VHVs, to which the VHVs explained that Tassaban Nakhon Phitsanulok is too large to cover when they have limited people. VHVs are now under the supervision of Phuttachinnarat Hospital, which means they receive more work from the hospital on top of their work assigned by Tassaban and the provincial office. There was also a coordination issue between VHVs and the provincial office. For example, the provincial office asked VHVs to standby at the checkpoints during the lockdown, but the former did not pay the VHVs the same amount they initially agreed on. It is because there was a miscommunication happen in the documentation.

To solve these issues, VHVs must be strongly supported by the provincial office with a clarified scope of work and a reliable payment system. In addition, the number of VHVs in Tassaban Nakhon Phitsanulok is too limited compared with the total population number,

including the hidden population of about 40,000–50,000 people. It would be better to have a higher number of VHVs to be suitable with the population number.

6.7 Future Development Perspectives

The Tessaban assumed that the economy of Thailand would be inactive for 2–3 years due to COVID-19. However, the Tessaban cannot entirely support this term of the economy because they do not have the authority to plan strategically. They can only rely on the plan from the central government, which sometimes does not respond to the needs of the citizens.

The COC mentioned that becoming a MICE city could develop tourism in Phitsanulok. But while seminars and conferences are expected to be promoted within Phitsanulok, offices from the local government would instead arrange seminars at other provinces for a bigger budget allocation from the central government. Promoting MICE city tourism and seminar in Phitsanulok would assist money flow in the city.

6.8 Implications to SFCI

6.8.1 Current Situations of Projects under SFCI

1) Capacity Development

Human development programs for the Tessaban staff are for them to learn easy coordination with many sectors. It has developed connections and networks within the Tessaban staff, resulting in smooth communication and effective outcomes.

2) Data Collection

The database system supports the Tessaban to identify the vulnerable group that must be prioritized. It can also save a lot of time. The system is linked with hospital data, so it becomes more efficient in the process of identification.

6.8.2 Implication to SFCI

The economic decline has already been happening in the last few years, and people see it more now because of the situation. Some people, however, were not prepared for this circumstance. They did not try to expand their knowledge by learning IT and online marketing. Still using the traditional method of sales, it has become difficult to generate income during the pandemic.

SFCI provides the Tessaban the lessons learned to project their future vision and reflect it into a long-term plan. Therefore, under emergency circumstances like this COVID-19 pandemic, the method could be useful for the future development of the city.

6.9 Other Issues Raised

1) Dam Project

Tessaban Nakhon Phitsanulok has proposed plans for the dam project under the emergency decree budget of THB 400,000 million. The original objective of the dam project was for flood protection, but the central government set conditions on plan and location readiness to use the budget. The objective was modified for local tourism promotion with

the beautification of the dam landscape. But the Tessaban could not prepare a new plan on time, so it picked up one of its existing projects. However, it is still uncertain whether they can receive the budget or not.

2) Decentralization

Decentralization has become a topic that Tessaban would like the central government to promote. LAOs could not come up with any new plans because the National Strategy frames the direction of the development. They also do not have the freedom to develop the city themselves even though they are familiar with the area and usually responsible for the implementation process.

7. COVID-19 Impacts and Response on it in Tessaban Mueang Chumphon

7.1 Overview of Chumphon

7.1.1 Socio-Economic Characteristics



Source: Chumphon Provincial Development Plan 2018 - 2022

Figure 7.1.1 Location of Chumphon

Chumphon Province is at the top of the southern region on the narrow Kra Isthmus of the Malay Peninsula, connecting the center of Thailand to the south of Thailand. It is 498 km away from Bangkok and is known for coral reefs and a long coastline with beaches.

Cradled by the Phuket mountains, the capital of Chumphon Province, Tessaban Mueang Chumphon, is a gateway to tropical islands, including the popular Ko Tao (part of Surat Thani Province). Tessaban Mueang Chumphon is on Praminthon Road in Tha Taphao Subdistrict, Mueang Chumphon District, Chumphon Province, which is a community area with commercial and service activities. It is approximately 463 km from Bangkok by car and

485 km by train. Its area is 21.10 km², covering the entire area of Tha Taphao Subdistrict and some areas of Bang Mak Subdistrict, Tak Daet Subdistrict, Wang Phai Subdistrict, Na Thung Subdistrict, and Khun Krating Subdistrict. The area is generally plain along the river. Since Tessaban Mueang Chumphon is between the Tanaosri mountain range on the west and the coastal area on the east, it slopes to the sea from the west to the east. Most of its population engages in trading, especially in the community where commercial establishments are mostly service shops and retail stores consisting of various service outlets, such as food, beverage, miscellaneous goods, beauty parlors, etc. Other occupations seen in the surrounding area include farming, orchard planting, and fishing.

Details on population, aging rate, land area, and main economic activities of the province and Tessaban are summarized in Table 7.1.1.

Table 7.1.1 Overview of Chumphon Province and Tessaban Mueang Chumphon

Population	
Province	511,304 The annual growth rate is about 0.27%.
Tessaban	33,654 The annual growth rate is about 0.05%.
Aging rate (60+)	
Province	90,255 which is about 17.7%
Tessaban	6,900 which is about 20.5%
Area	
Province	6,010.849 km ²
Tessaban	21.1 km ²
Economy	
Province	Agriculture 80% of the people engage in agricultural sector. The main economic crops are oil palm, rubber, coffee, durian, coconut, and mangosteen.
Tessaban	Main economy in Tessaban Mueang Chumphon areas is in service sector which includes trading.

Note: The growth rate was calculated based on the data of population in 2019 and 2015.

Source: DOPA, 2019

7.1.2 Overview of Infection Status of COVID-19 in Chumphon

Chumphon had 21 cases with 18 recovered and 3 deaths. The average age in death cases was 45 years old. Regarding gender, all COVID-19 patients were 2 males, 19 females, and 0 unspecified. The first case found in Tessaban Mueang Chumphon was a student from Bangkok. The rate of disease occurrence within the last 14 days (as of 29 July 2020) was 0, meaning no new cases in Chumphon to date. Chumphon Provincial Operation Center reports daily the number of new cases, recovered cases, number of cases under surveillance for 14-day quarantine, and all active findings and investigations.

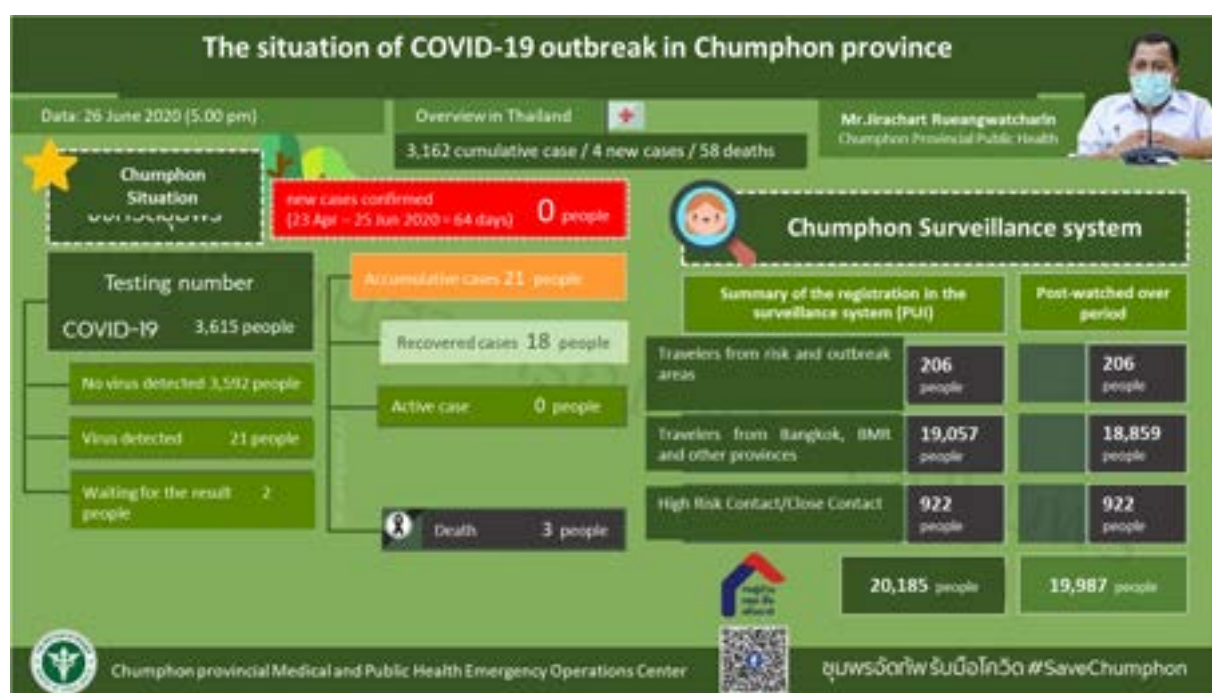
Table 7.1.2 shows the overall COVID-19 infectious status in Chumphon, while Figure 7.1.2 illustrates the daily summary.

Table 7.1.2 COVID-19 Infectious Status: Chumphon Province

1.1	Infectious Cases Number	1 st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	0	1	21	21
	Active Cases	0	0	1	15	1
	Recovered Cases	0	0	0	4	17
	Death number	0	0	0	2	3
	Testing Number (PUI)	N/A	N/A	43	1,697	2,851
	Local quarantine	N/A	N/A	N/A	N/A	N/A
1.2	Gender					
	Female	19				
	Male	2				
1.3	Age					
	Minimum	2				
	Maximum	85				
	Average	45				
1.4	Nationality					
	Thai	21				
	Others	0				
1.5	Date of first confirmed cases (Announced date)	28 March 2020				
1.6	Transferred from other provinces	0				

Note: The number of infected cases were collected on every 1st day of each month.

Source: MOPH, 2020 (provincial office) edited by JICA Project Team



Source: Chumphon Provincial Operation Center

Figure 7.1.2 Illustration of Daily Summary Found on Chumphon Provincial Website

7.2 Infection Prevention Measures

The key timeline of responses and measures of Chumphon against COVID-19 is mandatory and must be in accordance with the timeline of the nation's state of emergency requirements. However, Chumphon could not be completely locked down as it is a gateway to the south, accessible through rail, road, air, and sea. All essential travel and logistics between cities must be open. The governor explained that the four main border checkpoints were vital and established to ensure that all incoming and pass-through visitors and residents could be monitored; the surveillance system was working effectively and was promptly placed. These checkpoints monitor incoming people through the airport, rail, road, and port.

7.2.1 Infection Prevention Measures taken by Province and Municipality

1) Province

To control the spread of COVID-19, Chumphon Province established the Communicable Disease Committee chaired by the governor. The governor then established eight working groups with specific tasks:

- surveillance section
- protection section
- control section
- treatment section
- section to help those who are affected
- law enforcement section
- public relations; and
- COVID-19 database management to update the situation with the teams.

Through these working groups, Chumphon Province has prevented the spread of COVID-19 through four strategies.

- Controlling people's mobility
- Maintaining social distancing
- Searching possible cases (checked 4,000 people and found 21 cases)
- Recovery (heal and cure)

Since Chumphon is a provincial route into the south, applying measures to restrict travel to the province is impossible. However, it has set up checkpoints for traveling to villages or subdistricts not bound for other provinces. In addition, VHVs have been monitoring the 14-day quarantine of people from other places following the provincial measures. Similar to other provinces under an emergency declaration, some businesses had to stop operations, such as restaurants, barbershops, beauty salons, and fitness facilities. Places susceptible to crowds also must be closed, such as parks, sports arenas, and event venues.

2) Tessaban

Following the prevention measures announced by the province, the Tessaban has conducted prevention measures. For instance, the Tessaban set up 18 screening points and

closely worked with VHVs to screen people. According to an interview with the deputy clerk, the Tessaban established COVID-19 Center and six committees (not corresponding to those in the province). Besides providing communities with instructions and sharing preventive measures, such as how to screen people and provide face masks, the Tessaban also checked every household daily. However, these services were provided only to registered people. It also made informative documents for communities to understand better the situation. Giving clarity on the disease is important during this emergency.

Without exceptions, VHVs in Tessaban Mueang Chumphon have also played an important role in close coordination with Tessaban, instructing and doing prevention measures, providing support, and comforting people. As the backbone of the health care delivery system in Thailand, the VHVs in Tessaban Mueang Chumphon have also worked effectively.

7.2.2 Provision of Information

Tessaban Mueang Chumphon established a local COVID-19 Situation Management Center, disseminating information to communities by distributing press releases through the VHVs and social media, such as LINE. The governors and Provincial Public Health Office also provided programs through local radio stations and live broadcasts on Facebook.

7.2.3 Provision of Public Service

Like many provinces, the government agencies in Chumphon Province continued to provide services only by intervals to reduce congestion. In addition, some government agencies were allowed to work from home and were refrained from organizing seminars that require the attendance of many community members.

1) Transport Services

When all air access was banned, the State Railway of Thailand (SRT) also suspended train services. But it resumed on 15 May 2020, with some routes still to curb the spread of COVID-19. The reopened routes include (i) the northern route, Bangkok–Chiang Mai–Bangkok; (ii) the southern route, Bangkok–Hat Yai–Bangkok; and (iii) the eastern routes, Bangkok–Nong Khai–Bangkok and Bangkok–Ubon Ratchathani–Bangkok. All rail services restarted at 5:00 a.m. on 15 May 2020, and the return train from the destination province started at 6:00 a.m. on 16 May 2020. The rail link through Chumphon has fully resumed by then.

Most long-distance bus operations between provinces, such as from Bangkok to the south, were suspended or had reduced travel services. While inter-district buses continued to operate, as usual, COVID-19 safety measures were implemented, such as cleaning buses, requiring passengers to wear masks and have temperature checks, and recording the names of passengers traveling from other provinces.

2) Medical Services

All infected patients were treated at hospitals in the area of detection, namely Chumphon Khet Udomsak Hospital, Thasae Hospital, Thung Tako Hospital, and Lang Suan Hospital. Only one patient was sent to Surat Thani Hospital.

3) Education Services

Schools in the Tessaban had not started at the onset of the COVID-19 pandemic since it was also summer vacation, which was the same for other provinces and municipalities. However, after summer vacation, classes were still postponed until the situation improved.

7.3 Impacts of COVID-19

7.3.1 Economic Impact

1) Overall

All respondents agreed that the economic portfolio in Chumphon depends more on agriculture, but fortunately, the COVID-19 pandemic did not have much impact on this sector. There were sufficient produces and plenty of food during the lockdown, so all respondents concurred that Chumphon could be self-sufficient since the economy and life of its residents revolve around agriculture.

According to the governor, some small tourism-related businesses were permanently closed. The resulting unemployment rate was estimated at 5,200 unemployed persons. The unemployment from the tourism sector forced these workforces to seek jobs in agriculture. As for major factories and major commercial stores, there have been no closures.

2) Tourism Sector

Although the impacts of “no tourists” were more significant in cities where the economy and life heavily rely on tourism, it has not happened in Chumphon. Overall, since Chumphon does not depend mainly on tourism, it proved to be more resilient under the lockdown. An informant from the private sector explained:

“Koh Toa seems to be the main destination, which has been impacted the most from the ban of international travelers, but businesses owners and operators in Chumphon seem to be managing well under the lockdown situation.”

When it comes to stranded migrants or tourists, there was none in Chumphon. Specific businesses catering mainly tourists, including restaurants, hotels, and tour companies, suffered the most. Respondents indicated that only a minimum number of small- to medium-size restaurants have permanently closed. They have chosen to either diversify their businesses into delivery or return to agriculture to live a sufficient lifestyle.

3) Agriculture

While the agricultural sector was affected when the distribution system was put on hold, export did not completely stop. Durian, which is one of the main agricultural products in Chumphon and accounts for 80% of the international market and 20% for domestic, showed some good signs of growth. Its export price seems higher this year since its harvest season was exactly right after the lockdown.

4) Employment

In Chumphon Province, most people rely on agriculture and have orchards or agricultural activities, so they did not experience the heavy impacts of the pandemic on the economy or employment. However, in urban or municipal areas where restaurants or entertainment venues are closed or prohibited to operate, employees may be temporarily laid off, most of which will return to their homeland in the immediate area.

5) New Services

Respondents shared the same views that the COVID-19 pandemic was speeding up

changes, most evident in online retail and food delivery. The big bike Chumphon for delivery and buffet durian is one example, which is a platform for agricultural distribution. Another way of providing agricultural products, besides exporting and selling, is bringing consumers to gardening or planting sites and allow them to eat as much as they can but at a price of an individual or buffet. The method, although not new, is often done in the eastern region, such as in Rayong (Chanthaburi), where the fruit is produced. This method can be used to solve the problem of the transport system during COVID-19. Garden owners or organizing agencies often expect this method contributes to tourism rather than only sales of agricultural produce.



Source: YouTube of Buffet Durian Platform Initiatives in Chumphon

Figure 7.3.1 Buffet Durian Platform Initiatives in Chumphon

Online orders and sales, especially via LINE and Facebook, became popular, also changing the behavior of consumers since they were unable to leave their homes.

7.3.2 Social Impact

1) Health

Although the economy of Chumphon may not be affected as much, community members shared they still fear, worry, and stress, which are understandably normal responses to perceived threats or when faced with uncertainty or the unknown. In the context of the COVID-19 pandemic, community members disclosed they even worry over or fear family members whether they have been infected. One community member stated:

"Increasing fear of contracting the virus in a pandemic, such as COVID-19, made the significant changes to our daily lives as our movements were restricted in support of efforts to contain and slow down the spread of the virus. We even do not trust people who are driving car with license plate registered Phuket as we perceived that they must be coming from a high-risk area."

Community members also mentioned that the mental health impacts are mostly related to stress from the new realities of staying or working from home or home-schooling children. But overall, they can adjust well. As they stated, "it is important that we look after our mental, as well as our physical, health." There are no suicide cases in Tessaban Mueang Chumphon, and they think that there are no such cases in Thailand.

2) Education

There are many schools in the Tessaban, but the onset of the COVID-19 pandemic was the school holidays. But when schools were supposed to reopen, it was postponed. Students were not compelled to study online, but only as an option for schools if available. Most schools did not offer online learning. Soon after, schools opened as usual.

3) Household Economy

As mentioned above, the Chumphon Province, as well as Tessaban Mueang Chumphon, do not rely much on tourism. So, the economy was hardly affected during the onset of the COVID-19 pandemic and restriction of inter-provincial travel. In addition, the government continued to allow regular transportation of consumer goods or agricultural products, resulting in no serious impacts to the local income, such as in provinces that rely on tourism. Nevertheless, there was still support for low-income people or those whose work was affected by the suspension of services by the state and workers who lost income, such as workers in restaurants, entertainment venues, and department stores.

4) Relationship of Peoples in Society

Even under this emergency, people in communities have supported each other and created unity. However, with COVID-19, community relations were harmonious and controversial because the community became paranoid of people entering the community coming from elsewhere, while the VHVs were screening people at checkpoints, disseminating news updates, and helping each other.

5) Migration

The number of unemployed workers that returned to Tessaban Mueang Chumphon because of the pandemic did not significantly increase.

6) Security of City

No significant changes in the number of traffic accidents were observed as well as crime and domestic violence.

7.3.3 Environmental Impact

No significant changes were reported on the environment resulting from the COVID-19 pandemic.

7.3.4 Impacts to Vulnerable People

Special assistance programs for the elderly were developed in some communities, but most of the assistance came from the people. While people with disabilities and vulnerable groups were not affected much, they could still live almost normally through food and drug assistance from the people in their communities.

7.4 Supportive and Rescue Measures for Recovery

7.4.1 Support for Household

The provincial office of Chumphon, with support from the Tessaban, played an integral role in helping 90,000 people register for the THB5,000 compensation provided by the central government. The remaining 10,500 workers in Chumphon were ineligible for this compensation due to the difficulties in the registration system access and approval process. To address this situation, the Provincial Operation Center provided prompt financial aids that amounted to THB2.5 million to an additional 1,200 households, which are families unable to receive compensation from the central government. An immediate survey of 300 households helped identify people in need. There were 38,000 meal boxes prepared and delivered to all 300 households. The Tessaban delivered 70,000 survival bags filled with food and necessities and provided 700 boxes of rice a day for 29 days. There was volunteer financial support from MP amounting to THB1,180,000 that has been allocated as an emergency community fund.

7.4.2 Recovery of Businesses

The economy before COVID-19 was not doing well, but businesses in Tessaban Mueang Chumphon had already been adapting earlier on. When the COVID-19 situation occurred, its economy was less affected as it continues to rely on the activities of the locals and surrounding areas.

7.4.3 Supports in Society

As cities in Thailand have established a network of assistance through the “sharing cupboards” initiative, Chumphon also had theirs, as shown in Figure 7.4.1. Anyone can fill the booth with food or any necessities that others in need can freely access. The initiative was quickly spread throughout Thailand.



Source: JICA Project Team

Figure 7.4.1 Thai Solidarity “Sharing Cupboard” in Chumphon

7.5 Behavioral Change and New Normal

In Tassaban Mueang Chumphon, people in communities are not so familiar with the new normal.

1) Business Sector

In terms of services, there were some slight changes in behavior, such as maintaining social distancing in restaurants or service establishments and requiring the wearing of face masks in convenience stores. But overall, there was no significant change in behavior as soon as the situation was almost normal.

2) Peoples' Awareness and Behaviors

Most people prefer to cook at home rather than buy cooked food. However, people were starting to be careless or relax when the situation seemed to improve.

7.6 Further Needs

For many areas severely affected because of heavily relying on the income or economy from tourism, the dispersion of risks or avoiding dependence on a one-sided economy is a must, and building a self-sustaining economy is essential. Chumphon is an example showing that food production and farming can still be a way to survive urban life in a pandemic. Tassaban Mueang Chumphon needs to build a solid foundation in the self-reliant economy and create a happy coexistence. In addition, the increase in decentralization should continue even during the pandemic, with the provincial governor at the top of command, which can be used effectively through cooperation from LAOs.

7.7 Recommended Revisions of the SFC Plan and Pilot Project from the Viewpoint of Post COVID-19

7.7.1 Revision of SFC Plan

Overall, the review of the content of the SFC Plan, the strategic directions, and the detailed programs and projects found the plan remains relevant and suitable. However, there is a need to establish a clear strategic direction for the city to better prepare and enhance its adaptability for any uncertainties that may occur in the next 2 to 5 years.

Figure 7.7.1 shows the overall framework of the SFC Plan of Tessaban Mueang Chumphon. Table 7.7.1 contains the results of the SFC Plan evaluation, outlining the specific descriptions of the additional focus to address the post-COVID-19 situation. The final section covers recommendations for additional strategic direction set forth with specific details of the potential additional scope of the pilot projects.



Source: JICA Project Team

Figure 7.7.1 SFC Plan of Tessaban Mueang Chumphon

Table 7.7.1 Evaluation of SFC Plan of Tessaban Mueang Chumphon

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
Leadership and governance	Y	The leadership and SFC participatory approach, focal point being Tessabans, which have direct contact with communities to ensure solidarity.	Implicitly embedded in all strategic directions. More clear-cut degree of decentralization and bottom-up approach. Enhance communication skills of leaders.
Degree of inter-dependency and self-sufficiency economy (Balancing the economic activities and resource portfolio to ensure that the city is less dependable on outsiders and external factors/markets)	Y	<p>Agriculture/tourism/trade/local products</p> <p>Ensure that the SFC plan has a wide range of developmental portfolios or issues, which are not overly emphasized on one economic activity.</p> <p>Balance domestic and international market and resource efficiency through circular economy management.</p>	<p>Strategic Direction 3: Center of agricultural produces and food safety</p> <ul style="list-style-type: none"> - To sustain and strengthen agriculture, establishing and managing quality and safe agricultural distribution center (in Program 3-1: Centre design and development for agricultural produces and food safety) should be highlighted to include a wide range of economic activities relating to the primary industry and key available resources in the city - Local farmers' markets and a sustainable lifestyle center, linking urban to rural (in Program 3-1: Centre design and development for agricultural produces and food safety), should be highlighted to promote local economy and consumption, reinforcing availability of seasonal produces. Biodiversity of the city should be studied, including water, energy, and waste management, to achieve circularity and local sustainability. <p>Strategic Direction 4: Gateway of the southern corridor and a must-visit destination</p> <p>Besides tourism, the city should promote diverse types of businesses and reinforce attracting and stimulating new entrepreneurs to create economic innovations.</p> <p>Strategic Direction 1: Create a happy city for people of all ages</p> <ul style="list-style-type: none"> - In addition to the development of public health facilities (already listed up in the SFC Plan), opportunities for people to
Efficiency, adaptability, and inclusiveness of health management system and public welfare	Y	Including vulnerable people and informal sectors (manpower who are not in the public welfare system,	

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
		hence they lack legitimacy and entitlement for supports)	<p>promote their continuous healthy living lifestyle should also be provided.</p> <ul style="list-style-type: none"> - The extension of Program 1-6: "Health and wellness Care and Prevention" should include preventive measures for communicable diseases, including COVID-19, and understanding about self-management at a time of a pandemic. - Inclusiveness of vulnerable people, including migrants, should also be considered.
Risk management Monitoring contingency and preparedness for adaptability and recoveries (resilience) preventive measures for disease risks	Y	Although there is no dedicated strategic direction for risk and crisis management, all strategic directions include the areas where risk management should be considered.	<p>Strategic Direction 1: Create a happy city for people of all ages (Partially addressed in Program 1-4 Security & Safety) The monitoring system is part of the implementation of the SFC plan. However, once the significance of the recovery process in the next 2-5 years is considered, the risk management and recovery strategies could potentially be added as a program or a separate dedicated strategic direction to ensure the continuity of the city's resilience and the regenerative process after COVID-19.</p> <p>Strategic Direction 2: Smart mobility Program 2-1 (Intelligent system design and development for efficiency and effectiveness):</p> <ul style="list-style-type: none"> - ICT should be introduced to monitor and provide information on the level of crowdedness for public transportation users. - Automation should be introduced to a feasible extent for cleaning or hygiene management for public transportation. <p>Program 2-2 (Mode of transportation and sharing road initiatives-design development):</p> <ul style="list-style-type: none"> - Securing sufficient space in sidewalks to maintain social distance.

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
			<p>Strategic Direction 3: Center of agricultural producers and food safety Program 3-1 (Center design and development for agricultural producers and food safety):</p> <ul style="list-style-type: none"> - Monitoring and management system should be introduced for a distribution center, a processing factory, and a market to control the hygiene and quality of the products. <p>Program 3-2 (Marketing communication for local producers and assets):</p> <ul style="list-style-type: none"> - Prepare and implement a risk management plan or guidelines for events, such as festivals and exhibitions <p>Program 3-3 (Responsible and tech business development)</p> <ul style="list-style-type: none"> - Utilize high technology to minimize the risk of COVID-19 through agricultural activities and food production processing. <p>Strategic Direction 4: Gateway of the southern corridor and a must-visit destination Program 4-1 (Trade and Investment)</p> <p>Program 4-2 (Tourism competitiveness development):</p> <ul style="list-style-type: none"> - Prepare and implement a risk management plan or guidelines for the traffic of goods, businesspeople, and tourists. <p>Strategic Direction 5: Integrated ecosystem management with smart data and planning Program 5-2 (Waste management):</p> <ul style="list-style-type: none"> - Prepare and implement a solid waste collection management plan or guidelines to secure health safety for people working in waste collection. <p>Program 5-4 (Integrated green city development):</p> <ul style="list-style-type: none"> - Secure sufficient green space for use with social distancing.

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
Digital economy and behaviours for post COVID-19	Y	To address the use of public space, recreational activities, and the boost and boom of digital behaviours	<p>Strategic Direction 1: Create a happy city for people of all ages Wi-Fi and digital accessibility in public space design should be considered for better recreational experiences and healthy living.</p> <p>Strategic Direction 2: Smart mobility Smart mobility encourages people to be more digital. Mobile-first behavior should be highlighted, creating the adoption of a car-free, cash-free society. It will help reduce physical contact.</p> <p>Strategic Direction 3: The Center of Agricultural Produces and food safety (Especially “Creating smart information system” in Program 3-1: Centre design and development for agricultural produces and food safety, “Digital Marketing Platform-Marketing” in Program 3-2: Marketing communication for local produce and assets, and “Smart Farming and AgTech Startup Promotion” in Program 3-3: Responsible and Tech Business Development.) <i>This strategic direction well addresses the digital economy if implemented as planned and will be able to account for post-COVID-19.</i></p> <ul style="list-style-type: none"> - Adding value or utilization of IT to promote agriculture should be highlighted more. - Further enhancing the use of social media to support marketing activities and create a platform for product owners to bring their agricultural products into the market with an intermediary system. - Prioritizing promotion of start-up entrepreneurs on smart agriculture.

Source: JICA Project Team

Although the SFC Plan implies every plan should be reviewed and revised, it is now critical to make this clearer through an exclusive strategic direction to ensure that the city will be well-prepared for contingencies, such as an unexpected pandemic. Adding Strategic Direction 6, which aims to strengthen resilience and learning culture, to the SFC Plan is recommended.

The SFC Plan is a holistic process and promotes its implementation with a “national government-guided and local government-driven” approach, deemed effective in combatting COVID-19 and should further be reinforced.

Resilience thinking demands cities to plan holistically as preparation for any shocks and stresses that can arise (or arise again). Although there is a set of frameworks aimed at building city resilience, frameworks aimed specifically at operationalizing the resilience-building process within cities remain undeveloped in the current SFC Plan. This specific strategic direction begins to fill and provides cities with a roadmap for operationalizing the resilience-building process.

For that purpose, Strategic Direction 6 helps form a special task force that will define a sequence of recovery stages and a set of policies for cities to assess their current stage and identify the policies to improve their resilience level and preventive measures. The strategic direction will increase the awareness of people and critical services in cities, which should upscale their exposure to acute shocks and long-term stresses, not only in a pandemic but also in other events, such as floods, earthquakes, climate change, or social dynamics. While all these challenges are complex, in most cases, cities must face a combination of them. Programs and projects should focus on building collaboration to promote information sharing and transparency, setting up alarm systems that will facilitate swift and early decision making. In most crises, speed is of the essence. Therefore, a communication plan with consistent information and early detection systems for threats are essential as these allow the city to be proactive. This strategic direction should also instill a regenerative culture for the city to take a much more holistic and futuristic approach to anticipate change and shift the framing of visualizing future cities. We should be open to the idea that any previous perspective of a future city may need constant review and preparation for new changes.

Table 7.7.2 Strategic Direction 6: Create a Resilient and Regenerative City

Seq	Project Name	Objectives Brief description	Implementing Agencies	Relevant Agencies	Timeframe	Budget (million bath)
Program 1-1 Effective changes and adaptive communities						
1.	Special Task Force for 3 R (Response, Recovery, Regeneration) Scenario future city planners	Establish a top-performing team from multi-sectoral organizations for the city to monitor changes and foresee possible scenarios. Pilot Project for Pandemic Manual: Guidelines for responses, recovery, and regenerative plan.	Tessaban Mueang Chumphon	<ul style="list-style-type: none"> - Provincial Administration Organization (PAO) - Provincial Office of Tourism and Sports - Tourism Authority of Thailand (TAT) - Provincial Office of Culture - Provincial Chamber of Commerce Social Development and Human Security (PCL) 	2021–2025	50
2.	Crisis Communication Manual and Plan	Review the crisis communication channel and establish the center for crisis communication.	Tessaban Mueang Chumphon	<ul style="list-style-type: none"> - PAO - Provincial Office of Tourism and Sports - TAT - Provincial Office of Culture - PCL 	2022–2027	200

Source: JICA Project Team

7.7.2 Update of Pilot Project

Although the depth and extent of transformation due to the impacts of COVID-19 is unclear, certain aspects for consideration to cope with the impacts have been identified. These aspects were categorized by the following five evaluation criteria adopted for the existing conditions analysis of the pilot projects in Tessaban Mueang Chumphon to reflect on their planning and design approach.

The selected components for the pilot project of Tessaban Mueang Chumphon consider the long-term impacts of the COVID-19 pandemic on public spaces upon lifting the restrictions. The following recommended aspects for the pilot project update relate to the future design, use, and changing perceptions of public spaces. These aims to highlight the emerging questions at the interface of COVID-19 and the pilot project design and implementation. The additional considerations of the pilot project are recommended to be provided for proper response to the emerging expectations.

1) Accessibility and Connectivity

Transport facilities, such as waiting and resting sheds, parking areas, pedestrian walkways for all ages, and access for people with disabilities and vulnerabilities, require sufficient space for social distancing and regular cleaning to maintain appropriate hygiene conditions. Various entrances, flow from the accesses, and division of spaces have been carefully considered to help disperse users.

In the case of Tessaban Mueang Chumphon, potential new accesses from the back of the parks have been identified and should make this area safer, cleaner, and more user-friendly. In addition, sufficient space should also be optimized for vendors in the park.

2) Activity

While various activities, such as walking, jogging, cycling, meditation, meeting friends and family members, having picnics, playing games, skateboarding, etc., have been identified, the compatibility between securing sufficient space for social distancing and inducing desirable social interactions should be carefully considered and reflected on the planning and design. Other than hygiene conditions, the risk of overcrowding should be considered when planning special events and commercial activities like a street market.

Developing an event manual and a specific process to approve the commercial use of the public park of Chumphon should be discussed. These will apply if the public spaces are designed for flexible use or mixed-use to leverage opportunities to enhance the local economy and social inclusiveness.

Selected public spaces serve various purposes for different demographics and are particularly important for socially vulnerable residents. The selected outdoor public space in Tessaban Mueang Chumphon was found often used as a recreational space for low-income residents that provides relief from cramped living conditions. Hygiene and inclusiveness may be a challenging combination; the public space design must also consider how to accommodate both issues.

3) Spatiality

Zoning, capacity management and flow in each area, open and green spaces with shade, waste management, and safety have been identified as the sub-evaluation criteria for the analysis of the pilot project in Tessaban Mueang Chumphon.

Sufficient shared space. In Tessaban Mueang Chumphon, an additional issue on duplicating the use of one space creates a further need to provide sufficient and well-designated shared spaces to manage the expected density at different times of the day. The securement of sufficient space, desirable social interactions, and appropriate hygiene conditions should be considered for these sub-criteria and reflected on the spatial planning and design of the pilot projects in Tessaban Mueang Chumphon.

Open and green space. The COVID-19 pandemic has changed the desired type and distribution of open and green spaces as well as expectations on what these spaces should provide. The pilot project should prepare for the foreseeable greater demand for smaller open and green spaces or neighborhood parks, which can serve as a refuge from the loud and bustling city. The changing preferences and expectations about open and green spaces lead to reconsidering the designs, uses, and practices for smaller open and green space planning. For example, creating spaces for a more individualized and introspective use over larger spaces is necessary. In this light, several secluded spaces should be well-designed for the parks in Chumphon.

Well-designated spaces. In Tessaban Mueang Chumphon, running trails and paths must be more properly designated because of social distancing that requires re-assessing where individuals can share and exercise within the same spaces. There might also be the need to more effectively and creatively zone the limited space to ensure that exercise infrastructure within the existing park and stadium spaces is within the appropriate (revised) density levels.

Flexible use of space. A post-COVID-19 world will shift the value for public parks and spaces. In Tessaban Mueang Chumphon, a large flexible space in the park is seen as an asset. Public spaces are a key feature of a resilient city, partly because of their ability to transform for emergency health purposes. Our current public health emergency response has demonstrated the value of flexible spaces. The design of the park in Chumphon should consider flexible spaces. Since the pandemic, large green spaces and convention centers in Vancouver, New York, and London have been converted into emergency field hospitals. In India, empty malls have been converted to shelters for migrant workers unable to return to their villages. The value of public spaces in the case of Chumphon should consider modular and decentralized designs that permit this flexibility.

In addition to the elements above, the universal design should be considered to serve all people, especially the elderly and disabled.

4) Aesthetic

Since the representation of local identity, art, beauty, and unique sense of place has been considered, appropriately enjoying such aesthetic aspects should be explored (e.g., interaction through visual rather than physical contact) and reflected on the planning and design.

For Chumphon, it only has one identity in the park, i.e., Krom Luang Chumphon Monument. As a response to the need to create other identities, the banyan tree could be illuminated and designated as the landmark or central point of the park. The banyan tree also has the potential to showcase local cultural activities.

5) Management

Managing the hygienic conditions and various activities safely as a mitigation measure for COVID-19 will require additional human and financial resources. Therefore, close collaboration between the public and private sectors is critical, including visitors, business owners, and residents in the vicinity of the pilot project sites.

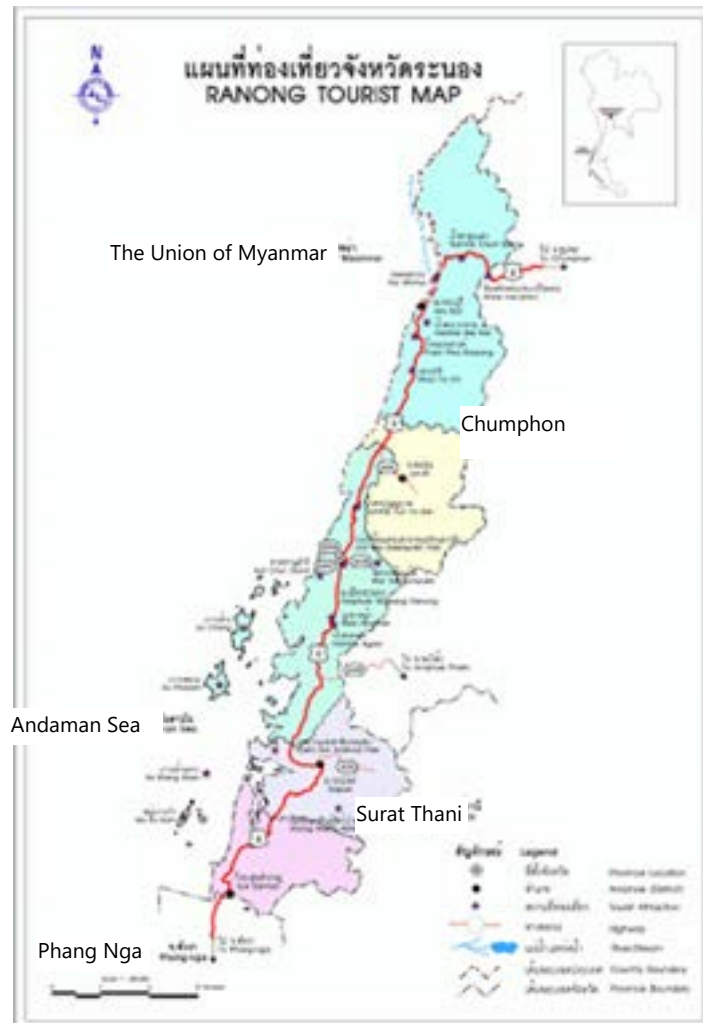
Utilization of information communications technologies (ICT), such as introducing a mobile application informing the number of users and level of crowdedness, should be considered for the planning and design to increase the efficiency and effectiveness of managing COVID-19 impacts.

Financial investment in the installation of systems and maintenance will need to be considered with the need for workers for frequent disinfection and cleaning duties.

8. COVID-19 Impact and Response on it in Tessaban Mueang Ranong

8.1 Overview of Ranong

8.1.1 Socio-Economic Characteristics



Source: Ranong Province website

Figure 8.1.1 Location of Ranong

Ranong Province is in the southern region of Thailand on the west coast along the Andaman Sea, and its neighboring provinces are Chumphon, Surat Thani, and Phang Nga. To the west, it borders Kawthaung (Tanintharyi, Myanmar). There are 62 large islands in the Andaman Sea, and the Kra Buri River clocks the border between Thailand and Myanmar. The province is about 568 kilometers away from Bangkok. NR 4 (Phetkasem) is the transportation route used to contact and link the transport of goods and agricultural products with nearby provinces. It is the main route that crosses through five districts and two provincial highway roads.

The major economic activities of the province are border trade, agriculture, fishery, and tourism. The province has increasingly focused on promoting tourism as well as on border

trade with Myanmar. For agriculture, the area for rice planting tends to decline, so farmers shift the land to grow crops with higher income and return, such as oil palm, rubber, coffee, and durian.

In Tessaban Mueang Ranong, most people engage in trading, being a city area containing retail markets and tourism facilities and attractions. It is dependent on economic development linkages with the surrounding resources.

An overview of Ranong Province and Tessaban Mueang Ranong, including population, aging rate, area, and main economic activities, are summarized in Table 8.1.1.

Table 8.1.1 Overview of Ranong Province and Tessaban Mueang Ranong

Population	
Province	193,370 with an annual growth rate of about 0.77%
Tessaban	19,285 with an annual growth rate of about 3%
Aging rate (60+)	
Province	There are 28,289 people 60 years old and over or about 14.6%.
Tessaban	There are 2,655 people 60 years old and over or about 13.8%.
Area	
Province	3,298.045 km ²
Tessaban	4.50 km ²
Economy	
Province	Border trade, agriculture (rubber, palm oil, and coffee), fishery, and tourism. The number of tourists is gradually increasing.
Tessaban	Trading is the main economic activity of the Tessaban. The Tessaban has some important and famous tourist destinations, such as hot springs.

Note: The basis of the growth rate is the population data in 2015 and 2019.

Source: DOPA, 2019

8.1.2 Overview of Infection of COVID-19 in Ranong

Ranong was the only region among 14 southern provinces that have yet to report a confirmed case of COVID-19 as of June 2020. The operation of Ranong has been proactively consistent with other cities in Thailand. The overall infectious status in Ranong Province is shown in Table 8.1.2.

Table 8.1.2 COVID-19 Infectious Status: Ranong Province

1.1	Infectious Cases Number	1 st (Month)				
		Feb	Mar	Apr	May	June
	Cumulative Cases	0	0	0	0	0
	Active Cases	0	0	0	0	0
	Recovered Cases	0	0	0	0	0
	Death number	0	0	0	0	0
	Testing Number (PUI)	N/A	N/A	N/A	61	194
	Local quarantine	N/A	N/A	N/A	N/A	N/A
1.2	Gender					
	Female	0				

	Male	0
1.3	Age	
	Minimum	-
	Maximum	-
	Average	-
1.4	Nationality	
	Thai	0
	Others	0
1.5	Date of first confirmed cases (Announced date)	-
1.6	Transferred from other provinces	0

Source: Ranong Provincial Office: <https://covid.ranongcities.com/news> and MOPH (2020) edited by JICA Project Team

Figure 8.1.2 illustrates the daily summary of infection status in Ranong Province taken from the Ranong Provincial Office website. The website also has a dedicated page for COVID-19 updates, becoming the main source of (updated) information, as shown in Figure 8.1.3.



Source: Ranong Provincial Office (<https://covid.ranongcities.com/news>)

Figure 8.1.2 Illustration of Daily Summary: Ranong



Source: <http://www.ranong.go.th/covid19/covid19.htm>

Figure 8.1.3 Website for All Communication of COVID Status in Ranong

8.2 Infection Prevention Measures

8.2.1 Infection Prevention Measures taken by Province and Municipality

1) Province

To control the spread of COVID-19 infection, Ranong governors established eight working groups with specific tasks, as follows.

1. Surveillance Section
2. Protection Section
3. Control Section
4. Section for patients undergoing treatments
5. Section to help those affected
6. Law Enforcement Section
7. Public relations
8. COVID-19 database to update the situation with the teams

In May 2020, Ranong Province took measures to stop or delay cross-provincial travel to the province. Its returning residents must be screened at the provincial security screening point. Once they arrive at their accommodation or residence, they must notify the village head or the local community president for recording and quarantine for 14 days. Non-residents could travel to Ranong when only necessary, such as to see a doctor for a critical illness, to enter into a legal contract, or to perform duties with the government. In such cases, they must undergo a rigorous screening process and obtain a medical certificate. Within the province, activities with potentially many participants, such as meetings, seminars, banquets, religious events, or sporting events, are prohibited. The provincial government also closed areas or services that may pose a risk of infection, such as parks, gymnasiums, beauty salons, barbershops, and flea markets.

2) Tessaban

During the announcement of a state emergency to fight against COVID-19, the provincial governor has the authority and duty to direct or prescribe various measures in the province. The municipal government is the only agency that supports and conducts assistance to people in their local area, such as distributing face masks to and providing thermometers for VHVs to monitor the possible spread of disease and the vulnerable groups.

8.2.2 Provision of Information by Tessaban

Regarding the dissemination of information of the province and from the government to the people of Ranong Province, the provincial governor has arranged a live broadcast of various statements via the Facebook Page of the provincial office, while the Tessaban has provided public relations on community assistance through LINE application and door-to-door communications.

8.2.3 Provision of Public Service

At the height of the COVID-19 pandemic, the government offices, local government

organizations, educational institutions, and other government agencies were ordered to reduce crowding in their workplaces by providing alternating work schedules and encouraging teleconferencing, as well as canceling or postponing unnecessary training and seminars and closing the service center of the Provincial Employment Office.

1) Transport Services

The provincial governor assigned the Provincial Transport Office, Ranong Regional Seaport Office, and Provincial Public Health Office to inspect public bus stations, vans, and ports, using the guidelines for operators and drivers to take prevention measures by increasing the frequency of cleaning, especially the passenger compartment, regularly. In case any vehicles or places could not be managed according to the standards, there was an order to improve or stop operations on a case-by-case basis.

2) Medical Services

The hospital continued to operate as usual but allowed those without severe symptoms to postpone their doctor's visits.

3) Education Services

Similar to other provinces and municipalities, the schools in the Tessaban were closed because it was summer vacation at the height of the COVID-19 pandemic. However, the schools remained closed after summer vacation. Their opening had to be postponed until the situation improved.

8.3 Impacts of COVID-19

8.3.1 Economic Impacts

Businesses in Ranong did not suffer from the economic downturn, so access to low-interest loans provided by the central government did not raise concerns among business owners in the city. While the Tourism Authority of Thailand (TAT) elaborated that tourism and hospitality, especially restaurants, are most affected, most private sectors operating in Ranong are locally owned. As explained by COC, they can manage well because they do not depend so much on loans.

All respondents agree that the main sectors in Ranong, for example, fishery and agriculture, can still operate normally. They explained that the economy of those sectors was not great even before the COVID-19 pandemic, so they do not see any significant differences.

1) Tourism Sector

The tourism sector was affected by the lockdown. But respondents repeated that most investors in this sector have other businesses, so they could still manage their investments at the time of the pandemic. Businesses in this sector responded to this situation by diverting their businesses to online marketing and selling food through delivery services.

The private sector emphasized the greater opportunities for Ranong to develop a viable plan as a wellness destination; in this case, respondents perceived that the impacts from the COVID-19 pandemic are seen to be more positive than negative. The tourism sector now focuses on building confidence through best practices responding to the new normal and how to serve and take care of the health and safety of tourists.

2) Commercial Sector

Hotels strictly managed hotel guests and refrained them from using hotel facilities, such as swimming pools, gyms, and meeting rooms. In addition, the travel restriction to the province caused less-crowded hotels.

3) Agriculture

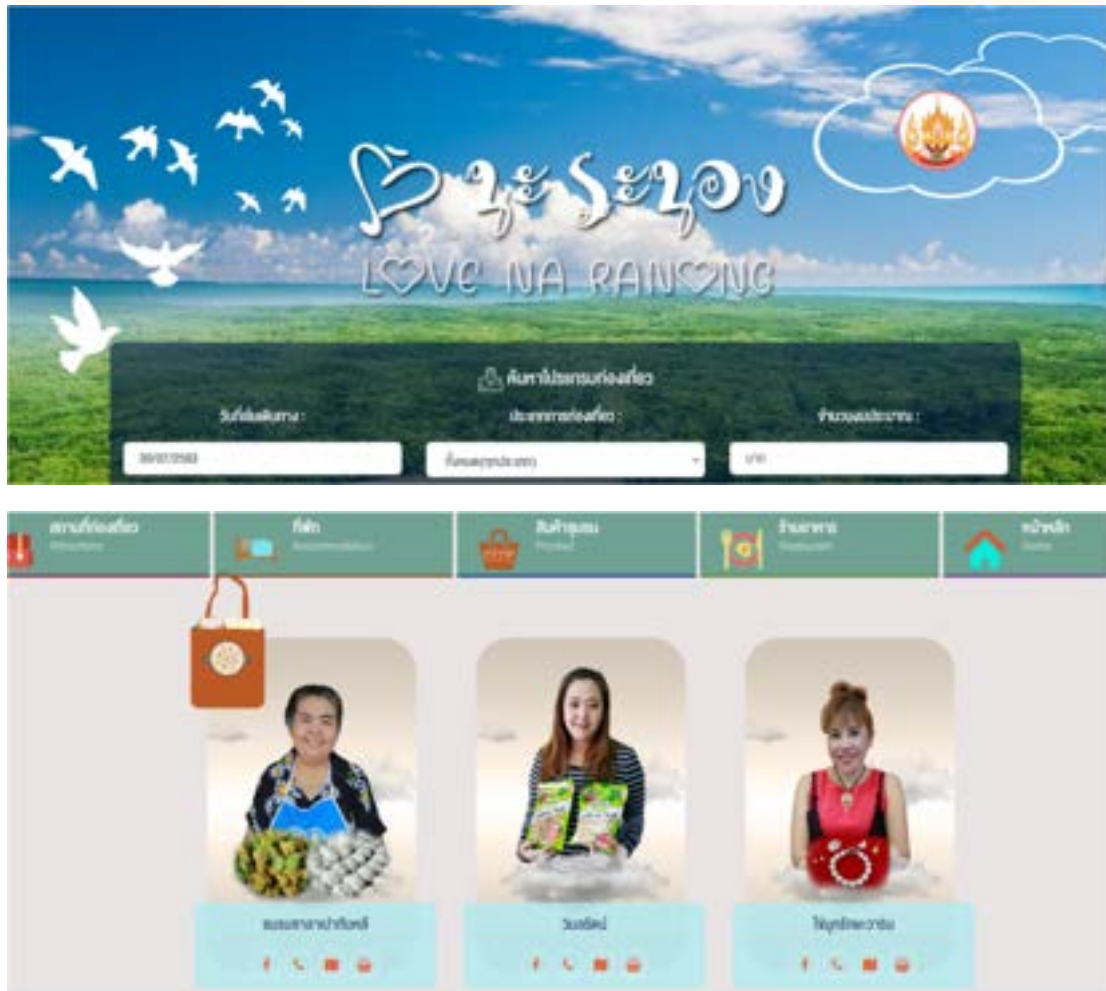
Respondents shared their observations from closely tracking agricultural production to prevent any shortages. They noticed that, even in a lockdown, there would be no shortage for three months, six months, or even one year. This was attributed to the effort by the Ministry of Commerce, which has set up seven war rooms in early April to work together with the relevant industries and government departments to ensure the supply of necessities. It focuses on rice, fruits and vegetables, and processed foods, livestock, medical supplies, logistics and delivery, and animal feeds are priorities. There was also no battling panic-buying in Ranong.

4) Employment

As COC stated, many businesses in Tassaban Mueang Ranong do not have excessive staff. The businesses can keep their employees and distribute tasks and help each other during the business suspension. Some restaurant owners started home delivery so they could continue their businesses.

5) New Services

Online platform. YEC has created an online market platform for locals to share, buy, and sell their products. The online platform works well and is still active.



Source: <https://reg.ssrui.ac.th/lovenaranong/>

Figure 8.3.1 Ranong Online Platform created by YEC

Delivery service. Many businesses that did not offer online ordering have learned to do so. Businesses close to consumers, in particular, had radical changes. In Ranong, for example, a big bike food delivery service was established during the lockdown.

8.3.2 Social Impacts

1) Health

There were no public health impacts in Tassaban Mueang Ranong from the COVID-19 pandemic. People in the community were in good mental health. While some had anxieties, most expected the situation to improve.

2) Education

The impact on education was only for a short time. The postponement of the school term or distance-learning affected parents and children in having to adjust initially, but school already returned to normal.

3) Household Economy

Before the COVID-19 pandemic, the urban economy was not very good. When the COVID-19 pandemic occurred and travel to the province was restricted, the impacts on the household economy were not that alarming for the urban population. In addition, most of the economic system in the city relies on agriculture, so it has continued to operate normally.

4) Relationship of People in Society

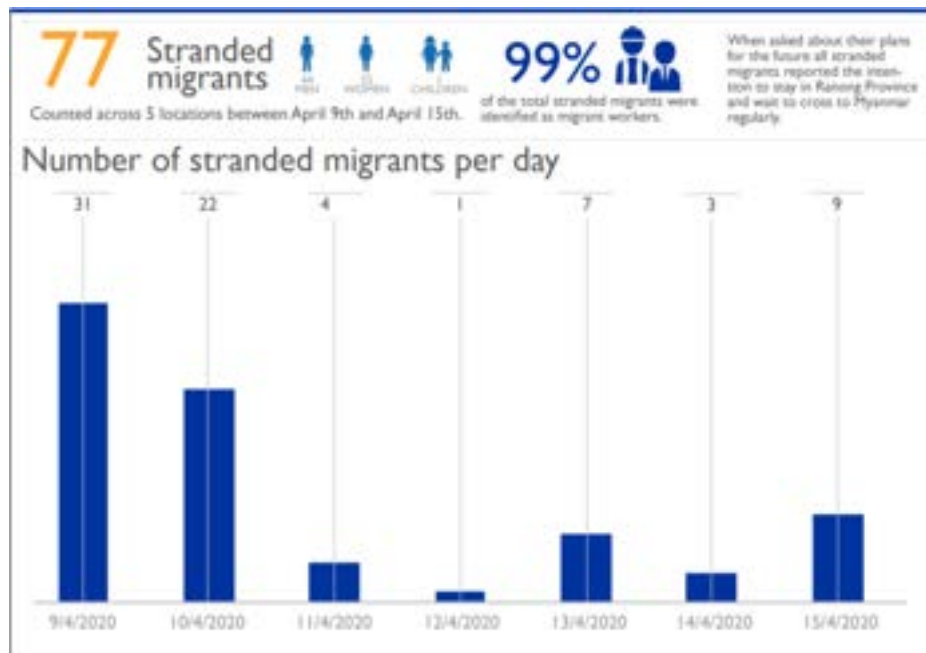
The solidarity among community members is vital. The pandemic has had a positive effect on communities with their cooperating, monitoring, and helping each other, but at the same time, there has been little report of conflicts over the inequality in public assistance.

5) Migrants

During this crisis, issues that clearly surfaced were the legitimacy of foreign laborers residing in Ranong. The employment rate of foreign to Thai workers is at a steady 30% in the first quarter of 2019. Most foreign workers are from Myanmar, Laos, and Cambodia. One community member explained that “if they are not registered as part of Ranong’s residents, they will not be looked after.” All support for community members during the pandemic was well-organized, but when Tassaban or other organizations distributed survival bags to vulnerable groups and foreign labor, the registered locals were prioritized over the many unregistered residents (such as foreign laborers). There was a dispute over who should be taken care of in this kind of situation.

Upon investigating the situation with stranded foreign workers or migrants in Ranong, the respondents saw these workers as long-term living migrants that settled in with rental housing.

Since January 2020, the International Organization for Migration (IOM) has been monitoring the migration flow between Thailand and Myanmar across five different locations in Ranong Province. An infographic was created based on the primary data collected during counting and observation at each location and secondary data from government sources. The objective of this infographic is to provide an overview of how movement restriction policies influence international mobility in Ranong Province.



Source: International Organization for Migration

Figure 8.3.2 Number of Stranded Migrants in Ranong Province in April 2020

6) Security of City

No significant changes were observed in the number of traffic accidents as well as crime and domestic violence as a result of the COVID-19 situation.

8.3.3 Environmental Impacts

No significant changes were reported as a result of the COVID-19 situation.

8.3.4 Impacts to the Vulnerable People

Special assistance programs were developed for the elderly in some communities, but most programs involved the cooperation of the people in the community. While people with disabilities and vulnerable groups were not too affected, they were able to live almost normally with food and drug assistance.

8.4 Supportive and Rescue Measures for Recovery

8.4.1 Supports for Household

The Tessaban and COC provided 1,500 survival bags and financial aids for 900 Thai people who were ineligible to receive government support since they had no identification cards. The Tessaban, COC, and provincial offices cooperatively provided survival bags for communities in need. Longkuag with 230 households received 500 survival bags, the old market communities with 280 households received 800, Ranongland community with 110 households received 400, and Bang Pattana community with 394 households received 1,500.

8.4.2 Recovery of Businesses

Sixty-four tour companies in Ranong are registered with the Department of Tourism. The tourism office supported these companies with fiscal aid, such as being able to refund their registration fees of up to THB 200,000.

8.5 Behavioral Change and New Normal

1) Business Behaviors

There were changes in business behavior as to operating times in stores that can still open for service. While some businesses had to cease operations during the COVID-19, such as hotels and dine-in sections of restaurants, such restaurants switched to delivery or take-out. Online service for delivery orders (except fresh food) has improved, but mainly the websites already open.

2) Peoples' Awareness and Behaviors

People are fully aware of the situation and have adjusted their lifestyle accordingly in public or outside areas, such as wearing a face mask, washing hands frequently, social distancing, and avoiding activities that can be crowded.

8.6 Further Needs

1) Continuous Prevention Measures

As preventive measures have been lifted, such as travel restrictions to the province or bans of certain places or activities, the situation has become more relaxed. However, prevention and surveillance must still be practiced. The wearing of face masks, social distancing, and monitoring foreign workers who illegally entered or did not pass the screening test or quarantine are still necessary.

2) Economic Recovery Assistance

Businesses that rely on foreign tourism should also be handled. In Ranong, however, most of its tourists are Thai nationals, and the province relies heavily on agriculture and fisheries that recovery is not difficult.

3) Provision of more easy-to-understand Information

Government communications during the COVID-19 have been effective for both Thai and Myanmar residents of the province. Community news distribution is still a viable tool, but there must still be measures to prevent malicious people from spreading fake news.

4) Basic Infrastructure for IT

Digital infrastructure is essential if cities are to be completely shut down in the future because of social distancing and preventing the spread of infectious diseases. An efficient transport and logistics model must also be handled concurrently for effective state measures.

8.7 Other Issues Raised

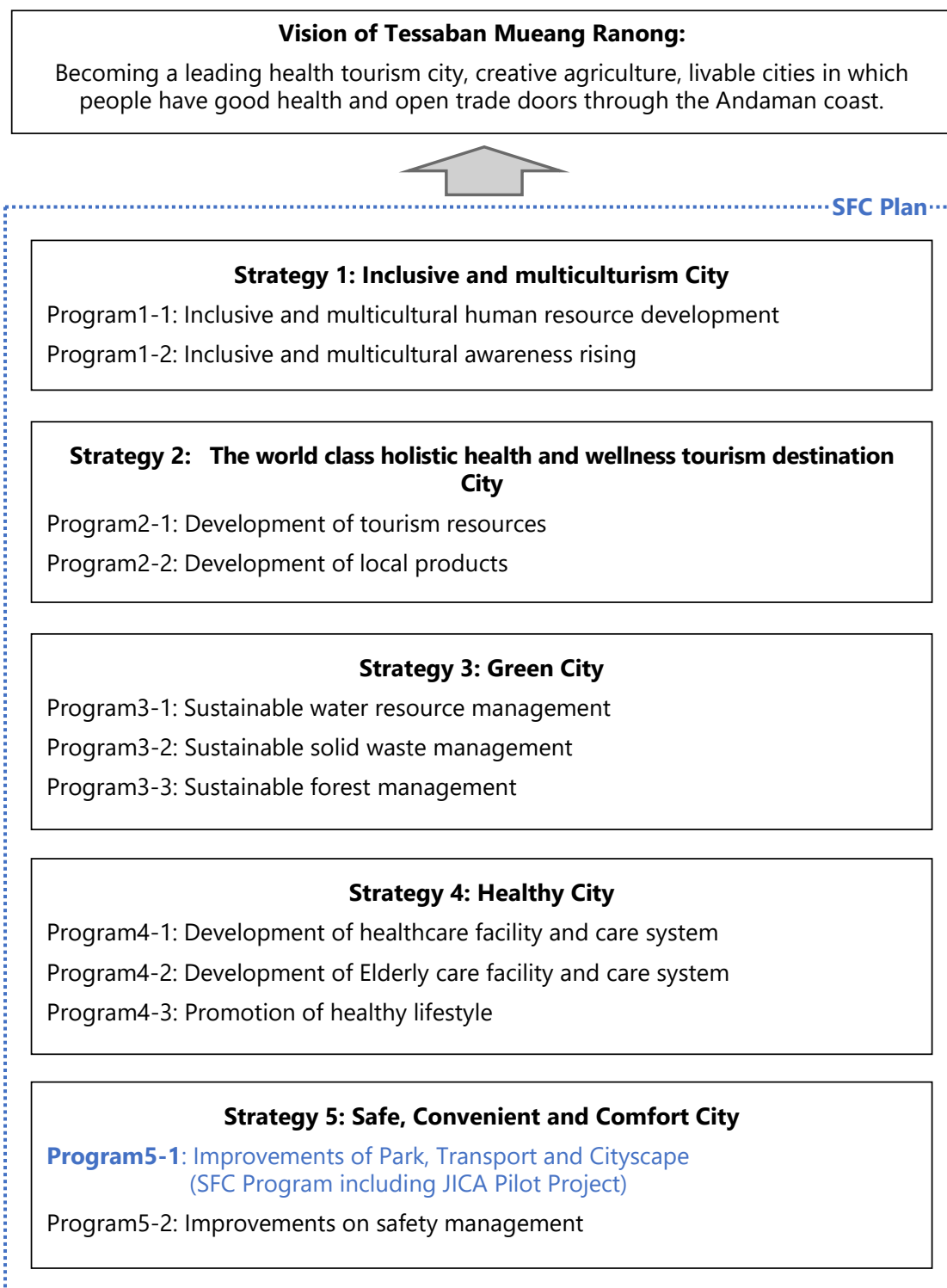
Shortage in manpower and degree of autonomy to make decisions remain an impediment. As the central government does not know the actual needs of locals, the plans of local governments should be further emphasized.

8.8 Recommended Revisions of the SFC Plan and Pilot Project from the Viewpoint of Post COVID-19

8.8.1 Revision of SFC Plan

Overall, upon review of the SFC Plan contents, strategic directions, and detailed programs and projects, it can be concluded that the plan remains relevant and appropriate. But a clear strategic direction for the city to better prepare and enhance its adaptability for any uncertainties, which may occur in the next 2–5 years, must still be established.

Figure 8.8.1 shows the overall framework of the SFC Plan of Tessaban Mueang Ranong, and Table 8.8.1 shows the results of the evaluation of the SFC Plan, outlining specific descriptions of additional focuses to address the post-COVID-19 pandemic. The final section covers recommendations for additional strategic direction with specific details of potential additional scope of the pilot projects.



Source: JICA Project Team

Figure 8.8.1 SFC Plan of Tessaaban Mueang Ranong

Table 8.8.1 Evaluation of SFC Plan of Tessaban Mueang Ranong

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
Leadership and governance	Y	The leadership and SFC participatory approach with the focal point being Tessabans, which have direct contacts with communities to protect the solidarity.	<ul style="list-style-type: none"> - Implicitly embedded in all strategic directions - Degree of decentralization and bottom-up approach should be more straightforward. - Communication skills for leaders should be enhanced.
Degree of inter-dependency and self-sufficiency economy (Balancing the economic activities and resource portfolio to ensure that the city is less dependable on outsiders and external factors/markets)	Y	<p>Wellness, tourism, trade, local products</p> <p>Ensure that the SFC plan has a wide range of developmental portfolios and issues, which are not overly emphasized on one economic activity.</p> <p>Balancing domestic and international market and resource efficiency through circular economy management</p>	<p>Strategic Direction 1: Inclusive and multiculturalism city</p> <ul style="list-style-type: none"> - Self-sufficiency project (in Program 1-2: Inclusive and multi-cultural awareness rising) should be highlighted and developed as part of the post COVID-19 recovery plan to enhance self-reliance on local economy. - Empowerment program to increase level of awareness in local resources and how to utilize or add value to local resources to build sustainable (safe and healthy concern) local economy. - Multi-cultural citizen engagement project to help generate more innovative ideas to build a livable future city - “Imagine Ranong: City has rain, people have dream” (in Program 1-2: Inclusive and multi-cultural awareness rising) should be prioritized as part of the recovery plan to strengthen community solidarity for city development. <p>Strategic Direction 2: The world class holistic health and wellness tourism destination city</p> <ul style="list-style-type: none"> - Leverage on being a COVID-free city and adding value to brand Ranong as a “wellness destination” - Extend a wide range of local wellness products to serve and balance domestic and international markets (partly described in Program 2-2: Development of local products) - In addition to the long-stay addressed in Program 2-1: Develop of tourism resources, alternative quarantine programs should be

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
			<p>incorporated with a clear guideline for health and safety. Staycation or workation programs should be highlighted.</p> <ul style="list-style-type: none"> - Local produce (from fishery and agriculture) should be highlighted as part of the wellness destination program to ensure diverse range of economic activities (partly described in Program 2-2: Development of local products) <p>Strategic Direction 4: Healthy City</p> <ul style="list-style-type: none"> - Incorporate healthy garden recreation development project (in Program 4-1: Development of healthcare facility and care system) with Strategic Direction 5: Safe, Convenient and Comfort city walkable city and streetscape design and improvement (in Program 5-1: Improvement of Park, Transport and Cityscape). It should consider the need for social distancing and flex design for mixed or multi-purpose use to prepare in case of insufficient hospital beds (as seen in many countries) - Community College Project (in Program 4-1: Development of healthcare facility and care system) should be highlighted as an innovative curriculum for specialization in “care for the elderly” and “holistic healthcare and wellness” for post-COVID-19.
Efficiency, adaptability and inclusiveness of health management system and public welfare	Y	Including vulnerable people and informal sectors (manpower who are not in the public welfare system, hence they lack legitimacy and entitlement for supports)	<p>Strategic Direction 1: Inclusive and multiculturalism city</p> <ul style="list-style-type: none"> - Human Development and Empowerment program in various dimension (in Program 1-1: Inclusive and multicultural human resource development) should be specifically addressed the necessity for the reform of health care system and self-preventive program for vulnerable people and people who are not entitled to the public welfare. This could include a supporting program (CSR) from private sectors and the existing training program for a village health volunteer.

