Ministry of Public Health
National Institute for
Emergency Medicine
Kingdom of Thailand

Official Project of Association
of Southeast Asian Nations
(ASEAN)

Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management

Situation Survey for ASEAN Collective Measures to Support AMS I-EMT Deployment
Needs and Potential Survey for Capacity Development of Disaster Health Management in ASEAN Member States

Final Report

March 2021

Japan International Cooperation Agency
(JICA)

Koei Research & Consulting Inc.

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Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management

Situation Survey for ASEAN Collective Measures to Support AMS I-EMT Deployment

Project Completion Report

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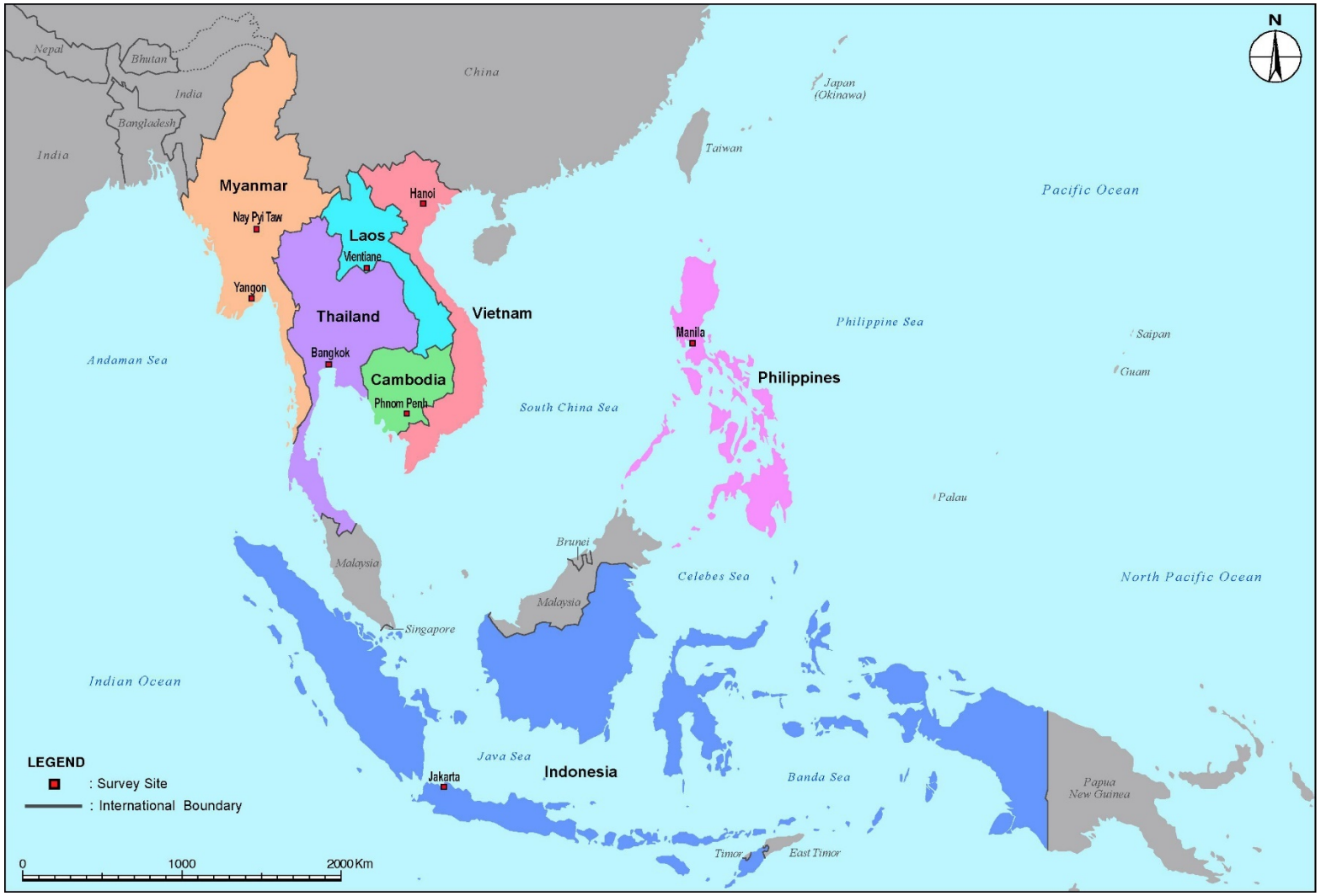


Map of Survey Target

Abbreviations and Acronyms

AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
APCDM	Asia Pacific Conference on Disaster Medicine
ARCH	Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management
ASEAN	Association of South-East Asian Nations
AMS	ASEAN Member States
CAF	Contractual Arrangement for Assistance Form
C/P	Counterparts
DMAT	Disaster Medical Assistance Team
EMT	Emergency medical team
F/R	Final report
IC/R	Inception report
JADM	Japanese Association for Disaster Medicine
JDR	Japan Disaster Relief
JICA	Japan International Cooperation Agency
MOPH	Ministry of Public Health
MRA	Mutual Recognition Arrangement
NIEM	National Institute for Emergency Medicine (Thailand)
PDM	Project design matrix
PWG	Project working group
RCC	Regional Coordination Committee
SASOP	Standard operating procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations
SOP	Standard operating procedure
TOR	Terms of Reference
UHC	Universal Health Coverage
UNDAC	United Nations Disaster Assessment and Coordination
WADEM	World Congress on Disaster and Emergency Medicine
WHO	World Health Organization

1. Outline of the Survey

1.1 About the Survey

This survey was implemented as supplemental survey for Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management (here after, the ARCH Project).

1.2 Background of the Survey

The ARCH Project started its project activity in July 2016 as the ASEAN official project and was planned to be implemented until July 2019 for three years. Setting up of coordination platform by AMS, implementation of regional collaboration drill, development of tools for effective regional collaboration on disaster health management etc. have been implemented.

Through these activities, some lessons were learned and challenges, in order to be solved for rapid and smooth mutual cooperation between AMS, were revealed.

According to the hearing interview during the 3rd AMS training, which was held by the ARCH Project in May 2018 in Bangkok, Thailand, while there was a common understanding that AMS should develop I-EMT in line with the WHO minimum requirements set out by the WHO EMT initiative, many AMS indicated that it would be difficult to meet the WHO standard especially in the areas of response to medical malpractice, medical waste management, logistics. To address these challenges, ASEAN Collective Measures was initiated as one of the ARCH Project activities to complement the gap for AMS to meet the WHO requirements.

With the extension of the ARCH Project to March 2021, the survey was launched in September 2019 to collect and analyze information to consider the ASEAN Collective Measures.

1.3 Purpose of the Survey

The purpose of this survey is to collect information and make recommendations on the following 5 priority issues, which have been identified as major challenges by the AMS in meeting the WHO minimum requirements, to consider the ASEAN Collective Measures which seeks to realize rapid, effective and quality I-EMT deployment in ASEAN region.

1) Customs clearance of I-EMT medicine and equipment

2) Laws and Regulations concerning medical waste management

3) Regulations concerning medical malpractice

4) Logistics issues concerning I-EMT deployment

5) Authorization procedures to practice for I-EMT medical professionals

1.4 Target of the Survey

The target of the survey was the 5 AMS countries namely Indonesia, Myanmar, Philippines, Thailand and Vietnam, all of which are prone to disaster and potential of receiving I-EMT in the future, and having hosted or planning to host the ARCH Project Regional Collaboration Drill.

2. Contents of the Survey

2.1 Contents and Items of the Survey

In the survey, information collection was implemented in order to consider the ASEAN Collective Measures in ASEAN region. The followings are items and contents of survey.

Table 1 Items and contents of survey

Survey items	Contents
1) Customs clearance of I-EMT medicine and equipment	・Medicine and medical supplies required for I-EMT Type 1 ・Presence of regulated (restricted) items and goods ・Application possibility of deregulation including simplify and expeditious customs clearance in the event of disaster, which including information of customs clearance process, organization in charge, existence of customs clearance agent, required documents, etc.
2) Laws and Regulations concerning Medical waste management	・Laws and regulations concerning medical wastes ・Special Disposal measure for special medical wastes
3) Regulations concerning medical malpractice	・Presence of regulations for medical malpractices
4) Logistics issues concerning I-EMT deployment	・Medicine and medical materials stock (Items, minimum volumes) ・Transportation support ・Personnel allocation for logistics ・Safety measures
5) Authorization procedures to practice for I-EMT medical professionals	・Procedures of medical practice permission for person with foreign medical certificate

2.2 Method of the Survey

The survey team implemented literature review and survey with questionnaire sheet for the 5 priority issues mentioned in Table 1.

Table 2 Contents of literature review and information collection

Method of Survey	Contents
Literature review	Literature review was conducted on following 6 international guidelines ・Emergency Medical Teams Coordination Handbook (WHO), 2016 ・Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP) (The AHA Centre), 2018 ・The Regulation and Management of International Emergency Medical Teams (WHO, others), 2017 ・Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance (IFRC), 2007 ・Classification and Minimum Standards for Foreign Medical Teams in Sudden Onset Disasters (WHO), 2013
Information collection with questionnaire sheet	Information collection with using questionnaire sheet was conducted through contract parson of target AMS including Indonesia, Myanmar, Philippines, Thailand, Vietnam. Questionnaire sheet is attached as ANNEX 2.

2.3 Flow Chart of the Survey Work

Flow chart of the survey is as shown in Figure 1.

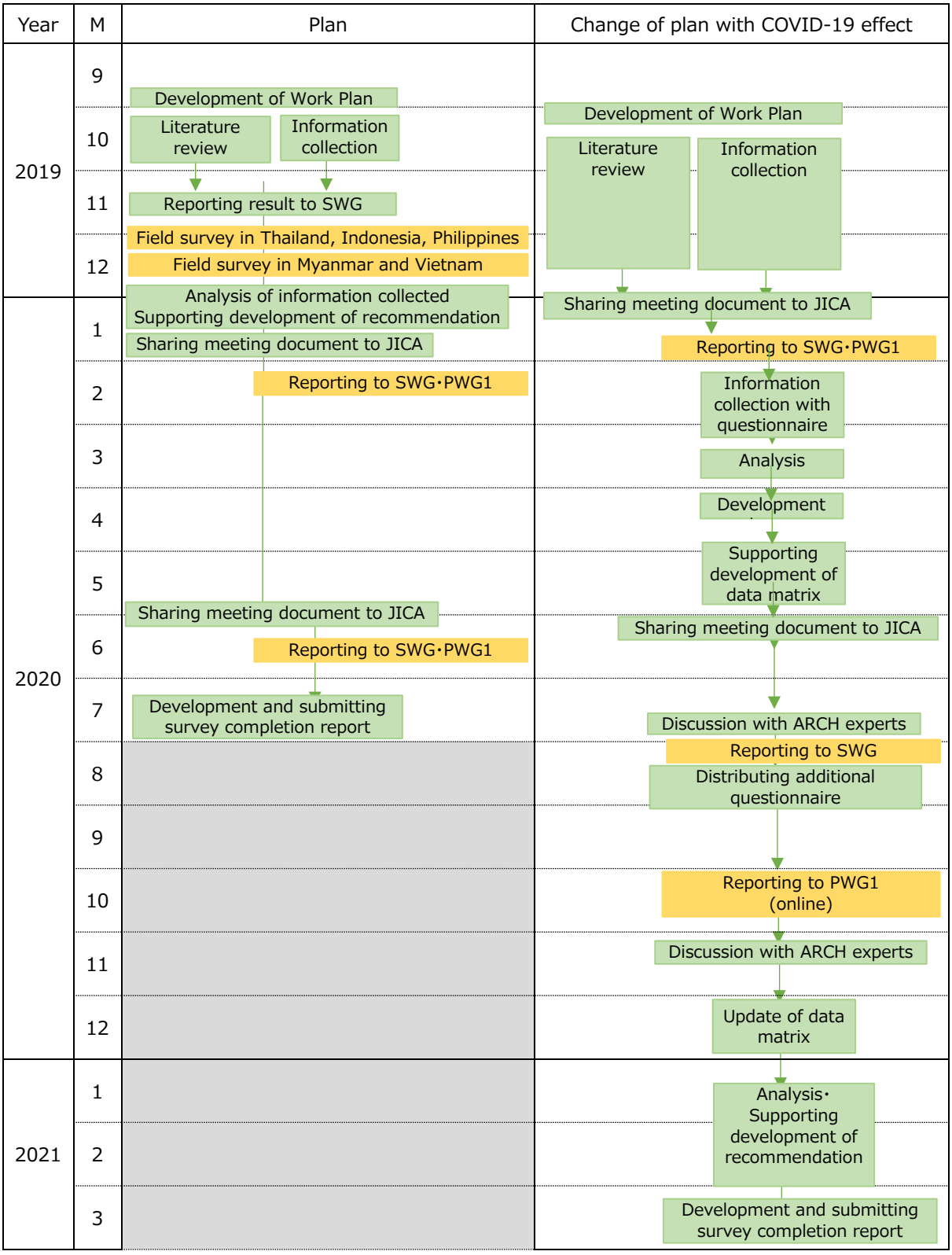


Figure 1 Flow Chart of the Survey

2.4 Process of the Survey

The process of the survey as shown in Figure 1 is explained in the following sections.

1) Development of Working Plan

Working Plan was drafted in Japanese and English respectively, and finalized in consultation with the Infrastructure and Peacebuilding Department of JICA and ARCH Project experts.

2) Survey on International Guidelines

Six international guidelines were selected after considering advices from ARCH Project experts and outline of guidelines were developed (attached as ANNEX 1). And relevant descriptions to 5 priority issues mentioned in Table 1 were identified and extracted. In May 2019, the progress was reported to the Infrastructure and Peacebuilding Department of JICA and ARCH Project experts.

3) Information Collection from Target AMS

Following the consultation with the Infrastructure and Peacebuilding Department of JICA and ARCH Project experts on 15th January 2020, draft questionnaire was presented at Sub-working group for ASEAN Collective Measures (SWG) meeting for consultation on 20th January 2020 , and the interim report on literature review and outcome of the SWG meeting were presented at Project Working Group (PWG) 1 meeting on 21st January 2020. Additionally, regarding medical malpractice, which is one of 5 priority issues, the survey team visited LOCKTON Wattana Insurance Brokers (Thailand), Ltd., which is an insurance company in Bangkok, and conducted hearing on possibility of development of insurance for medical malpractice related to I-EMT activity on 22nd January 2020.

The questionnaire sheets were finalized after reflecting comments from SWG members and ARCH Project experts, and was distributed by e-mail on 4th February 2020, with the submission deadline at the end of February 2020. However, due to the prevailing situation of the COVID-19 pandemic, under which SWG members, all of whom work under the health sector in each country, had been occupied to deal with the situation, the questionnaire responses were collected only from 3 of the 5 AMS countries including Myanmar, Vietnam, Philippines (partly unanswered) as of the end of February 2020. Reminder email was sent on 2nd March 2020, and answer from Thailand was received in September 2020. In view of the situation of the COVID-19 pandemic and consulting with ARCH Project experts, no further reminder was sent.

An additional questionnaire focusing on customs clearance and logistics out of 5 priority issues, was developed and distributed to the AHA Centre, and answer was received on 26th March 2020.

Based on the responses from 3 AMS countries and the AHA Centre, an interim report was compiled and shared with ARCH Project experts on 6th April 2020. The survey team also supported in updating database matrix developed by the ARCH Project from May to December 2020.

4) Reporting of Result to the SWG

The survey team attended the 2nd SWG meeting held online on 7th August 2020 and reported on result of information collection as of that time.

5) Field Survey on Target AMS

The field survey was initially planned to take place in 5 AMS countries from November to December 2019, but after consultation with ARCH Project experts, it was decided to implement online survey, and conduct the field survey as required. Subsequently, due to the COVID-19 pandemic, the implementation of the field survey became impossible and all the information collection was implemented online.

3. Results of the Survey

3.1 Result of Literature Review

As a literature review, the following 6 international guidelines were selected to identify the roles of assisting and receiving country of I-EMT. An overview of the international guidelines used is attached as ANNEX 1.

Document 1	Emergency Medical Teams Coordination Handbook (WHO), 2016
Document 2	Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP) (The AHA Centre), 2018
Document 3	The Regulation and Management of International Emergency Medical Teams (WHO, others), 2017
Document 4	Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance (IFRC), 2007
Document 5	Classification and Minimum Standards for Foreign Medical Teams in Sudden Onset Disasters (WHO), 2013
Document 6	Disaster Assessment and Coordination UNDAC Field Handbook, (UNOCHA), 2018

1) Customs Clearance

Roles of receiving country

- Example of the Philippine :a special ‘one-stop shop’ was established at entry points to expedite the formalities for incoming EMTs. (Document 3)
- The Assisting Entity may use the registration and easily identifiable license plates of aircraft and vessels without tax, licenses and/or any other permits. These aircraft and vessels shall have the appropriate insurance coverage for use in the territory of the Requesting or Receiving Party. (Document 2)

Roles of assisting country

- Aircraft and vessels shall have the appropriate insurance coverage for use in the territory of the requesting or receiving party. (Document 2)

2) Medical Waste management

Roles of receiving country

- Being self-sufficient, including "medical and other waste treatment". (Document 3)
- Specialized coordination may be required for EMT Coordination Cell (EMTCC) to allow for more efficient resource utilization in medical waste management. (Document 1)
- Medical waste from foreign medical team (FMT)s must not become a hazard to the local population. FMTs are responsible for the safe disposal of all medical waste from their facility or if working within

a pre-existing national health facility, must encourage the safe disposal of such waste. Of particular relevance is the safe disposal of contaminated medical waste and waste fluids, sharps and discarded medications and chemicals. (Document 5)

- Contaminated non-sharp waste and sharps must be separated from general waste into yellow-labelled receptacles of adequate design, and dealt with specifically. Technical aspects of dealing with all such material are outlined in WHO and OCHA guidelines. (Document 5)
- Transportation options: Put in proper drums, bins or other container before loading onto trucks for haulage. (Document 6)
- Disposal options: Dispose at sanitary landfill under controlled management. If no controlled disposal available, store until sanitary landfill available. (Document 6)

Roles of assisting country

- Being self-sufficient, including "medical and other waste treatment". (Document 3)

3) Medical Malpractice

Roles of receiving country

- Specific description was not found.

Roles of assisting country

- EMTs undergoing the quality assurance process are also now required to demonstrate that their members are also covered for liability from malpractice while performing their duties in foreign countries. (Document 3)
- FMTs must ensure the team and individuals within it are covered by adequate medical malpractice insurance. FMTs must have mechanisms to deal with patient complaints and allegations of malpractice. (Document 5)

4) Logistics

Roles of receiving country

- Specialized coordination may be required for EMTCC to allow for more efficient resource utilization of oxygen supply (Document 1)

Roles of assisting country

- Be self-supporting for the duration of the Humanitarian Assistance and Disaster Relief (HADR) operation in terms of transport, fuel, food rations, water and sanitation, maintenance and communications in order to avoid placing additional stress on the Receiving or Requesting Party’s local authorities. (Document 2)
- FMTs will ensure that all pharmaceutical products and equipment they bring complies with international quality standards and drug donation guidelines. (Document 3)

5) Authorization procedures to practice for I-EMT medical professionals

Roles of receiving country

- Necessity to establish an effective on-site registration and accreditation process. (Document3)

Roles of assisting country

- Specific description was not found.

3.2 Results of Information Collection from Target AMS

The survey team conducted information collection on 5 priority issues from 5AMS with questionnaire sheet. Questionnaire sheet consists of customs clearance of I-EMT medicine and equipment, laws and regulations concerning medical waste management, regulations concerning medical malpractice, logistics, authorization procedures to practice for I-EMT medical professionals. The survey team received answer from Myanmar, Philippines, Thailand, Vietnam out of the 5 AMS countries with partial answer by Philippines and Thailand. The main findings of information collection are as follows. The findings are partly complemented by information collected through web-based assessment.

1) Customs Clearance

Information was collected on prohibited items to be brought into each AMS, procedure to bring in medicine and medical equipment with I-EMT and possibility of exemption of procedures.

Prohibited items, medicine and medical equipment to be brought into each AMS

The items, medicine and medical equipment with check mark in Table 3 are prohibited to be brought into each country. Some AMS including Myanmar and Thailand prohibit anaesthetics, analgesics, anticonvulsants/antiepileptics and mental health medicines.

Table 3 Prohibited items to be brought into each AMS

	Indonesia	Myanmar	Philippines	Thailand	Vietnam
Medicines					
Anaesthetics	Not confirmed	✓	Not confirmed	✓	
Analgesics	Not confirmed	✓	Not confirmed	✓	
Anticonvulsants/antiepileptics	Not confirmed	✓	Not confirmed	✓	
Mental health medicines	Not confirmed	✓	Not confirmed	✓	
Others	Not confirmed		Not confirmed		
•Narcotic drugs ・Precursor drugs	Not confirmed		Not confirmed		✓
•Flunitrazepam •Zipeprol •Buprenorphine •Methylphenidate •Methadone •Fentanyl ・Tramadol ・Pentazocine ・Sufentanil ・Codeine ・Pethidine	Not confirmed	✓	Not confirmed		
Medical devices, equipment					
•Forceps, artery, Kocher •Glucometer •Otoscope set, cased •Pulse oximeter fingertip, spot-check •Scissors, Deaver, straight, sharp/blunt •Sphygmomanometer, aneroid •Surgical instruments set •Clinical thermometer etc.	Not confirmed	✓	Not confirmed		

Procedure to bring in medicine and medical equipment with I-EMT

Some AMS requires declaration in advance. It was initially expected that Contractual Arrangement for Assistance Form (herein after CAF), which is regulated in SASOP, would minimize or expedite the customs

procedure. However, the AHA Centre clarified that the CAF can be used in order to speed up the process but not to exempt the necessary procedures. In addition, none of the respondents in this survey had any experience of applying CAF on customs clearance procedure.

Table 4 Procedure to bring in medicine and medical equipment

	Procedure to bring in medicine and medical equipment	Packaging requirement
Indonesia	Not confirmed	English, Bahasa Indonesian or Melayu
Myanmar	Declaration should be before bringing in. Required to declare type and amount	Proper packaging and labelling
Philippines	Not confirmed	Not confirmed
Thailand	Not confirmed	Not confirmed
Vietnam	Declaration should be at the customs office	English labelling

Note: Information for Indonesia is complemented by website information

Minimization and acceleration of entry and exit of country procedure

The answer of AMS on Minimization and acceleration of entry and exit of country procedure is as shown in Table 5.

Some AMS require declaration in advance. All respondents in this survey have the relevant regulation for bringing in/ taking out of cash. And, as for the permission for the re-export of I-EMT equipment out of the country, it depends on the country and the type of the equipment.

Table 5 Minimization and acceleration of entry and exit of country procedure

	Indonesia	Myanmar	Philippines	Thailand	Vietnam
Exemption from taxation on importation and use of equipment	Not confirmed	Depends on type of equipment	Not confirmed	Not confirmed	Depends on type of equipment
Possibility for AMS I-EMT to bring back equipment brought by them	Not confirmed	Yes	Not confirmed	Not confirmed	Depends on the type of equipment
Regulation to bring in and out local/ foreign cash	Not confirmed	Regulated	Regulated	Regulated	Regulated
Recommendable logistics service provider	Not confirmed	Yes	Not confirmed	Not confirmed	Yes

2) Medical Waste management

In this part, information on laws, regulations and policies relating to medical waste management was collected.

Laws and Regulations concerning Medical waste management by country

Indonesia

Laws and regulations	・ National legislation on hazardous waste (1999) ・ Legislation on all waste (2008) ・ Legislation on hospitals and environment protection and management (2009)
Policies	・ Policies about health standards for hospital environment ・ Policy of healthy city
Guidelines	・ Draft of clean hospital and primary health care guidelines ・ Draft of solid waste management in hospitals ・ Guidelines on waste management in primary health care ・ Guidelines on hospital liquid waste management

Myanmar

Laws and regulations	・ The Environmental Conservation Law 2012
Policies	・ National Waste Management Strategy and Action Plan for Myanmar (2017-2030) March 2018
Guidelines	・ The hospital infection control guideline (2011) ・ The hospital management manual (2011)
Others	・ Myanmar Essential Health Services Access Project, Environmental Management Plan (2014)

Philippines

Laws and regulations	・ Republic Act No. 8749/ The Philippine clean air act (1999) ・ Republic Act No. 9003/ The ecological solid waste management act of the Philippines
Policies	・ Republic Act No. 6969/ An act to control toxic substances and hazardous and nuclear waste control act 1990 ・ DOH administration order No. 2008-0021 dated 30 July 2008 on gradual phase-out of mercury in all Philippine health-care facilities and institutions
Guidelines	・ Health-care waste management manual (2004)

Thailand

Laws and regulations	・ Law/Regulation: Legislation on management of biomedical waste (2002)
Policies	・ Public Health Act B.E.2535 (1992)
Guidelines	・ Guidelines: Guidelines for management of waste from immunization activities

Vietnam

Laws and regulations	・ Decision N0.2038/QD-TTg of November 15,2011 of the Prime Minister approved the overall plans of medical waste management period of 2011 -2015 and orientation to 2020. ・ circular No.16/2018/TT-BYT dated 20 July,2018 of the MOH regulations on infection control in healthcare and treatment facilities ・ Joint circular No.58/2015/BYT-BTNMT TTLT December 31,2015 of the MOH, Ministry of Natural Resources and Environment regulations on medical waste management.
Policies	Not applicable
Guidelines	・ Manual management of medical waste in hospitals (issued together with Decision No.105/QD-MT dated on July,3rd ,2014 of the Director of Health Environment Management Agent.