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
			<p>Strategic Direction 3: Green City</p> <ul style="list-style-type: none"> - Hygienic (waste disposal) project (Program 3-2: Sustainable solid waste management) should also be highlighted or broaden to cover safety and hygiene in public areas and selective residential areas where migrants or vulnerable people are living. <p>Strategic Direction 4: Healthy City</p> <ul style="list-style-type: none"> - All healthy living lifestyles should be emphasized as most relevant strategy, such as promoting the use of bicycle and encouraging walking, exercises, and consuming safe food (these are already included in this strategic direction).
Risk management Monitoring contingency and preparedness for adaptability and Recoveries (Resilience) Preventive measures for disease risks	Y	Although there is no dedicated strategic direction for risk and crisis management, all strategic directions include the areas where risk management should be considered.	<p>The monitoring system is part of the implementation of the SFC Plan. However, upon considering the significance of the recovery process in the next 2-5 years, the risk management and recovery strategies could be added as a program or a separate dedicated strategic direction to ensure the continuity of resilience of the city and regenerative process after COVID-19.</p> <p>Strategic Direction 1: Inclusive and multiculturalism city</p> <p>Program 1-1 (Inclusive and multicultural human resource development)</p> <ul style="list-style-type: none"> - Establish a comprehensive support system (e.g., job security, medical care) for immigrants and vulnerable people. <p>Program 1-2 (Inclusive and multicultural awareness rising)</p> <ul style="list-style-type: none"> - Promote awareness rising for preventing discrimination for the patients of COVID-19. <p>Strategic Direction 2: The world class holistic health and wellness tourism destination City</p> <p>Program 2-1 (Development of tourism resources)</p>

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
			<ul style="list-style-type: none"> - Prepare and implement a risk management plan/ guideline to enjoy tourism resources and public transport with minimal risk. Program 2-2 (Development of local products) - Monitoring and management system should be introduced for a distribution center and a processing factory to control hygiene and quality of the products. <p>Strategic Direction 3: Green City</p> <p>Program 3-2 (Sustainable solid waste management)</p> <ul style="list-style-type: none"> - Prepare and implement a solid waste collection management plan/ guideline to secure health safety for people working in waste collection. <p>Strategic Direction 4: Healthy City</p> <p>In addition to the items previously described, a comprehensive health risk management plan/ guideline should be prepared and implemented for all programs under this strategic direction.</p> <p>Strategic Direction 5: Safe, Convenient and Comfort City</p> <p>Program 5-1 (Improvements of park, transport and cityscape)</p> <ul style="list-style-type: none"> - Secure sufficient space to maintain social distance. <p>Program 5-2 (Improvements on safety management)</p> <ul style="list-style-type: none"> - Prepare and implement a risk management plan/ guideline for the activities (e.g., market and festival) on streets or in a parks/ public open space. - Use CCTV camera for information sharing for crowdedness of the parks/ public open spaces and streets. <p>Strategic Direction 2: The world class holistic health and wellness tourism destination City</p> <ul style="list-style-type: none"> - Wellness Destination: Destination Branding and digital marketing
Digital economy and behaviors for post-COVID-19	Y	To address the use of public space, recreational activities and the boost and boom of digital behaviors	

Items for evaluation (based on Post COVID situation)	Existence of the applicable items (Y/N)	Items note or explanation	Strategic directions
			<p>development (Program 2-1: Development of tourism resources) should be further studied and promoted as a new (post-COVID) digital business venture.</p> <ul style="list-style-type: none"> - Services appearing remarkably during the COVID-19 pandemic, such as online markets, could be expanded/ supported in Program 2-2: Development of local products.

Source: JICA Project Team

Although the SFC Plan implies that every plan should be reviewed and revised, it is now critical to make this straightforward by providing a clear, exclusive strategic direction to ensure that the city will be well-prepared for contingencies, such as an unexpected pandemic. Adding Strategic Direction 6 to the SFC Plan is therefore recommended. It aims to strengthen resilience and learn the culture.

The SFC Plan is a holistic process, and its implementation must be in a “national-government guided, and local-government driven” approach. This approach was deemed effective in combatting COVID-19 and should be reinforced.

Resilience thinking demands cities to plan holistically so they are prepared for possible shocks and stress that may happen. Although the current SFC Plan has a set of frameworks aimed at building city resilience, the frameworks specifically aimed at operationalizing the resilience-building process within cities remain undeveloped. This specific strategic direction begins to fill and provide cities with a roadmap for operationalizing the resilience-building process.

For that purpose, the added strategic direction helps to form a special task force that will define the sequence of recovery stages, form a set of policies that will help cities assess their current stage, and identify policies to improve the resilience level of cities and risk preventive measures. The strategic direction will increase the concentration of people and critical services in cities. In turn, cities and people will likely have more risks from acute shocks and chronic stresses, not only of a pandemic but also of other events such as floods, earthquakes, climate change, or social dynamics. While all these challenges are already complex themselves, in most cases, the cities would face a combination of them. Programs and projects should focus on building collaborations to promote information sharing and transparency and setting up alarm systems to facilitate swift and early decision making. In most crises, speed is of the essence; therefore, a communication plan with consistent information and systems that brings early detection of threats is essential as it allows the city to be proactive. The strategic direction should also be proactive in instilling regenerative culture for the city to have a more holistic and advanced approach in anticipating change and shift the perspective of future cities. The people should be open to the idea that any previous perspectives of a future city must be constantly reviewed and ready for new changes.

Table 8.8.2 Strategic Direction 6: Create a Resilient and Regenerative City

Seq	Project Name	Objectives Brief description	Implementing Agencies	Relevant Agencies	Timeframe	Budget (million bath)
Program 1-1 Effective changes and adaptive communities						
1.	Special Task Force for 3 R (Response, Recovery, Regeneration) Scenario future city planners	<ul style="list-style-type: none"> - Establish a top-performing team from multi-sectoral organizations for the city to monitor changes and foresee possible scenarios - Pilot Project for Pandemic Manual: guidelines for responses, recovery, and regenerative plan. 	Tessaban Ranong Mueang	<ul style="list-style-type: none"> - Provincial Administration Organization (PAO) - Provincial Office of Tourism and Sports - TAT - Provincial Office of Culture - Provincial Chamber of Commerce Social Development and Human Security (PCL) 	2021–2025	50
2.	Crisis Communication Manual and Plan	<ul style="list-style-type: none"> - Review the crisis communication channel and establish the center for crisis communication 	Tessaban Ranong Mueang	<ul style="list-style-type: none"> - PAO - Provincial Office of Tourism and Sports - TAT - Provincial Office of Culture - PCL 	2022–2027	200

Source: JICA Project Team

8.8.2 Update of Pilot Project

Although the depth and extent of transformation due to the impacts by COVID-19 is unclear, certain aspects to be considered to cope with the impacts have been identified. The identified aspects were categorized by five following evaluation criteria adopted for the existing conditions analysis of the pilot projects in Tessaban Mueang Ranong to reflect on their planning and design approach.

The selected components for the pilot project of Tessaban Mueang Ranong encompass a consideration of the long-term impacts of the pandemic on public space once the restrictions have been lifted. The following recommended aspects for the update of the pilot project relate to the future design, use, and changing perceptions of public spaces. This recommendation aims to highlight emerging questions at the interface of COVID-19 and the pilot project design and implementation. It is therefore recommended to provide additional considerations of the pilot project for proper response to emerging expectations.

1) Accessibility and Connectivity

Transport facilities, such as waiting sheds, rest and park areas, pedestrian walkways for all ages, and access for the vulnerable group and people with disabilities, require sufficient space for social distancing and regular cleaning to maintain sanitary condition. Entrances, flows from accesses, and division of spaces have been carefully considered to help disperse users.

Since managing street vendors is included as sub-evaluation criteria for the analysis of the pilot project in Ranong, sufficient social distancing and the appropriate hygiene condition should also be considered and reflected on the proposed planning and design.

2) Activity

While activities such as walking, jogging, cycling, meditation, meeting friends and families, having picnics, playing games, skateboarding, etc. have been identified, the compatibility between securing sufficient space for social distance and encouraging desirable social relations should be carefully considered and reflected on the planning and design. Hygiene conditions and risks from overcrowding should also be taken into consideration for planning special events and commercial activities such as street markets.

Developing a manual for events and approval process for commercial use of public space should be discussed. This will be applicable if the design of the space is flexible- or mixed-use to leverage opportunities to enhance the local economy and social inclusivity.

The selected public spaces serve various purposes for different demographics and are particularly important for socially vulnerable residents. The spaces in Tessaban Mueang Ranong are often used as outdoor recreational spaces by low-income residents and provides relief from cramped living conditions. Hygiene and inclusiveness may be seen as a challenging combination; the design of the space must also consider how to accommodate both issues.

3) Spatiality

Zoning, capacity management and flow in each area, area of open and green space with

shade, waste management, and safety are identified as the sub-evaluation criteria for the analysis of the pilot project in Tessaban Mueang Ranong.

Sufficient shared space. Multi-use space is an additional issue that must be addressed by providing sufficient and properly designated shared spaces to manage the density of people at different parts of the day and night. Securing sufficient space, desirable social interaction, and appropriate hygiene conditions should be considered and reflected in the spatial planning and design of the pilot projects in Tessaban Mueang Ranong.

Open and green space. The COVID-19 pandemic has changed the type and distribution of open and green spaces people want and expectations. The pilot project should be prepared for the foreseeable greater demand for smaller open and green spaces or neighborhood parks that serve as places of refuge from the louder and bustling city. The changing preferences and expectations about open and green spaces lead to reconsidering the designs, uses, and practices in smaller and open green space planning. For example, in the case of Tessaban Mueang Ranong, the space designers need to create more spaces for individualized and introspective use over larger spaces. A pocket park is proposed for this purpose.

Well-designated spaces. Effective and creative zoning of limited space might be needed to ensure that exercise equipment in the existing park and stadium spaces may be unable to absorb the influx of people at the revised levels of the appropriate density.

Flexible use of space. A post-COVID-19 world will shift value for public parks and open spaces. Public space is a key feature of a resilient city, partly because it is convertible to emergency health use. The current public health emergency has demonstrated the value of flexible spaces. In India, empty malls are being turned into shelters for migrant workers unable to return to their villages.

In addition to the elements above, the universal design should consider all people, especially the elderly and persons with disabilities.

4) Aesthetic

Since the representation of local identity, art, beauty, and unique sense of place has been considered, the appropriate manner to enjoy such aesthetic aspects should be explored (e.g., interaction through visual contact rather than physician contact) and reflected on the planning and design.

Tessaban Mueang Ranong has aesthetic consideration to improve the designated area of the pilot project by planting local trees along the main road as a visual guideline to the gateway from Petch Kasem Road.

5) Management

Safely controlling the hygiene conditions and various activities as mitigation measures from the COVID-19 impacts will require additional human and financial resources. Therefore, close collaboration between the public and private sectors is critical, including visitors, business owners, and residents, in the vicinity of the pilot project sites. Especially in Ranong, close coordination with the Department of Public Works and Town and Country Planning (DPT) is required since there are some ongoing projects by DPT around the selected public

space.

Utilization of information communication technologies (ICT), such as a mobile application that informs the number of users or level of crowdedness, should be considered in the planning and design to increase the efficiency and effectiveness of managing COVID-19 impacts.

Financial investment in system installations and maintenance will need to be considered with the need for staff for frequent disinfection and cleaning duties.

Part III

COVID-19 Impact and Response on it in BMA

1. Infection Status of COVID-19 in Bangkok

1.1 Number of Cases during COVID-19 Period

Overall infectious status in Bangkok Metropolitan Area (BMA) is summarized in Table 1.1.1. As of July 2020, Bangkok had a total of 1,652 COVID-19 infectious cases. Since 22 May 2020, there have been no new domestic cases in the capital, and only foreign-imported cases have been reported.

Table 1.1.1 Overall Infection Status in Bangkok

COVID-19 Infection Status									
1.1	Infectious Cases Number	Month							
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Total
	Active cases	13	14	961	549	28	43	44	1,652
	Cumulative cases	13	27	988	1,537	1,565	1,608	1,652	1,652
	Cumulative recovered cases	N/A	N/A	N/A	1,370	1,493	1,506	1,511	1,506
	Cumulative death toll	N/A	N/A#	N/A	24	25	25	25	25
	Testing number	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	State quarantine	N/A	N/A	N/A	11	19	43	43	N/A
	1.2	Gender							
Male		858							
Female		750							
1.3	Age (years)								
	Minimum	0.3							
	Maximum	84							
	Average	42							
1.4	Nationality								
	Thailand	1,434							
	China	22							
	Burma	19							
	France	18							
	United Kingdom	15							
	Japan	10							
	United States of America	9							
	India	8							
	Germany	6							
	Singapore	5							
	Philippines	4							
	Switzerland	3							
	Indonesia	3							
	Korea, South	3							
	Pakistan	3							
	Australia	3							
	Canada	3							
	Others	40							
	1.5	Date of first confirmed cases (Announced date)	12/01/2020						
1.6	Transferred from other provinces	At least 65 cases							

Source: Summarized by JICA Project Team based on Open Government Data of Thailand (2020)

2. Prevention Measures against COVID-19

2.1 General

On 18 March 2020, the Bangkok Metropolitan Administration (BMA) began to use legal measures to contain the spread of COVID-19 and limited gatherings by the closure of establishments, such as massage parlours, baths and saunas, cinemas and theatres, pubs and bars, boxing stadiums, sports venues, and horse racing courses (Kwanmuang, 2020a).

On 22 March 2020, the BMA announced a partial lockdown order for 26 types of businesses until 12 April that includes restaurants (except takeaway), shopping malls (except supermarkets), markets (except those selling food), barber shops, internet cafes, and fitness centres (Kwanmuang, 2020b). The closure was later extended according to the situation. Under this order, violators or anyone failing to comply shall be liable to imprisonment for a term not exceeding one year or to a fine not exceeding THB100,000 (ibid).

Prime Minister Prayut Chan-o-cha announced on 25 March 2020 the emergency decree to enforce specific actions necessary to bring the pandemic under control, coming into effect from 26 March (Chan-o-cha, 2020b). The emergency decree issued regulations and guidelines that everyone must follow. For instance, people could not enter areas that are risk-prone to COVID-19 infection as specified in the Resolution of the Council of Ministers dated 17 March 2020. Hoarding goods and going to crowded areas were also prohibited. Borders are also shut, meaning preventing foreigners to enter the country, but stranded Thais in other countries are allowed to return. The elderly over 70 years of age and young children under 5 years old must only stay in their dwelling places as protection from possible infection in the outside environment. Apart from these, everyone is obligated to wear face masks, wash their hands, keep a distance of at least 1 m, and conduct waste disposal daily. Furthermore, people are advised to refrain from non-essential cross-provincial travels and work from their habitual residences (ibid).

Under the emergency decree, the Prime Minister issued additional regulations to quickly remedy the emergency, taking effect from 3 April 2020 (Chan-o-cha, 2020c). Following the additional regulations, a curfew was also enforced, prohibiting people from leaving their residence from 10 p.m. to 4 a.m., except for workers in the medical field, banks, and transportation of necessary goods (ibid). From 17 May 2020, the curfew was adjusted to 11 p.m. to 4 a.m. that took effect until 14 June (Chan-o-cha, 2020a, Thai Rath, 2020f). According to TATNEWS (2020d), the emergency decree has been extended until 30 September 2020.

2.2 Public Service

2.2.1 Transportation

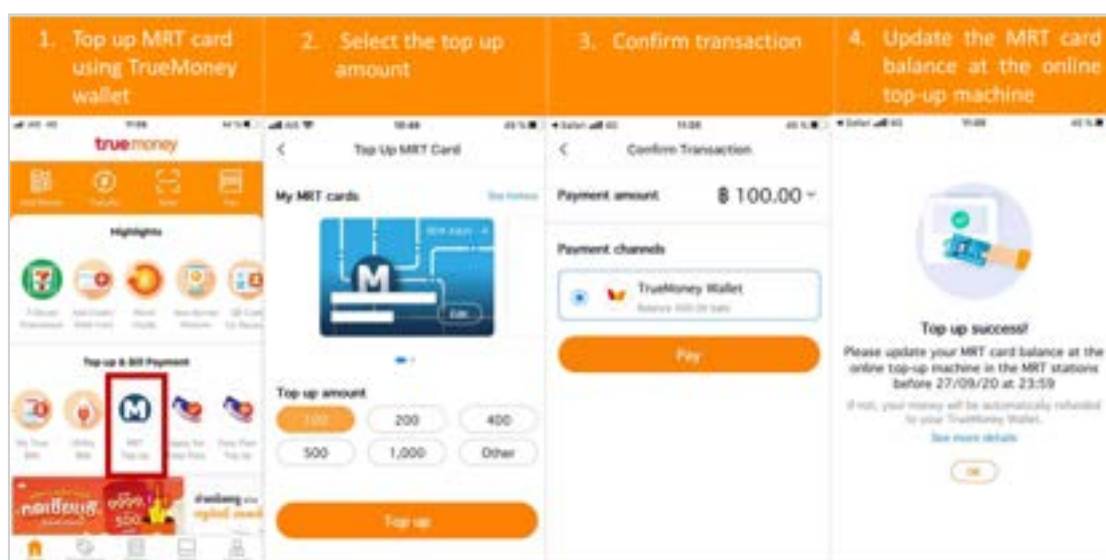
1) Urban Rail Transport

Beginning 25 March 2020, the Department of Rail Transport (DRT) has strictly required passengers to wear face masks and keep a distance of 2 m from passengers while in or at a station (Bangkok Post, 2020j). The minimum physical distance between sitting and standing was later adjusted, ranging between 1 to 2 meters depending on the suitability (Figure 2.2.1). For instance, passengers must keep a distance of 1.5 m when queueing at ticket machines, whereas 1 m must be applied when sitting or standing on a train (TATNEWS, 2020c, Ranong, 2020). Passengers have also been required to have their body temperature checked. If found to exceed 37.5°C or if the passenger refuses to cooperate with the screening process, the service operator has the authority to deny them from using the rail transport system (ibid). More measures were added later. According to Anukul (2020), high-touch surfaces should be frequently cleaned to keep the sanitary level up to standards. These high-touch surfaces include handrails, escalators, stairs, lifts, and ticket booths. Alcohol-based sanitizer gels were placed at various spots at stations, especially at the screening points. Service operators also increased cleaning operations by disinfecting carriages at the terminal station during peak hours (ibid). Apart from these, an online top-up system was added as an option to avoid touching cash, effective from 13 April (The Bangkok Insight, 2020). In doing so, passengers are required to have TrueMoney Wallet or Krungthai Next applications on their smartphones to pay for their MRT cards at the online top-up machine in train stations (Figure 2.2.2).



Source: Ranong (2020)

Figure 2.2.1 Spacing Measure applied on the Trains



Source: JICA Project Team (2020)

Figure 2.2.2 Online Top-up System

In addition, BTS Skytrain, MRT Bangkok Metro, and Airport Rail Link adjusted the service hours in response to the curfew time limit, taking effect from 3 April 2020 (Table 2.2.1). However, MRT Bangkok Metro and Airport Rail Link had to reschedule to increase service frequency to accommodate passengers during rush hour, effective from 7 April (Table 2.2.2) (Nation, 2020f). Two days later, the BTS Skytrain also began to implement the same measure (ibid). Still, passengers were urged to plan their travel and spare extra time to ensure they reached their destination on time (TATNEWS, 2020c).

Table 2.2.1 Service time of Urban Railway under the curfew time limit

Trains	Service time under the curfew time limit
BTS Skytrain	5.15 am–9.30 pm
MRT Bangkok Metro	6.00 am–9.30 pm
Airport Rail Link	5.30 am–9.30 pm

Source: Summarized by JICA Project Team based on TATNEWS (2020b)

Table 2.2.2 Increase in frequency of service to promote the social distancing policy

Line	Frequency increased during rush hours (Minutes)	Trips added during rush hours (Trips)	Passengers accommodated by added trips (Passengers)	Effective date
BTS Light Green Line	2.40	15	3,720	9 April
BTS Dark Green Line	3.45	6	1,488	9 April
MRT Blue Line	3.30	3	450	7 April
MRT Purple Line	4.30	9	1,350	7 April
Airport Rail Link	7.30	10	1,300#	7 April

Source: Summarized by JICA Project Team based on Nation (2020f)

On 8 May 2020, the Department of Transport ordered all service operators to limit the number of passengers by 25% of the normal capacity to ensure physical distancing, especially when some restrictions began to ease in the first phase of lifting restriction

(Channel 7, 2020). From 15 June 2020, urban rails resumed normal operating hours due to the cancellation of the curfew (Pattaya Mail, 2020). By 1 July 2020, the seat spacing measure on trains eased in response to the resumption of schools (Bangkok Biz News, 2020f). Each train was allowed up to 70% of its capacity while service operators kept increasing the service frequency during rush hours (ibid). In addition, passengers were advised to scan the ThaiChana QR code, stop talking on their phones, and avoid facing each other while on trains (Nation, 2020c). On 1 September 2020, the DRT announced the easing of the capacity rule, meaning each train can now carry passengers at full capacity (Thai PBS News, 2020c).

Table 2.2.3 Duration of Prevention Measures applied to Urban Railway

No.	Prevention measures	Month	March					April					May					June					July					August					September						
		Week	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6				
1	Cleaning high-touch surfaces							From 25 March to present																															
2	Providing alcohol gel							From 25 March to present																															
3	Checking body temperature							From 25 March to present																															
4	Wearing face masks							From 25 March to present																															
5	Practicing social distancing while on trains							From 25 March to 30 June																															
6	Adjusting operating hours due to the curfew								From 3 April to 15 June																														
7	Increasing train service frequency								From 7 and 9 April to present																														
8	Adding the online top-up system								From 13 April to present																														
9	Carrying pasengers at 25 percent of the capacity													From 8 May to 30 June																									
10	Resuming normal operating hours																	From 15 June to present																					
11	Easing social distancing while on trains																									From 1 July to present													
12	Prohibiting to talk on phones																									From 1 July to present													
13	Avoiding facing each other at close proximity																									From 1 July to present													
14	Carrying pasengers at 70 percent of the capacity																									From 1 July to 31 August													
15	Carrying passengers at full capacity																																			From 1 September to present			

Source: Summarized by JICA Project Team based on the Bangkok Post (2020j), Anukul (2020), The Bangkok Insight (2020), Nation (2020f), Channel 7 (2020), Pattaya Mail (2020), Bangkok Biz News (2020f), Nation (2020c) and Thai PBS News (2020c)

2) Buses

The Bangkok Mass Transit Authority (BMTA), on 27 March 2020, introduced several measures to prevent the transmission of COVID-19 within buses. For instance, it used disinfectant spray to clean high-touch surfaces, such as bus buzzers, handrails, curtains, and seats (BMTA, 2020a). Air-conditioning system was cleaned frequently, and alcohol-

based hand sanitizer gels were provided for passengers (ibid). Bus drivers and bus conductors were required to have body temperature checks before they went on duty (BMTA, 2020c). If found to have any suspicious symptoms, such as fever, cough, and runny nose, the person must not work and self-observe. While on duty, they must wear face masks and gloves at all times. Similarly, passengers must wear face masks inside the bus.

The BMTA implemented several more measures to ensure social distancing (Siam Rath, 2020b). For example, it designated clear sitting and standing points in compliance with the 1-meter distancing part of the spacing measure (BMTA, 2020a). For buses with 35 seats, the BMTA limited the seats to only 20 persons and allowed standing passengers to only 10 (Figure 2.2.3). Once a bus is full, the driver must alert passengers to wait for the next bus with a sign in the front of the vehicle (BMTA, 2020c). According to Thai Rath (2020c), the BMTA also reduced buses by 30% or 2,100 beginning 1 April 2020 (ibid). Apart from that, the BMTA adjusted the service hours, operating only from 5 a.m. to 9 p.m. due to the curfew, which took effect on 3 April 2020 (Thai Post, 2020a).



Source: Siam Rath (2020b)

Figure 2.2.3 Social distancing for the passengers using public buses

The BMTA affixed the Thai Chana QR code to all buses of BMTA on 11 June 2020 and required passengers to scan it for checking in (Nation, 2020g). If a passenger was eventually found with COVID-19, the Department of Disease Control used this information to track and notify other passengers (Government Public Relation Department, 2020). This prevention measure has been implemented in response to the new normal initiative.

On 15 June 2020, the Royal Thai Government canceled the curfew, bringing the bus service hours back to normal (Thai Rath, 2020b). In addition, the seat spacing measure has been eased since 1 July onward, allowing passengers to sit next to each other (BMTA, 2020b). Each bus now allows up to 20 standing passengers, but they need to keep a distance of 30 centimeters from other passengers (ibid). This easing is to reduce congestion on public transport since all schools reopened on 1 July 2020, which would increase bus passengers to 900,000 a day (Bangkok Post, 2020e). Furthermore, the BMTA has arranged 3,000 buses (100% operation) with 25,000 trips per day in response to the expected surge.

Table 2.2.4 Duration of prevention measures applied on public buses

No.	Prevention measures	Month	March						April					May					June					July					August								
		Week	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6			
1	Cleaning high-touch surfaces							From 27 March to present																													
2	Providing alcohol gel							From 27 March to present																													
3	Checking body temperature							From 27 March to present																													
4	Wearing face masks							From 27 March to present																													
5	Practicing social distancing							From 27 March to 30t June																													
6	Limiting number of passengers							From 27 March to 30 June																													
7	Reducing number of busses to 2,100							From 1 April to 30 June																													
8	Adjusting service hours due to the curfew							From 3 April to 15 June																													
9	Scanning ThaiChana QR code																		From 11 June to present																		
10	Easing social distancing																		From 11 June to present																		
11	Bringing service hours back to normal																		From 15 June to present																		
12	Easing social distancing																						From 1 July to present														
13	Running full operation of 3.000 buses																					From 1 July to present															

Source: Summarized by JICA Project Team based on BMTA (2020a), BMTA (2020c), Siam Rath (2020b), Thai Rath (2020c), Thai Post (2020a), and Government Public Relation Department (2020)

3) **Taxis and motorcycle taxis**

BMA introduced several COVID-19 prevention measures specifically for taxis, taking effect on 2 April 2020 (Naewna, 2020). First, taxi drivers must ensure they are in good condition. If they are sick or have any suspicious symptoms, they must stop providing service and take self-observation for 14 days. Second, taxi drivers must provide alcohol-based sanitizer gel in their taxis as well as tissue paper. During service, they must wear face masks, turn on air conditioning, and open windows from time to time for ventilation. They must also clean their taxis at least twice a day, using 70% alcohol-based disinfectant. Passengers are advised to sit in the backseat to ensure social distancing and must wear face masks at all times. If a passenger sneezes or coughs, the driver must clean the taxi immediately after the service (ibid).

In addition, the Royal Thai Air Force developed a “taxi bulkhead barrier,” which can be placed between taxi drivers and passengers to prevent transmission (Figure 2.2.4) (Bangkok Post, 2020v). This special barrier, made of transparent and durable polycarbonate, can be installed and removed without any modification of the vehicle. Each barrier comprises six fans for air filter and ventilation and an opening for passengers to slip in cash payments (ibid).



Source: Bangkok Post (2020v)

Figure 2.2.4 The taxi bulkhead barrier

For riders and passengers of motorcycle taxis, the Health Department of BMA launched a set of practices against COVID-19 they must follow. Riders are required to wash their vehicles and helmets frequently, using 70% alcohol-based disinfectant (Health Department, 2020). They should keep updated on the situation about COVID-19 as well as prevention measures. If they get sick or have any suspicious symptoms, they must seek medical attention immediately. While servicing, they must wear face masks and helmets, avoid talking and keep alcohol sanitizer with them all the time. They must wash their hands frequently and clean their vest daily. Riders are suggested to have extra face masks to offer to passengers without one.

Passengers must wear face masks but must not talk while using a motorcycle taxi service. They must also record the names of riders as well as vehicle registration numbers. It is recommended for passengers to sit on motorcycles side-saddle rather than the traditional way with one leg on either side of the seat (ibid).

2.2.2 Education Services

The Ministry of Education (MOE) closed all schools, universities, and other educational institutions in Thailand from 18 March to 30 June 2020 to control the spread of COVID-19 (Ministry of Education, 2020b). During the closure period, the MOE recommended every school and university move their classes online (Ministry of Education, 2020b). According to Thai PBS News (2020a), this approach focuses on high schools and university levels more than elementary schools.

On 18 May 2020, the MOE introduced the state distance-learning television (DLTV), which students can access through DLTV application and television (BBC News, 2020a). The DLTV is designed for students from elementary to high school. Similarly, BMA introduced four approaches to enhance knowledge of students in their affiliated schools that are (i) online

classes, students can study using communication platforms, such as Microsoft Teams, Google Classroom, and Zoom; (ii) if students do not have a computer or smartphone, they can study via television; (iii) in case both options are not available to them, students can study the documents given by their teachers; and (iv) onsite, which is to have a small group studying at the school (Daily News, 2020a). These approaches had been implemented from 1 to 31 June.

When schools reopened, students were divided into two groups, one group studying in schools and the other at home (Bangkok Metropolitan Administration, 2020c). The two groups alternated according to a schedule. In addition, schools were strictly required to comply with preventive measures issued by BMA. They must clean floors, high-touch surfaces, air-conditioners, and toilets frequently. Schools must also provide handwashing stations with soap and dispose of waste daily. Everyone must always wear face masks and keep a distance from one another of at least 1 m whether sitting or standing. It is important to restrict the number of participants in any activities to prevent overcrowding. In air-conditioned rooms, the number of participants is limited by room size, using the criteria of no less than 5 m² per person. It is also suggested to reduce time in any activities, arrange alternating study times, or modify the study method using an online system for some subjects. Entrances and exits must be monitored as well. A mobile application can be used for logging entry and exit as prescribed by the government or manually filing a report. Furthermore, schools are required to have a screening measure for COVID-19 symptoms, such as fever, cough, difficulty breathing, sneezing, and colds. Responsible government agencies must consider allowing schools to organize appropriate activities, including registration, to confirm their compliance with disease prevention measures as recommended by the government (ibid).

2.2.3 Elderly Care Centres

BMA announced the temporary closure of all elderly care centers in Bangkok from 1 May to 14 June 2020 (Kwanmuang, 2020f). Service users could stay in the centers during this period, but new users or visitors could not enter (Daily News, 2020d). From 15 June, these centers have been allowed to reopen under the condition they comply with the disease prevention measures specified by the government described below.

Staff must clean floors and hi-touch surfaces frequently, especially the visitor's area (Bangkok Metropolitan Administration, 2020e). Solid wastes and infectious wastes must be properly disposed of and managed according to standards. Service providers and staff must always wear surgical or fabric face masks. There must be hand-washing stations provided with soap or alcohol sanitizer gel. A physical distance of at least 1 m must be applied while sitting or standing. In shared rooms, the distance between beds must be at least 2 m. Staff must separate new service users from current users at risk of catching and spreading disease by observing them for 14 days for symptoms. Furthermore, new service users must be screened according to the standards of hospitals or health establishments. The number of service users and visitors must be restricted to avoid overcrowding. A registration system must also be in place to log entry and exit of the premises by using a mobile application as specified by the government or record all necessary information

through a report instead. Elderly care centers must have a measure for screening COVID-19 symptoms, such as fever, coughing, and difficulty breathing. This must apply to all service providers, service users, and visitors before entering the premises. Regardless of any circumstances, service providers must inform the responsible government agency if any service user meets the criteria of "Patient Under Investigation." In addition, service providers must wear standard disease protective equipment. In elderly care centers, taking meals by groups must be prohibited, and personal containers must be used (ibid).

2.2.4 Other Public Services

1) Indoor sport centres

BMA announced the temporary closure of all fitness centers, indoor stadiums, boxing stadiums, and boxing gyms between 17 March and 30 May 2020 (Bangkok Metropolitan Administration, 2020a). From 1 June, indoor sports centers reopened but must strictly comply with the disease prevention measures. But only particular types of sport are allowed, such as badminton, Sepak takraw, table tennis, squash tennis, gymnastic, fencing, and rock climbing. Sport competitions are still prohibited.

Owners of sports centers must ensure that floors and toilets are cleaned before and after services (Bangkok Metropolitan Administration, 2020d). The centers must have proper ventilation, and waste disposal must be conducted daily. Screening tests must be set up at entrances for checking COVID-19 symptoms. Owners and staff must always wear surgical or fabric face masks and provide handwashing stations with soap or alcohol sanitizer gel. The number of users must be restricted to keep distance among them. The distance between exercise machines must be at least 2 m, each user is limited to only 2 hours, and group exercise is prohibited. An area of at least 5m² per person is recommended in the free weight training zone. Owners and staff must advise all users as well as supervise to comply with the disease prevention measures. Owners must also register all entries and exits for tracing in case a user becomes a patient under investigation. Owners can use an application specified by the government or manually record the necessary information for filing a report instead.

Users must wear surgical face masks, and face shields are highly recommended. For yoga, users must bring their mats (ibid).

2) Public parks

BMA temporarily closed all state and private-public parks in Bangkok from 1 April to 2 May 2020 (Bangkok Metropolitan Administration, 2020b). It also imposed preventive measures for responsible authorities, public park owners, staff, and parkgoers to follow when they reopened on 1 May 2020, which are described below.

Responsible authorities or owners must provide screening equipment at the entrance for staff and parkgoers (Bangkok Metropolitan Administration, 2020e). Parkgoers must be limited to be able to maintain a physical distance of at least 2 m. The responsible authority must designate clear standing points on the ground, complying with the required 2 m. They must also provide handwashing stations with soap or alcohol sanitizer gel. Only the open-air zones in parks are usable. Group exercise, social gatherings, and the use of

exercise equipment must be prohibited as well as sports competitions, live music shows, and any other performances. People must physically distance themselves from one another by 1 m. Stores in parks must be temporarily closed, except those that sell drinks, meaning eating in parks is not permitted. Toilets must be cleaned every 2 hours.

Staff must always wear face masks, keep a physical distance of 1 m, and refrain from gathering with others. If anyone does not feel well or has a body temperature of over 37.5 °C, they must stop working immediately, seek medical attention, and self-observe at home. Last but not least, staff should wash their hands with soap or use alcohol-based hand sanitizer before and after work.

Parkgoers must always put on face masks, frequently wash their hands with soap or use alcohol sanitizer gel, and maintain personal hygiene. If a parkgoer has any suspicious symptoms or has a body temperature over 37.5 °C, they must not use any of the park services, and they must immediately seek medical attention and self-observe at home. In addition, a physical distance of 5 m must be maintained while jogging (ibid).

3) Garbage collection

Garbage collection in Bangkok is operated by Krungthep Thanakom Co., Ltd. (KT), where BMA holds 99.98% of shares. Due to the COVID-19 outbreak, KT introduced a measure to separate COVID-19 infectious wastes from other infectious wastes, meaning the latter must be collected and disposed of separately (Voice Online, 2020). When KT receives the notification of COVID-19 infectious wastes, it sends a specific team with a specific garbage truck to collect them immediately. However, more processes were added before the actual waste collection. Garbage collectors must wear full protective equipment and bring disinfectant spray. When they reach the hospital, they must spray the disinfectant on themselves, the truck, and the COVID-19 infectious waste before loading the waste on the truck. The truck has a special storage compartment that is completely sealed and keeps the temperature under 10 °C to prevent the risk of spreading the virus. Then, garbage collectors take the truck to the disposal facility. Upon arriving at the facility, the garbage collectors must change the suits and spray on themselves again. The used suits must be incinerated with the collected COVID-19 infectious waste twice at 750°C first and then 1,000°C. Ashes from the incinerator will be taken to a landfill (ibid).

In addition, BMA provided special orange bins specifically for used masks in 173 locations across the capital city (Figure 2.2.5) (Bangkok Post, 2020d). The orange bins were put in highly visible areas and kept separately from the ordinary garbage bin. Thirty-eight bins were placed in public parks, whereas the rest at the 50 district offices, hospitals under the BMA's supervision, and BMA-run public health centers. BMA has requested people to place used masks in Ziploc bags and hand them to garbage collection trucks (ibid).



Source: Nation (2020d)

Figure 2.2.5 Bins for used masks

2.3 Commercial Sector

1) Public markets

BMA temporarily closed all markets in Bangkok from 22 March to 2 May, except for those selling food, pet food, pharmacies, and other necessary items (Bangkok Metropolitan Administration, 2020a). Nevertheless, market owners, stall vendors, staff, and customers must adapt and strictly comply with the market controlling measure launched by BMA (Bangkok Metropolitan Administration, 2020f).

Owners were required to provide situation updates and information about COVID-19 to all vendors and staff, such as proper use of face masks and handwashing. Initial screening tests must be set up for all vendors and staff before they start working. If any suspicious symptom was detected, the person must stop working immediately and seek medical attention. This includes fever, runny nose, cough, and difficulty breathing. If the person was tested positive for coronavirus, the market must be cleaned within 24 hours under the supervision of a disease control staff. In general, markets must be cleaned at least once a day, and arrange a proper ventilation system. In toilets, a soap or alcohol sanitizer gel must be provided. At the canteen section, eat-in services must be temporarily closed. In markets, a physical distancing of 1–2 meters must be maintained, and the distance between stalls must be at least 2 m. Markets must have a specific entrance as well as exit, and a screening area must be set up. An e-payment channel should be added to avoid exchange and contact with banknotes. Last but not least, proper waste disposal must be conducted.

Market stall vendors and staff were urged to wash their hands frequently with soap, especially after touching dirty objects and using the toilet. Also, they must wear face masks while working. Any vendors or staff having suspicious symptoms must stop working and seek medical attention immediately. The symptoms include fever, runny nose, cough, and difficulty breathing. For meat vendors, they must provide meat tongs or clamp for their customers to avoid directly touching the meat. Customers must always wash their hands after touching the meat. For vendors selling cooked food, they must wear an apron and a hat. Furthermore, the food must be freshly cooked, reheated every 2 hours, and covered. For meat-based food, it must be cooked at a temperature of at least 70 °C. Lastly, vendors must maintain a distance of at least 1–2 meters from their customers.

Customers were required to put on face masks and maintain a distance from other customers of at least 1–2 meters when in the market. They must wash their hands with soap or use a hand sanitizer gel after receiving food from vendors. In addition, they are recommended to use an e-payment as an option to avoid contact with cash (ibid).

2) Shopping malls

BMA announced on 22 March (Kwanmuang, 2020g) the temporary closure of shopping malls to prevent the spread of COVID-19 and limit public meetings. During this period, only supermarkets, drug stores, and miscellaneous stores for essentials were allowed to open. Then on 17 May, all shopping malls were allowed to reopen, but they must comply with the disease prevention measures specified by BMA strictly, explained further as follows.

Business managers must restrict the number of specific entrances and exits to limit the

number of people entering the premises to be appropriate for the spaces (Bangkok Metropolitan Administration, 2020e). They must also set up screening at all entrances to check for symptoms and provide 70% alcohol-based hand sanitiser gel. Business managers must ensure social distancing of 1 m and designate clear standing points and floors, walkways, contact surfaces, cashier counters, and shopping baskets are cleaned with disinfectant. Toilets and restrooms must be cleaned at least once every 2 hours. It is recommended for business managers to add an e-payment as an option and place products methodically for convenience.

Staff must wear face masks all the time and wash their hands frequently using 70% alcohol-based disinfectant. If a staff had a body temperature of 37.5°C, they must stop providing service immediately, seek medical attention, and self-observe at home. Staff must not sneeze on others and not touch their face, eyes, nose, and mouth unnecessarily. For waste collectors, they must wear rubber gloves and use long handle tweezers to collect wastes. They should put waste in garbage bags, tie the bags tightly, and collect all the garbage bags at the trash storage.

Customers must wear face masks all the time and make certain they are not sick. They should notify the district office in the area if a shopping mall failed to comply with the preventive measures. Customers were recommended to plan or create a shopping list to reduce time at the shop. They should use e-payment and wash their hands or use a hand sanitizer after receiving purchased items from staff (ibid).

3) **Restaurants**

BMA ordered the temporary closure of restaurants in Bangkok, except those offering delivery service and takeaway food (Kwanmuang, 2020g). Hotel restaurants were also allowed to be opened, but they could only serve food for hotel guests. This order was announced and took effect on 22 March (ibid). From 2 April, a stricter measure on restaurants was implemented, forcing restaurants to only offer delivery service and takeaway food from 5 a.m. to 12 a.m. (Kwanmuang, 2020c). The operating hours became limited from 10 April when they could only provide the delivery service and offer takeaway food from 4 a.m. and 10 p.m. From 3 May, restrictions on restaurants were eased, meaning they were allowed to reopen and offer dine-in services (Kwanmuang, 2020f). Still, they must comply with the disease prevention measures prescribed by BMA strictly (ibid).

Owners must have a screening area for staff and service users to check for fever, cough, sneezing, or cold. They must arrange seats to enforce physical distancing of at least 1.5 m (Bangkok Metropolitan Administration, 2020e). If 1.5 m is not possible, a (transparent) partition between seats must be provided with a distance of at least 1 m. Customers queueing for food must keep a distance of 1 m. It was recommended for owners to set up an online queueing system and provide an option for electronic money transfer. They should also designate clear standing points on the ground. A self-service buffet in which customers queue to get food themselves must be prohibited; however, buffet service which is ordered from the menu was allowed. Consumption of alcoholic beverage in restaurants and live music were not allowed. Owners must provide handwashing stations, and toilets must be cleaned every 2 hours. Dining tables and chairs must be cleaned using 0.1 percent

sodium hypochlorite after every use. Air-conditioned restaurants must clean and ventilate intermittently. Strict measures must be used for cleaning food, plates, containers, bowls, cutlery, and other utensils.

Staff must wear face masks, hand gloves, aprons, and clean work outfits. They must also ensure they are not sick. If their body temperature is over 37.5°C, they must stop working immediately, seek medical attention, and self-observe at home. Cooks must wash their hands before cooking, and waiters must only speak with one another at a normal speaking level.

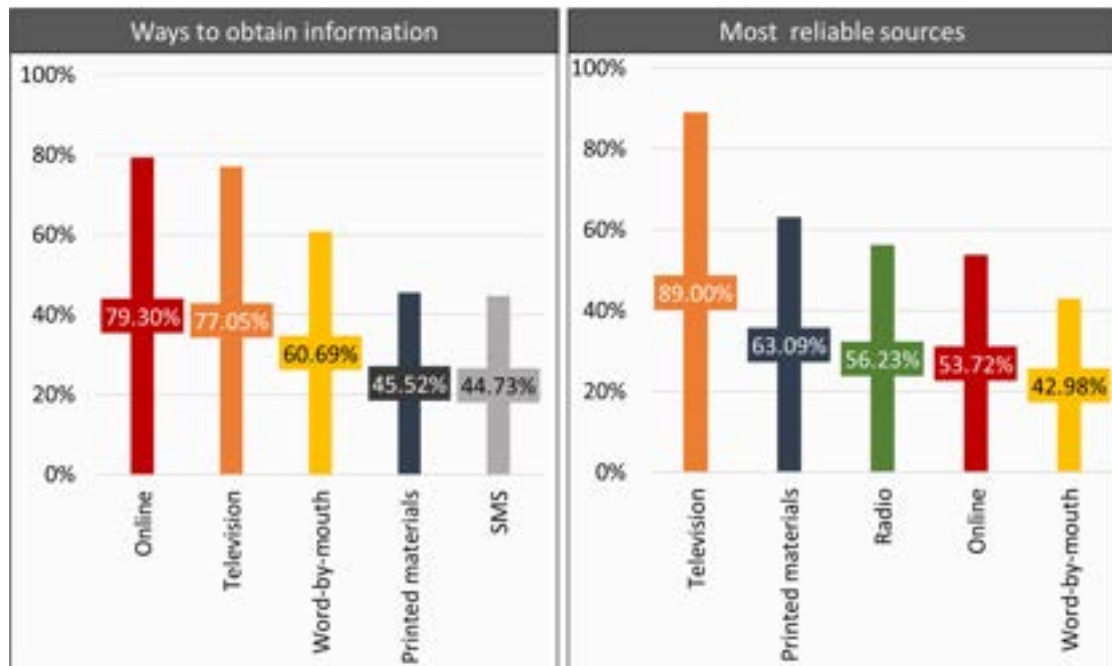
Customers were required to maintain personal hygiene by washing their hands before and after using services. They must ensure that they do not have any suspicious symptoms, such as fever, runny nose, sneeze, or difficulty breathing. If customers find a restaurant failing to comply with the preventive measures, they should notify the district office in the area (ibid).

4) Ban of Alcohol Selling

BMA ordered the ban of alcoholic beverage sales to prevent social gatherings that could lead to the spread of the virus (Kwanmuang, 2020d). Initially, the order had come into effect from 10 to 20 April, but it was later extended until 30 April (Kwanmuang, 2020e). Any person violating or failing to comply with the order shall be liable to imprisonment for a term of not exceeding one year or to a fine of not exceeding THB 100,000 or both (ibid).

2.4 Information Dissemination

Suan Dusit Rajabhat University carried out an opinion survey about how people obtain COVID-19 information (Bangkok Post, 2020). It was conducted between 25 and 28 March with 1,033 respondents. It revealed that 79.30% get information via social media, such as Facebook, Twitter, and Instagram, followed by the 77.05% that get information from television, 60.69% from hearsay, 45.52% from printed materials, such as official documents and newspapers, and 44.73% from SMS (Figure 2.4.1). However, 89% of respondents said TV is the most reliable source, followed by 63.09% from printed news materials, 56.23% from radio news, 53.72% from social media, and 42.98% from word-of-mouth (ibid).



Source: Summarized by JICA Project Team based on Bangkok Post (2020)

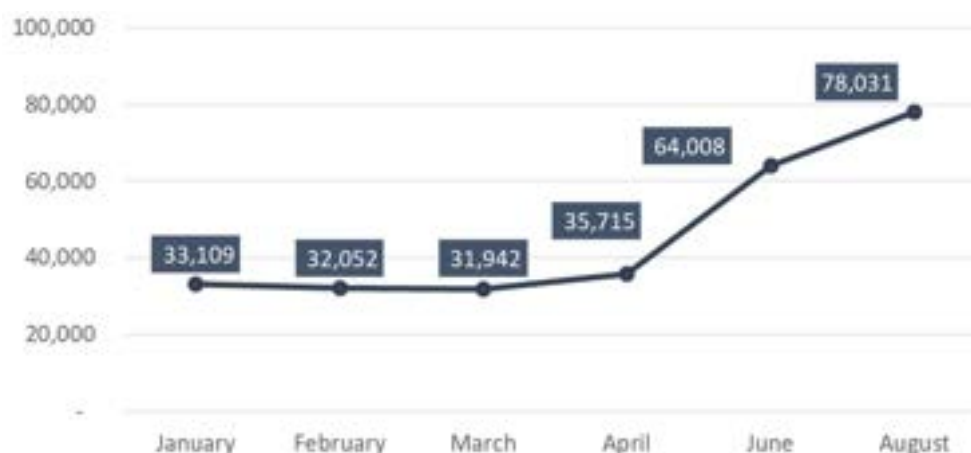
Figure 2.4.1 Ways to Obtain Information and the Most Reliable Sources

3. Impacts of COVID-19 in Bangkok

3.1 Economic Impacts

3.1.1 Overview of Economic Impacts

The outbreak and restriction measures have greatly affected the economy in Bangkok. First of all, the number of firms lacking liquidity would increase by 20.6%, causing a delay in loan payments (Chaivichayachat, 2020). Secondly, 328 businesses were temporarily suspended, including hotels, restaurants, and tour companies (Bangkok Biz News, 2020e), affecting 38,583 employees although they received the minimum amount of 75% of their normal wages. Furthermore, Kasikorn Research Center (2020a) revealed that Bangkok Metropolitan Region had an unemployment rate of 9.6% of the total population, and it was likely to peak in the 2nd quarter of 2020. This information is in line with the Department of Employment (2020a), reporting approximately 30,000 unemployed applying for unemployment benefits during the 1st quarter; however, the number rose to 64,008 in June, which is approximately double compared to the previous months (Figure 3.1.1).



Remark: The number of people applying for unemployment benefits in May and July is not available.

Source: Summarized by JICA Project Team based on Department of Employment (2020b)

Figure 3.1.1 Number of unemployed people applying for unemployment benefits

1) Tourism sector

Tourist arrivals

The tourism sector in Bangkok began to feel the impacts of COVID-19 when the Chinese government imposed outbound travel restrictions in January since the Chinese are the largest market feeder of Thailand. The impact became apparent when the Thai government announced the closure of borders which immediately hit the tourism industry by reducing the number of tourist arrivals (Chaivichayachat, 2020). Between January and May 2020, the total number of inbound travelers at Suvarnabhumi International Airport and Don Mueang International Airport dropped by 57.61% and 55.29%, respectively (Airports of Thailand Public Company Limited, 2020), including both international and domestic travelers. April and May were the worst months when the number of travelers in the two airports slumped by almost 100% (Table 3.1.1 and Table 3.1.2).

Table 3.1.1 Inbound travelers at Suvarnabhumi International Airport

Month	Inbound travelers		Change	
	2019	2020	People	Percentage
January	3,073,476	3,055,704	- 17,772	- 0.58
February	2,783,131	1,889,830	- 893,301	- 32.10
March	2,871,384	863,363	- 2,008,021	- 69.93
April	2,742,082	17,375	- 2,724,707	- 99.37
May	2,321,537	20,409	- 2,301,128	- 99.12
Total	13,791,610	5,846,681	- 7,944,929	- 57.61

Source: Summarized by JICA Project Team based on Airports of Thailand Public Company Limited (2020)

Table 3.1.2 Inbound travelers at Don Mueang International Airport

Month	Inbound travelers		Change	
	2019	2020	People	Percentage
January	1,842,697	1,817,230	- 25,467	- 1.38
February	1,685,109	1,325,496	- 359,613	- 21.34
March	1,836,744	674,400	- 1,162,344	- 63.28
April	1,773,677	19,843	- 1,753,834	- 98.88
May	1,668,682	100,652	- 1,568,030	- 93.97
Total	8,806,909	3,937,621	- 4,869,288	- 55.29

Source: Summarized by JICA Project Team based on Airports of Thailand Public Company Limited (2020)

Hotels

The plunge in tourist arrivals subsequently weakened the hotel market in Bangkok, which can be indicated by the reduction of the average occupancy rate during the first quarter from 89.2% in 2019 to 55.4% in 2020 (Krungsri Research, 2020, Knight Frank, 2020). The situation was even worse in the second quarter when the occupancy rate dropped significantly at the lowest level at 25% (Knight Frank, 2020) because the government imposed travel restrictions as well as border closures, which later brought international travel to a standstill. In addition, luxury hotels experienced a decrease in the average daily rate by 5.6% due to the discounts offered to customers given the drop of international travelers (ibid). As a result, hoteliers had to introduce several measures in an attempt to keep themselves afloat, such as partial operations, temporary suspension of operation, and permanent closure (HSV, 2020). For hotels that did not permanently close, several contingency measures have been undertaken to manage operating costs, including reduction of staff training, optimization of labor planning, postponement of internal events, and minimization of utility consumption. Freeze hiring and closure of some hotel facilities are deemed the most effective (ibid). Considering new hotels, many of them have postponed reopening to late in the third quarter of the year under the condition that tourists will resume traveling (Bangkok Post, 2020c). However, if the COVID-19 crisis persists, some new hotels may experience serious financial problems due to weak financial backing.

Regarding signs of recovery, it was expected that the Bangkok hotel market would start recovering in the last quarter of 2020 during the high season, but a full recovery may not be any time soon. It could be at the end of 2021. Nevertheless, this scenario would only

happen if the pandemic would be completely under control in all countries (ibid).

2) Commercial sector

Restaurants & Delivery Service

The COVID-19 crisis has brought dine-in restaurants under severe stress due to the closure order, travel restrictions, and work at home initiative. This new environment has changed the purchasing behavior of people to use online food delivery services to avoid exposure to COVID-19 (Sirikeratikul, 2020). In response, many restaurants have shifted their focus to online markets, delivery menus, and takeaway food. This situation has been greatly beneficial for food delivery operators, such as Foodpanda, Get, and GrabFood, which can be indicated by the double-digit growth in their orders. It was estimated that the food delivery businesses have grown by 31%, with a total value of over 1.8 billion baht during the crisis. However, since commissions charged by food delivery operators are relatively high, many restaurants are attempting to manage their online platforms and have their delivery services (ibid).

Nevertheless, delivery service was not always the solution for every food operator. For example, Bo.lan restaurant was down around 90-95% of the revenue compared to 2019 despite the delivery service (Symons, 2020). This was because the restaurant primarily offers food for special occasions. Similarly, Ayutthaya Boat Noodle Rachada 3 restaurant experienced a decrease in sales by 70%. The situation was even worse for street food vendors such as Pad Thai Fai Luk restaurant in Sukumvit Soi 38, which had temporarily closed due to a drop in its revenue. Previously, the restaurant used to make up to THB8,000 a day, but ever since the crisis, even THB1,000 was difficult. The owner is also worried that he might have lost his regular customers by the time the restaurant is reopened (ibid).

Food retails

There was mild growth in food sales through supermarkets, convenience stores, and their online platforms. For hypermarkets, Makro experienced an increase in sales during the first quarter with a value of THB52 billion as well as a 9% growth rate from consumer stockpiling essential food items (Sirikeratikul, 2020). Still, sales might drop in the second quarter because of the closure of dine-in restaurants, which are the main customers. Central Food Retail also experienced the same trend, generating revenue of THB22 billion, which is a 4% increase compared to the same period last year. In contrast, 7-Eleven revealed a decrease in sales by 4%, with an average daily sale of only THB77,000 per store. The number of customers also reduced by 6% from 1,187 in 2019 to 1,122 in 2020, mainly due to the enforcement of the curfew.

In the event of a crisis, most retailers have improved their sale strategies by introducing omnichannel retailing and expanding their services from offline to online in response to the new normal behavior of consumers. With these strategies, Central Food Retail was able to increase the food sales by 106% in the first quarter compared to the same period in 2019. Other retails also had similar results, such as Villa Market, Tesco Lotus, and Big C Supercenter. In addition, these retailers have either developed their delivery service or partnered with a third-party delivery service provider such as LINEMAN Grocery and GrabFresh Application (ibid).

3) Industrial sector

In March 2020, the Thai Industrial Index dropped to the lowest level in 28 months at 88.0 points, due to the economic downturn caused by the COVID-19 pandemic, travel restrictions, and government curfew (Bangkok post, 2020r).

In Bangkok Metropolitan Region (BMR), most manufacturers faced diminishing orders and falling export demand not only from China but also Asian countries, European countries, and the USA (Bangkok Biz News, 2020h). They also experienced a shortage of raw materials and struggled to import them from other countries. Many manufacturers had inventory management difficulties due to delays in transportation and postponement of purchase orders(ibid).

Several manufacturing sectors were suffering from the coronavirus outbreak, particularly for gems and jewels, electronics, wood products, rubber, automotive parts, cars, cosmetics, petrochemicals, and herbal products (Embassy of the Kingdom of the Netherlands in Thailand, 2020). In March 2020, Honda Automobile (Thailand) Company Limited announced a temporary suspension of manufacturing operations in Ayuthaya province until 30 April (Khaohoon, 2020). Similarly, Kuang Charoen Electronics Company Limited has temporarily closed its subsidiary company in Bang Pu Industrial Estate from 7 May as a result of the reduction in demand for motor vehicles (Positioning, 2020a).

On the other hand, Navanakorn Industrial Estate in Pathum Thani was hardly hit by the outbreak and had no manufacturing plants shutting down since most manufacturers are in sectors of food and beverage, textile, medicine, and medical devices (Bangkok Post, 2020m). These sectors were demanding in the domestic and global market as they produce virus protection equipment such as face masks, alcohol sanitizer, and clothing. Besides, they are increasing production capacity in response to the growth in demand (ibid).

4) Agricultural sector

Poultry farming

Between March and April 2020, there was a surge in demand for chicken eggs in the BMR due to fears of the spread of COVID-19 and the announcement of the emergency decree (Kasikorn Research Center, 2020b). People began hoarding eggs after mistakenly believing they would be banned from leaving their homes. This situation has later increased egg prices at farms by 5.3%. Therefore, the government ordered a ban on egg export to ensure sufficient supply for domestic consumption for 30 days starting from 26 March 2020. Furthermore, it controlled the egg price at farms to THB2.8 a piece (ibid). According to (Bangkok Post, 2020t), at a central market in Bangkok operated by the Department of Internal Trade, eggs were being sold at prices between THB3.50 and THB3.60 per piece, which is THB0.50 higher than in February. However, eggs are more expensive in convenient stores and supermarkets, ranging from THB6 to 9 per piece (Kasikorn Research Center, 2020b).

Fruits

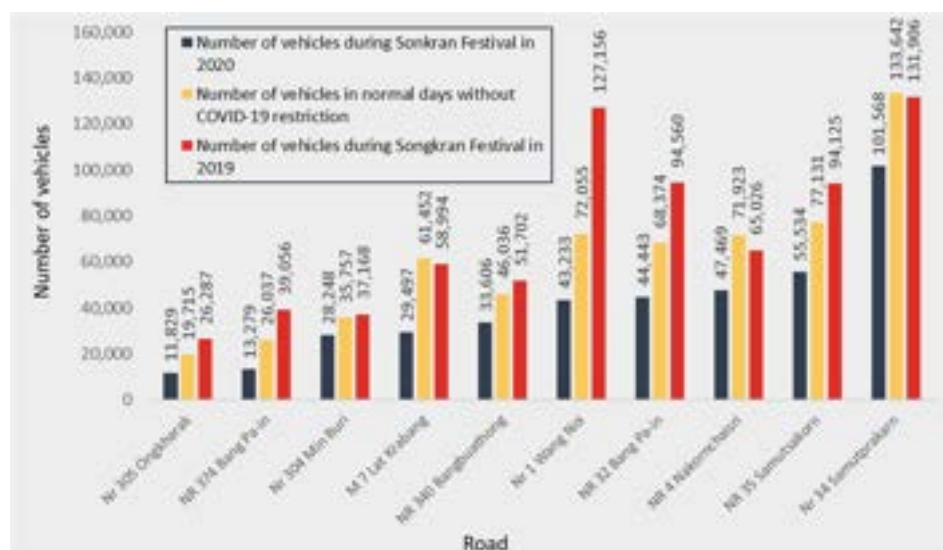
It has been said that the pandemic has negatively affected agriculture on demand and logistics but not supply. However, durian was an exception. It is well-known in Nonthaburi

and other provinces near Bangkok. Although durian season begins in March, which is when the coronavirus pandemic also started, the demand for durians didn't drop but increased, especially from China which is the largest durian-importing country (Bangkok Biz News, 2020g). This can be proved by the export value of durian at US\$567 million (THB17.5 billion), a 78% increase from the same period in the previous year. This was mainly due to the Free Trade Agreements (FTAs) with 16 countries, including China, Hongkong, Australia, Japan, and New Zealand. In other words, these countries could import durian with 0 percent tariff deals. In addition, since durian in Nonthaburi is very popular, people needed to order in advance (CH 7, 2020). One durian can cost THB3,000–10,000 (ibid).

Likewise, coconuts in Nakhon Pathom experienced similar trends and were hardly affected by the crisis. According to Matichon (2020d), European countries and the USA import coconuts from Thailand. However, COVID-19 started spreading in European countries and the USA in April, while the situation in China was getting better, so coconut orders increased sharply. It was expected that 30 million coconuts would be exported in 2020, making revenue of THB700 million. However, if the COVID-19 crisis persists, it might affect the coconut export by the second quarter of the year (ibid).

5) Transport demand

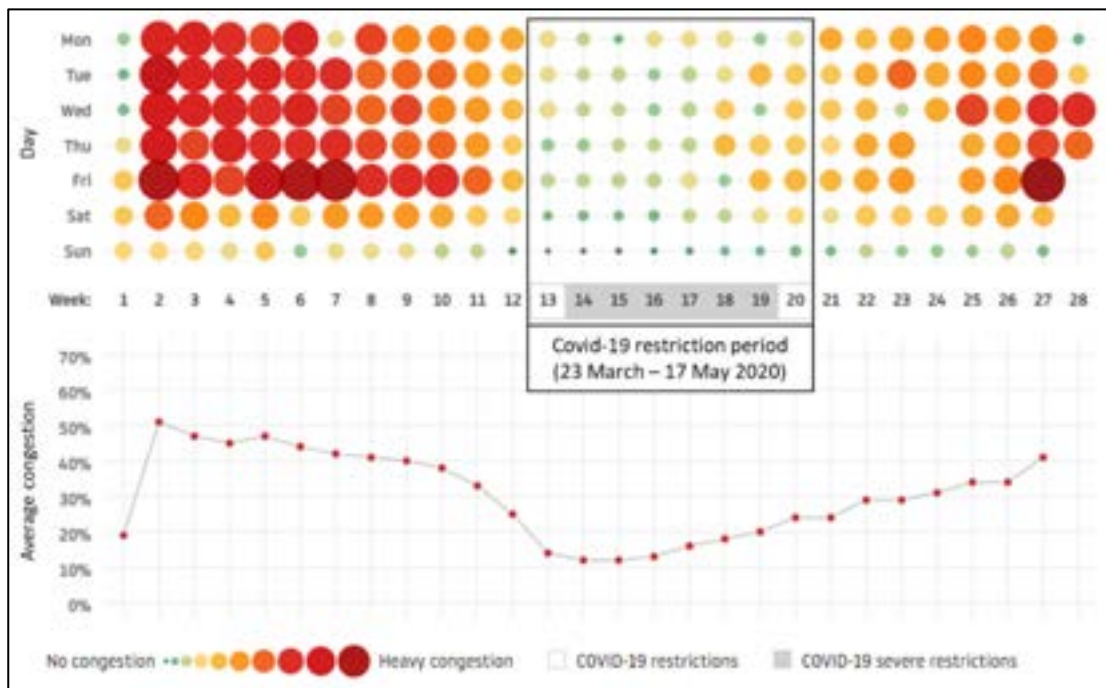
During the Songkran Festival in 2020, the total number of vehicles dropped significantly due to the travel restriction (THAI PBS News, 2020b). Only 408,706 vehicles, which is 33% less than normal days and 44% less than the same period in 2019, were on highways and motorways (ibid). The traffic volume in each highway is summarized in Figure 3.1.2. This information is in line with TomTom (2020), illustrating that the congestion levels in Bangkok during the COVID-19 restrictions were very low compared to the beginning of 2020 and after the lockdown measure has been eased (Figure 3.1.3). In addition, THAI PBS News (2020b) reported that there were only 37 car accidents, which is 81% lower than in 2019. Deaths caused by car accidents were also reduced by 87%, whereas the injury dropped by 89%.



Remark: Songkran Festival in 2020 refers to 11 April 2020 / Songkran Festival in 2019 refers to 10 April 2019.

Source: Summarized by the JICA Project Team based on THAI PBS News (2020b)

Figure 3.1.2 Number of Vehicles during the Songkran Festival in 2020 and 2019



Source: Edited by JICA Project Team based on TomTom (2020)

Figure 3.1.3 Congestion Levels during the COVID-19 Restriction Period in Bangkok

Regarding public transportation, the average ridership per day of MRT dropped dramatically between March and June (Bangkok Expressway and Metro, 2020). In previous years, the daily average ridership ranged between 245–416 thousand trips, but it dropped to only 78 thousand in April 2020, which is the lowest point (Figure 3.1.4). In terms of the daily farebox revenue, the MRT previously earned an average of THB7.66 million per day; however, during the COVID-19 restriction period, it dropped to THB4.34 million. This means that the MRT was losing a farebox revenue of approximately THB3 million a day. The situation worsened in April when the daily revenue slumped to only THB2.19 million (Figure 3.1.5). Considering BTS sky train, EfinanceThai (2020) reported that the total trips in March decreased to 11.7 million, which is 45.2% less than in 2019, whereas the trips in April were only 3.5 million or 81.5% lower than the year earlier.



Remark: One trip is counted when a passenger gets on and off a train.

Source: Summarized by JICA Project Team based on Bangkok Expressway and Metro (2020)

Figure 3.1.4 Average Ridership per Day of MRT



Source: Summarized by JICA Project Team based on Bangkok Expressway and Metro (2020)

Figure 3.1.5 Average Farebox Revenue per Day of MRT

For buses, the number of passengers had decreased by 40% compared to normal situations. Therefore, Transport Company Limited decided to reduce the number of busses from 3,000 to 2,100, accounting for a 30% decrease (Thai Rath, 2020c). However, a survey carried out by the Thai Health Promotion Foundation revealed that the number of vehicles was inadequate during rush hour, although most people avoided commuting (Thai Health Promotion Foundation, 2020) mainly because physical distancing restricted the number of passengers in each bus. As a result, passengers had to wait longer. The survey also found that 64.9% of respondents commuted to work, whereas the second reason was for buying food and other items (ibid).