Disposal measures of specific medical wastes

・**Bodily fluids, body parts & tissues**

	Method of treatment
Indonesia	・ Not confirmed
Myanmar	・ Pyrolytic incineration and safe burying
Philippines	・ Burning in crematoria or specially designed incinerators ・ Alkaline digestion, especially for contaminated tissues and animal carcasses ・ Promession ・ Interment (burial) in cemeteries or special burial sites ・ Placenta waste is composted or buried in placenta pits designed to facilitate natural biological decomposition.
Thailand	・ Incineration, Cremation, Landfill Burial
Vietnam	・ Incinerator, encapsulation and buried ・ in cemeteries or in concrete pits with bottoms and lids

・**Sharps & medications**

	Method of treatment
Indonesia	・ Not confirmed
Myanmar	・ Pyrolytic incinerator ・ Wet thermal disinfection ・ Microwave irradiation ・ Chemical disinfection ・ Safe burying
Philippines	・ Disinfection: Autoclave, Microwave technology, Chemical disinfection ・ Mechanical shredding: On-site mechanical needle cutters or electric needle destroyers ・ Encapsulation in cement blocks ・ Sharps pits/Concrete vaults
Thailand	・ Chemical, Stream Sterilization, Microwave, Mutilation, Landfill Burial
Vietnam	・ Contained in a cocoon tanks and burial in the ground

・**Chemicals**

	Method of treatment
Indonesia	・ Not confirmed
Myanmar	・ Pyrolytic incinerator for small quantity ・ Safe burying ・ Inertization ・ Return to supplier
Philippines	・ Large amounts of chemical waste should not be buried, because they may leak from their containers, overwhelm the natural attenuation process provided by the surrounding waste and soils, and contaminate water sources. ・ Encapsulation. (Large amounts of chemical disinfectants should not be encapsulated, because they are corrosive to concrete and sometimes produce flammable gases) ・ Where allowed by local regulations, non-recyclable, general chemical waste, such as sugars, amino acids and certain salts, may be disposed of with municipal waste or discharged into sewers. ・ An option for disposing of hazardous chemicals is to return them to the original supplier, who should be equipped to deal with them safely ・ Sanitary landfill (for small quantities only)
Thailand	・ Stabilization, Incineration, Lined Hazardous Waste Landfill Burial
Vietnam	・ Not mentioned specifically in the guideline

3) Medical malpractice

In this part, information collection was made upon following items. Additionally, hearing interview was made on a private insurance company in Thailand. The company prepared a quotation of medical malpractice insurance assuming I-EMT Type 1 to be operational at least for 2 to 3 weeks.

Laws and regulation on medical malpractice

Myanmar, Philippines and Vietnam answered there are regulations regarding medical malpractice.

Indonesia	Myanmar	Philippines	Thailand	Vietnam
Not confirmed	Yes	Yes	Not confirmed	Yes

Insurance company selling general medical malpractice insurance

Myanmar, Philippines and Vietnam answered that there are insurance companies selling insurance designed to cover general medical malpractice, while the results of Indonesia and Thailand were collected through web-based assessment.

Indonesia	Myanmar	Philippines	Thailand	Vietnam
Yes	Yes	Yes	Yes	Yes

Consideration for development of medical malpractice insurance for I-EMT

Myanmar, Philippines and Vietnam answered they are not considering it.

Indonesia	Myanmar	Philippines	Thailand	Vietnam
Not confirmed	No	No	Not confirmed	No

Compensation mechanism based on bilateral agreement

Myanmar, Philippines and Vietnam answered that they have not concluded bilateral agreement with any country on compensation covering medical malpractice during emergency medical operation.

Indonesia	Myanmar	Philippines	Thailand	Vietnam
Not confirmed	No	No	Not confirmed	No

Additional information: Comments and quotation of malpractice insurance by private insurance company in Thailand

The survey team visited private insurance company[1] in Thailand and conducted hearing on insurance to cover medical malpractice for I-EMT activities in January 2020. The main points are as follows.

- The insurance company does not sell medical malpractice insurance specifically designed for I-EMT practice abroad. They never heard about such insurance products so far.

[1] Insurance company with health office in U.S.A and have branches in 27 countries and 90 places. They have medical malpractice insurance contract with 50 hospitals in Thailand

- Regarding medical malpractice insurance for general hospital or medical personnel, insurance premium is calculated based on years of experience of medical personnel and expected medical treatment. However, it is also possible to make quotation and develop customized insurance package for I-EMT activities if relevant information is provided.
- It is possible to develop customized insurance package per dispatch of I-EMT, but insurance premium will be expensive in this case. It is better to make several-years contract with annually paid premium
- because the premium can be relatively low.
- To deal with claims for medical malpractice, negotiation skills of attorney is important in order to avoid lawsuits and negotiate out-of-court settlement with favorable terms. It is important to select insurance company which has good networks with skilled attorneys.

The survey team asked the insurance company to make a quotation of medical malpractice insurance for I-EMT activity with the following conditions. In case the maximum amount of compensation is assumed to be 1 million USD, annual insurance premium was estimated as 12,000USD, as of February 2020.

Composition of I-EMT (medical personnel)	Three medical practitioners (surgeon/physician), one pharmacist, nine nurses, one midwife
Contents of medical treatment	Providing outpatient emergency care for at least 100 people per day
Period of activity	At least 2 to 3 weeks
Other condition	AMS I-EMT is dispatched to provide emergency medical service to the disaster struck country within ASEAN region. Activity is charitable and not collecting medical service fee. SOPs are in place regarding Clinical governance, Patient complaint & grievance care

4) Logistics

Local transport

Most AMS have plan to assist I-EMT with local transport by coordinating with either governmental organization or localities, or through partnership with relevant organizations or private companies.

Table 6 Assistance for I-EMT on transportation

	Indonesia	Myanmar	Philippines	Thailand	Vietnam
Plan to assist I-EMT with local transportation	Not confirmed	Yes	No	Not confirmed	Yes
Partnership with organizations which can provide assistance of transportation	Not confirmed	No	Yes	Not confirmed	Yes

Local human resources

Items with check mark in Table 7 are the human resources that each AMS has plans to assist I-EMT through partnership with relevant organizations or private companies. All the AMS have plan to allocate interpreter and volunteer. Myanmar and Vietnam have plan to allocate driver as well.

Table 7 Assistance for I-EMT on human resources

	Indonesia	Myanmar	Philippines	Thailand	Vietnam
Driver	Not confirmed	✓	-	Not confirmed	✓
Interpreter	Not confirmed	✓	✓	Not confirmed	✓
Volunteer	Not confirmed	✓	✓	Not confirmed	✓

Situation related to communication tool

Two AMS allow I-EMT to import, export and use radio, satellite communication tool and GPS, and have established partnership with relevant organization or private company for possible supply of the communication tools. Meanwhile, Myanmar set restriction on import and export of the communication tools and GPS.

Three AMS plan to allocate radio frequency for disaster response actors.

Table 8 Situation for importation, exportation and usage of communication tool

	Radio, Satellite phone and GPS are allowed to import, export or usage			Plan to lend communication tool by government or partnership-organization/ private company
Indonesia	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Myanmar	-	-	Allowed to use	No
Philippines	Allowed to import	Allowed to export	Allowed to use	Yes
Thailand	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Vietnam	Allowed to import	Allowed to export	Allowed to use	Yes

Safety/ Security management

Measures with check mark in

Table 9 are planned as safety/ security management measures for I-EMT. Most of the AMS have safety/ security management plan for I-EMT.

Table 9 Safety/ Security management measure/ plan to be provided for AMS I-EMT

	Assistance / Plan	Indonesia	Myanmar	Philippines	Thailand	Vietnam
1	Provide security briefing for AMS I-EMT	Not confirmed	✓	✓	Not confirmed	✓
2	Check whether AMS I-EMT members are covered by medical insurance	Not confirmed	✓	-	Not confirmed	✓
3	Provide security information to AMS I-EMT contact point time to time	Not confirmed	✓	✓	Not confirmed	✓
4	Deploy security unit such as military or police in case requested from AMS I-EMT	Not confirmed	✓	✓	Not confirmed	✓
5	Have evacuation plan for AMS I-EMT in case of secondary hazard happens	Not confirmed	✓	✓	Not confirmed	✓

International entry points for incoming I-EMT

Following table shows each AMS's international entry point according to national contingency plan for receiving international assistance. All AMS have more than three entry points.

Table 10 International entry points to receive AMS I-EMT

	By air	By sea/river	By land
Indonesia	Not confirmed	Not confirmed	Not confirmed
Myanmar	・ Nay Pyi Taw International Airport, ・ Yangon International Airport, ・ Mandalay International Airport	・ Yangon International Seaport	・ Myawadi (Thai Border Entry) ・ Tachileik (Thai Border Entry) ・ Kawthaung (Thai Border Entry)
Philippines	・ Ninoy Aquino International Airport, ・ Clark International Airport,	・ Port of Manila	-
Thailand	Not confirmed	Not confirmed	Not confirmed
Vietnam	・ International Airport Nội Bài ・ International Airport Tân Sơn Nhất ・ International Airport Đà Nẵng	・ Hai Phong port	-

5) Authorization procedures to practice for I-EMT medical professionals

Registration of I-EMT members

Each medical professional with check mark in
Table 11 is required to register in each receiving country to carry out medical practice in I-EMT activities even if there is the ASEAN Mutual Recognition Agreement.

Table 11 Registration required for I-EMT members

Registration required	Indonesia	Myanmar	Philippines	Thailand	Vietnam
Medical practitioner	✓	✓	Not confirmed	✓	✓
Nurse	Not confirmed	✓	Not confirmed	✓	✓
Emergency Medical Technician	Not confirmed	✓	Not confirmed	-	✓
Paramedic	Not confirmed	✓	Not confirmed	✓	-
Midwife	Not confirmed	✓	Not confirmed	✓	✓
Pharmacist	Not confirmed	✓	Not confirmed	-	✓

Note: Information for Indonesia and Thailand is complemented by website information

Required registration for I-EMT and waivers

As shown in Table 12, when conducting I-EMT activities in receiving country, the following registrations including visa, foreigner registration, work permit, company registration are required. It is also possible to simplify or expedite the part of procedures by applying to the relevant authority.

Table 12 Registration required for I-EMT and waivers

Registration required	Indonesia	Myanmar	Philippines	Thailand	Vietnam
Visa	Not confirmed	✓	Not confirmed	Not confirmed	-
Foreigner registration	Not confirmed	-	Not confirmed	Not confirmed	✓
Work permit	Not confirmed	✓	Not confirmed	Not confirmed	✓
Company registration	Not confirmed	-	Not confirmed	Not confirmed	✓

3.3 Recommendations Based on Result of the Survey

1) Customs Clearance

It was initially expected that presenting signed Contractual Arrangement for Assistance Form (CAF) in advance can minimize the customs clearance procedure for I-EMT medicine and equipment. There are, however, no AMS country in this survey have experience of processing customs clearance with CAF for incoming I-EMT deployment, nor recognizing actual procedure and how much the process can be accelerated or minimized. In addition, according to the AHA Centre, CAF, which is regulated in SASOP, can be used in order to speed up the process but not to exempt or minimize procedures.

In considering of these findings, it might be more realistic to try to reduce time for customs clearance as much as possible with continuing information collection on restrictions and procedures related to customs clearance.

2) Medical waste management

As set out by the WHO EMT minimum requirements, I-EMT is expected to be self-sufficient, and I-EMT need to dispose their medical waste by themselves in accordance with the laws and regulations in the receiving country.

As mentioned in 0, each AMS has laws and guidelines related to disposal of medical wastes, and there are regulations on disposal method of specific medical wastes including bodily fluids, body parts, sharps and chemicals. This information is included in database developed by the ARCH Project It is recommended that assisting AMS shall refer regulation of receiving countries on this database and dispose their medical wastes adequately.

3) Medical malpractice

Insurance package for medical malpractice specifically designed for I-EMT operation is not sold over the counter of insurance company. Then, it is necessary to find a partner company and negotiate to develop one. According to the quotation provided by the Thai insurance company, the annual insurance premium was 12,000USD[2] for emergency response operation by I-EMT-Type1Fix for the period of 2 to 3 weeks with a maximum compensation of 1 million USD.

It is equally important to develop standard operating procedure to properly address patient's complaints, responding to medical accidents, establishing reporting system involving EMTCC and/ or the embassy of assisting country as required as well as developing a follow up mechanism after the end of I-EMT deployment.

4) Logistics

The survey tried to capture possible support or information provided by receiving country through EMTCC management such as local transportation, human resources and safety/ security management measures. Information collected through this survey was general and it is difficult to capture concrete images of actual procedures such as the information of application procedures for accessing radio frequency or mobilization of local human resource.

Logistics arrangement requires coordination and collaboration with many multi-sectoral actors as it involves local transportation, usage of communication tool, allocation of radio frequency, and mobilization of local human resources. It is therefore important to continuously collect and update the information of the relevant authorities/ organizations and procedures as well as verifying and testing the actual action on the ground by taking opportunity of the Regional Collaboration Drill.

5) Authorization procedures to practice for I-EMT medical professionals

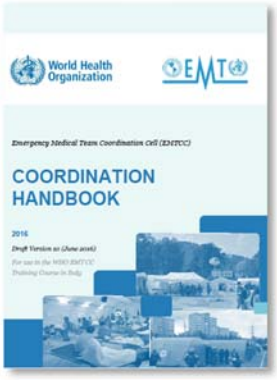
The ASEAN Mutual Recognition Arrangement (MRA) is a regional agreement that enables qualifications of medical professional recognized by the authorities in their home country to be mutually recognized by other AMS, and it was expected that the application of the MRA on I-EMT deployment would expedite the pre-deployment procedure of the authorization to practice for I-EMT medical professionals. However, the survey revealed that each country has its own national procedure to authorize foreign medical professional to practice despite the existence of MRA. In addition, some countries impose special requirements and conditions on MRA such as the maximum number of days for performing medical activity or need of prior authorization of license. Based on the above findings, it is recommended to further clarify and update the authorization procedure of each AMS country for foreign medical professionals to practice specifically applied to I-EMT deployment.

It is also recommended to establish a preliminary authorization and renewal system in the receiving country for the registered medical personnel of I-EMT of other AMS countries. This would significantly expedite the process thereby contributing to strengthening the I-EMT standby arrangement in the ASEAN region.

Attachments

Attachment 1 Outlines of international guidelines used for literature review

Document No. 1	Emergency Medical Teams Coordination Handbook
Publisher: Year of publication Number of pages:	WHO 2016 77



Downloads: http://origin.searo.who.int/about/administration_structure/hse/emt_coord_handbook.pdf

Contents

- Daily Reporting Form
- Situation Report
- Emergency Medical Team Exit Report
- Patient Referral Form
- EMT Coordination Meeting Minutes

II. Office Setup and Equipment Checklist
III. Information Archiving System
IV. Examples of EMTCC Teams
V. EMTCC Member Responsibilities

Document No. 2	Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP)
Publisher: Year of publication Number of pages:	The AHA Center 2018 60

Downloads: https://ahacentre.org/wp-content/uploads/SASOP/2.-SASOP-Revision-V2.0-April2018.pdf

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K “Update” to the AHA Centre
L “Update” from the AHA Centre
M “Offer” of Assistance
N Contractual Arrangements for Assistance
O “End of Mission” from Assisting Entity to the AHA Centre

Document No. 3	The Regulation and Management of International Emergency Medical Teams
Publisher: Year of publication Number of pages:	IFRC and WHO 2017 72

Downloads: https://www.ifrc.org/PageFiles/233516/EMT%20Report%20HR.PDF

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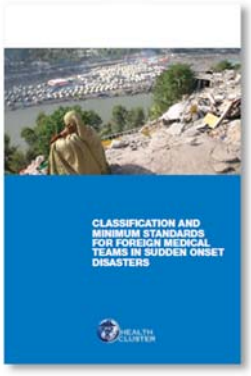
Document No. 4	Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and Initial Recovery Assistance
Publisher: Year of publication Number of pages:	IFRC 2007 14

Downloads: https://www.icrc.org/en/doc/assets/files/red-cross-crescent-movement/31st-international-conference/idrl-guidelines-en.pdf

Contents

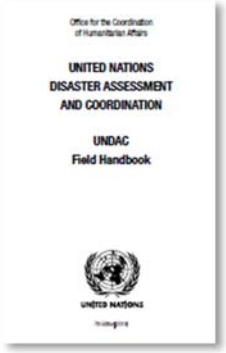
Document No. 5	Classification and Minimum Standards for Foreign Medical Teams in Sudden Onset Disasters
Publisher: Year of publication Number of pages:	WHO 2013 91



Downloads: https://www.who.int/hac/global_health_cluster/fmt_guidelines_september2013.pdf?ua=1

Contents

Document No. 6	United Nations Disaster Assessment and Coordination UNDAC Field Handbook
Publisher: Year of publication Number of pages:	UNOCHA 2018 137



Downloads: https://reliefweb.int/sites/reliefweb.int/files/resources/1823826E_interactive_menu.pdf

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Project for Strengthening the ASEAN Regional Capacity on Disaster Heath Management

Situation Survey for ASEAN Collective Measure/ Approach to Support AMS I-EMT Deployment

Country Questionnaire: Indonesia

This questionnaire consists of 5 parts:

- Part 1 Customs clearance for AMS I-EMT items
- Part 2 Laws and regulations related to medical wastes
- Part 3 Regulations and compensation for medical malpractice
- Part 4 Logistics issue
- Part 5 Legal issues

Note:

- Please send back the filled questionnaire to kido-ch@k-rc.co.jp until the end of February 2020.
- A survey team from Japan may conduct interview survey in your country, if necessary, after analyzing the filled questionnaire.

Thank you for your cooperation.

Part 1 Customs clearance for EMT items

Purpose of the questions	Information collection to develop a guidance on customs clearance procedure in AMSs

Q1. Please check the box of **prohibited items** to be brought in your country. If there is any medicine and medical equipment prohibited other than following list, please describe the name in blank box for "Others".

Medicines			
Anaesthetics			
☐	Ketamine, injection	☐	Lidocaine, injection
Analgesic		☐	Morphine, injection / tablet
Anticonvulsants/antiepileptics			
☐	Carbamazepine, tablets	☐	Magnesium sulfate, injection
☐	Diazepam, injection		
Antidotes			
☐	Calcium gluconate, injection		
Mental health medicines			
☐	Biperiden, tablets	☐	Haloperidol, injection
☐	Diazepam, tablets	☐	Haloperidol, tablets
☐	Fluoxetine, tablets		
Others (please specify names)			
☐		☐	
☐		☐	

Medical devices, equipment			
☐	Forceps, artery, Kocher, 140 mm, straight	☐	Stethoscope, binaural, complete
☐	Glucometer	☐	Stove, kerosene, single-burner, pressure
☐	Otoscope set, cased	☐	Surgical instruments, delivery set
☐	Pulse oximeter fingertip, adult, spot-check	☐	Surgical instruments, dressing set
☐	Scissors, Deaver, straight, sharp/blunt	☐	Surgical instruments, suture set
☐	Sphygmomanometer (adult), aneroid	☐	Clinical thermometer, digital
☐	Sterilizer, steam	☐	Tourniquet, latex rubber
Others (please specify names)			
☐		☐	
☐		☐	

Q2. Please describe the procedure to bring in medicine and medical equipment with AMS I-EMT to your country. **Any special procedure** such as declaration, special packing, English labelling are required?

Q3. When your country receive AMS I-EMT, a copy of "Contractual Arrangement Form" can be used **to minimize procedures** of customs clearance?

1) Yes, there was a precedent. ☐ →Go to Q4

2) Theoretically Yes, but we don't know because there was no precedent. ☐

3) We have to collect detailed information from the custom's office. ☐

→Go to Q5

Q4. If your answer to Q3 was 1), please **describe the procedure** in your country. Please also include **involved authority** such as ministry, department.

Q5. If your answer to Q3 was 2) or 3), please specify the reason. There will be some challenges?

Q6. Does your country's regulation allow AMS I-EMT **exemption from taxation** and other similar charges on **importation and use of equipment** including vehicles and telecommunications and materials brought into your country? Please check the box ☒.

1) Yes ☐ → **Go to Q8**

2) No ☐

3) It depends on the type of equipment ☐

→ **Go to Q7**

Q7. If your answer to Q6 was 2) or 3), please specify the equipment which exemption is not applied and the reason. There will be some challenges?

Q8. Does your country's regulation allow AMS I-EMT to **bring back ALL equipment** brought by them?

1) Yes ☐ → **Go to Q10**

2) No ☐

3) It depends on the type of equipment ☐

→ **Go to Q9**

Q9. If your answer to Q8 was 2) or 3), please specify the equipment which exemption is not applied and the reason. There will be some challenges?

Q10. Is there any regulation for local cash/ foreign cash to be brought in and brought out with I-EMT? Please check the box ☒.

Yes ☐ ↓ No ☐ →**Go to Q12**

Q11. If your answer to Q10. was Yes, please describe the ceiling amount and application process.

Q12. Is there a recommendable "**Logistic service provider**" which AMS I-EMT can contact for **custom clearance** ?

Yes ☐ ↓ No ☐ →**Go to Part2**

Q13. If your answer to Q12. was Yes, please specify the name of company

Part 2 Laws and regulations related to medical wastes	
Purpose of the questions	Information collection to draft "collective measure" on waste management for AMS I-EMT to meet minimum requirement of the affected country

2-1 Laws and regulations

Q1. To develop AMS I-EMT guideline for medical waste disposal, which ones are to be used **to set a minimum requirement** in your country among the listed documents? Please check the box ☒.

Category	Name	To be used as (a) reference
Law and regulation	National legislation on hazardous waste (1999)	☐
	Legislation on all waste (2008)	☐
	Legislation on hospitals and environment protection and management (2009)	☐
Policy	Policies about health standards for hospital environment	☐
	Policy of healthy city	☐
guideline	Draft of clean hospital and primary health care guidelines (Are they still draft?)	☐
	Draft of solid waste management in hospitals (Are they still draft?)	☐
	Guidelines on waste management in primary health care	☐
	Guidelines on hospital liquid waste management	☐
Any other documents	Please add if there are any other important document.	☐

Please copy and increase the rows if necessary.

Q2. Please **attach electric copies of the specific chapters of checked documents** (in English) in Q1, to be applicable to set a minimum requirement.

2-2 Types of medical waste and method of their disposal

Q3. We would like to know "**type of medical waste**" which needs special treatment or segregation by AMS I-EMT in your country. Please check the box if it needs special treatment or segregation.

Type of waste	Requirement of special treatment or segregation by EMT	Please specify the method of treatment or segregation	Are there any exclusive waste disposal site for the specified medical waste?
Bodily fluids & waste	☐		☐
Sharps & medications	☐		☐
Chemicals	☐		☐

Part 3	Regulations and compensation for medical malpractice
Purpose of the questions	Information collection to explore 1) the development possibility of an insurance scheme specialized in AMS I-EMT, 2) the possibility to introduce mutual compensation scheme among AMSs

3-1 About regulations for medical malpractice

Q1. Does your country have law/ regulations relevant to **medical malpractice**? Please check the box ☒.

Yes ☐ No ☐

Q2. Is there any private property and casualty insurance companies in your country which **might be interested** in developing a special insurance product for medical malpractice by AMS I-EMT? Please check the box ☒.

Yes ☐ No/ Not applicable ☐ → **Go to Q4**

↓

Q3. If your answer to Q2 was Yes, please specify **company names**.

Company names	Why do you recommend the company?

Q4. Have you ever heard about the case of **compensation mechanism based on bilateral agreement** (**government to government**) for liability claim against medical malpractice?

Yes ☐ No ☐ → **Go to Q6**

↓

Q5. If your answer to Q4 was Yes, please specify the case.

When	
Where	
By which country	
How	

If there are some cases, please copy the above table.

Part 4 Logistics issue	
Purpose of the questions	Information collection to 1) develop database of logistic information about AMSs, 2) identify necessary arrangements among AMS for logistics support

4-1 Transportation assistance (Fleet, Ship, Boat etc.) :

Q1. Do you have a plan to assist AMS I-EMT regarding with **local transportation** from the entry point to disaster affected area?

Yes ☐ No ☐ → Go to Q4

↓

Q2. If your answer to Q1. was Yes, please describe the plan.

Q3. If your answer to Q1. was Yes, please specify the **contact point.**

Name of organization	
Name of contact person	

Q4. Do you have a **partnership with organizations** which can **provide assistance of transportation** in your country, in case of emergency? Please check the box ☒.

Yes ☐ No ☐ → Go to Q6

↓

Q5. If your answer to Q4. was Yes, can that organization provide local transportation from the entry point to disaster affected area for I-EMT?

Yes ☐ No ☐

4-2 Local human resource (Driver, Interpreter, Volunteer) :

Q6. Do you have a plan to provide local human resource (Driver, Interpreter, Volunteer) for AMS I-EMT?

6-1 About drivers

Yes ☐ No ☐

6-2 About interpreters

Yes ☐ No ☐

6-3 About volunteers

Yes ☐ No ☐

Q7. Do you have a **partnership with organizations** which can **mobilize local human resources** in your country, in case of emergency? Please check the box ☒.

7-1 About drivers

Yes ☐ No ☐

7-2 About interpreters

Yes ☐ No ☐

7-3 About volunteers

Yes ☐ No ☐

4-3 Communication Tools (Radio, Satellite phone), GPS:

Q8. Does your country's regulation allow AMS I-EMT to **import, export, and use** Radio, Satellite phone (Iridium, Inmarsat, Bgan, Thuraya) and GPS to / from/ in your country?

8-1 About import

Yes ☐ No ☐

8-2 About export

Yes ☐ No ☐

8-3 About permission of usage

Yes ☐ No ☐

Q9. Do you have a plan to **lend communication tool** such as radio, satellite phone, GPS to AMS I-EMT? Please check the box ☒.

Yes ☐ No ☐

Q10. Do you have a **partnership with organizations or private company** which can **lend communication tool** such as radio, satellite phone, GPS to AMS I-EMT? Please check the box ☒.

Yes ☐ No ☐

4-4 Available radio frequency channel

Q11. Does your country allocate certain "frequency channel" for radio communication which will be used by disaster response actors? Please check the box ☒.

Yes ☐ No ☐ → Go to Q14

↓

Q12. If your answer to Q11. was Yes, can AMS I-EMT **use** the frequency? Please check the box ☒.

Yes ☐ No ☐

Q13. If your answer to Q11 was Yes, how can AMS I-EMT can access it?

4-5 Safety management measure

Q14. Please check the box ☒ for assistance or plan which your country provide for AMS I-EMT.