Considering the use of bicycles became popular in many countries during the COVID-19 crisis, such a trend hardly happened in Bangkok or even in Thailand for several reasons (Thai PBS News, 2020g). First, bike routes in Bangkok are not well-connected and sometimes are blocked by trolleys, motorcycles, and other objects. Secondly, bicycle parking facilities and ramps are barely provided, which creates difficulties for cyclists and demoralizes people to use bicycles. Also, the weather in Thailand is very hot during the daytime, coupled with air pollution from vehicles. Safety was also an issue because some bike lanes are not separate from car lanes, which could result in road accidents (ibid).



Source: Thai PBS News (2020g)

Figure 3.1.6 Cycling in Bangkok

6) Real estate market

Housing market

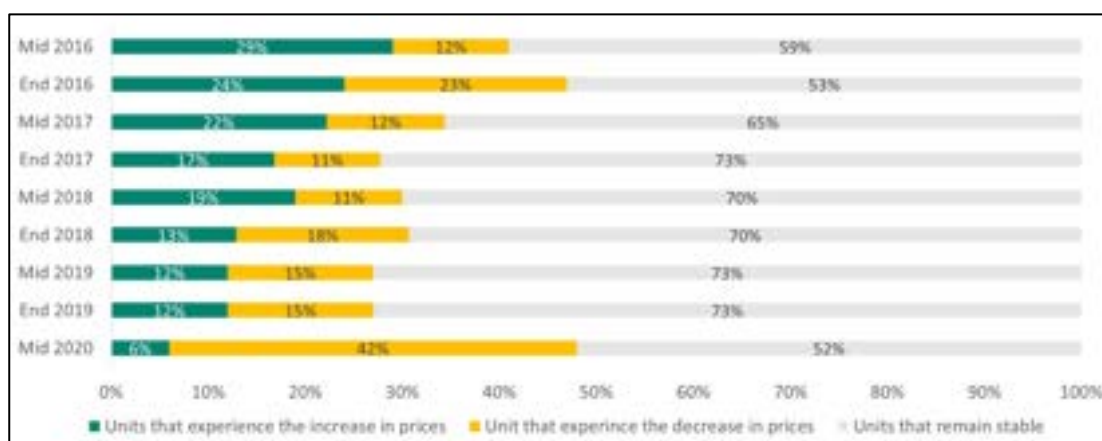
While newly launched housing units in BMR were shrunken substantially to only 30,028 units (47.8% reduction) during the first half of 2020, a total of 221,192 units were available in the market accumulated from the previous years (Pornchokchai, 2020a) out of which 40.9% were condominiums and 32.6% are townhouses (See Appendix 2: Table 2). However, only 27,717 units were sold so far, leaving the rest to become an oversupply that requires at least two years to be absorbed. If there were more units constructed, it would take longer. This is evident when the absorption rate in 2020 was only 11%, the lowest in the past ten years (Figure 3.1.7). It is important to note that this situation was associated with the novel coronavirus pandemic as well as the economic downturn.



Source: Edited by JICA Project Team based on Pornchokchai (2020b)

Figure 3.1.7 Units sold, units unsold, and yearly absorption rate in BMR

To deal with the situation, developers either postponed or canceled 217 housing projects, comprising 59,948 units accounting for THB182,690 million of development value. Furthermore, they reduced the prices of existing units in several locations where the demand is very low, such as Mahachai-Sethakit, Chaeng Wattana, Vibhavadi-Rachada, Lad Plakao-Maiyatab, and Lat Krabang. According to Pornchokchai (2020b), prices were discounted by an average of 3.5%, but a discount of 5.2% was applied to condominium units. It is also reported that 42% of housing units decreased in prices whereas only 6% experienced the increase. The rest (52%) remained stable (Figure 3.1.8).



Source: Edited by JICA Project Team based on Pornchokchai (2020b)

Figure 3.1.8 Percentage of housing units experiencing the change in prices in BMR

On the other hand, there were real estate projects that met the market needs and were therefore able to sell their housing units rapidly. For example, 228 condominium units were available in Klong San, out of which 223 units had been sold within a month, leaving only five units. This can be proven by the monthly absorption rate of 95.9%, which was the highest in BMR (See Appendix 2: Table 5). It is worth noting that the prices of these units ranged from THB10 to 20 million, meaning those who bought them were from the high-income group. Another case was in Bang Bua Thong, where a total of 154 condominium units have been sold within four months. This can be indicated by the monthly absorption rate of 32.5%. Similarly, 73 townhouses in Srinakarin – Udomsook were also sold within four months, leaving only two units.

Office market

Regarding the office market, Bangkok has a total office building area of 9.22 million m², of which 60,700 m² was newly launched during the first quarter of 2020 (PHOENIX Property Development and Consultancy, 2020). Around 43% of office buildings cluster in the central business district (CBD), while the rest are in outer CBD areas where land prices are affordable. But office workers can still have access to rail transit, such as Ratchadaphisek and Phaholyothin. During the first quarter, offices in Bangkok had an average occupancy rate of 93 percent, not much different from the previous year (ibid). However, it is undeniable that the work at home measure reduced the demand for office space, which can be proved by the over 60,000 m² unoccupied space in newly launched offices (Nation, 2020b). The effects of work from home became more obvious in April 2020 when office space tenants bargained with their landlords for discounts of between 20–50% for a period of two to six months, depending on the situation. Although the discounts were not concluded, it was expected that an average rental fee may gradually decrease in the second quarter (ibid). For grade A offices, rents in the CBD were approximately THB1,100 per m² per month, whereas THB800 to 850 per m² was common in areas outside the CBD (PHOENIX Property Development and Consultancy, 2020).

Land market

Considering land prices, the COVID-19 hardly had an impact on them since prices of vacant

land in peri-urban areas increased by an average of 36%, especially plots close to mass transit lines (Thai post, 2020b). For instance, there was an increase in land prices for parcels along the MRT green line (north) by 61.4%, although the railway had not been constructed (Table 3.1.3). Similarly, land prices along the pink line increased by 53.6%, even though the railway was under construction. On the western part of Bangkok (Thon Buri province), land prices along railways also increased by almost 30 percent, especially plots in Bang Khae, Phutthamonthon sai 4, Taling Chan, and Salaya (ibid).

Table 3.1.3 The increase in land prices along mass transit lines

Mass transit lines	Status	Price index of vacant land						% YoY
		Q1/2019	Q2/2019	Q3/2019	Q4/2019	Q12020	Q2/2020	
Green Line (North) : Khu khot–Lum Luk Ka	Future project	195.9	205.7	241.5	312.3	316	331.9	61.4
Pink Line : Khae Rai – Min Buri	Under construction	194.5	197.7	224.6	256.5	282.1	303.6	53.6
Blue Line : Bang Kae – Sai 4	Future project	253.3	247.1	250.5	256.7	292	317.5	28.5
Light Red Line : Taling Chan – Salaya	Future project	244.2	246.5	257.5	276.4	292.9	311.8	26.5
Green Line (South) : Samutprakarn – Bangpu	Future project	189.2	191.6	199.3	195.8	211.3	236	23.1
Green Line (South) : Bearing – Samutprakarn	Open for service	186.4	188.8	196.4	192.9	208.2	232.5	23.1
Average								36

Source: Edited by JICA Project Team based on Thai post (2020b)

Based on the information given above, the situation of the real estate market in BMR can be concluded as follows:

- The number of newly launched housing units reduced by 47.8% compared to the previous year.
- Despite the reduction, the number of housing units is still oversupplied, which requires two years to be absorbed.
- Forty-two percent of existing housing units experienced a decrease in prices.
- Prices of existing housing units were discounted by an average of 3.5%.
- Offices in Bangkok had an occupancy rate of 93% in the first quarter of 2020, which did not change much compared to the previous year.
- Office space tenants bargained with their landlords for discounts of 20% to 50% for two to six months, depending on the situation.
- Land prices in peri-urban areas increase by an average of 36% due to the construction of railways.

3.1.2 Economic Impact by Attribute

1) Office workers

Companies and firms have been trying many ways to survive the crisis and have introduced several measures and initiatives to protect their businesses and get them out of this mess. However, some of these have affected their office workers unavoidably.

For example, a female office worker lost her job and became a donut vendor around Khae Rai Intersection in Nonthaburi Province (The Standard, 2020e). Another male office worker working for a tech start-up company in Bangkok (Bangkok Post, 2020i) was told by his boss that his salary would be reduced by 30% and he must take unpaid leaves for 3 days every month. A teacher working for an international school began earning only 75% of his normal salary in March and only 50% in April, which are not enough to cover his expenses since he needs to pay debts to a hospital (ibid).

Apart from layoffs and pay cuts, companies have introduced other measures to alleviate the economic impact. The Nation Multimedia Group, for example, announced the salary cuts of all its workers to deal with the economic downturn caused by the COVID-19 pandemic (Prachatai, 2020). The pay cuts began on 1 April along with other measures to keep the company afloat. The company also suspended overtime pay, allowed managers to make office workers go on unpaid leaves, discontinued all compensations beyond the salary, and terminated all welfare not directly related to work and payment for medical treatment. The company also allowed managers to lay off employees if necessary. Besides, the company might lift certain measures in case that the situation gets more severe (ibid).

On the other hand, some companies did not reduce the salaries of their workers but introduced the work from home initiative to avoid COVID-19 transmission within their offices. For example, the Total Access Communication Public Company Limited (DTAC) has shifted its office workers to work-from-home since 18 March, before the announcement of the emergency decree. DTAC divided workers into two groups, such as those who can work from home and those who must work at the office, and these two groups must alternate according to a schedule (Positioning, 2020b). At the peak of the lockdown, 73% of DTAC workers have been working at home (DTAC, 2020). DTAC also carried out a survey related to the work-from-home initiative of the company and found that 84% of its workers feel more motivated to do their jobs (ibid).

Another company that allows its workers to work from home is Lumpini Property Management Company Limited (LPN). Similar to DTAC, LPN grouped its workers into two to avoid overcrowding within their office (LPN, 2020). LPN imposed 50% of the workers to work from home the rest at the office, and these two groups can alternate according to a timetable. In addition, LPN provides COVID-19 insurance coverage for all workers (ibid).

2) Service sector

The tourism sector contributes 12% to the GDP in Thailand; however, it has been severely affected with a near cessation of foreign tourist arrivals since March 2020 (Marketeer, 2020a, World Bank, 2020). Many entrepreneurs were forced to change their plans with the need to suspend their businesses at the expense of impacts on their employees.

For example, a hotel staff in Bangkok lost his job during the lockdown (PPTV, 2020b). He said his boss imposed on every staff to take a compulsory four days off without pay during March, and in April, the hotel announced the permanent closure making him unemployed. Fortunately, he began working in delivery, making enough income to sustain his livelihood (ibid). Another group affected is masseuses that started losing income when China declared lockdown (Line TODAY, 2020d). Their main clients are Chinese. The situation worsened when the Thai government ordered the closure of massage parlors, making the masseuses unemployed. There were no measures put in place to help these people (ibid). Another example is a 36-year-old woman who used to work in a tour company in Bangkok (CH3 Thailand News, 2020) who lost her job and did not receive the financial aid of THB5,000 from the government. She decided to move back to Petchabun Province, her hometown, and started selling seafood (ibid).

Entrepreneurs have been affected differently and therefore have strategized and introduced several cost-cutting measures to keep their businesses afloat. However, the impacts on their workers were unavoidable. For instance, the Zong Ped Palow restaurant experienced a sharp decrease in sales by 70-80% due to the curfew, and they had to reduce the number of staff of which the majority are migrant workers (BBC News, 2020c). The restaurant offered its workers to take voluntary resignation, and 40% decided to take it and the rest continued to work there. Still, the restaurant did not lay off any chefs since they played an important role in attracting customers (ibid). The Sheraton Grande Sukhumvit Hotel is another case. It announced a temporary closure of the business with no timeframe given (Bangkok Biz News, 2020c). Several hotel staff was affected; however, neither pay-off nor compensation was offered to them. Instead, the hotel recommended its staff to seek assistance from the government and social security benefits (ibid). Similarly, Thai Airways International halted all flights due to the COVID-19 outbreak; therefore, all works of employees ceased and instituted a significant cut in pay ranging from 10–40% depending on the employee rank (Matichon, 2020b). For example, the vice president received 60% of their monthly salary, whereas the executive vice presidents were given 50% of their salaries. The rest of the employees received different amounts proportionate to their normal salaries (Table 3.1.4) (ibid).

Table 3.1.4 The amount of salary received during the pay cut for employees of Thai Airways International

Normal monthly salary (THB)	The amount received (percent of monthly salary)
Not over 20,000	90
20,001–40,000	75
40,001–60,000	70
60,001 – 100,000	65
Above 100,000	60

Source: Summarized by JICA Project Team based on Matichon (2020b)

3) Self-employed

Self-employed workers were hit by the lockdown since projects or works were postponed or canceled. They are not covered by social welfare, but some can still receive financial aid

from the government. Examples of affected self-employed workers in Bangkok are reviewed and described below.

A 35-year-old lawyer said he was affected by the pandemic since the Thai judiciary had postponed most hearings and trials until the end of May. Subsequently, he had been hardly employed (Work Point Today, 2020). Furthermore, all his work has elapsed by April. Therefore, he decided to tutor, teaching laws via digital platforms, such as LINE, YouTube, Facebook, and Podcast. He was able to earn THB3,000 to THB6,000 per day. Although it is still not as much as his main job, where he used to up to THB100,000 a week, it is still another way of generating income (ibid).

Freelancers in the entertainment industry have also been affected during the crisis. For example, a 44-year-old freelance film producer said she has not worked for four months since March 2020 as her employers have either cancelled or postponed their projects (Daily News, 2020b). She added that this is the longest period that she has stopped working. Now, she relies on her savings, hoping the situation will be better.

Another case is also a producer, but for advertisement and animation. He said everything was relatively good before the crisis; however, works and income had gone since then. Therefore, he decided to turn into online selling durians and cactuses, which helped him earn adequate income to sustain his livelihood. He added that his situation is getting better as he has been contacted by a few employers.

Similarly, there is a 42-year-old freelance photographer who temporarily stopped his work during the peak of the pandemic. He noticed his income was getting lower in February, so he began looking for an alternative income. Eventually, he began selling noodles, which helped him get through (ibid).

On 18 June, 50 independent musicians from Bangkok and provinces requested the government to reopen night-time entertainment venues (PPTV, 2020a). Although restaurants are allowed to resume, the pubs and clubs remain closed, meaning these artists have nowhere to perform and are out of work. They struggle to feed their families and have liquidity issues because they have had no income for three months since April. Despite the THB5,000 financial aid, it is still not enough to sustain their livelihood (ibid).

4) Manual workers

Manual workers were one of the vulnerable groups as the majority is classified as informal, meaning they are not covered by social welfare and therefore cannot access state benefits. In the event of the COVID-19 pandemic, many lost their jobs and had difficulty being reemployed. Situations of the workers on Keab Moo Road and in Klong Toey community are reviewed and explained below.

Keab Moo Road in the Minburi district is a place where daily manual workers line up at dawn every day, waiting for contractors or employers to pick them up on trucks and take them to work. In other words, manual workers come to sell labor here. However, during the COVID-19 crisis, it becomes difficult for workers to be employed. According to The Standard (2020b), a 51-year-old female worker said she has seven family members to care for, but she has been unemployed for weeks. Sometimes, it was even worse when she was

unemployed for months. Now, he is relying on money borrowed from her friends. She added that she registered for the financial aid of THB5,000 from the government; unfortunately, she has not received it. Another person is also a female worker, 41, living in the area around Keab Moo Road. She is having a hard time since she has not been employed for five days. She said she wanted to return to her hometown but could not because of the travel restriction (ibid).

Klong Toey port community is another place where many manual workers live. People here are also affected by the coronavirus pandemic since an infected person found lives in this community (BBC News, 2020e). In terms of employment, manual workers here are in a difficult situation. For example, a 56-year-old female worker said she and her husband have been unemployed for a while and therefore have no income to sustain their livelihood. Besides, the creditor keeps on asking them to pay their debts. In addition, since this community is close to the Klong Toey port, many local people are shipyard workers. However, when there is no ship docking or goods shipping, these people cannot be employed and subsequently cannot earn income (ibid).

5) Informal sector

Informal workers were one of those heavily impacted by the closures as many of them work as vendors or drivers as well as in the hospitality sector. According to National Statistical Office (2019), Bangkok has 3.87 million formal workers and 1.38 million informal workers. Cases of informal workers affected in Bangkok are reviewed and described below.

A group of 54 people lost their jobs. These people used to work as bus drivers and bus conductors for the bus company line 127 (The Standard, 2020c). Unfortunately, the company announced its sudden closure, which made their employees jobless. These workers used to earn around THB250 a day, but after the closure, they have received neither compensation nor financial aid. Currently, they rely on food from Wat Mangkon 2 temple and are at risk of eviction since they live in the bus terminal (ibid).

Another case was a 51-year-old taxi driver who stopped working as a result of the COVID-19 (Bangkok Post, 2020x). He said it was such a waste of time and fuel driving around Bangkok with very few passengers. Before he decided to stop, his income dropped sharply. He could not even earn THB100 a day or sometimes as little as THB50. Besides, he is not eligible for the relief cash of THB5,000 because the system categorizes him as a farmer after his parents. Many low-income workers are in the same situation. This man is struggling to buy food, pay rent and pay the installment on his taxi.

Motorcycle taxi riders also had difficulties earning money since most people were urged to stay and work at home. According to Bangkok Post (2020g), their income was reduced by 80%. Previously, they used to earn up to THB800 a day, but it was difficult for them to make even THB200. Still, they went out working every day; otherwise, they could not sustain themselves. Some of their colleagues decided to stop working and left Bangkok for their home (ibid). On the other hand, some motorcycle taxi riders applied for the cash relief of THB5,000 via the government website and eventually received it (Line TODAY, 2020c).

Sex workers were another group of informal sectors affected by the closure of entertainment venues. Despite the contribution to the tourism industry, sex workers cannot

have access to cash relief, state support, and healthcare services because the sex industry in Thailand is technically illegal. According to Bangkok Post (2020s), sex workers in Bangkok applied for the aid relief of THB5,000; however, none of those who revealed themselves received it. It was estimated that 91% of sex workers became unemployed, whereas 66% could no longer afford the cost of housing (UNAIDS, 2020). Two transgender sex workers said they used to make THB10,000–20,000 per week but stopped making money when businesses were shut down (Bangkok Post, 2020q).

6) Migrant workers from oversea

As another way to contain the outbreak, BMA introduced the temporary closure of businesses on 17 March, followed by the emergency decree announced by the prime minister on 26 March. As a result, all foreigners were banned from entering the country. Furthermore, the Ministry of Interior ordered the closure of eighteen border checkpoints on 23 March, making traveling to and from Thailand impossible. According to Bangkok Biz News (2020d), Bangkok has 722,158 formal migrant workers, whereas neighboring provinces have 951,676.

On 22 March, there was an unexpected outflow of tens of thousands of migrant workers from Myanmar, Cambodia, and Laos leaving for their home countries (International Labour Organization, 2020). While the statistical data of the Thai government was not available, Myanmar, Cambodia, and Laos estimated that around 310,000 migrant workers reached their destinations. However, this figure does not include returnees crossing through unofficial border points (ibid).

Still, migrant workers were struggling to go back to their countries. For instance, a four-month pregnant woman from Myanmar could not manage to go back to her country as the border remained shut (Bangkok Post, 2020k). The woman had worked for a textile factory in Nakhon Pathom for ten years before it closed. Before she stopped working, her boss told her and other migrant workers to take extra days off without pay. Now, she is unemployed and relies on borrowed money from friends, which keeps increasing as she needs to feed her unborn child. Worse of all, she is not covered by the social security system, and therefore, is unqualified to receive unemployment benefits (ibid).

On the other hand, some migrant workers were fortunate enough to remain employed in Thailand (International Labour Organization, 2020). However, there were work-related abuses, such as forced leaves without pay, inability to refuse work during the lockdown, insufficient protective equipment, long work hours without extra pay, threats of termination of contracts, and other forms of harassment. In addition, most of these migrant workers were women (ibid).

Another case was a male migrant worker from Laos who was still employed by a plastic factory in Bangkok (Bangkok Post, 2020k). However, he only got 20 to 30% of his supposed earnings since the crisis because his working days were reduced. Previously, he used to send home THB10,000 a month, but it dropped to only THB2,000. Fortunately, he was covered by the social security system, although the fund has waived the contributions for three months due to the crisis (ibid).

According to Thai Enquirer (2020), there was a case of Cambodian labor that was not

worried about losing their job during the crisis because of his legal status. He worked at a construction site in central Bangkok. His boss told him that the work would not stop anytime soon since there were many construction projects ahead, such as building residences and offices.

7) Migrant workers from other provinces

On 22 March, BMA announced the temporary closure of premises in Bangkok including dine-in restaurants, shopping malls, markets, schools, and universities. Subsequently, it triggered a massive exodus of migrant workers from Bangkok for their hometowns. According to Bangkok Post (2020w) and Matichon (2020a), there were around 80,000 passengers at Mor Chit Bus Terminal leaving for provinces, approximately 14 to 33% higher than normal. This was similar to Eastern Bus Terminal (Ekkamai) and Southern Bus Terminal (Sai Tai Mai).

These migrant workers had similar reasons for leaving. A 23-year-old couple who used to work in a department store decided to return to Buri Ram Province since their employers were ordered to temporarily close their businesses (ThaiCh8, 2020). While working in Bangkok, this couple earned around THB400 per day, but after coming to Buri Ram, they had to self-quarantine for 14 days and could not earn any income (ibid).

Another case was a manicurist from Ubon Ratchathani province. In the beginning, she was unsure whether to stay in or leave Bangkok, but in the end, she decided to return to her hometown because staying in Bangkok was too expensive for her (Bermana, 2020). Besides, she had to pay rent and bills without getting paid during the premises being shut. The manicurist case is similar to a 22-year-old sales assistant who also decided to leave Bangkok for her hometown. However, she planned to come back to make a living to feed her family (ibid).

But some migrant workers could not leave Bangkok for their hometowns. According to Thai Rath (2020e), a 45-year-old man from Surin province lost his job and became homeless. Before the crisis, he was a labor working and staying in a construction site behind Siriraj Hospital. Unfortunately, his boss has stopped employing people since the end of March due to the COVID-19 pandemic. Furthermore, he was arrested by police officers for violating the curfew just because he felt too warm during the night and decided to bathe in a canal. He said he does not even know what curfew is.

8) Retired people (Elderly people)

In Thailand, retired civil servants received a pension from the government, whereas retirees from the private sector generally relied on their savings and social welfare. Also, the government provided financial aid for the elderly, although the amount was small. Therefore, the COVID-19 pandemic and lockdown measure may not have much economic impact on the elderly covered by the social security system.

However, they created challenges for the elderly to get through the crisis due to several reasons. First, it is undeniable that most elderly are computer illiterate, which made it difficult for them to access financial aid (Posttoday, 2020b). To clarify, the elderly were requested to register on the government website to qualify for financial aid, but those who

do not know how to use the internet let alone a computer may have missed the opportunity to receive the money. In addition, any computer illiterate elderly was unable to join online markets, while most people (the younger generation) shifted to online platforms. As a result, they lost income opportunities during this situation (ibid). On the other hand, some elderly were computer literate and could benefit from the situation. For example, a 65-year-old man worked as a Grab rider for seven months, delivering food within Bangkok (Marketeer, 2020b). He worked six days a week and earned THB500–600 a day, enough for his living (ibid). Still, it is important to keep in mind that not every elderly could do that since the job is physically demanding.

Secondly, the termination of employment may not be problematic for retirees, but those between 55–60 years old are at risk (Posttoday, 2020b). Some airline companies offered this age group to resign voluntarily to reduce costs and keep their businesses afloat. If they resigned, reemployment would be difficult for them due to their age and computer literacy. Another challenge related to COVID-19 for the elderly was the low-interest rate policy. As a result of the COVID-19, the government decided to reduce interest rates to stimulate the economy in Thailand, which may be beneficial for most people. However, this policy had unavoidably affected the elderly since they deposited money in banks, hoping to benefit from interests to sustain their livelihood after retiring (ibid).

Regarding commuting, a survey carried by the Thai Health Promotion Foundation revealed that the elderly hardly used public transport during the crisis, especially buses (Thai Health Promotion Foundation, 2020). It may be associated with the emergency decree specifying that elderly persons over 70 years of age must stay in their dwelling places or within the area of their residences to protect themselves from infection from the outside environment.

9) Students

The MOE ordered every school and university in Thailand to be closed between 18 March and 30 June to curb the spread of the COVID-19 pandemic (Ministry of Education, 2020b). Similar to other groups of people, students were urged to practice social distancing and self-isolation by staying at home and participating in online lessons provided by schools and universities. In this way, they were discouraged from commuting to avoid exposure to the novel coronavirus. There is a case of a master's student from Chulalongkorn University who is satisfied with the distance learning since she does not need to spend time traveling to the campus (BBC News, 2020d).

Considering the economic impact, students may be indirectly affected by the closure of businesses as most were not initially employed, except part-time students. However, they miss the opportunity to use facilities and study in physical classes even if they have paid for tuition fees and costs for other services (Chulalongkorn University, 2020). Some lecturers even reduced teaching hours of online lessons, whereas students could not use laboratories due to the closure (Thai PBS News, 2020d, Chulalongkorn University, 2020), so they could not maximize the benefits of being in school. Apart from that, businesses of some parents were affected by the lockdown, losing income to feed family members. In addition, students are ineligible for the financial aid of THB5,000 from the government (Bangkok Biz News, 2020a). Therefore, students requested a refund of at least 25% of the

fees to sustain their livelihood or use for the next semester (Thai PBS News, 2020d).

Fortunately, many universities responded positively to the request by refunding their students. For example, Assumption University announced a refund of 25%, whereas Thammasat launched a refund policy with the extension of payment duration and permission to pay by installment (Thai PBS News, 2020d, Nation, 2020a). The Chulalongkorn University, Bangkok University, University of Thai Chamber of Commerce, Dhurakij Pundit University, and Sripatum University also announced the same (Thai PBS News, 2020d).

3.1.3 New Created Services

1) New Business Models of Food Delivery Service

It is undeniable that the COVID-19 pandemic has stimulated the growth of online food delivery since people were requested to stay at and work from home. According to The Standard (2020a) and Siam Rath (2020d), GrabFood and LINE MAN, which are food delivery service platforms, experienced a triple increase in food orders during April. Foodpanda, another platform, the number of orders has grown by 20–25% compared to the same period in 2019. However, these platforms still have drawbacks. For example, they only allow their users to order food from one restaurant at a time. If users would like to have food from two different restaurants, they must order twice and pay more. This drawback has encouraged newcomers to join and fulfil the gap.

Locall.bkk is a new online platform for food delivery, designed under the concept of an inclusive business model (The Standard, 2020b). The owner of Once Again Hostel in Pratu Pee community (central Bangkok) created the platform. It all started when there was no customer in the hostel, and many famous restaurants in the community began to close as a result of the COVID-19. Therefore, the owner turned the hostel into a food distribution hub and notified the restaurants in the community to bring food to the hub when there is an order on Locall.bkk. This way, users can order food from different restaurants at the same time. They would also save costs for delivery service. However, the minimum for each order is THB300 to break even. At the moment, Locall.bkk can only deliver food from restaurants in the Pratu Pee community, but it can expand in the future (ibid).

Another drawback of the existing platforms was the profit-sharing system which charges restaurants according to the number of orders received. In other words, the more orders restaurants receive, the more charges they have to pay. Some restaurants even increased food prices to compensate for these charges, which later became a burden to customers. This system is not suitable for small restaurants since they cannot increase the price to afford charges. As a result, this drawback triggered newcomers to join the delivery business.

Tamsang-Tamsong is a non-profit food delivery platform created under the concept of community-based development (Prachachat, 2020b) by the Thai Health Promotion Foundation in cooperation with Chulalongkorn University. The pilot project of the service was implemented in the area around Soi Lat Phrao 101. The platform allows users to order food directly from restaurants for free. Moreover, food is delivered by local motorcycle taxi riders working around the restaurants. It helped the riders earn income and secure their

job. Within the service area, the delivery cost is the same amount as what the taxi riders receive when serving passengers, but THB10/km applies if they need to deliver outside the service area. If the service platform has no charges, the restaurant does not need to increase food prices. Customers can then pay less for food as well as delivery service (Figure 3.1.9) (ibid). In conclusion, Tamsang-Tamsong is beneficial for all parties: restaurants, motorcycle taxi riders, and customers.

Profit Platform		Non-Profit Platform	
Fish Porridge Restaurant		Fish Porridge Restaurant	
Fish porridge x 3	150 x 3 = 450	Fish porridge x 3	80 x 3 = 240
Delivery cost (To SoiLat Phrao 130)	46	Delivery cost (To SoiLat Phrao 130)	
		• Distance = 3.2 km.	3.2 x 10 = 32
		• Service charge (For riding back without passenger)	20
Total	496	Total	292

Source: Edited by JICA Project Team based on Tamsung-Tamsong (2020)

Figure 3.1.9 Price comparison between profit platform and non-profit platform

2) Online hospital

In response to the COVID-19 situation, some hospitals thought of new services to keep patients from visiting hospitals. For instance, Samitivej Hospital and Bangkok Hospital opened a new service, called "Online Hospital," to provide teleconsultation regarding general health, specific conditions, and chronic disease (Bangkok Hospital, 2020, Samitivej Hospital, 2020). It allows patients to communicate with doctors and medical staff in real-time via video calls. The doctor fees for teleconsultation are summarized in Table 3.1.5. These hospitals also added another service, called "Drug Delivery," along with counseling conducted by pharmacists through telephone. The service delivers medicine within the day an order is placed in Bangkok, but there are some restrictions. For example, temperature-sensitive drugs are not included in the service. In addition, these hospitals provide in-home blood collection service, in-home vaccination service, and in-home wound care and ostomy bag change services by certified nurses (ibid).

Table 3.1.5 Doctor fees for teleconsultation

Hospital	Minimum fee	Duration
Samitivej Hospital	THB 800	15–20 mins
Bangkok Hospital	THB 500	15 mins

Source: Summarized by JICA Project Team based on Bangkok Hospital (2020) and Samitivej Hospital (2020)

3.2 Social Impacts

3.2.1 Impacts of the COVID-19 Situation on Public Services

1) Issuance of authorized documents

Civil registration

From 1 April to 20 May, BMA limited civil registration services, which are summarized in Table 3.2.1 (Prachachat, 2020a). Furthermore, BMA limited the number of users, meaning users must reserve via the BMA Q mobile application. The limitation was applied to all 50 districts with the purpose to avoid crowding and people waiting at district offices. In addition, BMA temporarily closed all Bangkok Express Service—civil registration centers located in commercial stores and train stations (ibid). For the issuance of identification cards, it was suspended since it requires fingerprints from the applicant. Taking fingerprints might contribute to spreading COVID-19 (Manager Daily, 2020).

Table 3.2.1 Civil registration services during the COVID-19 pandemic

Days	Opening hours	Services
Weekdays	8 a.m.–4 pm.	<ul style="list-style-type: none"> • Birth registration • Death registration • Certified copy of household certificate • Certified copy of identification card • Marriage registration • Divorce registration • Other certified copy
Weekends and national holidays	8 a.m.–4 p.m.	<ul style="list-style-type: none"> • Birth registration • Death registration
Emergency cases	-	Consideration on a case-by-case basis #

Source: Edited by JICA Project Team based on Prachachat (2020a)

Driving license

The Department of Land Transport (DLT) halted all license services from 27 March to 7 June due to the Emergency Decree (Department of Land Transport, 2020). Its services resumed on 8 June for the first phase of services and 22 June for the second phase. Services in the first phase included the application for an international driver's permit without training in the office, request for a certified copy of the driver's license, and update of driver's license information. During this period, applicants could receive training through an e-learning system. For the second phase, all services of DLT were available, including the application for and renewal of a driver's license. Nevertheless, applicants must make a reservation via the DLT Smart Queue application. In addition, the DLT launched three measures to prevent the spread of the COVID-19 pandemic, which are:

- exception of written test for applicants whose driving license has expired for more than 1 year;
- exception of the driving test for applicants whose driving license has expired for more

than 3 years; and

- exception of the driving test for applicants whose driving permit has expired for more than 3 years.

These measures were only available between 31 March and 30 September 2020 (ibid).

2) Tax payment

The Revenue Department (RD) introduced tax related measures to alleviate the impacts caused by the coronavirus COVID-19 outbreak, as summarized in Part I. The RD provided an e-Filing service for people to file tax returns online (Thai Rath, 2020g) Several options for tax payments were provided, such as credit cards, debit cards, ATM, internet banking, mobile banking, telebanking, banks, RD counter, and counter service (ibid).

3) Public markets

BMA announced the temporary closure of all markets in Bangkok from 22 March to 2 May, except those selling food, pet food, pharmacies, and other essential items. Those exempted must strictly comply with the disease prevention measures specified by BMA. According to the Department of Health (2020), 88.99% of markets comply with the social distancing measure, whereas 96.81% provide handwashing stations with soap or hand sanitizer gel. There were 95.65% of markets that clean stalls and tables every day using a disinfectant, while 98.84% of vendors and customers wear face masks all the time (ibid).

On 21 April, BMA took field surveys in three markets of Bangkok, namely Wattananan Fresh market in Don Mueang district, Kosum market in Don Mueang district, and Bon Marché market in Jatuchak district. These markets were found to comply with the disease prevention measure strictly as they limit entrances, check the body temperature of customers, ensure social distancing and provide alcohol sanitizer gel at various spots. Similarly, on 27 April, the Department of Health surveyed in Prachaniwet market in the Jatuchak district. The department found that the Prachaniwet market restricted the number of people, had a symptom screening at the entrance, and provided hand washing stations with alcohol sanitizer gel (Department of Health, 2020). Vendors and customers in the market also always wore face masks and distance by 1–2 m from another. Furthermore, vendors kept cooked food covered and provide gripper tools for customers. Apart from that, the market owner recommended customers reduce the frequency of coming to the market to avoid being exposed to the virus (ibid).

On the other hand, there were markets not following the disease prevention measures. On 23 April 2020, Thansettakij (2020) carried on a survey in the Bang Kapi market and found that it neglects the COVID-19 prevention measures as it did not limit the people leading to overcrowding. People also did not physically distance themselves from one another, and not everyone wore face masks. At entrances, there was no symptom screening spot and no handwashing stations or alcohol sanitiser gel provided (ibid).

Since market vendors could not avoid being affected by the pandemic, BMA suspended rent to help mitigate the impact for its 10 affiliated markets, namely Chatuchak market 2 (Minburi), Thonburi market (Sanamluang), Thewaratch Market, Pracha Niwet 1 Market, Nong Chok Market, Bang Kapi Market, Wong Wien Lek Amulet Market, Ratchadaphisek

Market, Singha Market, and Ratburana Market Thonburi market (The Nation, 2020a).

4) Hospitals

In response to the COVID-19 pandemic, hospitals have changed systems to increase the safety and hygiene of patients. For example, Ramkhamhaeng Hospital uses a sensor at entrances and faucets to avoid the risk of touching and getting infected (Ramkhamhaeng Hospital, 2020). Rest chairs, escalators, and elevators are cleaned every 1 hour. Alcohol-based hand sanitizer gels are provided at every sitting area and escalator. Ramkhamhaeng Hospital complies with the social distancing measure by arranging chairs in the waiting zone by 1 m apart, and this is also applied in the canteen. In elevators, the number of users is restricted to avoid overcrowding. The hospital uses a non-contact fever measurement system using infrared thermometers. Patient rooms have separate air conditioning systems in each to avoid the spread of germs to the neighboring rooms or other areas. In addition, everyone is required to wear face masks and wash their hands or use an alcohol-based hand sanitizer gel before entering the hospital. They are also screened before entering the hospital. If found to have a temperature of over 37.5 °C or any abnormal symptoms, the patient is examined at the RAM Infection Control OPD. If found at risk, the patient will be taken to the isolation room, which has a negative pressure air circulation system to prevent the risk of spreading (ibid).

Similarly, Sukhumvit Hospital provides Acute Respiratory Infections Clinic to separate patients at risk of COVID-19 from others (Sukhumvit Hospital, 2020). This means that the at-risk patients are screened in a separate area and can only use the separate lift, which is disinfected every 30 minutes. If a patient is found to have a body temperature exceeding 37.5°C, the patient will be sent to an isolation room where the air pressure is negative. healthcare personnel, are required to wear face masks all the time. The hospital provided personal protective equipment (PPE), including N-95 respirators and powered air-purifying respirators. Inside patient rooms, Sukhumvit Hospital improves structure and ventilation system to increase safety. Once the patient leaves the hospital, cleaning staff will put on PPE and clean the room immediately using an ultraviolet sterilizer and ozone (ibid).

In Rajavithi Hospital, visitors can only meet patients for 30 minutes between 12:00 p.m. to 6:00 p.m. (Rajavithi Hospital, 2020a). Besides, children under 12 years old are not allowed to visit patients. Rajavithi Hospital recommends relatives of patients or encourages patients to contact via phone call or video call rather than visit (ibid). Last but not least, eat-in services are prohibited in the hospital even after the easing of lockdown (Rajavithi Hospital, 2020b). Still, restaurants can offer takeaway food (ibid).

5) Libraries

BMA announced the temporary closure of all public libraries in Bangkok from 17 March to 16 May (Siam Rath, 2020a, Bangkok metropolitan Administration, 2020d). Library users, during this time, could return books via the Book Delivery Service without being charged late fees. For Bangkok City Library (BCL), a book-returning spot was installed next to its building for those who prefer to return books by themselves (Bangkok City Library, 2020).

From 17 May, every library in Bangkok was allowed to reopen but complying with the disease prevention measures specified by BMA. BCL followed the measures strictly as it

required users to make online reservations on its website before coming to the library. It also placed basic COVID-19 screening tests at the entrance, provided alcohol sanitizer gel at various spots, and arranged two sessions per day (70 users per session) to limit the number of users and avoid overcrowding (Bangkok City Library, 2020). BCL required all staff and users to wear face masks and ensure social distancing by designating clear sitting points. It temporarily closed areas where users could gather, such as the computer zone, research areas, and theatre. Apart from these, BCL added a one-stop service at different spots of Bangkok, allowing users to borrow and return books and extend their membership without visiting the library (ibid).

6) Indoor sport venues

Although BMA ordered the closure of fitness centers and boxing stadiums from 17 March to 31 May, some premises were already closed earlier because they were previously used by COVID-19 infected patients, such as the Lumpinee boxing stadium in Phatum Wan district and Fitwhey Gym in Bangkapi district (Linetoday, 2020, Fitwhey Gym, 2020c). In the case of the Fitwhey Gym, some members were afraid of getting infected; therefore, the gym owner took the responsibility by providing free COVID-19 insurance for all members, covering a maximum amount of THB500,000 per person for Thai members and THB100,000 for foreign members if tested positive (Fitwhey Gym, 2020d).

In addition, Fitwhey Gym came up with the concept of "FIT AT HOME" during the closure period, providing live workout videos on Facebook to help its members exercise and keep fit while at home (Fitwhey Gym, 2020b). Similarly, Jetts 24 Hour Fitness launched daily free live-streaming classes, which are also available on Facebook, to ensure that its members stay fit during the pandemic (JettsThailand, 2020). Likewise, Fitness First provided several free online classes, such as body combat, body jam, body pump, and pop dance (Fitness First Thailand, 2020a). Gyms did not collect membership dues during the closure period and automatically extended personal training packages in case a member made payment (Fitness First Thailand, 2020b).

From 1 June 2020, fitness centers were allowed to reopen under the condition they comply with the disease prevention measures specified by BMA strictly. Following this, Fitwhey Gym imposed that all members must have their body temperature checked, Thai Chana QR code scanned, and pass the germ termination tunnel when entering the gym (Fitwhey Gym, 2020a). They must also wear face masks or face shields and wash their hands using alcohol-based hand sanitizer gel provided at the entrance and various spots of the gym (every 100 sqm). Some exercise machines were off to keep distance between members. Staff cleaned the gym often, immediately after each class ended and after the gym closed using germ termination spray. The number of members in each class was also limited to avoid overcrowding. The service hours of fitness centres were according to the emergency decree (ibid).

Similarly, Fitness First followed the disease prevention measures strictly. For instance, members were required to check in and check out with Thaichana and have body temperature checked with a maximum limit of 37.5°C (Posttoday, 2020a). Furthermore, they were required to book classes before visiting and keep a distance of at least 2 m while

exercising. They were advised to clean the equipment before and after use. Fitness First offered towels and exercise clothing that is already sterilized and wrapped. Besides, it used ozone air sterilization in the gym and performed deep disinfectant cleaning every two weeks (ibid).

7) **Public parks**

Since public parks in Bangkok had been temporarily closed between 1 April and 2 May, fitness enthusiasts had to look for new places to exercise during this period. According to The Standard (2020f), people jogged and biked around the Temple of the Emerald Buddha in central Bangkok. These fitness enthusiasts complied with the preventive measures by wearing face shields and physically distancing themselves from others while exercising (Figure 3.2.1) (ibid). In the meantime, people jogged along streets and around their residences, whereas some did weight training at home (Thai News Agency, 2020).



Source: The Standard (2020f)

Figure 3.2.1 People Jogging around the Temple of the Emerald Buddha

In addition, the Thai Cycling Association under the Royal Patronage held an activity under the title of “Home Cycling, Combating COVID-19” to encourage people to exercise at home during the outbreak (Thai Cycling Association, 2020). People could jointly ride the bicycle through an online platform so-called Zwift application. This activity began on 13th April (ibid).



Source: (Thai Cycling Association, 2020)

Figure 3.2.2 “Home Cycling, Combating COVID-19”

From 3 May, every public park was allowed to reopen. According to The Standard (2020g), several people went to Suanluang RAMA IX park on 3 May and did many physical activities,

including walking, jogging, cycling, and performing tai chi. At the entrance, there was a screening to check the body temperature of park users. Most people also kept their distance and wore a face mask but took it off from time to time when jogging due to the hot weather. Staff kept reminding users to comply with the prevention measures via podcast (ibid). On the other hand, Bangkok Post (2020f) reported approximately 80% of park users in Bangkok defying the disease prevention measures, which might lead to the closure of public parks again. They did not wear face masks, did group exercises, and did not physically distance themselves from one another.

8) Garbage collection

Although BMA provided special orange bins specifically for used masks, MGR ONLINE (2020b) reported that there are many orange bins full of other types of waste, such as pizza carton boxes, foam containers, and plastic bags (Figure 3.2.3). But there were still people who put used masks in the right bins. When the waste is mixed, it becomes difficult for garbage collectors to separate, subsequently increasing the risk of infection.



Source: MGR ONLINE (2020b)

Figure 3.2.3 Bins for used masks are full of other types of waste

3.2.2 Impacts of the COVID-19 Situation on Educational Services

Although the order to temporarily close schools, universities, and other educational institutions came into effect on 18 March, some schools announced closure before the order was enforced for different reasons. For example, the Phraharuthai Donmuang School had closed from 26 February since a student tested positive for COVID-19 (Sanook, 2020). the Harrow International School announced the closure between 28 February and 6 March because students previously visited countries with confirmed coronavirus cases (Thai PBS News, 2020e). Still, neither the students nor staff were diagnosed with COVID-19 (ibid).

During the closure period of educational institutions, students were advised to participate in online lessons provided by the MOE and schools. However, there were challenges and issues related to distance learning. For example, some students were not equipped with learning tools such as smartphones, tablets, and computers, and therefore missed the opportunity to attend online lessons (Daily News, 2020a). Moreover, according to the survey of 1,850 students in Bangkok, 23% had difficulty with internet access due to the financial constraints of their parents (Thai PBS News, 2020f). Furthermore, some parents did not have time to supervise their children and were incapable of advising them about academic issues (Daily News, 2020c). In addition, students who studied via DLTV sometimes had difficulty understanding since they could not ask their teacher immediately when they

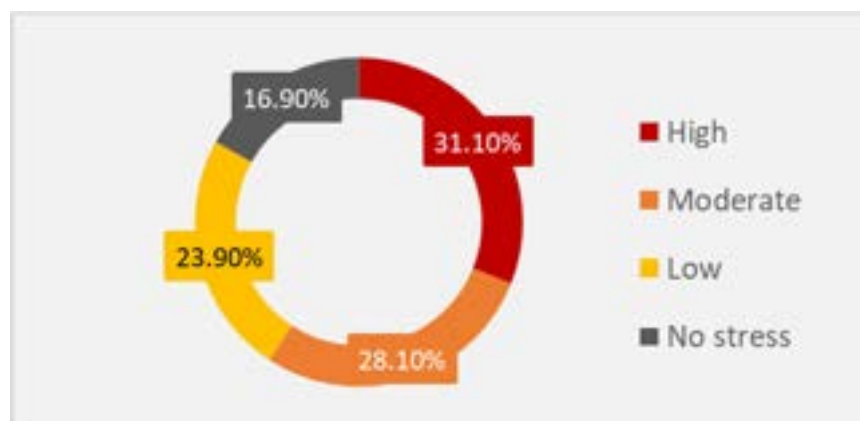
had a question (ibid). Besides, the online classroom or DLTV was sometimes bumpy since the internet connection is not stable.

For higher education, universities have also shifted to online classes in response to the COVID-19 situation. For instance, Chulalongkorn University (CU) provided online lectures, digital learning materials, lecture recordings, and assignments on digital platforms, such as Echo360, Microsoft Teams, and MyCourseVille (Ministry of Education, 2020a). Lecturers at CU also adapted their syllabus into an assignment-based study program that does not require physical attendance. These measures are similar to those announced by Thammasat University, Mahidol University, and Suan Sunandha Rajabhat University. In addition, Dhurakij Pundit University canceled examinations for its Chinese students and modified its syllabus as an assignment-based program that does not require class attendance (ibid).

Nevertheless, there were several issues associated with online classes at the university level. According to Chulalongkorn University (2020), subjects requiring class discussions was more difficult online since it needs interactions between lecturer and students. Besides, lecturers and students were not familiar with distance learning, and staff could not help everyone. Another issue was technical problems, which always interrupted, especially when the internet disconnects. Last but not least, since there was no examiner on the platform, there was the question of transparency and the possibility of exam fraud (ibid).

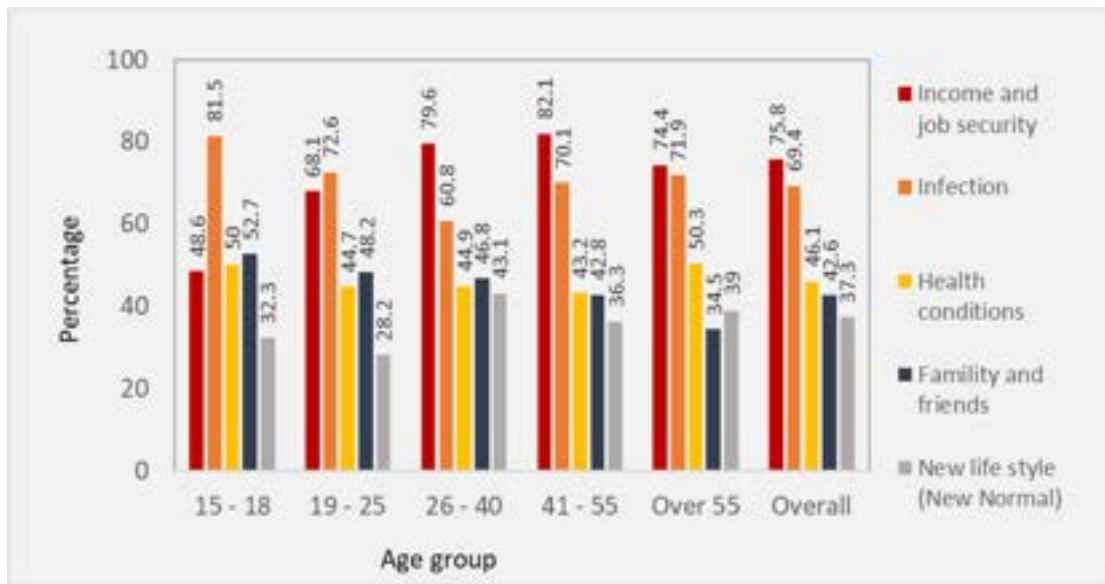
3.2.3 Social Impacts of the COVID-19 Situation on Individuals

The COVID-19 pandemic and lockdown measures may be very stressful since they can make people feel isolated and eventually increase the levels of fear as well as anxiety. In June 2020, AU Poll carried out a survey on the stress of Bangkokian under the outbreak situation with a sample size of 1,216 respondents (RYT9, 2020). The survey revealed that 81.7% of the respondents felt stressed at different levels (Figure 3.2.4), mainly because they were worried about their income and job security, especially for the working-age group (Figure 3.2.5). The survey further explains that 45.2% of the respondents earned a lower income, whereas 16.1% said their businesses were affected. The second reason for being under stress was the fear of getting infected, and the third reason was health conditions, particularly for people over 55 years old. Apart from that, people in Bangkok were still concerned about safety in life and property, distance learning, as well as teleworking (ibid).



Source: Summarized by JICA Project Team based on RYT9 (2020)

Figure 3.2.4 The levels of stress of people in Bangkok, the survey of AU Poll

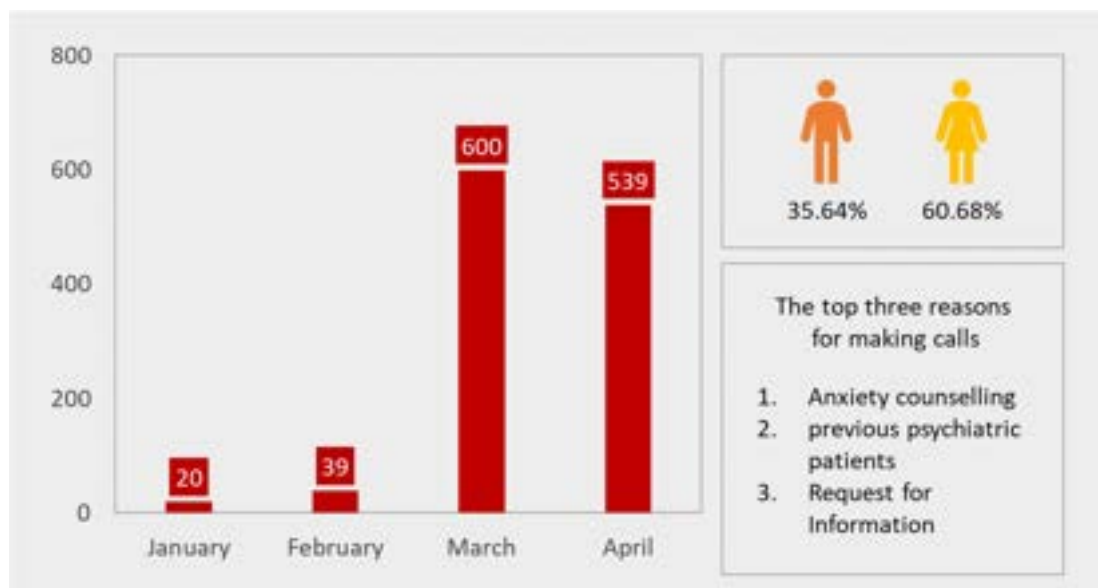


Source: Summarized by JICA Project Team based on RYT9 (2020)

Figure 3.2.5 Reasons of being under stress during the pandemic, the survey of AU Poll

Apart from that, the effects of the pandemic frustrated some people in Bangkok and committed suicide. BBC News (2020b) reported that a 58-year-old taxi driver decided to commit suicide since he had been in arrears for two months and could not earn enough income due to the lockdown measure. He even joined the protest at the Ministry of Finance, requesting a financial aid of THB5,000, but he did not receive it. An English teacher working in Bangkok jumped from the 13th floor balcony since he had been depressed after his income dropped due to the crisis (Thai Rath, 2020d). On 24 May, the bodies of a 41-year-old man and his daughter were found floating in the Pa Sak River in the north of Bangkok (Matichon, 2020c). His brother-in-law told the police that the man was unemployed and struggled to make ends meet (ibid).

The Department of Mental Health (2020) reported that over 1,000 calls were made to its hotline for mental health counseling between March and April (Figure 3.2.6). This figure is far higher than in January and February when only 20 and 39 calls, respectively, were received. Over 50% of the calls were for counseling services about stress and anxiety caused by the outbreak, and 34.89% were previous psychiatric patients.

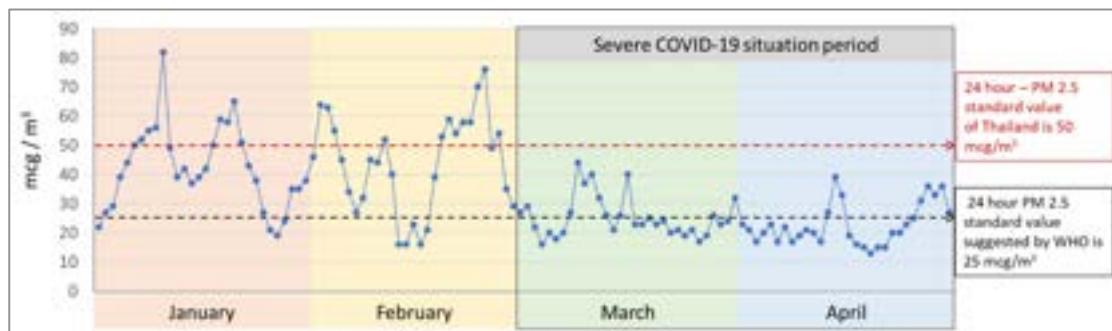


Source: Edited by JICA Project Team based on the Department of Mental Health (2020)

Figure 3.2.6 Number of Calls Made to the Hotline of the Department of Mental Health

3.3 Environmental Impacts

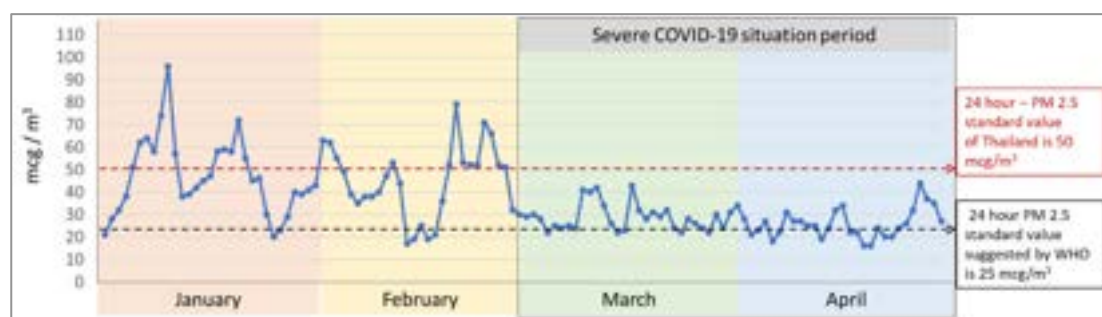
Apart from social and economic impacts, the outbreak also has impacts on the environment. The first impact is rather positive, which is better air quality. During the peak of the COVID-19 situation in March and April, the value of PM 2.5 dust particles constantly decreased in the urban and suburban areas (Figure 3.3.1 and Figure 3.3.2). It never exceeded 50 mcg/m³, better than the 24-hour PM 2.5 standard value in Thailand. On some days, it was even within the WHO standard value lower than 25 mcg/m³. According to CNA (2020), this reduction is associated with a strict social isolation measure, urging people to stay at and work from home. Subsequently, it reduced the traffic volume and eventually reduced air pollution.



Remark: The data presented were obtained from the air-monitoring station on Rama 4 Rd. in Pathum Wan District.

Source: Summarized by JICA Project Team based on the Pollution Control Department (2020)

Figure 3.3.1 PM 2.5 in an Urban Area of Bangkok



Remark: The data presented were obtained from the air-monitoring station on Kanchanaphisek Rd. in Bang Khun Thian District.

Source: Summarized by JICA Project Team based on the Pollution Control Department (2020)

Figure 3.3.2 PM 2.5 in a Suburban area of Bangkok (Bang Khun Thian District)

Another impact on the environment is the decrease in the total amount of waste per day. According to the Environment Department (2020), the total amount of waste reduced by 11.77%, from 10,461.23 tons in 2019 to 9,229.47 tons in 2020 (Table 3.3.1). However, the amount of plastic waste increased sharply by 60%, from 2,121 tons to 3,440 tons, and 81% of it is non-recyclable. According to Simachaya (2020), the increase in plastic waste was associated with teleworking during the COVID-19 restrictions since people were urged to stay at home and frequently used delivery services to buy food. As a result, a higher amount of plastic waste was generated. In addition, the pandemic somewhat made people generate more waste because of the efforts in preventing the spread of the virus. For example, coffee

shops and convenience stores stopped using personal cups or glasses for drinks, and customers could only use non-reusable containers (The Nation, 2020b), generating more single-use plastic wastes. For infectious waste, the average daily amount was 40.98 tons, which is slightly lower than in 2019 (Thai Rath, 2020a).

Table 3.3.1 Daily Average Amount of Waste in 2019 and 2020

Waste	2019	2020	Change	
			Tons	Percentage
1. Plastic waste				
Recyclable plastic waste	495	660	+165	+33
Non-recyclable plastic waste	1,630	2,780	+1,150	+71
Total plastic waste	2,121	3,440	+1,320	+62
2. Infectious waste				
Infectious waste	42.53	40.98#	+1.55	- 3.64
3. Total waste				
Total waste	10,461	9,229	-1,232	- 11.77

Source: Summarized by JICA Project Team based on Simachaya (2020) and Thai Rath (2020a)

4. Supportive Measures employed in Bangkok and Thailand

4.1 Overall

In addition to a variety of support measures provided by the Thai Government nationwide, public authorities, social organizations, and private also supported. Summaries of each measure are as follows.

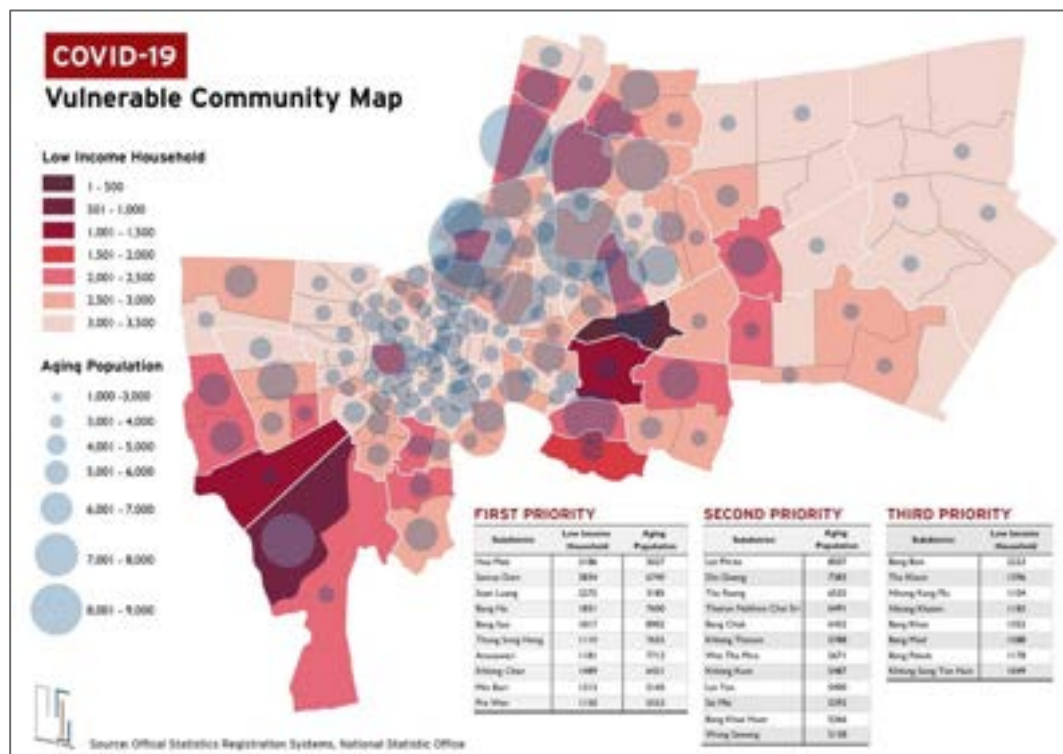
4.2 Electricity Bill Subsidies

Name of measure	Electricity Bill Subsidies
Purpose of measures	To alleviate the financial burden of people during the COVID-19 situation
Organization	Metropolitan Electricity Authority
Duration of the measure taken	From March to May
Target group (s)	22 million households (Electricity users)
Summary of the measure	<p>The Metropolitan Electricity Authorities and related authorities had introduced electricity bill subsidies to ease the burden on people as they are urged to stay at home (Bangkok Post, 2020o). Different discount rates were applied depending on the power meter and amount of electricity used, as explained below:</p> <ol style="list-style-type: none"> 1. For households with a power meter of no more than 5 amp, free electricity can be applied. 2. For households with a power meter over 5 amp, different discount rates can be applied according to following conditions: <ul style="list-style-type: none"> • if electricity consumption does not exceed 800 units, users will pay as much as the same amount in their February billing; • if the amount is over 800 but not over 3,000 units, users can get a 50% discount; and • if the amount is over 3,000 units, electricity users will get a 30% discount (ibid).
Result (s)	Up to 10 million households are expected to benefit from free electricity, and the rest are expected to receive different discount rates.

4.3 COVID Relief

Name of measure	COVID Relief
Purpose of measures	<ul style="list-style-type: none"> • To address immediate coronavirus-related needs • To distribute care packages to Bangkok's most vulnerable people
Organizations	Ford Fund, SATI Foundation, Scholars of Sustenance and Urban Studies Land with support from Bangkok 1899 and Thai Volunteers Foundation
Duration of the measure taken	From April to August

Target group (s)	The recently unemployed, elderly, and families ordered to stay at home in Bangkok
Summary of the measure	<p>Ford Fund, in cooperation with its nonprofit partners, distributed care packages to the city's most vulnerable, such as the recently unemployed, elderly, and families ordered to stay at home due to virus exposure (Ford Motor Company Fund, 2020). Care packages contain soap, hand sanitizer, masks, rice, milk, canned fish, and fruits. These packages would be enough to serve 400,000 meals.</p> <p>In addition, Urban Studies Lab was responsible for identifying the most vulnerable people in each district using census data to draw up detailed maps (Figure 4.3.1). Similarly, volunteers from the city's public health team also helped identify vulnerable families as they have a longstanding relationship with elderly and low-income residents.</p> <p>Bangkok 1899 allowed organizations to use its space as the drop-off location for food and cleaning supplies donations (ibid).</p>
Result (s)	<p>Until 12 June, the organizations had distributed 9,309 care packages to 36,836 people in Bangkok's most vulnerable, which are classified below (Socialgiver, 2020):</p> <ul style="list-style-type: none"> • 46,545 kg of rice; • 55,254 cans of fish; • 36,836 boxes of milk; and • numerous amounts of sanitizer, soap, and face masks.



Source: Socialgiver (2020)

Figure 4.3.1 Vulnerable Community Map

4.4 Fund for Sex Workers under the COVID-19 Situation

Name of measure	Fund for sex workers under the COVID-19 situation
Purpose of measures	<ul style="list-style-type: none"> To provide food and other essentials for sex workers in Bangkok and Pattaya
Organization	Service Workers IN Group (SWING)
Duration of the measure taken	From April to June
Target group (s)	Sex workers in Bangkok and Pattaya
Summary of the measure	<p>SWING had raised funds to help sex workers affected by the economic impact caused by the lockdown measure (Naew Na, 2020).#</p> <p>The money from donations was used for food and cleaning supplies, such as face masks and alcohol sanitizer gels, later distributed to sex workers in Klong Lot, Soi Si Lom 4, Nana, Pat Pong, and Pattaya.</p> <p>SWING also tested these workers for COVID-19, and fortunately, all results were negative.</p>
Result (s)	Until 26 June, SWING raised THB 1,914,607.28, and THB1,432,314.25 was used for food and cleaning supplies for sex workers in Bangkok and Pattaya.

5. Supportive Measures Provided for Vulnerable People

In addition to the support measures mentioned in Chapter 4, several organizations in BMA provided support measures for the vulnerable, such as the elderly, low-income and newly unemployed people, persons with disabilities people, the informal sector, and migrant workers during the COVID-19 outbreak. While such organizations said it is hard to identify who truly is “vulnerable,” they have provided various support helpful for people suffering from COVID-19.

5.1 Ford Resource and Engagement Center and Urban Studies Lab

5.1.1 Organization Profile

1) The Ford Resource and Engagement Center (FREC) Bangkok

The Ford Resource and Engagement Center (FREC) Bangkok is an innovation from Ford Fund, the philanthropic arm of the Ford Motor Company, which brings non-profit partners together in a collaborative environment to support the surrounding communities and help make people’s lives better. FREC Bangkok was established in October 2019 to be a hub for eight governmental organizations that run programs focused on food, environmental conservation, art, and technology.

2) Urban Studies Lab

Urban Studies Lab (USL) is an independent urban studies laboratory, urban think-tank, knowledge & data management center, and community engagement facilitator. It was founded in 2018 by a group of urban practitioners and academics from some top higher education institutions in Thailand. USL offers diverse consultancy support in urban studies research, which can be divided into four themes, such as (i) socio-cultural diversity, (ii) inclusive economy, (iii) resilient urbanism, and (iv) integrated built environment. Based in Nang Loeng and initiatively focused on Bangkok Metropolis, the key mission of USL is to tackle contemporary urban issues through bottom-up community initiation and local engagement.

5.1.2 Introduction to COVID Relief

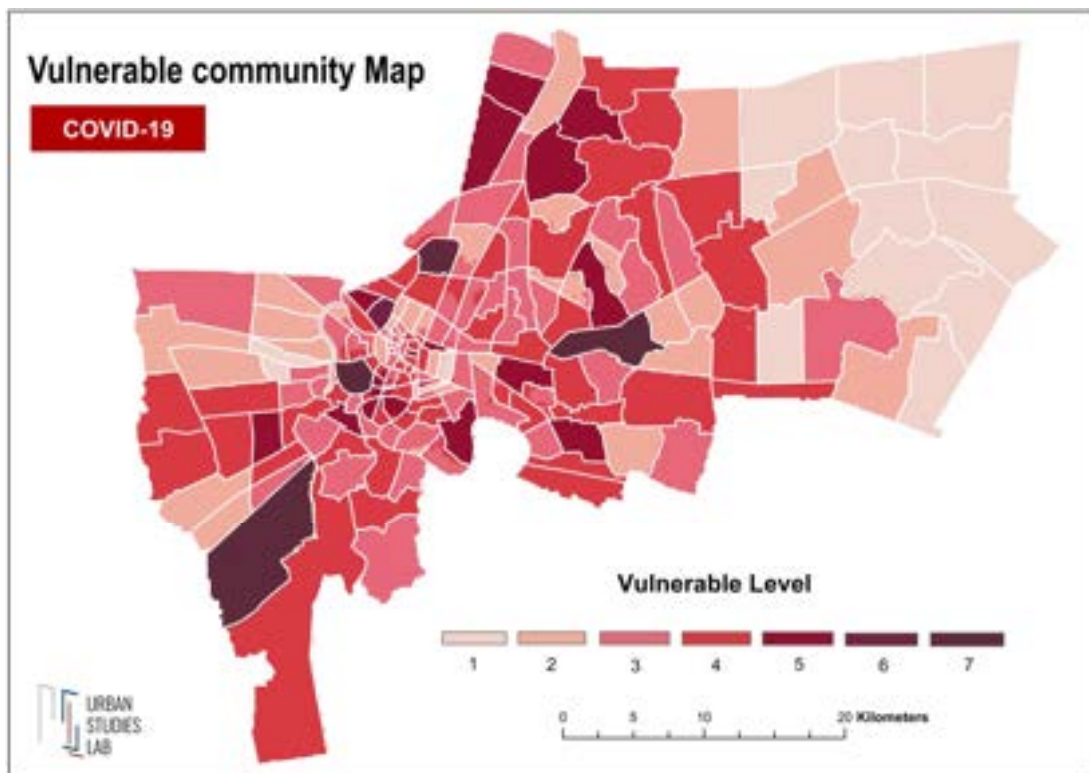
FREC Bangkok, USL, and other NGO partners established a project, “COVID Relief,” to help vulnerable people in Bangkok, such as elderly people, low-income and newly unemployed people, disabled people, and people ordered to quarantine at home. These organizations provided a bank transfer channel for people to donate money where they can receive tax-deductible receipts in return. The COVID-19 Relief comprises three phases that respond to the immediate impacts and long-term community development.

3) Phase 1: Distribution of care packages (April to August 2020)

The first phase responded to the immediate needs, aiming to distribute care packages to 13,000 low-income households in Bangkok. Each package contains enough calories for 30 meals, comprising of 5 kg of rice, 6 boxes of soy milk, 6 cans of canned fish, and 6 cans of canned fruits. It also contains cleaning and protective supplies, including hand sanitizer, soap, and face mask. Apart from FREC Bangkok and USL, four other non-profit partners

were participating in the project, such as Scholar of Subsistence, SATI Foundation, Bangkok 1899, and Precious Plastic Bangkok. Each organization has its role and area of expertise.

For example, USL focused on finding the people who needed the care packages most by developing a vulnerable community map using census data at the subdistrict level (Figure 5.1.1). In doing so, USL employed several factors to assess the levels of vulnerability, such as the density of low-income households, number of low-income households, the density of aging population, number of aging populations, number of crowded communities, and Gini coefficient. Results of the assessment are displayed on the choropleth map, showing seven vulnerable levels that helped FREC Bangkok and its partners roughly answer where the vulnerable communities are and prioritize communities in need of care packages.



Source: Urban Studies Lab (2020)

Figure 5.1.1 Vulnerable Community Map

Scholar Subsistence had operated as food rescuers. In non-COVID time and even during COVID time, it collected leftovers safely from grocery stores, hotels, and restaurants, following strict safe handling guidelines, and delivered them to orphanages, women's homes, and refugee centers across the city. SATI Foundation has strong expertise in collecting public support as well as PR push, which kept people informed about the COVID Relief so they can be involved. Bangkok 1899, a cultural and civic hub, offered its space as the drop-off location for food and cleaning supplies donations. Precious Plastic Bangkok used its public awareness expertise to separate fact from fiction and educate communities on COVID-19. The organization printed flyers named "Myth Busters" and stuffed each flyer into each care package. These organizations were able to work effectively in the COVID-19 context mainly because they are small. They can quickly make decisions and be adaptable to different situations.

During the COVID-19 pandemic, the issue of safety was among the top priority; therefore, FREC Bangkok and its partners set up a safe assembly zone next to its office for people to drop off donations. When distributing care packages, FREC Bangkok did not go directly to communities but delivered via public health care volunteers to maintain social distancing, avoid the risk of spreading the virus, and avoid exposure to the virus. The volunteers had to observe their community and inform FREC Bangkok about how many care packages people needed. Then FREC would bring the packages to the central drop-off point where the volunteers can take them back to their neighborhood.

According to directors of FREC Bangkok and USL, the PHVs played an important role in distributing care packages since they know what happens in each community very well. Essentially, since public health care volunteers are from their neighborhood, they know who is sick, lost their jobs, has many children, or is quarantined. In normal conditions, the volunteers are responsible for taking care of their neighborhood from a health perspective, but in the COVID-19 context, they are somewhat a contact tracer, taking care of anyone at risk of infection.

4) Phase 2: Mental health training (May to November 2020)

The second phase dealt with mental health issues. Anxiety levels spiked across society as a result of the COVID-19. Some people became unemployed, while some increased debts. Some even felt uncertainty about their future which may later lead to committing suicide. Therefore, FREC Bangkok and its partners pulled together some psychiatrists as well as academics to train 1,000 people from low-income communities. Trainees were expected to deliver mental health support, such as being able to ask questions in a more empathetic way and detect signs of mental illness. By the end of phase 2, FREC Bangkok and its partners aimed to have an in-person mental health support network for 20,000 low-income households in Bangkok, accounting for 26% of low-income households in the capital.

5) Phase 3: Business reskilling program (Expected to start from October 2020 and finish by March 2021)

The third phase was about business reskilling, aiming to help people who used to work in the informal sector return to jobs by supporting small businesses as well as small entrepreneurs. Although the project in the third phase was not started as of August 2020, it was very likely that the business reskilling would be related to food since FREC Bangkok and its partners found volunteers working in community kitchens¹ when they distributed care packages in the first phase. Therefore, they partnered with the Community Organization Development Institute (CODI) that initiated the concept of a central community kitchen in response to the food shortage caused by the crisis. Previously, CODI funded money for community volunteers to cook food for the entire neighborhood.

FREC Bangkok, its partners, and CODI saw the potential and opportunity to turn this cooking expertise into the business. Therefore, they plan to partner with Rice Impact to organize a cooking boot camp and select five community kitchens with expertise in cooking

¹ Community kitchen refers to an area in the community where people come to cook food and distribute it to community members.

to train. Once the training is complete, they may introduce a microfinance program to support the trainees in going further with their new small business.

5.1.3 Results of the Project Implementation

1) Results

FREC Bangkok and its partners were able to distribute an average of 2,400 care packages per week to 22 low-income communities. They were able to serve 22% of the low-income households in Bangkok with over 1 million meals based on calorie estimation. In the beginning, it was difficult for them to get face masks and hand sanitizers. Besides, the number of packages distributed was very small, roughly 300 a week. But toward the end, they received more donations than they expected. Therefore, they were able to deliver almost 3,500 care packages per week.

The first phase of COVID Relief was implemented successfully because the cluster partners were small enough to be adaptable to different situations, and at the same time, were big enough to create impacts. In other words, the small size of partners allowed them to work flexibly and adjust the process according to the circumstances to which their efficiency increased for distributing care packages.

2) Problems, challenges and limitations

On the other hand, FREC Bangkok and its partners experienced challenges and problems related to outdated data provided by the government. For instance, USL could only use the census data in 2017, which is the most updated, to develop the vulnerable community map. If the data was more updated, it would be more accurate to identify where vulnerable communities are. Furthermore, some low-income communities have not been registered in the government system, meaning they were likely to miss the opportunity to receive the care packages from COVID Relief. Fortunately, FREC and its partners have collaborated with public health care volunteers who played an important role in reaching low-income communities in need of care packages.

Interestingly, FREC Bangkok and its partners decided to distribute care packages via public health care volunteers rather than community leaders to avoid local politics.

5.1.4 Opinions about COVID-19 and New Normal Initiative

1) Vulnerable people under the COVID-19 crisis from the perspective of FREC and USL

When asked which groups of people are most vulnerable under the COVID-19 crisis, the director of USL said it is difficult to identify, but they could be workers in the informal sector as well as migrant workers since they are not covered by the social security system. Moreover, the government cannot provide them with any funds or support because it is considered illegal. He added that the NESDC was attempting to find a way to reach informal workers, which could be specified in the 13th National Economic and Social Development Plan. Apart from informal workers and migrant workers, the elderly and people with disabilities are also vulnerable to the COVID-19 pandemic since they are at higher risk of getting infected, and severe illnesses may lead to fatality.

2) Suitable supportive measures for the vulnerable people mentioned above

According to the director of USL, monetary aid would be the simplest measure since it is readily usable and universal under the assumption that people will use money only for necessary payments. It is also possible for the government to provide training lessons or reskilling programs for informal workers; however, this kind of activity requires a lot of time, making the government likely hesitant to implement. The private sector normally plays a small role in providing support, mostly in the form of corporate social responsibility (CSR) projects.

In case the government has no desire to give money straight to individuals, it can use the money to make public data up to date and publicly accessible in a way educational institutions and other organizations can use, which will contribute to vulnerable people in return. Another possible option is to develop a platform where people in need can ask for help while donors can respond accordingly, similar to the concept of the Infoaid of Taejai. In addition, the government can use the money to strengthen the community network by providing financial support to public health care volunteers, community leaders, and community rescue teams.

3) Adaptation toward new normal initiative

Most people in Thailand can access the internet, and the vulnerable already adapted to the digital society. However, having a digital device such as a smartphone is still challenging, and without one, they cannot receive an aid package from the government.

Apart from that, it is important to accelerate any processes toward the digital society. To clarify, public health care volunteers have collected dynamic data at the community level, which are very detailed; however, they are in paper (physical) format. Therefore, this physical database should be converted to a digital format, which will become big data used to develop proactive healthcare. This way, people in communities may not have to be in the public health system of the government since they can proactively manage their health.

4) Other important issues

- Thailand effectively contained the spread of the virus. But there are repercussions from COVID-19 itself and the government measures, especially social and economic impacts. Therefore, FREC Bangkok and its partners decided to organize mental health training to minimize the stress of people, especially in low-income communities.
- In addition to the public-private partnership, the government should be open to other forms of cooperative arrangements to run social enterprises, such as cooperating with NGOs or educational institutes.
- COVID Relief has proven that community networks in Thailand are very resilient under the crisis. However, most people hardly prepare for unexpected events. It would be better if they do and use all the lessons learned to get ready for any unforeseen circumstances.
- The government should consider local empowerment and consider the bottom-up approach. When it comes to helping the vulnerable during the pandemic, the bottom-up approach is more suitable than the top-down because it is difficult for the central

government to reach local communities. However, it does not mean that the government must employ the bottom-up only because balance is needed by the end.

5.2 Institute of Asian Studies, Chulalongkorn University

5.2.1 Organization Profile

The Institute of Asian Studies (IAS) is an interdisciplinary research, teaching, and service organization established in 1967 as a unit within the Faculty of Political Science at Chulalongkorn University. After a considerable expansion of activities at the IAS in 1979, an upgrade in the Institute's status was determined to be necessary. Consequently, on 10th May 1985, IAS was officially recognized as a separate institute at Chulalongkorn University, granting IAS a status equivalent to that of a faculty at the university.

Today, the strategic vision for IAS is to continue to serve the Thai community and the Asian region as a source of knowledge and expertise for a broad range of subject areas in the region, including economic, social, political and security concerns. This has been accomplished through the diligence and cooperation of a team of highly qualified researchers who possess specialized knowledge about each country and sub-region within Asia.

The IAS has the resolution to continue maintaining research standards for continued development by aiming to inherit previous knowledge, pioneer new knowledge and new approaches to research in Asian studies, disseminate and transfer knowledge for educational progress, as well as support teaching, learning, and providing academic services to the public at both the public and private levels. The IAS has five missions as follows:

1. to maintain research excellence in Asian Studies;
2. to be an academic reference, pioneer, promoter, and presenter of knowledge in Asian Studies;
3. to develop research regarding Asia;
4. to promote education and knowledge transfer in Asian Studies; and
5. to enhance relations between Thailand and its Asian neighbors.

5.2.2 Introduction to the Tamsang-Tamsong Delivery Platform

During the COVID-19 pandemic, people were urged to stay home to avoid exposure to the virus, and restaurants were prohibited dine-in services as a result of the lockdown measure. Therefore, food delivery was the only choice for restaurant owners to keep themselves afloat and for customers to still have good food from their favorite restaurants while keeping themselves safe at home.

Food delivery platforms greatly benefited from this situation. One even attempted to increase the commission fees charged to restaurants from 30 to 35%. Although it did not happen, the 30% commission is still considered high. In addition, restaurants were forced to increase food prices to compensate for the commission fee, which became a burden on customers. For instance, if the food price for dine-in is THB50, it will be increased to THB60 when ordered via the delivery platform. Apart from that, motorcycle taxi riders (MTRs) were also affected, not only by COVID-19 but also those profit platforms since they offer similar services such as GrabBike (Win).

Therefore, the research team thought of a non-profit platform under the concept of community-based development and inclusive society. After that, the team proposed a project called “Tamsang-Tamsong” (“You order, We deliver”) to the Thai Health Promotion Foundation (THPF), aiming to provide a financial solution to restaurants and riders affected by income loss during the COVID-19 crisis. The THPF then gave a fund of THB99,500 to the team, and CU added THB100,000. A small amount was also put by the research team itself. With an adequate budget, the team was able to launch the Tamsang-Tamsong pilot project in Soi Lat Phrao 101, where the motorcycle taxi rider network has already been strong. Initially, the research team expected to have 30 restaurants and 50 MTRs participating in the project and joining the Tamsang-Tamsong platform.

Project implementation period

The pilot project was carried out for three months, from 15 April to 15 July 2020. Yet the platform remained in use as of August 2020.

Project members and collaboration

The research team comprises six members from various fields, including political science, archeology, communication arts, human resource management, demography, and literature. The team also collaborated with 12 mainstays of MTRs in Soi Lat Phrao 101 and the Motorcycle Taxi Association of Thailand.

Public relations

The research team contacted their friends who work in mass media to spread the news about Tamsang-Tamsong via television broadcast. More news agencies began to contact the team for interviews and followed the project. The team also kept people informed through the official website, news websites, YouTube, and Facebook. However, the team decided to keep a low profile at the local level since being unsure about the results of the project implementation. In other words, if the project was not implemented successfully and people had high expectations, it would affect morale and discourage people in the community.

Delivery cost calculation of the Tamsang-Tamsong platform

Within the service area, the delivery cost is the same as what MTRs receive when serving passengers. In case an MTR needed to deliver food outside the service area, the delivery cost of THB10 per kilometer was applied. Apart from that, additional costs to compensate for the empty backhaul were charged to customers, which are summarized in Table 5.2.1.

Table 5.2.1 Additional cost in compensation for the empty backhaul

Distance from the service area (km.)	Compensation for the empty backhaul (THB)
2–5	20
5–10	30
More than 10	50

Source: Summarized by JICA Project Team based on the interview with Mr. Wantanasombut

5.2.3 Results of the Project Implementation

1) Results

The result of the project implementation was beyond what the team initially expected. Although the number of MTRs was just under the expectation, the number of orders on the platform was far beyond. As of 15 July 2020, over 40 restaurants were participating in the project, and almost 200 would be added later to the platform. Out of 364 MTRs in Soi Lat Phrao 101, 42 riders were already on the Tamsang-Tamsong platform.

Majority of the service users were from Lat Phrao 101 (service area), accounting for 90% of the total users, mainly because delivery cost outside the service area is more expensive. Interestingly, most outsiders used parcel express or grocery delivery services rather than food delivery. However, there was a case of a man ordering a drink to be delivered at Soi soonvijai, which is relatively far from the service area. The drink cost only THB60, but the delivery cost was THB150. Still, the man was willing to do so since he wanted to support the Tamsang-Tamsong project.

Apart from providing a financial solution to restaurants and riders, the Tamsang-Tamsong project helped boost relationships between people in the community and create an inclusive society. For example, there was a case of a disabled man who could not go out to buy food conveniently. Previously, he could only order food from a known restaurant and ask an MTR to pick it up and deliver it to him. But with the Tamsang-Tamsong, it became more convenient, and he had more choices of food as well as restaurants.

Another case was a lady with a hearing impairment. She always missed the call when the MTRs try to contact her to deliver food because she cannot hear her phone ringing. It would be impossible for her to get food through the profit platforms since the riders are not wait too long. But with Tamsang-Tamsong, the research team told the MRTs to pay special attention to her since she needs special assistance. This experience helped the MTRs know where vulnerable people are and thus can rescue in case of emergencies.

It is also interesting to see MTRs in the Tamsang-Tamsong project caring about their users. For instance, one of them was worried about the delivery cost since it seemed expensive for his users. Then, he discussed with other MTRs to find a solution.

It can be concluded that Tamsang-Tamsong is not only a food delivery platform but also a tool to strengthen community networks. In the future, people may use the Tamsang-Tamsong platform to notify the MTRs about emergencies since many riders are also rescue volunteers. The research team hopes that at the end of the day, the Tamsong-Tamsong platform will (i) increase job opportunities, (ii) reduce conflicts between MTRs and Grab riders, and (iii) boost the relationships of people in the community.

2) Problems, challenges and limitations

Most problems, challenges, and limitations are related to the limited budget, which can be summarized as follows:

1. Initially, the research team wanted to select Lat Phrao Raod as a study area, but the team decided on Soi Lat Phrao 101 due to the limited budget and time.
2. The research team wanted to develop the Tamsang-Tamsong platform as a mobile

application available in IOS and android. But the team could only develop it on a ready-made website application.

3. Due to the limited amount of budget, the research team had to ask acquaintances for help in an exchange with small wages.

On the other hand, the limited amount of resources contributed to several positive impacts. To clarify, students from the Satit School of Rangsit University were voluntary to do graphic design and artworks for the Tamsang-Tamsong project. Furthermore, one of them came up with a creative idea, suggesting to the research team that “the Tamsang-Tamsong platform should have a search feature to help users get straight to the menu that they want.” This idea is very simple, but it makes the platform more practical and user-friendly. In addition, another student wants to implement a pilot project of Tamsong (We deliver) in Mueang Ek Village in Rangsit District, Pathum Thani Province.

3) Further development of the Tamsang-Tamsong platform

The next phase of the Tamsang-Tamsong project can be divided into two sections. The first one is to develop and improve the platform because the system is still a bit complicated. For instance, the food ordering process requires 3 to 4 steps since the platform is developed on the ready-made website application. Therefore, the research team wants to reduce these steps to make them simpler, more practical, and more user-friendly, which will take around one year.

Once the Tamsang-Tamsong project in Soi Lat Phrao 101 is complete, it will be a model for other areas. The research team was contacted by the THPF since they saw the potentials of the project and its contributions on the society. The THPE is considering providing funds and implement the Tamsang-Tamsong model in other areas of Thailand such as Sai Buri District in Pattani Province, Betong District in Yala Province and Rangsit District in Pathum Thani Province. Similarly, Homenet, an NGO to support informal sector, also contacted the research team to implement the Tamsang-Tamsong project in five communities in Bangkok such as Bang Khun Thian, Sai Mai, Soi Ari, Nakkila Village and On-Nuch. Besides, Homenet will take the responsibility for raising fund in order to support the project.

In response to the offers, the research team plans to create a guidebook and organize workshops called the “Train-the-Trainer Program.” The team also plans to invite people in communities and students to get involved in the Tamsang-Tamsong project so they will have a sense of belonging. At the end of the day, this platform will belong to the whole community, not just MTRs or restaurants.

5.2.4 Opinions about COVID-19 and New Normal Initiative

1) How did people in Soi Lat Phrao 101 get affected during the COVID-19 crisis?

When the research team surveyed in Soi Lad Phro 101, they met an old lady who was crying and was afraid of the team, thinking they were from the Revenue Department (RD) collecting tax. She said she only had THB20 in her packet. Once she knew the research team was not from the RD, she told the team that she suffered from the COVID-19 pandemic and even wanted to commit suicide. Also, she does not have a smartphone and does not know how to register for the financial aid of THB5,000 from the government.

MTRs have lost their income up to 70-80%. Before the crisis, they used to make THB900. But during the crisis, no matter how long they waited for passengers, it was difficult for them to make money. Restaurants with delivery services could continue running their business, but those without could not sell food anymore. In addition, since massage parlors were ordered to be closed, owners and staff turned themselves into vendors selling drinks. Still, they could not sell much since they did not have a delivery service.

2) How does the Tamsang-Tamsong project response to the new normal initiative?

Food delivery is already a part of the new normal initiative as it supports the social distancing measure. MTRs under the Tamsang-Tamsong project are also suggested to have an alcohol-based hand sanitizer gel with them at all times. The research team also teach MTRs to use e-Payment as an option, such as the PromptPay system and the QR Code Payment, to avoid being in touch with cash. Although some MTRs are relatively old and unfamiliar with technology, they are willing to learn and adapt to the new normal lifestyle. This activity helps them develop their digital literacy and increase access to technology.

3) Other important issues

- Public sector, private sector, or even politicians saw the contributions of the project and therefore offered support to the Tamsang-Tamsong project; however, the research team did not accept all of them because some came with certain conditions. If the support is in the form of aid or reciprocation, it cannot contribute to sustainable development. The team also keeps reminding MTRs and restaurant owners in the project to stand for themselves and make the most of the limited budget.
- CU is considering establishing a specific department to work on projects similar to Tamsang-Tamsong because groups of people want to have a non-profit platform for more job opportunities, such as chiropractors, babysitters, and elderly care workers.
- These days, most platforms are driven by the start-up business model in which owners attempt to increase their company value with the intent to sell and make a profit rather than attempt to create business activities. As a result, most owners overlook other potentials of the platform technology, such as creating job opportunities and further developing people's careers.

5.3 Community Organizations Development Institute (CODI)

5.3.1 Organization Profile

The Community Organizations Development Institute (CODI) is a Thai Government institution with a mission to support the strengthening communities and their organizations—in both urban and rural areas—as key agents of change and as central actors in development, which affects their lives and communities. Besides the budget from the government, which supports many of its ongoing programs, CODI's chief financial tool is the CODI revolving fund, which provides soft loans to community cooperatives and community networks to undertake a variety of development initiatives they plan and implement themselves. These initiatives include housing, land purchase, livelihood, community enterprise, and many others. The status of CODI as a public organization gives it a degree of freedom to more flexibly channel government funds to a development process driven by communities.

As such, CODI is an institution that facilitates change by people at scale. The focus of CODI is not only on alleviating poverty but on finding ways by which communities can be the key actors in whatever development they determine is needed. Instead of making most of the decisions within the institution, CODI works to create space for communities to work together as managers and implementers of various development initiatives so CODI can be a public institution that is jointly managed with people as much as possible.

5.3.2 Introduction to the Project for Developing the Quality of People's Lives

The communities under CODI's programs attempted to help each other in many ways to minimize the impacts caused by the COVID-19 pandemic. For example, community members under the Baan Mankong collective housing program used the money from saving cooperatives and village banks to buy food and distribute it to their members. Similarly, the homeless center used the money to organize community kitchens and give cooked food to members and homeless people. Likewise, the community welfare network used the welfare fund to produce protective equipment such as face masks and distributed them to people in low-income communities.

To support these attempts, CODI launched the "Project for Developing the Quality of People's Lives (PDQL)," implemented throughout the country along with a budget of THB144 million. THB72 million was reserved for communities in urban areas, while the other half was allocated to rural communities. Communities are required to write a budget request and propose their minor projects to CODI to participate in the PDQL, covering one of the following issues.

1. Surveying cities and formulating plans to promote the quality of people's lives
2. Alleviating immediate impacts such as community kitchens and food distribution
3. Promoting food security such as homegrown vegetables and collaborative farming
4. Securing jobs and generating income such as reskilling programs
5. Promoting saving cooperatives, community-saving banks and community welfare
6. Promoting community network and knowledge exchange among communities

PDQL does not only respond to immediate impacts but also supports medium-term adaptation. The short-term minor projects comprise community kitchens, food distribution, production of protective equipment, etc., meanwhile, medium-term minor projects deal with food security issues and generate income, such as household farming and rice fund. These minor projects have been implemented parallel from April to October 2020.

Target groups

Urban areas:

1. 300 urban communities from the Baan Mankong collective housing program
2. 73 communities from the Four Regions Slum Network
3. 76 communities from canal-side communities

Rural areas:

There are 1,500 communities in 76 provinces under the Bann Mankong collective housing program, the Council of Community Organizations, and the community welfare fund.

Source of fund

The fund for minor projects under the PDQL is originally from the government, but it is managed by CODI. In urban areas, the amount of budget for each minor project is allocated according to the number of communities participating, which can be summarized in Table 5.3.1.

Table 5.3.1 The amount of budget according to number of communities

Number of communities	Maximum amount of budget (THB)
1–3 communities	30,000
4–10 communities	100,000
11–20 communities	200,000
21–29 communities	300,000
More than 30 communities	350,000

Source: Community Organizations Development Institute (2020)

Collaboration with other organizations

CODI received support to implement the PDQL from other organizations, such as the Buddharaksa Foundation and MK Restaurant Group Public Company Limited.

Expected results

1. Impacts on people in urban and rural communities are alleviated.
2. People have food security and can reduce expenses associated with food.
3. People are reskilled, new jobs are created, and unemployment issues are well-managed.
4. Communities have sufficient working capital for further development.
5. Community network leaders can manage community organizations.
6. Relationships within the community and between community networks are restored and strongly built.
7. Community networks and local authorities can work collaboratively in

developing communities and dealing with community problems.

Public relations

CODI keeps people informed about the PDQL via its official website, television, and local radio. Currently, CODI is monitoring the PDQL and summarizing the lessons learned from the PDQL, which will be done and published in the report by October 2020.

5.3.3 Results of the Project Implementation

1) Results

Results of the project implementation are being summarized, meaning the number of communities participating in the PDQL and the number of people receiving the support were not officially presented. However, qualitative information can be roughly described. According to the Director of BMR and Eastern Office of CODI, in addition to food distribution and other immediate responses, the PDQL had several contributions to low-income communities, such as strengthening the community network and having food security. To clarify, in the Bang Bon District of Bangkok, there are only four communities under the Baan Mankong collective housing program. These four communities proposed a community kitchen project to CODI and requested a budget from PDQL. Once they received the budget, they asked other 35 communities in the district to join the community kitchen project, cook food, and distribute it to their members. In this way, they can create a larger community network that will help each other in an event of a crisis.

Communities implementing the household farming project can reduce expenses on food because they can have homegrown vegetables, fish, chicken, and eggs from their farms. This activity can be found in both countryside of Thailand and cities like Bangkok. In addition, the PDQL was able to create jobs and generate income which can be seen when some communities came up with the idea of packed lunch for sale.

2) Problems, challenges and limitations

CODI experienced two main challenges during the project implementation. The first one is related to the social distancing measure since CODI could not visit and meet people in communities. However, CODI managed the situation by arranging meetings via Zoom, allowing people to propose and discuss about their minor projects. In addition, CODI was able to reduce expenses and work more effectively. The other challenge is associated with the acceleration of budget payment process because many minor projects had to respond to immediate needs, and thus required the rapid disbursement.

3) Side-effects caused by the project implementation

In Suan Phlu (central Bangkok), CODI provided a budget for communities to run the community kitchen. Once people from the surrounding area saw this activity, they donated money and food ingredients with hopes that the communities would be able to continue running the community kitchen using the donated items.

Some communities even asked CODI to extend the PDQL since the impacts caused by COVID-19 persist, especially losing jobs and income, although the pandemic is under control. Unfortunately, CODI cannot continue the project due to the limited amount of

budget. Still, people can keep running their minor projects using the money from their saving cooperatives or village banks.

5.3.4 Opinions about COVID-19 and New Normal Initiative

1) Vulnerable people under the COVID-19 crisis from the perspective of CODI

The Director of BMR and Eastern Office of CODI said CODI does not have any specific criteria to identify vulnerable people, but it collaborates with community organizations in both urban and rural areas. These organizations look after several groups of vulnerable people in their neighborhoods, such as the low-income, people with disabilities, the unemployed, elderly, bed-bound patients, single moms, and orphans. In addition, CODI has implemented a collective housing program called “Baan Mankong,” aiming to help people living in an informal settlement and people considered as land encroachers, which might also be considered vulnerable.

2) Adaptation toward new normal initiative

People in communities are highly aware of how they should protect themselves from COVID-19, which can be seen when they wear face masks and use alcohol-based hand sanitizer gels. They also always look after each other and check if a newcomer enters their community. Some communities even reserve an area for community members to quarantine in case they have been in contact with an infected patient. The Director of BMR and Eastern Office of CODI added there is a very low percentage of low-income people and homeless people who get infected with COVID-19. On the other hand, COVID-19 patients are mostly those who have money and travel abroad.

3) Preparation for the post COVID-19 situation

CODI has taken into account how people should prepare for the second wave of COVID-19 and, at the same time, people in communities are aware of using protective equipment, such as face masks and alcohol-based hand sanitizer gel. However, the long-term adaptation is still challenging because economic impacts persist, although the outbreak is over. Therefore, CODI attempts to promote the concept of food security, encouraging people to grow vegetables and do household farming so they can still have food in the face of crisis. Cooperating with other communities and local authorities is important to strengthen the network.

4) Other important issues

- Apart from the PDQL, CODI had postponed debt payments and reduced interest rates for cooperatives throughout Thailand for 6 months, from April to September 2020.
- The main role of CODI is to strengthen community organizations and community networks, so at the end of the day, they can look after each other and drive any development process by themselves.

5.4 Khlong Toei District Office

5.4.1 Organization Profile

Khlong Toei District Office (KDO) has the authority and duties related to the administration, registration, district development planning, investment promotion, environment and pollution control, etc. It comprises of ten sections working in different areas of expertise which are (i) Administration Section, (ii) Registration Section, (iii) Public Works Section, (iv) Environment and Sanitation Section, (v) Revenue Section, (vi) Public Park and Clean Section, (vii) Education Section, (viii) Finance Section, (ix) City Law Enforcement Section, and (x) Community Development and Social Welfare Section. KDO has the vision to provide the best service, develop the organization, restore the economy, and improve the quality of people's lives. It also has eighteen missions listed as follows.

1. Develop public services in response to people's needs
2. Develop environmental condition in Khlong Toei district
3. Improve quality of people's lives
4. Develop knowledge, human resource and technology in KDO
5. Promote security for people
6. Develop public health service
7. Develop public transport system
8. Reduce amount of waste
9. Increase green space
10. Promote environmentally friendly lifestyle
11. Ensure security in Khlong Toei district
12. Provide primary education
13. Develop education quality
14. Watch over land use in Khlong Toei district
15. Promote culture and lifestyle of people in Khlong Toei district
16. Provide service for people equally
17. Collect property tax
18. Develop working and management process in KDO

5.4.2 Introduction to Supports Provided by the Khlong Toei District Office

1) Supports

Facilitation for donations in Khlong Toei district (From 15th April to present)

Initially, the BMA ordered all 50 district offices to set up at least one drop-off location for donations, allowing donors to distribute necessary items while people could come to pick them up during the COVID-19 crisis. In the case of the Khlong Toei district, KDO negotiated with the owner of At Narong Night Bazaar market to use the space as the official drop-off location for donations because it has already been used for the same purpose.

Due to the limited amount of budget, KDO could not be the main donor. However, KDO positioned itself as a facilitator, assisting when donors want to distribute food or necessary items in communities within the Khlong Toei district. For example, if a donor prefers to

directly donate items in a specific community rather than deliver them to the designated drop-off location, KDO contact the community leader in advance, send a team from KDO to go with the donor, and facilitate the donating process, ensuring that donees queue and keep physical distance to avoid overcrowding.

In case donors do not want to deliver donations at the drop-off location and do not have a specific community of preference, KDO prioritized, scheduled, and made a list of all communities in need. In this case, donors have two options. They either distribute items by themselves or set up a separate drop-off location where people can come and pick up the items. Still, KOC officials will come with to assist and ensure that people queue and apply social distancing.

It is important to note that KDO used a rotational system for donations, meaning every community received donated items sequentially. For instance, if community A receives donated items today, communities B, C, and D will receive theirs consecutively. Once the first round is complete, the second round will begin with community A again. This is to ensure that every community receives equal assistance. The Director of KDO added that KDO is still open for any kind of support, even donations, because everyone in the Khlong Toei district was affected by the COVID-19 pandemic and needed help.

Provision of table shields (June 2020)

To prepare for the reopen of schools, KDO collaborated with Army Region 1 to produce table shields for four schools in Khlong Toei district to minimize the spread of COVID-19 in education institutes because young children can get infected easily, compared to adults.

Provision of stickers to raise awareness in fighting against COVID-19 (July to August 2020)

KDO attempted to raise people's awareness and remind people to keep their guard up against COVID-19. It produced 4,000 stickers available in eight designs that can be placed anywhere to remind people to wear face masks, wash their hands frequently, use personal spoons, eat freshly cooked food, and maintain social distancing (Figure 5.4.1). The fund to produce the sticker was mainly from donations from the public sector, private sector, and other Thai people.



Source: JICA Project Team (2020)

Figure 5.4.1 Stickers for COVID-19 Prevention

2) Public relations

To keep people in communities informed about donations and other support, KDO sent information via the LINE to community leaders who then would share it with community members.

5.4.3 Results of Project Implementation

1) Results

The facilitation of KDO benefited communities and donors because they felt safe and comfortable when distributing donations. The queue was systematically arranged using queue cards while strictly complying with social distancing. This would encourage the donors to come back for donations again. Furthermore, every community received donated items equally due to the rotation of donations. Up until September, each community in the Khlong Toei district received donated items at least twice, and unlike in other districts, no fights for donated items occurred because of the good management system of KDO.

In addition, the production and installation of table shields were complete before the reopening of schools, meaning the spread of COVID-19 in educational institutes is minimized. Besides, KDO was able to distribute stickers to people in 39 communities and to students in four schools in the Khlong Toei district which will raise awareness of them in keeping up their guard against the COVID-19 outbreak.

2) Problems, challenges and limitations

The most challenging part is the management because KDO must ensure that donating process is done safely. To clarify, KDO must ensure people will not fight for donated items and avoid overcrowding. It must also ensure people comply with COVID-19 prevention measures, such as wearing face masks and physically distancing from others when receiving

donations. Otherwise, it would discourage donors from returning for donations again, leading to other negative consequences.

Another challenge is that KDO must take rapid actions when it comes to donations because people in communities are in urgent of help while donors are willing to help immediately. Therefore, KDO officials must facilitate and act as fast as they can; otherwise, they will be pressured by donors and people in communities.

5.4.4 Opinions about COVID-19 and New Normal Initiative

1) Vulnerable people under the COVID-19 crisis from the perspective of KDO

Khlong Toei district is a densely populated area with over 100,000 people, meaning they can get infected easily. In other words, they have all been affected by the COVID-19 pandemic, whether vulnerable or not. Some people could not go to work while some were struggling to feed themselves. Therefore, the KDO does not classify vulnerable people into different groups but ensures everyone receives assistance equally, which has been done by the rotational systems of donations.

2) Preparation for post the COVID-19 situation

KDO keeps reminding people to keep their guard up by always wearing face masks, washing hands, and social distancing. It has a group in LINE where staff from KDO, its partners, and the public health officials can keep people in communities updated on the COVID-19 situation and share information on how they can protect themselves from the outbreak. The stickers can also raise awareness of people in following the prevention measures and fighting against COVID-19.

3) Preparation for post the second wave of COVID-19

The community network in Khlong Toei district must be strengthened while people must keep watching over their communities. If a stranger is visiting, they must be aware and check if the person has any suspicious symptoms or not. If people in Khlong Toei communities go to work, they must follow the COVID-19 prevention measures, ensuring that they will not bring home the virus.

4) Other important issues

- KDO was operating a waste management project in Khlong Toei communities before the pandemic, aiming to encourage people to separate wastes. After the pandemic, KDO plans to continue this project, which will increase the sanitary and hygienic levels of communities.
- A temple in the Khlong Toei district organizes a community kitchen to distribute cooked food to communities.

5.5 Thai Red Cross Society

5.5.1 Organization Profile

The Thai Red Cross Society (TRCS) is a major humanitarian organization in Thailand, providing services part of the International Red Cross and Red Crescent Movement. It was founded in 1893, and its headquarters is in Bangkok. TCR is governed by the Act on Thai Red Cross Society 1918 and supervised by the Council of Ministers. Its expenses are borne by the government. The king appoints its president upon the advice and consent of the council of ministers. The current president is Queen Sirikit, who has held the position since 12 August 1956.

TRCS provides relief services and humanitarian aid in times of war and disaster, as well as medical and charitable services. It has 14 bureaus, 6 specialized centers, and 5 special affairs offices. It focuses on the following four key areas: (i) disaster relief assistance, (ii) public health services, (iii) improvement of quality of life in impoverished communities, and (iv) supply of blood and transfusion.

5.5.2 Introduction to Supports Provided by the Thai Red Cross Society

1) Supports

A) Phonphai application

TRCS developed a disaster warning mobile application called “Phonphai” to allow users to report disaster occurrence, call for assistance in case of emergencies, and serve as a tool for disaster response. In the event of COVID-19, this application has been used mainly by VHV to notify TRCS if there was a person in need of food or a suspected person of COVID-19 is found. In addition, more foreign languages were added to the application, such as Burmese, Cambodian, and Mon, so migrant workers can use it conveniently.

B) Distribution of care packages and mobile kitchens

TRCS signed the contract of procurement with Siam Makro Public Company Limited (Makro) to help people with vulnerability throughout Thailand in dealing with the impacts caused by COVID-19. To clarify, there were people who had to be under home quarantine for 14 days, and some were struggling to feed themselves. Therefore, TRCS would inform Makro to deliver care packages to them within 24 hours. Each package is enough for 14 days and contains a five-kilogram of rice, thirty packages of instant noodle, four tins of canned fish, four cans of fried fish in chili sauce, two cans of boiled eggs with chicken filling in brown soup, two cans of tuna chili paste, two sets of black small garbage bags, one bar of soap, one bottle of shampoo and one pack of laundry detergent (Figure 5.5.1). People can also keep tracking the food truck on the Phonphai application. Apart from distrusting packages, TRCS also organized mobile kitchens to give cooked food to vulnerable people.



Source: Thai Red Cross Society (2020)

Figure 5.5.1 Care package

C) Face masks for self-protection from COVID-19

TRCS cooperated with the MOPH and Thailand Post Company Limited (Thailand Post) to produce 10 million face masks for distribution to VHVs who play an important role in watching over communities and controlling the spread of the virus. Two million face masks were expected to be sent via Thailand Post to one million VHVs in 77 provinces of Thailand while the rest would be given to people nationwide. In doing so, Thailand Post did not charge any service fee.



Source: Thai Red Cross Society (2020)

Figure 5.5.2 Face Masks for Self-Protection from COVID-19

D) Provision of assistance for migrant workers

From a humanitarian perspective, although some foreign migrant workers entered or stayed in Thailand illegally, TRCS distributed care packages to them, especially low-income families with pregnant women, young children, disabled people, and bed-bound patients. This support was done with the assistance of UNICEF and other NGOs. TRCS also

collaborated with the MOPH to arrange a training program for MHVs on how to use the Phonphai application so they can use the application to notify TRCS if a foreign stranger enters their communities or a suspected case is found. However, TRCS insists that officers will not take any legal actions against illegal migrant workers; otherwise, they will hide and not go along with TRCS. It is important to note that TRCS needs to gain trust from both legal and illegal migrant workers so TRCS can work smoothly.

2) Expected results

TRCS did not have any expected number of people assisted because the situation of COVID-19 is unpredictable. However, TRCS ensured that the most vulnerable people must be sufficiently helped, and the COVID-19 situation must be under control.

3) Original source of fund

The majority of the fund was from donations. TRCS opened a bank account for people, companies, and others to donate money to, where they can obtain receipts for a tax deduction in return.

5.5.3 Results of Project Implementation

1) Results

Over THB100 million was used in dealing with the COVID-19 crisis. TRCS delivered around 100,000 care packages to 100,000 people who had to self-quarantine, while over 20,000 packages to people with economic vulnerability nationwide. TRCS also sent 2 million face masks to VHV and 8 million other people throughout the country.

2) Problems, challenges and limitations

The training program implementation for MHVs is challenging because it takes several days, meaning the MHVs need to stop working or take days off. Besides, some who passed the training program moved back to their countries, resulting in the discontinuity in watching over migrant communities. The Deputy Director of Relief and Community Health Bureau added that it is also difficult to gain trust from migrant workers, especially those without legal status because they are afraid of being deported.

Another challenge is related to money from donations. Most people donate money with a specific purpose, such as to buy medical aspirators or protective suits, meaning the money cannot be for other purposes, even if more urgent. The Deputy Director of Relief and Community Health Bureau added that buying medical equipment is considered a defensive measure, but better to implement protective or proactive actions to bring COVID-19 under control.

For a mobile kitchen, making delicious food is difficult because TRCS has to cook a large serving. TRCS also takes three hours to distribute cooked food to the vulnerable. Although the food did not get spoiled, the taste was not good.

3) Further development of Phonphai application

Currently, TRCS, in collaboration with the MOPH, is developing a feature called "Visual Clinical Screening" by integrating artificial intelligence (AI) and algorithm to detect patients

at risk of COVID-19 infection. This feature would facilitate the working process of doctors and healthcare personnel. Furthermore, TRCS plans to include a visual communication feature in the Phonphai application, allowing users to consult with medical staff via video calling in real-time.

5.5.4 Opinions about COVID-19 and New Normal Initiative

1) Vulnerable people under the COVID-19 crisis from the perspective from TRCS

Under the COVID-19 crisis, the vulnerable can be divided into three groups, namely people with health vulnerability, people with economic vulnerability, and people with social vulnerability. People with health vulnerability refer to the elderly or people with underlying diseases, such as diabetes, heart disease, and cancer. These people are at high risk of infection and mortality from COVID-19. People with economic vulnerability comprise of the low-income or those who lost their jobs due to the outbreak, especially in areas relying on the tourism industry. The third group is the socially vulnerable, such as migrant workers and people without legal status, because they cannot have access to public health services and are not covered by the social security system. Most of them stay in crowded apartments, making social distancing impossible. Besides, they may lack knowledge on how to protect themselves from COVID-19.

2) Preparation for the second wave of COVID-19

TRCS is developing the Phonphai application by integrating the features of Visual Clinical Screening to facilitate the working process of healthcare personnel. TRCS is also attempting to ensure all VHVs can access the application and use it smoothly. Recently, TRCS collaborated with the DLA to send the letters to all village headmen, requesting them to start using the Phonphai application.

3) Adaptation toward new normal initiative

Thai people are aware of the new normal initiative and keep their guard up, which can be proven by people wearing face marks and practicing social distancing. In Samut Sakhon Province, people not wearing face masks in public areas will face legal actions and will be fined. Migrant workers follow the preventive measures when at work; however, when at their apartments, social distancing is difficult due to the limited amount of space.

The Deputy Director of Relief and Community Health Bureau added that the new normal for the Thai economy is still challenging because the crisis is unpredictable, and no one knows if the vaccine would work. It is also unknown if the virus will mutate. Therefore, people should tighten their belts and have a sense of sufficiency. In the future, TRCS may aid the vulnerable through job creation and food security promotion, apart from the distribution of care packages.

4) Other important issues

- The Deputy Director of Relief and Community Health Bureau added that most migrant workers are relatively young. Once infected, the symptoms are likely not as severe as with the elderly. Thus, they do not seek medical attention, leading to the spread of the virus in their communities.

- The Deputy Director also said that the government should adjust its mindset. Instead of considering people who help migrant workers as antagonists, the government should look at the other side since these people can create a network with migrant workers, eventually contributing to national security. In addition, the government should legalize migrant workers without legal status or bring them into a proper system, so they do not hide and spread the virus.

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6. Roles and Actions of Public Health Volunteers to Support Communities

As described in Chapter 1, PHVs have played key roles to support their communities during the COVID-19 pandemic, especially the vulnerable people. In identifying the role of PHVs to support the vulnerable people and the lessons learned from experiences tackling with COVID-19 and understanding its actual impacts on the vulnerable, an interview survey of PHVs was conducted. The outline of this survey is as follows.

Survey period: 9–12 November 2020

Survey method: Focus group meeting

Target: PHVs in 10 selected communities

Certain communities were selected from various types of communities using the method described in section 6.1. Details of the selected communities are shown in the Appendix.

6.1 Vulnerability Assessment for District Selection

This section explains the vulnerability assessment for district selection to carry out interviews with PHVs.

6.1.1 Community types in Bangkok

Bangkok has 2,068 registered communities, which are officially classified into six categories, namely slums, public housing community, suburban community, urban community, housing estate community, and high-rise building community. Considering the aspect of vulnerability, the study decided to exclude the high-rise building community, housing estate community, and urban community. The study has then reclassified the communities in Bangkok into five, namely slum, public housing community, suburban community, migrant community, and elderly community. The new categories are defined in the following.

1) Slum

Slum refers to a community with poor conditions where buildings are allocated crowdedly and untidily. Furthermore, the environmental condition in this community is undesirable as the living conditions can be harmful to health and can be generally unsafe. In terms of density, when there are at least 15 households in 1 Rai (1,600 m²), it is considered a slum. In Bangkok, slums are prevalent in its inner zone, such as the districts of Bang Sue, Thonburi, Bang Phlat, and Klong Toey.

2) Public housing community

Public housing community refers to a flat in Bangkok that is operated by the National Housing Authority (NHA), but Bangkok Metropolitan Administration (BMA) provides facilities, such as drainage system and pavements. This type is prevalent in the districts of Laksi, Ladkrabang, and Bang Khun Thian. However, the most well-known public housing community of NHA is in Din Daeng district.

3) Suburban community

Suburban community refers to a community located in the outskirts where most of the land is used for agricultural purposes. Although buildings in suburban community is not crowded, the public facility and infrastructure are not well-organized, especially drainage system and pavements, creating undesirable living conditions. Suburban communities are mostly found in the northern part of Bangkok, such as the districts of Don Mueang, Sai Mai, and Bangkok.

4) Migrant community

Migrant community refers to a community in Bangkok where migrant workers live. According to the Strategy and Evaluation Department, migrant workers are predominant in the districts of Bang Khun Thien, Bangkok, Klong Sam Wa, Prawet, and Bang Bon.

5) Elderly community

Elderly community refer to a community in Bangkok where the residents are over 60 years old. According to the Department of Provincial Administration, Bangkok district has the highest number of elderly at 35,615, followed by the districts of Chatuchak, Bangkok, Sai Mai, and Chomthong respectively.

6.1.2 Vulnerability assessment

Through a series of interviews with the organizations in Phase 2, two types of vulnerable groups were identified: the Thai vulnerable group (such as the elderly, persons with disabilities, single mother/father, and the poor) and foreign vulnerable group (migrant workers without legal status). These are further classified as:

- (1) **Physically vulnerable group:** Elderly, patients, people at risk of infection, and so on.
- (2) **Economically vulnerable group:** Poor, unemployed, and laid-off by COVID-19.
- (3) **Socially vulnerable group:** Migrants, people without social status, and people out of safety net (or without any social services).
- (4) **Environmentally vulnerable group:** People living in unsatisfactory sanitary conditions.

Based on the definitions mentioned above, the study attempted to assess the vulnerability levels in every district, using spatial multicriteria analysis, which were then used as a tool to reach vulnerable communities. In other words, the study needed to know where vulnerable communities are so it can continue to carry out the interviews with PHVs.

In doing so, the input parameters for the vulnerability assessment comprise of number of elderly people (NEP), proportion of elderly people (PEP), number of low-income people (NLI), proportion of low-income people (PLI), number of migrant workers (NMW), number of slums (NMS), slum concentration (SC), complaints about waste management (CWM), and complaints about sanitary sewer (CSS) (Table 6.1.1). These parameters were selected based on the data availability.

In addition, sub-parameters (descriptions) were assigned to each input parameter according to the susceptibility to the vulnerability levels. For instance, a district with more

elderly residents tends to be more vulnerable than another with few elderly residents. Therefore, in this case, the sub-parameter is “the more there are elderly, the higher the vulnerability”. Table 6.1.1 shows a summary of the other sub-parameters.

Since each parameter has different attribute scales, their units must be transformed into comparable parameters, ranging equally between 0 and 1. It can be done using the normalization function (Eq.1). Once every parameter is the same scale, they can be spatially overlaid in a GIS environment, using Eq.2, to produce the vulnerability map that can be used as a tool in selecting districts with the most vulnerable communities for interviews in Phase 3. However, it should be noted that qualitative data obtained in Phases 1 and 2 would also be considered in the selection of districts for interviews.

$$\text{Normalization function} = (X_i - X_{\min}) / (X_{\max} - X_{\min}) \quad \text{Eq.1}$$

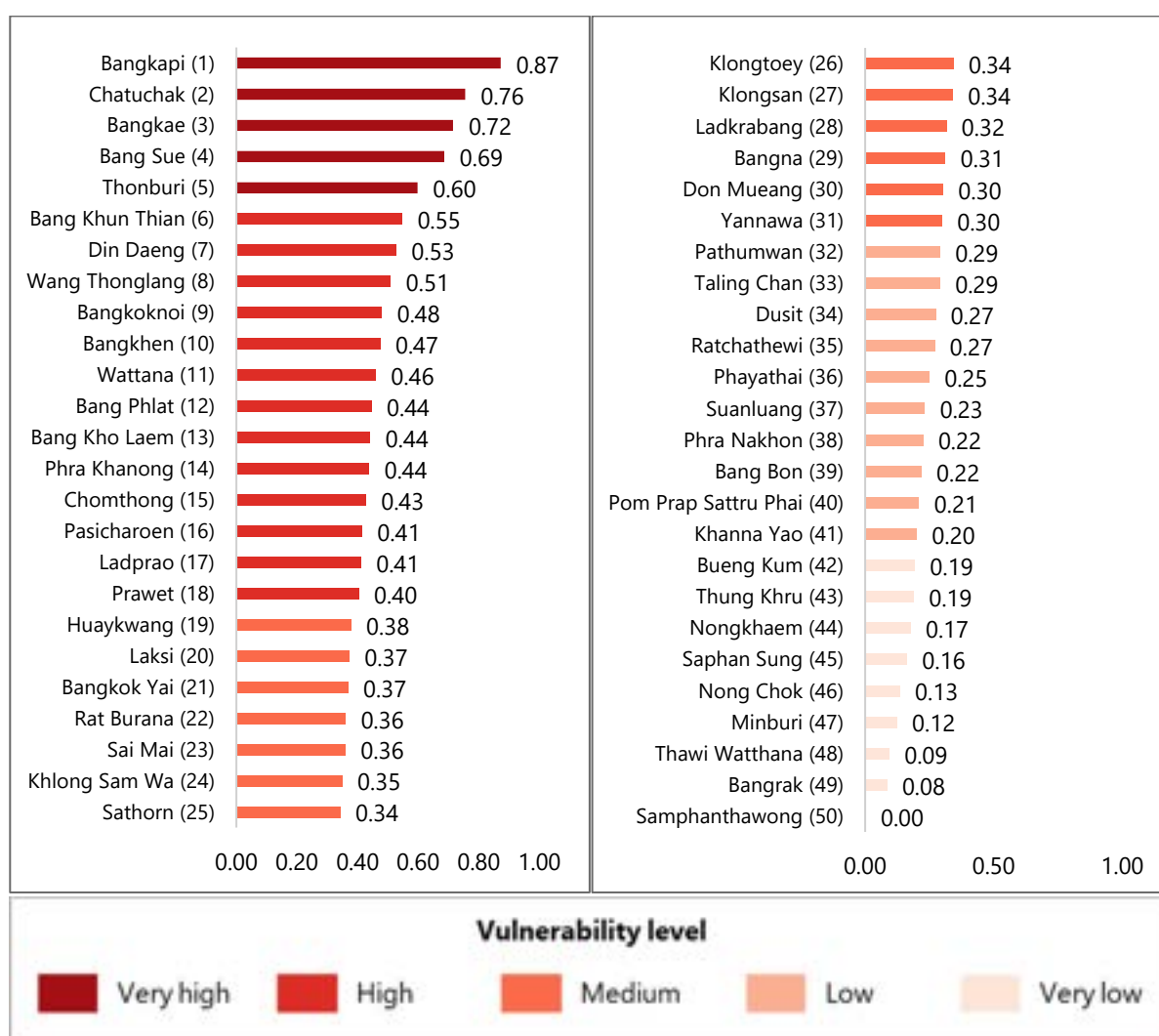
$$\text{Vulnerability} = \text{NEP} + \text{PEP} + \text{NLI} + \text{PLI} + \text{NMW} + \text{NMS} + \text{SC} + \text{CWM} + \text{CSS} \quad \text{Eq.2}$$

Table 6.1.1 Criteria for vulnerability assessment

Vulnerability components	No	Parameters	Sub-parameters (Descriptions)	Attribute scale (Max – Min)	Normalization (z-score)	Data source	Year
Physical vulnerability	1	Number of elderly people (people)	The more the elderly, the higher the vulnerability	35615 – 2532	1 - 0	Department of Provincial Administration	2019
	2	Proportion of elderly people	The higher the proportion, the higher the vulnerability	113.94 – 2.40	1 - 0	Analysed by JICA Project Team based on Department of Provincial Administration	2020
Economic vulnerability	3	Number of low-income people (people)	The more the low-income, the higher the vulnerability	4675 – 160	1 - 0	Urban Study Lab	2017
	4	Proportion of low-income people	The higher the proportion, the higher the vulnerability	20.81 – 0.14	1 - 0	Analysed by JICA Project Team based on Urban Study Lab	2020
Social vulnerability	5	Number of migrant workers (people)	The more the migrants, the higher the vulnerability	17949 – 1621	1 - 0	Strategy and Evaluation Department	2014
Environmental vulnerability	6	Number of slums (slums)	The more the slums, the higher the vulnerability	47 – 0	1 - 0	Bangkok GIS	2019
	7	Slum concentration	The higher the slum concentration, the higher the vulnerability	1 - 0	1 - 0	Analysed by JICA Project Team based on Bangkok GIS	2020
	8	Number of complaints about waste management (complaints)	The more the complaints, the higher the vulnerability	125 - 14	1 - 0	Strategy and Evaluation Department	2015
	9	Number of complaints about sanitary sewer (complaints)	The more the complaints, the higher the vulnerability	130 - 5	1 - 0	Strategy and Evaluation Department	2015

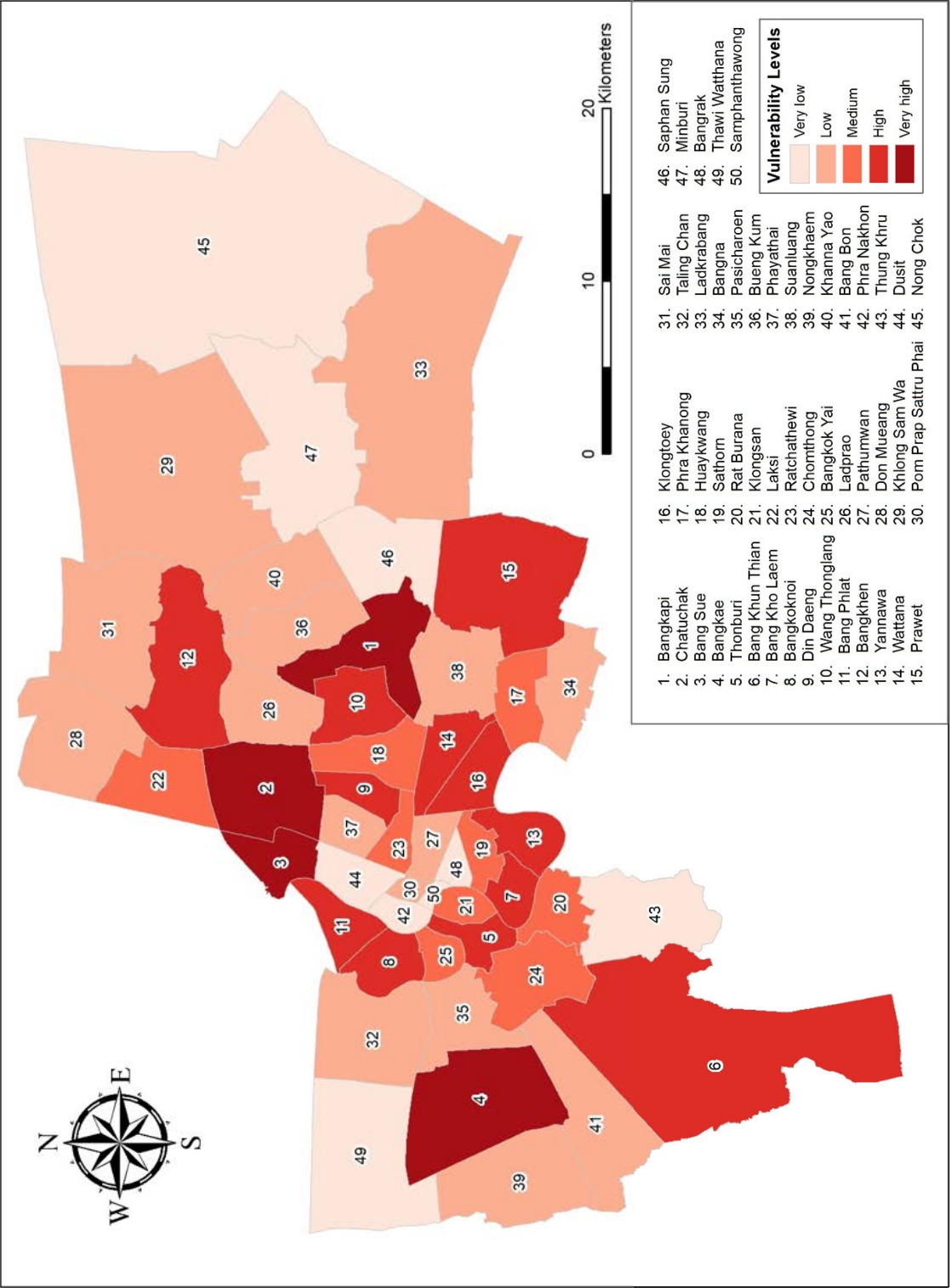
Result of vulnerability assessment

Figure 6.1.1 and Figure 6.1.2 show the result of vulnerability assessment of the districts in Bangkok. It indicates that highly vulnerable include Bangkapi, Chatuchak, Bangkae, Bang Sue, Thonburi, and Bang Khun Thian. It simply means that the research team must conduct interviews with PHVs in those districts. Even so, there are other districts with high and moderate vulnerability that the research team should conduct interviews in, such as Din Daeng, Phra Khanong, Prawet, Laksi, and Klong Sam Wa. On the other hand, the districts with very low vulnerability score include Samphanthawong, Bangrak, Thawi Watthana, Nong Chok, and Saphan Sung. These districts should be excluded from the list of interviews. At the end, however, the selection still depended on the availability of PHVs. If the PHVs in a district were unavailable within the timeframe of interviews, PHVs in another district were considered.



Source: JICA Project Team (2020)

Figure 6.1.1 Ranking of Vulnerable Districts in Bangkok



Source: JICA Project Team (2020)

Figure 6.1.2 Vulnerability Map

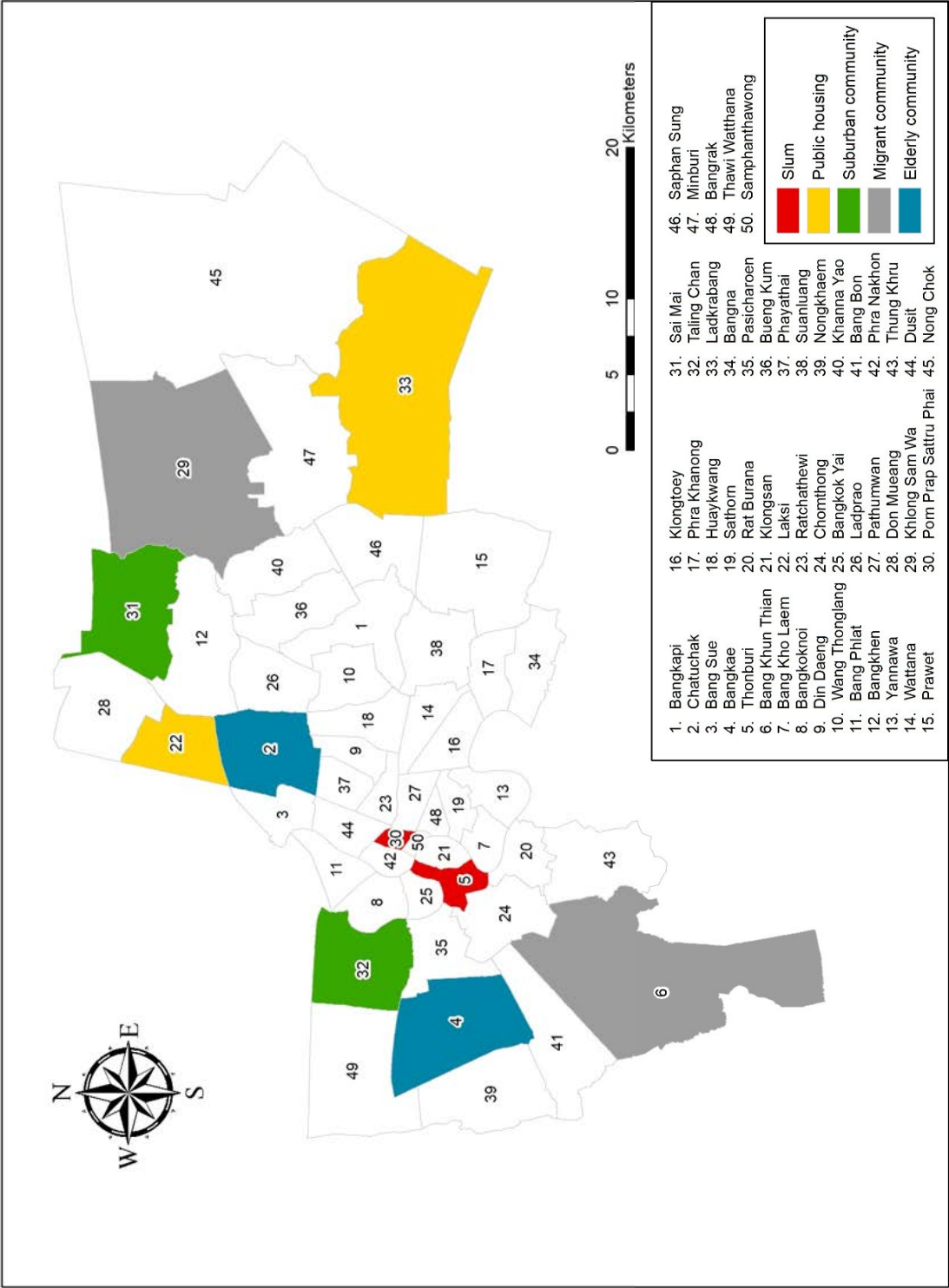
6.1.3 District selection for interviews

The study selected the districts where the JICA Project Team would carry out interviews with PHVs (Table 6.1.2). The selection process was done primarily based on the results of the vulnerability assessment, but the results of desktop research (Chapters 1–4) and interviews with organizations (Chapter 5) were also taken into consideration. For instance, although Pom Prap Sattru Phai district has a relatively low vulnerability score, it was included because of the suggestion by Ford Resource and Engagement Center and Urban Studies Lab during the interview.

Table 6.1.2 District selection according to types of communities

Community types	No.	Districts	Reasons for selecting
Slums	1	Thonburi	Result of vulnerability assessment
	2	Pom Prap Sattru Phai	Interview in phase 2
Public housing community	1	Laksi	Result of vulnerability assessment
	2	Ladkrabang	Result of vulnerability assessment
Suburban community	1	Sai Mai	Result of vulnerability assessment
	2	Taling Chan	Result of vulnerability assessment
Migrant community	1	Bang Khun Thain	Result of vulnerability assessment
	2	Klong Sam Wa	Result of vulnerability assessment & desktop research in phase 1
Elderly community	1	Bang Kae	Result of vulnerability assessment
	2	Chatuchak	Result of vulnerability assessment

Source: JICA Project Team (2020)



Source: JICA Project Team (2020)

Figure 6.1.3 Districts where JICA Project Team will carry out interviews with PHVs and Migrant Health Volunteers (MHVs)

6.2 PHVs in Slum Communities

6.2.1 Thonburi district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

In the interview with PHVs in Thonburi district, two staffs from the Public Center 36 attended interview and shared their preparedness in handling the COVID-19 pandemic. They have heard of its outbreak in China in December 2019. Despite without many details of the virus during that time, they knew it is one of the respiratory diseases. Therefore, nurses and relevant staffs have distributed disease protection information, such as wearing face mask and using personal spoon. PHVs continued visiting the community and doing regular work like searching for mosquito larva.