	Assistance / Plan	Your country can provide for AMS I-EMT
1)	Provide security briefing for AMS I-EMT	☐
2)	Check whether AMS I-EMT members are covered by medical insurance	☐
3)	Provide security information to AMS I-EMT contact point time to time	☐
4)	Deploy security unit such as military or police in case requested from AMS I-EMT	☐
5)	Have evacuation plan for AMS I-EMT in case of secondary hazard happens	☐

4-6 International entry point for AMS I-EMT

Q15. Do you have **international entry point (s)** to receive AMS I-EMT specialized in the national contingency plan?

Yes ☐ No ☐ → **Go to 18**

↓

Q16. If your answer to Q15 was Yes, please list up **names of assigned international entry points**.

No	Name of the city	Name of the entry point	Please check the box		
			By air	By sea/river	By land
1			☐	☐	☐
2			☐	☐	☐
3			☐	☐	☐

Please copy and increase the rows if necessary.

Q17. If your answer to Q15 was Yes, please describe the name of **national contingency plan.**

4-7 Available and accessible storage

Q18. Do you have a space which AMS I-EMT can utilize for **temporary storage for EMT equipment** near to the entry point? Please check the box ☒.

Yes ☐ No ☐

Part 5 Legal issues	
Purpose of the questions	Information collection to 1) develop a guidance on emergency application of relevant foreign licenses, 2) identify necessary arrangements among AMS for smooth legal procedures

5-1 Medical license permission procedure for overseas medical personnel

Q1. Does AMS I-EMT **medical practitioner** need to register in your country, in addition to ASEAN Mutual Recognition Agreement? Please check the box ☒.

1) They need to register in your country ☐ 2) Registration will be exempted for I-EMT ☐ → Go to Q3

↓

Q2. If your answer to Q1 was Yes, please describe **application process**.

Q3. How about the case of **nurse?**

1) They need to register in your country ☐ 2) Registration will be exempted for I-EMT ☐ → Go to Q5

↓

Q4. If your answer to Q3 was Yes, please describe **application process**.

Q5. How about the case of **Emergency Medical Technician**?

1) They need to register in your country ☐ 2) Registration will be exempted for I-EMT ☐ → Go to Q7

↓

Q6. If your answer to Q5 was Yes, please describe **application process**.

Q7. How about the case of **paramedic?**

1) They need to register in your country ☐ 2) Registration will be exempted for I-EMT ☐ → Go to Q9

↓

Q8. If your answer to Q7 was Yes, please describe **application process**.

Q9. How about the case of **midwife?**

1) They need to register in your country ☐ 2) Registration will be exempted for I-EMT ☐ → Go to Q11

↓

Q10. If your answer to Q9 was Yes, please describe **application process**.

Q11. How about the case of **pharmacist?**

1) They need to register in your country ☐

2) Registration will be exempted for I-EMT ☐ → Go to Q13

↓

Q12. If your answer to Q11 was Yes, please describe **application process**.

5-2 Legal basis such as visa, work permit, driving license, legal registration to enable employment and contract

Q13. Please check the box(1) ☒ for required **registration/ process for AMS I-EMT** to do emergency medical response in your country, (2) ☒ for registration/ permit **waivered or eased** for I-EMT and (3) describe **process detail** which is eased for especially I-EMT.

Name of registration/ permit	(1) Required	(2) Eased than usual process	(3) Process and application in order to be eased
Visa	☐	☐	
Foreigner registration	☐	☐	
Work permit	☐	☐	
Company registration	☐	☐	

Q14. Can AMS I-EMT member drive in your country with their original each AMS' driving license?

1) Yes. They can drive ☐ → End of Questionnaire

2) No. required to apply for your country driving license ☐

3) It depends on the country of origin ☐ → Go to Q15

Q15. If your answer to Q14. was 3), please describe the country of origin which need to take your country driving license.

The end of this questionnaire. Thank you so much for your cooperation.

Project for Strengthening the ASEAN Regional Capacity on Disaster Heath Management

Situation Survey for ASEAN Collective Measures to Support I-EMT Deployment

Progress report：based on responses from Myanmar, Vietnam and a partial information from the Philippines and Thailand

February , 2020

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About this Survey

1. Purpose

In JICA Technical Cooperation Project, “Project of Strengthening the ASEAN Regional Capacity on Disaster Health Management (the ARCH Project)”,according to the hearing interview during the 3rd AMS training, which was held by the ARCH Project in May 2018 in Bangkok, Thailand, while there was a common understanding that AMS should develop I-EMT in line with the WHO minimum requirements set out by the WHO EMT initiative, many AMS indicated that it would be difficult to meet the WHO standard especially in the areas of response to medical malpractice, medical waste management, logistics. To address these challenges, ASEAN Collective Measures was initiated as one of the ARCH Project activities to complement the gap for AMS to meet the WHO requirements.

This survey is to collect information in order to propose collective measures or regional rules to complement self-sufficiency of each I-EMT.

Questionnaire item was agreed at SWG in January in Thailand. Questionnaire items are categorized into five as follows.

(1) Customs clearance for I-EMT related goods

(2) Medical wastes related law

(3) Regulations for medical malpractice

(4) Logistics

(5) Procedures related to I-EMT medical qualified professionals

2. Target countries and contact persons

Five countries, namely Indonesia, Myanmar, Philippine, Thailand and Vietnam were selected as targets of questionnaire survey. These 5 AMS are countries who have experienced hosting Regional Collaboration Drill and highly possible country of receiving I-EMT in the future.

3. Methodology of data collection

Questionnaire sheets were distributed to 5 AMS on 4th February 2020. Deadline were on end of February 2020, but SWG member became busy with dealing with COVID-19 in each AMS and answer were collected by 3 AMS names Myanmar, Vietnam, Philippines (partly unanswered) out of 5 AMS at timing of end of February 2020. On 2nd March 2020, e-mail with asking cooperation and answer from Thailand was received in September 2020. With considering situation of COVID-19 and consulting with ARCH experts, additional remainder was not sent.

Results of Survey

1. Customs clearance

The questionnaire was set in order to collect information to develop a guidance on customs clearance procedure in AMS.

1-1. Prohibited items to be brought into each country.

The prohibited/ controlled medicine and items by countries are as follows. Narcotic drugs and mental health medicine were raised as prohibited/ controlled medicine by some countries.

Table 1 Prohibited medicines/ items to be brought in

	Indonesia	Myanmar	Philippine	Thailand	Vietnam
Medicines					
Anaesthetics	NC		NC		
Ketamine, injection				✓	
Analgesic	NC		NC		
Morphine, injection / tablet				✓	
Anticonvulsants/antiepileptics	NC		NC		
Diazepam, injection				✓	
Mental health medicines	NC		NC		
Biperiden, tablets					✓
Diazepam, tablets				✓	✓
Fluoxetine, tablets					✓
Haloperidol, injection					✓
Haloperidol, tablets					✓
Others (please specify names)	NC		NC		
Narcotic drugs					✓
Precursor drugs					✓
Flunitrazepam		✓			
Fentanyl		✓			
Tramadol		✓			
Pentazocine		✓			
Zipeprol		✓			
Sufentanil		✓			
Codeine		✓			
Pethidine		✓			
Buprenorphine		✓			
Methylphenidate		✓			
Methadone		✓			
Medical devices, equipment					
Forceps, artery, Kocher	NC	✓	NC		
Glucometer	NC	✓	NC		
Otoscope set, cased	NC	✓	NC		
Pulse oximeter fingertip, adult, spot-check	NC	✓	NC		

	Scissors, Deaver, straight, sharp/blunt	NC	✓	NC		
	Sphygmomanometer (adult), aneroid	NC	✓	NC		
	Surgical instruments, delivery set	NC	✓	NC		
	Surgical instruments, dressing set	NC	✓	NC		
	Surgical instruments, suture set	NC	✓	NC		
	Clinical thermometer, digital	NC	✓	NC		

NC: Not confirmed

1-2. Procedure to bring in medicine and medical equipment with I-EMT to your country.

Main points of answer from each country are as follows. There is country requiring I-EMT to communicate and declare the detail of medicine and medical items to MOH in ahead. Other country requires I-EMT to declare at customs office.

Table 2 Procedure to bring in medicine and medical equipment

	Procedure to bring in medicine and medical equipment
Indonesia	Not confirmed
Myanmar	Before bringing in medicine and medical equipment with I-EMT to Myanmar, the Responsible person from I-EMT have to contact with Ministry of Health and Sports, Myanmar and have to declare the type and amount of Medicine and Medical Equipment and those are required to be properly packed and labeled
Philippines	Not confirmed
Thailand	Not confirmed
Vietnam	Declaration at the customs office should be, and English labelling are required For procedures for temporary importation of healthcare machinery and equipment from foreign organizations for healthcare delivery in Vietnam for humanitarian purpose, the procedure is as follows; temporary importation of performance equipment, equipment for training and competition of art troupes, sports tournament and performance troupes shall be carried out at the customs authority without requiring a temporary importation license. If healthcare machinery and equipment; performance equipment, equipment for training and competition to be temporarily imported are under the list of prohibited exports and imports; suspended exports and imports, or exports and imports requiring license or under given conditions, apart from customs dossiers as prescribed, following documents are also required: a) A written permission of the competent authority giving reception of the healthcare group or the event group. b) A written undertaking that the machinery and equipment will be used with proper purposes and as regulated by the competent authority giving the reception. (clause 15, Decree 69/2018/NĐ-CP)

1-3. Validity of “Contractual Arrangement Form” to minimize procedures of customs clearance in case of receiving I-EMT

Most of the country have no experience yet of customs clearance with “Contractual Arrangement Form”, so all countries couldn’t answer the actual situation of customs clearance with using “Contractual Arrangement Form”.

According to AHA center answer, SASOP forms can be used in order to speed up the process but not to minimize procedures. This is because the customs, immigration and quarantine procedures of each AMS need to be respected and followed.

Table 3　Customs clearance with using “Contractual Arrangement Form”

	Validity of “Contractual Arrangement Form” to minimize procedures of customs clearance
Indonesia	Not confirmed
Myanmar	“Contractual Arrangement Form” theoretically can be used, but there was no precedent.
	For customs clearance of the medicine and medical equipment that are going to be brought into Myanmar with I-EMT team, having an official letter from Embassy of Myanmar of the respective country and making a prior contact with Ministry of Office of the President, Ministry of Health and Sports, Ministry of Foreign Affair, Ministry of Social Welfare, Relief and Resettlement of Myanmar would be a possible process. Because the National Disaster Committee is led by the Vice President and Ministry of Foreign Affair and Ministry of Social Welfare, Relief and Resettlement will participate in liaise with customs clearance of the medicine and medical equipment.
Philippines	Not confirmed
Thailand	Not confirmed
Vietnam	“Contractual Arrangement Form” theoretically can be used, but there was no precedent.
	-

1-4.　Regulations allow I-EMT exemption from taxation on importation and use of equipment including vehicles and telecommunications and materials brought into each country

There are regulations, which allow I-EMT exemption from taxation and other similar charges on importation and use of equipment including vehicles and telecommunications and materials, in most of countries, but it depends on type of equipment. Telecommunication equipment is raised as one example for which exemption not applied. It is possible the equipment, which relate to security matter of each country, is more difficult to be applied.

Table 4　Exemption from taxation on importation and use of equipment

	Exemption from taxation and other similar charges on importation and use of equipment
Indonesia	Not confirmed
Myanmar	Whether exemption allowed is depends on the type of equipment
	The item not allowed for exemption: The process of bringing in and using telecommunication materials require prior permission from the Ministry of Transport and Communications and sometimes it is required to get permission from the Ministry of Defense.
Philippines	Not confirmed
Thailand	Not confirmed
Vietnam	Whether exemption allowed is depends on the type of equipment
	The item not allowed for exemption: Rehabilitation facilities for example. The challenges are the equipment should be not allowed to bring up and to leave at the airport if the taxation is cost

1-5. Whether I-EMT is allowed to bring back ALL equipment brought by them

There is country not allowing I-EMT to bring back equipment brought by them for certain equipment.

Table 5 Possibility for I-EMT to bring back ALL equipment brought by them

	Whether I-EMT can bring back equipment
Indonesia	Not confirmed
Myanmar	They can bring back.
Philippines	Not confirmed
Thailand	Not confirmed
Vietnam	It depends on the type of equipment. In case we need these equipment The administrative process should be at the customs office

1-6. Regulation for local cash/ foreign cash to be brought in and brought out with I-EMT

All of the country have regulation for cash to be brought in/out. I-EMT need to declare at certain desk in case of brining in/out more than each country's ceiling amount. Ceiling amount differ for each country, and smallest one is 5,000USD or equivalent.

Table 6 Regulation to bring in and out local/ foreign cash

	Regulation to bring in/out local/ foreign cash	
Indonesia	Not confirmed	
Myanmar	Yes	Anybody who carries more than 10,000 USD or equivalent has to declare at customs desk of the airport.
Philippines	Yes	Above PHP 50,000 - For BSP clearance Above USD 10,000 – Foreign currency declaration form
Thailand	Yes	Local brought out should not exceed 50,000 THB, but in case moving to Cambodia, Myanmar, Laos, Malaysia and Viet Nam, local brought out should not exceed 2,000,000 BHT[1]. More than 450,000 THB brought out need declaration at customs. Foreign Cash brought in and out should not exceed 20,000 USD
Vietnam	Yes	As the regulation in Vietnam, the maximum amount foreign currency brought into county should not over 5,000 USD or equivalent.

1-7. "Logistic service provider" which I-EMT can contact for customs clearance

There is recommendable logistics service provider in each country name of company is as follows.

[1] This is as original answered by Thailand side. Meanwhile, according to JETRO website, in case someone would like to bring out 50,000 THB, and in case bring out more than 2,000,000 BHT to country bordering to Thailand, permission from Bank of Thailand is needed.

Table 7　Recommendable logistics service provider

	Recommendable logistics service provider
Indonesia	Not confirmed
Myanmar	1. Yusen Logistics, 2. Innovo Shipping and logistics, 3. Advantis, 4. Unithai
Philippines	Not confirmed
Thailand	Not confirmed
Vietnam	Recommendable service provider is depending on kind of customs clearance for I-EMT.

2. Laws and regulations related to medical wastes

In this part, Information collection was made to draft “collective measure” on waste management for I-EMT to meet minimum requirement of the affected country.

2-1. Laws and regulations

Table 8 shows the list of official documents related to waste management in 5 countries.

Table 8 Country laws and regulations related to medical wastes

Laws and regulations	
Indonesia	・ National legislation on hazardous waste (1999) ・ Legislation on all waste (2008) ・ Legislation on hospitals and environment protection and management (2009)
Myanmar	・ The Environmental Conservation Law 2012
Philippines	・ Republic Act No. 8749/ The Philippine clean air act (1999) ・ Republic Act No. 9003/ The ecological solid waste management act of the Philippines
Thailand	・ Law/Regulation: Legislation on management of biomedical waste (2002)
Vietnam	・ Decision N0.2038/QD-TTg of November 15,2011 of the Prime Minister approved the overall plans of medical waste management period of 2011 -2015 and orientation to 2020. ・ circular No.16/2018/TT-BYT dated 20 July,2018 of the MOH regulations on infection control in healthcare and treatment facilities ・ Joint circular No.58/2015/BYT-BTNMT TTLT December 31,2015 of the MOH, Ministry of Natural Resources and Environment regulations on medical waste management.
Policies	
Indonesia	・ Policies about health standards for hospital environment ・ Policy of healthy city
Myanmar	・ National Waste Management Strategy and Action Plan for Myanmar (2017-2030) March 2018
Philippines	・ Republic Act No. 6969/ An act to control toxic substances and hazardous and nuclear waste control act 1990 ・ DOH administration order No. 2008-0021 dated 30 July 2008 on gradual phase-out of mercury in all Philippine health-care facilities and institutions
Thailand	・ Public Health Act B.E.2535 (1992)
Vietnam	-
Guidelines	
Indonesia	・ Draft of clean hospital and primary health care guidelines ・ Draft of solid waste management in hospitals ・ Guidelines on waste management in primary health care ・ Guidelines on hospital liquid waste management
Myanmar	・ The hospital infection control guideline (2011) ・ The hospital management manual (2011)
Philippines	Health-care waste management manual (2004)
Thailand	・ Guidelines: Guidelines for management of waste from immunization activities
Vietnam	manual management of medical waste in hospitals (issued together with Decision No.105/QD-MT dated on July,3rd ,2014 of the Director of Health Environment Management Agent.
Other documents	
Indonesia	-
Myanmar	MOH, Myanmar Essential Health Services Access Project Environmental Management Plan, August, 2014

Philippines	-
Thailand	-
Vietnam	-

2-2. Types of medical waste and methods of their disposal

Table 9 shows the list of medical wastes which need special treatment in 5 countries.

Table 9 Types of medical waste which need special treatment

Country	Requirement of special treatment	Methods of treatment	Availability of exclusive disposal site for the item
Bodily fluids, body parts & tissues			
Indonesia	Not confirmed	Not confirmed	Not confirmed
Myanmar	Yes	・ Pyrolytic incineration and safe burying	No
Philippines	Yes	・ Burning in crematoria or specially designed incinerators ・ Alkaline digestion, especially for contaminated tissues and animal carcasses ・ Promession ・ Interment (burial) in cemeteries or special burial sites ・ Placenta waste is composted or buried in placenta pits designed to facilitate natural biological decomposition.	No
Thailand	Not confirmed	・ Incineration, Cremation, Landfill Burial	Not confirmed
Vietnam	Yes	・ Incinerator, encapsulation and buried ・ in cemeteries or in concrete pits with bottoms and lids	No
Sharps			
Indonesia	Not confirmed	Not confirmed	Not confirmed
Myanmar	Yes	・ Pyrolytic incinerator ・ Wet thermal disinfection ・ Microwave irradiation ・ Chemical disinfection ・ Safe burying	No
Philippines	Yes	・ Disinfection: Autoclave, Microwave technology, Chemical disinfection ・ Mechanical shredding: On-site mechanical needle cutters or electric needle destroyers ・ Encapsulation in cement blocks ・ Sharps pits/Concrete vaults	No
Thailand	Not confirmed	・ Chemical, Stream Sterilization, Microwave, Mutilation, Landfill Burial	Not confirmed
Vietnam	Yes	・ Contained in a cocoon tanks and burial in the ground	No
Chemicals			
Indonesia	Not confirmed	Not confirmed	Not confirmed
Myanmar	・ Yes	・ Pyrolytic incinerator for small quantity ・ Safe burying ・ Inertization ・ Return to supplier	・ No

Philippines	Yes	・ Large amounts of chemical waste should not be buried, because they may leak from their containers, overwhelm the natural attenuation process provided by the surrounding waste and soils, and contaminate water sources. ・ Encapsulation. (Large amounts of chemical disinfectants should not be encapsulated, because they are corrosive to concrete and sometimes produce flammable gases) ・ Where allowed by local regulations, non-recyclable, general chemical waste, such as sugars, amino acids and certain salts, may be disposed of with municipal waste or discharged into sewers. ・ An option for disposing of hazardous chemicals is to return them to the original supplier, who should be equipped to deal with them safely ・ Sanitary landfill (for small quantities only)	No
Thailand	Not confirmed	・ Stabilization, Incineration, Lined Hazardous Waste Landfill Burial	Not confirmed
Vietnam	Yes	Not mentioned specifically in the guideline	No

3. Regulations for medical malpractice

In this part, Information collection was made to explore 1) the development possibility of an insurance scheme specialized in I-EMT, 2) the possibility to introduce mutual compensation scheme among AMSs.

3-1. Regulations for medical malpractice

Table 10 shows the existence of regulations for medical malpractice in 5 countries.

Table 10 Existence of country regulations for medical malpractice

Indonesia	Myanmar	Philippines	Vietnam	Thailand
Not confirmed	Yes	Yes	Yes	Not confirmed

3-2. Insurance companies selling general malpractice insurance

Table 11 shows the existence of potential partners (private property and casualty insurance companies in each country to develop a special insurance for medical malpractice. Myanmar, Philippines and Vietnam answered there are insurance companies which sell such insurance scheme. Though the survey team couldn't receive answer from Indonesia and Thailand, insurance companies selling insurance for medical malpractice are found on the website.

Table 11 Existence of potential partners to develop a special insurance for medical malpractice

Indonesia	Myanmar	Philippines	Vietnam	Thailand
Yes	Yes	Yes	Yes	Yes

3-3. Names of private insurance companies which sell malpractice insurance

Table 12 shows the names of private insurance companies with potential in developing a special insurance for medical malpractice. Though the survey team couldn't receive answer from Indonesia, Philippines and Thailand, names of insurance companies selling insurance for medical malpractice are found on the website.

Table 12 Existence of potential partners to develop a special insurance for medical malpractice

	Company names
Indonesia	Chubb, AEGIS, QBE, Asei
Myanmar	CB bank
Philippines	Chubb, AEGIS, QBE, Malayan Insurance
Vietnam	Bảo Việt, Bảo Minh, PVI, PTI, QBE, MIC, AAA, Bảo Long, UIC, VNI, Pjico
Thailand	Chubb, AEGIS, Lockton

3-4. Compensation mechanism based on bilateral agreement

Table 13 shows the recognition about compensation mechanism based on bilateral agreement for liability claim against medical malpractice.

Table 13 Recognition of potential partners to develop a special insurance for medical malpractice

Indonesia	Myanmar	Philippines	Vietnam	Thailand
Not confirmed	No	No	No	Not confirmed

4. Logistics

The questionnaire was set to collecting information to 1) develop database of logistic information about AMSs, 2) identify necessary arrangements among AMS for logistics support

4-1. Plan to assist I-EMT regarding with local transportation from the entry point to disaster affected area

Most of the countries have plan to assist I-EMT regarding with local transportation from the entry point to disaster affected area and have assigned the contact point.

Table 14 Plan to assist I-EMT with local transportation

	Plan	
Indonesia	Not confirmed	
Myanmar	Yes	National Disaster Committee will assign a focal ministry for provision of liaison service and local transportation of I-EMT from the entry point to disaster affected area. Contact point: National Natural Disaster Management Central Committee, HE Dr Myint Htwe, Ministry of Health and Sports, HE Dr Win Myat Aye, Ministry of Social Welfare, Relief and Resettlement
Philippines	No	There is not Plan
Thailand	Not confirmed	
Vietnam	Yes	Sending request to local authorities Contact point: MOH, AHA center at the Ministry of Agriculture and Rural Development.

4-2. Partnership with organizations which can provide assistance of transportation in case of emergency

Most of the countries have partnership with organization which can provide assistance of transportation, and those partnership-organization can provide local transportation from the entry point to disaster affected area for I-EMT.

Table 15 Partnership with organizations which can provide assistance of transportation

	Partnership	Provision of local transportation by partnership-organization
Indonesia	Not confirmed	
Myanmar	No	
Philippines	Yes	The organization can provide local transportation from the entry point to disaster affected area for I-EMT
Thailand	Not confirmed	
Vietnam	Yes	The organization can provide local transportation from the entry point to disaster affected area for I-EMT

4-3. Plan to provide local human resource (driver, interpreter, volunteer) for I-EMT

All of the countries have plan to provide local human resource including driver, interpreter, volunteer for I-EMT. Human resource, which each country is able to provide, are checked in following table.

Table 16 Plan to provide local human resource for I-EMT

	Driver	Interpreter	Volunteer
Indonesia	Not confirmed	Not confirmed	Not confirmed
Myanmar	✓	✓	✓
Philippines	-	✓	✓
Thailand	Not confirmed	Not confirmed	Not confirmed
Vietnam	✓	✓	✓

4-4. Partnership with organizations which can mobilize local human resources (driver, interpreter, volunteer) in case of emergency

All of the countries have partnership with organization and are able to mobilize driver, interpreter, volunteer in case of emergency. Human resource which each country is able to mobilize through partnership with organization is checked in following table.

Table 17 Partnership with organizations which can mobilize local human resources

	Driver	Interpreter	Volunteer
Indonesia	Not confirmed	Not confirmed	Not confirmed
Myanmar	✓	✓	✓
Philippines	-	✓	✓
Thailand	Not confirmed	Not confirmed	Not confirmed
Vietnam	✓	✓	✓

4-5. Regulation to allow I-EMT to import, export, and use Radio, Satellite phone (Iridium, Inmarsat, Bgan, Thuraya) and GPS to / from/ in country

Most of the country allow I-EMT to import, export and use radio, satellite phone (Iridium, Inmarsat, Bgan, Thuraya) and GPS to / from/ in country. Also, most of the country can lend communication tool such as radio, satellite phone, GPS to I-EMT either by government or by partnership-organization/ private company.

Table 18 Regulation to allow I-EMT to import, export, and use communication tool

	Radio, Satellite phone and GPS are allowed to import, export or usage	Plan to lend communication tool by government or partnership-organization/ private company
Indonesia	Not confirmed	
Myanmar	✓ Usage	-
Philippines	✓ Import ✓ Export ✓ Usage	✓ Plan to lend communication tool by partnership-organization/ private company
Thailand	Not confirmed	
Vietnam	✓ Import ✓ Export ✓ Usage	✓ Plan to lend communication tool by government ✓ Plan to lend communication tool by partnership-organization/ private company

4-6. Allocation of “frequency channel” for radio communication which will be used by disaster response actors

All the countries have frequency channel for radio communication which will be used by disaster response actors. In order for I-EMT to use this channel, they need to coordinate with each local authority.

Table 19 Allocation of “frequency channel” for radio communication

	Frequency channel Allocation	The way to use frequency
Indonesia	Not confirmed	
Myanmar	Yes	Ask permission for the National Natural Disaster Management Central Committee.
Philippines	Yes	Coordinate with OCD-Information and Communications Technology Division and Department of Information and Communications Technology
Thailand	Not confirmed	
Vietnam	Yes	Coordinate with local authorities

4-7. Safety management measure/ plan to be provided for I-EMT

Possible safety management measure/ plan was asked in this questionnaire. Most of the countries have plan to 1)providing security briefing for I-EMT, 2) Checking whether AMS I-EMS member are covered by medical insurance, 3)providing security information to I-EMT contact point, 4)deploying security unit such as military or police in case required from I-EMT, 5)having evacuation plan for I-EMT in case of secondary hazard happens.