- **Roles of public health volunteers during the COVID-19 pandemic**

COVID-19 entered Thailand around the end of February 2020, leading to the establishment of protection teams. The teams, including PHVs, had to actively monitor the community by preliminary screening, such as body temperature checks. Many PHV teams prepared strategies. For example, if an active or infected case is found in one team, another team can replace and support. In case PHVs found persons with symptoms, like high fever, they must contact the Public Health Center 36 staff before transferring the suspected person to a hospital. Should the suspected patient not cooperate, PHVs must inform the center or police, so they could persuade the patient.

There were many preventive measures applied in the district. People from other provinces or counties had to quarantine for 14 days, and PHVs as well as regular members of the communities kept eye on them, particularly during the peak of the outbreak in Thailand. Apart from being an inspector, PHVs helped those in quarantine by bringing food and necessary products for them. Interestingly, PHVs and communities in Thonburi district have come up with the consensus that everyone must wear masks at all times when outside their homes. Moreover, people must wash their hands regularly and shower as soon as they arrive home. Currently, PHVs still must do preliminary screening and body temperature checking at any event, including funerals and the recent Loy Kratong festival.

At the beginning of the outbreak in Thailand, there were insufficient protective equipment, such as surgical masks, thermoscan, and rubber gloves. Therefore, PHVs were forced to spend their money to buy equipment. Eventually, the supply of equipment and other protective items is enough. People can get masks or hand sanitizer gels for free.

- **Support from organizations**

There were many food and survival bag distributions from both public and private sectors in the district, such as from BEC World Public Company Limited, Ichitan Group Public Company Limited, and Osotspa Public Company Limited. There were royal survival bags from King Rama 10 as well. PHVs stated that the donations have been more than enough for them. Sometimes, they shared the donations to other districts. One reason for the district to receive much help from many organizations is because of the strength of PHVs

and community leaders. They have been devoted in their work for the people in the communities. In addition, the center made fabric masks for distribution.

People who wanted to donate in Thonburi district can either ask PHVs to contact the center for them or directly contact the center. PHVs prioritized not only the pregnant women in the food distribution queue, but also small children, elderly, and disabled. However, the elderly were not supposed to go outside during the time of outbreak; thereby, PHVs delivered the food and other essential items.

Food and other essential products donations were equally distributed, including foreign migrants. People not in financial trouble were refused to receive any donation. Accordingly, the remaining items were shared to migrants legally residing in Thailand. There were no food shortage issues at all since the communities are near temples where there was always enough food.

2) Vulnerable people under the COVID-19 situation

Since many of the communities in Thonburi district are considered as slum, there are also many vulnerable groups. Besides the elderly, disabled, pregnant women, and children, those who lost their jobs because of the COVID-19 (particularly from low-income families) were also considered part of the group. Both locals and foreigners lost jobs. They were under stress because they did not know how they can earn money to support their households. Fortunately, there were many donations, which provided them relief.

3) Lessons learned

● Feedbacks

The people in communities absolutely admire the PHVs' actions. The PHVs feel closer with the people as they shared their problems with each other. In this case, the PHVs have been considered as a great supporter as they helped not only on public health issues and mitigating stress, but also on life activities. For instance, they get free haircut. Moreover, people are more generous and harmonious as they willingly helped each other and protected their communities from the spread of COVID-19. People had high awareness of the crisis that they even keep an eye on newcomers in their communities.

PHVs plays an important role in this crisis. According to them, the key success is leadership and community awareness. On one hand, the PHVs and community leader should actively understand the problems of community and report to the government for support. The community, meanwhile, must have awareness and strength to protect themselves and to survive from the crisis.

● Challenges and Problems

The major challenge is getting the cooperation of those who returned to the community because some did not follow the instructions of PHVs on health protection, particularly during the home quarantine. Therefore, PHVs had to directly inform them, with the coordination of other government sectors like the police and officials from public health center, of the preventive measures to guarantee an understanding from them and make the community feel safe.

- **Behavioral changes towards new normal initiatives**

People in the communities have become more conscious of their health. The high awareness on public health is cultivated into the new behavior. Wearing face masks, frequent washing of hands, and social distancing are the core of the new behavior. For example, the people always wear face masks when they go out and shower right away when they return home. Also, the people convey this behavior in their communities by informing those not following the preventive measures as a social pressure to maintain the safety of the community from COVID-19. Moreover, the people began exercising more to strengthen themselves and stay healthy and safe from any disease.

- **Recommendation for further improvements of PHVs system**

As PHVs have good coordination with the government and are active in the community, the system of the government system is supportive of the efforts of the PHVs according to the interview. However, the PHVs now try to transfer their activities to the new generation in order to sustain their roles and responsibilities in the community. In this crisis, some from the new generation had seen the efforts of PHVs and its roles and had joined them.

4) Other concerns and opinions

With the integration of the PHV system among relevant organizations, the PHVs do not have any specific concerns mainly because the community are highly aware of their health. Also, the Public Health Centre always provides information and instructions on the new disease, making PHVs confident in protecting their communities. PHVs also prevent the drug issues to secure their community.

6.2.2 Pom Prap Sattru Phai district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

In the Pom Prap Sattru Phai district, the community began preparing for the pandemic in February 2020. PHVs and community leaders recognized the risk of the spread of COVID-19 in their communities. Initially, the PHVs studied the characteristics and manifestation of COVID-19 in order to inform the community members. Accordingly, the public health center in Pom Prap Sattru Phai district provided training on COVID-19 prevention at the end of March. Such preparations have contributed to the community awareness before the emergency decree was announced.

- **Roles of public health volunteers during the COVID-19 pandemic**

Generally, PHVs play a crucial role in public health and disease control, providing information and knowledge for citizens in order to promote self-preservation. An obvious example is the prevention of dengue fever in which PHVs used abate sands and kept people informed about the preventive measures. In the event of the COVID-19 outbreak, the role of PHVs was to rouse people, secure their communities, and prevent the spread of COVID-19. Their other tasks include fever checking, distributing foods, observing newcomers, and providing support requested by communities. The most outstanding action of PHVs was collecting community data, such as the number of households and size of household. In

addition, PHVs introduced the use of the community cards for an organized distribution of care packages, with the aim of avoiding people to receive it repeatedly and ensuring equal distribution. Community members are required to show their community card when receiving food and support.

Regarding the support for home quarantine, since there were COVID-19 cases in the communities, the close neighbors of the patients had to be quarantined as well. PHVs would provide food daily and monitor their symptoms before reaching 14 days. If a person does not follow the instructions, the PHVs would have to explain further the reasons for the quarantine to make them understand. At the same time, the community watched over one another to prevent infection.

- **Supports from organizations**

The district received several support and donation from private and public sectors, mainly food provision with the intent to prevent hunger and help those who lost their income. However, it should be noted that PHVs in Pom Prab Sattru Phai district have become the main actor coordinating to get such support and donation, especially from the private sector and NGOs. For instance, the Thai Red Cross Society, SOS Foundation, Ford Foundation, and USL provided care packages containing food, rice, and water. They also offered their space, which is not far from the community, as a drop-off location for food donation and distribution, community gathering area, knowledge-sharing center for job creations, and learning space for PHVs and communities. A good example of knowledge-sharing is the waste management that teaches people proper and efficient management of waste.

Sometimes, the donors are community members themselves. They share food and ingredients for cooking at the central community kitchen. In order to attract the attention of donors, a Facebook community called “Baan Nang Lerng” was created. At the same time, activists in community; like the interviewees and community leaders, actively contacted and coordinated with any organizations as well as NGOs to provide supports.

However, according to the PHVs opinion, they have not received the actual support from governmental agencies, especially from the district office and BMA. The general process of donation is that the donor should contact the district office. Then, the district office will select the community in the need of such donations or food distributions. The main criteria for district office are the income level and characteristic of community. However, such definitions have limited opportunities of middle class and strengthen community to get the supports. For instance, the district office perceived the active community that they can get several supports; and therefore, they have not provided the further supports to them.

2) Vulnerable people under the COVID-19 situation

According to PHVs in Pom Prab Sattru Phai district, the vulnerable comprise of the elderly, disabled, and foreign migrants. Although everyone was affected by the COVID-19 pandemic and lockdown, PHVs considered foreign migrants as the most affected since they lost their part-time jobs and could not return to their home country. Thus, they had no chance of generating income but still had to handle expenses, especially rent.

For the non-registered population, PHVs and community leaders ensured to provide an equal service that includes them. For instance, PHVs distributed face masks and rubbing alcohol and provided preventive measures against COVID-19. Furthermore, since PHVs and community leaders made efforts to prevent starvation, they always kept people informed about the donation spots and made a community card to use for claiming food donations.

The elderly and disabled living alone are also defined as vulnerable due to their physical inability. They would not be able to go to distribution areas. In this case, the PHVs would use the data collected to help reach the elderly and disabled groups. Then PHVs and donors would directly deliver food and other essential items to them. It is also possible for the elderly and disabled to call PHVs for help, if necessary.

In addition to special support, PHVs helped those in home quarantine by providing food and buying essential items. There was a case of a community member who lost her job since she had to self-quarantine and could not report to work for more than two weeks. The PHVs helped her get an official letter from the district office, explaining the reason she could not go to work. As a result, she was able to return to work, still the salary was cut.

3) Lessons learned

- **Feedbacks**

In this COVID-19 crisis, people in the community totally admire the actions and responsibilities of PHVs. Likewise, the PHVs are overwhelmed by the generosity of neighbors and friends in their communities. The relationships of community members have become closer as they had more time to spend for their communities. Particularly, in this crisis, the pressure makes people feel comfortable to share their personal concerns. Whether from the registered or non-registered population, the people decided to be more open to reduce their stress and to get support in the community. An example is when foreign migrants have shared their concerns and expressed their needs to get the community card. In case the foreign migrants cannot write and communicate in Thai, the community helps them as much as they can.

Newcomers in the community are observed by the community. When people see a stranger, they will directly report to PHVs to check whether the person is infected or not. In this case, the PHVs will talk to them and check their travel journey. If they come from a risk area, they will be asked to quarantine at home.

The key success for supporting community is leadership to pursue the support for the community. The community is strengthened while the people entrust the instruction from PHVs. Thus, it is easy for PHVs to raise awareness on public health and self-protection. Obviously, the community members follow the PHVs instruction and help each other during the crisis.

- **Problems and challenges**

The major challenge for PHVs in Pom Prap Sattru Phai district is the collaboration with governmental agencies, especially the Public Health Center, the district office and BMA, mainly because these organizations do not understand community contexts. Also, they

considered the community strong and able to take care of themselves. So, the governmental agencies do not provide sufficient supports for them. BMA has defined the type of community to provide a donation and support. Pom Prap Sattru Phai District has defined that there are small number of poor people so that they get less support than the other districts. This makes people feel that they are left behind even they gained less income than usual. Also, BMA has not shared the community information and do not care about community issues. For instance, Thai Red Cross Society asked BMA for information about the underprivileged and affected people under the COVID-19 crisis, but BMA has not shared such information yet. To tackle with this, PHVs need to apply for another type of BMA volunteer to be in a group and ask BMA for such information.

Meanwhile, the district office focuses only on their supportive image. PHVs feel that the district officers just took a photo in the donation. Also, according to PHVs' opinion, the public health center is not active and cannot take actions in proper time. Most of the process was delayed and could not help the people in time of crisis. PHVs need to be more active and understand the people in community instead of getting support for them. As a result, the community and PHVs feel a distance from government support and discourage to see their action.

To illustrate the distrust of government sector, those who have a suspicious symptom went to the hospital by PHVs instruction in order to recheck their sickness by themselves. It can be seen that they do not contact or send the case through both the public health center and the district office. According to PHVs, the people do follow their instruction and prefer to do their own action rather than waiting for the government supports.

In addition, there is a community budget set as a community assistance. However, either community leader or PHVs can use this budget because of regulation. The regulation of this budget disbursement has limited the community and PHVs to buy the necessary things and foods to distribute to affected people. So, PHVs and community do not have a good relationship with the government, and they rejected for the collaborations.

- **Behavioral change toward new normal initiative**

Currently, people in community have high awareness about self-prevention on public health. When people go outside, they always wear face masks and keep in mind that they will keep clean by washing hands. Also, people have concerned more about the social distance and social gathering. Meanwhile, PHVs are active on providing several supports; especially operating central community kitchens on every Thursday. The community is being nice and generous and share both information and things with each other.

- **Recommendations for further development and improvements**

The government should provide equal supports and not limit opportunities of people by any definition. The government should also understand community contexts, needs and problems and start working closely with the people. This will build the trust in the community, and people will feel less disparity in this society. The government process should be more simplified to make the locals have access to various supports.

4) Other concerns

PHVs do not have any specific concern because they are confident about their proactive actions and the community awareness. Despite the new disease, they learned about it and coped in a timely manner.

6.3 PHVs in Public Housing Communities

6.3.1 Lak Si district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

Prior to the spread in Thailand, PHVs were trained to know about COVID-19 and how to operate basic symptoms screening because there is a case study in China. Furthermore, PHVs were advised to look out for strangers, especially those returning from abroad. The Public Health Center 53 also taught PHVs about COVID-19 preventive measures and informed communities through broadcasting to prepare for the virus. As a result, Lak Si district does not have any COVID-19 cases.

- **Roles of public health volunteers during the COVID-19 pandemic**

Normally, PHVs visit the communities once a week, but during the COVID-19 situation, PHVs had to work harder. They had to visit communities more often and look out for newcomers or those returning from other areas. There was a case of a newcomer returning from a foreign country who was suspected to be infected. Therefore, PHVs advised the person to isolate and monitor his health for 14 days. The newcomer also had to go to the hospital for a check-up. Another case was a community member whose friend was infected. Thus, PHVs advised the community member to test for COVID-19 in a hospital and subsequently take self-observation for 14 days. This case made people in the community panic and anxious. The third case is a relative of a community member, returning from Japan. He took the quarantine, but afterward he tended to ignore the prevention measures by not wearing a face mask in the public. Thus, PHVs needed to keep warning him regularly.

PHVs also advised other people to protect themselves and follow preventive measures, such as wearing a face mask before leaving the house, avoiding crowded areas, washing hands frequently, maintaining physical distance of at least 1–2 m. In addition, since there are some migrant workers in Lak Si district, PHVs had to take care of them and include them in their collection of data, such as number of migrants, household size of migrants, number of rooms rented by migrants, and their addresses. Likewise, PHVs observed their daily routine as well as their behaviors. If a migrant worker was found at risk of infection, PHVs must contact the Public Health Center 53 to immediately check.

Regarding hygiene, PHVs cooperated with their members to clean roads and public facilities, using disinfectant spray to eliminate virus and germs. This was done with the intent to minimize the risk of infection.

- **Supports from organizations**

PHVs and people from the communities received support from many organizations like the Ministry of Industry, district office, the Mirror Foundation, Chulabhorn hospital, Bangkok Entertainment Company Limited, Betagro Public Company Limited, and political parties. The donations comprise of face masks, alcohol sanitizer gel, disinfectant spray, food, and other essentials.

PHVs themselves also set up a central community kitchen at school and distributed cooked

food to people. However, although these PHVs are from public housing communities, they said they did not receive any support or assistance from the NHA.

2) Vulnerable people under the COVID-19 situation

In Lak Si district, vulnerable people comprise of elderly people, bed-bound patients, patients with high blood pressure, patients with diabetes, unemployed people and disabled people. The disabled people can be further classified into three categories such as people with visually impaired, people with mental disorder and amputee due to diabetes. PHVs said elderly people, bed-bound patients and disabled people are the first priority that they need to pay special attention because their immune system is not strong. In some case, PHVs had to receive medicines at the hospital and deliver these medicines to them because these vulnerable people cannot move conveniently.

People losing their jobs and unemployed people are also considered vulnerable because they experienced the high level of stress. A good example is taxi drivers and motorcycle taxi riders because they experienced the reduction income due to the announcement of lockdown measure and curfew time limit which forced people to stay at home. To help these people, PHVs would visit them regularly and ask if there are any suspicious symptoms.

According to PHVs, many people in the communities previously worked at the Don Mueang Airport since it is not far from Lak Si district. But during the COVID-19 crisis, they lost their job because flights were suspended. Some experienced the reduction in working days, and subsequently, a reduction in income. However, as these people needed to sustain their livelihood, some turn themselves into a food delivery rider which helped them generate income during the hard time. Likewise, PHVs would provide them food from time to time. PHVs added that most vulnerable people were able to register for the financial support of THB 5,000 and eventually receive it. Those who were disqualified may because they are covered by the social security system.

In Lak Si district, there are many non-registered populations, and many of them experienced the difficulty to have access to their medical benefits. This is because the medical benefits are only usable in areas where people make the ID registration, meaning it does not cover the medical expense outside the territory.

3) Lessons learned

● Feedbacks

Most Thai and migrant residents respect and follow suggestions and cooperate with PHVs because they have previously helped them for a long time.

● Problems and challenges

PHVs in Lak So district experienced several problems and challenges. Some have been solved while some still exist which are listed below:

- Despite the low remuneration, PHVs had to give some money to vulnerable people because they were highly affected by COVID-19, could not go out for work and could not earn income.
- There were some newcomers who returned from foreign countries and did not

inform PHVs. In this case, it caused anxiety among people in the community. Therefore, PHVs would go straight to the newcomers and check immediately.

- Currently, PHVs do not have enough sphygmomanometers which creates difficulties when they need to help patients. Many times, they had to contact nurses from the Public Health Center 53, asking them to come and measure.

- **Behavioral change toward new normal initiative**

Most community members are able to adapt themselves toward new normal initiative which is evident when they wear a face mask before leaving their house and wash their hands frequently. They even put goods on a pannier before handing to avoid the direct contact with another. Market and shop owners put a sign at the front of the premises saying, "Those who do not wear a face mask are not allowed to enter". PHVs added that some people use QR code payment to avoid being in touch with banknotes.

- **Recommendations for further development and improvement of PHV system**

PHVs should attend the training programs provided by the Public Health Center to be updated and continuously gain more knowledge.

4) Other concerns

PHVs have concerns about the second wave of COVID-19, especially when Thailand allowed foreign tourists to enter the country again, because they could carry the virus, which might spread in Thailand again.

6.3.2 Ladkrabang district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

There was no official training program for PHVs in response to COVID-19, but PHVs were informed about it during the monthly meeting. Since there was the severe spread of COVID-19 in China, PHVs had to observe if there are any Chinese tourists entering the communities. In addition, there are many people working at the Suvarnabhumi airport, especially non-registered population, because it is not far from Ladkrabang district. Thus, PHVs had to be very careful and pay special attention to these people since they could carry the disease to the communities.

- **Roles of public health volunteers during the COVID-19 pandemic**

During the COVID-19 situation, the main role of PHVs is about public relation. They kept people informed about prevention measures such as wearing face masks, washing hands, using alcohol sanitizer gel, keeping physical distance from another and avoiding sneezing in a public area. This was done mainly via local radio. PHVs also carried out community survey almost every day to measure body temperature.

In addition, PHVs contacted government agencies to come and help people in communities, especially about food, because people were ordered to stay at home, and thus was unable to earn income. Furthermore, there was a shortage of face masks and alcohol sanitizer gel at the beginning of the spread. Thus, PHVs had to produce them by

themselves and distribute to people. At donation spots, PHVs had to be on duty, facilitating donating process and ensuring that people are keeping physical distance to avoid overcrowding.

Since there were cases of COVID-19 patients in Ladkrabang district, PHVs had to ensure that the families of the patients take quarantine. Then, healthcare personnel would come to check regularly while PHVs would deliver food to them and spray disinfectant in the surrounding areas.

PHVs also required people in the communities to separate infectious waste from other types. Then, PHVs would collect the infectious waste and bring it to the district office or the Public Health Centers 45 and 46 where the orange bins (special bins for used masks) are put.

Since there is no MHV in Landkrabang district, PHVs had to watch over migrant workers too. Some of them stay in Thailand legally, but some do not. PHVs had to trace and observe if there is a migrant entering or leaving the communities. This was done with the collaboration with the apartment owners where the migrant stay. Whenever PHVs saw a new migrant, they had to ensure that the migrant take self-quarantine. Then, PHVs would come to measure body temperature every day and ask healthcare personnel to come and check from time to time. Recently, PHVs contacted the Immigration Bureau to limit the number of migrants entering the communities since they are afraid of the infection.

It is important to note that there are two forms of public housing communities in Ladkrabang district which are horizontal residence (detached-houses, semi-detached houses and raw houses) and vertical residence (flats). Therefore, people have to behave quite differently. For instance, it is important for people living in a flat to wear a face mask all the time if they leave their room because it is a closed area with many units. On the other hand, a detached house has more space and is not crowded. Thus, people do not have to wear a mask all the time when they are at home which is more flexible.

- **Supports from organizations**

As PHVs have previously built a good relationship with benevolent people, private companies and the district office, they came to donate food, face masks, disinfectant spray, alcohol sanitizer gel and Kotex to people in the communities, especially those who deemed vulnerable. There are also community pantries where people can go to get food and drinks on a daily basis. Besides, there is a temple where people can go to receive food. Since these PHVs are from public housing communities, they received supports from the NHA too.

Some apartment owners and house owners helped affected people by not collecting rents for 5 months, allowing their tenants to stay for free because people lost income. Similarly, PHVs helped those who lost their jobs by offering temporary works such as packing stuff, producing face masks and spraying disinfectant in the communities at the exchange of small wages.

2) Vulnerable people under the COVID-19 situation

According to PHVs, vulnerable people in Ladkrabang district comprise of young children, elderly people, pregnant women, bed-bounded patients and people with congenital

diseases. This means that PHVs had to pay continuous attention to this particular group of people by going to measure body temperature as well as blood pressure on a weekly basis. If there is an emergency, PHVs would contact healthcare personnel from the Public Health Center 45 or 46 to come and help.

PHVs also consider people lost their job or were unemployed vulnerable, especially those working at the Suvarnabhumi airport because flights were suspended. Another group deemed vulnerable are those working in informal sector such as taxi drivers and motorcycle taxi riders because people avoided travelling. Thus, PHVs had to ensure that they have enough food to get through the hard time.

There is an issue of mental illness with high level of stress because people were afraid of COVID-19 infection. Some people were worried and anxious because they could go out for work, lost their jobs and could not earn income to sustain their livelihood. Fortunately, there was no case that people want to commit suicide.

3) Lessons learned

- **Feedbacks**

Most people are satisfied with the performance of PHVs. They trust and follow every instruction mainly because PHVs are familiar with and have been accepted by community members. Almost every community has a health center where people can come to consult with and receive medicines from PHVs. Likewise, PHVs always go to talk to vulnerable people including bed-bounded patients, house-bounded elderly, which later develop a good relationship between PHVs and community members. One of the PHVs added that Thailand can put the COVID-19 under control mainly because of PHVs.

- **Problems and challenges**

PHVs in Ladkrabang district experienced several problems and challenges. Some have been solved while some still exist which are listed below:

- There is a language barrier with migrants, especially with newcomers. However, their friends are mostly able to speak Thai. So, PHVs would ask their friends to be a translator.
- COVID-19 patients and their families experienced the issue of social disgust, especially the patient infected from the Lumpinee Boxing Stadium, because people in the communities were anxious and afraid of the infection. Thus, PHVs had to encourage the patients and their families, and at the same time, provide knowledge about prevention measures to those who were afraid.
- Some people do not believe that PHVs would perform their duties regarding public health and subsequently do not comply with the suggestion of PHVs. In this case, PHVs had to contact healthcare personnel to come and provide information to people in the communities.
- Elderly people cannot breathe comfortably when they are wearing a face mask. Therefore, PHVs allow them to not put on a mask if they are at home. Still, their caretakers must do without any exception.
- There is a challenge related to technology literacy. To clarify, some vulnerable

people missed the opportunity to receive the financial support of THB 5,000 from the government because they do not have a smart phone. Furthermore, they do not know how to register and apply for it.

- Since some public housing communities are relatively new, PHVs are not familiar with their members and do not know their routine well, which creates difficulties when they performed duties. For example, if PHV wants to meet to keep an unfamiliar member informed about COVID-19, it is very likely that PHVs will not be able to make it because the member goes to work.
- Another problem is related to migrant workers. To clarify, a new migrant usually come to stay with their relatives or their friends. This means that it is impossible for the new migrant to take the self-isolation. Although the new migrant has to stay at home, their relatives or their friends have to go out for work which may lead to the spread of the virus.
- There is a problem about donated food since some is not edible for children while some is not chewable for the elderly. Thus, it would be better to have particular types of food for different groups of vulnerable people.
- Some rich people and people with high education do not follow COVID-19 prevention measure even when they are warned by PHVs. This is similar to some teenagers, especially boys.

- **Behavioral change toward new normal initiative**

People are aware of COVID-19 and keep up their guard against it while PHVs keep telling people to wear a face mask via local radio and be prepare of the second wave. In shops and restaurants, owners provide alcohol sanitizer gel for customers to wash their hands and do not allow customers who do wear a mask to enter the premises. PHVs added most people order items online instead of going to but at a shop which is evident when there are many packages sent to the communities.

- **Recommendation for further development and improvement of PHV system**

The current system is good already because PHVs are trained by the healthcare personnel from the Public Health Center 45 and 46 regularly. However, it would be better if younger generations are interested to be the PHV.

4) Other concerns

PHVs concerns about PM 2.5 and other seasonal diseases. They also concern that Thailand is moving toward aging society which means PHVs have to work harder. It would be good if the elderly can take care of themselves.

6.4 PHVs in Suburban Communities

6.4.1 Taling Chan district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

Prior to the COVID-19 pandemic, PHVs had to attend training programs organized by several organizations, such as the Public Health Center, the MOPH, and the Ministry of Social Development and Human Security. The training programs provided knowledge about basic symptoms of COVID-19 and preventive measures against COVID-19. For PHVs unable to attend the training programs, they would be informed via LINE.

- **Roles of public health volunteers during the COVID-19 pandemic**

Generally, PHVs in Taling Chan district are mainly responsible for the basic symptom screening, providing knowledge about diseases, and taking care of the vulnerable, which includes children, pregnant women, the elderly, drug addicts, and bed-bound patients. Also, they carry out community surveys to observe people and place abate sand in areas prone to mosquito breeding to eliminate mosquito larvae.

During the COVID-19 pandemic, PHVs took the responsibility of keeping people updated on the situation and disseminating information from the Public Health Center, especially about COVID-19 protection, such as proper way wearing of face masks, keeping physical distance, and washing hands. Information dissemination was done via the local radio network and LINE. If there is a community ceremony, PHVs would take the opportunity to inform people and distribute leaflets about COVID-19 prevention.

PHVs must immediately inform healthcare personnel from the Public Health Center if there is a newcomer in the communities. When there was a newcomer from another province suspected to be infected, the PHVs immediately reported to the Public Health Center. Unfortunately, the newcomer escaped.

For migrant workers, PHVs do the screening process by measuring their body temperature and observing. Any suspected infected persons must quarantine for 14 days. PHVs would report this to the Public Health Center and monitor their symptoms. At the same time, PHVs would work with the apartment owners and employers to observe and keep their eyes on the migrant workers.

- **Supports from organizations**

PHVs and people in the district received support from many organizations, including private companies, the district office, BMA, political parties, the Department of Informal Education, and Ministry of Social Development and Human Security. Most of the support was in the form of donations that included food, face masks, rubbing alcohol or hand sanitizer gel, ThermoScan. They also provided knowledge on protecting themselves from COVID-19. When distributing donations, PHVs worked with the Department of Informal Education staff to facilitate the donating process and ensure people keep physical distancing and avoid overcrowding.

In addition, most people received financial support of THB 5,000 from the government, especially the visually impaired and the elderly. A PHV stated that the marginalized people received additional THB 2,000 from the Ministry of Social Development and Human Security.

2) Vulnerable people under the COVID-19 situation

According to PHVs in Taling Chan district, the vulnerable comprise of the elderly, disabled, and patients with congenital diseases. Therefore, PHVs should pay special attention to them by frequent visits while also taking their body temperature. Sometimes, PHVs had to go to the hospital and receive the medicines for them.

Similarly, unemployed people are considered vulnerable because their companies were shut due to the COVID-19 pandemic. Thus, they experienced the reduction in income. Still, some people were fortunate enough to remain in their job as their employers allow them to work at home.

3) Lessons learned

● Feedbacks

Most people, including migrant workers, trust and provide good cooperation with PHVs mainly because PHVs have previously helped them for a long time. This is evident when people comply with the COVID-19 prevention measures strictly, wearing a face mask in the public, washing hands frequently using alcohol sanitizer gel and keeping physical distance from another.

PHVs believe that knowledge from previous training programs are very useful since they can apply the knowledge in their daily lives. Then, they started sharing this knowledge with family members before distributing it to people in the communities.

Recently, PHVs have been allowed to be a witness to certify a newborn baby. To clarify, if a newborn baby is certified by a PHV, he/she will receive the financial support of THB 600 from the government until the age of 6.

● Problems and challenges

There are some problem and challenges that PHVs experienced which are listed below:

- Some affected people have a high level of stress and do not tell PHVs about their problems, Thus, PHVs have to visit, talk and encourage them regularly.
- PHVs cannot get access to some communities although they are in the same district, especially new housing estate communities. This is because the new housing estate communities have a security system that does not allow any outsiders to enter.
- Since PHVs received limited items from donators, it was impossible to distribute them to all members. Thus, some people would complain why they did not receive one. In some cases, PHVs had to use their own money to buy the items with the intention to avoid the argument.
- The government support does not reach some highly affected communities where many poor people live

- **Behavioral change toward new normal initiative**

Compared to elderly people, it is easier for teenagers and young generations to adapt themselves toward the new normal initiative because they are able to have access to social media where they are constantly informed about prevention measures. This is evident when they wear a face mask when they go out and keep distance in the public areas. On the other hand, it is quite difficult for the elderly to adjust because they are familiar with their normal behaviors.

To prevent the spread of coronavirus, owners of grocery shops protect themselves by labelling in front of the store that "If a customer does not wear a face mask, the customer is not allowed to buy any products in the store. Some owners even use a rope to demarcate areas where customers can/cannot stand.

- **Recommendations for further development and improvement of PHV system**

It would be good if the government take a look at the contribution of PHVs since they have worked very hard in dealing with the COVID-19 pandemic. They also want government agencies to provide them more knowledge, especially about prevention of diseases.

Likewise, it would be better if PHVs have more medical benefits which will be an incentive for new PHVs and a return for existing PHVs who have worked very hard.

Last but not least, it would be better if the government provides travel allowance since currently PHVs need to use their own money when they go to attend a training program.

4) Other concerns

They are concerned about foreign tourists visiting Thailand as well as returnees because they could carry the virus to the country.

6.4.2 Sai Mai district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

There was no training program in response to the COVID-19 pandemic because PHVs were advised to avoid meetings and social gathering. However, the Public Health Center 61 kept PHVs informed about the COVID-19 situation in China and told PHVs to be prepared. The Public Health Center 61 also provided knowledge and important information to PHVs, including general symptoms of COVID-19, impacts of COVID-19 on their health and prevention measures against COVID-19, which was done mainly via LINE application.

- **Roles of public health volunteers during the COVID-19 pandemic**

In the normal time, PHVs are responsible for disseminating information from the Public Health Center 61 to community members, and at the same time, keeping the Public Health Center updated about the situation in the communities. They also conduct community survey once a week.

During the COVID-19 period, PHVs could not carry out the community survey regularly as they used to because they were told to stay at home and avoid going out unnecessarily.

Still, they kept community members informed about the COVID-19 situation via LINE application, and at the same time, provide information about prevention measures such as wearing a face mask, washing hands frequently, avoiding crowded areas, keeping physical distance from another and using personal spoon.

From time to time, PHVs had to gather a small group of five people to produce face masks and alcohol sanitizer gel because they were not available in the markets. Once they finished producing the protective equipment, they distributed to people in the communities. At the community playgrounds, PHVs were on duty to warn children to wear a face mask and measure their body temperature before they entered the premises. PHVs even put a bottle of alcohol sanitizer gel for children to wash their hands.

Another role of the PHVs was to keep their eyes on any strangers. Prior to the pandemic, PHVs carried out community survey regularly, and thus know the exact number of their members in each household. This means that they immediately know if there is a stranger in their community. Likewise, in housing estate communities, the security guard would help PHVs detect if a newcomer enters the gate. A PHV added that once she saw a newcomer, she would immediately contact the healthcare personnel from the Public Health Center 61 to come and check.

- **Supports from organizations**

PHVs and people in Sai Mai district received supports from several people and organizations such as actors and actresses, politicians, the Public Health Center 61, the Ministry of Social Development and Human Security, BEC World public company limited, private companies in Sai Mai district and Poh Teck Tung Foundation. Most supports were in the form of care packages containing rice, instant noodle, eggs, lunch boxes, drinks, face mask, alcohol sanitizer gel and other necessary items. Surprisingly, a PHV added that they hardly received a support from NGOs.

It is important to note that Sai Mai district has dropped off locations where donators can donate; however, they had to inform the district office in advance so that the district office could send staff and PHVs to facilitate the donating process and ensure physical distancing. In addition, there are community pantries where people can go to get some food. People in each community themselves also compiled some money and set up a central community kitchen to distribute cooked food.

2) Vulnerable people under the COVID-19 situation

When asked about vulnerable people in Sai Mai district, PHVs said they comprise of young children, elderly people, disabled people, bed-bounded patients, people with high blood pressure, people with diabetes and people with other congenital diseases. This is because these people do not have the strong immune system. A PHV added that bed-bound patients seem to be the most vulnerable and affected because they cannot move, and it was difficult to buy Kotex. Fortunately, if a bed-bounded patient needs some medicines, there is a service that delivers them at home.

There were also people who lost their jobs, especially those working tourism industries. These people had to turn themselves into a merchant or a vendor selling food, so that they

could get through the hard time.

3) Lessons learned

- **Feedbacks**

Most people provide good collaboration and follow instructions of PHVs because they are afraid of COVID-19 infection and do not want to be at risk. At the same time, people trust and appreciate what PHVs have done. There was a case of a newcomer, coming back from England. He was previously checked and detected negative. However, the PHVs was unsure and thus asked the newcomer to take self-isolation for 14 days. A few days later, the newcomer was found infected, meaning the PHVs made the right decision. One of the PHVs said they are very proud of this case because they performed their duty strictly, and as a result, was able to minimize the risk of spreading. Besides, they were complemented by people due to this action.

In addition, some people with alcohol addiction can now stop drinking because the government announced the ban of alcohol selling during the lockdown; and therefore, they could not buy one. Besides, they were no one experiencing any withdrawal symptoms.

- **Problems and challenges**

Sai Mai district has a high number of PHVs, and many people are interested to be PHVs too. However, there are some problems and limitations; for instance, the Public Health Center cannot manage to train a large number of new PHVs at the same time due to the limited amount of space. Besides, although there are many PHVs in Sai Mai district, it is still not enough because one PHV is supposed to look after 15 – 30 households, but in the reality, PHVs in Sai Mai district have to take care up to 105 households.

- **Behavioral change toward new normal initiative**

One PHV said it is quite difficult for elderly people do adapt themselves because they are familiar with their old behavior. On the other hand, teenagers and younger generations are able change themselves easily. Another PHV added that it also depends on social groups. If most people in the group wear a mask and keep physical distance, the minority will follow the majority. On the other hand, if the majority of people do not wear a mask, the minority will not do too.

However, in public areas, people who do not wear a face mask are deemed weird and may face the issue of social disgust. On buses, the drivers do not allow any passengers without a face mask to take it. When exercising, people still wear a mask even though it is difficult to breathe because they need to keep up their guard.

- **Recommendation for further development and improvement of PHV system**

PHVs should keep developing their knowledge because diseases evolve all the time. PHVs should be updated on any situations and attend any training programs which can be done via social media. At the same time, PHVs should keep telling people to keep up their guard, wearing a face mask all the time when they go out and keeping physical distance from another.

The Public Health Center 61 plans to organize more training programs and increase the

number of PHVs, especially in large communities, because the current number of PHVs is disproportionate with the number of households they need to take care of.

4) Other concerns

PHVs are concerned about dengue fever and the second wave of COVID-19 that they prepared for by producing face masks.

6.5 PHVs in Migrant Communities

6.5.1 Bang Khun Thian district

1) Public health volunteers and the COVID-19 situation

- **Roles of public health volunteers during the COVID-19 pandemic**

During the COVID-19 pandemic, PHVs in Bang Khun Thian district took the responsibility to keep people updated on the COVID-19 situation and disseminating information about COVID-19 protection, such as a proper way of wearing face mask and washing hands. Information dissemination was done via the local radio network and LINE application. One PHV even used his personal budget to produce CDs about COVID-19 and distributed them. PHVs also watched over their communities and ensured that any newcomers must quarantine for 14 days. They disinfected common areas like the playground and community center. In terms of medical treatment, PHVs who are caregivers were responsible for checking body temperature and measuring blood pressure of their community members, especially patients with diabetes and bed-bounded patients. Normally, PHVs visit their communities four times in a month (or once a week), but during the pandemic, they visited more often at up to 10 times per week. They visited while supervised by a Public Health Center staff. Lastly, PHVs contacted charities to request for care packages, inclusive of food, cleaning stuff, and protective equipment, to donate to vulnerable people. The charities include Sati Foundation, Public Health Center 42, Tesco Lotus, Takam Police Station, Bang Khun Thian district office, the NHA, and some from the private sector.

- **Public health volunteers and migrant workers**

Bang Khun Thian district has many migrant workers, especially in Samae Dam subdistrict. Many of them are from the Republic of the Union of Myanmar and the Lao People's Democratic Republic. Most stay legally, meaning they are covered by the social security system. Bang Khun Thian district also has some MHVs; however, they could not be on duty during the pandemic because they have regular work 6 days a week (Monday to Saturday); otherwise, they would lose their income. Still, some left Thailand for their home country. Therefore, PHVs had to take over their duty and look after the migrant workers too. Fortunately, most of them can communicate in Thai; there is no language barrier.

During the first period of the pandemic, some migrant workers ignored the preventive measures by not wearing face masks in public spaces. Some did not sanitize frequently. In this case, PHVs had to reach out to them and advised how to protect themselves by wearing masks and washing hands. Eventually, migrant workers respected PHVs more and followed their advice.

2) Vulnerable people under the COVID-19 situation

In Bang Khun Thian district, vulnerable people comprise of elderly, bed-bound patients, patients with diabetes, patients with high blood pressure, and pregnant women that are mostly migrant. Some elderly live alone; they are not looked after by their children or cousins. Thus, PHVs needed to give them special attention, by visiting and talking with them and checking if they have any symptoms. There was a case of an elderly male who was stressed and thought of committing suicide because he worried about his son getting

infected since his son works in Korea. PHVs visited him regularly and encouraged him to get through the hard time. For migrant workers, many lost their jobs while some had salary reductions because their working days were lessened. There was also no overtime payment.

To help the vulnerable, PHVs set up a central community kitchen and gave them food. In some instances, PHVs gave migrant workers some money from their pockets. Some apartment owners also reduced or did not collect rent to help people get through the crisis.

3) Lessons learned

- **Feedbacks**

Most Thai and migrant residents respect and follow the suggestions of PHVs because they are aware of the impacts caused by the COVID-19. Also, PHVs can gain trust because they have previously helped them for a long time.

- **Problems and challenges**

Although most residents respect and follow the suggestions of PHVs, there are still some who do not and would ignore. In some cases, migrant workers are not concerned about hygiene as much as they should be. For instance, they spit or urinated in public areas, which could lead to spreading the virus. Once PHVs witnessed this behavior, they warned them and advised them to follow the preventive measures.

Sometimes, PHVs would need assistance from MHVs or need MHVs to be on duty; unfortunately, they were rejected because there is no incentive or compensation for MHVs to work. Thus, PHVs needed to pay MHVs using their personal money but sometimes, the compensation was in the form of food such as rice and desserts.

- **Behavioral change toward new normal initiative**

Over half of the people in Bang Khun Thian are aware of COVID-19 protection and able to adapt themselves toward new normal initiative which can be seen through people wearing face mask whenever they leave their homes. If they went out and forgot to wear face mask, they would go back to their home and bring it. Bang Khun Thian district markets refuse entry of customers and even vendors not wearing face masks. Even Buddhist monks are warned to wear face masks because they are always in contact with people, especially when they ask for alms.

- **Recommendation for further development and improvement of PHV system**

Firstly, the Bang Khun Thian district must have more PHVs. Currently, they have very few PHVs compared to the number of households they have to take care of. To clarify, one PHV must watch over 520 households while typically one PHV cares about 15–30 households.

Secondly, the young generation should become interested to be a PHV. Most of the PHVs are elderly. The young generation is not interested because it is voluntary work. They can get nothing in return, especially monetary. From time to time, PHVs hire young people to work and pay them using their money.

At the same time, PHVs must receive higher pay because the current remuneration is very low at THB 1,000 per month. This does not mean that PHVs want more money, but they need it when they help people in their communities. Besides, an increase in remuneration

is an incentive that will attract the young generation to be a PHV. Finally, PHVs must have more medical benefits.

4) Other concerns

There was no concern mentioned by the PHVs.

6.5.2 Klong Sam Wa district

1) Public health volunteers and the COVID-19 situation

• **Preparation for the COVID-19 pandemic**

Prior to the outbreak, PHVs had to attend a training program for COVID-19 response. They were taught how to perform their duties if there is the spread of COVID-19 in their communities, such as informing people about the situation, to wear face mask, and to wash their hands frequently and ensuring people maintain physical distance. They were also taught about COVID-19 symptoms.

• **Roles of public health volunteers during the COVID-19 pandemic**

Pre-pandemic, PHVs in Klong Sam Wa districts are responsible for disseminating information from Public Health Center 64 to people in the communities, especially about COVID-19, which is normally done via LINE and local radio. Simultaneously, PHVs keep the Public Health Center 64 and district office updated about situations in the communities. They also must watch over their communities, check blood pressure of patients with diabetes, prevent and control dengue by eliminating mosquito larvae using abate sand, and conduct a weekly community survey.

During the COVID-19 crisis, PHVs had to visit communities more often at up to 3–4 times a week, especially when the government announced the severe COVID-19 period. The Public Health Center would occasionally send a staff team to work with PHVs. The main responsibilities of PHVs were in contact tracing and taking care individuals at risk of infection as well as any newcomers. For example, a group of people returned from Panama that requested PHVs if they could be exempted from quarantine because they already did so in Singapore for 14 days. PHVs rejected the request and insisted they quarantine, and they would provide them food. Apart from this, PHVs had to observe the behavior of people in the communities, ensuring everyone is following the COVID-19 prevention measures. They suggested people to avoid going to a crowded area and refrain from social gathering. At the same time, they had to encourage the affected, especially those who lost their jobs. Lastly, PHVs raised funds to produce face masks and alcohol-based hand sanitizer gels for distribution to communities because they were not available in the markets. Since there was a shortage of face masks and rubbing alcohol in March 2020, the district office donated cloths to PHVs so that they could produce face masks themselves. The staff from the district office also taught PHVs how to produce alcohol-based hand sanitizer gel. In some cases, they had to be a witness to certify if a person is disabled so they can receive financial support from the Ministry of Social Development and Human Security.

- **Supports from organizations**

PHVs and people in communities received face masks, alcohol-based hand sanitizer gel, and other protective equipment from several organizations, such as the Public Health Center 64, the district office, Sheikhul Islam of Thailand, and private companies. PHVs also contacted charitable NGOs, including SOS Foundation and Ford Foundation, to request for 500 care packages donations for the vulnerable. Similarly, the National Office of Buddhism donated food including eggs, rice, and drinks. There was a company that could not export its products to foreign countries; therefore, decided to donate them to affected people in communities instead.

2) Vulnerable people under the COVID-19 situation

From the perspective of PHVs, the vulnerable people comprise of children, bed-bounded patients, elderly, disabled, and people who have become unemployed due to the pandemic. However, PHVs would pay special attention to those with physical vulnerability that they can determine using red and green flags. A residence with an elderly would be marked with a red flag, while a green flag is for the disabled. This idea was initiated in March with the aim to facilitate PHVs and donors in easily reaching vulnerable households.

For migrant workers, most reside in Thailand legally, so they are covered by the social security system. During the peak of the outbreak, they did not return to their home countries because many remain employed, especially skilled labors at railways construction sites. In contrast, some migrants experienced income reduction and some became unemployed. This was evident when they waited at Keab Moo market (labor market) for a contractor to hire them.

A PHV added that migrant workers were afraid of and threaten by policemen because the police usually extort money from them. If a worker protests against the police, they would be in trouble.

When migrant workers felt sick or needed help concerning health care, they would go to the health center, and PHVs would carry out basic symptom screening, such as measuring body temperature and blood pressure and report to the Public Health Center 64. From time to time, PHVs would visit worker camps to check if anyone is at risk of COVID-19.

Although there are many migrant workers in Klong Sam Wa district, PHVs hardly experienced language barrier. Most migrants can communicate in Thai as they have lived in the country for a long time. There were only few instance that a migrant cannot speak the language. If so, PHVs would ask a migrant to translate.

3) Lessons learned

- **Feedbacks**

People trust and follow the instructions of PHVs to use face masks, wash hands frequently, keep physical distance from another, and use personal utensils when eating, partly because the government provides information about the roles of PHVs. Some PHVs are also community leaders, so they are already acknowledged by the communities. There was a community member who wanted to organize a blessing ceremony for her new house. She consulted with PHVs if she could hold the ceremony and asked for suggestions. PHVs

suggested that she provides alcohol-based hand sanitizer gel and setup a basic symptom screening at the front of the ceremony where PHVs would do the screening. This instance somehow showed the importance of PHVs from the perspective of a community member. A PHV added that the COVID-19 situation had developed a better relationship between PHVs and people in the communities.

- **Problems and challenges**

The PHVs in Klong Sam Wa district experienced several problems and challenges. Some were resolved while some still exist (listed below).

- Initially, PHVs did not have a ThermoScan, but eventually the government provided them.
- At the beginning of the outbreak, some people panicked and had anxiety because a person living in Klong Sam Wa district tested positive for COVID-19. In this case, PHVs had to inform people how to protect themselves and had to reassure them.
- Another problem is people began lowering their guard and ignore the preventive measures. They began questioning why they still need to be screened and provide personal information before entering the mosque as the COVID-19 situation is getting better. Some even sneered when PHVs told them to wear a face mask. Some restaurants stopped providing hand sanitizers.
- Staff from government agencies do not understand the actual situation in the community. For example, they visited a community in Klong Sam Wa district and found a house with air-conditioning. They presumed the house owner is not vulnerable even though the air-conditioner is very old and unusable. As a result, they decided not to give the owner a care package. However, PHVs explained the actual situation and helped the owner receive the package.
- Initially, donors would donate food and items arbitrarily, leading to overcrowding and disorder. Therefore, the district office announced that donations shall be distributed only in Keeb Moo market (labour market), and the district office staff and PHVs would facilitate the donation process and ensure social distancing.
- Currently, the Public Health Center 64 and the health center do not have enough sphygmomanometer, beds, and oxygen tanks. Some health centers do not even have a sphygmomanometer; thus, the latest record of the patient was referred to which is unreliable anymore and very inaccurate.
- In some cases, PHVs had to use their personal budget to work on a particular issue.

- **Behavioral change toward new normal initiative**

Most people can adapt with a new normal initiative. People instinctively know they must wear face masks or they may experience social disgust, and they also maintain distance from another when in public. In restaurants and on buses, people not wearing face masks will be refused entry. Before people can exercise, PHVs will measure blood pressure, especially elderly people.

- **Recommendation for further development and improvement of PHV system**

PHVs should keep learning and attending training programs. The training may vary according to seasons since dengue fever is severe during the summertime, while

leptospirosis usually spreads in an event of flooding. It is also important to set up a clear plan implementable for 5–10 years that should indicate what PHVs or the public health system must achieve in each year. Furthermore, the plans should be constantly monitored.

Currently, PHVs plan to develop a community map indicating where vulnerable people live. This plan will be coupled with the use of red and green flags, which will help government officers and donors reach vulnerable people easily, especially in the event of a natural disaster or outbreak. They are also considering using other color of flags for other vulnerable people, such as bed-bounded patients and patients with congenital diseases.

One of the PHVs suggested that the budget for the Public Health Center 14 should be increased and allocated with a budget according to the number of people in each community.

4) Other concerns

The PHVs are concerned about the following:

- some people smoke near their children which is dangerous,
- people letting their guard down, and
- children of foreign migrants who are students in Thai schools could be taught Burmese and Khmer.

6.6 PHVs in Elderly Communities

6.6.1 Bang Kae district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

The Public Health Center 40 in Bang Kae district was closed from the end of February to March 2020 due to the preventive measures announced by the governor. Therefore, its staff had no official training for COVID-19 preparation. However, people from the center asked the PHVs to make and distribute fabric face masks to the communities due to the shortage of surgical masks in the market.

- **Roles of public health volunteers during the COVID-19 pandemic**

PHVs, the public health center, and community leaders typically work together on community health issues. Normally, PHVs visit the community 2–3 times per month for bed-bounded patients, to check mosquito larva, to recommend sanitation practices in residential areas, and to observe the spread of rabies disease.

The community visits increased to weekly in March and April 2020. Checking body temperature and fever and food distribution were added to the tasks of PHVs since March 2020. Those who needed to self-isolate have received essential items and food from PHVs. Being a consultant and a mediator was the best support PHVs could provide in the middle of the pandemic. Even though the center was closed, there is a LINE group where users can exchange opinions in and request assistance from PHVs. Basically, PHVs understand the situation of their communities and have records of those categorized as vulnerable, including the elderly, disabled, and bed-bounded patients. The physically vulnerable groups are the priority of PHVs during the peak of the outbreak in March 2020.

- **Support from organizations**

According to the point of view of PHVs, the Bang Kae district donors needed to contact the public help center or district offices first before the center would ask community leaders to get the donations. The district received plenty of help from various organizations during the outbreak with most donors from the private sector, such as The Mall Group and CH3 TV Channel. They provided care packages and food for distribution to communities. Moreover, there was royal survival bag from the King Rama 10. Apart from the survival bag, the affluent also offered surgical masks for anyone in need by putting them in front of retail stores or their houses.

2) Vulnerable people under the COVID-19 situation

The elderly, disabled, and bed-bounded patients are the vulnerable groups that PHVs has given the most attention. Bang Kae district has been considered as an aging community because of the high number of aged populations. There are about 300 elderlies out of 1,500 people in just one community in the district. Interestingly, PHVs did not consider the elderly as the highest risk in the COVID-19 outbreak because most of the elderlies like staying at home. Teenagers who like to get together with their friends are most likely to get the virus more than the elderly who stay at home.

PHVs found out that the number of people with mental illness increased due to the COVID-19. People laid off from work were very much stressed, leading to stress disorder. In addition, staying at home for months may cause stress to the elderly as well as people who had to self-isolate. Becoming unemployed also caused anxiety and insecurity for some. Therefore, PHVs had to look after these people carefully by listening to their problems, cheering them up, and giving some suggestions if necessary.

It should be noted that the number of unregistered populations in the district is also high, including Thai and foreign migrants. These people have been affected by the pandemic, especially migrant workers from Myanmar. One of the PHVs said that the number of foreign migrants decreased by 20% since some returned to their home countries. However, not many returned to Thailand because their home country's borders have been closed. Surprisingly, PHVs mentioned that taking care of foreign migrants is easier than the locals because they are afraid of the law and of being deported; therefore, the foreign migrants follow the instruction of PHVs.

3) Lessons learned

- **Feedbacks**

PHV is voluntary work, earning just a small amount of money if any. Therefore, a person who wants to be a PHV must devote themselves and be willing to do for society without any expectations in return. The interviewees are proud of being PHVs to help the underprivileged. Although they must work hard, particularly during the pandemic, because many rely on them to check their suspected symptoms, they are still happy and satisfied with the benefits of working hard. People in communities see PHVs as heroes. PHVs cannot stop learning and looking for people who need help. Some must stay updated on community information from many unexpected sources like barbers who always talk and listen to their customers. They get accurate information since people comfortably share with others they are familiar with. Furthermore, PHVs must be patient since some people may not willingly cooperate from the start.

PHVs find leadership as one of the key successes for coping with the impacts caused by the pandemic. Communities with strong leadership and good connections are likely to get more help than other communities. Sometimes, government agencies like the district office have their hands full and cannot provide consistent help to every community. Accordingly, strong leaders in touch with the district office or other organizations will definitely receive help before the other.

- **Problems and challenges**

There are some challenges that PHVs still experience. First, donors may presume communities in the capital city do not need any assistance. A PHV met a donor searching for communities on Google Maps where they could donate food. It showed that only a few people know there are communities in Bangkok in need of help.

PHVs also discovered that communities categorized as slum would receive a higher amount of food and donation items than other community types (urban communities or housing estate communities). In other words, donors would prioritize communities by type rather

than the actual impacts of the COVID-19 pandemic on them. For example, an urban community did not receive any royal survival bags or support from BMA. PHVs of the urban community stated that not everyone in the community is affluent or has enough savings. Some families were also in trouble due to losing their jobs. A family of 20 all lost their jobs because of the pandemic. Some people seem well-off because they have their own house, but the house is just a heritage passed down from the previous generation. Therefore, it might be better to consider the actual impacts each community experienced rather than community types when it comes to donations.

Another problem is that some people kept asking for rubber gloves since it is also necessary to prevent COVID-19. Instead, PHVs would patiently explain the reasons and suggest washing their hands frequently and using alcohol-based hand sanitizer gel. But PHVs would still give them gloves if available.

The language barrier is also a challenge for PHVs, especially with foreign migrants. Fortunately, some migrants residing in Thailand for a long time can communicate in Thai. In case someone cannot speak Thai, PHVs would ask for a migrant who can to translate.

- **Behavioral change toward new normal initiative**

People understood the new normal activities and behaviors toward COVID-19 protection. They have been taught through several sources, such as TV and social media. Teachers informed children at schools whereas adults have been frequently updated at their workplace. Their understanding is apparent because they practice this new normal behavior everywhere by wearing masks, washing hands, and keeping distance from another.

One PHV in Bang Kae district added that the PHV system is already effective. They must attend many monthly training programs. After lifting of the restrictions, PHVs have been invited to join many trainings from many organizations. Voluntary work has been actively implemented. Although the COVID-19 pandemic is over in Thailand, there can still be a new crisis or virus that PHVs have to deal with.

4) Other concerns

Apart from COVID-19, other diseases in Thailand that PHVs must look out for include seasonal flu, dengue fever, RVS, and foot-and-mouth disease. RVS and foot-and-mouth disease can easily spread among children. PHVs can decrease this possibility by telling parents to be aware and giving them advice. PHVs believe that the COVID-19 will become a normal virus, co-existing with humans. Only one suggestion PHVs can give now is to strengthen bodies and be more cautious.

6.6.2 Chatuchak district

1) Public health volunteers and the COVID-19 situation

- **Preparation for the COVID-19 pandemic**

Chatuchak district is one of the areas at risk of COVID-19 infection because it is close to Mo Chit Bus Terminal, and there are also many construction sites where many migrants work. Prior to and during the outbreak, the doctors, nurses and PHVs had to work very hard to screen the infected in Chatuchak.

At the same time, PHVs attend a training program where they learnt how to prevent themselves and their communities from COVID-19 including a proper way to wear a face mask and the right way to wash their hands.

- **Roles of public health volunteers during the COVID-19 pandemic**

Before the pandemic, PHVs carried out a community survey once a month with healthcare personnel from the Public Health Center to observe sanitary conditions and eliminate mosquito larvae. However, PHVs could not do this since the pandemic because all PHVs are elderly. The elderly are very vulnerable to infection. Still, PHVs developed (four) posters to educate people on how to protect themselves from COVID-19, including wearing a face mask, washing hands frequently, eating freshly cooked food, using a personal spoon, keeping physical distance, avoiding crowded areas to reduce the exposure, and maintaining personal hygiene. These preventive measures were also sent to community members via LINE and local radio. PHVs also informed people to separate infectious waste from the ordinary to minimize the risk of infection. Likewise, the Public Health Center announced the closure of the community square to avoid social gatherings and prevent the spread of the coronavirus.

Since one of the PHVs is from a military village, which is a close community, the PHV said the screening process is very strict that it is very unlikely for outsiders to enter. Community members also follow the preventive measures strictly. On the other hand, the other PHV from an open community found newcomers or strangers more difficult to handle. Still, once there was a newcomer, they had to ensure that the person passed the screening process and was not infected.

- **Supports from organizations**

PHVs and people in Chatuchack district received support and assistance from many organizations, including the Army Forces Command, BMA, Metropolitan Electricity Authority, private companies, and political parties. Most support were in the form of donations of essential items like face masks, alcohol-based hand sanitizer gel, food, and drinks. The Army Forces Command sent a team of staff to clean equipment and public facilities using disinfectant spray. The local political parties did the same thing.

In addition, most people, including the elderly were able to receive the financial support of THB 5,000 from the government, showing they are digital literate despite their age. PHVs implemented the Khon La Khrueng campaign (Let's Go Halves)¹ as it can reduce the burden of people, with food and items at only half the price. It also stimulates the economic situation in communities.

2) Vulnerable people under the COVID-19 situation

According to PHVs, the vulnerable people in Chatuchack district comprise the elderly, drug addicts, bed-bound patients, and patients with diabetes. They received special attention

¹ The Khon La Khrueng campaign (Let's Go Halves) is a project launched by the government to stimulate domestic spending, relieve the burden of the public sector, and help increase the liquidity of retail merchants across the country. People registered in this campaign are entitled to a 50% discount on purchases at participating stores. The government issued a maximum of THB 150 per day per person, totaling a maximum amount of THB 3,000 throughout the project.

from PHVs through frequent visits and checking for any symptoms. A PHV mentioned that most elderly hardly experience any mental illness issues because they have been closely taken care of by their children as well as doctors and nurses. In addition, PHVs said many of the elderly in Chatuchack district frequently ordered food online delivery because they needed to stay at home.

Still, there were some elderly with high blood pressure and diabetes left alone at home. Occasionally, they could not eat on time because they had to wait for their family to bring them medicine, yet their families did not have the time since they needed to work. Their families cannot give full attention to their elderly. Therefore, PHVs had to pay special attention to these people, ensuring they take the medicine and have their meals on time.

Some people were economically affected due to the COVID-19 pandemic because they lost their jobs and had their workdays reduced. They are having a liquidity issue and difficulty sustaining their livelihood and their families.

3) Lessons learned

- **Feedbacks**

Most residents cooperate with PHVs by respecting and following their suggestions. It is evident when PHVs taught them how to make and use face masks and the proper disposal of face masks in orange bins. A PHV added that this cooperation exists because doctors and PHVs closely supervised all patients and people in need of assistance. Also, partly because people are aware of the impacts caused by the pandemic.

- **Problems and challenges**

PHVs in Chatuchack district experienced the following problems and challenges.

- Despite the low remuneration, PHVs had to spend their money on equipment, such as ThermoScan and alcohol hand sanitizer, due to the slow government support.
- It is quite hard for PHVs to watch over open communities thoroughly because entrances and exits are not limited.
- Worried and anxious people can be challenging to help.
- Most PHVs are elderly. The younger generation must take interest to become PHVs since they are physically stronger.

- **Behavioral change toward new normal initiative**

Over 90% of people in communities understood the risk of COVID-19, and thus follow the advice of PHVs and adapted the new normal initiatives. Majority of people continue to wear face masks, wash and sanitize their hands frequently, and maintain physical distance from another in public areas. It is interesting to note that the elderly have adapted during the pandemic by using online platforms, such as Grab or LINEMAN, to order food.

Currently, PHVs are fully prepared for the second wave of COVID-19 as well as other diseases. They even prepared face masks and hand sanitizers in case of a shortage again.

- **Recommendation for further development and improvement of PHV system**

There is no specific recommendation for further development and improvement because the system has been well established. One suggestion would be to increase remuneration for PHVs to attract younger generations.

4) Other concerns

Although people stay at home and do online shopping to avoid being exposed to COVID-19, they are still at risk of infection because they still need to receive items from postman who has delivered things across the city.

6.7 Discussion and Summary

This section discusses the important issues mentioned in sections 6.2 to 6.6, summed up in six topics: (i) roles of PHV under the COVID-19 pandemic, (ii) creative ideas of PHVs under the COVID-19 crisis, (iii) vulnerable people from the perspective of PHVs (iv) problems and challenges that PHVs experienced, (v) recommendations for further development and improvement of the PHV system, and (vi) other important issues.

6.7.1 Roles of PHVs under the COVID-19 Pandemic

The roles of PHVs in every district are relatively similar. During the pandemic, PHVs were responsible for keeping community members updated about the situation and providing information about preventive measures, such as wearing face mask, washing or sanitizing hands frequently, keeping physical distance from others, using personal utensils when eating, and avoiding crowded areas. The information dissemination was done mainly via LINE and local radio since they needed to avoid meeting each other.

Furthermore, PHVs had to observe their communities for any entry of persons from other areas or countries. Should there be any, PHVs need to contact the local public health center immediately to and check and ensure that the take quarantines to minimize the risk of spreading in case of infection. They must be monitored for 14 days by PHVs.

If there were donations to the community, the PHVs would be on duty to check body temperature of recipients and ensure people maintained physical distance and avoided overcrowding.

In many communities, PHVs produced the face masks and alcohol gel themselves for distribution to communities because of the shortage of these items at the beginning of the pandemic. PHVs also cooperated with community members to clean public areas using disinfectant spray. Apart from these, with exception of Chatuchack and Sai Mai districts, PHVs had to carry out community survey more often to check body temperature and if people wore face masks and encourage the affected people. Healthcare personnel sometimes would go with them. In the Chatuchak and Sai Mai districts, PHVs were refrained from carrying out community survey because they are elderly. They are vulnerable to infection.

6.7.2 Creative Ideas of Public Health Volunteers under the COVID-19 Crisis

In Pom Prap Sattru Phai district, PHVs introduced community cards to avoid people from receiving more than one food donation. When people receive food for the first time, they must fill out a form requiring personal information. Then they will receive a community card that they need to show when they claim donations again. This effort helps PHVs to know the actual number of residents, including non-registered populations and migrants. It may also lead to the establishment of a community database, which may be useful for further development in the future.

Likewise, PHVs in Klong Sam Wa district introduced the use of red flags and green flags as a marker for the homes of vulnerable groups. Since donors and staff from government agencies experienced difficulties reaching the vulnerable, the PHVs in Klong Sam Wa

district put red flags in front of houses where elderlies reside, while the green flag is for the disabled. Furthermore, the PHVs plan to develop a community map, indicating which houses the vulnerable people live. The map will be used in combination with the flags, which will facilitate in reaching vulnerable households, especially in the event of natural disaster and a severe outbreak of diseases. Besides, PHVs are considering other colors of flags to symbolize other groups of vulnerable people, such as bed-bounded patients and patients with congenital diseases.

6.7.3 Vulnerable People from the Perspective of PHVs

1) Physical vulnerability

When asked about vulnerable groups, PHVs always look at people with physical vulnerability, such as the elderly, disabled, pregnant women, bed-bounded patients, people with high blood pressure, people with diabetes, and people with other congenital diseases, as the priority. Except for Pom Prap Sattru Phai district, most PHVs consider the elderly the most vulnerable. They need to be given special attention, mainly due to their weak immune system and inability to move conveniently. PHVs sometimes had to collect medicines at a hospital and deliver them to them. In addition, they are visited regularly to measure their body temperature and check for any suspicious symptoms.

2) Economic vulnerability

PHVs also considered the unemployed as vulnerable. During the pandemic, many people lost their jobs or their salaries were reduced as a result of the lockdown. For instance, many taxi drivers in Ladkrabang district had no income because people worked from home. Also, many people in Ladkrabang district and Lak Si district previously worked at the airports. But when flights were suspended, many immediately lost their jobs while some experienced the reduction of working days. This situation had put them under a high level of stress and anxiety. Therefore, PHVs had to visit and encourage them from time to time. Some unemployed shifted into food delivery services to help them generate income.

3) Social vulnerability

Migrant workers are also vulnerable, especially from the perspective of PHVs in Pom Prap Sattru Phai district, because many were unemployed and could not return to their home countries as the borders remained shut. They could not earn yet still had to handle with necessary expenses, such as rent. In Klong Sam Wa district, migrants have been threatened by policemen who usually come to extort money from them. If migrants do not give money, the policemen would put them in trouble. In Bang Khun Thian districts, many migrant workers lost their jobs while some had a reduction in their salaries since their workdays were reduced. Besides, there was no overtime payment.

6.7.4 Problems and challenges

1) Inadequate protective equipment

At the beginning of the outbreak, PHVs in many districts experienced a shortage in protective equipment, such as face masks, alcohol-based hand sanitizer, and ThermoScans. They had to fund the production of protective equipment themselves for distribution to

people in communities. In Public Health Center 64 and the health center in Klong Sam Wa district, their sphygmomanometer, beds, and oxygen tanks were insufficient.