Table 20 Safety management measure/ plan to be provided for I-EMT

	Assistance / Plan	Indonesia	Myanmar	Philippines	Thailand	Vietnam
1	Provide security briefing for I-EMT	Not confirmed	✓	✓	Not confirmed	✓
2	Check whether I-EMT members are covered by medical insurance	Not confirmed	✓	-	Not confirmed	✓
3	Provide security information to I-EMT contact point time to time	Not confirmed	✓	✓	Not confirmed	✓
4	Deploy security unit such as military or police in case requested from I-EMT	Not confirmed	✓	✓	Not confirmed	✓
5	Have evacuation plan for I-EMT in case of secondary hazard happens	Not confirmed	✓	✓	Not confirmed	✓

4-8. International entry points to receive I-EMT

There is more than one international entry points assigned for receiving I-EMT in each country. All the countries have several international airports and at least one sea/river port, while only one country have international entry points by land. All countries have space which I-EMT can utilize for temporary storage for EMT equipment near to the entry point.

Table 21 International entry points to receive I-EMT

	By air	By sea/river	By land	Space
Indonesia	Not confirmed	Not confirmed	Not confirmed	NC
Myanmar	・ Nay Pyi Taw International Airport, ・ Yangon International Airport, ・ Mandalay International Airport	・ Yangon International Seaport	・ Myawadi (Thai Border Entry), ・ Tachileik (Thai Border Entry), ・ Kawthaung (Thai Border Entry)	✓
Philippines	・ Ninoy Aquino International Airport, ・ Clark International Airport,	・ Port of Manila	-	✓
Thailand	Not confirmed	Not confirmed	Not confirmed	NC
Vietnam	・ International Airport Nội Bài ・ International Airport Tân Sơn Nhất ・ International Airport Đà Nẵng	・ Hai Phong port	-	✓

NC: Not confirmed

4-9. National contingency plan

Each country prepared/are preparing national contingency plan. The names of plan are as follows.

Table 22 National contingency plan

	National contingency plan
Indonesia	Not confirmed
Myanmar	Myanmar Disaster Management Reference Handbook 2017
Philippines	Oplan Metro Yakal Plus (specific for the 7.2 Magnitude Earthquake in Metro Manila caused by the West Valley Fault)
Thailand	Not confirmed
Vietnam	Preparing process is going on by Ministry of Agriculture and Rural Development

5. Procedures related to I-EMT medical qualified professionals

The questionnaire was set to collecting Information to 1) develop a guidance on emergency application of relevant foreign licenses, 2) identify necessary arrangements among AMS for smooth legal procedures

5-1. Registration of I-EMT medical practitioner

It is required for I-EMT medical practitioner to register for each country even if there is ASEAN Mutual Recognition Agreement.

Table 23 Registration of I-EMT medical practitioner

	Registration required	Application Process
Indonesia	Not confirmed	
Myanmar	Yes	By contacting with Ministry of Health and Sports, Myanmar for registration at Myanmar Medical Council
Philippines	Not confirmed	
Thailand	Yes	1. Obtain valid license to practice and specialty/sub-specialty board certification from the country of origin. 2. In the case of being general medical practitioner (non-specialist) will be on consideration of the Executive Board Committee of the Medical council of Thailand. 3. Work in specific place(s) and condition(s), (research, new-medical technology demonstration, humanitarian or other conditions that the Executive Board Committee of the Medical council of Thailand approved). Work under control of the doctor(s) who have fully registered with The Medical Council of Thailand. 4. The application have to be submitted by the director of the government organization/hospital. Application form doctor individually not through government organization/hospital is not to be accepted. Permission period is not more than 1 year, renewable. The duration of the process is not less than 1 month after The Medical Council of Thailand receive the request letter together with required documents of the applicants from the director of that government organization/Hospital.
Vietnam	Yes	Need to prepare an application, a copy of a professional degree, certificate of completion of internship, a copy of a certificate of Vietnamese proficiency, and a copy of a work permit, certification of health, criminal report, photos

5-2. Registration of I-EMT nurse

It is required for I-EMT nurse to register for each country even if there is ASEAN Mutual Recognition Agreement.

Table 24 Registration of I-EMT nurse

	Registration required	Application Process
Indonesia	Not confirmed	
Myanmar	Yes	By contact with Ministry of Health and Sports, Myanmar for registration at Myanmar Medical Council and Nursing and Midwifery Council
Philippines	Not confirmed	
Thailand	Yes	1. Submit application 2. Register for examination 3. Nurse who is not eligible to take examination must follow the guidance of the committee 4. Nurse who pass the examination in all subjects will be granted
Vietnam	Yes	Need to prepare a application, a copy of a professional degree, certificate of completion of internship, a copy of a certificate of Vietnamese proficiency, and a copy of a work permit, certification of health, criminal report, photos

5-3. Registration of I-EMT Emergency Medical Technician

It is required for I-EMT Emergency Medical Technician to register for each country even if there is ASEAN Mutual Recognition Agreement.

Table 25 Registration of I-EMT Emergency Medical Technician

	Registration required	Application Process
Indonesia	Not confirmed	
Myanmar	Yes	By contact with Ministry of Health and Sports, Myanmar for registration at Myanmar Medical Council
Philippines	Not confirmed	
Thailand	Not confirmed	
Vietnam	Yes	Need to prepare an application, a copy of a professional degree, certificate of completion of internship, a copy of a certificate of Vietnamese proficiency, and a copy of a work permit, certification of health, criminal report, photos

5-4. Registration of I-EMT paramedic

It is required for I-EMT paramedic to register for each country even if there is ASEAN Mutual Recognition Agreement.

Table 26 Registration of I-EMT paramedic

	Registration required	Application Process
Indonesia	Not confirmed	
Myanmar	Yes	By contact with Ministry of Health and Sports, Myanmar for registration at Myanmar Medical Council
Philippines	Not confirmed	

Thailand	Yes	They need to register and also take examination for permission to work In Thailand.
Vietnam	-	The paramedic is not available now in Vietnam

5-5. Registration of I-EMT midwife

It is required for I-EMT midwife to register for each country even if there is ASEAN Mutual Recognition Agreement.

Table 27 Registration of I-EMT midwife

	Registration required	Application Process
Indonesia	Not confirmed	
Myanmar	Yes	By contact with Ministry of Health and Sports, Myanmar for registration at Myanmar Medical Council and Nursing and Midwifery Council
Philippines	Not confirmed	
Thailand	Yes	Apply the same process as nurse.
Vietnam	Yes	Need to prepare a application, a copy of a professional degree, certificate of completion of internship, a copy of a certificate of Vietnamese proficiency, and a copy of a work permit, certification of health, criminal report, photos

5-6. Registration of I-EMT pharmacist

It is required for I-EMT pharmacist to register for each country even if there is ASEAN Mutual Recognition Agreement.

Table 28 Registration of I-EMT pharmacist

	Registration required	Application Process
Indonesia	Not confirmed	
Myanmar	Yes	By contact with Ministry of Health and Sports, Myanmar for registration at Myanmar Medical Council and Nursing and Midwifery Council
Philippines	Not confirmed	
Thailand	-	Main responsible organization is Pharmacy Council of Thailand
Vietnam	Yes	Need to prepare an application, a copy of a professional degree, certificate of completion of internship, a copy of a certificate of Vietnamese proficiency, and a copy of a work permit, certification of health, criminal report, photos

5-7. Required registration for I-EMT and waivers

Required registration/ process for I-EMT to do emergency medical response in each country is as follows. It seems easing/waiver measure provided by most of the countries is not waiver whole process but speeding up each process with assigning liaison.

Table 29 Required registration for I-EMT

	Registration required				Waivers and other notes
	Visa	Foreigner registration	Work permit	Company registration	
Indonesia	Not confirmed	Not confirmed	Not confirmed	Not confirmed	
Myanmar	✓		✓		The focal Ministry assigned by National Disaster Committee will liaise for ease of application process
Philippines	Not confirmed	Not confirmed	Not confirmed	Not confirmed	
Thailand	Not confirmed	Not confirmed	Not confirmed	Not confirmed	
Vietnam		✓	✓	✓	VISA is not required for ASEAN citizen for one entry

5-8. Recognition of other AMS's driving license

There is country requiring to take their country's driving license for I-EMT, while other countries allow I-EMT to drive with their original each AMS' driving license

Table 30 Recognition of other AMS's driving license

	Situation
Indonesia	Not confirmed
Myanmar	I-EMT members are required to apply for Myanmar country driving license
Philippines	Not confirmed
Thailand	I-EMT can drive with their original each AMS's driving license
Vietnam	I-EMT can drive with their original each AMS's driving license

Ministry of Public Health
National Institute for
Emergency Medicine
Kingdom of Thailand

Official Project of Association
of Southeast Asian Nations
(ASEAN)

Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management

Needs and Potential Survey for Capacity Development of Disaster Health Management in ASEAN Member States

Final Report

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Abbreviations and Acronyms

Abbreviation	Description	Country
ACLS	Advanced Cardiac Life Support	
ADLS	Advanced Disaster Life Support	
ADPC	Asian Disaster Preparedness Center	
AED	Automated External Defibrillator	
AHA Centre	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management	
ALD	ASEAN Leaders' Declaration on Disaster Health Management	
ALS	Advanced Life Support	
AMS	ASEAN Member States	
APCDM	Asia Pacific Conference on Disaster Medicine	
ASEAN	Association of South-East Asian Nations	
ATLS	Advanced Trauma Life support	
BCP	Business Continuity Plan	
BDHM	Basic Disaster Health Management	
BDLS	Basic Disaster Life Support	
CBDRM	Community Based Disaster Risk Management	
CBRNE	Chemical, biological, radiological, nuclear, explosive	
CCDPC/SR	Commanding Committee for Natural Disaster Prevention and Control, Search and Rescue	Viet Nam
CCFSC	Central Committee for Flood and Storm Control	Viet Nam
CCN	Cambodia Council of Nurses	Cambodia
CDC	Communicable Disease Control	
COVID-19	Corona Virus Disease	
C/P	Counterpart	
CPR	Cardiopulmonary Resuscitation	
CRC	Cambodian Red Cross	Cambodia
CSCATTT	Command and Control, Safety, Communication, Assessment, Triage, Treatment and Transportation	
CSCNDPC	Central Steering Committee for Natural Disaster Prevention and Control	Viet Nam
DARD	Department of Agriculture and Rural Development	Viet Nam
DHM	Disaster Health Management	
DMAT	Disaster Medical Assistance Team	
DMU	Disaster Management Unit	Viet Nam
ED	Emergency Department	
EMR	Emergency Medical Rescue	Thailand
EMS	Emergency Medical Service	
EMT	Emergency Medical Team	
EMT	Emergency Medical Technician	
EMTCC	Emergency Medical Coordination Cell	
EOC	Emergency Operation Center	
FR	First Responder	
HEMB	Health Emergency Management Bureau	Philippines
HNA	Health Needs Assessment	
HQ	Headquarters	
IBTE	Institute of Brunei Technical Education	Brunei
ICU	Intensive Care Unit	
ICS	Incident Command System	
IFRC	International Federation of Red Cross and Red Crescent Societies	

IPE	Interprofessional Education	
ITLS	International Trauma Life Support	
JADM	Japanese Association for Disaster Medicine	
JICA	Japan International Cooperation Agency	
KKU	Khon Kaen University	Thailand
MARD	Ministry of Agriculture and Rural Development	Viet Nam
MCI	Mass Casualty Incident	
MERS	Middle East Respiratory Syndrome	
MERT	Medical Emergency Response Team	Thailand
MHPSS	Mental Health and Psychosocial Support	
MIMMS	Major Incident Medical Management and Support	
MISP	Minimum Initial Service Package	
MoD	Ministry of Defense	
MOE	Ministry of Education	
MOH	Ministry of Health	
MOPH	Ministry of Public Health	
MOU	Memorandum of Understanding	
NCDM	National Committee for Disaster Management	Cambodia
NCSR	National Committee for Search and Rescue	Viet Nam
NGO	Non-Governmental Organization	
NIEM	National Institute for Emergency Medicine	Thailand
OPD	Outpatient Department	
PFA	Psychological First Aid	
PHEMAP	Public Health and Emergency Management in Asia and Pacific	
POA	Plan of Action	
PTC	Primary Trauma Care	
PWG	Project Working Group	
RCAF	Royal Cambodian Armed Forces	Cambodia
RCC	Regional Coordinating Committee	
RCD	Regional Collaboration Drill	
SARI	Severe Acute Respiratory Infection	
SARS	Sever Acute Respiratory Syndrome	
SCDF	Singapore Civil Defence Force	Singapore
SMTI	Singapore Armed Forces Medical Training Institute	Singapore
SOMHD	ASEAN Senior Officials Meeting on Health Development	
SOP	Standard Operating Procedure	
SWOT	Strength, Weakness, Opportunity, Threat	
TAEM	Thai Association for Emergency Medicine	Thailand
TOT	Training of Trainer	
UHS	University of Health Sciences	
UK	United Kingdom	
UNICEF	United Nations Children’s Fund	
USAID	United States Agency for International Development	
WADEM	World Association for Disaster and Emergency Medicine	
WASH	Water, Sanitation and Hygiene	
WHO	World Health Organization	

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Abbreviation and Acronyms

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1. Outline of the Survey

1.1 Background and Objectives of the Survey

1.1.1 Background

The Association of Southeast Asian Nations (ASEAN) Member States (AMS) are frequently affected by natural disasters which cause serious damages, and the ASEAN has continued to attach the great importance to the cooperation related to prevention of and response to disasters. In the meeting of Minister of Disaster Management in October 2014, Strategy for "One ASEAN One Response 2020 and Beyond: ASEAN Responding to Disaster as One" was adopted, and the ASEAN defined disaster health management as one of the priority issues in the health sector in the ASEAN Post-2015 Health Agenda. Regional Cooperation for Disaster Management has been strengthened but the system has not well established and AMS's ability of performing medial activity in region and receiving Emergency Medical Team (EMT) was not enough. Based on this background, as the ASEAN official project and targeting overall ASEAN area the JICA Technical Cooperation Project, "Project of Strengthening the ASEAN Regional Capacity on Disaster Health Management (the ARCH Project)" was launched in July 2016 and was led by three parties including the National Institute for Emergency Medicine (NIEM) in Thailand, Thai Ministry of Public Health (MOPH) and JICA. The ARCH Project was carried out from July 2016 to July 2019, and was extended until March 2021. The Project has been extended again for another 9 months from April 2021 to December 2021 in order to complete the planned activities, which were not able to be conducted by March 2021 due to the COVID-19.

1.1.2 The Overview of the ARCH and Outcomes

The Overview of the ARCH Project and outcome is as follows.

Table 1-1 Overview of the ARCH Project including Extension Phase (as of December 2020)

Overview of the ARCH Project		Outcome
Overall Goal	ASEAN and Japan collaboration mechanism on disaster health management is developed	
Project Purpose	Regional coordination on disaster health management is strengthened in ASEAN	
Output1	Coordination platform on disaster health management is set up.	• RCC was set up and RCC meetings were held 5 times. • ASEAN Leaders' Declaration on Disaster Health Management was adopted on the occasion of the 31st ASEAN Summit on 13 Nov.2017. • ASEAN Ministers Meeting at the end of August 2019 endorsed the POA. • The RCC DHM for the POA was established and the first meeting was organized in Jan.2020.

Output2	Framework of regional collaboration practices is developed.	• RCDs were conducted 5 times in Thailand (2 times, including the start-up drill), Viet Nam, Philippines, and Indonesia. • Minimum Data Set (MDS), which was officially adopted by WHO on Feb.2017 as an international reporting standard for I-EMT was tested in the RCDs and was verified the effectiveness. • Another RCD is planned to be conducted in Myanmar during the Extension Phase. • Template for lessons learned from responses for actual disasters in ASEAN was developed.
Output3	Tools for effective regional collaboration on disaster health management are developed.	• PWG 1 & 2 were organized and the meetings were held 7 times and 5 times respectively. • Standard Operating Procedure (SOP) for Coordination of Emergency Medical Teams (EMTs) in ASEAN, Minimum Requirements (MR) for members of EMT, Health Need Assessment Form (HNA) for EMT were developed. SOP, MR and HNA were finalized through testing those tools in the RCDs and were reviewed in the PWG1. • The SOP was endorsed by SOMHD on April 2019 and PRWG also recognized it. • The SOP was tested during the Joint TTX between HC2 and PRWG in collaboration with AHA center on November 2019. • Template of Date Base for EMT was made. EMTs Data was collected from All AMS. • PWG 1&2 in Extension Phase were organized and the meetings were respectively held 2 times in person as well as 2 times remotely through web conference. • Sub Working Group (SWG) on ASEAN Collective Measures (ACM) was established and meetings were held. The SWG will finalize the recommendations on ACM.
Output4	Academic network on disaster health management in AMS is enhanced.	Various Presentations on the activities and outputs of ARCH were made at the 13th and 14th APCDM, 2nd REMPAN Workshop, JADM annual meetings, and WADEM.
Output 5	Capacity development activities for each AMS are implemented.	• Regional trainings inviting participants from all AMS were conducted 4 times in Bangkok. • Thai Counterparts training programs in Japan were conducted twice. • Study tour in Japan for key members from all AMS was conducted in October 2018. • SWG on Standard Training Curriculum were established and meetings were held in person as well as remotely through web conference. • Questionnaire Survey on Capacity development in AMS was conducted in 2019.

		• The Field Study on Capacity development was conducted in Lao PDR and Cambodia in Feb 2020.

Source: ARCH Project

As indicated in Table 1-1, the environment surrounding the ARCH and disaster health management has evolved significantly. In detail, at the ASEAN Summit in November 2017, the "ASEAN Leaders' Declaration on Disaster Health Management (ALD)", which was drafted mainly by the RCC of the ARCH project, was adopted. The POA was also drafted through the project and was endorsed by the 14th ASEAN Health Ministers Meeting (AHMM) on 19th August 2019. As mentioned earlier, the project period agreed to be extended to December 2021 between Japan and Thailand with the aim of continuing the support until the cooperation mechanism mentioned in the POA launches and goes on track.

1.1.3 Objectives of the Survey

Based on the above-mentioned background, the survey was conducted with the following objectives with aiming that the outcome of ARCH project to make further impact by promoting cooperation in disaster health management area in the region and deal with the remaining issues.

1) To identify possible educational/training institutes which are capable to conduct domestic training programs on DHM in each AMS

2) To identify training/competency needs of personnel in DHM

3) To identify needs for external supports in case that the above institutes will organize domestic training programs on DHM

4) To specify AMS education/training institutes which will be members of ASEAN academic network on DHM whose purpose is to strengthen regional and domestic capacities on DHM in collaboration with ASEAN regional disaster training center which is considered to be established in the POA on DHM.

As Table 1-2 shows, the survey is related to Output 5 of the Project.

Table 1-2 Outline of ARCH project for the Extended Period

Outline of ARCH Project for Extended Period		Activities
Overall Goal	ASEAN and Japan collaboration mechanism on disaster health management is developed	
Project Purpose	Regional coordination on disaster health management is strengthened in ASEAN	
Output 1	Coordination platform on disaster health management is set up.	1. Support of organizing regional coordination meetings (RCCDHM) 2. Support drafting implementation plan of POA of ALD
Output 2	Framework of regional collaboration	3. Implementation of Regional Coordination

	practices is developed.	Drill 4. Consideration for extracting of lessons learned from actual disaster response experience and sharing of it
Output 3	Tools for effective regional collaboration on disaster health management are developed.	5. Promotion of officialization of SOP and other tools within ASEAN 6. Consideration of ASEAN Collective Approach for regional deployment of AMS EMT
Output 4	Academic network on disaster health management in AMS is enhanced.	7. Organizing ASEAN Disaster health management seminar
Output 5	Capacity development activities for each AMS are implemented.	8. Developing standard curriculum for disaster health management 9. **Needs and Potential Survey for Capacity Development of Disaster Health Management in AMS**

1.2 Work Flow

Figure 1-1presents the workflow of the survey. The survey was conducted from September 2019 to March 2021. Firstly, the result of questionnaire survey for the stakeholders in 10 AMS was analyzed and the in-country study plan was prepared. Then, the in-country study was conducted in Cambodia and Lao PDR in February 2020 to collect necessary data and information through interviews with concerned organizations. The study for Viet Nam was delayed due to the COVID-19 pandemic and was took place in March 2021 via teleconference (Microsoft Teams Program). The study for Myanmar was cancelled due to the domestic affairs.

The key findings from the survey analysis and recommendation were shared and discussed with the stakeholders in AMS through a series of meetings.

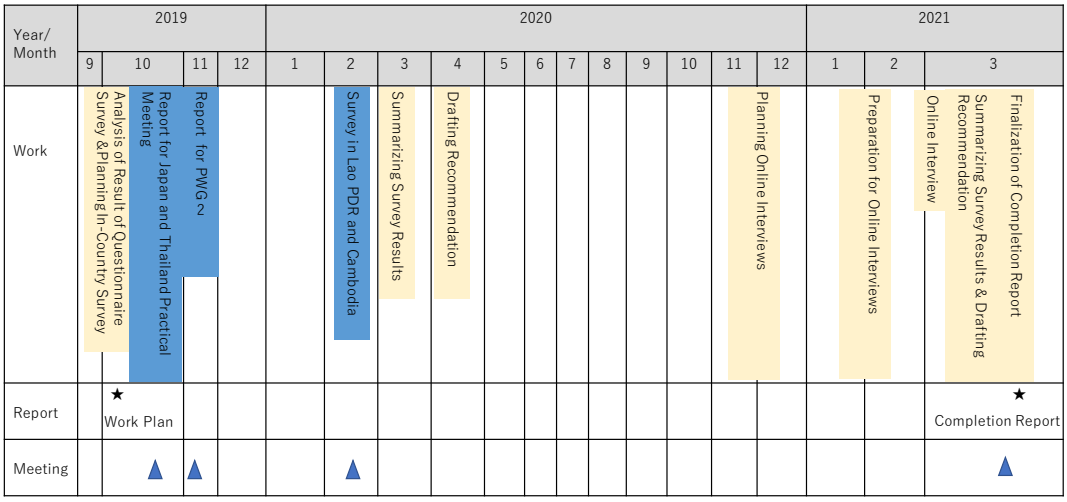


Figure 1-1 Work Flow

The work scheudle is presented in Figure 1-2.

Year	2019				2020												2021		
Month	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
(1) Work Plan		★																	
(2) Analysis of Result of Questionnaire Survey		□																	
(3) Planning In-country Survey		□													▯	▯			
(4) Report for Japan-Thailand Practical Meeting, PWG2		▲	▲																
(5) Prepration for In-country Survey/Online Interview						▯											▯	▯	
(6) Survey in target countries/ Online Interview						■													▯
(7) Summarizing Survey Results							□												□
(8) Drafting Recommendation								▯											▯
(9) Finalization of Completion Report																			□
(10) Receiving Comments on Completion Report																			▯
(11) Submission of Completion Report																			★

Work in Japan □ Work in Field ■ Conference ▲ Report ★

Figure 1-2 Work Schedule of the Survey

1.3 Methodology

1.3.1 Data Collection

The necessary data and information were mainly collected through (1) questionnaire survey, (2) key informant interview.

The questionnaire survey was conducted via mail for all AMS prior to the in-country survey from August to October 2019. Respondents were requested to answer self-administered questionnaires consisting of seven parts regarding emergency medicine and disaster health management (Appendix 2).

In-country survey was conducted in 4 countries (Cambodia, Lao PDR, Myanmar and Viet Nam) by key informant semi-structured interviews based on an interview guide (Appendix 3). SWOT analysis was also carried out in order to identify potential core institute(s) for ASEAN academic/training centers network on DHM.

Key questions of each survey are show in Table 1-3. Itinerary, members, interviewees, and photos of each in-country survey are presented in Appendix 1.

Table 1-3: Key questions

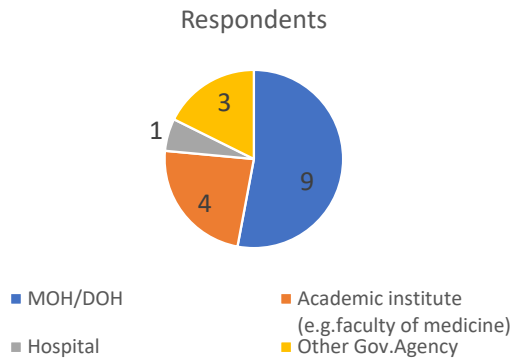
No	Method	Target	Information to be collected
1	Questionnaire Survey	ASEAN Member States (10 countries)	1. Medical education system, especially focusing on EMS 2. Information on educational institutes in above system, especially on EMS (subjects, curriculum, lectures) 3. Situation for education or training on DHM (pre-service education and in-service training) 4. Needs for education/training on DHM 5. Candidates of educational institutes which are capable to conduct domestic training programs on DHM 6. Needs for external supports 7. Others Pls.see Appendix 2 for further details.
2	Key informant Interview	Stakeholders in 4 AMS (Cambodia, Lao PDR, Myanmar and Viet Nam)	1. MOH - National policy/strategy related to DHM - Budget for DHM - Possible education/training institute for DHM to conduct domestic training programs - Training/competency needs to improve the national capacity of DHM - External support from donors - Educational/training institutes which will be members of ASEAN academic/training centers 2. Hospital - Basic Information (e.g. faculty, facilities) - Training/competency needs of DHM - External supports from donors and partners - Educational/training institutes which will be members of ASEAN academic/training centers 3. Medical University/Training Institute - Basic Information (e.g. vision, faculty& students) - Process of the training curriculum development - Overview of the current training program for DHM - SWOT Analysis (pls.see details below) 4. NGO & Association, which provide support for strengthening DHM - Training program for DHM - Challenges in DHM education in the country - Future plan of support or project in the area of capacity development in DHM Pls.see Appendix 3 (Interview Guide) for further details.
3	SWOT Analysis	Candidate as a core institute for strengthening DHM	Strength - Internal resources such as skilled, knowledgeable staff, accredited curriculum,

			physical presence/location, available capital Weakness - In terms of technology, trained faculty, skills, etc. Opportunity - Emerging needs for DHM - Increased student enrollment - National/International network - External/Donor supports Threats - Competitors - Insufficient enrolment to cover the costs - Lack of demands

2. Questionnaire Survey

2.1 Sample Profiles

The target of this survey was 10 AMS and respondents are mainly in charge of 1) policy or human resource development in DHM, or 2) developing curriculum or trainers at an educational institute of DHM. Affiliation of the respondents is shown below.