2) Inadequate number of PHVs

According to the standards, one PHV is supposed to look after 15–30 household; however, a PHV in Sai Mai district must take care of up to 105 households. In fact, many are interested to join the PHV program, but the Public Health Center cannot manage to train all of them due to the limited amount of space.

There is a similar issue in Bang Khun Thian district where one PHV must take care of over 500 households. Besides, most PHVs in this district are the elderly. The younger generation is not interested in becoming PHVs at all because it is a volunteer work, meaning they can get nothing in return, especially in the monetary form.

3) Ignoring prevention measures and lowering guards against COVID-19

In Ladkrabang district, some rich people do not follow COVID-19 prevention measure even when they are warned by PHVs. This is similar to Klong Sam Wa district where some people start to lower their guard against COVID-19. Some start questioning why they still need to be screened and provide personal information before entering the mosque while the COVID-19 situation is getting better. Some even sneered when PHVs told them to wear a face mask. Some restaurants stop providing alcohol sanitizer gel for washing hands.

4) Newcomers

In Thonburi district, it was challenging to gain collaboration from some newcomers because they did not follow the COVID-19 prevention measures and comply with the instructions of PHVs, especially during the severe pandemic. Similarly, there were some newcomers in Lak Si district who returned from foreign countries and did not inform PHVs. This later created worry and anxiety among people in the community.

Likewise, in Ladkrabang district, there were some new migrants who come to stay with their relatives or friends. This means that it is impossible for the new migrants to take self-isolation since they live densely in the same building. Although the new migrants have to stay at home for 14 days, their relatives or friends have to go out for work which may lead to the spread of the virus.

5) Community context from the perspective of governmental agencies

In Pom Prap Sattru Phai district, PHVs think that the governmental agencies do not understand community contexts well. For instance, BMA prioritizes communities that are supposed to receive support based on the number of poor people. This means that people in Pom Prap Sattru Phai district missed the opportunity to receive the support although many people were highly affected by COVID-19, just because the district does not have high number of poor people compared to others.

Similarly, in Klong Sam Wa district, staff from government agencies do not understand the actual situation in the community. For example, they visited the community and found a house with air-condition. Then, they took it for granted that the house owner is not vulnerable despite the fact that the air-condition is very old and unusable, and the owner

was affected too.

6) Digital literacy

In Ladkrabang district, some vulnerable people missed the opportunity to receive the financial support of THB 5,000 from the government because they do not have a smartphone and do not know how to apply for it. On the other hand, in Chatuchak district, since elderly people had to stay at home during the COVID-19, they ordered food via some online platforms such as Grab and LINEMAN. Besides, most of them received the financial support from the government because they know how to apply. They also participate in the Khon La Khrueng campaign (Let's Go Halves) which make them pay for food and other items at the half price, using smartphone.

6.7.5 Recommendations for further development and improvements of the public health volunteer system

1) Renumeration and benefits

Currently, PHVs have the renumeration of THB 1,000 per month which is very low. This does not mean that PHVs want more money, but they have expenses when they perform their duties or when they attend a training program. Thus, it would be better if the renumeration increases, not only to help PHVs perform their task, but also attract people to become a PHV. Likewise, it would be better if there are more medical benefits for PHVs as well as travel allowance as they sometime need to join a meeting in other districts. These incentives will attract people to become a PHV, especially the young generations, because the number of PHVs is currently imbalance with the number of households that they need to take care in some districts such as Sai Mai and Bang Khun Thian district.

2) Training programs

PHVs should attend training programs regularly and frequently update themselves because diseases evolve all the time. The training programs may vary according to seasons since dengue fever is severe during the summer time while leptospirosis usually spreads in an event of flooding. It is also important to set up a clear plan which can be implemented for 5–10 years. The plan should indicate what PHVs or public health system need to achieve in each year. Furthermore, the plans should be constantly monitored.

6.7.6 Other important issues

- Out of 10 districts, only Bang Khun Thian district has MHVs. However, they could not be on duty during the pandemic because they had to work 6 days a week; otherwise they would not earn income to sustain their livelihood and take care of their families.
- Occasionally, PHVs in Bang Khun Thian district needed helps from MHVs or need MHVs to be on duties; unfortunately, they were rejected because there is no incentive or compensation for MHVs to work. Thus, PHVs needed to pay MHVs in exchange with helps, using their own personal budget. Sometimes, the compensation was in the form of food such as rice and desserts.
- In Bang Kae district, although PHVs considered elderly people as the most vulnerable

group, they did not consider the elderly as the group at risk of COVID-19 because most of them followed the instructions of PHVs and thus stay at home. On the other hand, teenagers were more at risk of infection because they usually gathered and had conversation with friends.

- PHVs hardly experienced a language barrier when they need to communicate with migrants since most of them are not able to speak Thai. In case that a migrant cannot speak Thai, PHVs would ask someone who understand to be a translator.

Appendix

Appendix 1: Prevention Measures against COVID-19

1. Chiang Rai

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
2020.03.08 (A1)	Suspected patients' control Those who travel back from high-risk countries imposed by MOPH or transit transfer must be monitored and inform the responsible staffs (including village health volunteers: VHV) by 14 days home quarantines. The responsible staffs must inform the suspected patients, if they find any suspected symptom within 3 hours. The responsible staffs must follow the measure imposed by MOPH or DDC. Suspected persons must not go into community, theaters, education institutions, or any place expecting for get a permit from DDC staffs.	8 March	Imprison and fine
2020.03.12 (A2)	International Communicable Disease Control (ICDC) Staffs in four ICDC spot must detect the suspected patient who have a basic symptom to have a test on COVID-19 For the unsuspected person should be considered by the staffs; for those who back from the high-risk countries and outbreak countries imposed by WHO must be considered for 14 days home quarantine. Suspected patient/person must do a self-check record for 14 days to report DDC staffs in each ICDC. If not, the staffs must recheck their health for the imposed periods. If the patient/persons find any suspected symptom, they must report the staffs. The staffs must inform penalties and law under this situation. The traveler/suspected patient must be in charge of all expenses. Permanent secretary of MOPH will make a decision and consideration when the staffs found any difficulties.	12 March	
2020.03.19 (A3)	Postponed Songkran holiday, 13-15 April, 2020 Suspending sport activities in crowded places including Sing stadium, PAO stadium, and other sport stadium. For other exercise area can operate as usual. Suspending all course in all types of educational institutions and adjust to online course. Suspending activities mobilized people among provinces, including migrants transport. Reducing risks by limiting people, checkpoint, hand sanitizer provision, cleaning in market, government offices, state enterprise offices and malls. Increase frequencies of public transport and outbound checkpoint provision Setting up disease control center in all districts, sub-district, and village and promote social distancing.	19 March onward	
2020.03.20 (O1)	Temporary closure of places; Service business or any similar business Massage, spa, beauty clinic Theaters, games, karaoke Cockpit field and boxing stadium Fitness and indoor gym	(14 days) 21 March to 3 April	
	Suspending activities caused crowded, or over 100 participants. Suspending inter-provincial movement Suspending street market (walking street) in Chiang Rai	21 March onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
2020.03.25 (A4)	<p>Advice citizens to stay home after work and holiday and doing self-prevention.</p> <p>Postponing or avoiding government contact, if not necessary.</p> <p>Suspending any ceremony and event, like wedding and religion event.</p> <p>Suspending monthly meeting or nay conference.</p> <p>Promoting self-prevention and avoid going to risk/crowded areas.</p> <p>In the case of backing from BMR must not eat food with others, not use personal stuffs with others, wash hand frequently, avoid talking with others especially elderly and patient with medical conditions. For those who find any suspected symptom, they must wear mask and report Public health staffs. Anyone who back from risk areas and get some basic symptom must see the doctor and quarantine.</p>	25 March onward	
2020.03.25 (A5)	Guideline for COVID-19 Prevention	25 March onwards	
2020.03.25 (SE1)	<p>State Emergency (Ed. 1), comprising of 6 main restrictions;</p> <ol style="list-style-type: none"> 1. Prohibition to access in risks areas 2. Closure of high-risk and crowded places, especially boxing stadium, playground, sport stadium. Pub, entertainment places, massage/spa, massage parlor, theater, and playhouses are also included. Other necessary places are depending on governor's decision, such as national park. 3. Closure of international Border (prohibiting by land, fly, and sea) 4. Prohibiting stockpile of food, drink, medical goods, and other daily products. 5. Prohibiting social or public gathering 6. Prohibiting fake news presentation in any media 7. Preparation for COVID-19 prevention measure <ul style="list-style-type: none"> - Governor has a power for determining orders for this emergency - Government offices determine and PR the government measures and supports to publics. - Preparing medical equipment and staffs in all hospitals. <p>Adjust the hotels, school, university, conventional halls, temples or private building where is vacant or unused to serve for this emergency</p> <ul style="list-style-type: none"> - Home quarantines for personal health check-up, especially for those who travel. <ol style="list-style-type: none"> 8. For high risk group, like elderly, people with medical conditions, children (aged less than 5 years) must stay home. 9. International travel measures, stop providing free visa and visa on arrival, excepting for having work permit. 10. Inter-provincial travel measure, providing checkpoint, on road, bus terminal, and all transport routes, for provincial borders. 11. General instruction on COVID-19 Prevention <ul style="list-style-type: none"> - Surface cleaning in all places before and after doing any activity - Staffs, participants, attendees, and employees/employers must wear masks. - Washing hand with soap, alcohol gel, and hand sanitizer gel. - Promoting social distancing at least 1 meter - Limit number of people in each activity and reduce the activity time as much as possible and keep a distance between people 	26 March 2020 onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	12. Open some businesses for daily life, including <ul style="list-style-type: none"> - Medical clinic, pharmacy, and hospital - Restaurant (excepting for bar, pub, or any entertainment place) - Hotel in form of apartment and any residential. - Grocery shop and supermarket - Factory, financial institution, bank, ATM - Market and Street market for fresh, dried, instant, and animal food. - Petrol and gas station - Online and delivery services 13. Recommendation for inter-provincial travel, suspending and postponing the inter-provincial travel. If necessary, must pass checkpoint and follow the government instruction, like 14 days home quarantine and registration for further tracking. 14. Recommendation for activities or events. Any event or activity like wedding, funeral, family events should be postponed or suspended. If necessary, must follow prevention instruction.		
2020.03.26 (O3)	Temporary closure and prohibiting activities All activities along rivers, beach, public spaces, and public parks Tourism attraction in national parks National museum Public library Some shops in malls/department store except supermarket, pharmacy, electronic, food, bank, financial institution, or any shop for daily life.	28 March onwards	
2020.03.27 (A6)	Area-based Risk Prevention 1. Market <ul style="list-style-type: none"> - Imposed entrance-exit route - Set up checkpoint - Providing hand sanitizer gel - Everyone must wear mask 2. Shop, beverage shop, salon, barber, and other places that has not been imposed to close. <ul style="list-style-type: none"> - Screening people - Cleaning and waste management - Always wearing mask - Providing hand sanitizer gel - Keep social distance, at least 1 meter - Limit number of costumers Note: LAO has power to detect and in charge of this measure, if those businesses have not followed, they have power to close such places.	27 March onwards	
2020.03.27 (A7)	Suspending public transport and DLT offices and branches Suspending driver license training Suspending extended driver license training Suspending driver school Suspending car license plate and car taxes issues	27 Mar to 12 Apr	
2020.03.27 (A8)	Suspending some services of Land provincial office, such as right and juristic registration, request on building, land readjustment, and all types of real estates.	1 to 30 Apr	
2020.03.27 (A9)	Suspending some services of provincial, district, and LAO registration office by suspending some government contacts that is not necessary. This excepts birth, death and other urgent registration.	30 March onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
2020.03.31 (O4)	Extension of place closure	Until 30 April	
2020.03.31 (O5)	Closure of Ban Pang Pak hee Village Close all access to the villages, opening only one access to the villages with checkpoint and registration Curfew from 9 pm to 5 am Follow public health instruction Mae Chan district chief is in charged.		
2020.04.01 (A10)	Suspending some services of DLT provincial offices and branches (additional) Suspending driver license issues Opening online courses for driver extension trainings since 23 March.	1 Apr onward	
2020.04.01 (A11)	Checkpoint for inter-provincial travel Check all vehicles and transport modes travelling in Chiang Rai 24 hours. Prohibiting for those who do not have reasons to travel (excepting for resident) who do not wear mask, and who deny for this checking. The staffs at checkpoint must keep a social distance and wear a mask. Fever checking and doing a personal record (name, surname, and contact number) Suspected person must quarantine and self-check and do a personal record. The staffs must give a recommendation on self-prevention to all travelers. Freight car/truck can travel as usual but must follow the public health instruction.	1 Apr onward	
2020.04.03 (A12)	Suspending some services of employment department offices Using online recruitment for both employer and employees Unemployment person should do registration and report on the website.	3 Apr to 30 Apr	
2020.04.02 (SE2)	Imposed Night Curfew from 10 pm to 4 am.		
2020.04.03 (O6)	Establishing Disease Control Operation Team in Provincial and district level	3 April onward	
2020.04.04 (O7)	Suspending highway connectivity between Chiang Rai-Chiang Mai and Chiang Rai-Phayao (7 routes)	9 April to 30 April	
2020.04.04 (O8)	Suspending Burmese inbound and outbound travel Suspending all public transport for the migrants Suspending any private vehicle transferring the migrant	6 March to 30 April	
2020.04.09 (O9)	Banning Alcohol and Social gathering	12 April to 16 April	
2020.04.10 (SE3)	Exceptions for Night Curfew		
2020.04.10 (O10)	Additional suspending highway connectivity between Chiang Rai-Chiang Mai and Chiang Rai-Phayao	13 April to 30 April	
2020.04.16 (O11)	Extension of Alcohol banning	16 April to 30 April	
2020.04.16 (Additional order)	Inbound Guideline Imposed 2 crossing-border points Limited 100 travelers per day, must inform the list of travelers to MOI and province 2 days in advance	18 April onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Traveler must have fit to travel certificate and inbound travelling certificates which include personal data, in-out date, and must do 14 days local quarantine</p> <p>The traveler must follow the in-out date identified in the inbound traveling certificates and arrived the crossing-borders before 12.00 pm.</p> <p>14 days local quarantines and follow public health instruction intensively.</p>		
2020.04.28 (SE4)	Extension for closure of international borders	1 May to 31 May	
2020.04.28 (A13)	Repealing A7, A8, A9, A10, and A12	28 Apr onward	
2020.05.01 (SE5)	<p>Additional Temporary Closure of places</p> <p>Closure of educational institutions (all types for providing courses, examination, training, or any activity that maybe crowded. Excepting for online course.</p> <p>Prohibiting the activities that maybe crowded, such as meeting, seminar, good distributions. If necessary, must keep a social distance at least 1-meter, short time, and follow public health instruction.</p> <p>Banning all flights.</p> <p>Those who arrived Thailand must follow the government conditions such as state quarantine.</p> <p>Continuing closure places.</p> <p>Religious ceremony is under responsibility of the owner.</p>	3 May onwards	
2020.05.01 (SE6)	Lifting some restrictions, up to the governor decision	3 May onwards	
2020.05.02 (O12)	<p>Temporary closure</p> <p>Service business</p> <p>Pubs, bars, and entertainment</p> <p>Spa, streaming, massage, and beauty clinic</p> <p>Theater, game shop, karaoke</p> <p>Cockpit field, boxing stadium, and house racing field</p> <p>Fitness and indoor gym</p> <p>Playground (indoor and outdoor), skateboard and any similar activities</p> <p>Snooker, bowling and arcade</p> <p>Swimming pool and water theme park</p> <p>Department store, malls, community malls excepts supermarket, pharmacy, financial institution, bank, and daily needed shops. Food can sell only delivery.</p> <p>National and private museum</p> <p>Public library</p> <p>Nursery and elderly day care</p> <p>Boxing stadium camp and school</p> <p>Zoo</p> <p>All activities along Kok river and beach, any canal, and public park and public space</p> <p>National park</p>	3 May onward	
2020.05.02 (A14)	Imposed prohibiting and lifting activities	2 May onward	
	Night Curfew from 10 pm to 4 am.		
	<p>Prohibiting Activities</p> <p>Using educational building for teaching, training, or any crowded activities</p> <p>Activities caused crowded. If needed, must keep a social distance</p>		

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Flight banning</p> <p>Places closures; theater, entertainment services, pub, bar, water theme park, playground, amusement park, zoo, skateboard, snooker, arcade, internet café, public swimming pool, cockpit field, department stores, malls, fitness, beauty clinic, exhibition hall, conventional hall, museum, public library, nursery, elderly care, boxing stadium, gyms, piercing and tattoo shop, ballroom dance, horseracing field, spa/streaming/massage, and massage parlor.</p> <p>Religious event and activities</p>		
	<p>Lifting activities</p> <p>Place selling foods and/or beverage in hotel, airport, train station, bus terminal, hospital. Convenience stores, street vendors are also included.</p> <p>Supermarket in malls and department stores. Pharmacy and grocery shop, bank, and any shop for daily life are also included.</p> <p>Street market, retail stores, and community market</p> <p>Barber and salon</p> <p>Golf court</p> <p>Sport field for outdoor activities</p> <p>Public park and public space</p> <p>Vet shop</p>		
2020.05.02 (A15)	Quarantine measure for those who back from Phuket	2 May onwards	
	<p>Case of those who get health certificate or did 14 days quarantine at Phuket</p> <p>Must report at Viang-Inn Riverside Resort</p> <p>Must do home quarantine for 14 days</p>		
	<p>Case of those who did not get health certificate or did not have 14 days quarantine at Phuket</p> <p>Must report at Viang-Inn Riverside Resort</p> <p>Must do local quarantine for 14 days</p>		
2020.05.02 (A16)	Measure for International Freight Drivers	2 May onwards	
	<p>If the freight driver cannot back to the country in a same day, the driver must report at Viang-Inn Riverside Resort for doing 14 days local quarantine</p> <p>The drivers or owner of business must be in charge of all expenses.</p>		
2020.05.14 (O13)	Repealing Order 7 and 10 on suspending highway connectivity between Chiang Rai-Chiang Mai and Chiang Rai-Phayao	15 May onward	
2020.05.15 (SE7)	Lifting Night Curfew to 11 pm to 4 am.		
	Lifting use of educational institution building based on governor decision. Excepting for teaching, training, and examination.		
	Lifting some business, like reopening department stores, barber, salon up to governor decision till 8 pm., reopening social day care, tv and film production (less than 50 persons), reopening conventional halls with limited number, beauty clinic, fitness and gym, swimming pool both private and public, museum, learning center, and public library. All depends on the governor decision.		
2020.05.16 (O14)	Closure of fighting fish field or any fighting field	17 May onward	
2020.05.16 (A17)	Lifting Restrictions on Place Closures	16 May onwards	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	Reopening restaurants, department stores, community malls, salon, barber, retail and wholesale store, social day care, TV and film production (less than 50 people, no audience and guess), conventional and exhibition hall with limited number and personal record, beauty clinic, fitness, gyms, sport stadium (indoor), indoor and outdoor swimming pool, museum, learning center, archeological site, public library, art center.		
2020.05.20 (A18)	Measure for those who back from risk provinces	20 May onwards	
	Those who back from BMR Travel report at checkpoint Self-quarantine for 14 days Avoid joining activities with others, like dinner, do not use the personal stuffs with others, keep washing hand, avoid talking with people especially elderly and patient with medical condition If got fever over 37.5 or have suspected symptom must report public health staffs and see doctor.		
	Those who back from Yala, Pattani, Songkla, and Narathiwat Travel report at checkpoint 14 days home quarantine Prohibiting to be in crowded Keep a distance with household members, isolated room, close mouth and nose when sneeze, avoiding dinner with household members and using personal stuffs with the others, keep washing hand, avoid talking with people especially elderly and patient with medical condition. If got fever over 37.5 or have suspected symptom must report public health staffs and see doctor.		
2020.05.29 (SE8)	Extension of State Emergency to 30 of June	1 June onwards	
2020.05.29 (SE9)	Lifting Night Curfew to 11 pm to 3 am.		
	Lifting the use of school and educational buildings for teaching, training, recruiting, and examination		
	Lifting some business, like reopening department stores, barber, salon up to governor decision till 9 pm.		
	Lifting the inter-provincial travel.		
	Active on 1 June		
2020.05.29 (O15)	Repealing Order 8 on Suspending Burmese inbound and outbound travel	29 May onward	
2020.05.31 (A19)	Lifting and Reopening some business and activities	31 May onward	
	Reopening educational institution with public health conditions Reopening department stores, community mall till 9 pm. Reopening exhibition center, conventional halls, or event places, for meeting or any activity within 20,000 sq.m. and open till 9 pm. Those activities must not include any competition, selling promotion, or any activity that gathers crowded. Reopening amulet center but must not gather crowded Reopening salon and barber, must serve only 2 hours/person Reopening child development center and nursery, must follow public health instruction Reopening beauty clinic, tattoo and piercing shop Reopening Health business (spa and Thai massage) excepting for sauna, herbal sauna, and streaming, bathing, massage parlor, as well as facial massage Reopening fitness and gym with limited numbers in a group player, prohibiting on sauna and streaming.		

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Reopening boxing stadium and boxing camp, only for practicing alone, prohibiting the competition and audiences</p> <p>Reopening stadium, sport yard, only for exercising and practicing, such as football, basketball, volleyball, prohibiting competition and audiences, all people in sport yard must be less than 10 persons (not include the players)</p> <p>Reopening skates, bowling, and inline skate only for exercise and practice</p> <p>Reopening ballroom dancing</p> <p>Reopening swimming pool and all water activities like jet ski, and banana boat, with limited number based on areas, and no competition.</p> <p>Reopening theaters with limited number (not over 200 persons). Mainly, the local theater can play traditional musical and performance. Concert, music festival/event is prohibited.</p> <p>Reopening zoo and circus with limited number.</p>		
2020.06.05 (O16)	<p>Repealing order 3 and 12 and keep enforcing the following activities;</p> <p>Reopening spa, massage, excepting for public spa and streaming</p> <p>Reopening boxing gym and camp</p> <p>Close pub, bar, or any similar activities</p> <p>Close game shop, karaoke</p> <p>Close playground indoor and outdoor</p> <p>Close cockpit field and any similar flighting field</p> <p>Close snooker</p> <p>Close boxing stadium</p>	5 June onward	
2020.06.05 (A20)	<p>Lifting restriction on regular meetings</p> <p>Allow setting up meetings, training, and seminar</p> <p>If having attendees more than 100 persons, must get an approval from Communicable Disease Committee</p>	5 June onwards	
2020.06.11 (A21)	<p>Lifting Restriction for those who back from Phuket</p> <p>Travel and personal report at checkpoint</p> <p>14 days home quarantine</p> <p>Prohibiting to be in crowded</p> <p>Keep a distance with household members, isolated room, close mouth and nose when sneeze, avoiding dinner with household members and using personal stuffs with the others, keep washing hand, avoid talking with people especially elderly and patient with medical condition.</p> <p>If got fever over 37.5 or have suspected symptom must report public health staffs and see doctor.</p>	11 June onward	
2020.06.11 (A22)	<p>Lifting restriction for the students who back from Phuket, Yala, Pattani, Songkla, and Narathiwat</p> <p>Report at Chiang Rai Rajabhat or Mae Fah Luang university</p> <p>14 days home quarantine and follow public health instruction</p>	11 June onward	
2020.06.15 (O17)	<p>Repealing order 16 and lifting some activities</p> <p>Meeting, training, seminar, exhibition, ceremony, performance, music events, concerts or any activity in hotel, theater, conventional and exhibition hall or any other places can operate.</p> <p>Unbanning alcohol selling in restaurants, hotel, grocery shop, and other places permitted by laws. Pub, bar, karaoke, or any similar business are excepted.</p> <p>Child development center, nursery, primary child development, special child development, ageing care, or any child and elderly</p>	15 June onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	care can operate as a daily service and must follow public health instruction		
	Streaming, herbal streaming, sauna and facial massage in spa or Thai massage places can be operated expecting for massage parlor. Group exercise in public park and public spaces or any outdoor yard is able to operate Water theme park, amusement park, playground can operate expecting for the temporary and high-risk playthings such as ball pool. Sport yard, stadium, fitness, and gym can operate all sports, expecting for cockpit field, cattle field, fighting fish field or any similarity. Reopening arcades in department stores and community mall or any permitted places along with the instruction		
2020.06.15 (A23)	Lifting restriction on some businesses and activities Reopening educational institutions (national, private, and international) where have students less than 120 persons are able to operate courses and training along with public health instruction Meeting, training, seminar, exhibition, ceremony, performance, music events, concerts or any activity in hotel, theater, conventional and exhibition hall or any other places can operate. Unbanning alcohol selling in restaurants, hotel, grocery shop, and other places permitted by laws. Pub, bar, karaoke, or any similar business are excepted. Child development center, nursery, primary child development, special child development, ageing care, or any child and elderly care can operate as a daily service and must follow public health instruction Reopening science center, science park, and cultural center TV program and film production can operate with limit numbers-actors, participants, and production team must be less than 150 person and audiences must be less than 50 persons. Streaming, herbal streaming, sauna and facial massage in spa or Thai massage places can be operated expecting for massage parlor. Group exercise in public park and public spaces or any outdoor yard is able to operate Water theme park, amusement park, playground can operate expecting for the temporary and high-risk playthings such as ball pool. Sport yard, stadium, fitness, and gym can operate all sports, expecting for cockpit field, cattle field, fighting fish field or any similarity. Reopening arcades in department stores and community mall or any permitted places along with the instruction Reopening inter-provincial transportation	15 June onward	

2. Khon Kaen

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
2020.03.17 (A1)	Surveillance and Prevention measure against COVID-19	18 March onwards	
	Prohibiting international travels for the staffs of government and state enterprises.		Up to 20,000 THB
	Temporary Closure of crowded places, including boxing stadium, sport stadium, and cockpit field in Khon Kaen Province. Temporary Closure from 18 March to 31 March 2020 comprising of pubs, bars, entertainment venues, massages, and theater in Khon Kaen province.		Imprisoned up to 1 year or fining up to 100,000 THB or both.
	Closure of university, school, tutoring		Imprisoned up to 1 year or fining up to 100,000 THB or both.
	Restricting activities on inter-provincial travel in a group such as prison, military camp, migrants, and school. If it is necessary, it need to have a primary screening.		Up to 20,000 THB
	Reducing a risk by preparing check-point (with fever checking and hand sanitizer gel provision) in department stores, market, and government office and also limiting customers as well as cleaning the toilet and floors.		Imprisoned up to 1 year or fining up to 100,000 THB or both.
	Shops and restaurant have to reflect the prevention measures such as cleaning the toilet and floor, check-point, hand sanitizer gel provision, staff protection (wearing mask), and waste management.		Imprisoned up to 1 year or fining up to 100,000 THB or both.
2020.03.18 (A2)	To add on the prevention, suspending the concert, exhibition, religious, culture, and sport events , unless necessity, for 14 days from 18 to 31 of March, 2020.	18 to 31 of March, 2020	Up to 20,000 THB
2020.03.20 (A3)	Measure in bus terminal 3 for international bus	20 March onwards	
	Arrival checking points (fever checking and using hand sanitizer gel) and registration (with name, address, and contact)		Up to 20,000 THB
	The drivers and staffs have to wear mask, do fever checking, and use hand sanitizer gel.		Up to 20,000 THB
	Sanitize and sterilize all buses after services		Imprisoned up to 1 year or fining up to 100,000 THB or both.
2020.03.22/23 (A4/5)	Temporary closure the following 28 places; Restaurants and beverage shops (excepting for delivery and restaurants in hotel serving only for hotel guesses) Department store, malls, large retail stores, shop in the buildings or surrounding such an area. (excepting for supermarket, pharmacy store, and grocery shops, and convenience stores, for the restaurants can open only for delivery) Seat areas in the convenience stores, restaurants, beverage shop, and super market Market and street market (excepting for selling fresh foods, dried foods, and instant foods to take away. This also includes animal feeds, pharmacy stores, and grocery shop). Salon and barbershop Tattoo and piercing shop Skateboard and inline skate yard or any similarity Amusement park, bowling, and arcade	23 to 12 April	Imprisoned up to 1 year or fining up to 100,000 THB or both.

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	Game shop and internet café Golf course Swimming pool, water park, or any similar business Cockpit field Amulet center Exhibition hall, conventional center, and exhibition center All educational institutions, including nursery and tutoring Beauty clinic Health business (all spa and massages) Animal hospital and services Massage parlor Herbal and aroma spa, streaming, and bathing Theater Entertainment spots or services Gym and fitness Boxing stadium and gym Sport stadium All types of karaoke Snooker club Fishing ponds or any similarity		
2020.03.24 (A6)	Measure in bus terminal 3 for international and inter-provincial bus	23 March onwards	
	Arrival checking points (fever checking and using hand sanitizer gel) and registration (with name, address, and contact, according to Registration official form)		Up to 20,000 THB
	The drivers and staffs have to wear mask, do fever checking, and use hand sanitizer gel.		Up to 20,000 THB
	Sanitize and sterilize all buses after services		Imprisoned up to 1 year or fining up to 100,000 THB or both.
2020.03.25 (SE1)	State Emergency (Ed. 1) , comprising of 6 main restrictions; Prohibition to access in risks areas Closure of high-risk and crowded places, especially boxing stadium, playground, sport stadium. Pub, entertainment places, massage/spa, massage parlor, theater, and playhouses are also included. Other necessary places are depending on governor's decision, such as national park. Closure of international Border (prohibiting by land, fly, and sea) Prohibiting stockpile of food, drink, medical goods, and other daily products. Prohibiting social or public gathering Prohibiting fake news presentation in any media Preparation for COVID-19 prevention measure Governor has a power for determining orders for this emergency Government offices determine and PR the government measures and supports to publics. Preparing medical equipment and staffs in all hospitals. Adjust the hotels, school, university, conventional halls, temples or private building where is vacant or unused to serve for this emergency Home quarantines for personal health check-up, especially for those who travel. For high risk group, like elderly, people with medical conditions, children (aged less than 5 years) must stay home. International travel measures, stop providing free visa and visa on arrival, excepting for having work permit.	26 March 2020 onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Inter-provincial travel measure, providing checkpoint, on road, bus terminal, and all transport routes, for provincial borders.</p> <p>General instruction on COVID-19 Prevention</p> <p>Surface cleaning in all places before and after doing any activity</p> <p>Staffs, participants, attendees, and employees/employers must wear masks.</p> <p>Washing hand with soap, alcohol gel, and hand sanitizer gel.</p> <p>Promoting social distancing at least 1 meter</p> <p>Limit number of people in each activity and reduce the activity time as much as possible and keep a distance between people</p> <p>Open some businesses for daily life, including</p> <p>Medical clinic, pharmacy, and hospital</p> <p>Restaurant (excepting for bar, pub, or any entertainment place)</p> <p>Hotel in form of apartment and any residential.</p> <p>Grocery shop and supermarket</p> <p>Factory, financial institution, bank, ATM</p> <p>Market and Street market for fresh, dried, instant, and animal food.</p> <p>Petrol and gas station</p> <p>Online and delivery services</p> <p>Recommendation for inter-provincial travel, suspending and postponing the inter-provincial travel. If necessary, must pass checkpoint and follow the government instruction, like 14 days home quarantine and registration for further tracking.</p> <p>Recommendation for activities or events. Any event or activity like wedding, funeral, family events should be postponed or suspended. If necessary, must follow prevention instruction.</p>		
2020.03.26	Road checkpoint to control inter-provincial travel	26 March to 22 April 2020	
2020.03.31 (A7)	<p>Measurement extension from 1 April until 30 April</p> <p>Additional measures;</p> <p>Reopening large retail store, only for construction materials, and must submit the reopening plan to get approval by provincial public health office.</p> <p>Reopening mobile service center, must submit the reopening plan to get approval by provincial public health office.</p> <p>Prohibiting activities with the crowded such as meeting, conference, concert, and any event excepting for the important events.</p> <p>Recommendation for self-prevention and reopening shops, keep clean all surfaces and things, wearing masks all the time, washing hand with soap or sanitizer gel, social distancing, limiting people and decreasing time in each activity.</p>	1 April until 30 April 2020	
2020.04.02 (SE2)	Imposed Night Curfew from 10 pm to 4 am.		
2020.04.03 (A8)	All shops, supermarket, convenience store must close from 9 pm to 4 am	4 April onwards	Up to 20,000 THB
	Reopening some of permitted hotels , but must provide the prevention plan which is approved by provincial public health office or district public health office.	7 April onwards	
	Reopening dental clinic, public park (including Fai Nong Wai, Tambon Nam Phong, Amphor Nam Phong), but must provide the prevention plan which is approved by provincial public health office or district public health office.	4 April onwards	
	Active on 4 April on ward.		
	Self-prevention against COVID-19-Wearing mask all time when staying outside	4 April onwards	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	Active on 4 April on ward.		
	Holiday Cancellation on Songkran Festival and all the activities		
2020.04.06	Temporary ban all flights From 6 April 2020 at 17.00 UTC to 18 April 2020 at 17.00 UTC.	6 April 2020 at 17.00 UTC to 18 April 2020 at 17.00 UTC	
2020.04.10 (SE3)	Exceptions for Night Curfew		
2020.04.11 (A9)	Banning alcohol selling and banning social gathering	12 April to 17 April	
	Banning alcohol selling		Imprisoned up to 1 year or fining up to 100,000 THB or both.
	Banning social gathering		Imprisoned up to 2 year or fining up to 40,000 THB or both.
2020.04.12 (A10)	Closure of public park (excepting for Fai Nong Wai park) and public spaces excepting for fresh market, food delivery, dried food, and instant food. Active on 13 April to 17 April	13 April to 17 April	Imprisoned up to 1 year or fining up to 100,000 THB or both.
	Following the instruction on self-prevention against COVID-19		Imprisoned up to 2 year or fining up to 40,000 THB or both.
2020.04.14 (A11)	All shops, supermarkets, convenience stores must close from 4 pm. To 4 am. Activated on 15 April on wards	15 April on wards	
	Extension of banning alcohol selling and social gathering to 30 April	Until 30 April	
	Extension of public park (excepting for Fai Nong Wai Park) and the public spaces to 30 April	Until 30 April	
	Patients must provide personal information to public health officers such as traveling and working history, high risk contacted history, or any risk behaviors.		Imprisoned up to 6 months or fining up to 10,000 THB or both.
2020.04.17 (A12)	Continuing self-prevention against COVID-19 on wards		
	Close hours of reopening/opening places like supermarket, grocery, and etc. from 4 pm to 4 am until 30 April.	Until 30 April	
2020.04.28 (SE4)	Extension for closure of international borders	1 May to 31 May	
2020.04.29 (A13)	Donation and Distribution Restrictions		
	Donators must inform what will be donated (could be money, food, or things) to Emergency Administration Center in Khon Kaen Province or district chief or LAO in such area 3 days in advance.		
	In case of donation in Khon Kaen City Municipality must follow; Donation (things) or distribution (foods) not less than 100 pieces is able to donate/distribute at in front of their home or any		

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	proper areas. Donation (things) or distribution (foods) not less than 300 pieces is able to donate/distribute at the spot provided by government. Donation (things or cash) or distribution (foods) over 300 pieces is able to donate/distribute at Khon Kaen train station.		
	Donation spot must have enough space for social distancing (1.5 to 2 meter)		
	LAO or district must provide staffs at checking-point (fever checking and hand providing hand sanitizer gel)		
	Donors and receivers at donation spot must wear masks and gloves and must pass fever checking. Donor must advertise before start donating.		
	Donors, distributors, and receivers must register by name-surname, ID number, and contact number and then send the registration list to LAO or District chief		
	In case that the donors/distributors cannot do, they can inform the LAO or district chief as representative for such a donation or distribution		
	All donations and distributions process must not promote any social or public gathering		20,000 THB
2020.05.01 (SE5)	Additional Temporary Closure of places Closure of educational institutions (all types for providing courses, examination, training, or any activity that maybe crowded. Excepting for online course. Prohibiting the activities that maybe crowded, such as meeting, seminar, good distributions. If necessary, must keep a social distance at least 1-meter, short time, and follow public health instruction. Banning all flights. Those who arrived Thailand must follow the government conditions such as state quarantine. Continuing closure places. Religious ceremony is under responsibility of the owner.	3 May onwards	
2020.05.01 (SE6)	Lifting some restrictions, up to the governor decision	3 May onwards	
2020.05.15 (SE7)	Lifting Night Curfew to 11 pm to 4 am. Lifting use of educational institution building based on governor decision. Excepting for teaching, training, and examination. Lifting some business, like reopening department stores, barber, salon up to governor decision till 8 pm., reopening social day care, tv and film production (less than 50 persons), reopening conventional halls with limited number, beauty clinic, fitness and gym, swimming pool both private and public, museum, learning center, and public library. All depends on the governor decision.		
2020.05.16 (A14)	Reopening hotels, conventional and exhibition halls for meetings and conferences based on following measures; Limiting number of participants Meeting/conference only for committees, shareholders, training, seminars. All participants in such a meeting must be from same organization/ company.		
2020.05.29 (SE8)	Extension of State Emergency to 30 of June	1 June onwards	
2020.05.29 (SE9)	Lifting Night Curfew to 11 pm to 3 am.		
	Lifting the use of school and educational buildings for teaching, training, recruiting, and examination		

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	Lifting some business, like reopening department stores, barber, salon up to governor decision till 9 pm.		
	Lifting the inter-provincial travel.		
	Active on 1 June		
2020.05.31 (A15)	Lifting use of school and educational institution buildings for providing courses, training, meeting, examination, and recruitment		
	For school or university courses, informal education training with the consideration of number of students and attendants, and follows the public health instruction (self-prevention)		
	For meeting, examination, training, and recruitment can do up to 15 days		
	Lifting and Reopening some business and activities Reopening department stores, community mall till 9 pm. Reopening exhibition center, conventional halls, or event places, for meeting or any activity within 20,000 sq.m. and open till 9 pm. Those activities must not include any competition, selling promotion, or any activity that gathers crowded. Reopening amulet center but must not gather crowded Reopening salon and barber, must serve only 2 hours/person Reopening child development center and nursery, must follow public health instruction Reopening beauty clinic, tattoo and piercing shop Reopening Health business (spa and Thai massage) excepting for sauna, herbal sauna, and streaming, bathing, massage parlor, as well as facial massage Reopening fitness and gym with limited numbers in a group player, prohibiting on sauna and streaming. Reopening boxing stadium and boxing camp, only for practicing alone, prohibiting the competition and audiences Reopening stadium, sport yard, only for exercising and practicing, such as football, basketball, volleyball, prohibiting competition and audiences, all people in sport yard must be less than 10 persons (not include the players) Reopening skates, bowling, and inline skate only for exercise and practice Reopening ballroom dancing Reopening swimming pool and all water activities like jet ski, and banana boat, with limited number based on areas, and no competition. Reopening theaters with limited number (not over 200 persons). Mainly, the local theater can play traditional musical and performance. Concert, music festival/event is prohibited. Reopening zoo and circus with limited number. Active on 1 June	1 June onwards	
2020.06.15 (A16)	Lifting restriction: Reopening educational institutions (school, university, and tutoring)	15 June onwards	
	Reopening educational institutions (national, private, and international) where have students less than 120 persons are able to operate courses and training along with public health instruction		
	Meeting, training, seminar, exhibition, ceremony, performance, music events, concerts or any activity in hotel, theater, conventional and exhibition hall or any other places can operate. Unbanning alcohol selling in restaurants, hotel, grocery shop, and other places permitted by laws. Pub, bar, karaoke, or any similar business are excepted. Child development center, nursery, primary child development,		

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>special child development, ageing care, or any child and elderly care can operate as a daily service and must follow public health instruction</p> <p>Reopening science center, science park, and cultural center</p> <p>TV program and film production can operate with limit numbers-actors, participants, and production team must be less than 150 person and audiences must be less than 50 persons.</p> <p>Supermarket, convenience store, and any similar business can operate as usual.</p>		
	<p>Streaming, herbal streaming, sauna and facial massage in spa or Thai massage places can be operated expecting for massage parlor.</p> <p>Group exercise in public park and public spaces or any outdoor yard is able to operate</p> <p>Water theme park, amusement park, playground can operate expecting for the temporary and high-risk playthings such as ball pool.</p> <p>Sport yard, stadium, fitness, and gym can operate all sports, expecting for cockpit field, cattle field, fighting fish field or any similarity.</p> <p>Reopening arcades in department stores and community mall or any permitted places along with the instruction</p>		
	- Inter-provincial transportation (bus, van, train, ferry, and plane) must follow social distancing by spacing with block seat and limit number of passengers		
	Active on 15 June on wards		

3. Krabi

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
10 March 2020 (O1)	<p>Krabi COVID19 Disease Control and Prevention Center Establishment</p> <p>Krabi Royal Volunteer Center</p> <p>Public Relations Information Center Working Group</p> <p>Administrative and Planning Working Group</p> <p>Operations Working Group</p> <p>Support Working Group</p>	10 March 2020 - onward	
18 March 2020 (A1)	<p>Krabi COVID19 Prevention Measurement</p> <p>Refraining international travel of government, state agency and LAOs staffs.</p> <p>Inform and alert people for suspending travel to risk country</p> <p>COVID19 Prevention Measurement within Krabi</p> <p>Temporary closure for risk and crowded areas which are cattle field, cockpit field, fighting fish field, boxing stadium and sport stadium</p> <p>Temporary closure for 14 days for entertainment spots or services such as massage shop, game center or karaoke shop from 18 March 2020 to 31 March 2020</p> <p>Suspending all school activities from 18 March 2020 to 31 March 2020</p> <p>Government agencies: Suspending or postponing activities that gather many people such as sport competition, seminar or other activities containing more than 100 people</p> <p>Private sectors: Avoiding or postponing activities that gather more than 100 people such as sport competition, wedding, religious activities, or cultural events. Unless it is necessary such</p>		<p>Fining up to THB 20,000</p> <p>Imprisoned up to 1 year or fining up to THB 100,000 or both.</p> <p>Note: (10) fining up to THB 20,000</p>

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>as funeral but the standard prevention measurement from MOH needs to be followed (e.g. using meal box)</p> <p>Loosing density at government, private and state enterprise offices by shifting working or lunch time and setting at least 1-meter space between seats. The offices must report the prevention result to Krabi COVID19 Disease Control and Prevention Center. Visitors need to be strictly screened according to MOH measurement.</p> <p>For crowded areas such as department stores, gas stations or markets, private sectors need to follow MOH's instruction like temperature checking, hand sanitizing spot, surface cleaning and user limiting. For restaurant and café, seats need to be spaced at least 1 meter from each other and follow other instructions guided by MOH</p> <p>Suspending religious and cultural activities</p> <ul style="list-style-type: none"> - Buddhism: Refraining or postponing activities - Islam: Following Chief of Muslim in Thailand's instruction. For Pondok school, new students must be quarantined for 14 days. If there is visiting in school, the social distancing needs to be considered. <p>Public Transportation, Kribi's DLT has to follow instruction guided by MOH such as temperature checking for passengers, staffs and passengers mask wearing, loosen passenger density to be able to sit or stand 1 meter from others and increasing the service frequency.</p> <p>Suspending activities that connect with across province movement of people such as activities of military camp, prison, or school. if it is necessary, the instruction for disease prevention must be followed. This also includes the limitation of foreign worker movement</p> <p>Prison: new prisoner must be quarantined for 14 days and the disease prevention instruction need to be followed</p> <p>Stores and restaurants must have prevention measurement such as surface cleaning, toilet cleaning, temperature checking, staff's infectious prevention (mask, hand sanitizing gel or waste management)</p> <p>Asking for collaboration from people to wear mask every time staying in public</p>		
19 March 2020 (A2)	<p><u>Revision of Krabi COVID19 Prevention Measurement</u></p> <p>Private sectors: Suspending activities that gather more than 100 people such as sport competition, wedding, religious activities, or cultural events. Unless it is necessary such as funeral but the standard prevention measurement from MOH needs to be followed (e.g. using meal box)</p> <p>Stores and restaurants must have prevention measurement such as surface cleaning, toilet cleaning, temperature checking, staff's infectious prevention (mask, hand sanitizing gel or waste management)</p>	19 March 2020 - onward	Fining up to 20,000 THB
23 March 2020 (A3)	<p><u>Temporary closure</u></p> <p>Tattoo and piercing shop</p> <p>Snooker club or other similarities</p> <p>Snorkeling/ scuba Driving business</p> <p>Restaurants and beverage shops (excepting for delivery and restaurants in hotel serving only for hotel guesses)</p> <p>Department store, malls, large retail stores, shop in the buildings or surrounding such an area. (excepting for supermarket, pharmacy store, and grocery shops, and convenience stores, for the restaurants can open only for delivery)</p>	23 March 2020 – 15 April 2020	Imprisoned up to 1 year or fining up to 100,000 THB or both.

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Shooting course</p> <p>Market (excepting for selling fresh foods, dried foods, cooked foods to take away, pharmacy and products that are essential to life)</p> <p>Seat areas in the convenience stores</p> <p>Fitness</p> <p>Swimming pool (including community pool and condominium pool)</p> <p>Playground, stadium and playground in shopping mall</p> <p>Famous tourist attractions which are Emerald Pool, Namtok Ron (Hot Spring Waterfall), Saline hot spring Khlong Thom, Tha Pom Klong Song Nam and ThanBok Khorani pool (Cannot swim)</p>		
24 March 2020 (A4)	<p><u>(Revision) Temporary closure</u></p> <p>Department store, malls, large retail stores, shop in the buildings or surrounding such an area. (excepting for supermarket, pharmacy store, grocery shops and bank for the restaurants can open only for delivery)</p> <p>Fitness (excepting for fitness in hotel with MOH instruction which can be opened for only hotel guesses)</p> <p>Swimming pool including community pool and condominium pool (excepting for swimming pool in hotel with MOH instruction which can be opened for only hotel guesses)</p>	24 March 2020 - onward	
25 March 2020 (A5)	<p><u>Government Office Temporary Closure</u></p> <p>All District and Local Registration Office</p> <p>District Registration Office: Service only for birth reporting, death reporting and new ID card issuing in case of losing/severe damaged)</p> <p>Local Registration Office (Tessaban Tambon): Service only for birth reporting and death reporting</p> <p>Provincial Department of Land Transport</p> <p>Suspending training and testing for new driving license. Training for extending driving license can be trained via e-learning (www.dlt.e-learning.com)</p> <p>Refraining mobile units for registration, vehicle tax and driving license issuing</p> <p>Krabi Land office: suspending service for the registration of rights and juristic acts on all types of land</p> <p>Beauty clinic, salon, or barber shop</p>	26 March 2020	
26 March 2020 (SE1)	<p><u>State Emergency (Ed. 1)</u>, comprising of 6 main restrictions;</p> <p>Prohibition to access in risks areas</p> <p>Closure of high-risk and crowded places, especially boxing stadium, playground, sport stadium. Pub, entertainment places, massage/spa, massage parlor, theater, and playhouses are also included. Other necessary places are depending on governor's decision, such as national park.</p> <p>Closure of international Border (prohibiting by land, fly, and sea)</p> <p>Prohibiting stockpile of food, drink, medical goods, and other daily products.</p> <p>Prohibiting social or public gathering</p> <p>Prohibiting fake news presentation in any media</p> <p>Preparation for COVID-19 prevention measure</p> <p>Governor has a power for determining orders for this emergency</p> <p>Government offices determine and PR the government measures and supports to publics.</p> <p>Preparing medical equipment and staffs in all hospitals. Adjust the hotels, school, university, conventional halls, temples, or private building where is vacant or unused to serve for this emergency</p>	26 Mar 2020 - onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Home quarantines for personal health check-up, especially for those who travel.</p> <p>8. For high risk group, like elderly, people with medical conditions, children (aged less than 5 years) must stay home.</p> <p>9. International travel measures, stop providing free visa and visa on arrival, excepting for having work permit.</p> <p>10. Inter-provincial travel measure, providing checkpoint, on road, bus terminal, and all transport routes, for provincial borders.</p> <p>11. General instruction on COVID-19 Prevention</p> <ul style="list-style-type: none"> - Surface cleaning in all places before and after doing any activity - Staffs, participants, attendees, and employees/employers must wear masks. - Washing hand with soap, alcohol gel, and hand sanitizer gel. - Promoting social distancing at least 1 meter - Limit number of people in each activity and reduce the activity time as much as possible and keep a distance between people <p>12. Open some businesses for daily life, including</p> <ul style="list-style-type: none"> - Medical clinic, pharmacy, and hospital - Restaurant (excepting for bar, pub, or any entertainment place) - Hotel in form of apartment and any residential. - Grocery shop and supermarket - Factory, financial institution, bank, ATM - Market and Street market for fresh, dried, instant, and animal food. - Petrol and gas station - Online and delivery services <p>13. Recommendation for inter-provincial travel, suspending and postponing the inter-provincial travel. If necessary, must pass checkpoint and follow the government instruction, like 14 days home quarantine and registration for further tracking.</p> <p>14. Recommendation for activities or events. Any event or activity like wedding, funeral, family events should be postponed or suspended. If necessary, must follow prevention instruction.</p>		
27 March 2020 (A6)	<p><u>Lifting restrictions</u></p> <p>Mobile services in department stores can be reopened under the MOH Instruction</p> <p>Convenience store/grocery store/community store can be opened during 5.00 to 22.00 under the MOH instruction</p> <p><u>Temporary Closure</u></p> <p>Tourism businesses such as hiking, elephant tour, canoe tour, bird tour and other similarities</p> <p>Additional tourist attraction closure: within Mueang district</p> <p>Khlong Sakaew</p> <p>Than Thip Palace</p> <p>Than Kiri</p> <p>Lood canal</p> <p>Other attractions that similar to above (4)</p>	28 March 2020 – 15 April 2020	Imprisoned up to 1 year or fining up to 100,000 THB or both.
27 March 2020 (A7)	<p><u>Additional Government Office Temporary Closure</u></p> <p>Krabi Social Development and Human Security Office</p> <p>Elderly fund: Refraining loan request service. Consulting via online and call center (Line and Facebook)</p> <p>Empowering Independent Living for Persons with Disabilities Fund: Refraining loan request service. Consulting via online and phone (Line and Facebook)</p> <p>Disability Identification: Refraining ID card service. Consulting via online and phone (Line and Facebook)</p>	28 March 2020 - onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	Adoption: appointment via phone, Line and Facebook. Consulting via online and phone (Line and Facebook) Subsidies for raising a newborn: Consulting, checking rights, or submitting additional documents via online and phone (Line and Facebook) Damrong Dharma Center: Service via phone, hot line 1567, Website www.krabi.go.th , Line and post		
2 April 2020 (SE2)	Imposed Night Curfew from 10 pm to 4 am.		
3 April 2020 (A8)	Krabi COVID19 Prevention Measurement Krabi Entrance-Exit Closure from 4 -30 April 2020 and curfew during 22.00 – 4.00 (excepting for medical team, bank, product transit, crop transit, medical tool transit, newspaper transit, petroleum transit, post, import/export products, night-shift worker transit or from-to airport with necessary certificate) People who will be considered for entering Krabi Krabi residents that will stay until 30 April 2020 Other province residents who has duty in Krabi and will stay until 30 April 2020 Emergency patients transiting to certified hospital Patients who cannot postpone their doctor appointment due to treatment conditions People who have appointment as per the court proceedings and cannot postpone due to the damage of court proceedings Note: People from (1) and (2) must have medical certificate issued within 72 hours indicating healthy for travel. However, officer at the check point has rights to deny for entering and exit People who can exit Krabi Other province residents who wants to go back to their hometown Krabi residents and other who will not return to Krabi until 30 April 2020 Emergency patients transiting to certified hospital Patients who cannot postpone their doctor appointment due to treatment conditions People who have appointment as per the court proceedings and cannot postpone due to the damage of court proceedings Note: People from (1) and (2) must report to disease control officer at the outbound checkpoint Additional Temporary Closure Hotel, resort, and other similarities: if there are current guesses before the announcement, hotel needs to move guess to location that was prepared by government within 10 April 2020 and inform the number and guess list for screening. Hotel needs to be closed immediately after finishing the moving. Excepting the hotel assigned as hospital field. Convenient store, retail store and community shop including supermarket and other shops (allowed to operate) can be opened 5.00 to 20.00 with MOH instruction following Market and flea market can be opened from 4.00 to 11.00 for fresh products, dry foods, or cooked food (for taking away) including animal feeds, pharmacy, flower shops, and other life essential products. Car/bike rental For allowed business, the prevention measurement from MOH needs to be followed which are Surface cleaning before holding events and daily waste disposal	4 April 2020 - onward	Fining up to 20,000 THB Imprisoned up to 1 year or fining up to 100,000 THB or both. Imprisoned up to 2 year or fining up to 40,000 THB or both. <i>*Depend on each case</i>

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Staffs, entrepreneurs, participants, employees, and users must wear mask, wash hand with soap or alcohol, keep space at least 2 meters</p> <p>Controlling the number of participants and shorten the event period</p> <p>Krabi Bus Station Closure</p> <p>Specific area closure (People are not allowed to enter or exit) Lockdown areas</p> <p>Mueang Krabi District: PP island and Ao Nang sub-district will stop all transfer services</p> <p>Lantaa District: Stop all transfer services except ferry for product transit</p> <p>Plai Phraya District</p> <p>Unless it's necessary or being medical team, bank, product transit, crop transit, medical tool transit, newspaper transit, petroleum transit, post, import/export products, night-shift worker transit or from-to airport with necessary certificate</p> <p>Disease control officer needs to screen for disease prevention</p> <p>People in Krabi needs to wear mask when staying outside, keep distancing between others at least 2 meters and ban social gathering over 5 people such as wedding, ordination, religious activities, cultural events, and sports. Excepting for funeral with social distancing at least 2 meters with party prohibited</p>		
8 April 2020 (A9)	<p>Curfew from 22.00 – 4.00</p> <p>Additional lockdown areas</p> <p>Krabi province, all districts</p> <p>Ao Nang sub-district</p> <p>Moo 7 Baan PP island</p> <p>Moo 3 Bann Nai Nang</p> <p>Every sub-district in Klong Tom district</p> <p>Lanta Yai island</p> <p>Additional people who will be considered for entering Krabi: other urgent or necessary reason which will be considered case by case by district marshal as disease control officer</p> <p>Stop all transfer services within lockdown areas except it is necessary</p> <p>Convenient store, retail store and local shop in Saradan and Lanta Yai sub-district can operate from 5.00-12.00. Flea market can operate from 4.00 – 11.00 for fresh products, dry food, cooked foods (for taking away) and products that are essential for life</p>	10 April 2020 – 30 April 2020	<p>Fining up to 20,000 THB</p> <p>Imprisoned up to 1 year or fining up to 100,000 THB or both.</p> <p>Imprisoned up to 2 year or fining up to 40,000 THB or both.</p> <p><i>*Depend on each case</i></p>
10 April 2020 (SE3)	Exceptions for Night Curfew		
11 April 2020 (A10)	<p>Suspending all Songkran events in every level. Promoting Songkran activities in other ways which are</p> <p>Bathing the Buddha statue/image at home</p> <p>Respecting seniors who stay in the same house by keeping distance at least 1-2 meters. No hugging/kissing. Family members have to wear mask</p> <p>Showing love/respect via online communication</p> <p>Do not take elderly out from home. Keep washing hands, avoid touching face/mouth/nose/eyes. Use serving spoon, eat hot food</p> <p>Listening Dharma from online sources</p> <p>Additional closure for alcohol/liquor shop during 12-15 April 2020</p>	11 April 2020 - onward	<p>Fining up to 20,000 THB</p> <p>Imprisoned up to 1 year or fining up to 100,000 THB or both.</p> <p>Imprisoned up to 2 year or fining up to</p>

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>Businesses/shops must have prevention measurement provided by MOH</p> <p>Markets in risk areas in Lanta district: having one entrance-exit and giving space for at least 2 meters when buying foods/products, queuing/lining up, wearing mask all the time, screening point before entering, and sanitizing hands by soap or alcohol gel</p> <p>Convenient store/retail store: limit people at 10 in the store</p> <p>Islam Activities/traditions during Ramadan month: Follow Chief of Muslim in Thailand's instruction Refraining praying at mosque or other location on Friday. Praying at home Following Chief of Muslim in Thailand for measurement during Ramadan month</p>		<p>40,000 THB or both.</p> <p><i>*Depend on each case</i></p>
15 April 2020 (A11)	<p><u>Lifting restriction</u></p> <p>Reopening restaurant and beverage shop. Shops can be operated from 5.00-22.00</p> <p>Extension of alcohol selling ban from 12 April 2020 -15 April 2020 to 15 April 2020 – 30 April 2020</p>	15 April 2020 – 30 April 2020	<p>Fining up to 20,000 THB</p> <p>Imprisoned up to 1 year or fining up to 100,000 THB or both.</p> <p>Imprisoned up to 2 year or fining up to 40,000 THB or both.</p> <p><i>*Depend on each case</i></p>
16 April 20 (SE4)	Extension for closure of international borders	1 May 2020 – 31 May 2020	
21 April 2020 (A12)	Lockdown Saradan and Lanta Yai sub-districts: only necessary reasons are allowed	22 April 2020 – 30 April 2020	<p>Fining up to 20,000 THB</p> <p>Imprisoned up to 1 year or fining up to 100,000 THB or both.</p> <p>Imprisoned up to 2 year or fining up to 40,000 THB or both.</p> <p><i>*Depend on each case</i></p>
1 May 2020 (SE5)	<p><u>Additional Temporary Closure of places</u></p> <p>Closure of educational institutions (all types for providing courses, examination, training, or any activity that maybe crowded. Excepting for online course.</p> <p>Prohibiting the activities that maybe crowded, such as meeting, seminar, good distributions. If necessary, must keep a social distance at least 1-meter, short time, and follow public health instruction.</p>	3 May 2020 - onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	Banning all flights. Those who arrived Thailand must follow the government conditions such as state quarantine. Continuing closure places. Religious ceremony is under responsibility of the owner.		
1 May 2020 (SE6)	Lifting some restrictions, up to the governor decision	3 May 2020 - onward	
3 May 2020 (A13)	<p>Some prohibitions on; Using school/institution building for teaching, learning, examination, training, or other activities that contain a lot of people. Unless it is an online communication</p> <p>Holding events that gather many people together such as meeting, seminar, foods/products distribution, parties. Unless it is allowed by officer. Social distancing is needed at least 1 meter with outdoor location, short event and having prevention measurement</p> <p>Airport suspension Giving authorities to disease control officer for separation and quarantine of people traveling to Krabi</p> <p>Additional closures which are theater, pub, bar, entertainment spot, water theme park, amusement park, zoo, Skateboard and inline skate yard or any similarity, snooker club, blowing game, game center, internet café, public swimming pool, cockpit field, department store, fitness, beauty clinic, exhibition hall, museum, public library, childcare, elderly care, boxing stadium, gymnasium, tattoo/piercing shop, ballroom dance school, massage parlor and health business (all spa and massages)</p> <p>Lifting restrictions with condition: <u>Economic and livelihood activities</u> Foods/beverages selling in hotel airport, bus station, hospital, restaurant, café, convenient store, and vendor can reopen for taking away or dine-in with the prevention measurement (except for pub/bar). Alcohol can be sold but it cannot be drunk within the shop. Department store and community mall can open only for supermarket, pharmacy, mobile service, bank, government office and state enterprise office. Restaurants can sell only take away Retail store/small wholesale store, market, floating market, and flea market can be opened with entrance/exit control (temperature checking and social distancing) Salon/ barber can be serviced only for washing and cutting without any waiting people in the shop <u>Physical activities/exercise/health/recreation</u> Hospital, clinic, dental clinic, and other medical services Golf course with no competition and audience Outdoor sport stadium for tennis, horse riding, archery and shooting with no audience and competition Public park-space, exercise field and sport stadium can be opened only outdoor zone for walking, running, biking and other exercising with no audience and competition Vet, pet spa or other pet services</p>	3 May 2020 - onward	
15 May 2020 (SE7)	<p>Lifting Night Curfew to 11 pm to 4 am.</p> <p>Lifting use of educational institution building based on governor decision. Excepting for teaching, training, and examination.</p> <p>Lifting some business, like reopening department stores, barber, salon up to governor decision till 8 pm., reopening social day care, tv and film production (less than 50</p>	15 May 2020 - onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	persons), reopening conventional halls with limited number, beauty clinic, fitness and gym, swimming pool both private and public, museum, learning center, and public library. All depends on the governor decision.		
15 May 2020 (A14)	Lockdown areas: Krabi province Koh Lanta District Moo 7 (PP Island), Ao Nang sub-district, Mueang district, Krabi	15 May 2020 - onward	
17 May 2020 (A15)	Prevention measurement Curfew during 23.00 – 4.00 Lifting restriction of school building usage by using as social service center, donation, adaptation, and other social care according to governor decision Lifting restrictions with condition: <u>Economic and livelihood activities</u> Dine-in restaurants/beverage shop, food court, canteen and café can be operated (except for pub and bar) with no alcohol selling Department store and community mall can open for other sectors (products and services) including restaurant/beverage shop (no alcohol), barber shop and nail shop (except for theater, bowling, game machine, skateboard and inline skate yard or any similarity, karaoke, water theme park, amusement park, zoo, snooker club, fitness, tutoring center, health business (spa/massage), amulet center and convention hall) <i>**operated businesses can be opened until 20.00 with no competition activities or crowded events</i> Retail/wholesale store Social services like children and elderly Filming production with limitation up to 50 staffs and no audience Convention hall in hotel or exhibition center can be operated with the limitation of participant and participants should come from the same company/agency <u>Physical activities/exercise/health/recreation</u> Beauty clinic both located inside and outside mall excluding facial spa/massage/others Fitness located outside mall can be operated only for yoga and free weight (equipment/group exercising are prohibited) Sport course for few players (3 players for each team) with no audience and non-interaction sport such as badminton, table tennis, rock climbing, etc. Indoor/outdoor swimming pool Botanical garden, museum, learning center, historic site, public library, and art center Additional temporary closure Cattle field, fighting fish field and other similarities	17 May 2020 - onward	
29 May 2020 (SE8)	Extension of State Emergency to 30 of June	1 June 2020 - onward	
29-May 2020 (SE9)	Lifting Night Curfew to 11 pm to 3 am. Lifting the use of school and educational buildings for teaching, training, recruiting, and examination Lifting some business, like reopening department stores, barber, salon up to governor decision till 9 pm. Lifting the inter-provincial travel. Active on 1 June		
30 May 2020 (AA1)	Entrance and exit measurement Installing Mor Chana application on smart phone and inform travel itinerary. The information can be filled in document form	1 June 2020 - onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<p>(access via www.krabi.go.th/covid19) in case entering without smartphone</p> <p>When reach the checking point people has to;</p> <p>Be checked their body temperature</p> <p>Shows QR-code from application Mor Chana or QR-code pass and filled document (there will be green statue – allow to travel, yellow status – monitor for 14 days and orange/red status – not allowed and will be hospitalized)</p> <p>Traveler who do not have smartphone will receive QR-code pass for identifying themselves when entering/exit Krabi and Krabi attractions</p> <p>Scanning QR-code in Mor Chana or QR-code pass when entering or exit places in Krabi</p> <p>Travelers who received yellow status will be monitored. They need to inform hotel and disease control officer and go to hospital if there are any symptoms</p> <p>Travelers who have long term stay must accept COVID19 proactive test checking (date 5th and onward) with personal expense</p> <p>Foreigner traveler who do not have COVID19 free certificate and did not quarantine for 14 days have to accept COVID19 testing with personal expense</p> <p>Traveler transit to other provinces by passing Krabi has to pass the screening point with no stopping in Krabi</p>		
31 May 2020 (AA2)	<p><u>Revision on condition of traveler who receive yellow status</u></p> <p>In case of long-term stay, traveler needs to accept COVID19 test with no free of charge</p>	1 June 2020 – onward	
31 May 2020 (A16)	<p>Lifting use of school and educational institution buildings for providing courses, training, meeting, examination, and recruitment</p> <ul style="list-style-type: none"> - For school or university courses, informal education training with the consideration of number of students and attendants, and follows the public health instruction (self-prevention) - For meeting, examination, training, and recruitment can do up to 15 days <p>Lifting and Reopening some business and activities</p> <ul style="list-style-type: none"> - Reopening department stores, community mall till 9 pm. - Reopening exhibition center, conventional halls, or event places, for meeting or any activity within 20,000 sq.m. and open till 9 pm. Those activities must not include any competition, selling promotion, or any activity that gathers crowded. - Reopening amulet center but must not gather crowded - Reopening salon and barber, must serve only 2 hours/person - Reopening child development center and nursery, must follow public health instruction - Reopening beauty clinic, tattoo and piercing shop - Reopening Health business (spa and Thai massage) excepting for sauna, herbal sauna, and streaming, bathing, massage parlor, as well as facial massage - Reopening fitness and gym with limited numbers in a group player, prohibiting on sauna and streaming. - Reopening boxing stadium and boxing camp, only for practicing alone, prohibiting the competition and audiences - Reopening stadium, sport yard, only for exercising and practicing, such as football, basketball, volleyball, prohibiting competition and audiences, all people in sport yard must be less than 10 persons (not include the players) 	1 June 2020	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<ul style="list-style-type: none"> - Reopening skates, bowling, and inline skate only for exercise and practice - Reopening ballroom dancing - Reopening swimming pool and all water activities like jet ski, and banana boat, with limited number based on areas, and no competition. - Reopening theaters with limited number (not over 200 persons). Mainly, the local theater can play traditional musical and performance. Concert, music festival/event is prohibited. - Reopening zoo and circus with limited number <p>Lifting Restrictions: Reopening Krabi closure Krabi bus station Private tourist attraction Tourism business Hotel/resort/other similarities Rental/bike rental Transportation service businesses</p> <p>Lifting Restrictions: Travel across areas within Krabi and other province without asking for permission</p>		
14 June 2020 (A17)	<p><u>Lifting restriction: Reopening educational institutions (school, university, and tutoring)</u> Reopening educational institutions (national, private, and international) where have students less than 120 persons are able to operate courses and training along with public health instruction</p> <p><u>Lifting restriction: Economic and livelihood activities</u> <ul style="list-style-type: none"> - Meeting, training, seminar, exhibition, ceremony, performance, music events, concerts or any activity in hotel, theater, conventional and exhibition hall or any other places can operate. - Unbanning alcohol selling in restaurants, hotel, grocery shop, and other places permitted by laws. Pub, bar, karaoke, or any similar business are excepted. - Child development center, nursery, primary child development, special child development, ageing care, or any child and elderly foster places can operate as a daily service and must follow public health instruction - Reopening science center, science park, and cultural center - TV program and film production can operate with limit numbers-actors, participants, and production team must be less than 150 person and audiences must be less than 50 persons. - Supermarket, convenience store, and any similar business can operate as usual. </p> <p><u>Lifting restriction: Physical activities/exercise/health/recreation</u> <ul style="list-style-type: none"> - Streaming, herbal streaming, sauna and facial massage in spa or Thai massage places can be operated expecting for massage parlor. - Group exercise in public park and public spaces or any outdoor yard is able to operate - Water theme park, amusement park, playground can operate expecting for the temporary and high-risk playthings such as ball pool. - Sport yard, stadium, fitness, and gym can operate all sports, expecting for cockpit field, cattle field, fighting fish field or any similarity. </p>	15 June 2020 - onward	

Issued Date	Prevention Measures Against COVID-19	Active Date	Penalties
	<ul style="list-style-type: none"> - Reopening arcades in department stores and community mall or any permitted places along with the instruction - Inter-provincial transportation (bus, van, train, ferry, and plane) must follow social distancing by spacing with block seat and limit number of passengers 		

4. Nan

Issued Date	Measurement	Active Date	Penalty
16-Mar-20 (A1)	<p><u>Urgent Measurements</u></p> <p>People traveling back from risk countries has to report themselves to disease control officer in the area</p> <p>People traveling back from risk country and have temperature body over than 37.5 degree Celsius with one of these symptoms such as Sore throat, runny nose, coughing, etc. have to immediately go to nearby hospital</p> <p>People traveling back from risk country and do not have any symptoms have to self-quarantine for 14 days at home</p> <p>international travel is prohibited for government and state enterprise staffs particularly outbreak areas</p> <p>Social meetings and activities by government, state enterprise, private and community should not be hold unless it's necessary. If there are activities, there should be strictly prevention measurement</p> <p>Hand washing or hand sanitizing spot must be provided in entrance and exit</p> <p>People should follow the methods which are Eat Hot Food, Use Serving Spoon, & Always Wash Your Hands</p>		
19-Mar-20 (A2)	<p><u>Prevention COVID19 from outside</u></p> <p>People traveling back from outbreak areas need to self-quarantine at least 14 days</p> <p>Foreigners who reside in Thailand traveling from risk areas have to show medical certificate and health insurance (at least 100,000 USD)</p> <p>international travel is prohibited for government and state enterprise staffs unless it's necessary as well as warning people that they should not travel to risk countries</p> <p><u>COVID19 Prevention within Nan</u></p> <p>Songkran holidays have been postponed</p> <p>Closing cockpit field, fighting fish field and boxing stadium in Nan</p> <p>Temporary closing risk areas where are crowed such as pub, bar, karaoke, indoor stadium, etc. for 14 days (from 14 March 2020 to 1 April 2563)</p> <p>Immigrants are prohibited to travel particularly during Songkran days</p> <p>Refraining on lecture in university, international school, tutor, and other institutions from 19 March 2020 for 2 weeks</p> <p>Refraining all social gathering such as concert, exhibition, religious activities, art event or sport. Unless it's necessary and it needs permission from Nan Communicable Disease Control Committee</p> <p>Refraining activities that contain the across province movement such as military, prison or school activities</p> <p>Promoting online activities such as teleconference for government office and online shopping for people</p>	19 March 2020 - onward	

Issued Date	Measurement	Active Date	Penalty
	Reduction of risk in crowded places by providing hand sanitizing spot, temperature checking, surface cleaning and limitation of visitors Shops and restaurants should have COVID19 prevention by cleaning floor/ surface/toilet, checking temperature, having measurement for employees to wear mask, hand sanitizer and waste management Government office and state enterprise should support people to wear mask when entering crowded location. Speeding up the production of cloth masks Speeding up disease control unit in every district and village Disease control officer, Nan Communicable Disease Control Committee or assigned staffs have to strictly control all orders		
21-Mar-20 (O1)	Immigrants/foreigners entering temporary prohibition Thai-Laos border has been temporary closed. All immigrants/foreigners cannot enter the country except Laos truck driver (goods transit) that must pass COVID19 screening point at the border	22 March 2020 - onward	
22-Mar-20 (O2)	Immigrants/foreigners entering temporary prohibition Suspending all travel/movement across border except product export and import. Truck drivers are limited at 2 person and they have to pass COVID19 screening point for both Thais and Laos	23 March 2020 - onward	
23-Mar-20 (A3)	Temporary place closure 1) Some areas in department store 2) Market 3) Walking Street 4) Exhibition Hall 5) Dine-in Restaurant 6) Seating areas in convenient store 7) Amulet Center 8) Golf Course 9) Shooting Course 10) Gym 11) Snooker Club 12) Boxing Stadium 13) Indoor Stadium 14) Ferry 15) Spa/Massage 16) Bathing/Steaming 17) Barber shop/Nail 18) Skin piercing shop 19) Beauty Clinic 20) Swimming Pool 21) Skateboard/Rollerblade field 22) Fishing pond 23) Local cattle and buffalo market 24) Tourism Tram	24 Mar 2020 - 1 April 2020	Imprisoned up to 1 year/up to 100,000 bath fine/ All both
24-Mar-20 (MAA)	Announcement from Monks Association 1) Refraining religious activities for Songkran Festival 2) Refraining or postponing all meditation retreat activities 3) Postponing Summer Ordination 2020 4) Postponing international travel 5) Postponing senior Buddhist monk establishment 6) Postponing all Buddhist activities consisting a lot of people		
26-Mar-20 (SE1)	State Emergency (Ed. 1) , comprising of 6 main restrictions; 1. Prohibition to access in risks areas 2. Closure of high-risk and crowded places, especially boxing stadium, playground, sport stadium. Pub, entertainment places,	26 Mar 2020 - onward	

Issued Date	Measurement	Active Date	Penalty
	<p>massage/spa, massage parlor, theater, and playhouses are also included. Other necessary places are depending on governor's decision, such as national park.</p> <p>3. Closure of international Border (prohibiting by land, fly, and sea)</p> <p>4. Prohibiting stockpile of food, drink, medical goods, and other daily products.</p> <p>5. Prohibiting social or public gathering</p> <p>6. Prohibiting fake news presentation in any media</p> <p>7. Preparation for COVID-19 prevention measure</p> <ul style="list-style-type: none"> - Governor has a power for determining orders for this emergency - Government offices determine and PR the government measures and supports to publics. - Preparing medical equipment and staffs in all hospitals. Adjust the hotels, school, university, conventional halls, temples, or private building where is vacant or unused to serve for this emergency - Home quarantines for personal health check-up, especially for those who travel. <p>8. For high risk group, like elderly, people with medical conditions, children (aged less than 5 years) must stay home.</p> <p>9. International travel measures, stop providing free visa and visa on arrival, excepting for having work permit.</p> <p>10. Inter-provincial travel measure, providing checkpoint, on road, bus terminal, and all transport routes, for provincial borders.</p> <p>11. General instruction on COVID-19 Prevention</p> <ul style="list-style-type: none"> - Surface cleaning in all places before and after doing any activity - Staffs, participants, attendees, and employees/employers must wear masks. - Washing hand with soap, alcohol gel, and hand sanitizer gel. - Promoting social distancing at least 1 meter - Limit number of people in each activity and reduce the activity time as much as possible and keep a distance between people <p>12. Open some businesses for daily life, including</p> <ul style="list-style-type: none"> - Medical clinic, pharmacy, and hospital - Restaurant (excepting for bar, pub, or any entertainment place) - Hotel in form of apartment and any residential. - Grocery shop and supermarket - Factory, financial institution, bank, ATM - Market and Street market for fresh, dried, instant, and animal food. - Petrol and gas station - Online and delivery services <p>13. Recommendation for inter-provincial travel, suspending and postponing the inter-provincial travel. If necessary, must pass checkpoint and follow the government instruction, like 14 days home quarantine and registration for further tracking.</p> <p>14. Recommendation for activities or events. Any event or activity like wedding, funeral, family events should be postponed or suspended. If necessary, must follow prevention instruction.</p>		
25-Mar-20 (O3)	<u>Establishment of checkpoint with the collaboration between provincial administrative officer, polices and soldiers in the area</u>	26 March 2020 - onward	
27-Mar-20 (O4)	<u>Establishment of Nan COVID19 Administration Center</u> and COVID19 monitoring team	27 March 2020 - onward	

Issued Date	Measurement	Active Date	Penalty
27-Mar-20 (A4)	<u>Urgent Measurements</u> 1) Extension of temporary closure to 30 April 2020 2) Online service of department store/wholesale store needs to follow disease prevention measurement 3) Suspending service in Nan's DLT such as training for new driving license and driving license extension 4) Reopened locations has to follow instruction of disease prevention	27 March 2020 - 30 April 2020	Imprisoned up to 1 year/up to 100,000 bath fine/ All both
29-Mar-20 (O5)	<u>Establishment of checkpoint</u> There will be 4 checkpoints managed by collaboration between administrative officer, police, soldier and relevant government office	29 March 2020 - onward	
29-Mar-20 (O6)	<u>Highway temporary closure</u> Medical service, medical staffs, goods transit and government vehicle are allowed with standard disease prevention screening	30 March 2020 - onward	
29-Mar-20 (O7)	<u>Establishment of Nan's Prevention and Control of COVID-19 outbreak Team</u>	29 March 2020 - onward	
31-Mar-20 (O8)	<u>Establishment of checkpoint by community</u>	1 April 2020 - onward	
31-Mar-20 (O9)	<u>Cancel checkpoint at Nan bus station</u> and Nan DLT's officer has to monitor for COVID19 risk and screening	1 April 2020 - onward	
2-April-20 (SE2)	<u>Imposed Night Curfew from 10 pm to 4 am.</u>		
4-Apr-20 (O10)	<u>Temporary suspending highway connectivity (3 routes) Except</u> Medical service, financial service, goods transit (crops, medicine, medical tools, newspaper, post, import and export products) Nan's residents who will enter nan during 5 - 30 April 2020 has to pass the standard checking and quarantine themselves for 14 days Other provinces' residents have to show the necessity of entering, pass the standard screening, register via provided forms, quarantine themselves for 14 days Non-Thai nationality people must have certificate from the Ministry of Foreign Affairs and pass standard screening others who get permission from Nan's Communicable Diseases Committee Laos border is closed. So, Nan will not allow people who will travel to Laos via border located in Nan from 23 April 2020 to onward	5 April 2020 - 30 April 2020	
4-Apr-20 (A5)	<u>Urgent Measurements</u> Hotel closure except hotel used as field hospital or assigned quarantine location. Existing hotel guests can remain until the check-out date. Hotel cannot welcome any new guesses	5 April 2020 - 30 April 2020	Imprisoned up to 1 year/up to 100,000 bath fine/ All both
8-Apr-20 (O11)	<u>Ban all alcohol selling</u> including restaurants and stores	8 April 2020 - 19 April 2020	Imprisoned up to 1 year/up to 100,000 bath fine/ All both
9-Apr-20 (L1)	<u>Issuing certificate</u> For all goods transit can request certificate at 1) Head of government 2) Nan Commercial Office 3) Nan Agriculture Office 4) District marshal		

Issued Date	Measurement	Active Date	Penalty
10-Apr-20 (SE3)	Exceptions for Night Curfew		
11-Apr-20 (O12)	Additional Nan entry suspending People who enters due to medical service, financial service, goods transit (crops, medicine, medical tools, newspaper, post, import and export products) has to present their identity card and need to accept for temperature checking	11 April 2020- 30 April 2020	
11-Apr-20 (L2)	Reduction of COVID19 outbreak Government officer, state enterprise, district and LAOs follow all orders Nan's CDC, Nan's PR, every district and LAOs create understanding about COVID19 prevention via every communication channel All staff in duty has to strictly follow the orders and patrol all risk areas		Imprisoned up to 2 year/up to 50,000 bath fine/ All both
13-Apr-20 (A6)	24 hrs. convenience store has to close from 22.00 to 4.00		
13-Apr-20 (A7)	Extension of risk area closure Banned alcohol selling	20 April 2020 -30 April 2020	Imprisoned up to 1 year/up to 100,000 bath fine/ All both
13-Apr-20 (A8)	Wearing mask when staying outside	14 April 2020 - 30 April 2020	
16-Apr-20 (SE4)	Extension for closure of international borders	1 May 2020 – 31 May 2020	
23-Apr-20 (A9)	Electronic Store Reopen with Regulations 1) Surface cleaning and daily waste disposal 2) Wearing mask 3)Temperature checking and hand sanitizing before entering the stores 4) Controlling the number of customers	24 April 2020 - onward	
30-Apr-20 (L3)	Measurement Visitor from risk areas has to report themselves to officer and self-quarantine Prohibiting international travels for the staffs of government and state enterprises Staffs of government and state enterprises has to refrain or postponed across provinces travel. Permission is needed from officer when the across province travel is necessary. When returning the staffs need to inform Provincial Public Health Office for health checking and self-quarantine for 14 days Prohibiting all activities, meetings or events that contain a lot of people. Nan's Communicable Diseases Committee will consider for permission in each case, if necessary All service sector including government, private, state enterprise, community, etc. has to provide prevention measure against COVID19 Wearing mask every time staying outside All 24 hrs. store need to operate from 4.00 am to 10.00 pm Temporary closure 1) Entertainment spots or services 2) Gym and fitness 3) Boxing stadium 4) Cockpit field	1 May 2020 - onward	Imprisoned up to 1 year/up to 100,000 bath fine/ All both

Issued Date	Measurement	Active Date	Penalty
	5) Department store, malls, large retail stores, shop in the buildings or surrounding such an area. (excepting for supermarket, pharmacy store, and grocery shops, and convenience stores, for the restaurants can open only for delivery) 6) Market (excepting for selling fresh foods, dried foods, and instant foods to take away. This also includes animal feeds, pharmacy stores, and grocery shop). 7) Walking street and flea market 8) Exhibition hall, conventional center, and exhibition center 9) Restaurants and beverage shops (excepting for delivery and restaurants in hotel serving only for hotel guesses) 10) Seat areas in the convenience stores, restaurants, beverage shop, and supermarket 11) Amulet center 12) Golf course 13) Shooting Course 14) Sport stadium that has interaction between players 15) Snooker club 16) Boxing stadium 17) Indoor stadium 18) Ferry 19) Health business (all spa and massages) 20) Herbal and aroma spa, streaming, and bathing 21) Salon and barbershop 22) Tattoo and piercing shop 23) Beauty clinic 24) Swimming pool 25) Skateboard and inline skate yard or any similarity 26) Fishing ponds or any similarity 27) Local cattle and buffalo market 28) Tourism tram 29) Hotel except the hotel used as hospital field due to COVID19 situation 30) Shop, store, and restaurant that sell liquor/alcohol		
1-May-20 (SE5)	<u>Additional Temporary Closure of places</u> Closure of educational institutions (all types for providing courses, examination, training, or any activity that maybe crowded. Excepting for online course. Prohibiting the activities that maybe crowded, such as meeting, seminar, good distributions. If necessary, must keep a social distance at least 1-meter, short time, and follow public health instruction. Banning all flights. Those who arrived Thailand must follow the government conditions such as state quarantine. Continuing closure places. Religious ceremony is under responsibility of the owner.	3 May 2020 - onward	
1-May-20 (SE6)	<u>Lifting some restrictions, up to the governor decision</u>	3 May 2020 - onward	
2-May-20 (O13)	<u>Additional temporary closure area</u> 1) Thether 2) Water park 3) Amusement park 4) Zoo 5) Internet cafe 6) Bowling 7) Museum		

Issued Date	Measurement	Active Date	Penalty
	8) Public library 9) Daycare for child and elderly		
2-May-20 (L4)	Regulation for visitors from Phuket There will be checkpoint for enter and exit Nan. If the visitors are from Phuket, the visitors need to inform to disease control officer and Provincial Public Health Office. Assigning village headman or community leader to observe people who just arrive Nan. If they are from Phuket, they need to immediately report themselves to disease control officer and Provincial Public Health Office Provincial Public Health Office needs to assign disease control officer to get report from visitor traveling from Phuket and introduce them to quarantine for 14 days in the provided location (local quarantine) Nan Provincial Office has to prepare the locations and facilities for local quarantine		
11-May-20 (L5)	Additional regulation for visitors from Phuket If the visitor has been quarantined in the provided location for 5-7 days and intend to do self-quarantine at home, they need to inform to disease control officer for preliminary test for COVID19 from Nan hospital. If the test show that; Undetected COVID19 - disease control officer will provide the certificated for COVID19 test and they have to continuously quarantine at home until day 14 Detected COVID19 - the visitor has to hospitalize at Nan hospital, or the treatment or measurement will be based on Nan Communicable Disease Control Committee's decision		
11-May-20 (L6)	Regulation for visitor who travels from low risk areas that has not found new COVID19 case for 28 days. The new regulations are 1) Standard screening/checkpoint 2) Report themselves to disease control officer within 12 hrs. for recording their health history. If they are considered as high-risk, they must quarantine at provided location for 14 days. If they are considered as low risk, they have to self-monitoring and report to officer for 14 days Visitors from areas that are not considered as low-risk areas has to do standard screening and self-quarantine at home for 14 days <i>If the person is in quarantine period and have to travel to other areas, the request can be summited and considered by disease control officer</i>		
11-May-20 (A10)	List of provinces where has not found new COVID case more than 28 days Central- Kanchanaburi, Chainat, Nakhon Nayok, Prachuap Khiri Khan, Phetchaburi, Ratchaburi, Lop Buri, Samut Songkhram, Samut Sakhon, Saraburi, Sing Buri and Ang Thong Eastern - Chanthaburi, Chachoengsao, Trat, Rayong and Sa Kaeo Northeastern - Kalasin, Chaiyaphum, Bueng Kan, Buriram, Maha Sarakham, Mukdahan, Yasothorn, Roi Et, Si Saket, Sakon Nakhon, Nong Khai, Nong Bua Lamphu, Amnat Charoen, Udon Thani and Ubon Ratchathani Southern - Trang, Phatthalung and Surat Thani Northern - Kamphaeng Phet, Chiang Rai, Chiang Mai, Tak, Nakhon Sawan, Phayao, Phichit, Phitsanulok, Phetchabun, Phrae, Mae Hong Son, Lampang, Lamphun, Sukhothai, Uttaradit and Uthai Thani		

Issued Date	Measurement	Active Date	Penalty
15-May-20 (SE7)	Lifting Night Curfew to 11 pm to 4 am.	15 May 2020 - onward	
	Lifting use of educational institution building based on governor decision. Excepting for teaching, training, and examination.		
	Lifting some business, like reopening department stores, barber, salon up to governor decision till 8 pm., reopening social day care, tv and film production (less than 50 persons), reopening conventional halls with limited number, beauty clinic, fitness and gym, swimming pool both private and public, museum, learning center, and public library. All depends on the governor decision.		
16-May-20 (O14)	<u>Lifting restrictions with condition:</u> Economic and livelihood activities Dine-in restaurants/beverage shop, food court, canteen and café can be operated (except for pub and bar) with no alcohol drinking Department store and community mall can open for other sectors (products and services) including restaurant/beverage shop (no alcohol), barber shop and nail shop (except for theater, bowling, game machine, skateboard and inline skate yard or any similarity, karaoke, water theme park, amusement park, zoo, snooker club, fitness, tutoring center, health business (spa/massage), amulet center and convention hall) <i>**operated businesses can be opened until 20.00 with no competition activities or crowded events</i> Retail/wholesale store Social services like children and elderly Filming production with limitation up to 50 staffs and no audience Convention hall in hotel or exhibition center can be operated with the limitation of participant and participants should come from the same company/agency <u>Physical activities/exercise/health/recreation</u> Beauty clinic both located inside and outside mall excluding facial spa/massage/others Fitness located outside mall can be operated only for yoga and free weight (equipment/group exercising are prohibited) Sport course for few players (3 players for each team) with no audience and non-interaction sport such as badminton, table tennis, rock climbing, etc. Indoor/outdoor swimming pool Botanical garden, museum, learning center, historic site, public library, and art center	17 May 2020 - onward	
16-May-20 (O15)	Additional Temporary Closure 1) Cattle field 2) Fighting fish field or any similarity		Imprisoned up to 1 year/up to 100,000 bath fine/ All both
16-May-20 (A11)	<u>List of provinces where has not found new COVID case more than 28 days (2nd edition)</u> Central- Kanchanaburi, Chainat, Nakhon Nayok, Prachuap Khiri Khan, Phetchaburi, Ratchaburi, Lop Buri, Samut Songkhram, Samut Sakhon, Saraburi, Sing Buri and Ang Thong Eastern - Chanthaburi, Chachoengsao, Trat, Rayong and Sa Kaeo Northeastern - Kalasin, Chaiyaphum, <u>Nakhon Phanom</u> , Bueng Kan, Buriram, Maha Sarakham, Mukdahan, Yasothorn, Roi Et, Si Saket, Sakon Nakhon, Nong Khai, Nong Bua Lamphu, Amnat Charoen, Udon Thani and Ubon Ratchathani Southern - Trang, Phatthalung and Surat Thani		

Issued Date	Measurement	Active Date	Penalty
	Northern - Kamphaeng Phet, Chiang Rai, Chiang Mai (<u>Except San Kham Pang District</u>), Tak, Nakhon Sawan, Phayao, Phichit, Phitsanulok, Phetchabun, Phrae, Mae Hong Son, Lampang, Lamphun, Sukhothai, Uttaradit and Uthai Thani		
18-May-20 (A12)	Reopening: Hotel Hotel should follow these regulations which are Passing test of DOH (Thai stop Covid) and follow other COVID19 prevention measurement Registering via Thai Chana		
19-May-20 (L7)	<p>Regulations for Nan entrance/exit</p> <p>For Medical service, financial service, goods transit (crops, medicine, medical tools, newspaper, post, import and export products) –and have official certificate: Show ID card, certificate and need to accept for temporary checking (both inbound/outbound)</p> <p>For Medical service, financial service, goods transit (crops, medicine, medical tools, newspaper, post, import and export products) –and do not have official certificate: Show ID card, certificate and need to accept for temporary checking (both inbound/outbound) as well as receive “Pass” and fill the information for giving it to village head for recording into “Thai QM”</p> <p>Thai who are not Nan’s resident must show ID card, need to accept for temporary checking (both inbound/outbound) and receive “Pass” and fill the information for giving it to village head for recording into “Thai QM”</p> <p><u>Visitor who travels from low risk areas that has not found new COVID19 case for 28 days</u></p> <p>Show ID card</p> <p>Temporary checking accepts (both inbound/outbound)</p> <p>Receive “Pass” and fill the information for giving it to village head within 24 hours for recording into “Thai QM”</p> <p><i>Note: Village head has power to screen and consider for visitors for the quarantine</i></p> <p><u>Visitor who travels from other areas</u></p> <p>Show ID card</p> <p>Temporary checking accepts (both inbound/outbound)</p> <p>Register for Nan visit, receive “Pass” and fill the information for reporting themselves to Public Health Office for investigation</p> <p>Self-quarantine for 14 days</p> <p><u>Visitor from Phuket</u></p> <p>Show ID card</p> <p>Temporary checking accepts (both inbound/outbound)</p> <p>Register for Nan visit, receive “Pass” and fill the information for reporting themselves to disease control officer at Nan Volunteer Defense Corps (No.1)</p> <p>Local quarantine for 14 days: After local quarantine for 5-7 days and want to do self-quarantine can ask for COVID19 test from Nan hospital. If COVID19 is undetected, they can go back home and do self-quarantine for 14 days. If COVID19 is detected, they need to be hospitalized</p>		
29-May-20 (SE8)	<u>Extension of State Emergency to 30 of June</u>	1 June 2020 - onward	
29-May-20 (SE9)	<p><u>Lifting Night Curfew to 11 pm to 3 am.</u></p> <p><u>Lifting the use of school and educational buildings for teaching, training, recruiting, and examination</u></p> <p><u>Lifting some business, like reopening department stores, barber, salon up to governor decision till 9 pm.</u></p>		

Issued Date	Measurement	Active Date	Penalty
	Lifting the inter-provincial travel.		
	Active on 1 June		
31-May-20 (O16)	<p><u>Lifting restriction: Temporary Closure Order</u></p> <p><u>Economic and livelihood activities</u></p> <ol style="list-style-type: none"> 1) Department Store/ community mall (close at 21.00) 2) Exhibition hall, conventional center, and exhibition center. The size is not exceeded 20,000 sq.m. (close at 21.00) 3) Amulet center 4) Salon and barbershop 5) Children development center and pre-school center (allow only for staff to prepare the location) <p><u>Physical Activities/exercise /Health/ Recreation</u></p> <ol style="list-style-type: none"> 1) Beauty Clinic, Tattoo and piercing shop 2) Health business (all spa and massages) (except for body steaming, herbal steaming, facial massage and massage parlor) 3) Fitness can be opened with user limitation 4) Boxing Stadium (individual practicing, prohibiting competition and audience) 5) Stadium (allow only for exercising or practicing of football, basketball and volleyball) 6) Skateboard and inline skate yard or any similarity (allow for exercising and practicing) 7) Ballroom dancing center 8) Swimming pool and all water activities such as jet-ski and banana boat with limited number based on the area and no competition 9) Theaters with limited number (not over 200 persons). Mainly, the local theater can play traditional musical and performance. Concert, music festival/event is prohibited 10) Zoo and circus with limited number <p><u>Lifting restriction: Reopening educational institutions (school, university, and tutoring)</u></p> <ol style="list-style-type: none"> 1) School building can be used for teaching and training for specialty private institution (art and sport) by considering about the number of students, flexibility lesson, location management and disease prevention measurement 2) School building uses for meeting, examination, short training (less than 15 days) or any similarities 	1 June 2020 - onward	
15-Jun-20 (O17)	<p><u>Lifting restriction: Temporary Closure Order</u></p> <p><u>Economic and livelihood activities</u></p> <ol style="list-style-type: none"> 1) Meeting, training, exhibition, show, party, concert, and other similar activities 2) Alcohol consuming in restaurant, hotel, and other locations except in pub, bar and karaoke 3) Daycare, children development center, elderly care can operate as daily service 4) Science center or museum 5) Filming production with limit number of staffs and audiences (not over 50 person) <p><u>Physical Activities/exercise /Health/ Recreation</u></p> <ol style="list-style-type: none"> 1) Health business (all spa and massages, body steaming, herbal steaming, facial massage) except massage parlor 2) Outdoor group exercises 	15 June 2020 - onward	

Issued Date	Measurement	Active Date	Penalty
	3) Water theme park and amusement park except temporary installation rides such as Inflatable house 4) Stadium and sport activities except cattle field, cockpit field, fighting fish field or any similarity. Competition without audiences is allowed 5) Arcades/game center in mall Educational institutions (national, private, and international) where have students less than 120 persons can operate courses and training along with public health instruction Across province public transportation		

5. Chonburi

Issued date	COVID Measurement	Active date	Penalty
18 March 2020 (O1)	1. Temporary closure of entertainment spots or any similar businesses under the law, service places in Chonburi province since 18-31 March 2020	18 March 2020	
	2. Temporary closure the establishment for health; massage, spa and beauty salon under the law of health establishment in Chonburi province since 18-31 March 2020		
	3. Temporary closure the cinemas, theaters according to building control law and ministerial regulations governing building permits since 18-31 March 2020		
	4. Close the cockpits / boxing camps that allows the use of gambling venues until the situation is resolved		
	5. Close the fitness centers in Chonburi province until the situation is resolved		
	6. Prohibiting activities that include a large number of people at risk of the spread of the Coronavirus disease (COVID-19) not over than 100 people or if there is a need to arrange activities, must sit at least 1 meter apart		
	7. Prohibiting all activities that are moving people across provinces of the department with a large number of people or if there is a need to arrange activities, must have disease prevention measure such as screening point. Also, included migrant movement.		
	8. For the workplaces in both government, state enterprises and private sectors to reduce congestion by arranging working hours, eating time and seating at least 1 meter away		
	9. Encourage use of the internet for meeting, encourage e-commerce and online shopping		
	10. Reduce the risk of Coronavirus disease in places where people use a lot of services such as department store, market, groceries, restaurants, government office and state enterprise offices such as screening point before entry the building, using hand gel, surface and toilet cleaning include knob, handrail and limit the number of people using the service at a time		
	11. Reduce the risk of Coronavirus disease in public transportation such as provide hand gel to the passengers, toilet cleaning, staffs and passengers wearing mask and passengers can sit or stand at least 1 meter apart.		
23 March 2020	- Temporary closure since 23 March 2020 until the situation is resolved the following;	23 March 2020	Imprisonment not more than 1

Issued date	COVID Measurement	Active date	Penalty
(O2)	<ol style="list-style-type: none"> 1. water park, amusement park that providing services both inside and outside the building 2. game shop, internet shop or any similar businesses 3. the amulet center or amulet market 4. the snooker club, billiard and bowling 5. Banned selling or consuming food, beverages and alcohol of any kind at the Chonmarkwithee bridge area 6. Prohibiting using the beach for party or dining since 8 pm-6 am of the next day 7. Prohibiting all activities in Golf field especially activities in club house and competition games <ul style="list-style-type: none"> - Provide screening points before entering the market and flea market - For the operators that provide beds, umbrellas on the beach, place the beds and umbrellas at least 1-2 meters apart - Associations, foundations related to cemeteries or cremation are required to check the temperature before entering the cemeteries and cleaning the premises that need to be used together such as canteen, toilet, shrine or etc. 		year or a fine not exceeding 100,000 baht or both
2020.03.25 (SE1)	<p>State Emergency (Ed. 1), comprising of 6 main restrictions;</p> <ol style="list-style-type: none"> 1. Prohibition to access in risks areas 2. Closure of high-risk and crowded places, especially boxing stadium, playground, sport stadium. Pub, entertainment places, massage/spa, massage parlor, theater, and playhouses are also included. Other necessary places are depending on governor's decision, such as national park. 3. Closure of international Border (prohibiting by land, fly, and sea) 4. Prohibiting stockpile of food, drink, medical goods, and other daily products. 5. Prohibiting social or public gathering 6. Prohibiting fake news presentation in any media 7. Preparation for COVID-19 prevention measure <ul style="list-style-type: none"> - Governor has a power for determining orders for this emergency - Government offices determine and PR the government measures and supports to publics. - Preparing medical equipment and staffs in all hospitals. <p>Adjust the hotels, school, university, conventional halls, temples or private building where is vacant or unused to serve for this emergency</p> <ul style="list-style-type: none"> - Home quarantines for personal health check-up, especially for those who travel. <ol style="list-style-type: none"> 8. For high risk group, like elderly, people with medical conditions, children (aged less than 5 years) must stay home. 9. International travel measures, stop providing free visa and visa on arrival, excepting for having work permit. 10. Inter-provincial travel measure, providing checkpoint, on road, bus terminal, and all transport routes, for provincial borders. 11. General instruction on COVID-19 Prevention <ul style="list-style-type: none"> - Surface cleaning in all places before and after doing any activity - Staffs, participants, attendees, and employees/employers must wear masks. - Washing hand with soap, alcohol gel, and hand sanitizer gel. - Promoting social distancing at least 1 meter 	26 March 2020 onward	

Issued date	COVID Measurement	Active date	Penalty
	<ul style="list-style-type: none"> - Limit number of people in each activity and reduce the activity time as much as possible and keep a distance between people 12. Open some businesses for daily life, including <ul style="list-style-type: none"> - Medical clinic, pharmacy, and hospital - Restaurant (excepting for bar, pub, or any entertainment place) - Hotel in form of apartment and any residential. - Grocery shop and supermarket - Factory, financial institution, bank, ATM - Market and Street market for fresh, dried, instant, and animal food. - Petrol and gas station - Online and delivery services 13. Recommendation for inter-provincial travel, suspending and postponing the inter-provincial travel. If necessary, must pass checkpoint and follow the government instruction, like 14 days home quarantine and registration for further tracking. 14. Recommendation for activities or events. Any event or activity like wedding, funeral, family events should be postponed or suspended. If necessary, must follow prevention instruction. 		
25 March 2020 (O3)	<ul style="list-style-type: none"> - Temporary closure since 25 March 2020 until the situation is resolved the following; <ol style="list-style-type: none"> 1. Department store excepting supermarket, pharmacy, restaurant (only order and take home) 2. Public park, exercise area, playground or any similar places 3. Stop providing certain types of services for government agencies, state enterprises, or other government agencies 4. Banned travel to / back from Sri Chang island 	25 March 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
26 March 2020 (O4)	<ul style="list-style-type: none"> - Temporary closure since 26 March 2020 until the situation is resolved the following; <ol style="list-style-type: none"> 1. Provincial Consular Affair Office (Pattaya city) 2. Edit the text in No.1 according to the third announcement to "Close the department store excepting Bank, supermarket, pharmacy and restaurant (only order and take home)" - Do not chief of the government sector leave from the area of Chonburi province. If necessary, request permission from the Governor of Chonburi Province 	26 March 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
27 March 2020 (A1)	<ol style="list-style-type: none"> 1. Requesting cooperation not to leave the Chonburi province; <ol style="list-style-type: none"> 1.1 If you do not have the infection in the body, it may be infected during travel. 1.2 If you have a slight infection in the body, you may get more infection during your travel and get worse. 1.3 If you have the virus in your body, you will be the carrier and carry the virus to others while traveling. 2. Cleaning accommodation, contact surfaces, bathrooms and health care to prevent infection from outside people. 3. Ask for cooperation for people traveling to boxing stadiums, entertainment venues, or places where epidemics are reported and those close to them observe the symptoms in the shelter. If symptoms occur, please notify public health officials immediately. 4. Avoid the places that caused crowded and keep distance 1-2 meter apart. 	27 March 2020	
27 March 2020	<ol style="list-style-type: none"> 1. The convenient store must close since 10.00 pm - 05.00 am of the next day 	27 March 2020	Imprisonment not more than 1

Issued date	COVID Measurement	Active date	Penalty
(O5)	<p>2. Temporary closure golf field and golf practice field or any similar businesses until the situation is resolved</p> <p>3. Edit the text in No.1 according to the fourth announcement to "Close the department store excepting Securities business, Financing business, Bank, ATM machine, mobile service center, supermarket, pharmacy and restaurant (only order and take home)"</p> <p>4. Beware the party or in the canteen who have the opportunity to get in close contact with people who are at risk or infected. Focus on social distancing, screening point before entering the building,</p>		year or a fine not exceeding 100,000 baht or both
27 March 2020 (O6)	<p>- Governor and committee submit to install the checkpoint to control of the spread of Coronavirus disease (COVID-19) the following;</p> <p>1. Main checkpoint 1.1 Sukhumvit road (Outbound Chonburi province) 1.2 Highway Road no.331 (Outbound Chonburi province)</p> <p>2. Sub checkpoint 2.1 Huay Prap temple 2.2 Bureau of Highways Construction no.36 2.3 Nong Yai Highway Police Service Unit 2.4 Bang Hak temple 2.5 Kasempol intersection</p> <p>3. Every checkpoints must operate 24 hours a day, divided into 3 turns as follows 3.1 Turn 1: Start 08.00 - 16.00 3.2 Turn 2: Start 16.00 - 24.00 3.3 Turn 3: Start 24.00 - 08.00 * It should have 5 police staffs, 5 administrative officers and member of the national guard volunteers, 2 provincial public health officers and 1 provincial transport officer per turn per checkpoint</p> <p>4. Sheriff can assign LAO administrator, village leader, headman, headman assistant, security guard, civil defense volunteer, Village Health Volunteer participated in the duties at the checkpoint.</p> <p>5. Government agencies, LAOs and state enterprises have duties to support the equipment, personnel, budget and other operating according to the sheriff's assignment as well as the sheriff has a duty as a supervisor, directing, directing and resolving problems and obstacles in the work of the epidemic examination</p>	27 March 2020	
30 March 2020 (O7)	<p>Temporary closure since now until the situation is resolved the following;</p> <p>1. Entertainment spots or any similar businesses</p> <p>2. establishment for health; massage, spa and beauty salon including the beauty in the private hospital and weight-controlled center</p> <p>3. the cinemas, theaters</p> <p>4. cockpit / boxing camp</p> <p>5. fitness center</p> <p>6. Prohibiting all activities that are moving people across provinces with a large number</p> <p>7. Banned selling or consuming food, beverages and alcohol of any kind at the Chonmarkwithee bridge area</p> <p>8. Prohibiting using the beach for party or dining since 8 pm-6 am of the next day</p>	30 March 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both

Issued date	COVID Measurement	Active date	Penalty
	9. Stop providing certain types of services for government agencies, state enterprises, or other government agencies 10. Banned travel to / back from Sri Chang island 11. Prohibiting to use the public area or hotel or resort or homestay or any similar places for party - For the workplaces in both government, state enterprises and private sectors to reduce congestion by arranging working hours, eating time and seating at least 1 meter away - Encourage use of the internet for meeting, encourage e-commerce and online shopping - Reduce the risk of Coronavirus disease in places where people use a lot of services such as department store, market, groceries, restaurants, government office and state enterprise offices such as screening point before entry the building, using hand gel, surface and toilet cleaning include knob, handrail and limit the number of people using the service at a time - Reduce the risk of Coronavirus disease in public transportation such as provide hand gel to the passengers, toilet cleaning, staffs and passengers wearing mask and passengers can sit or stand at least 1 meter apart. - Wearing the mask when stay outside - Provide screening points before entering the market and street market - Associations, foundations related to cemeteries or cremation are required to check the temperature before entering the cemeteries and cleaning the premises that need to be used together such as canteen, toilet, shrine or etc.		
31 March 2020 (O8)	- Temporary closure the transportation by passenger motorboat(Route: Pattaya city, Chonburi province - Hua Hin, Prachuab Kirikhan province)	31 March 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
31 March 2020 (A2)	1. Social distancing / Stay home Ask for collaboration to avoid the gathering place or any similar caused crowded. If necessary, please wearing mask and keep distance 1-2 meter apart 2. Isolation / Quarantine If symptoms occur, stop working or any activities and isolate yourself from other people, wearing mask and see a doctor immediately. If having a history of contact with an infected person, self-quarantine to see the symptoms for 14 days. 3. If illness occurs while receiving treatment, present the facts for benefit of medical care and prevent the spread of disease. 4. Wash hands frequently and wear masks regularly.	31 March 2020	
1 April 2020 (A3)	Any citizen traveling to conduct a transaction at the Bangkok Bank, Walking street Pattaya branch on 25 th March 2020 (09.00-12.00), If symptoms occur, stop working or any activities and isolate yourself from other people, wearing mask and see a doctor immediately	1 April 2020	
2020.04.02 (SE2)	Imposed Night Curfew from 10 pm to 4 am.		
2 April 2020 (O9)	- Temporary closure since now until the situation is resolved the following; 1. Hotel or any similar businesses 2. Beaches 3. gas station (close 10 pm - 5 am)	2 April 2020	Imprisonment not more than 1 year or a fine not exceeding

Issued date	COVID Measurement	Active date	Penalty
	4. market and street market 5. Tattoo shop or any similar businesses - Prohibiting all activities at reservoir - Intensive checkpoint measurement for travelers in and out of Pattaya city - Stop providing certain types of services for government agencies, state enterprises, or other government agencies		100,000 baht or both
2 April 2020 (O10)	- Temporary closure Chonburi provincial land office since now until the situation is resolved	2 April 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
3 April 2020 (O11)	- Edit the text in the seventh announcement to 1. "Temporary closure the convenient store from 10 pm to 4 am" 2. "Temporary closure the gas station from 10 pm to 4 am"	3 April 2020	
7 April 2020 (O12)	- Edit the text in No.1 according to the ninth announcement to "Temporary closure the market and street market excepting fresh food, dry food, ready-to-eat food to take home, agro products, pet food, pharmacy and any products that are essential to life"	7 April 2020	
7 April 2020 (O13)	- Do not enter or exit Pattaya city excepting who have residential in Pattaya city or who work in Pattaya city or who have necessary to enter Pattaya city - Travelers' checkpoint screening before entering - Wearing the mask when stay outside	9 April 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
2020.04.10 (SE3)	Exceptions for Night Curfew		
10 April 2020 (O14)	- Install the checkpoints under the emergency decree since 10 pm to 4 am - Every checkpoints under the emergency decree should have 2 police staffs, 7 administrative officers and member of the national guard volunteers, 2 provincial public health officers and 1 provincial transport officer per turn per checkpoint - Sheriff can assign LAO administrator, village leader, headman, headman assistant, security guard, civil defense volunteer, Village Health Volunteer participated in the duties at the checkpoint. - Government agencies, LAOs and state enterprises have duties to support the equipment, personnel, budget and other operating according to the sheriff's assignment as well as the sheriff has a duty as a supervisor, directing, directing and resolving problems and obstacles in the work of the epidemic examination	3 April 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
10 April 2020 (O15)	-Cancelled the order "Temporary closure Chonburi provincial land office since now until the situation is resolved"	13 April 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
11 April 2020 (O16)	- Temporary closure since now until the situation is resolved since 30 th April 2020 to prevent Coronavirus disease (COVID-19) the following; 1. Alcohol shop or any similar businesses 2. Do not sell or exchange alcohol or beverage containing alcohol	11 April 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both

Issued date	COVID Measurement	Active date	Penalty
	3. Do not move or transport alcohol or beverage containing alcohol 4. Do not drink alcohol or beverage containing alcohol outside		
14 April 2020 (O17)	- Prohibiting to use the bridge at Koh Loy - Edit the text in the seventh announcement to "Temporary closure the department store excepting security business, financing business, Bank, ATM machine, mobile service center, supermarket, pharmacy and restaurant (only order and take home) include construction material, electronic machine, kitchen tools, laptop and any machines that necessary to life"	14 April 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
14 April 2020 (O18)	- Expand the order of 7 th 8 th 9 th 11 th 12 th 13 th 16 th and 17 th announcement to 30 April 2020	14 April 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
15 April 2020 (A4)	Any citizen go to shopping at Foodland Supermarket (M floor), at Terminal 21 Pattaya on 5 th April 2020 (5.30-6.00 pm.), If symptoms occur, stop working or any activities and isolate yourself from other people, wearing mask and see a doctor immediately	15 April 2020	
16 April 2020 (A5)	Requesting the cooperation of the people in the prevention and implementation of various measures recommended by the government, and if it turns out that the epidemic situation of the corona virus infection 2019 has decreased, the Provincial Communicable Disease Committee will consider canceling orders, leniency, or existing prohibitions in accordance with the situation in each area under the provisions of Article 9 of the Emergency Decree, B.E.2548	16 April 2020	
19 April 2020 (A6)	Donation and Distribution Measures 1. The persons who wish to donate / distribute food, please coordinate with the sheriff or LAO in each area before distributing in order to send officials to help support according to government measures and follow other measures correctly especially keep social distancing. 2. The persons who wish to donate / distribute food, please clean the contact surface before/after doing any activities. Donors wear masks and wash hands with soap, alcohol, gels or antiseptics. 3. Control the distribution of items to prevent congestion and shorten the distribution time as necessary.	19 April 2020	
2020.04.28 (SE4)	Extension for closure of international borders	1 May to 31 May	
2020.05.01 (SE5)	Additional Temporary Closure of places Closure of educational institutions (all types for providing courses, examination, training, or any activity that maybe crowded. Excepting for online course. Prohibiting the activities that maybe crowded, such as meeting, seminar, good distributions. If necessary, must keep a social distance at least 1-meter, short time, and follow public health instruction. Banning all flights. Those who arrived Thailand must follow the government conditions such as state quarantine. Continuing closure places. Religious ceremony is under responsibility of the owner.	3 May onwards	

Issued date	COVID Measurement	Active date	Penalty
2020.05.01 (SE6)	Lifting some restrictions, up to the governor decision	3 May onwards	
1 May 2020 (O19)	<ul style="list-style-type: none"> - Reopened district registration office and local registration office - Reopened Chonburi provincial land office - Reopened Chonburi provincial commerce office (Chonburi branch and Pattaya branch) 	1 May 2020	
1 May 2020 (O20)	<ul style="list-style-type: none"> - Cancelled the order for Koh Lan in seventh announcement and use the new measurement following; <ol style="list-style-type: none"> 1. Stop accepting tourists, both Thai and foreigners, to the island 2. Transportation aspect <ol style="list-style-type: none"> 2.1 The food carrier ferries can enter as usual 2.2 Passenger boats can receive 3 rounds a day, which are 7.00 am, 12.00 pm and 6.00 pm (limited 100 passengers per round) 2.3 Speedboat from Pattaya beach must obtain permission before entering the area 3. Enter - Exit Koh Lan <ol style="list-style-type: none"> 3.1 Must wearing the mask 3.2 Must pass the COVID-19 checkpoint screening 3.3 Must show the submission paper before entering and exiting Koh Lan 4. Screening measurement <ol style="list-style-type: none"> 4.1 set checkpoint screening at Nha Baan Koh Lan Pier and Laem Bali Hai Pier Pattaya 	1-31 May 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
2 May 2020 (O21)	<ul style="list-style-type: none"> - Temporary closure since now until the situation is resolved the following; <ol style="list-style-type: none"> 1. Theater / Cinema 2. Entertainment spots or any similar businesses 3. Water park / Amusement park 4. Playground in every places 5. Zoo 6. Skateboard and inline skate yard or any similarity 7. Snooker club 8. Bowling 9. Game shop / Internet shop 10. Public Swimming pool or similarity 11. Cockpit field 12. Gym / Fitness 13. Exhibition hall, conventional center, and exhibition center 14. Museum 15. Public Library 16. Nursery 17. Boxing camp 18. Martial arts school 19. Tattoo shop 20. Dance Institute 21. Racecourse 22. Herbal and aroma spa, streaming, and bathing 23. Massage 24. Amulet center 25. Beauty clinic 26. Health spa 27. All types of racing fields 28. Convention hall, meeting room or similarity places - Let the establishment open to proceed voluntarily and readiness following; 	3-31 May 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both

Issued date	COVID Measurement	Active date	Penalty
	<p>1. Food and beverage in hotel, airport, train station, bus station, hospital, restaurant, convenient store or food cart exclude pub or bar (Restaurant where have alcohol can reopened but cannot drink alcohol in the restaurant and no music or any activities in the restaurant)</p> <p>2. Department store, mall and Community center can open only supermarket, pharmacy, Miscellaneous goods that are essential to life, mobile service center in the department store, securities business, financing business, Bank, ATM, construction material, electronic equipment, kitchen tools, laptop that related with government agencies / state enterprise only</p> <p>3. COVID-19 checkpoint screening before entering the small retail shop or wholesale shop, retail shop or wholesale shop in the community, market, floating market and street market</p> <p>4. Salon and barber can open</p> <p>5. Hospital, clinic, dental or similarity can open</p> <p>6. Golf field can open but has no audience and any competition race</p> <p>7. Stadium especially outdoor sports must have social distancing such as tennis court, horse riding, shooting, archery but has no audience and any competition race</p> <p>8. Parks, multi-purpose fields, sports stadiums, exercise facilities, sports fields can be opened only in open spaces for walking, running or cycling but has no audience and any competition race</p> <p>9. Animal care facilities, spas, showers and grooming can reopened</p> <p>- The site owner or manager is responsible for cleaning the area and providing preventative measures as specified by the government such as social distancing, wearing mask and temperature screening checkpoint before entering</p>		
7 May 2020 (O22)	<p>- Install the checkpoints under the emergency decree</p> <p>- Every checkpoints under the emergency decree should have 2 police staffs, 7 administrative officers and member of the national guard volunteers, 2 provincial public health officers and 1 provincial transport officer per turn per checkpoint</p> <p>- Sheriff can assign LAO administrator, village leader, headman, headman assistant, security guard, civil defense volunteer, Village Health Volunteer participated in the duties at the checkpoint.</p> <p>- Government agencies, LAOs and state enterprises have duties to support the equipment, personnel, budget and other operating according to the sheriff's assignment as well as the sheriff has a duty as a supervisor, directing, directing and resolving problems and obstacles in the work of the epidemic examination</p>	1 May 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
8 May 2020 (O23)	- The governor agreed that the building of the Eastern Standard Training and Testing Center as a local quarantine facilitate to support Thai people who have just returned from abroad	2 April 2020	
2020.05.15 (SE7)	<p>Lifting Night Curfew to 11 pm to 4 am.</p> <p>Lifting use of educational institution building based on governor decision. Excepting for teaching, training, and examination.</p> <p>Lifting some business, like reopening department stores, barber, salon up to governor decision till 8 pm., reopening social day care, tv and film production (less than 50 persons), reopening conventional halls with limited</p>		

Issued date	COVID Measurement	Active date	Penalty
	number, beauty clinic, fitness and gym, swimming pool both private and public, museum, learning center, and public library. All depends on the governor decision.		
16 May 2020 (O24)	- The governor ordered the closure of Pattaya beaches and set up an organized point to prevent the Coronavirus disease	9-31 May 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
16 May 2020 (O25)	<p>1. Waiver of use of school and institution building facilities</p> <p>2. Relaxation allows to perform or perform certain activities</p> <p>2.1 Economic and lifestyle aspect</p> <ul style="list-style-type: none"> - Selling food or beverages in restaurants, food gardens, food court, cafeteria, restaurants or general beverages which do not include service places, pubs and bars (Cannot drink alcohol or beverage containing alcohol) - Service center including food and beverage (Cannot drink alcohol or beverage containing alcohol), salon, barber, nail shop excepting theater, cinema, bowling, game machine, Skateboard and inline skate yard, karaoke, amusement park, water park, zoo, snooker, billiard, fitness, health business, massage, academic institute, amulet center and convention hall in department store, mall and community mall can reopened - Retail and wholesale shop can reopened - Child and elderly care center can reopened - TV program and film production can operate with limit numbers-actors, participants, and production team must be less than 150 person and audiences must be less than 50 persons - Conference rooms in the hotel or the convention center are open for the limited attendance <p>2.2 Exercise, health or recreation activity</p> <ul style="list-style-type: none"> - Beauty clinic and nail shop both inside and outside of department store, mall or community mall - Fitness center that located outside department store, mall or community mall can only be opened for yoga and free weights without the use of treadmills, bicycles, and group play - Indoor sport especially badminton, table tennis, gymnastic, takraw, squash, fencing, and rock climbing - Swimming pool - Botanical Gardens, Flower Gardens, Museum, Learning Centers, historical site, public library and art gallery <p>3. Disease prevention measurement</p> <ul style="list-style-type: none"> - The site owner or manager is responsible for cleaning the area and providing preventative measures as specified by the government such as social distancing, wearing mask and temperature screening checkpoint before entering 	17 May 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
2020.05.29 (SE8)	Extension of State Emergency to 30 of June	1 June onwards	
2020.05.29 (SE9)	Lifting Night Curfew to 11 pm to 3 am.		
	Lifting the use of school and educational buildings for teaching, training, recruiting, and examination		
	Lifting some business, like reopening department stores, barber, salon up to governor decision till 9 pm.		
	Lifting the inter-provincial travel.		
	Active on 1 June		

Issued date	COVID Measurement	Active date	Penalty
31 May 2020 (O26)	1. Waiver, relaxation, opening of business, opening services of places and establishments in Chonburi area as follows; <ul style="list-style-type: none"> 1.1 Department store, mall or community mall can open until 9 pm 1.2 Exhibition centers, convention centers or exhibition venues are open to conduct meetings, trade shows or exhibitions until 9 pm 1.3 Amulet center (limited audiences) 1.4 Beauty salon and barber (2 hours per person and cannot wait in the shop) 1.5 Child development center, nursery, primary child development, special child development, ageing care, or any child and elderly foster places can operate as a daily service and must follow public health instruction 1.6 Beauty clinic / tattoo shop 1.7 Health business (all spa and massages) 1.8 Fitness center 1.9 Boxing camp (no audiences) 1.10 Sport stadium such as football, soccer, basketball and volleyball (no race / limit 10 persons / no audience) 1.11 Bowling, inline skate yard or any similarity 1.12 Dance institute 1.13 Skiing (no race and limited number of players according to number of players and area size) 1.14 Cinema / Theater 1.15 Zoo 1.16 Temporary passport office 1.17 Both public and private tourist attractions 1.18 The distribution of food and beverages in the Chonlamak Bridge 1.19 Use of the beach area 1.20 providing certain types of services for government agencies, state enterprises, or other government agencies (Chonburi Social Security Office) 1.21 Traveling in the Ko Sichang District 1.22 Hotel or any similar business 1.23 Beach 1.24 Carry out activities at the reservoir 1.25 Gas station 1.26 Area around Koh Loy 	1 June 2020	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both
	2. Disease prevention measurement <ul style="list-style-type: none"> 2.1 The site owner or manager is responsible for cleaning the area and providing preventative measures as specified by the government such as social distancing, wearing mask and temperature screening checkpoint before entering 		
	3. Business cannot operate as usual following; <ul style="list-style-type: none"> 3.1 Entertainment spot / Pub 3.2 Water park / Amusement park 3.3 Playground 3.4 Snooker club / Billiard 3.5 Game machine 3.6 Game shop and internet café 3.7 Cockpit field 3.8 Nursery or elderly care 3.9 Boxing camp 3.10 Martial art school 3.11 Racecourse 		

Issued date	COVID Measurement	Active date	Penalty
	3.12 Streaming, and bathing 3.13 All types of racetrack 3.14 Banquet facilities or any similarity		
15 June 2020 (O27)	Waiver / relaxation / opening of business / service of places and establishments in Chonburi province 1. Waiver and relaxation from O21, O25 and 26 can reopened a business or do activities as voluntarily and ready 1.1 Conference room / seminar / training 1.2 Exhibition 1.3 Product displayed 1.4 Banquet 1.5 ceremony 1.6 event 1.7 concert 1.8 any activities or events in the hotel (theater, meeting room, convention hall, exhibition hall, cinema) 1.9 Drink alcohol in restaurant or food park that the government allowed ** Pub, bar and karaoke shop still cannot open ** 1.10 Children / Elderly daycare center / nursery 1.11 Science Center for Education 1.12 Television program or filming must control the staffs and audiences 1.13 Herbal and aroma spa, streaming, and bathing excepting Massage parlor 1.14 Group exercise in public park 1.15 Water park and playground excepting balloon house 1.16 stadium or any similar places except cockpit field, fishing pond or similarity business caused competition 1.17 game shop under the legal and located in convenient store, department store, and community mall 1.18 Waiver and relaxation in topic 'Traveling outside the area of the head of government' from Order 7 1.19 Waiver and relaxation in topic 'transportation by passenger motorboat (Route: Pattaya city, Chonburi province - Hua Hin, Prachuab Kirikhan province)' from Order 8 1.20 Waiver and relaxation in topic 'Intensive checkpoint measurement for travelers in and out of Pattaya city' from Order 9 1.21 Waiver and relaxation in topic 'Travelers' checkpoint screening before entering' from Order 13 2. Implementation of disease prevention and regulation measures 2.1 The responsible person, the owner or the manager of the place must comply with the instructions, conditions and time of disease prevention measures. 3. Still closure the establishment according to O26 until the order change 3.1 Pub, bar, entertainment spot 3.2 Game shop / Internet café 3.3 Cockpit field 3.4 Massage parlor	16 June 2020 - onward	Imprisonment not more than 1 year or a fine not exceeding 100,000 baht or both

6. Phitsanulok

Issued date	COVID Measurement	Active date	Penalty
18 Mar 2020 (A1)	Coronavirus Disease prevention Measurement	18 Mar 2020	With a fine not exceeding 20,000 baht
	1. Prohibiting civil servants, government officials and state enterprises to travel abroad unless there is an important reason		Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
	2. Temporary closure until the situation is resolved 2.1 stadium 2.2 boxing gym 2.3 cockpit field		Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
	3. Temporary closure 14 days (From 19 March 2020 - 2 April 2020) 3.1 cinema 3.2 theater ** For service centers or any similar businesses, health business (fitness), health massage, spa and beauty clinic, karaoke, restaurant with karaoke must comply with the measures specified by the province. In which karaoke shops or restaurants with karaoke are not allowed to karaoke, but can cook, sell and play music. However, if it does not comply with the requirements, it will be temporarily closed.		Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
	4. Prohibiting teaching at the university, schools and academic schools		Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
	5. Prohibiting all activities that is at risk of spreading 5.1 concert 5.2 exhibitions 5.3 religion, culture and sport activities unless the important event		With a fine not exceeding 20,000 baht
	6. Prohibiting the movement of many people across provinces 6.1 military camp 6.2 prisons 6.3 school ** If it is necessary to move, there must follow the prevention measures such as COVID-19 screening checkpoint, however, the movement of migrant workers is prohibited.		With a fine not exceeding 20,000 baht
	7. Measurement to prevent COVID-19 such as screening checkpoint before entering, hand gel, wearing mask, waste management, cleaning surface and toilet and limit the number of people using the service in each period 7.1 convenient store 7.2 mall 7.3 market / street market		With a fine not exceeding 20,000 baht
19 March 2020 (O1)	8. Measurement to prevent COVID-19 such as screening checkpoint before entering, hand gel, wearing mask, waste management, cleaning surface and toilet 8.1 restaurant 8.2 groceries or any similarity	20 March onward	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
	1. Temporary closure - Boxing stadium - Sport Stadium - Cockpit field - Cockpit fighting field		

Issued date	COVID Measurement	Active date	Penalty
	2. Temporary closure for 14 days - Educational institutions, including school, university, collage, both government and private. - Theater - Pub, Bar, and any entertainment place - Spa, massage, streaming, and any similar business - Traditional massage - Health business - Fitness and gym - Game shop and internet café - Karaoke	20 March to 2 April	
	3. Suspending activities caused crowded such as concert, exhibition, and religious activities/events	20 March onward	
	4. Suspending inter-provincial movement		
	5. Department store, malls, market, and government office must comply with prevention measure like checkpoint, cleaning, providing hand sanitizer gel		
	6. Restaurants and shops must comply with the prevention measures.		
19 March 2020 (A2)	Repealing Announcement 1 on Coronavirus Disease prevention Measurement	19 March 2020	
2020.03.25 (SE1)	State Emergency (Ed. 1) , comprising of 6 main restrictions; 1. Prohibition to access in risks areas 2. Closure of high-risk and crowded places, especially boxing stadium, playground, sport stadium. Pub, entertainment places, massage/spa, massage parlor, theater, and playhouses are also included. Other necessary places are depending on governor's decision, such as national park. 3. Closure of international Border (prohibiting by land, fly, and sea) 4. Prohibiting stockpile of food, drink, medical goods, and other daily products. 5. Prohibiting social or public gathering 6. Prohibiting fake news presentation in any media 7. Preparation for COVID-19 prevention measure - Governor has a power for determining orders for this emergency - Government offices determine and PR the government measures and supports to publics. - Preparing medical equipment and staffs in all hospitals. Adjust the hotels, school, university, conventional halls, temples or private building where is vacant or unused to serve for this emergency - Home quarantines for personal health check-up, especially for those who travel. 8. For high risk group, like elderly, people with medical conditions, children (aged less than 5 years) must stay home. 9. International travel measures, stop providing free visa and visa on arrival, excepting for having work permit. 10. Inter-provincial travel measure, providing checkpoint, on road, bus terminal, and all transport routes, for provincial borders. 11. General instruction on COVID-19 Prevention - Surface cleaning in all places before and after doing any activity - Staffs, participants, attendees, and employees/employers must wear masks.	26 March 2020 onward	

Issued date	COVID Measurement	Active date	Penalty
	<ul style="list-style-type: none"> - Washing hand with soap, alcohol gel, and hand sanitizer gel. - Promoting social distancing at least 1 meter - Limit number of people in each activity and reduce the activity time as much as possible and keep a distance between people 12. Open some businesses for daily life, including <ul style="list-style-type: none"> - Medical clinic, pharmacy, and hospital - Restaurant (excepting for bar, pub, or any entertainment place) - Hotel in form of apartment and any residential. - Grocery shop and supermarket - Factory, financial institution, bank, ATM - Market and Street market for fresh, dried, instant, and animal food. - Petrol and gas station - Online and delivery services 13. Recommendation for inter-provincial travel, suspending and postponing the inter-provincial travel. If necessary, must pass checkpoint and follow the government instruction, like 14 days home quarantine and registration for further tracking. 14. Recommendation for activities or events. Any event or activity like wedding, funeral, family events should be postponed or suspended. If necessary, must follow prevention instruction. 		
25 March 2020 (O2)	Temporary Closures (30 types of business) <ol style="list-style-type: none"> 1. Restaurants, coffee shops, and any similar business (only delivery services) 2. Department store, malls or any similar business, excepts pharmacy, supermarket, or any shop related to daily life. 3. Fresh market (only instant food, dried food, delivery, animal food, pharmacy, and any shop related to daily life) 4. Night market, street market, and flea market 5. Shrine 6. Temples, including Wat Yai, Nang Phaya and Ratchaburana temple 7. Salon and barber 8. Tattoo and piercing shop 9. Skateboard or any similarity 10. Amusement park, bowling, and arcade 11. Snooker 12. Game shop and internet café 13. Golf court 14. swimming pool 15. Cockpit field 16. Amulet center 17. Conventional and exhibition hall 18. Educational institutions, children development center and nursery 19. Beauty Clinic 20. Health business (Spa, massage) 21. Vet shop 22. Massage parlor 23. Herb spa, streaming, and bath 24. Theater 25. Exercise place, yoga and fitness 26. Entertainment places, pub, bar 27. Boxing stadium 28. Sport stadium and playground 	26 March to 30 April	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.