Country	Officials that responded
Brunei	MOH
Cambodia	MOH
Indonesia	・Center of Health Crisis, Ministry of Health ・Disaster Health Management Division, Center for Health Policy and Management (CHPM) ・Faculty of Medicine, Public Health and Nursing (FoM-PHN), Universitas Gadjah Mada ・Medical Faculty, University of Brawijaya
Laos	MOH
Malaysia	BPP KKM (MOH)
Myanmar	Ministry of Health and Sports
Phillipines	・Office of the Civil Defense ・Health Emergency Management Bureau ・Philippine College of Emergency Medicine ・Department of the Interior and Local Government
Singapore	・MOH ・Ng Teng Fong General Hospital, MOH
Thailand	Thai College of Emergency Physician
Vienam	MOH

Source: Questionnaire survey

Figure 2-1 Profile of Respondents

2.2 Human Resources Management in Emergency Medical Service

2.2.1 Ambulance Services

Table 2-1 indicates 1) agency/organization managing ambulance service and 2) type of profession engaged in ambulance services.

In most countries, ambulance services are managed by Ministry of Health/Ministry of Health and Sports, other government agencies and hospitals, while non-government or private agencies also operate ambulance in some countries.

Regarding type of profession of ambulance crew members, apart from doctors and nurses, paramedics are a vital part of prehospital care and work in ambulance services in Brunei, Singapore and Thailand. Emergency medical technicians (EMT) also part of an ambulance crew in Philippines, Singapore and

Thailand, and are trained to deal with medical emergencies. In addition, drivers, health volunteers known as Barangay Health worker in Philippine work as ambulance crew members.

Table 2-1 Agency/organization managing ambulance services & Ambulance Crew Members

Country	Agency/organization managing ambulance services	Ambulance Crew member
Brunei	Ministry of Health (Emergency Medical Ambulance Services)	Paramedics, nurses, assistant nurses, ambulance officers, ambulance drivers
Cambodia	No formal EMS system has been established and ambulance are mostly managed by and stationed at the government referral hospitals.	1 doctor, 2 nurses, 1 driver (119 dispatch center located at Calmette Hospital)
Indonesia	・ National Command Center 119/ PSC (Public Safety Center) 119 by Ministry of Health. Almost each province and district have PSC 119 also and managed by Province/ district health office. ・Hospital ・Primary Health Care	1 doctor, 2 nurses, 1 driver
Lao PDR	Dispatch Center at Mittaphab Hospital	First Responder, Nurse, Rescuer
Malaysia	・Ministry of Health ・Other Government agencies e.g. University Hospital, Army, Fire and Rescue Department., Civil Defence ・Private Ambulance Service	Medical Assistant, Staff nurse, Ambulance Driver, First Aider
Myanmar	Ministry of health and Sports	Nurses, Nurse Aid, sometimes Doctors
Philippines	・Hospitals, Bureau of Fire Protection, Health Service of Local Government Units (LGU) ・Rescue Units from LGU and other Volunteer/ Non-Government Organization (NGO) ・Ambulance/Rescue Units i.e. Txt Fire, Ace Core, Philippine Red Cross	Doctor (Not always available) Nurse (Not always available) First Aid Trained Personnel Barangay Health Workers Emergency Medical Technician (EMT)
Singapore	The Singapore Civil Defence Force (SCDF)	3 staff – 1 paramedic and 2 Emergency Medical Technicians (of which 1 is the ambulance driver).
Thailand	National Institute for Emergency Medicine (NIEM) supports dispatch centers in 77 provinces, 13 regions of MOPH, and Bangkok Metropolitan area [1]	Emergency medical rescue (EMR), emergency medical technician (EMT), advanced medical technician (A-EMT), paramedic (EMT-P).

	NIEM regulates EMS policies, EMS quality, and the licensure of EMS providers [2]	
Vietnam	・Public sector: 115 call center belonging to provincial Department of Health ・Some private company ・Some volunteer	Physician, Nurses, Driver

Source: Questionnaire survey

2.2.2 Emergency medicine education/ training and training institute

Doctor

Emergency medicine education/training program is available at medical university/college in all AMS, however, the current state of curriculum development and educational opportunities in emergency medicine is different in each country. For example, a postgraduate or master of emergency medicine course with a structured program is established in Malaysia, Myanmar and Thailand. In Brunei, basic emergency medical training is available in the country, but the advanced emergency training is taken in other countries such as Singapore or UK [1].

In some AMS, where emergency medicine is relatively new, the education system in emergency medicine has been in the process of development. In Indonesia, emergency medicine education has been recently introduced in the national curriculum, while it used to be provided by a limited number of universities or hospitals with their own curriculum. In Viet Nam, curriculum for emergency medicine is not standardized nationally, although all medical doctors receive training in emergency medicine.

In-service training for emergency medicine for doctors is mainly conducted by hospitals and/or international partners and NGOs.

Nurse

Emergency nursing education is provided with training curriculum in most countries, and some AMS has a post graduate program. In Indonesia, University of Brawijaya Malang has postgraduate nursing program on emergency nursing. In Malaysia, advanced diploma in emergency care started in 2016 [3]. In general, nurses play important roles in both prehospital and in-hospital cares, and in the countries, which have paramedics or emergency medical technicians (EMT), their education system is developed based on the nursing education [1].

Paramedics/Emergency Medical Technician (EMT)/Medical Assistant

As stated in 2.2.1, paramedics and emergency medical technicians (EMT) work in ambulance services in several countries. In Malaysia, medical assistants also work as an ambulance crew member. Table

2-2 shows training system for those professions in each AMS.

Table 2-2 Paramedics and EMT training

Profession	Country	Training course
Paramedics	Brunei	- Institute of Health Science/Polytechnic – Diploma in Paramedic - Institute of Brunei Technical Education (IBTE) – assistant nurse/paramedics
	Singapore	- Singapore Armed Forces Medical Training Institute (SMTI): 8 weeks EMT course for paramedics to familiarize with BCLS + AED protocols. - Additionally, paramedics will also undergo 12 – 14 months on the job training in the ambulance and Obstetrics and Pediatrics and ED attachments. This will be followed by a 10 month enhanced EMS course at the SMTI which includes online training, JIBC Practicum, theory, and simulation.
	Thailand	National training curriculum provided by National Institute for Emergency Medicine (NIEM) - 4 years for paramedic (EMT-P)
Emergency Medical Technicians (EMT)	Philippines	10 days training being conducted by Health Emergency Management Bureau of Department of Health (DOH), Philippine Red Cross (PRC), Philippine Heart Association (PHA), American Heart Association (AHA) in the Philippines plus Advance Cardiac Life Support for Ty 2 Ambulance.
	Singapore	Emergency Medical Technicians (including drivers) are required to attend a 5 weeks EMT course at the Civil Defence Academy (CDA) to familiarize themselves with the BCLS + AED, and EMS Protocols. The training comprises a combination of self-study, theory, and practical modules.
	Thailand	National training curriculum provided by NIEM - 40 hours for emergency medical rescuer (EMR) - 115 hours for emergency medical technician (EMT) - 2 years for advanced emergency medical technician (A-EMT)
Medical Assistant	Malaysia	- Diploma: 3 years at MOH and Private colleges - Degree program: 4 years at public universities The Diploma/Degree covers subjects such as Medical, Surgical, Orthopedics, Pediatrics, Gynecology & Obstetrics, Psychiatric, Emergency medicine, Pre-Hospital Care, Primary health care and others *For private ambulance crew, there are alternate training pathways which includes: - Diploma in paramedical science - Emergency Medical Technician course

Source: Questionnaire survey

In Myanmar, Ministry of Health and Sports opened the first emergency medical service training center for ambulance crews in January 2020.

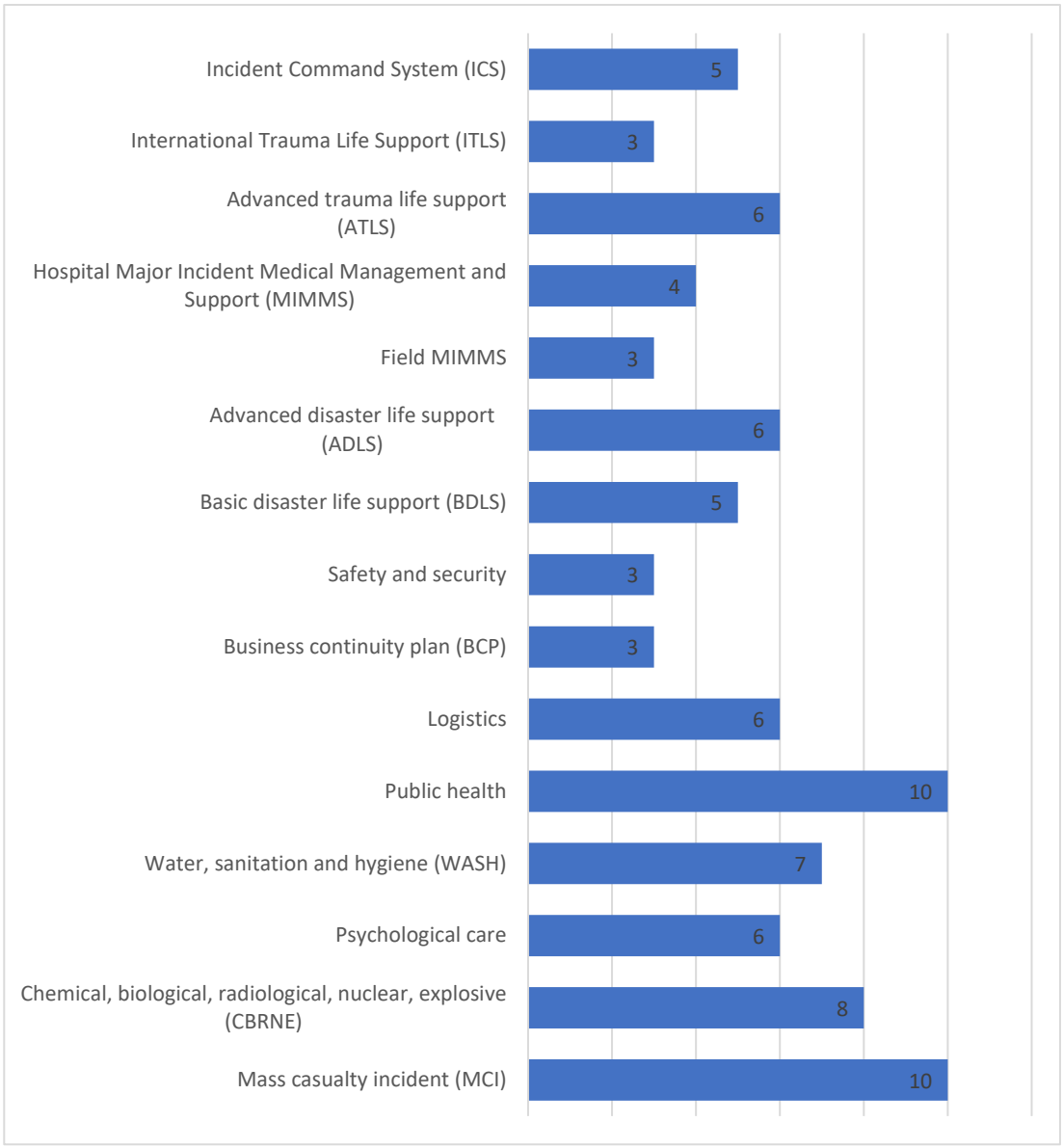
2.2.3 Challenges in ensuring the quality of emergency medicine education

AMS addressed the challenges of ensuring the quality of emergency medicine education as follows. One of the most common challenges pointed out by several countries was training curriculum without standard.

- Training curriculum without standard
  - Lack of training curriculum following International/ASEAN Standard (Philippines)
  - Curriculum needs to meet World Federation for Medical Education Standard (Thailand)
  - Curriculum is not standardized(Viet Nam)
- Training without
  - Right Facility & Equipment
  - Adequate number of qualified trainers
- Others
  - Require recertification to maintain skills
  - Availability of staff to attend courses
  - Not a popular training course among trainees

2.3 Current education and training for DHM

Figure 2-2 shows topics of DHM education and training available in each country. The result shows that AMS are building their capacity through different types of training programs in order to prepare for future disasters although availability and diversity of training programs are different in each country. Duration of each program varies from 1 day to 1 week, but most programs are 3-5 day programs. Most programs are conducted 1-2 times a year, while the Philippines conduct each program upon request rather than on a regular basis.



Note: Multiple answered allowed
Source: Developed by the Survey Team based on the questionnaire survey

Figure 2-2 Topic of DHM education and training available in each AMS

Most training programs are provided by health sector (e.g. MOH, hospital, university of medicine), but some training programs are implemented by non-health, non-government stakeholders (Table 2-3). This suggests that multisectoral coordination and support are required in conducting DHM training, and resources are available from private sector, NGO as well as government in order to make DHM more effective and practical.

Table 2-3 Training provider other than health sector

Topics	Training provider
Chemical, biological, radiological, nuclear, explosive (CBRNE)	National Agency for Counter Terrorism, Army (Indonesia), NGO(Vietnam)
Basic Disaster Life Support (BDLS)	Army, NGO (Indonesia)
Advanced Disaster Life Support (ADLS)	Army, NGO (Indonesia)
Incident Command System	Office of Civil Defense (Philippines) Army (Indonesia)
Logistics	National Disaster Management Agency (Malaysia)

Source: Developed by the Survey Team based on the questionnaire survey

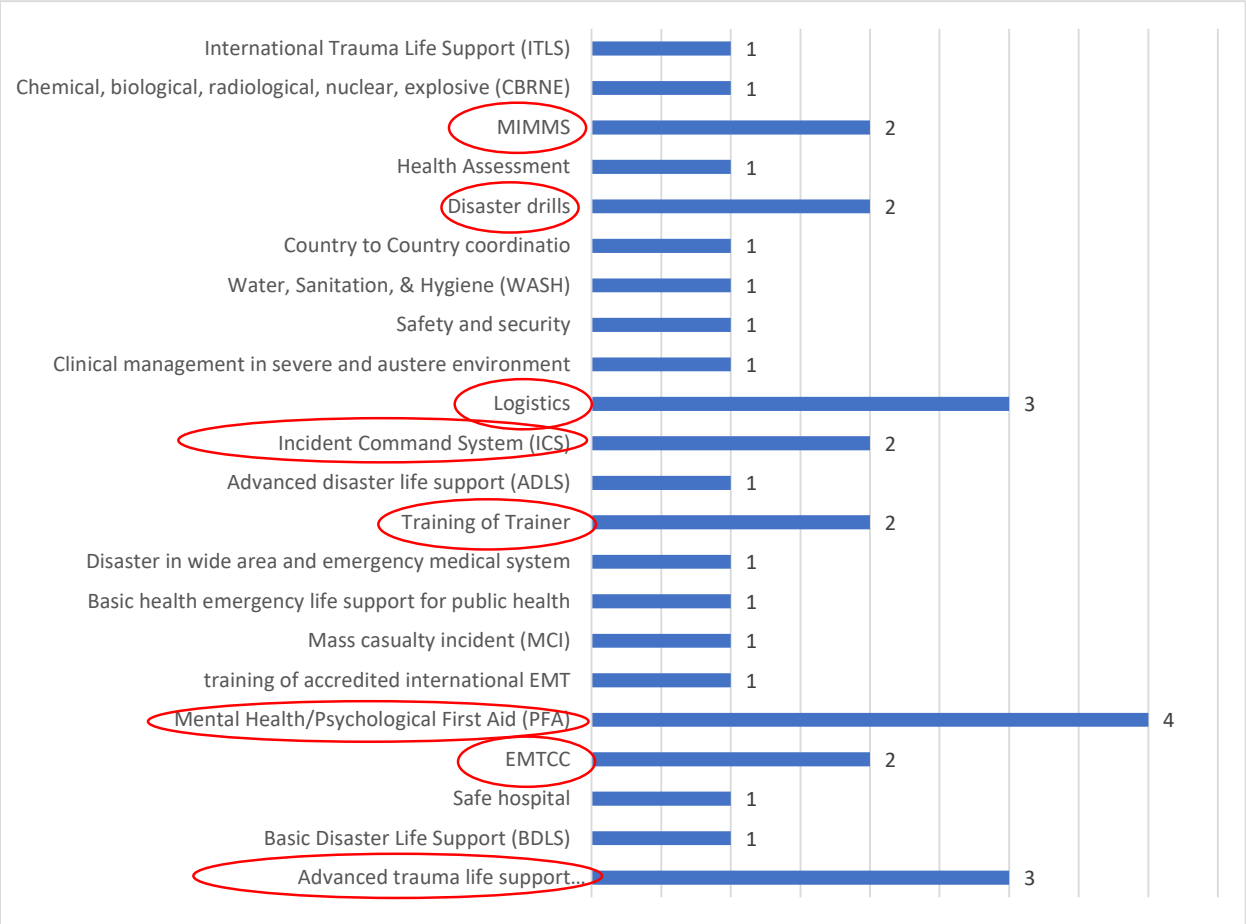
2.4 Education and training needs for DHM

(1) Education and training needs for DHM

In the questionnaire survey, different types of training needs for DHM are identified as shown in Figure 2-3.

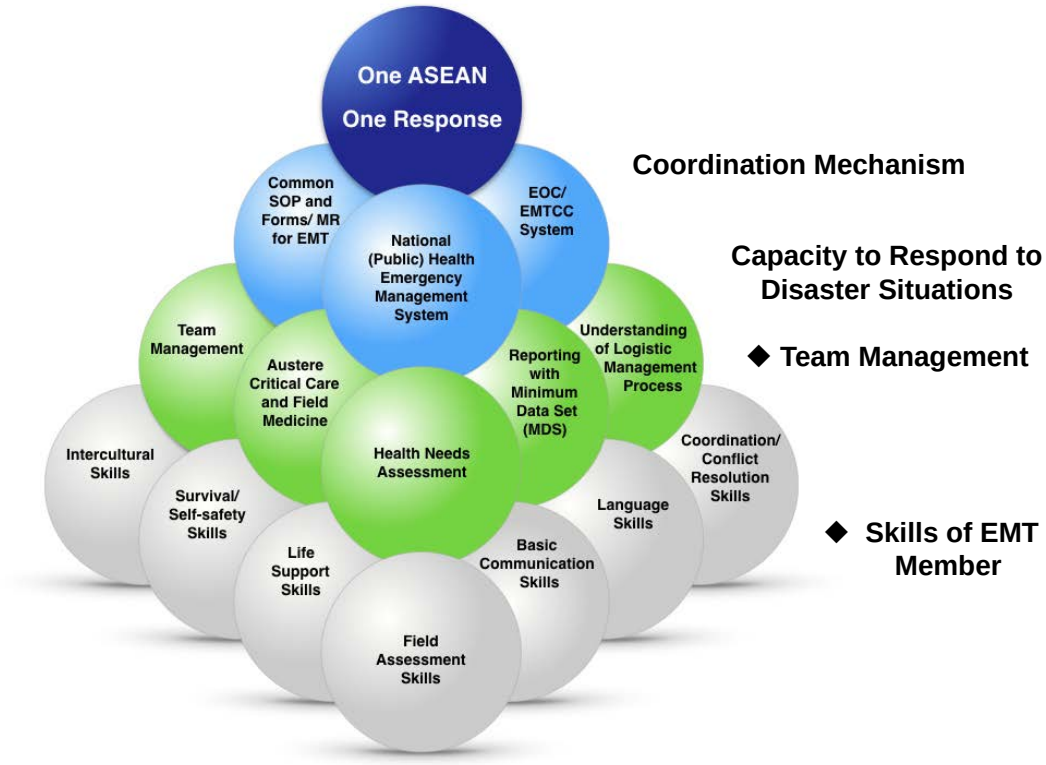
Figure 2-4 shows 19 items that were identified in the start-up drill[1] as capacities/skills to be strengthened in order to achieve the vision “One ASEAN One Response”. They are classified into three groups: 1) coordination mechanism, 2) skills required for team management and 3) skills of individual EMT members. Training needs identified in the questionnaire survey cover all three categories in Figure 2-4, and needs are recognized not only in areas of specific clinical skills/knowledge, but also in areas where coordination mechanism and team management are required.

[1] The start-up drill was conducted under ARCH Project in January 2017.



Note: Multiple answered allowed
Source: Developed by the Survey Team based on the questionnaire survey

Figure 2-3 Training Needs for DHM



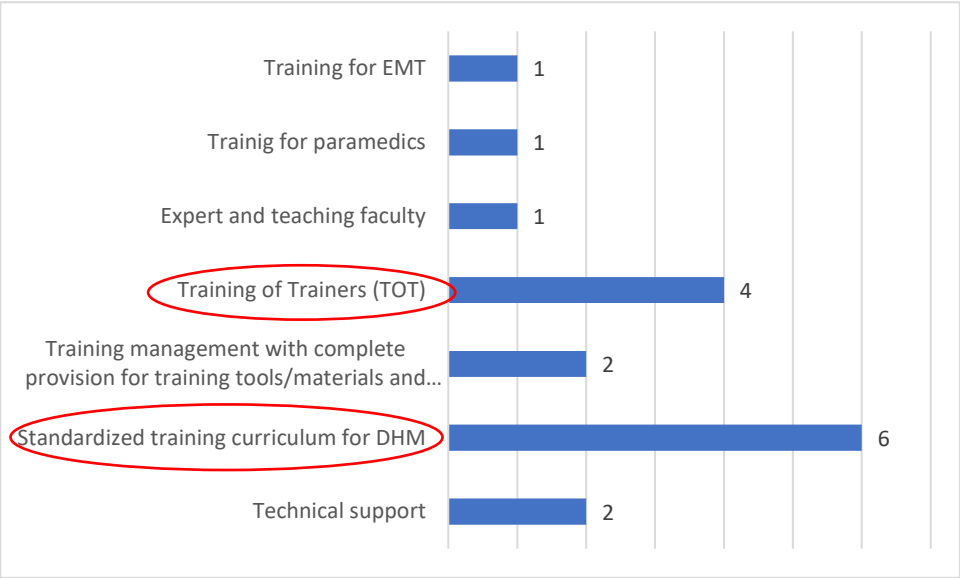
Source: ARCH Project

Figure 2-4 Capacities/Skills needed to reach the vision of "One ASEAN One Response"

(2) Support needed from curriculum committee in carrying out DHM training

More than half of AMS answered that they require support from curriculum committee[2] in standardizing training curriculum for DHM. More needs are also observed in Training of Trainers (TOT).

2 Curriculum committee is set up under ARCH Project, which is comprised of representatives from AMS.

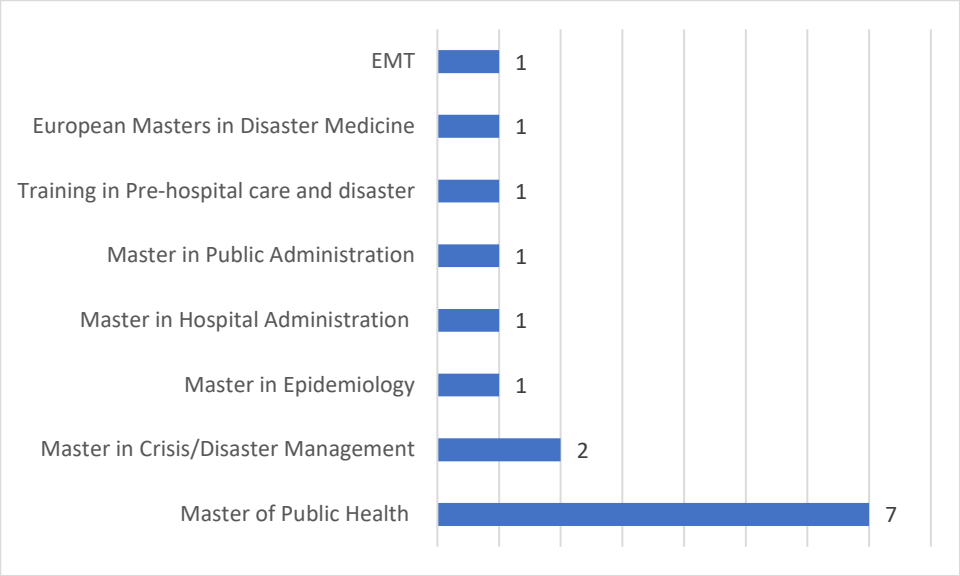


Note: Multiple answered allowed
Source: Developed by the Survey Team based on the questionnaire survey

Figure 2-5 Support needed from curriculum committee in carrying out DHM training in each AMS

(3) Other educational qualifications for building competency on DHM

Apart from emergency medicine, most countries regard Master of Public Health as required educational qualifications for building competency on DHM followed by Master in Crisis management. Public Health professionals have comparative advantages in a) conceptualizing strategies, b) influencing national policies, and c) implementing activities for disaster reduction, and have responsibilities and opportunities in disaster management [4].



Note: Multiple answered allowed
Source: Developed by the Survey Team based on the questionnaire survey

Figure 2-6 Other educational qualifications for building competency on DHM other than emergency medicine

2.5 Potential core educational institute(s) to develop curriculum and conduct training courses for DHM in each AMS

(1) Potential core institute(s) in each AMS

Table 2-4 shows a list of institutes that each AMS identifies as a potential core institute(s) in developing curriculum and conducting training courses for DHM. Five countries choose a university or a college that plays a leading role in training health professionals in the field of emergency health/DHM (Figure 2-7).

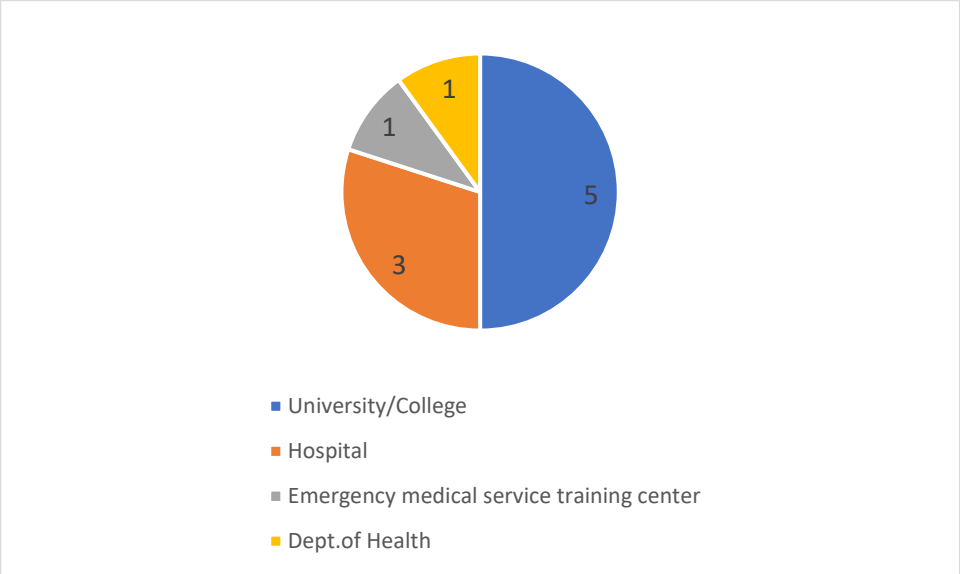
Three countries choose a hospital, which is leading training program for medical students in close coordination with/under the guidance of Ministry of Health. Viet Nam selected National Burn Hospital, which is officially conducting DHM training for medical students through its department of disaster medicine, and national center for emergency and disaster medicine is currently set up in the department with missions of training, research and coordination in emergency medicine and DHM.

Myanmar selected Emergency Medical Service Training Center, which is only training center for emergency medicine in the country. Philippines regard Department of Health as appropriate as its Health Emergency Management Bureau (HEMB) is mandated to conduct competency training in relation to DHM.

Table 2-4 Potential core institute(s) to develop curriculum and to conduct training course for DHM in each AMS

Country	Name
Brunei	University or institute
Cambodia	University of Health Sciences
Indonesia	University of Gadjah Mada
Lao PDR	University of Health Sciences
Malaysia	Hospital Serdang
Myanmar	Emergency Medical Service Training Center (NAY PYI TAW)
Philippines	DOH led by the Health Human Resource Development Bureau and HEMB in collaboration with other training providers
Singapore	Department of Emergency Medicine, Ng Teng Fong General Hospital
Thailand	Thai College of Emergency Physician, Chulabhorn Disaster and Emergency medicine Center
Vietnam	National Burn Hospital (Department of Disaster medicine)

Source: Questionnaire survey



Source: Developed by the Survey Team based on the questionnaire survey

Figure 2-7 Type of Organization

(2) Academic society/NGO that provide DHM training

Table 2-5 shows a list of academic society or NGO that provide DHM training in each AMS.

In general, there are several providers for DHM training in disaster-prone countries such as Indonesia

and Philippines. As the table indicates, several countries are networking and coordinating with partners international network such as Red Cross and Asian Disaster Preparedness Center (ADPC). Mercy Malaysia[3] is also an international non-profit organization, and its main activities include providing medical care and training on disaster prevention and preparedness.

Table 2-5 Academic society/Agency/NGO that provide DHM training

Country	Organization
Indonesia	・Muhammadiyah Disaster Management Center (MDMC) ・NU Disaster Mitigation and Climate Change Agency (Lembaga Penanggulangan Bencana dan Perubahan Iklim Nahdlatul Ulama/LPBI NU) ・Indonesia Red Cross ・Indonesian Society for Disaster Management (MPBI)
Malaysia	Mercy Malaysia
Philippines	・Philippine Red Cross ・Metro Manila Development Authority ・World Health Organization ・Anti-Terrorism Assistance Program of US Department of State
Thailand	・Asian Disaster Preparedness Center (ADPC) ・Thai Red Cross Society ・Thai Association for Emergency Medicine (TAEM)
Viet Nam	Red cross association

Source: Developed by the Survey Team based on the questionnaire survey

2.6 Others: Special attention to multicultural setting in DHM education

Three countries (Indonesia, Lao PDR and Singapore) answered that current DHM education/training in the country gives special consideration to multicultural issues (e.g. culture, religion, gender) in DHM.

- Indonesia: Specific culture
- Lao PDR: Culture, Gender
- Singapore: Multicultural sensitiveness

Other countries, which are not currently giving special attention to multicultural issues in their DHM education/training, are aware of the needs:

- Malaysia: Local culture & religious sensitivity
- Philippines: Acclimatization/simulation
- Thailand: Laws, regulations, and cultural perspective for EMT
- Viet Nam: Gender, elderly, ethnic minority

[3] Mercy Malaysia is a member of the Asian Disaster Reduction & Response Network (ADRRN), which is a network consists of 52 national and international NGOs from more than 20 countries across the Asia-Pacific region.

3. In-Country Study (1) : Cambodia

3.1 Situation of Disaster Health Management/Emergency Medicine in Cambodia

Priority issues in health sector in Cambodia have long been to reduce maternal mortality and communicable diseases like in other developing countries. Although Cambodia is not disaster prone country compared with other ASEAN countries, the recent experiences of Mass Casualty Incidents (MCI)[4] as well as climate change, which caused the country to review the emergency preparedness and response, have led to increasing the country's awareness in strengthening disaster health management.

Regarding emergency medicine, due to the growing number of road traffic fatalities in recent years, which is the leading cause of death in Cambodia with more than 2,000 people killed every year, improving pre-hospital emergency medical care is urgently needed.

3.1.1 Policies and strategies

National Strategic Plan on Disaster Risk Management for Health

The National Strategic Plan on Disaster Risk Management for Health 2015-2019 was developed in cooperation with the National Committee for Disaster Management (NCDM) with technical assistance from the World Health Organization (WHO). It deals with all phases of disaster risk management cycle with special focus on four components in managing health emergencies and disaster;

1) Strong governance and leadership, and effective coordination mechanisms
2) Effective Information and Knowledge Management
3) Readiness of Health Service Delivery
4) Adequate resources (Human resources, Supplies, and Finance) capacity.

According to MOH, the new National Strategic Plan 2020-2024, which was submitted to the Parliament for endorsement by February 2020, has four strategies consisting 1) Governance, 2) Knowledge, 3) Disaster Management, 4) Information, and it also includes the component of reproductive health.

[4] Examples include the building collapse in Sihanoukville (also known as Kampong Som) in June 2019 and one also collapsed in Kep in January 2020.

3.2 Emergency Response System

The MOH is a member of the National Committee for Disaster Management (NCDM) chaired by the Prime Minister. The Department of Preventive Medicine is the secretariat of the disaster management in MOH and has the Disaster Management and Environmental Health Bureau, which actually deals with related disaster issues.

The Director of the Department of Communicable Disease Control (CDC) is the commander during the outbreaks and non-communicable diseases. Department of CDC is the focal point to administrate over 2,000 members of the rapid response teams at the local level (at least 3 members are assigned to the rapid response team at each health center).

The sub-national levels can manage low and moderate risks. If the risk is very high, the issue will be treated at the national level whereby the Prime Minister will act as the commander.

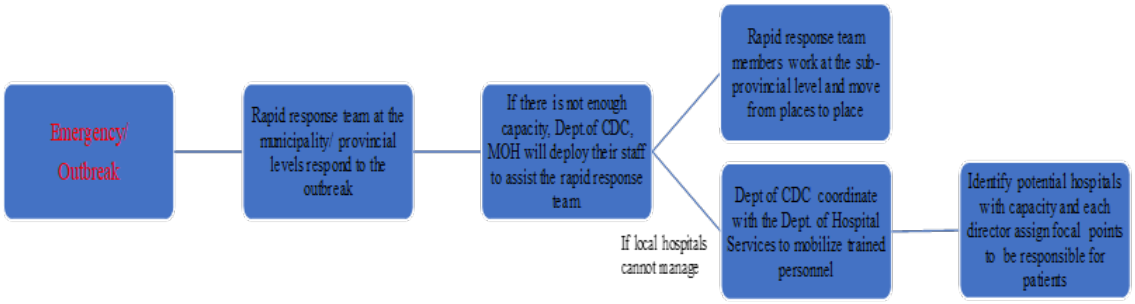
3.2.1 Emergency Operation Center (EOC)

Under the current system in Cambodia, the Department of CDC is responsible to oversee EOC and develops the strategic plan for the pandemic and outbreaks response. This mechanism is supposed to function for disasters as well.

3.2.2 Emergency Response at the Site

Cambodia has the nationwide network so called the severe acute respiratory infection (SARI) surveillance system, which has been established since the country handled pandemics such as SARS, H1N1 and MERS in the past.

The Director of the Department of CDC is the commander when it needs to deploy the rapid response team. The below is the flow of emergency response in Cambodia.



Source: MOH

Figure 3-1 Emergency Response/Severe Acute Respiratory Infection Surveillance System

For rapid response team(s), which is similar to EMT to some extent, there is a well-established network with provincial levels. When outbreak occurs, the sub-national disaster management committee works with the provincial governors to manage outbreaks. According to MOH, if the provincial hospitals need further support, the Department of CDC play the coordination role for resource mobilization including supplies, logistics and equipment which support provincial hospitals.
This nationwide network and mechanism can be applied to manage the Mass Casualty Incidents (MCIs) and natural disasters at provincial and sub-provincial levels.

Hospital Safety in Emergencies

According to MOH, they plan to discuss with provincial governors to make hospitals safer. In the past, WHO provided training on safe hospital and emergency preparedness, in which provincial hospitals prepared emergency plans. However, many hospitals need to reconsider the safety strategies in hospitals as they are located in flood prone areas such as nearby the Mekong River.

3.2.3 Emergency Medical Team Coordination Cell (EMTCC)

According to MOH, they would like to conduct training on Emergency Medical Team Coordination Cell (EMTCC) in case the country needs to request assistance from other countries.

3.2.4 Emergency Medical Team (EMT)

Cambodia has not established national emergency medical team yet. Some hospitals have their own medical team, but it is not standardized as EMT.
When s disaster occurs, MOH normally requests the hospital to dispatch medical team(s) to accident/disaster scenes. The hospital dispatches only health personnel, and local hospitals provide logistics and equipment support. In case of building collapse in Kep province in 2020, for example, MOH requested Calmette hospital to send their medical team consisting of 5 members including 3 doctors (surgeon and anesthetist), 1 nurse and 1 emergency medical technician to support health personnel working at local hospitals.
According to MOH, there is no standard operating procedure (SOP)/guideline to dispatch medical teams although some hospital has their own guideline.

Cambodian Red Cross (CRC)

The Cambodian Red Cross (CRC) is a member of the National Committee for Disaster Management (NCDM). CRC has been involved in developing strategic plan for NCDM as the primary partner and has provided emergency relief assistance to victims working closely with the MOH in align with its strategy.

The CRC has no emergency medical teams, but they have disaster response teams. CRC's international disaster response team is under the umbrella of the International Federation of Red Cross and Red Crescent Societies (IFRC). According to CRC, they have not deployed international disaster response team in the past 5 years.

The CRC has also national disaster response team, of which members are mainly CRC volunteers at local levels. They provide support during Mass Casualty Incidents (MCIs) and disasters in close collaboration with NCDM.

One of the CRCs' advantages is that CRC can mobilize many volunteers during emergency/disaster by using their networks at local levels.

The table below is the basic information of CRC.

Table 3-1 Basic Information of Cambodia Red Cross (CRC)

Organizational structure	• HQ office (Phnom Penh) • 25 branches nationwide - branches (Provinces) - sub-branches (Districts) • Has the Health Department including 3 sub-departments including 1) communicable diseases, 2) emergency health and 3) first aid
Staff and volunteers	• 120 Staff • Branch office: at least 5 full-time staff work at each office. Some branches have medical doctors nurses, medical assistant and pharmacist. • Red Cross volunteers in villages (approx.26,000) • Youth volunteers in schools and universities (approx.30,000)
Major Activities in DHM/Emergency Medicine	• Distributing hygiene kits • Health education to local communities and schools. **Training** • Basic training (3-days) for CRC volunteers using its training module including; - Health education - Water, Sanitation and Hygiene (WASH) - First Aid skills and specific issues (e.g. pandemics)

	• Training for youth volunteers on road safety (e.g. traffic laws, road safety) • Training on specific emergency health topics to members of Red Cross volunteers club at each university/schools • Training for focal points of club members at the CRC headquarter • IFRC provided training to members (doctor/nurse) of disaster response team.
Disaster Response Team	• Regional disaster response team under the umbrella of the International Federation of Red Cross and Red Crescent Societies (IFRC) • National Disaster Response Team: CRC volunteers at the local level
Network	• Has network with 22 public universities in Cambodia • Signed MOU with Ministry of Education (MOE) to strengthen the existing CRC youth network at schools and universities in Cambodia as well as expand the new networks in new universities and schools.

Source: Cambodian Red Cross

The CRC used to be involved in EMS system and ambulance services in Cambodia, which were handed over to Calmette Hospital (pls. see 3.3).

3.2.5 Disaster Preparedness

Measures are taken by different institutes in order to prepare for and reduce the effects of disasters.

- Field exercises have been conducted after the Phnom Penh stampede in 2010[5].
- Exercises are conducted biannually in close collaboration with the international airport of Cambodia for the preparation of plane crashes.
- Calmette Hospital created a disaster preparation plan but there have no exercises conducted yet.
- NCDM initiate emergency call which people can dial 1294 the Early Warning System (EWS) to get advance warning of natural hazards and disasters such as flood and storm.

3.3 Ambulance Service System

3.3.1 Service Provider

In Cambodia, no formal EMS system has been established and ambulances are mostly managed by

[5] It occurred on 22 November 2010 and 347 people were killed and 755 were injured in a human stampede during the Khmer Water Festival celebrations in Phnom Penh.

and stationed at the government referral hospitals. The table below shows the hospitals, which introduce a 119 emergency system.

Table 3-2 Hospitals with 119 emergency system in Cambodia

Hospital	Number of ambulance service team
Calmette Hospital	2
Khmer–Soviet Friendship Hospital (KSFH)	1
Preah Kossamak Hospital	1
Royal Cambodian Armed Forces (RCAF) brigade (Brigade 70)	2

Source: JICA Cambodia office

Calmette hospital succeeded the EMS system and ambulance service from Cambodian Red Cross (CRC) in 2004 due to inadequate budget of CRC to run the system. According to Calmette hospital, the hospital is discussing with MOH to hand over the dispatch center 119 under the supervision of the municipalities or MOH.

The table below shows the basic information of the dispatch center located at Calmette Hospital.

Table 3-3 Overview of 119 dispatch center

Location	Calmette Hospital
Hotline (nationwide)	119 (4 lines are available) *115 for reporting infectious diseases
Facility and Equipment	• 2 ambulances • 1 standby for traffic injuries.
Staff	• 2 teams including 2 doctors, 4 nurses and 2 drivers for the rotation in the daytime, while 1 team sands by in the nighttime.
Service and provider	• Driver provide first aid, cardiopulmonary resuscitation (CPR) and know how to use equipment in ambulances • Nurses provide first aid, CPR.

Source: Calmette Hospital

According to Calmette Hospital, there are private rescue organizations, but their main responsibility is transporting or referring patients as they do not have trained staff and equipment. Some

organizations send only a driver to pick up patients. MOH controls private sector organizations by not allowing them to rescue people in accident/disaster sites.

3.3.2 Ambulance Crew Training

As indicated earlier, no formal EMS system exists in Cambodia and there is no standard training system for ambulance crew members including emergency medical technicians or paramedics.

Nurses of ambulance service team are trained by hospital doctors to use some drugs such as adrenaline and atropine.

3.4 Human Resource Development for DHM

According to MOH, for the new National Strategic Plan on Disaster Risk Management for Health 2020-2024, the Department of Human Resources Development plans to include DHM, especially pre-service training program into the curriculum of national health education institutes such as University of Health Sciences. For in-service training, the department plans to conduct health impact and needs assessment for all health department personnel at the provincial level. The department also includes training on the minimum initial service package (MISP) for sexual and reproductive health in disasters.MOH is responsible for developing curriculum for these training courses.

3.4.1 Pre-service Education

In Cambodia, there are 19 training institutes nationwide that provide pre-service education on health. MOH and Ministry of Education (MOE) standardize curricula whereby all training institutions need to comply according to the sub-decree 21[6].

MOH and MOE set up the curriculum committee and invite professors from all training institutes to develop curriculum as well as receive technical support from international organizations such as USAID and WHO.

Regarding emergency medicine, doctors are invited to teach at universities. For example, doctors at Calmette Hospital teach medical students about emergency medicine.

- **Module of DHM**

  <u>Medical students</u>

- After completing 4-year studies, medical students can choose from 3 specialty courses including anesthesiology, critical care, and emergency medicine. Under the emergency medicine course, there is one module of 6-8 hours for disaster, which is newly introduced, whereby medical students learn about disaster management.

[6] Sub Decree on Health Education. It identifies the conditions and criterion for health education which shall be applied to public and private educational institutions in Cambodia.

Nurse students

- A module of DHM are integrated in 2 education programs for nurse students including the Associate Degree in Nursing and the Bachelor of Science in nursing, in which nurse students take 15-hour-course (1 credit).
- There are 2 modules, including disaster nursing care and emergency nursing care which nurse students learn these modules during the first semester of in the 3rd year and earn 1 credit from each. Each module takes 15 hours to complete. Disaster nursing care focuses on the MCI (e.g. mass accidents and building collapse) and disasters (e.g. fire and flooding) taught by the Department of Human Resource Developments (Personnel), MOH.
- DHM is not included in the core competency of nurses.

University of Health Sciences (UHS)

UHS is the only public university of health sciences in Cambodia, which is affiliated with MOH and the Ministry of Education, Youth and Sport.

Table 3-4 Basic Information of University of Health Sciences

Item	Details
Foundation year	1946
Faculty	• Faculty of Medicine • Faculty of Pharmacy • Faculty of Dentistry • The Technical School for Medical Care (School for Nursing, Midwifery, Physiotherapy, Laboratory technicians, and Imaging assistants) • The Department of Public Health was established 5 years ago, which will become a faculty in the future
Faculty members	• 200 are permanent faculty members • 1,600 are part-time faculty members from the national hospitals in Phnom Penh.

Source: University of Health Sciences

3.4.2 In-Service Education

The Department of Human Resource Developments is responsible for in-service training. According to the Department of Human Resource Developments, although this department is

responsible for all subjects for in-service training, Department of Preventive Medicine will be suitable to be in charge of in-service training for DHM.

Currently, module of DHM is not included in in-service training curriculum.
According to MOH, DHM is not articulated in Minimum Package of Activities for Health Center Development[7], and it is difficult for the Department of Human Resources Development to identify how DHM related training should be provided to health personnel at health centers.

There is no specific hospital as a leading institution for DHM training in Cambodia. But Cambodia can use the existing training system for DHM education, in which training of trainers (TOT) are provided by experts at the central level to health personnel at provincial and sub-provincial hospitals to manage and outbreak and treat infectious patients.

Calmette Hospital

Calmette Hospital is a public tertiary hospital and hosts training students from the University of Health Sciences as a national teaching hospital. The hospital has their own SOP for disaster.

Table 3-5 Basic Information of Calmette Hospital

Item	Details
Foundation year	• 1958 as a French polyclinic • Reopened as a public hospital in 1980's
Key Services	• Emergencies – Trauma care (10 medical doctors work in the emergency ward, including 2 specialists in emergency anesthesia and other specialists such as cardiologists) • Interventional and surgical cardiology • Neurosurgery • Cancer care – Surgical oncology • Orthopedics • Hepato-Gastro-Enterology • Hemodialysis • Maternity – Neonates intensive care • General Medicine and OPD

[7] This is the guidelines developed by MOH in order to provide a guidance on Minimum Package of Activities (MPA)services and essential activities to be provided health center.

EMS system and ambulance service	• Transferred from Cambodian Red Cross in 2004 • Established dispatch center (119) (pls.see 3. Ambulance Service System for the details)

Source: Calmette Hospital

- **Emergency Medicine and DHM related Training**

Calmette Hospital provide irregular and short-term training programs, which are mainly collaborated with external institutes as shown in the examples below.

- The hospital had the 3-year-MOU with Tan Tock Seng Hospital and the SingHealth Central hospital from Singapore on trauma care and ICU care, which have already ended.
- It collaborates with the Prasat Neurological Institute in Thailand. The Calmette hospital sent nurses to the institute in Thailand for training on Neurology every year.
- The hospital received training on emergency medicine through JICA training. Also, it received training on Disaster Medical Assistance Team (DMAT) organized by WHO for 2 weeks in Bangkok and Pattaya.

3.5 Relevant Academic Society/Professional Organization

University of Health Sciences will collaborate with the professional associations to organize short-term in-service training in its new strategic plan 2019-2023.

- **The Cambodia Council of Nurses (CCN)**

CCN is a member of the working group of the curriculum development, which consisting of professors from all training institutions and particular health professionals, and representatives of CCN develop the national standard curriculum.

- **Health Professional Councils**

It is responsible for registering and licensing health personnel. According to the law on health professional management, students who complete degrees related to health sector must register and get licenses from the council.

3.6 International Partnerships & Collaboration

3.6.1 Major Development Partners

In the field of DHM, WHO has mainly provided technical assistance in capacity development and the related national strategic planning.

The Cambodian Red Cross (CRC) has been engaged in the provision of relief assistance and has provided technical and strategic support as a member of NCDM.

In terms of human resource development, especially for in-service training, institutes from other countries have provided training and technical support.

3.6.2 JICA

Two projects are conducted under JICA program related to strengthening the capacity of emergency medicine in Cambodia.

- Human resource development related project
  - Project Period: April 2020 – March 2023
  - Implementing agency: Kokushikan University, Japan
  - Target: medical personnel (e.g. doctors, nurses and ambulance drivers working for public hospitals)
  - Main activities: development of materials for distance learning, TOT follow-up training, EMT basic training, etc,
- Emergency related training
  - Project Period: July 2020 – July 2023
  - Implementing Agency: Takamatsu city, TICO (NGO)
  - Target: medical personnel and residents mainly in Battambang Province, Svay Rieng Province,
  - Main Activities: Training, development of training program, provision of equipment, etc.,

3.7 Stakeholder SWOT Analysis

Based on the discussions with stakeholders in DHM in Cambodia, the research team conducted SWOT analysis of each institute in order to identify possible core institutes for conducting domestic training and becoming members of ASEAN academic/training center network as well as training needs/challenges in DHM in the country.

(1) MOH

Strength	Weaknesses
• Has an organizational structure for DHM/emergencies a) Disaster Management and Environmental Health Bureau under the Department of Preventive Medicine to oversee DHM activities. -Currently preparing Strategic Plan for DHM (2020 – 2024). b) Department of Human Resources Development -Are Involved in National Curriculum	• No clear guideline on how to provide DHM related training. • No DHM training for doctors • Need to revise the hospital emergency plans. • No system/protocol to develop paramedic training • No database of those who have been trained in DHM

review. Plan to Integrate DHM training in nursing curriculum. c) Department of Communicable Disease Control i) Have network with Hospital's Rapid Response Team (RRT) to manage infectious disease/outbreaks. ii) Has experiences in developing strategy for pandemic influenza. d) Ambulance call center currently located in Calmette Hospital under MOH to coordinate emergency ambulance response for the whole country.	
Opportunities	**Threats**
• Has support from external agencies to fund Health development e.g. USAID funding the review of nursing curriculum • ARCH can be benchmark for strengthening EMT training and curriculum	• Government's priorities on health focusing on communicable disease and maternal-child health.

(2) University of Health Sciences

Strength	**Weaknesses**
• Main teaching institution for Medicine • Have good research activities (mainly on infectious diseases) with local and international partners.	• No standard curriculum yet for DHM training • No trainers for DHM training. • does not have any research networks related to emergencies and disasters
Opportunities	**Threats**
• Collaborate with more than 100 external institutes (mostly they are academic institutions) at national and international levels. • Good opportunity for the university to link with the regional network in order to build capacity of DHM. • Have plans to collaborate with professional associations such as nursing association to	• No direction from government on setting up DHM training and education. • No research funding from MOH

further strengthen in-service training (Strategic Plan 2019 – 2023)	

(3) Calmette Hospital

Strength	Weaknesses
• Has experiences in deploying medical personnel during disaster in Cambodia. • Has experienced team members in managing real disasters. • Has Disaster plan for Hospital. • Has training module for DHM for: i) Anesthesiology /Critical Care and EM doctors (6 – 8 hours). ii) Nursing – Disaster Nursing Care (15 hours).	• Inadequate training on DHM for team members. • No SOP on activation of EMT. • Inadequate equipment to respond to disaster. • No specific allocation from government for DHM.
Opportunities	**Threats**
• Have cooperation with external resources e.g.: i) Tan Tock Seng Hospital (Singapore) for Trauma and Intensive Care (3-year). ii) WHO – 2 weeks DMAT training in Thailand. • ARCH training provides an opportunity to learn on DHM (e.g. coordination, communication)	• Need clearer direction from MOH to further develop DHM training • Do not know how to maintain the system and education

(4) Cambodian Red Cross (CRC)

Strength	Weaknesses
• Works closely with MOH for health-related activities. • Has 25 branches with 26,000 volunteers all over Cambodia • Have established a Health Section focusing on 3 areas i.e communicable disease, emergency health and first aid. • Have good logistics capability (able to transport supplies for humanitarian assistance).	• Not all members are permanent staff, some are volunteers. • There is a shortage of youth volunteers in villages • No training provided on EMS due to limited capacity.

• Networks with 22 public universities in Cambodia • Presence of Red Cross volunteers in village/schools/universities • Can mobilize trained volunteers (e.g. first aid) at community level using their network during disasters.	
Opportunities	**Threats**
• Plan to sign MOU with Ministry of Education (MOE) to strengthen the CRC youth network at schools and universities. • Part of National Committee on Disaster Management (NCDM) • To streamline CRC's strategy and develop its program in close collaboration with MOH and International Federation of Red Cross/Red Crescent	• Migration of younger generation to cities results in difficulty to get volunteers in villages. • Ineffective communication with AHA center about health information

3.8 Conclusion and Recommendations

(1) Focal points and hub for ASEAN Academic Network

Under the guidance of and close collaboration with MOH, especially Department of Human Resource Development, the following institutes will be recommended to take the lead in DHM academic network in ASEAN.