Issued date	COVID Measurement	Active date	Penalty
	29. Public parks 30. National museum, public library, and Wang Chan historical center		
25 March 2020 (O3)	Temporary Closure of 'At Tree Condominium' **Where have found the first infectious case.	25 March (11 pm) to 8 April (11 pm)	
25 March 2020 (O4)	Suspending some Government services at the following provincial offices Office of Passport division Land department offices Right and juristic registration Land Transport Office, suspending driver training and all permission District Registration expecting for birth and death report	25 March onward	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
27 March 2020 (O5)	Amending Order 4 on temporary closure of 'At Tree Condominium' (as found the case only at west building) Close West Building North and East Building must comply with the prevention measure District Chief is in charged	27 March to 8 April	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
27 March 2020 (O6)	Reopening Mobile shop in department stores	27 March onward	
27 March 2020 (O7)	Imposed Open Hours of 24 hours shop, can open only 5 am to 11 pm and keep social distance 1 meter at least	27 March onward	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
31 March 2020 (O8)	Temporary Closure on National Parks, Dam, Irrigation project (as recreational area)	31 March onward	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
31 March 2020 (O9)	Temporary Closure on Alcohol Selling Shop or any similar business (Banning only alcohol selling)	1 April to 30 April	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
31 March 2020 (A3)	Night Curfew 11 pm to 5 am	1 April 2020	
31 March 2020 (A4)	1. Require every district to set up village checkpoints to monitor, prevent and control Coronavirus diseases since 1-30 April 2020 2. The establishment of a village checkpoint is assigned to the village chief, village headman, village committee, village health volunteers, civil defense volunteers and local government organizations all 24 hrs. (5 persons per round) 3. Assign the head of the district government office, the bailiff, the responsible person of the sub-district or the director of the sub-district health promotion hospital to assist, give advice, supervise and follow up the performance 4. Phitsanulok PAO has a duty to procure, support thermometer for screening people who travel in and out of the village. LAOs	1 April 2020	

Issued date	COVID Measurement	Active date	Penalty
	has responsible to support the equipment such as alcohol spray or hand gel, rubber cone, blackjack and face mask. 5. All districts summarize the performance of checkpoints in the village to the Phitsanulok Provincial Administrative Office to know before 12.00 pm. via email (PLK-65000@hotmail.com)		
1 April 2020 (O10)	Inter-provincial Travel Control Avoiding to travel to/from BMR, Phetchabun, Tak, Sukhothai, Uttaradit 20 Road Checkpoints and Screening	4 April to 30 April	
2020.04.02 (SE2)	Imposed Night Curfew from 10 pm to 4 am.		
3 April 2020 (O11)	Imposed Open Hours of 24 hours shop, must close from 10 pm to 4 am and keep social distance 1 meter at least	3 April onward	Imprisonment of not more than 1 year or a fine of not more than 100,000 baht or both.
4 April 2020 (A5)	Advice on Restaurants and food delivery services in the form of preventive measures are as follows: 1. Clean by wiping the contact surfaces of the relevant locations before cooking and disposing of waste daily 2. For staff, food operators, colleagues, participants, employees and service users to wear a mask at all times 3. Persons under item 2 must wash their hands with soap, alcohol, gels or antiseptics on a regular basis, and prepare gel or alcohol for service 4. Sit or stand at least 1 meter apart to prevent Coronavirus infection 5. Control the number of people waiting to receive food to not be congested or reduce the time to wait for food as short as necessary	4 April 2020	
8 April 2020 (O12)	Role Sharing to Support Communicable Disease Committee (by providing idea on COVID-19 Prevention) Security Social aspect Economic aspect Financial aspect Transportation and communication Public health Educational Institution	8 April onward	
9 April 2020 (O13)	Establishment of Screening COVID-19 Committee (Control situation and Active case finding) (Mayor of Tassaban Nakhon Phitsanulok and PAO is included as the member)	9 April onward	
9 April 2020 (A6)	Under the emergency decree, the communicable disease control officer, the helper of the communicable disease control officer, the village health volunteer, the volunteer team of COVID-19, the person who the government agency, the private sector, all religious organizations, the local administrative organization or the local government shall screen Active case finding and record the temperature on application (Proactive Case Finding)	10-30 April 2020	
2020.04.10 (SE3)	Exceptions for Night Curfew		
11 April 2020 (A7)	1. Designate Phitsanulok Airport as a screening checkpoint for coronavirus disease (COVID-19)	13-30 April 2020	With a fine not exceeding 20,000 baht

Issued date	COVID Measurement	Active date	Penalty
	<p>2. The disease control official or the helper of the disease control official shall be screened in accordance with the notification of the Ministry of Public Health</p> <p>** Except diplomats or government exemptions, passengers traveling with all airlines want to cross the border to other provinces and staff who are exempt</p>		
11 April 2020 (A8)	<p>Under the emergency decree on 25th March 2020 which Announcement of the Chief of Personnel responsible for resolving emergency situations related to security regarding prohibition of assembly and activities as follows;</p> <p>(Self-prevention measure)</p> <ol style="list-style-type: none"> 1. all citizens must wear face mask when leaving house 2. Seniors aged 60 years or over, or those with certain chronic illnesses, such as non-communicable diseases such as diabetes, high blood pressure, cardiovascular and cerebrovascular diseases and respiratory diseases, allergies that are naturally low in immunity, or with medications keep in residence except if have necessary cases or VHV who has aged not over 60 years old 3. Persons close to or caretaker of the persons under Article 3 (people with chronic illnesses such as non-communicable diseases such as diabetes, high blood pressure, cardiovascular and cerebrovascular diseases and respiratory diseases, low-level allergies with naturally or with medication that is only given in a shelter) 4. Prohibiting organizing a gathering of people except for funerals, which must be carried out in accordance with the prescribed measures and colleagues must be close relatives or as necessary, prohibiting the elderly over 60 years or those have congenital disease, proceed as follows; <ol style="list-style-type: none"> 4.1 Clean by wiping the contact surfaces of the relevant locations before doing activities and disposing of waste daily 4.2 The organizer, the participants, the participants and the users must wear a mask at all times. 4.3 The organizer prepare the hand gel and persons in item 4.2 must washing their hands with soap, alcohol and hand gel 4.4 Sit or stand at least 1 meter apart to prevent Coronavirus infection 4.5 Control the number of people waiting to join the ceremony to not be congested or reduce the time to set the ceremony as short as necessary 4.6 If there is a necessity of organizing other events, the matter must be submitted to the Communicable Disease Control Committee for consideration 5. There should have the measurement for COVID-19 prevention before entering the construction sites or workplaces 6. Prohibiting to gather or engage in any activity that is at risk of coronary transmission, except for activities within the family that are in their own dwelling or official activities 	13 April 2020 onward	<p>With a fine not exceeding 20,000 baht</p> <p>Imprisonment of not more than 2 year or a fine of not more than 40,000 baht or both</p>
15 April 2020 (A9)	Edit the text in the 8 th announcement on self-prevention measure to "from 13-30 April 2020"	16 April to 30 April	
16 April 2020 (A10)	1. Require every district to set up village checkpoints to monitor, prevent and control Coronavirus diseases from 1-30 April 2020	16 April to 30 April (Same as A4)	

Issued date	COVID Measurement	Active date	Penalty
	<p>2. The establishment of a village checkpoint is assigned to the village chief, village headman, village committee, village health volunteers, civil defense volunteers and local government organizations all 24 hrs. (5 persons per round)</p> <p>3. Assign the head of the district government office, the bailiff, the responsible person of the sub-district or the director of the sub-district health promotion hospital to assist, give advice, supervise and follow up the performance</p> <p>4. Phitsanulok PAO has a duty to procure, support thermometer for screening people who travel in and out of the village. LAOs has responsible to support the equipment such as alcohol spray or hand gel, rubber cone, blackjack and face mask.</p> <p>5. All districts summarize the performance of checkpoints in the village to the Phitsanulok Provincial Administrative Office to know before 12.00 pm. via email (PLK-65000@hotmail.com)</p>		
19 April 2020 (A11)	<p>Donation Measures</p> <p>1. Designate a place to facilitate people who wish to donate / distribute food and consumer goods or money to people in the area</p> <p>1.1 Clean by wiping the contact surfaces of the relevant locations before cooking and disposing of waste daily</p> <p>1.2 For staff and people who wish to donate wearing a mask at all times</p> <p>1.3 Persons under item 2 must wash their hands with soap, alcohol, gels or antiseptics on a regular basis</p> <p>1.4 Sit or stand at least 1 meter apart to prevent Coronavirus infection</p> <p>1.5 Control the number of people waiting to receive food to not be congested or reduce the time to wait for donation as short as necessary</p> <p>2. The persons who wish to donate / distribute food and consumer goods or money to the local people, please coordinate with the village chief / village headman / sheriff in each area</p>	19 April 2020	
2020.04.28 (SE4)	Extension for closure of international borders	1 May to 31 May	
29 April 2020 (A12)	Extension of banning social gathering and any activities causing the social gathering	1 May 2020 – onward	
2020.05.01 (SE5)	<p>Additional Temporary Closure of places</p> <p>Closure of educational institutions (all types for providing courses, examination, training, or any activity that maybe crowded. Excepting for online course.</p> <p>Prohibiting the activities that maybe crowded, such as meeting, seminar, good distributions. If necessary, must keep a social distance at least 1-meter, short time, and follow public health instruction.</p> <p>Banning all flights.</p> <p>Those who arrived Thailand must follow the government conditions such as state quarantine.</p> <p>Continuing closure places.</p> <p>Religious ceremony is under responsibility of the owner.</p>	3 May onwards	
2020.05.01 (SE6)	Lifting some restrictions, up to the governor decision	3 May onwards	
1 May 2020 (O14)	Extension of Order 2, 7, 8, 9, 11	1 May to 31 May	
2 May 2020 (O15)	<p>Temporary Closure of 28 following places</p> <p>1. Theater</p>	2 May onward	Imprisonment of not more

Issued date	COVID Measurement	Active date	Penalty
	2. Pub, Bar and entertainment business 3. Water theme park 4. Playground 5. Amusement park 6. Zoo 7. Skateboard or any similar yard 8. Snooker 9. Bowling and game shop 10. Game shop and arcade 11. Public swimming pool 12. Cockpit field 13. Department store and community mall 14. Fitness and gym 15. Beauty clinic 16. Conventional and exhibition hall 17. Museum 18. Public library 19. Nursery 20. Ageing Day care 21. Boxing stadium 22. Martial arts school 23. Tattoo and piercing shop 24. Ballroom dancing institution 25. House racing field 26. Herb spa streaming and bath 27. Health business, like Traditional massage 28. Massage parlor		than 1 year or a fine of not more than 100,000 baht or both.
2 May 2020 (O16)	Lifting some activities and places with prevention measure Place selling foods and/or beverage in hotel, airport, train station, bus terminal, hospital. Convenience stores, street vendors are also included. Supermarket in malls and department stores. Pharmacy and grocery shop, bank, and any shop for daily life are also included. Street market, retail stores, and community market Barber and salon Golf court Sport field for outdoor activities Public park and public space Vet shop	3 May onward	
2 May 2020 (O17)	Night Curfew from 10 pm to 4 am Banning the use of educational institution buildings Banning Social gathering Banning alcohol selling Banning the use of airport	3 May onward	
7 May 2020 (O18)	Closure of Ageing Day Care (Daily service only)	7 May onward	
7 May 2020 (O19)	Lifting some activities Place selling foods and/or beverage in hotel, airport, train station, bus terminal, hospital. Convenience stores, street vendors are also included. Supermarket in malls and department stores. Pharmacy and grocery shop, bank, and any shop for daily life are also included. Street market, retail stores, and community market Barber and salon Golf court Sport field for outdoor activities	8 May onward	

Issued date	COVID Measurement	Active date	Penalty
	Public park and public space Vet shop		
2020.05.15 (SE7)	Lifting Night Curfew to 11 pm to 4 am. Lifting use of educational institution building based on governor decision. Excepting for teaching, training, and examination. Lifting some business, like reopening department stores, barber, salon up to governor decision till 8 pm., reopening social day care, tv and film production (less than 50 persons), reopening conventional halls with limited number, beauty clinic, fitness and gym, swimming pool both private and public, museum, learning center, and public library. All depends on the governor decision.		
16 May 2020 (O20)	Shorten night curfew to 11 pm to 4 am Lifting use of educational institution building based on governor decision. Excepting for teaching, training, and examination. Lifting some business, like reopening department stores, barber, salon up to governor decision till 8 pm., reopening social day care, tv and film production (less than 50 persons), reopening conventional halls with limited number, beauty clinic, fitness and gym, swimming pool both private and public, museum, learning center, and public library. All depends on the governor decision.	17 May onward	
2020.05.29 (SE8)	Extension of State Emergency to 30 of June	1 June onwards	
2020.05.29 (SE9)	Lifting Night Curfew to 11 pm to 3 am.		
	Lifting the use of school and educational buildings for teaching, training, recruiting, and examination		
	Lifting some business, like reopening department stores, barber, salon up to governor decision till 9 pm.		
	Lifting the inter-provincial travel.		
	Active on 1 June		
31 May 2020 (O21)	Shorten night curfew to 11 pm to 3 am Lifting and Reopening some business and activities <ul style="list-style-type: none"> - Reopening department stores, community mall till 9 pm. - Reopening exhibition center, conventional halls, or event places, for meeting or any activity within 20,000 sq.m. and open till 9 pm. Those activities must not include any competition, selling promotion, or any activity that gathers crowded. - Reopening amulet center but must not gather crowded - Reopening salon and barber, must serve only 2 hours/person - Reopening child development center and nursery, must follow public health instruction - Reopening beauty clinic, tattoo and piercing shop - Reopening Health business (spa and Thai massage) excepting for sauna, herbal sauna, and streaming, bathing, massage parlor, as well as facial massage - Reopening fitness and gym with limited numbers in a group player, prohibiting on sauna and streaming. - Reopening boxing stadium and boxing camp, only for practicing alone, prohibiting the competition and audiences - Reopening stadium, sport yard, only for exercising and practicing, such as football, basketball, volleyball, prohibiting competition and audiences, all people in sport yard must be less than 10 persons (not include the players) 	1 June onward	

Issued date	COVID Measurement	Active date	Penalty
	<ul style="list-style-type: none"> - Reopening skates, bowling, and inline skate only for exercise and practice - Reopening ballroom dancing - Reopening swimming pool and all water activities like jet ski, and banana boat, with limited number based on areas, and no competition. - Reopening theaters with limited number (not over 200 persons). Mainly, the local theater can play traditional musical and performance. Concert, music festival/event is prohibited. - Reopening zoo and circus with limited number. Active on 1 June		

7. Bangkok

Issued date	COVID Measure	Active date
17 March 2020 (A1)	Temporarily closure of premises in the Bangkok area between 18-31 March 2020; Massage parlors, except such service provided in medical facilities under the law on medical facilities Baths and saunas, except such service provided in medical facilities under the law on medical facilities Cinemas and theaters Fitness centers Pubs, bars and similar entertainment venues Boxing stadiums Sport venues Horse racing courses	17 March 2020
21 March 2020 (A2)	Temporarily closure of premises date 17 March 2020 revoked and the following premises in the Bangkok area are shall be temporarily closed from 22 March 2020 - 12 April 2020 Restaurants (except takeaways and hotel restaurants serving food for hotel guests) Shopping malls except supermarket zones, drugstores or zones selling miscellaneous and necessary items for living and food shops (takeaway is permitted.) Sitting or standing area for dining of convenience store Market and flea markets with the exception of those selling fresh food, dry food, takeaway food, pet food, pharmacies and shops selling miscellaneous and necessary items for living Beauty salons and barber shops Tattoo and body piercing shop Skating rings, rollerblading arenas or similar venues Amusement of theme parks, bowling or gaming arcades Gaming and Internet café Golf courses and driving ranges Swimming pools or similar venues Cockfighting rings and cockfighting exercising rings Amulet trading markets and centers Trade fair and exhibition centers, conference center and galleries All educational institutes and tutorial schools Weight-loss centers and cosmetic clinics Health service center (Spa and health and beauty massage outlets) Pet grooming / spa shop / pet service shop Massage parlors Bath and sauna Cinema and theater Fitness centers	22 March 2020

Issued date	COVID Measure	Active date
	Pub/Bar/and similar entertainment venues Boxing stadiums Sport venues Horse racing courses	
21 March 2020 (A3)	Temporarily closure of premises dated 21 March 2020 Restaurants including restaurant located in commercial buildings, food stalls and hawkers (to be opened for delivery and takeaways to be eaten off the premises and hotel restaurants are available only for the hotel guests or for delivery and takeaways) except the restaurants and food courts at airports Shopping malls including shopping centers and community malls except supermarkets, drug stores or zone selling miscellaneous and necessary items, restaurants (available for delivery and takeaways only), excluding financial banking zones	21 March 2020
23 March 2020 (M1)	Coronavirus Disease (COVID-19) Measurement Prevention Request the cooperation <u>not to travel</u> outside of Bangkok because If you do not have the infection in the body, it may be infected while traveling If you have a slight infection in the body, traveling may increase the infection and cause serious symptoms If you have the virus in your body, you may be the carrier and spread the infection virus to others during your trip Request cooperation to <u>stay at home</u> by cleaning the house, contact surface, toilet. Request the cooperation from the government sector, state enterprise, public sector and private sector <u>provide measures to prevent the spread of the virus</u> by seating at a distance of not less than 1-2 meters, including wearing a mask, hand washing gel and garbage management moreover promote the teleconference as well. Request the cooperation from the people traveling to boxing stadiums, entertainment venues, or places where a coronavirus disease infection outbreak report (COVID-19) <u>should be observed in the shelter and if symptoms occur, see a doctor immediately.</u> Request the cooperation to <u>avoid</u> the crowded place and keep distance not less than 1-2 meters Request the cooperation from government sector, public sector, state enterprise and private sector prohibit to set any activities such as meeting room, seminar room, training, trade show, event, concert, filming and television shooting Request the cooperation from <u>Bangkok Mass Transit Authority (BMTA) to reduce the congestion of passengers</u> who use the service such as increase ticket distribution channels, keep distance not less than 1-2 meters, Increase the number of car trips, <u>cleaning common contact points</u> , <u>provide alcohol gel</u> , <u>provide the screening checkpoint</u> and <u>garbage management</u> including wearing mask	From 23 March 2020 onwards
27 March 2020 (A4)	Temporarily closure of premises dated 21 March 2020 revoked and the following premises in the Bangkok area shall be temporarily closed Restaurants including restaurant located in commercial buildings, food stalls and hawkers (to be opened for delivery and takeaways to be eaten off the premises and hotel restaurants are available only for the hotel guests or for delivery and takeaways) except the restaurants and food courts at airports Shopping malls including shopping centers and community malls except supermarkets, drug stores or zone selling miscellaneous and necessary items, restaurants (available for delivery and takeaways only), excluding financial banking, state agencies and enterprise offices Sitting or standing areas for dining of convenience stores Market and flea markets with the exception of those selling fresh food, dry food, takeaway food, pet food, pharmacies and shops selling miscellaneous and necessary items for living Beauty salons and barber shops Tattoo and body piercing shop	28 March 2020

Issued date	COVID Measure	Active date
	Skating rings, rollerblading arenas or similar venues Amusement of theme parks, bowling or gaming arcades Gaming shop and Internet café Golf courses and driving ranges Swimming pools or similar venues Cockfighting rings and cockfighting exercising rings Amulet trading markets and centers Trade fair and exhibition centers, conference center and galleries All educational institutes and tutorial schools Weight-loss centers and cosmetic clinics Health service center (Spa and health and beauty massage outlets) Pet grooming / spa shop / pet service shop Massage parlors Bath and sauna Cinema and theater Fitness centers Pub/Bar/and similar entertainment venues Boxing stadiums Sport venues Horse racing courses All sport arenas Playgrounds Places of entertainment, public places for performances or recreation Museums, local museums and similar museums Public libraries, community libraries and book houses Place providing services on meeting rooms, catering rooms, catering venues and similar places Snooker and billiards arcades Nurseries except those operated in hospitals	
1 April 2020 (A5)	Clause 1 of Announcement 4 dated 27 March 2020 shall be revoked Following premises shall be temporarily closed between 2 April 2020 - 30 April 2020 Restaurants or those selling beverages, restaurants or those selling beverages located in commercial buildings and food or beverage stalls and hawkers (allowed to be opened between 05.01 hrs. and 24.00 hrs. only for delivery and takeaway food or beverage to be eaten off the premises and restaurants or those selling beverage in the hotels are available only for the hotel guests or for delivery or takeaway food or beverage to be eaten off the premises except the restaurants and food and beverage courts at airports and canteens at hospitals, seats for eating can be arranged) Convenience stores, supermarkets and those similar to convenience stores shall be closed between 00.01 hrs. - 05.00 hrs. 2.3 All state and private public parks	2 April 2020
9 April 2020 (A6)	Clause 2.1 and 2.2 of Announcement 5 dated 1 April 2020 shall be revoked The following premises shall be temporarily closed between 10 April and 30 April 2020 Restaurants or those selling beverages, restaurants or those selling beverages located in commercial buildings and food or beverage stalls and hawkers (allowed to be opened between 05.01 hrs. and 24.00 hrs. only for delivery and takeaway food or beverage to be eaten off the premises and restaurants or those selling beverage in the hotels are available only for the hotel guests or for delivery or takeaway food or beverage to be eaten off the premises except the restaurants and food and beverage courts at airports and canteens at hospitals, seats for eating can be arranged) Convenience stores, supermarkets and those similar to convenience stores shall be closed between 22.00 hrs. - 04.00 hrs. Shop or establishments selling liquor of Type 1 and type 2 with the liquor selling license under the Excise Act B.E.2560 (2017) shall be temporarily closed between	10 April 2020

Issued date	COVID Measure	Active date
	10 April and 20 April and other kinds of goods can be sold	
14 April 2020 (RT1)	Regulations for road transport in emergency situations during a time when people are not allowed out of the shelter Allow people with a need to transport products for the benefit of the people such as carriers for food, medicine, medical supplies, medical devices, consumer products, agricultural products, fuel, postage, parcels, newspapers or goods for import or export. The transportation of goods under Article 1 shall include empty transportation or empty containers in case of traveling to pick up the goods and return after completion of the transportation.	From 14 April 2020 onwards
20 April 2020 (A7)	According to Announcement 6 need to expansion "Shop or establishments selling liquor of Type 1 and type 2 with the liquor selling license under the Excise Act B.E.2560 (2017) shall be temporarily closed between 20 April and 30 April and other kinds of goods can be sold"	20 April 2020
21 April 2020 (RT2)	Appoint a Chief and Operations Officer at Coronavirus Disease (COVID-19) Infection Operations Center, Ministry of Transport Situation Management, Coordination and Foreign Affairs To provide and support the operation of personnel, budget and perform duties as the secretariat of the center Operate in accordance with laws, regulations, orders, regulations to solve transportation and logistics problems. Coordination and operation of foreign affairs support Accepting donations of money and belongings Situation and progress report Receive grievances and remedies Receive grievances and complaints from people and affected people Monitor the situation, collect data and analyze the impact Analyze the complaints Invite the relevant people join the meeting Information Technology (IT) and Public relations (PR) Collect data and make statistic Follow the news and the report from Coronavirus Disease (COVID-19) Infection Operations Center PR	From 21 April 2020 onwards
22 April 2020 (RT3)	Regulations for International road transportation in an emergency situation Allow shippers, drivers, and followers to transport international road freight according to measures and guidelines strictly according to Coronavirus Disease (COVID-19) prevention measure Consider the method of rapid transportation and transportation so that it can be returned to the Kingdom in time Do not get out of the car unnecessarily and avoid touching other people The carrier must prepare emergency measures in the event that the carrier does not pass COVID screening checkpoint or is at risk of being infected with Coronavirus disease (COVID-19) by going through the quarantine process to observe the symptoms for a period of 14 days including the carrier unable to return to the Kingdom within the deadline Additional equipment should be provided, aside from masks and alcohol gels to prevent disease such as Personal Protective Equipment (PPE) or face shield	From 22 April 2020 onwards
1 May 2020 (O2)	Disease prevention measures as required by the government to prevent the spread of the Coronavirus Disease (COVID-19) which separate into 3 parts; Economic and lifestyle activities Selling of food or beverages in hotels, airports, railway stations, bus stations, hospitals, restaurants or beverages, convenience stores, trolleys, hawkers, stalls which do not include service places, pubs, bars Clean floors, exposed surfaces frequently and dispose waste every day Allow operators, service personnel to wear masks Provide a handwashing station with soap or alcohol, gel or antiseptic The distance between the table and the seat, including the distance between	From 3 May 2020 onwards

Issued date	COVID Measure	Active date
	<p>walking at least 1 meter</p> <p>To control the number of users not to be crowded</p> <p>Department stores and shopping centers, community mall to open only supermarkets, pharmacies, miscellaneous goods needed for living and retail stores, telecommunications businesses, banks, government offices and state enterprises only</p> <p>Small retail/wholesale stores, Retail/Wholesale Market Community, Floating markets and flea markets</p> <p>2. Physical activity or health care activities</p> <p>Golf field</p> <p>Specific sports fields, outdoor sports and international regulations, such as tennis, horseback riding, shooting, archery</p> <p>Public park</p> <p>Others</p> <p>Pet shop</p> <p>** Measure **</p> <p>Clean floors, exposed surfaces frequently and dispose waste every day</p> <p>Allow operators, service personnel to wear masks</p> <p>Provide a handwashing station with soap or alcohol, gel or antiseptic</p> <p>The distance between the table and the seat, including the distance between walking at least 1 meter</p> <p>To control the number of users not to be crowded</p> <p>Reduce the activity time as short as necessary and refrain from waiting for service in the shop by holding the principle to avoid contact or contact between each other</p>	
2 May 2020 (A8)	<p>In order to prevent the spread of said dangerous communicable disease and to ease or relieve some measures for operations or activities as facilitation for the public in having activities related to economy and ways of life as well as physical exercise or healthcare which is a way of disease prevention under disease prevention measures prescribed by the Government and systematic arrangement under advice, conditions and time limit prescribed by Governor of Bangkok, by the virtue of Section 35(1) of the Communicable Diseases Act B.E. 2558 (2015), and regulations issued under provisions of Section 9 of the Emergency Decree on Public Administration in Emergency Situation B.E. 2548 (2005) (No. 5) dated 1st May 2020 and (No. 6) dated 1st May 2020, Governor of Bangkok, with the approval of the BMA Committee on the Communicable Diseases' Meeting Resolution No. 11/2563 dated 2nd May 2020, shall have the following premises in the Bangkok area temporarily closed and disease prevention measures prescribed:.</p> <p><u>Temporarily Closed Premises:</u></p> <p>Theatres (cinemas, playhouses and theatres)</p> <p>Entertainment venues, pubs, bars and similar entertainment venues</p> <p>Water parks, amusement or theme parks</p> <p>Playgrounds, playground equipment for children in markets, floating markets and flea market</p> <p>Zoos</p> <p>Skating rings, rollerblading arenas or similar venues</p> <p>Snooker and billiards arcades</p> <p>Bowling or gaming arcades</p> <p>Gaming and internet cafes</p> <p>Public swimming pools or similar venues</p> <p>Cockfighting rings and cockfighting exercising rings</p> <p>Fitness centers</p> <p>Trade fair and exhibition centers, conference centers and galleries</p> <p>Museums, local museums and those similar museum</p> <p>Public libraries, community libraries, private libraries and book houses</p> <p>Nurseries</p> <p>Elderly care centers</p>	3-31 May 2020 or until further notice

Issued date	COVID Measure	Active date
	<p>Boxing stadiums and boxing training gyms Martial arts schools and gyms Tattoo and body piercing shops Social dance schools or academies Horse racing courses Baths, saunas, and steam or herbal steam baths Massage parlors Amulet trading markets and centers Weight-loss centers, medical clinics for beauty service sections and cosmetic clinics Health service centers (spas and health and beauty massage outlets), Thai traditional massage or foot massage centers All sport arenas Places of entertainment, public places for performances or recreation; Places providing services on meeting rooms, catering rooms, catering venues and those similar places Shopping malls including shopping centers and community malls, except supermarkets, drug stores, or miscellaneous stores for necessary items, retail shops for telecommunication business, financial banks, state agencies and enterprise offices, and restaurants (available for delivery and takeaways only) Beauty salons and barber shops (to be opened only for hair washing, cutting, thinning, dressing and service users waiting for service in shops are not allowed) Sport venues (to be opened only for outdoor sports and in accordance with the international rules of which players keep social distancing and avoid association like tennis, horse riding, archery and rally of spectators or competitions at the sport venues, clubs, clubhouses or restaurants located in the area of the said sport venues is not allowed) Public parks, fields, areas for public activities, places for exercises, sport venues and fields are allowed to be opened only outdoor areas for walking, running, cycling or other kinds of personal exercises without rally of spectators or having competition, plays or shows <u>Disease Prevention Measures:</u> Restaurants or those selling beverage, convenience stores, pushcarts, hawkers, stalls, small retail/wholesale shops, community retail/wholesale shops, markets, floating markets and flea markets, golf courses and driving ranges, pet grooming and spa shops and pet service shops and exempt places or activities under Clause 1.31, Clause 1.32, Clause 1.33, and Clause 1.34, which were eased or relieved under Clause 1 of regulations issued under provisions of Section 9 of the Emergency Decree on Public Administration in Emergency Situation B.E. 2548 (2005) (No. 6) dated 1st May 2020, relating persons shall comply with the disease prevention measures prescribed by the Bangkok Metropolitan Administration to prevent the spread of Coronavirus Disease 2019 (COVID-19) Any other places apart from this Announcement, relating persons shall comply with the disease prevention measures prescribed by the Government and with Clause 11 of regulations issued under provisions of Section 9 of the Emergency Decree on Public Administration in Emergency Situation B.E. 2548 (2005) (No. 1) dated 25th March 2020</p>	
16 May 2020 (O3)	<p>Disease prevention measures as required by the government to prevent the spread of the Coronavirus Disease (COVID-19) which separate into 2 parts; Economic and lifestyle activities Selling of food or beverages in hotels, airports, railway stations, bus stations, hospitals, restaurants or beverages, convenience stores, trolleys, hawkers, stalls which do not include service places, pubs, bars Clean floors, exposed surfaces frequently and dispose waste every day Allow operators, service personnel to wear masks Provide a handwashing station with soap or alcohol, gel or antiseptic The distance between the table and the seat, including the distance between walking at least 1 meter</p>	17 May 2020 until the change order

Issued date	COVID Measure	Active date
	<p>To control the number of users not to be crowded</p> <p>Department stores and shopping centers, community mall allow additional operations in the part of the distribution of consumer goods and services including restaurants or beverages, beauty salons, haircuts or manicure, except for theaters, cinemas, bowling locations, game cabinets , Coin-operated players, skating or rollerblading places or other similar games, karaoke, theme park, water park, zoo, snooker, billiards, exercise facilities, fitness, establishments For health, Thai massage establishment, tutorial institute, amulet court, convention center (Open until 8.00 pm)</p> <p>Small retail/wholesale stores, Retail/Wholesale Market Community</p> <p>Care services, residences, or other shelters that provide welfare for children or the elderly or those with dependency</p> <p>Television, film and video shooting, which, when combined with a working group in every department, must consist of no more than fifty people and there must be no viewers to participate in the program</p> <p>Conference rooms in hotels or convention centers can be opened only in the event that the number of participants is limited.</p> <p>Physical activity or health care activities</p> <p>Beauty Clinic and nail spa where located inside/outside of the department store, mall or community mall can operate only for body and skin exclude face</p> <p>Gym/fitness which not located in the department store or community mall can be operated only yoga class or free weight except treadmill, bike spinning or group play</p> <p>Indoor gymnasium (limit only 3 players for each side) such as badminton, takraw, table tennis, squash, gymnastics, fencing and rock climbing</p> <p>Swimming pool</p> <p>Botanical gardens, flower gardens, museums, learning centers, historic sites, archaeological sites, public libraries, art galleries</p>	
16 May 2020 (A9)	<p>BMA Committee on the Communicable Diseases' Meeting Resolution No.12/2563 dated 16th May 2020, shall have the following premises in the Bangkok area temporarily closed (additionally) and eased the enforcement of disease prevention measures:</p> <p>Bullrings, fish fighting rings or other similar sport fields, or arenas <u>shall be temporarily closed</u></p> <p>Premises under the Announcement of the Bangkok Metropolitan Administration (BMA) on Order of Temporary Closure of Premises (No. 8) dated 2nd May 2020, Clause 1.10, Clause 1.12, Clause 1.13 (only conference centers and galleries), Clause 1.14, Clause 1.15, Clause 1.16, Clause 1.17, Clause 1.26 (only beauty clinics, beauty parlors and medical aesthetic clinics), Clause 1.30 (only meeting rooms in hotels or conference centers), and Clause 1.31 can be opened for some operations or activities under lenient measures to ease restrictions for some operations or activities in compliance with Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 7) dated 15th May 2020 Clause 3</p> <p><u>Disease Prevention Measures;</u></p> <p>Premises granted the ease of restrictions under Clause 2 and Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 7) dated 15th May 2020 Clause 3, relating persons shall comply with the Order of the Centre for the Administration of the Situation due to the Outbreak of the Communicable Disease Coronavirus (COVID-19) No. 3/2563 on Guidelines based on Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 2) dated 16th May 2020, disease prevention measures as well as implementation regarding to the maintenance of orderliness and system arrangements under advice, conditions and time limit prescribed by Governor of Bangkok or the Government</p> <p>Any other places apart from this Announcement, relating persons shall comply</p>	17-31 May 2020

Issued date	COVID Measure	Active date
	with the disease prevention measures prescribed by the Government and with Clause 11 of regulations issued under provisions of Section 9 of the Emergency Decree on Public Administration in Emergency Situation B.E. 2548 (2005) (No.1) dated 25th March 2020	
29 May 2020 (O4)	<p>Relaxation of the use of the building of the school or educational institution</p> <p>The use of the building for teaching and training of the school</p> <p>Use of the school or educational institution's facilities for examination management meetings</p> <p>Economic and lifestyle activities</p> <p>Department store, mall and community mall can be operated until 9.00 pm</p> <p>Exhibition centers, convention centers, or exhibition venues can be opened for operations, meetings, trade shows or exhibitions, with activities limited to the total area of the event, not over 20,000 square meters and can be operated until 9.00 pm</p> <p>Amulet center refrain from organizing activities that allow people to crowd together</p> <p>Beauty salon / barber shop can be operated by limiting the service time in the shop to not more than 2 hours per time and there must be no waiting people in the shop</p> <p>Child development center</p> <p>Physical activity or health care activities</p> <p>Beauty Clinic, beauty Salons</p> <p>Massage, spa, Thai massage</p> <p>Gym/Fitness to be operated by a limited number of players</p> <p>Boxing camp/gym can be opened for practice rounding without a punch partner</p> <p>Stadium can be operated for exercise and some sport with limited player not over than 10 people such as futsal, basketball and volleyball</p> <p>Bowling/Skate or Rollerblade can be operated for practice rounding only</p> <p>Dance institute</p> <p>Water sport such as ski, kite Surf, Banana Boat type, can be operated without being a competition and the number of players is limited</p> <p>Cinema, theater (limited 200 audiences per round)</p> <p>Zoo (limited tourists)</p>	1 June 2020 until the change of order
31 May 2020 (A10)	<p><u>Temporarily Closed Premises:</u></p> <p>Entertainment venues, pubs, bars and similar entertainment venues</p> <p>Water parks, amusement parks</p> <p>Playgrounds, playground equipment for children in markets, floating markets and flea markets</p> <p>Snooker and billiards halls</p> <p>Game machine arcades</p> <p>Gaming centers and internet cafes</p> <p>Cockfighting rings and cockfighting exercising rings</p> <p>Nurseries or elderly care centers (except admission for overnight stay as regularity)</p> <p>Boxing stadiums</p> <p>Martial arts schools (gyms)</p> <p>Horse racing courses</p> <p>Establishments for bath services</p> <p>Massage parlors</p> <p>Sport arenas</p> <p>Places providing services on catering rooms, catering venues and those similar places</p> <p>Bullrings, fish fighting rings or other sport arenas</p> <p>Premises granted the <u>ease of restrictions</u>, but the disease prevention measures prescribed by the Government must be complied with</p> <p>Restaurants or those selling beverage, convenience stores, hawkers, stalls, diners, food courts, canteens, except entertainment venues, pubs, bars, but consuming liquor or alcoholic drinks at the said venues is still prohibited</p>	1-30 June 2020 or until further notice

Issued date	COVID Measure	Active date
	<p>Shopping malls, shopping centers and community malls. These venues can be opened for operations until 21.00 hrs.</p> <p>Trade fair centers, conference centers and exhibition halls</p> <p>Meeting rooms in hotels or convention centers</p> <p>Small retail/wholesale shops, community retail/wholesale shops, markets, floating markets and flea markets;</p> <p>Large retail/wholesale stores or wholesale markets;</p> <p>Beauty salons and barber shops with hairdressing or cutting service for men or women. These venues can be opened for operations by limiting service time for each service user not exceeding two hours and service users waiting for the service in shops are not allowed</p> <p>Amulet trading markets and centers</p> <p>Nurseries or elderly care centers (only the admission for overnight stay as regularity)</p> <p>Early childhood development centers and preschool child development centers</p> <p>Medical aesthetic clinics, beauty salons, tattoo and body piercing shops and manicure and pedicure shops</p> <p>Golf courses and driving ranges</p> <p>Sports venues</p> <p>Public parks, fields, areas for public activities, places for exercises, sport venues and fields</p> <p>Pet grooming and spa shops and pet service shops</p> <p>Fitness centers</p> <p>Indoor exercising places or fields</p> <p>Outdoor and indoor public swimming pools</p> <p>Botanic gardens, flower gardens, museums, learning centers, historical sites, ancient monuments, public libraries and galleries</p> <p>Health establishments, spas and establishments for Thai traditional massage and foot massage</p> <p>Boxing training venues and gymnasiums or boxing gyms</p> <p>Bowling alleys, skating rings or rollerblading arenas or similar activities</p> <p>Social/ballroom dance schools or academies</p> <p>Premises granted the ease of restrictions under Clause 2 can be opened for some operations or activities under lenient measures for some operations or activities in compliance with Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 6) dated 1st May 2020 Clause 1, the Regulation (No.7) dated 15th May 2020 Clause 3 and the Regulation (No.9) dated 29th May 2020 Clause 2 and Clause 3</p> <p>Disease Prevention Measures;</p> <p>Premises granted the ease of restrictions under Clause 2, relating persons shall comply</p> <p>Any other places apart from this Announcement, relating persons shall comply with the disease prevention measures prescribed by the Government and with Clause 11 of regulations issued under provisions of Section 9 of the Emergency Decree on Public Administration in Emergency Situation B.E. 2548 (2005) (No.1) dated 25th March 2020</p>	
12 June 2020 (O5)	<p>Relaxation allows to perform or perform certain activities</p> <p>Conference / training / seminar / exhibition / product displayed / parties / ceremony / performing arts / music / concerts or events held in hotels, theaters, meeting rooms, convention centers, trade centers, cinemas or in other locations can be operated</p> <p>Alcohol can sell in the restaurant, garden court, hotel can be operated except in the pub, bar and karaoke shop</p> <p>Child development center, Daycare center</p> <p>Science Center for Education, Science Park, Science and Culture Center</p> <p>Television, film and video shooting, which, when combined with a working group in every department, must consist of no more than one hundred and fifty people and there must be no more than fifty viewers to participate in the program</p>	15 June 2020 until the change of order

Issued date	COVID Measure	Active date
	<p>Health establishment, spa, streaming and Thai massage can be operated except massage parlor</p> <p>Group exercise in public park</p> <p>Water park, playground, amusement park except the player in a temporary installation such as ball house, wind house</p> <p>Sport stadium for exercise except cockpit field, fishing pond or any similarity competition activities</p> <p>Game shop which located in department store, mall and community mall</p> <p>Public transportation</p> <p>To control the number of users not to be crowded and grouped in the bus terminal / passenger platforms, ports and airports, as well as in public buses - air-conditioned vehicles, trains, and passenger boats and to consider increasing the passenger rounds during rush hours.</p> <p>In the case of public buses - air-conditioned buses, vans and passenger boats, 1 seat and 1 seat may be considered. Passengers traveling together may not exceed 2 seats and 1 seat</p> <p>To have control of entrances and exits, including registration before entering and exiting the premises</p> <p>Let the site owners, operators and staff to advise users as well as to have surveillance, control, supervise services and use services in strict accordance with disease prevention measures set by the government</p>	
14 June 2020 (A11)	<p>Order of Temporary Closure of Premises (No. 10) dated 31st May 2020 revoked, and the following premises in the Bangkok area temporarily closed and eased the restrictions for some operations or activities</p> <p><u>Temporarily Closed Premises:</u></p> <p>Entertainment places, similar entertainment venues, pubs, bars, karaoke services, and amusement places</p> <p>Massage parlors</p> <p>Gaming centers and internet cafes</p> <p>Cockfighting rings and cockfighting exercising rings</p> <p>Bullrings, fish fighting rings or other sport arenas</p> <p>Premises granted the <u>ease of restrictions</u>, but the disease prevention measures prescribed by the Government must be complied with:</p> <p>Restaurants or those selling beverage, convenience stores, pushcarts, hawkers, stalls, diners, garden-themed restaurants, food courts, and canteens</p> <p>Shopping malls, shopping centers and community malls. These venues can be opened for operations until 21.00 hrs.</p> <p>Hotels, playhouses, meeting rooms, conference centers, trade fair centers, cinemas or other places for organizing meetings, trainings, seminars, exhibitions, trade fairs, banquets, ceremonies, performances, dramatic art plays, musical shows, concerts or all activities</p> <p>Small retail/wholesale shops, community retail/wholesale shops, markets, floating markets and flea markets</p> <p>Large retail/wholesale stores or wholesale markets</p> <p>Beauty salons and barber shops with hair dressing or cutting service for men or women. These venues can be opened for operations by limiting service time for each service user not exceeding two hours and service users waiting for the service in shops are not allowed</p> <p>Amulet trading markets and centers</p> <p>Nurseries or elderly care centers</p> <p>Early childhood development centers and preschool child development centers</p> <p>Medical aesthetic clinics, beauty salons, premises for tattooing or piercing of skin or any parts of the body and manicure and pedicure shops</p> <p>2.11 Health establishments, spas and establishments for Thai traditional massage, sauna, herbal steam, steam bath, foot massage, and establishments for bath services</p> <p>2.12 Sports venues or places for exercises, sports or for all kinds of sport learning and teaching</p>	15-30 June 2020 or until further notice.

Issued date	COVID Measure	Active date
	<p>Fitness centers</p> <p>Indoor exercising places or fields</p> <p>Outdoor and indoor public swimming pools</p> <p>Swimming pools for sports or marine activity in ponds</p> <p>Golf courses and driving ranges</p> <p>Boxing training venues and gymnasiums or boxing gyms</p> <p>Bowling alleys, skating rings or rollerblading arenas or similar activities</p> <p>Social/ballroom dance schools or academies</p> <p>Public parks, fields, areas for public activities, places for exercises, sport venues and fields</p> <p>Pet grooming and spa shops and pet care service shops</p> <p>Botanic gardens, flower gardens, museums, learning centers, historical sites, ancient monuments, public libraries and galleries;</p> <p>Science centers for education, science parks, science and cultural centers</p> <p>Cinemas, theatres, and playhouses</p> <p>Zoos or animal display venues</p> <p>Game machines, coin-operated entertainment machines which are legally permitted and placed in shopping malls, shopping centers and community malls</p> <p>Water parks, playgrounds, amusement parks, except the services for playthings in the form of temporary installation or with high-touch surfaces which possibly poses risks of child disease contagion such as ball houses and bouncy castles</p> <p>Buildings and places of schools or educational institutes</p> <p>Production of television programs, films and videos</p> <p>Premises granted the ease of restrictions under Clause 2 can be opened for some operations or activities under lenient measures for some operations or activities in compliance with Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 6) dated 1st May 2020 Clause 1, the Regulation (No.7) dated 15th May 2020 Clause 3 and the Regulation (No.9) dated 29th May 2020 Clause 2 and Clause 3, and the Regulation (No.10) dated 12th June 2020 Clause 2 and Clause 3</p> <p><u>Disease Prevention Measures</u>Premises granted the ease of restrictions under Clause 2</p> <p>Any other places apart from this Announcement, relating persons shall comply with the disease prevention measures prescribed by the Government and with Clause 11 of Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No.1) dated 25th March 2020</p>	
30 June 2020 (O6)	<p>Schooling and teaching styles in schools, educational institutions or universities</p> <p>Operational places and activities</p> <p>Shopping malls, shopping centers, community mall, exhibition centers, convention centers or exhibition venues can be operated as normal business hours but not later than 10.00 pm</p> <p>Establishment or any similarity business such as pub, bar and karaoke can be operated as normal business hours but not later than 24.00 pm</p> <p>Game shop and internet café</p> <p>Massage parlor</p> <p>Public transportation</p> <p>To facilitate the people and support the traveling which may be denser after the opening and opening of various locations</p> <p>To control the number of users not to be crowded and grouped in the bus terminal / passenger platforms, ports and airports, as well as in public buses - air-conditioned vehicles, trains, and passenger boats and to consider increasing the passenger rounds during rush hours</p> <p>In the case of public buses - air-conditioned buses, vans and passenger boats, 1 seat and 1 seat may be considered. Passengers traveling together may not exceed 2 seats and 1 seat</p> <p>To have control of entrances and exits, including registration before entering and exiting the premises</p>	1 July 2020 until the change of order

Issued date	COVID Measure	Active date
	Let the site owners, operators and staff to advise users as well as to have surveillance, control, supervise services and use services in strict accordance with disease prevention measures set by the government	
30 June 2020 (A12)	<p>The Bangkok area temporarily closed and eased the restrictions for some operations or activities;</p> <p><u>Closed Premises:</u> Cockfighting rings and cockfighting exercising rings Bullrings, fish fighting rings or other similar sport arenas</p> <p>Premises granted the ease of restrictions, but the disease prevention measures prescribed by the Government must be complied with: Restaurants or those selling beverage, convenience stores, pushcarts, hawkers, stalls, diners, garden-themed restaurants, food courts, and canteens; Shopping malls, shopping centers and community malls. These venues can be opened for operations until 22.00 hrs. Hotels, playhouses, meeting rooms, conference centers, trade fair centers, cinemas or other places for organizing meetings, trainings, seminars, exhibitions, trade fairs, banquets, ceremonies, performances, dramatic art plays, musical shows, concerts or all activities Small retail/wholesale shops, community retail/wholesale shops, markets, floating markets and flea markets Large retail/wholesale stores or wholesale markets Beauty salons and barber shops with hair dressing or cutting service for men or women. These venues can be opened for operations by limiting service time for each service user not exceeding two hours and service users waiting for the service in shops are not allowed Amulet trading markets and centers Nurseries or elderly care centers Early childhood development centers and preschool child development centers Medical aesthetic clinics, beauty salons, premises for tattooing or piercing of skin or any parts of the body and manicure and pedicure shops; Health establishments, spas and establishments for Thai traditional massage, sauna, herbal steam, steam bath, foot massage, and establishments for bath services; Sports venues or places for exercises, sports or for all kinds of sport learning and teaching; Fitness centers; Indoor exercising places or fields; Outdoor and indoor public swimming pools; Swimming pools for sports or marine activity in ponds; Golf courses and driving ranges; Boxing training venues and gymnasiums or boxing gyms; Bowling alleys, skating rings or rollerblading arenas or similar activities; Social/ballroom dance schools or academies; Public parks, fields, areas for public activities, places for exercises, sport venues and fields; Pet grooming and spa shops and pet care service shops; Botanic gardens, flower gardens, museums, learning centers, historical sites, ancient monuments, public libraries and galleries; Science centers for education, science parks, science and cultural centers; Cinemas, theatres, and playhouses Zoos or animal display venues; Game machines, coin-operated entertainment machines which are legally permitted; Water parks, playgrounds, amusement parks, except the services for playthings in the form of temporary installation or with high-touch surfaces which possibly poses risks of child disease contagion such as ball houses and bouncy castles; Buildings and places of schools or educational institutes; Production of television programs, films and videos;</p>	1-31 July 2020 or until further notice

Issued date	COVID Measure	Active date
	<p>Entertainment places, establishments resembling the entertainment places, pubs, bars, karaoke services, and amusement places. These venues can be opened for operations during normal business hours as permitted by law until 24.00 hrs. of the same day</p> <p>Massage parlors;</p> <p>Gaming centers and internet cafes</p>	
	<p>Premises granted the ease of restrictions under Clause 2 can be opened for some operations or activities under lenient measures for some operations or activities in compliance with Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 6) dated 1st May 2020 Clause 1, the Regulation (No.7) dated 15th May 2020 Clause 3 and the Regulation (No.9) dated 29th May 2020 Clause 2 and Clause 3, the Regulation (No.10) dated 12th June 2020 Clause 2 and Clause 3 and the Regulation (No.11) dated 30th June 2020</p>	
	<p><u>Disease Prevention Measures</u></p> <p>Premises granted the ease of restrictions under Clause 2</p> <p>Any other places apart from this Announcement, relating persons shall comply with the disease prevention measures prescribed by the Government and with Clause 11 of Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No.1) dated 25th March 2020</p>	

A= Announcement, O= order, RT= Regulation for road transport, M=Measure

Appendix 2: Tables of Real Estate

Table 1 Real estate projects launched between January and June 2020

Types of residences	Units	
	Number	Percentage
Detached house	4,455	14.8%
Semi-detached house	2,643	8.8%
Townhouse	14,060	46.8%
Shophouse	78	0.3%
Condominium	8,792	29.3%
Land subdivision	0	0.0%
Others	29	0.1%
Total	30,057	100%

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Table 2 Housing units available in the market as of mid-2020

Types of residences	Units	
	Number	Percentage
Detached house	37,044	16.7%
Semi-detached house	16,932	7.7%
Townhouse	72,048	32.6%
Shophouse	3,886	1.8%
Condominium	90,486	40.9%
Land subdivision	805	0.4%
Total	221,192	100.0%

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Table 3 Non-active housing projects in BMR as of mid-2020

Types of residences	Units		Project
	Number	Percentage	
Detached house	6,312	11%	63
Semi-detached house	2,015	3%	22
Townhouse	6,482	11%	43
Shophouse	1,195	2%	26
Condominium	41,191	69%	100
Land Subdivision	2,753	5%	15
Total	59,948	100%	217

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Table 4 Ten locations with the largest decrease in prices, Bangkok Metropolitan Region

No.	Location	House Types	Price range (THB Million)	Avg. price per unit (THB)		Change	
				December 2019	June 2020	THB	Percentage
1	Mahachai-Sethakit	Condominium	0.5 - 1	1.29	0.89	-0.40	-31.80%
2	Chaeng Wattana	Condominium	0.5 - 1	1.44	0.99	-0.46	-31.50%
3	Vibhavadi-Rachada	Condominium	1 - 2	19.36	14.32	-5.05	-26.10%
4	Lad Plakao-Maiyatab	Condominium	1 - 2	2.34	1.76	-0.58	-24.90%
5	Sai Noi - Suphaburi	Condominium	0.5 - 1	1.07	0.82	-0.25	-23.40%

No.	Location	House Types	Price range (THB Million)	Avg. price per unit (THB)		Change	
				December 2019	June 2020	THB	Percentage
6	Lad Kranbang	Condominium	1 - 2	2.02	1.63	-0.39	-19.40%
7	Bang Khan	Condominium	0.5 - 1	1.00	0.81	-0.19	-18.90%
8	Lad Krabang	Condominium	2 - 3	2.50	2.04	-0.46	-18.30%
9	Sukhapiban 2.3	Shophouse	5 - 10	8.56	7.05	-1.52	-17.70%
10	Sukhapiban 2.3	Townhouse	2 - 3	3.59	2.98	-0.61	-17.10%

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Table 5 Ten largest locations of high sold ratio as of mid-2020

Rank	Locations	Types of residence	Price range (THB Million)	Total	Sold	Remain	Avg. absorption rate (Monthly)
1	Klong San	Condominium	10 - 20	228	223	5	95.9%
2	Bang Bua Thong	Condominium	3 - 5	154	154	0	32.5%
3	Srinakarin-Udomsook	Townhouse	5 - 10	75	75	2	32.4%
4	Bangkok Noi - Bangkok Yai	Condominium	5 - 10	121	121	24	25.6%
5	Chaokhunthahan	Condominium	1 - 2	1,124	1,124	20	22.5%
6	Phaholyothin	Condominium	1 - 2	467	467	82	20.9%
7	Chokchai 4	Condominium	3 - 5	154	154	20	20.8%
8	Pracha Uthid	Townhouse	1 - 2	1,756	1,756	705	19.7%
9	Bangkok Noi - Bangkok Yai	Condominium	3 - 5	1,289	1,289	310	19.3%
10	Song Prapa	Condominium	2 - 3	88	88	71	18.5%

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Table 6 Ten largest locations of low sold ratio as of mid-2020

Rank	Locations	Types of residence	Price range (THB Million)	Total	Sold	Remain	Avg. absorption rate (Monthly)
1	Bang Poo	Detached house	5 - 10	163	18	145	0.10%
2	Pak Nam	Condominium	6 - 10	1871	30	1841	0.10%
3	Sai Mai	Shophouse	7 - 10	187	17	170	0.20%
4	Bang Poon	Detached house	More than 20	56	5	51	0.20%
5	Rangsit Klong 1-7	Land subdivision	More than 21	93	72	21	0.20%
6	Sai7-Pinklao-Petchkasem	Land subdivision	1 - 2	540	400	140	0.20%
7	Bang Na - Trad Km. 10 - 30	Land subdivision	2 - 3	869	378	461	0.20%
8	Talingchan	Land subdivision	5 - 10	79	68	11	0.30%
9	Thawitatta - Buddhamonthon 4	Condominium	1 - 2	432	30	402	0.30%
10	Bang Na - Trad Km. > 30	Land subdivision	3 - 5	300	232	68	0.30%

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Table 7 Price changes of housing units in the BMR between 2016 and 2020

Price changes	Mid 2016	End 2016	Mid 2017	End 2017	Mid 2018	End 2018	Mid 2019	End 2019	Mid 2020
Units that experience the increase in prices	29%	24%	22%	17%	19%	13%	12%	12%	6%
Unit that experience the decrease in prices	12%	23%	12%	11%	11%	18%	15%	15%	42%
Units that remain stable	59%	53%	65%	73%	70%	70%	73%	73%	52%
Change of prices	0.66%	0.66%	0.53%	0.39%	0.50%	0.39%	-0.52%	-0.52%	-3.50%

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Table 8 Price changes of housing units in the BMR in 2020, classified by types of residences

Types of residence	Price changes (Number of units)				Price changes (Percentage)			
	Increase in price	Decrease in price	Remain stable	Total	Increase in price	Decrease in price	Remain stable	Total
Detached house	9,903	20,708	72,107	102,718	10%	20%	70%	100%
Semi-detached house	3,651	10,960	26,349	40,960	9%	27%	64%	100%
Townhouse	23,254	48,862	108,347	180,463	13%	27%	60%	100%
Shophouse	148	939	9,853	10,940	1%	9%	90%	100%
Condominium	5,871	209,368	140,203	355,442	2%	59%	39%	100%
Land subdivision	-	-	2,009	2,009	0%	0%	100%	100%
Total	42,827	290,837	358,868	692,532	6%	42%	52%	100%

Source: Edited by the JICA Project Team base on Pornchokchai (2020a)

Appendix 3: Details of the Selected Communities in Bangkok

1. Thonburi district

Table A General information about interviewees according to communities in Thonburi district

No	Community	Type of community	Representative of PHVs					
			Name	Age	Gender	Main occupation	Years of experience as PHV	Number of households over watching
1	Wat Ratchawarin community	Slum	Mrs. Thitikarn Iamsuknan	61	Female	volunteer	21	About 30
2			Ms. Rungnapa Sae-lim	61	Female	volunteer		30
3			Mrs. Choosanee Dontako	69	Female	volunteer		30
4			Mrs. Prukkanok Dilokrattanatagul	62	Female	volunteer	12	30
5			Ms. Malee Khubothong	70	Female	volunteer	5	30

Source: JICA Project Team

Table B General Information of each community in Thonburi district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Wat Ratchawarin community	1058	412	3-5	About 400 Thais and 300 foreign migrants			Myanmar, Cambodia	Fabric factory, Nail polish factory, Construction work
2									
3									
4									
5									

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

2. Pom Prab Sattru Phai district

Table A General information about interviewees according to communities in Pom Prab Sattru Phai district

No	Community	Type of community	Representative of PHVs					Number of households over watching
			Name	Age	Gender	Main occupation	Years of experience as PHV	
1	Wat Sommanus	Slum	Mr.Wuttichai Wongjinda	67	Male	Employee	17	30
2	Wat Sraket	Slum	Mr.Sanun Jaroensit	64	Male	Head of community	22	30
3	Supanimitr 1	Slum	Mrs.Nawaporn Sukijwanee	79	Female	Head of community	30	30
4	Wat Soontorntham	Slum	Ms.Suwan Waewployngam	60	Female	Volunteer	Almost 30 years	233
5	Chakkapadi	Slum	Mrs.Chaweewan Tantermkiet	65	Female	Volunteer	20	77

Source: JICA Project Team

Table B General Information of each community in Pom Prab Sattru Phai district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Wat Sommanus	800-1,000	300	2-3		4	10-15	Cambodia, Myanmar	Employee
2	Wat Sraket	300	79	3	5	3			
3	Supanimitr 1	760	141	2	7	4	10-15	Myanmar	Employee
4	Wat Soontorntham	400	233	2-3	20	1		Cambodia, Myanmar	Employee
5	Chakkapadi	200	80	2	10	4			

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

3. Lak Si district

Table A General information about interviewees according to communities in Lak Si district

No	Community	Type of community	Representative of PHVs					Years of experience as PHV	Number of households over watching
			Name	Age	Gender	Main occupation			
1	Tung Song Hong 317	Public Housing	Mrs.Wilaiwan Soonklang	65	Female	Housekeeper		15	35
2	Tung Song Hong 317	Public Housing	Mrs.Renu Luansri	59	Female	Housekeeper		15	30
3	Tung Song Hong 317	Public Housing	Mrs.Ploenpit Meejanpetch	62	Female	Retail shop		3	33
4	Tung Song Hong 307	Public Housing	Mrs.Ariya Kamyam	63	Female	Housekeeper		18	30
5	Tung Song Hong 310	Public Housing	Mr.Putipong Karin	70	Male	Housekeeper		3	29

Source: JICA Project Team

Table B General Information of each community in Lak Si district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Tung Song Hong 317	437	133	2-3	50	4	2	Myanmar	Employee
2	Tung Song Hong 317	437	133	2-3	50	4	2	Myanmar	Employee
3	Tung Song Hong 317	437	133	2-3	50	4	2	Myanmar	Employee
4	Tung Song Hong 307	516	112	3-4	45	3	5	Myanmar, Laos	Employee
5	Tung Song Hong 310	564	140	6	60	5			

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

4. Ladkrabang district

Table A General information about interviewees according to communities in Ladkrabang district

No	Community	Type of community	Representative of PHVs					Years of experience as PHV	Number of households over watching
			Name	Age	Gender	Main occupation			
1	Lang Ka Khiew	Public Housing	Ms.Janya Sangkaew	46	Female	Housekeeper		3	30
2	Rom Klao Public Housing Zone 3	Public Housing	Mr.Udom Kosachawieng	74	Male	Housekeeper		20	38
3	Rom Klao Public Housing Zone 1	Public Housing	Mrs.Pitchanan Jampathat	63	Female	Housekeeper		19	30
4	Sangkaracha Temple	Public Housing	Mr.Suchin Khummanee	70	Male	Housekeeper		31	16
5	Lang Wat Lan Boon	Public Housing	Mrs.Chanpen Kammueang	59	Female	Housekeeper		20	30

Source: JICA Project Team

Table B General Information of each community in Ladkrabang district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Lang Ka Khiew	1,800	335	5	300	16	300	Myanmar, Laos, Cambodia, Vietnam	Construction
2	Rom Klao Zone 3	1,740	558	5	150	27	150	Cambodia, Myanmar	Employee
3	Rom Klao Zone 1	1,500	565	3	200	22	1,700	Cambodia, India, Myanmar	Employee
4	Sangkaracha Temple	1,230	287	4-5	1,000	18	200	Cambodia Myanmar	Employee
5	Lang Wat Lan Boon	1,166	248	4-5	1,000	11	200	Cambodia, India, Myanmar	Construction

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

5. Sai Mai district

Table A General information about interviewees according to communities in Sai Mai district

No	Community	Type of community	Representative of PHVs						Number of households over watching
			Name	Age	Gender	Main occupation	Years of experience as PHV		
1	Chonlada Sai Mai Village	Suburban	Mrs.Wanjai Somwang	72	Female	Housekeeper	15	30	
2	Arunthorn Village	Suburban	Mrs.Thongnoi Siriphok	64	Female	Housekeeper	20	60	
3	Lert Ubon Village	Suburban	Mrs.Nittaya Preechasawas	61	Female	Housekeeper	19	105	
4	Rung Rueang House	Suburban	Mrs.Arunsri Boonchuay	53	Female	Housekeeper	12	80	
5	Prachanukul	Suburban	Mrs.Kanlayanee Sintrakool	73	Female	Housekeeper	18	80	

Source: JICA Project Team

Table B General Information of each community in Sai Mai district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Chonlada Sai Mai Village	1,860	620	3-5			150	Myanmar	Employee
2	Arunthorn Village	1,253	805	3-5	150		100	Myanmar, Laos	Employee
3	Lert Ubon Village	836	293	3-5	200				
4	Rung Rueang House	1,500	400	2-5	250		30	Myanmar	Employee
5	Prachanukul	2,500	300	2-5					

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

6. Taling Chan district

Table A General information about interviewees according to communities in Taling Chan district

No	Community	Type of community	Representative of PHVs					Years of experience as PHV	Number of households over watching
			Name	Age	Gender	Main occupation			
1	Lang Wat Kai Tia	Suburban	Mrs.Porntipa Soisuwan	72	Female	Business owner	33	30	
2	Suan Pak 13-17	Suburban	Ms.Suwilmon Wanniyom	63	Female	Retail shop	27	60	
3	Rim Tang Rod Fai Chaiyapruek	Suburban	Mrs.Charuayporn Sangchan	60	Female	Retail shop	16	33	
4	Lang Wat Kanchanasinghat	Suburban	Mrs.Lawan Phupanthong	58	Female	Employee	18	30	
5	Lang Wat Kanchanasinghat	Suburban	Mr.Supoj Orathai	62	Male	Retail shop	18	30	

Source: JICA Project Team

Table B General Information of each community in Taling Chan district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Lang Wat Kai Tia	75	80	365		3			
2	Suan Pak 13-17	60	75	450		2	20	Myanmar, Laos	Employee
3	Rim Tang Rod Fai Chaiyapruek	155	190	630	120	6	50	Myanmar, Laos Cambodia	Employee
4	Lang Wat Kanchanasinghat	1,930	600	10	70	5	1	Myanmar	Retail employee
5	Lang Wat Kanchanasinghat	900	600	10	70	5	1	Myanmar	Retail employee

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

7. Bang Khun Thian district

Table A General information about interviewees according to communities in Bang Khun Thian district

No	Community	Type of community	Representative of PHVs					Number of households over watching
			Name	Age	Gender	Main occupation	Years of experience as PHV	
1	Thonburi 1 Zone 1 (Housing Estate)	Migrant Community	Mr.Supong Chotipan	63	Male	Community Committee	21	520
2	Thonburi 5 Zone 1 (Housing Estate)	Migrant Community	Ms.Prapai Somparn	65	Female	Head of Community	3	4200
3	Samae Dam	Migrant Community	Mrs.Waraporn Ungamrung	62	Female	Volunteer	22	250
4	Junlapong community	Migrant Community	Mrs.Panika Klombanjong	58	Female	Volunteer	18	300
5	Thonburi 1 Zone 4 (Housing Estate)	Migrant Community	Mr.Kamron Chaisangchan	62	Male	Volunteer	17	351

Source: JICA Project Team

Table B General Information of each community in Bang Khun Thian district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Thonburi 1 Zone 1 (Housing Estate)	1,800	520	3	600	11	10	Laos	Employee
2	Thonburi 5 Zone 1 (Housing Estate)	137	422	3	500	2	50	Myanmar, Laos	Employee
3	Samae Dam	520	250	3	500	4	300	Myanmar	Employee
4	Junlapong community	800	300	3	300	3	300	Myanmar, Laos	Employee
5	Thonburi 1 Zone 4 (Housing Estate)	878	351	2-3	400	6	2	Laos	Employee

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

8. Klong Sam Wa district

Table A General information about interviewees according to communities in Klong Sam Wa district

No	Community	Type of community	Representative of PHVs					Number of households over watching
			Name	Age	Gender	Main occupation	Years of experience as PHV	
1	Desy Ramintra 1	Migrant Community	Mrs.Benjaporn Mueangjinn	65	Female	Retail shop	18	30
2	Kanchana community	Migrant Community	Mrs.Kwanjai Tongburan	57	Female	Housekeeper	17	15
3	Pol village	Migrant Community	Ms.Siriluck Chiarasatitchai	67	Female	Housekeeper	15	35
4	Rung Rueang 1	Migrant Community	Mr.Suraiman Klomklieng	71	Male	Chairman of Mother of Land Fund	8	40
5	Promsuk 1 village	Migrant Community	Mr.Naruenart Thepparat	72	Male	Department of probation	5	33

Source: JICA Project Team

Table B General Information of each community in Klong Sam Wa district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		Occupation
							Number	Nationalities	
1	Desy Ramintra 1	3,500	1,557	2-5	300	15		Myanmar / Cambodia	Construction
2	Kanchana community	354	86	2-7	354	9	322	Cambodia	Construction
3	Pol village	815	237	8-9	815	6	25	Myanmar	Employee
4	Rung Rueang 1	450	180	3-5	120	4	20	Myanmar / Cambodia	Employee
5	Promsuk 1 village	468	125	3-5	41	3		Myanmar	Employee

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

9. Bang Kae district

Table A General information about interviewees according to communities in Bang Kae district

No	Community	Type of community	Representative of PHVs					Years of experience as PHV	Number of households over watching	
			Name	Age	Gender	Main occupation				
1	Song Khun Jha Community	Slum	Mr. Choad Hoijab	58	Male	Retail shop			30	
2	Phumpoung Community	Slum	Mr. Sin Chantaro	63	Male				21	
3	Leab-Klong Thawiattana Community	Slum	Ms. Rungrawan Kwansiri	52	Female				25	
4	Sirikasem Ruamjai 50 Community	Urban	Ms. Worawan Tabkrajai	59	Female	Volunteer			45	
5	None-community (housing estate)	Housing Estate	Ms. Rattana Chotisangsri	64	Female	Volunteer			20-30	

Source: JICA Project Team

Table B General Information of each community in Bang Kae district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Song Khun Jha Community	700-800	80-90	7-12	300				
2	Phumpoung Community	372	72	Less than 5	280			Myanmar	Manufacturing, officer
3	Leab-Klong Thawiattana Community	600 include non-registered	140	2					
4	Sirikasem Ruamjai 50 Community	1748	485		300				
5	None-community (housing estate)	1500	400						

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

10. Chatuchak district

Table A General information about interviewees according to communities in Chatuchak district

No	Community	Type of community	Representative of PHVs					Number of households over watching
			Name	Age	Gender	Main occupation	Years of experience as PHV	
1	Military Community	Elderly community	Mrs.Pratueng Ruenbantoeng	71	Female	Business owner	18	20
2	Paholyothin 24	Elderly community	Mrs.Nongyao Buranaruek	68	Female	Housekeeper	14	363

Source: JICA Project Team

Table B General Information of each community in Chatuchak district

No	Community	Number of residents	Number of households	Household size	Number of non-registered population	Number of PHVs	Migrants		
							Number	Nationalities	Occupation
1	Military Community	600	280	4-6		6			
2	Paholyothin 24	1,050	363	4-6	500	1	150	Myanmar	Employee

*Remark: The numbers are based on the estimation by PHVs

Source: JICA Project Team

Appendix 4: References

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<https://data.go.th/dataset/covid-19-daily>

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<https://www.mhesi.go.th/home/index.php/pr/all-media/56-covid-19/covid-infostatistic/1641-covid-19-rt-pcr-23-29may2563>

Number of Tested positive, Ministry of Public Health
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FB: ไทยรัฐโรค

Numbers of Hospital where could accept the COVID-19 patients and the number of the beds for them in total
Department of Disease Control / Ministry of Public Health
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