- University of Health Sciences (UHS): providing training and research activities.
- Calmette Hospitals: providing in service training, TOT training, safe hospital, etc.
- Other cooperating organizations: Cambodian Medical Association, Cambodian Council of Nurses (CCN), The Cambodian Red Cross (CRC) etc.,

(2) Training needs for strengthening DHM

- **Standardized training curriculum for DHM**

  Cambodia needs standardized curriculum for DHM such as coordination, communication, command and control.

  - Need more coordination among stakeholders to manage MCIs more effectively. (Calmette Hospital)
  - Logistics

  Logistics and finance are important during emergencies and disaster, which is lesson learned

from the past experiences of emergency responses (Calmette Hospital)

- Team management

- **Safe Hospital**

  Making hospitals safe is essential component of DHM. Providing support for making hospitals to be accessible and function to their maximum capacity will contribute to strengthening hospitals' resilience and safety during emergencies/disasters in Cambodia.

- **Training of Trainers (TOT)**

  As Cambodia does not have many disasters compared with other disaster-prone countries in the region, DHM has not been highly prioritized and the number of experts on DHM is limited. Building capacity of trainers is urgently required for improving DHM in Cambodia.

- **Emergency Medical Team Coordination Cell (EMTCC)**

  MOH requested EMTCC training in order to prepare for future disasters, which need assistance from other countries.

- **Skill based training on EMS**

  - Most doctors and nurses in Cambodia have not received proper training on EMS. Cambodia does not have enough health personnel to rotate in dealing with MCIs and still needs more experts to manage MCIs (Calmette Hospital)
  - Standardized training for paramedics

- **Mental Health**

  Based on the experiences, Cambodia need more mental health specialist.

(3) Recommendations

Considering the current resources and priority-setting for national health policies in Cambodia, it would be realistic to maximize existing resources for strengthening capacities of DHM by utilizing the nationwide network and mechanism for communicable diseases.

It is important that MOH take the lead in networking/coordinating discussion of all relevant agencies/institutions to take collective DHM and to prepare the Emergency Medical Services to respond to disasters.

- **Standardizing training curriculum on DHM**

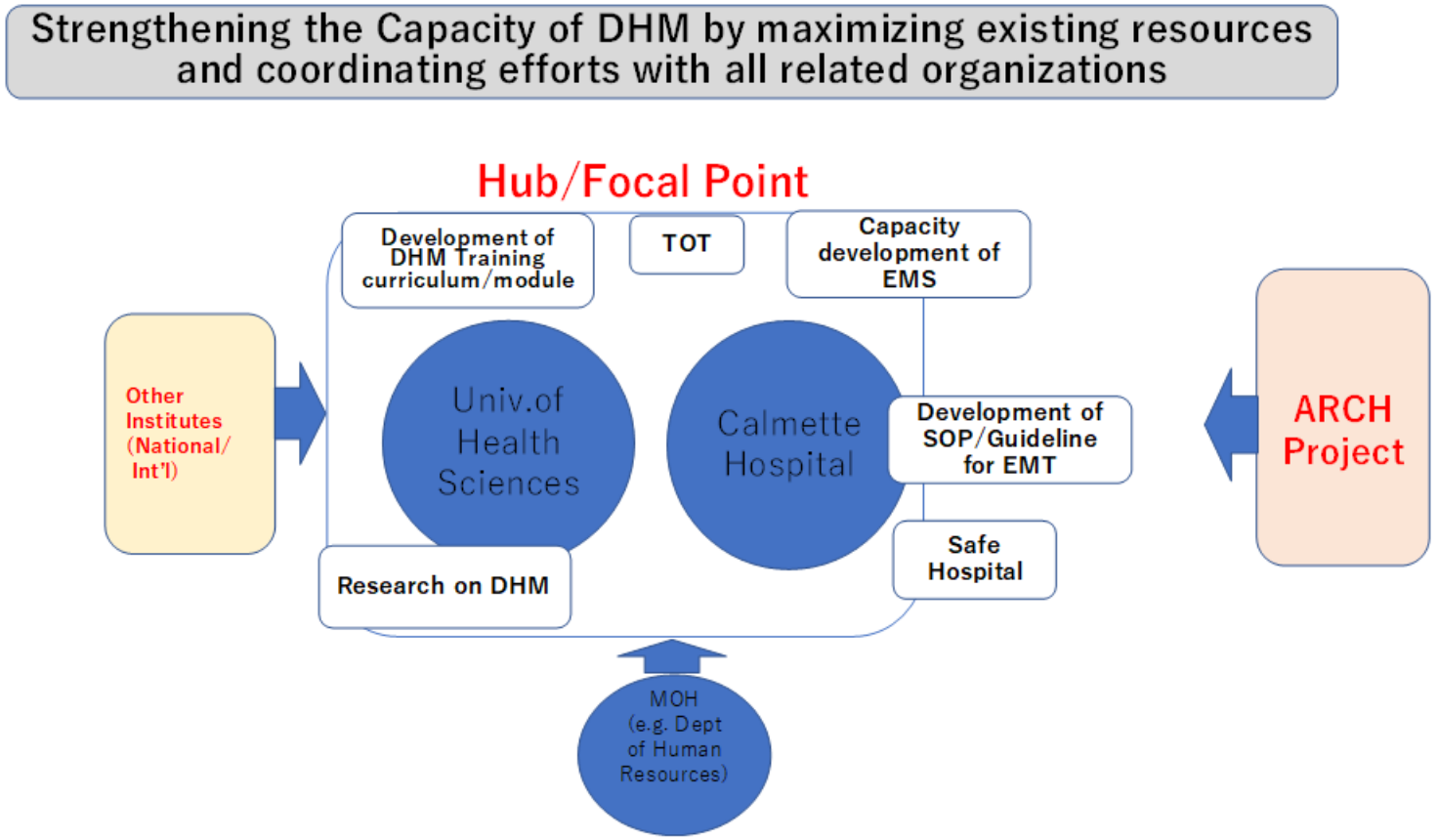
  - To prepare DHM content and integrate it to the national curriculum to suit the Cambodia context and needs.
  - University of Health Sciences need to 1) establish networking with external universities/ training institutions to develop DHM training module, 2)focus on developing standard DHM training module for inter-professional training, 3) collaborate further with MOH and relevant institutions on assessing the current local needs for DHM training.
  - Training of Trainers (TOT)

- **Developing SOP/Guideline for EMT**
  - To establish SOP/Guideline for EMT response during disaster by involving all stakeholders including responding hospitals and ambulance service providers.
  - Strengthening Calmette Hospital (or other identified hospitals) for Pre-Hospital Care.
  - ARCH Regional Collaboration Drill (RCD) will be the good opportunity to strengthen the capacity.
- **Conducting Research on DHM**

  The ARCH will organize the academic conference on DHM in 2021, and will invite researchers who conduct existing/ongoing research and studies on disasters. This will be an good opportunity for the researchers to present their research, reports and lessons-learned on DHM.
- **Capacity development of EMS**
  - Strengthening the national ambulance coordination center at Calmette Hospital
  - For paramedics, Thailand can be resource to organize the certified training on paramedics (115 hours) to Cambodian health personnel.
- **Safe Hospital**

  ARCH will continue discussion with MOH and other related organizations and consider a way to include safe hospital initiative into ARCH 2.

Network for Capacity Development of DHM in Cambodia



4. In-Country Study (2): Lao PDR

4.1 Situation of Disaster Health Management/Emergency Medicine in Lao PDR

According to MOH, health sector has given priority to reduce maternal mortality, infectious diseases, and non-communicable diseases in the past.
However, having faced a number of disasters in recent years especially heavy flooding after the dam collapse in July 2018, the Lao government realized the importance of disaster health management and places disaster management as its policy priority.

MOH aims to achieve three goals in DHM, including

1) train and build the capacity of human resources and set up the national EMT Type I;
2) share the guideline to other government agencies and;
3) develop systems and mechanisms to manage different types disasters in the country.

4.1.1 Policies and strategies

(1) National Socio-Economic Development Plan

The government includes disaster management and emergency health along with communicable and non-communicable diseases management in the health policy and the recent National Socio-Economic Development Plan (2016-2020).

(2) Strategic Priorities in DHM

National Emergency Medical Team (N-EMT)

MOH is currently planning to develop the national Emergency Medical Team (N-EMT) based on the WHO minimum standards. The team members will include doctors, nurses and other medical assistants from different hospitals in Vientiane.

It is the preparation phase in developing guidelines and forming the team members. However, the SOP does not meet with WHO standards yet. MOH is working closely with WHO to develop the SOP for EMT by referencing the WHO standards and integrating standards from other AMS.

MOH is planning 2 phases of formulating EMT as indicated in the below table.

Table 4-1 Plan of EMT formulation in Lao PDR

Phase	Time	EMT	Remarks
1st Phase	Before the rainy season (May) in 2020	• Type 1 fixed • 20 members including - 3-4 doctors, - 8-11 nurses - Assistants - 4-5 logisticians	To handle the potential flooding stating in July
2nd Phase		• One more Type 1 fixed • Mobile teams at provincial level	

Source: MOH

Mittaphab hospital is working with MOH to develop the training curriculum for establishing the national EMT based on the WHO guideline. In addition, the working group and the Lao Society for Emergency Medicine are discussing to design the EMT training curriculum. They are referring to the training curriculum of the Thailand Medical Emergency Response Team (MERT).

In the future, MOH aim to build international EMT to help other AMS.
The EMT will be managed by the Department of Health Care and the cabinet will be the coordinator. According to MOH, however, the plan may delay due to dealing with the Coronavirus (COVID-19)[8].

Criteria for selecting EMT members

The EMT members will be selected based on their expertise, experiences and voluntary basis. Normally, MOH request hospitals to nominate potential representatives in responding to disasters. As MOH is concerned about all types of disasters, MOH will not select only one hospital but develop human resources from different sectors and locations.

4.2 Emergency Response System

When MOH needs assistance from international organizations and other ASEAN Member States (AMS), there are channels and mechanisms such as the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA) Center, which the National Disaster Management Office (NDMO), Department of Social Welfare under the Minister of Labour and Social Welfare is a board member.
MOH also use the EOC network for sharing information and discussing how MOH can respond and identify support needed. The EOC meeting room is located at the Department of Communicable Disease Control, which links with other countries.

[8] No coronavirus case had been reported in Laos at the time of the survey.

4.2.1 Emergency Operation Center (EOC)

According to MOH, EOC was established in 2005 with the technical and financial support from WHO to deal with measles outbreak. The secretariat is composed of representatives of different departments, which are assigned by the cabinet.

Currently, there are two levels of EOC in Laos organized by the government to deal with emergencies.

a) Affecting small area

   The government forms an EOC to deal with a small outbreak in one or two districts/provinces. This situation can be managed by the department levels, such as the Department of Communicable Diseases and chaired by its director.

b) Large scale

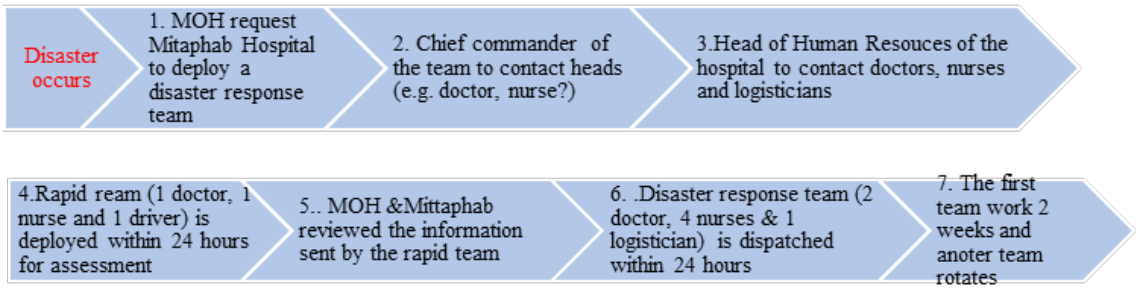
If large-scale outbreaks or disasters occur, the EOC will be activated within 24 hours in the cabinet office of MOH chaired by the Minister or Vice Minister of Health.

4.2.2 Emergency Response at the Site

Even though EMT has not been established in Laos, there is some plan and human resources in place to respond to disasters. For example, MOH has a contact list of doctors, nurses and medical assistants who worked in the emergency team during the past disasters. In case of disaster, MOH can contact them and formulate disaster medical team.

When they had flood in 2018, Mittaphab Hospital was designated by MOH to deploy the first responder team to the disaster sites for approximately 1 week, and MOH formed a disaster medical team afterwards.

The below is the flow of emergency response in Laos



Source: Mittaphab Hospital

Figure 4-1 Flow of Emergency Response

According to Mittaphab hospital, there are 2 disaster medical teams, consisting of military doctors and doctors deployed by MOH. Both teams coordinate and have a daily meeting to report and assign roles and responsibilities. Overall operation in disaster areas was overseen by the military side.

Pre-deployment orientation

In the past, hospitals did not provide training on DHM. But now, before deploying a medical team to disaster sites, one-day orientation for preparation and possible incidents, especially mental preparation will be provided for emergency team members including technicians, physicians and psychiatrists.

4.2.3 Emergency Medical Team Coordination Cell (EMTCC)

Minister or Vice Minister of MOH is the commander of DHM in nationwide emergencies or disasters. The Emergency Medical Team Coordination Cell (EMTCC) is already set up in the cabinet office of MOH and the field, but it is not fully functioned yet. International EMT has not assisted in Laos yet.

4.2.4 Disaster Preparedness

There is no policy in place, but the cabinet of MOH takes a role in mobilizing resources and coordinating with other stakeholders in order to prepare for disasters.

- Drill: Each hospital in Laos conducts a drill by themselves.
- Stockpile system: There is no stockpile system at the national level but Mittaphab Hospital has stockpile.

4.3 Ambulance Service System

The Department of Health Care is responsible for DHM/ emergency medical service (EMS) system. However, there is no government system for rescue ambulances. They are all private entities and eight different rescue teams have their own hotline numbers.

Currently there is no dispatch center in Laos, but Mittaphab hospital is planning to establish a dispatch center within 3 years.

4.3.1 Service Provider

Vientiane Rescue 1623 is one of the eight organizations that provide ambulance services being supported by the Foundation for Assisting Poor People of Lao PDR. The table below shows its basic information.

Table 4-2 Overview of Vientiane Rescue 1623

Number of operating centers	4: Vientiane (4 operating points), Champasak, Xiangkhouang and Vang Vieng
Facility and Equipment	• 10 ambulances • 1 fire truck
Operating cost	• Covered by donation (e.g. administration fees, fuel and transportation costs) • Rescue volunteers sometimes spend their own money to cover the operation cost
Staff	• 420 volunteers for all operating centers • Rescue volunteers work without payment. They usually work 2-3 hours per day and 2-3 days per week • Only call center staff, who receive emergency calls, get salary of LAK 400,000 (approx. USD 45) per month.
Eligibility requirements	• All volunteers with an interest are accepted. • Volunteers, who received the training on FR, take one-day examination at Mittaphab hospital and get certified.
Training	• National Institute of Emergency Medicine (NIEM) provided financial support for rescue volunteers to receive Emergency Medical Technician (EMT) training. • Khone Kane University: Emergency Medicine Technician (EMT) Basic training for 12 volunteers with the financial support by NIEM & Maharaj Nakorn Ratchasima Hospital (Total 115 hours: 49 hours for theory & 66 hours for practice) • Mittaphab hospital: 3-day certified training on FR for 100 volunteers.[9] • Vientiane Rescue team provides training on FR to their volunteers **<u>Disaster Health Management (DHM)</u>** • Rescue members received the Disaster Medical Assistance Team (DMAT) training for 5 days from Thailand including Incident Command System (ICS) and safety.

[9] Mittaphab hospital changed training methods in 2020 from providing direct training to volunteers to requiring each rescue team to provide training to their own volunteers. The hospital opens the examination for 30 available seats annually.

	• Japan DMAT provided training at Mittaphab Hospital

Source: Vientiane Rescue1623

Normally, the rescue team sends the basic Emergency Medical Service (EMS) to an accident scene and no triage is done. According to Vientiane Rescue 1623, if they cannot handle, they coordinate with Mittaphab hospital for Advanced Life Support (ALS).

As for DHM, in the case of Xe Pian Xe Namnoy dam collapse in 2018, Vientiane Rescue 1623 dispatched rescue members to the disaster site as the first rapid team and worked as main rescue team.

4.3.2 Ambulance Crew Training

There is no standardized training system for ambulance crew members and different organizations have supported training programs for rescue volunteers as indicated earlier.
Mittaphab hospital is the only hospital in Laos that provides certificate on FR to those who pass the examination. But the hospital has changed the training system in 2020 and does not provide direct training to rescue volunteers any more. Instead, each rescue team takes responsibility for training their own volunteers, and volunteers take an examination at Mittaphab hospital when completing a training program to get certified. The number of seats available for the examination is limited to 30.
As emergency medical service system is newly established in Laos, quality assurance for ambulance service operations would be one of the urgent issues in improving the service.

4.4 Human Resource Development for DHM

According to MOH, there is a need for specific training for EMT team members including medical doctors, nurses and medical assistants. Although many medical resource persons have received training on DHM, MOH needs to build capacities of medical personnel from different locations, especially those working in the field hospitals. MOH is currently developing a guideline for EMT training including its duration.

4.4.1 Pre-service Education

University of Health Sciences (UHS)

UHS is the only institute for training medical students. The university started three-year curriculum in emergency medicine under the residency training program in 2017 and the first emergency medicine specialists will graduate in September 2020.

For the undergraduate level, medical students can enroll in emergency medicine in elective subjects, which are short term programs inviting resource persons from other institutes such as Nippon Medical School and Disaster Medical Assistance Team (DMAT) twice a year.
UHS does not have a specific course for paramedics.

- **Module of DHM**
  - UHS has module of DHM but they do not have an accredited course for DHM
  - UHS has modules of DHM with the emergency medicine residency training program by collaborating with the rescue team in Vientiane to set up the rotation program with the rescue team on how to manage and dispatch team during disasters.
  - The above training modules include simulation exercises, which mainly focuses on triage and Cardiopulmonary Resuscitation (CPR).
  - The Faculty of Public Health plans to develop modules of DHM including logistics, communication and simulation of disasters for the curriculum.
  - The Faculty of Nursing Sciences, there is one subject on disaster nursing (2 credits with 32 hours) at the bachelor's degree. UHS invites nurses and medical doctors from different hospitals and teach nurse students about the concept of disaster, disaster management, roles of nurses during disasters, nursing care for victims, triage and how to transfer patients.
  - The standard curriculum should be based on interprofessional education(IPE). In February 2020, UHS plans to have an IPE pilot training on non-communicable diseases for 5 days which is collaboration among the Faculty of Pharmacy, Nursing Science and Medicine. They will collect lessons learned and extend to other areas such as DHM. Professors from Mahidol and Siriraj hospital are invited to provide lectures.
- **Research on DHM**
  - According to UHS, they would like to have more research on DHM. Currently, 2-3 residents and postgraduate students started mini research on DHM. They collected data in areas where disasters occurred in the past such as in the flooding areas in the South.
  - The challenge is lack of funds. Mini-research will be the starting point for strengthening DHM.
- **Partnerships with external institutes**
  - The faculty of medicine collaborates with the Japanese National Disaster Medical Center to provide short-course training on emergency medicine for more than 10 years. The Japanese Clinical Research Team comes to Laos twice a year (March and November). The two-day training course on DHM includes Command and Control, Safety, Communication, Assessment, Triage, Treatment and Transportation (CSCATTT), and disaster preparedness.

- UHS has collaborated with Juntendo University of Japan, Khon Kaen University (KKU) and Nakhon Ratchasima hospital, Thailand to send our students to for training there
- UHS joins the exercises conducted by KKU such as the Primary Trauma Care (PTC), Basic/Advanced Life Support and Advanced Cardiac Life Support (ACLS).
- UHS also has collaboration with the Health Leadership International, the US foundation to provide training on the PTC. Under this training, UHS certified and accredited trainers and students who attended and completed the course. For the training on the PTC and disaster medicine, it has been provided to all district hospitals nationwide.
- The Faculty of Nursing Sciences joined the conferences of the Asia Pacific Emergency and Disaster Nursing Network to share information and knowledge related to disaster nursing and research about disaster nursing.

4.4.2 In-Service Education

Mittaphab Hospital

Mittaphab Hospital is the focal point of EM as it provides training, workshop and meeting every year. The hospital has its own training mechanism.

Table 4-3 Basic Information of Mittaphab Hospital

Item	Details
Foundation year	1988
Category	• One of the five general tertiary/secondary hospitals located in Vientiane Capital. • It is a governmental teaching hospital • Designated as a disaster base hospital • Tertiary general hospital with 5 specialized healthcare centers including orthopedic, trauma care, neurosurgery, hemodialysis and cancer
Doctors/Nurse	170 doctors and 300 nurses
Number of beds	• 300 beds • Expanding the hospital and will accommodate additional 300 beds

Source: MOH

- **Emergency Medicine Training/Couse**
  - Mittaphab Hospital started residency training program on emergency medicine 3 years ago.

- The hospital conducted 3-day training on the pre-hospital emergency care, including first aid for rescue volunteers from 8 different organizations in Vientiane. The training curriculum was adopted from the First Responder (FR) training.
- It is currently developing the training curriculum for Emergency Medical Technician (EMT).
- The specialists from Tsukuba University, Japan will work with the hospital to build capacities for emergency physicians and nurses under the JICA Partnership Program (Pls.see 4.6.2).

- **DHM and related training**
  - Mittaphab Hospital has the disaster team including the chief commander, doctors, nurses, logisticians, financial staff and human resource staff. All received training on DHM from the Hope Project (ADPC), which was already completed 5 years ago.
  - The hospital is discussing with the MOH to set up the training course for the national EMT.
  - Regarding the training on DHM, the curriculum is not finalized yet. The hospital adapted some contents from the previous training courses by the HOPE project, which was conducted by Asian Disaster Preparedness Center (ADPC) and used previous lessons-learned to develop the curriculum. The hospital invited doctors and nurses nationwide and provide training on DHM at Mittaphab hospital.
  - The hospital coordinates with the Lao's Military, MOH and Ministry of Labor and Social Welfare, to organize a tabletop exercise once a year.

4.5 Relevant Academic Society/Professional Organization

Lao Association of Emergency Medicine

It was established two years ago. There are approximately 200 members including emergency physicians, nurses and paramedics but those members have not undergone the EMT training yet.

4.6 International Partnerships & Collaboration

4.6.1 Major Development Partners

In the field of DHM, WHO provides technical, financial, equipment support to the EOC. UNICEF assisted with of Water, Sanitation and Hygiene (WASH) kit.

4.6.2 JICA

"Project to Stop Accident Fatality rise by EMS & Road Safety" will be implemented under the JICA Partnership Program from April 2020 to March 2023. The Project will mainly focus on strengthening the capacity of Emergency Medical Service (EMS) in Vientiane Capital, which could contribute to reducing road traffic accidents deaths. Implementing organizations include Mittaphab Hospital,

University of Tsukuba and Japan Research Institute for Social Systems

4.7 Stakeholder SWOT Analysis

Based on the discussions with stakeholders in DHM in Laos, the research team conducted SWOT analysis of each institute in order to identify possible core institutes for conducting domestic training and becoming members of ASEAN academic/training center network as well as training needs/challenges in DHM in the country.

(1) MOH

Strength	Weaknesses
• Plan to establish National EMT (N-EMT) Type 1 based on the WHO Minimum Standards • Already have an Emergency Operations Center (EOC) set up 2 levels: i) Affecting small area- EOC by Department of Communicable Disease ii) Large area- EOC by Cabinet in MOH • Strong motivation after joining the ARCH project	• No clear plan or policy on how to develop and train the N-EMT on DHM • No database of those who have been trained in DHM • Lack of mechanism/system for DHM
Opportunities	**Threats**
• The ARCH project can be used as the driving force to develop DHM in Lao PDR • Mittaphab Hospital can play a significant role in establishing the N-EMT • Has support from external agencies for DHM i) WHO – technical advice ii) UNICEF – WASH activities iii) JICA – technical project for strengthening EMS	• Competing with other Ministry for government allocation • Does not know how to maintain the related system and education on DHM

(2) University of Health Sciences

Strength	Weaknesses
• UHS has the motivation to improve the Emergency Medicine (EM) and Disaster Health Management (DHM) because they integrate a module related to disaster medicine and management into the Faculties of Medicine, Nursing Sciences and Public Health.	• No standard curriculum yet for DHM training • Lack of trainers for DHM training • UHS does not know about the international standard, e.g. WHO standard.

• UHS has the residency training program on emergency medicine which can be the foundation to develop a training program on disaster medicine.	
Opportunities	**Threats**
• Has established network in training with surrounding hospitals e.g. Mittaphab hospital. • Collaborate with external institutes i) Japanese National Disaster Medical Center for short term training course on EM ii) Khon Kaen University, Thailand for Emergency Medicine trainee rotation. iii) Health Leadership International for Primary Trauma course training – US • It is an opportunity of ARCH project to encourage the UHS to be engaged in the project and to integrate the basic course into the curriculum.	• No direction from government on setting up DHM training and education • Do not know how to maintain the system and education on DHM

(3) Mittaphab Hospital

Strength	**Weaknesses**
• Has experience in deploying medical personnel during disaster in Lao PDR • Has experienced team members in managing real disasters • Focal point for MOH to deploy EMT • Deputy Director is the chair of the National Association for Medical Emergency • Doctors from the hospital were primary resources of emergency medicine in past disasters	• No specific training on DHM for team members • No system and SOP on activation of EMT • Team members lack of Mental Health training
Opportunities	**Threats**
• Involved in annual disaster exercise organized by the Lao government • Some staff involved in ARCH RCD activity	• Need clearer direction from MOH to further develop DHM training • Do not know how to maintain the system and education

• Involvement of Ambulance Service providers as part of EMT e.g. Vientiane Rescue Team • Have motivation in DHM	

(4) Vientiane Rescue 1623

Strength	Weaknesses
• Some personnel already trained in Basic Emergency Medical Technician (EMT-B) course. • Staff has good intrinsic motivation to work even through they work for free. • Eager to learn and to improve team • Have 4 branches around Vientiane with more than 400 volunteers, 10 ambulances, 1 Fire truck and 1 command vehicle. • Have an ambulance call center managed 24 hours by paid staff	• All staff are volunteers, therefore difficult to commit on working regularly because they need to work elsewhere to get paid. • All volunteers are accepted into team: therefore, the level of education/knowledge and capacities differ greatly.
Opportunities	**Threats**
• Have coordination with other ambulance service providers if needed extra ambulance to respond. • Have experience of working with Mittaphab hospital staff during flood disaster. • They are willing to participate in capacity-building activities to increase their knowledge and skills.	• Lack of funds may result in non-sustained service. • Have multiple ambulance emergency members. • Volunteers tend to drop out of the training course. • Even though volunteers complete the training course, it is not guaranteed that they are committed to continue the work.

4.8 Conclusion and Recommendations

(1) Focal points and hub for ASEAN Academic Network

- University of Health Sciences (UHS): has experienced in providing training and research activities on DHM
- Mittaphab Hospital: plays a central role in the country in providing EM/DHM training.
  ARCH project will play the role of a bridge in connecting UHS and Mittaphab Hospital as the university is strong at concepts and ideas while the hospital has experience in managing disasters.

Both institutes will work in close collaboration with MOH, especially Department of Health Personnel.

Other: Lao Tropical and Public Health Institute (TPHI) focusing on public health and research under MOH.

(2) Training needs for strengthening DHM

- **Training of trainers (TOT)** (e.g. Mittaphab staff would be the target)

One of the urgent needs is providing TOT.

After HOPE Project[10] finished 5 years ago, Mittaphab hospital continues to train its personnel using the HOPE curriculum, but nationwide training has not been conducted systematically due to the budget constraint.

- **Standardized training courses for DHM**

Although it needs further assessment with Lao stakeholders (MOH, University of Health Sciences, Mittaphab Hospital) on local needs, it is necessary to set up minimum criteria for participants to learn about the basic curriculum in DHM.

- **Inter-professional education (IPE)**

MOH provide training program for doctors, nurses and medical assistants respectively, but they do not have a joint exercise yet. As disaster health management requires multidisciplinary team working, IPE is necessary to better deal with disasters and to improve the quality of care.

- **Incident Command System (ICS)**

According to Mittaphab Hospital, they appreciate this topic most from HOPE Project. It is useful and necessary to learn the skills for incident commanders and hospital preparedness for disasters.

- **Mental Health**

Based on the experiences, Laos needs more mental health specialist as they are very rare in the country. At the time of the dam collapse in 2018, Laos requested mental health specialists from Thailand.

(3) Recommendations

Forming a national EMT should be the first step to develop the coordination mechanism, SOP and training program for DHM in Laos. ARCH Project will support MOH to set up the national EMT, which could be the entry point to design the basic training curriculum for EMT members. ARCH Project will continue discussion with MOH how they develop SOP and standard training curriculum.

- **SOP/Guideline for EMT**
  - To establish SOP/Guideline for EMT response during disaster by involving all stakeholders (e.g. Vientiane Rescue, Lao Red Cross)
  - Mittaphab Hospital take the lead in improving the EMT system and related SOP
  - The SOP for coordination of EMTs, which ARCH project developed, can be a good starting

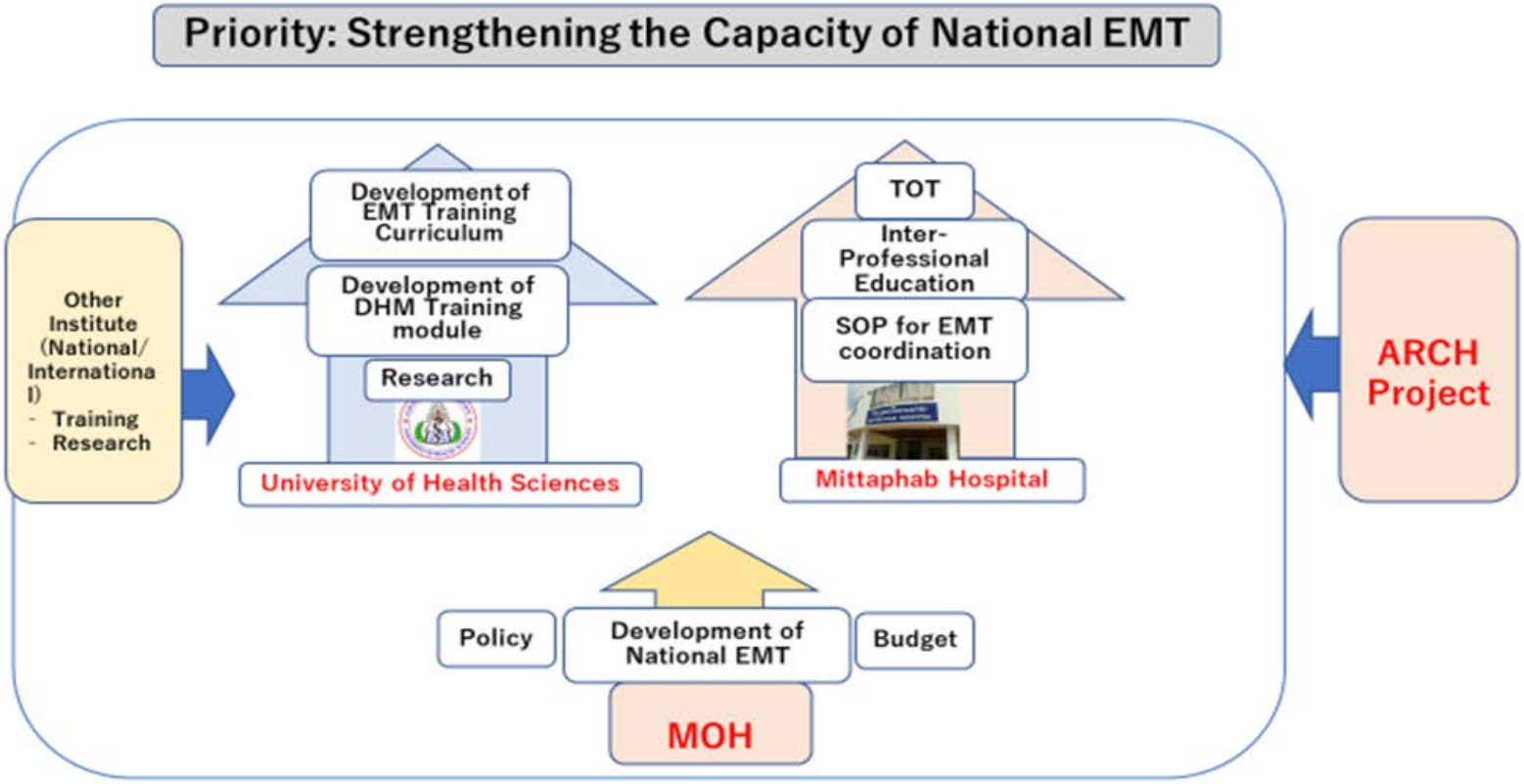
[10] According to Mittaphab Hospital, HOPE Project conducted TOT training/national training for more than 200 doctors and nurses.

point for Laos to study and develop its own SOP

- **Capacity Development of EMT**
  - Regional Collaboration Drill (RCD) is planned to be conducted once a year during the ARCH Extension Phase and ARCH 2. By that time, Laos may have the EMT and the ARCH project can invite Lao EMT to join the activity.
  - ARCH is currently developing 1) basic disaster health management (BDHM) training course and 2) EMT coordination course, which aims to improve domestic coordination capacity in each AMS. It might be better for Lao EMT to take 1) first.
- **Standardizing training courses for DHM**
  - To coordinate and organize standard training courses for DHM
  - To coordinate discussion between all DHM relevant agencies/institutions (e.g. Mittaphab Hospital, University of Health Sciences and ambulance service providers).
  - To incorporate DHM training into the curriculum of pre-and in-service training for health professionals.
  - To collaborate further with MOH and Mittaphab Hospital on assessing the current local needs for DHM training
  - University of Health Sciences: to take the lead in national DHM training programs (e.g. BDHM training course).
- **Development of DHM training module**

  University of Health Sciences: to establish a network with external universities/training institutes to develop DHM training module (e.g. Thailand)
- **Strengthening capacity of EMS system.**
  - To develop pre-hospital care system (including ambulance development, emergency call).
  - To provide training for emergency medical doctors and nurses
  - Ambulance system needs well-trained permanent staff in emergency medicine such as paramedics or emergency medical technicians instead of all volunteers.

Network for Capacity Development of DHM in Laos



5. In-Country Study (3): Viet Nam

5.1 Situation of Disaster Health Management/Emergency Medicine in Viet Nam

In Viet Nam, the most significant disasters are floods and storm, and these two account for 96% of all disasters occurred in the country between 2000 to 2018. During this period, there were a total of 2,798 fatalities reported due to floods (59% of all fatalities) while 1,804 fatalities were caused by storms (38%) [5].

There has been a significant progress in disaster health management in Viet Nam in the past few years particularly in the fields of disaster preparedness, capacity development of health professionals, management of emergency medical team (EMT), to which ARCH project has made a great contribution since it started in 2016.

Hosting the 2nd regional collaboration drill under ARCH project (pls.see 5.2.5) is one of the greatest examples that the Vietnamese government has been working on disaster health management (DHM) as its priority issue.

5.1.1 Policies and strategies

The Vietnamese government has developed related legal documents and strategies on disaster management.

Table 5-1 summarizes the major legislations that are relevant to disaster management.

Table 5-1 Legislations for Disaster Management

Name	Year	Outline
National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020	2007	It is for mitigation and management of disasters especially focusing on flood and storms. It aims to strengthen the organizational structure for disaster prevention, which is centered on the Central Committee for Flood and Storm Control (CCFSC).
Action Plan on Implementing the National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020	2009	It stipulates the responsibility of each government agency, province, and city to fulfill the obligation to prepare their own strategic action plan.
Prime Minister's decision on Community Based Disaster Risk Management (CBDRM)	2009	It aims to promote local resilience through community activities.

Law on Natural Disaster Prevention and Control	2013	In this law, the previous "Flood and Storm Control" was renamed to "Natural Disaster Prevention and Control" to cover all types of disasters. It stipulates the roles and responsibilities of relevant organizations in all levels according to the level of disaster risk and emphasizes decentralization of disaster risk management.
Detailing and Guiding a Number of Articles of the Law on Natural Disaster Prevention and Control (Decree No. 66/2014/ND-PC)	2014	It regulates responsibility of central and local agencies and coordination mechanism for disaster risk reduction.

Source: MOH and JICA [6]

5.2 Emergency Response System

5.2.1 Institutional structure for Emergency Response

There are two main committees at the central level as follows:

(1) The Central Steering Committee for Natural Disaster Prevention and Control (CSCNDPC)

According to the Law on Natural Disaster Prevention and Control, which stipulates the roles and responsibilities of related organization for emergency response, the Central Steering Committee for Natural Disaster Prevention and Control (CSCNDPC) is the highest level of directing and leading organizations in disaster prevention and control in Viet Nam. It was established by the Prime Minister, which aims to support the Prime Minister and the government and to ensure coordination among relevant agencies during disasters.

The CSCNDPC is chaired by the Minister of Ministry of Agriculture and Rural Development (MARD) and composed of different ministries and related agencies[11]. From health sector, the Vice Minister of MOH is a member of the CSCNDPC.

(2) National Committee for Search and Rescue (NCSR)

The National Committee for Search and Rescue (NCSR) is another committee at the central level, which is chaired by the Deputy Prime Minister and responsible for the conduct of search and rescue

[11] The members of the Board are representatives of leaders of ministries, minitrial-level agencies and Government-attached agencies: Agriculture and Rural Development, Natural Resources and Environment, National Defense, Public Security, Information and Communications, Industry and Trade, Transport, Construction, Education and Training, Health, Culture, Sports and Tourism, Foreign Affairs, Labor - War Invalids and Social Affairs, Science and Technology, Planning and Investment, Finance, Vietnam Television, Radio Voice of Vietnam, representatives of some units under the Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment, Ministry of Defense, National Committee for Search and Rescue, Vietnam Academy of Science and Technology.

activities during disasters. Ministry of Defense (MoD) is assigned as a standing agency of NCSR and its Department of Relief is the standing office.

Decree No. 66/2014/ND-PC also mentions that all ministries including MOH establish the Commanding Committee for Natural Disaster Prevention and Control, Search and Rescue (CCNDPC/SR), which is mostly chaired by vice ministers [6]. The Decree No. 66/2014/ND-PC also stipulates that CCNDPC/SR is established at the provincial, district and commune levels [1]. Figure 5-1 illustrates the institutional structures for disaster prevention and control/search and rescue at the central and provincial levels.

Central Level

Central Steering Committee for National Disaster Prevention and Control (CSCNDPC)	⟷	National Committee for Search and Rescue (NCSR)
Chair: Minister of MARD Permanent Vice Chair: Vice Minister of MARD		Chair: Vice Prime Minister Permanent Vice Chair: Deputy Chief of General Staff of Ministry of Defense (MoD)

Provincial Level

Commanding Committee for Natural Disaster Prevention and Control and Search and Rescue (CCNDPC/SR)	
Chair: Chairperson of Provincial People's Committee Permanent Vice Chair: Vice Chair of Provincial People's Committee	
Vice Chair for Natural Disaster Prevention and Control Vice Director of DARD	Vice Chair for Search and Rescue Commander of Provincial Military Command

Source: JICA**[6]**

Figure 5-1 Institutional Structures for Disaster Prevention and Control/Search and Rescue

Health Sector

As mentioned earlier, the health sector is represented at all levels from the CSCNDPC at the central to CCNDPC/SR in the locality (provincial/district/commune). At the MOH, the Disaster Management Unit (DMU) is the secretariat of the committee, which is under the direct supervision of the Vice Minister.

Representatives of the health sector play a role of advising the central government and local authorities

in disease prevention, in protecting people from the medical consequences of disasters as well as organizing a disaster management system in the health sector.

5.2.2 Emergency Operation Center (EOC)

In the event of disaster, emergency operation center (EOC) is established in MOH and emergency medical team coordination cell (EMTCC) will be set up under EOC as needed. In responding to the COVID-19, EOC was set up at the Department of Medical Examination and Treatment, MOH, where experts are gathered to discuss treatment for the whole country.

5.2.3 Emergency Response at the Site

(1) Disaster Classification and Responsible Authorities

Decree No. 66/2014/-ND-PC categorizes disasters into five levels based on the degree of risk and indicates responsible authorities according to the risk level. Table 5-2 shows disaster classification and responsible authorities.

Table 5-2 Disaster Classification and Responsible Authorities

Classification	Responsible Authority
Level 1	- Commune-level people's committee chairman - Commune-level CCNDPC/SR
	In case the disaster exceeds more than two communes, - District-level people's committee chairman - District-level CCNDPC/SR
Level 2	- Provincial-level people's committee chairman - Provincial-level CCNDPC/SR
Level 3	The CSCNDPC in coordination with local authorities, ministries, minitrial level agencies and government attached agencies
Level 4	The Prime Minister with advice from the CSCNDPC
State of Emergency	The Prime Minister propose to the President to declare a state of emergency. It is required to follow the tasks and responsibilities specified in the Law of State of Emergency.

Source: Decree No. 66/2014/-ND-PC, JICA [6]

(2) Medical Response Teams

In the event of a disaster, the CCNDPC/SR, led by the head of local government, is organized across the sector. If a disaster is categorized as Level 2 and a medical response team is required, for example, the chairman of the People's Committee, the head of the province, would lead the CCNDPC/SR and would start the dispatching protocol.

Normally, there are 2-3 hospitals in each province and each provincial hospital has its own medical team(s), which is dispatched to a disaster site as a mobile team. If a disaster is beyond control of provincial level hospitals, the Director of DOH in the province, who is authorized by the chairman of

the CCNDPC/SR, reports to MOH to request assistance and MOH will send a medical team.

The National Burn Hospital organizes a medical response team upon request from MOH and dispatches the team to the affected site. The National Burn Hospital assigns 12 staff to the disaster response team, which include 4 doctors, 6 nurses, 1 driver and 1 logistician.

5.2.4 Emergency Medical Team (EMT)

MOH is currently developing training materials and curriculum for National EMT as of 2021 after testing in some provinces. These are based on the training activities/drill/related discussions provided by ARCH project, and will be scaled up nationally. MOH is planning to set up a Type 1 fixed EMT in each province and will start with some provinces in 2021 as the number of qualified human resources is not enough to cover all provinces. According to MOH, the EMT members will be selected mainly from doctors and nurses working for emergency department and intensive care unit (ICU). But there is no clear idea on the selection of non-medical staff such as logistical staff and MOH would like to learn from the ARCH Project and other AMS.

MOH is also developing and selecting I-EMT members according to WHO criteria and plans to apply for WHO I-EMT accreditation although MOH has not contacted WHO yet for prior advice. As a preparatory step, MOH plans to mobilize the Type 1 Fixed EMT to join the ARCH training.

5.2.5 Disaster Preparedness

Viet Nam hosted the 2nd Regional Collaboration Drill (RCD) in Da Nang city in March 2018 as a part of ARCH project.

Table 5-3 Overview of the 2nd RCD under ARCH project

Time	March 2018
Place	Da Nang City, Viet Nam
Main Objectives	To improve coordination and resource deployment capacity in the ASEAN region and each AMS, and respond quickly and effectively to health needs in the event of a disaster
Specific Objectives	1. To implement an emergency operating center (EOC) 2. To check the appropriate forms to be used for disaster situation 3. To practice medical assistance plan and emergency medical needs assessment of I-EMT in Viet Nam as well as cooperation of both N-EMT and I-EMT function.
Participants	- Viet Nam: 2 N-EMTs, 1 Reception Departure Center (RDC) and 3 Provincial Health Operation Center (PHEOC) (1 region and 2 provinces)

	- I-EMT from 9 AMS and Japan
Methodology	The drill was conducted based on a scenario in which Viet Nam needs to provide medical response to super typhoons with the participation of supporting I-EMT from 9 AMS and Japan. Drill included: 1 day for indoor exercise and 1 day for field exercise in Hoa Xuan Stadium, Da Nang
Reporting forms	- SASOP Form 1: Initial Report/Situation Update to AHA Centre - SASOP Form 3: Request for Assistance - SASOP Form 4: Offer of Assistance - Emergency Medical Team Registration Form - EMTCC Situation Report - EMT Coordination Meeting Minutes - Medical Record with MDS Tick box - EMT-MDS Tally Sheet - EMT-MDS Daily Reporting Form - Patient Referral Form - Health Needs Assessment (HNA) Form/ Summary Report - Emergency Medical Team Exit Report - SASOP Form 7: Final Report from Assisting Entity to AHA Centre

Source: ARCH project

Outcomes and Challenges

According to the assessment, the drill was successful in achieving the goals and safety. Both I-EMT and N-EMT could update their knowledge and skills in providing first aid and referring the victims, and could strengthen coordination between I-EMT and N-EMT.

It is noteworthy that ARCH project outcomes have had an impact on emergency medical operation in actual disaster. For example, the reporting forms developed by ARCH project were used in 5 central provinces of Viet Nam (Ha Tinh, Quang Binh, Quang Tri, Thua Thien - Hue, Da Nang), which were heavily damaged by typhoons and floods, to assess the impact and status of central provinces after floods in 2020.

In contrast, it was also found further room for improvement as to poor communication, complicated forms, no standards of first aid skills between I-EMT and N-EMT, language translators and role of EOCs in coordinating and analyzing data.

5.3 Ambulance Service System

5.3.1 Service Provider

As a prehospital care, there is 115 emergency call system and ambulance service is available in Viet Nam. According to MOH, 115 call center in big cities/provinces belongs to provincial health department, while it is attached to a provincial general hospital in the provinces without an emergency call center. In the remote areas, patients call an ambulance from nearby hospitals, but the service is not available 24 hours. They would have to call private vehicles to transfer to hospitals.

Decree 01/2008/QB-BYT dated 21/01/2008 defines ambulance crews, which consist of 1 doctor, 1-2 nurse(s) and a driver. However, it is difficult to meet this standard due to the shortage of medical personnel especially in rural areas.

Ambulance service is also provided by some private companies and volunteer organizations, but some of them only provide transportation services without providing first aid. According to MOH, the provincial government can mobilize those private resources/ambulance services and work in close collaboration with other organizations such as Red Cross during disasters.

According to MOH, the government combined emergency call to only 115 service in 2020. Before that, 114 was used be for fire, and people had to call two phone numbers separately when emergency happened at the same time. But now, 115 is the all-in-one service for disaster which all units are connected automatically.

5.3.2 Ambulance Crew Training

There is no standardized training system for ambulance crew members. There are short training courses (1-2 months) are available, and some emergency or intensive care course are also available in medical universities.

As ambulance crews consist of non-medical staff (e.g. driver) as well as medical staff, it is difficult for medical universities/institutes to cover all necessary training programs.

5.4 Human Resource Development for DHM

5.4.1 Pre-Service Education

There are 12 medical schools in Viet Nam, but there is no formal curriculum for training in DHM except National Burn Hospital (pls.see 5.4.2), while there is a short-term course available for military medical students and some training programs at Hanoi University of Public Health. Standardized

curriculum for DHM is urgently required.

The Hanoi University of Public Health (HUPH) is the first health-related university to establish the department of disaster management and provide disaster related training programs listed below.

- Public Health Management in Emergency and Disaster (Bachelor & Master): If students already obtain Bachelor level course, they don't need to retake the Master course.
- Master of Hospital Management Program
- Disaster Management of Hospital
- Master of International Health Program[12]: there is one course on Disaster Risk Management

In general, the training programs at HUPH has mostly focused on the management issues not on the medical aspect of disaster management, but HUPH has started to strengthen medical training programs such as establishing Bachelor of Medical Laboratory course, as well as planning to open the medical training for general practitioners (pls. see 5.4.2)

5.4.2 In-Service Education

The National Burn Hospital (NBH) is setting up the Faculty of Disaster Medicine, which used to be part of the Faculty of Burns and Disaster Medicine that are separated now. The Faculty of Disaster Medicine will be in charge of EMT training for medical staff, and the hospital is building capacities for academic staffs as well as planning to develop the curriculum for disaster medicine. According to NBH, they need support for creating curriculum for topics that require interprofessional approach as DHM includes not only medical skills but also other aspects such as management and coordination, which NBH does not have enough expertise.

It is noteworthy that NBH is also setting up National Center for Emergency and Disaster Medicine under Department of Disaster Medicine with missions of training, research, coordination and cooperation in emergency medicine, which will be conducted under the direct supervision of MOH. According to NBH, they would like to establish the center for training, conduct national-level drills, as well as the system for Continuing Medical Education (CPE) training course or the Continuing Professional Development (CPD) of DHM.

According to NBH, they work closely with the National Center for Disease Medicine, US for establishment of the National Center for Emergency and Disaster Medicine, and would like to receive technical advices particularly on developing curriculum from experts from other countries such as

[12] It is provided by TropEd network, which is the Network for Education in International Health with members of 30 countries from different continents.

Japan, and Thailand.

Hanoi University of Public Health (HUPH) provides on-demand short training courses for health professionals. The contents depend on the needs of participants, for example, emergency exercise, Rapid Health Assessment, medical countermeasures (MCM), local PHEMAP[13] (Public Health and Emergency Management in Asia and Pacific). According to HUPH, there has been no registration system for those who completed the courses.
HUPH also has a college clinic, which will be upgraded to a general hospital. HUPH is also applying for opening the training for medicine for general practitioners[14].

MOH conducted 2 training courses for staff of the Department of Health and hospitals in 2019 based on the ARCH Project outcomes. The first training course was conducted for 10 days in the central part of Viet Nam, while the second was organized in the southern part for 7 days. The contents of the training programs were very practical by including EMT standard and response system for disasters for pre-hospital and in the hospital as well as drills.

5.5 Relevant Academic Society/Professional Organization

The Vietnam Association of Disaster and Emergency Medicine (VNADEM) has been established and located at the National Burn Hospital in December 2020. Its membership includes both medical and non-medical fields and members are from hospitals and association such as Red Cross, as well as from Military and civilian institutes, Universities, Public Health School and Medical School. The members are also representatives from provinces around Vietnam. The VNADEM is waiting for the approval from the government as of March 2021.

5.6 International Partnerships & Collaboration

5.6.1 Major Development Partners

Major development partners in DHM include as follows:

- World Health Organization (WHO)

  WHO provides both financial and technical supports. As for the technical support, WHO provides the technical guidance to MOH to strengthen the capacity of disaster response.

- The Asian Disaster Preparedness Center (ADPC)

  The Hanoi University of Public Health (HUPH) receives both technical and financial supports from ADPC. HUPH organized several regional trainings in collaboration with ADPC such as “Public

[13] PHEMAP was organized by HUPH in close collaboration with The Asian Disaster Preparedness Center (ADPC).
[14] HUPH already submitted the required documents and was waiting for an approval from the Ministry of Health and the Ministry of Education and Training at the time of the online interview in March 2021.

Health and Emergency Management in Asia and Pacific (PHEMAP)" and "Mental Health and Psychosocial Support (MHPSS)" training.

- UNICEF: mostly financial support
- Others: Red Cross, embassies (e.g. the Norwegian Embassy provided financial support to HUPH)

5.6.2 JICA

In addition to the ARCH Project, JICA has provided a series of training courses on Disaster Medicine and Emergency Medicine in Japan in collaboration with related institutes. According to the ex-participants from MOH and National Burn Hospital, topics/issues that they appreciated most from the training programs include:

- The Japanese Emergency Medicine System: very useful to analyze challenges and difficulties in Viet Nam by comparing the system in the two countries.
- Medical Rally (medical simulation exercise): very practical and could learn how to organize the drill in the context of earthquake
- Major Incident Medical Management and Support (MIMMS): brought that function to the Vietnam's system by conducting the training in Viet Nam
- Ambulance service system: the ambulance and fire department systems work in sync very well in Japan, which we had learnt a lot.

5.7 Stakeholder SWOT Analysis

Based on the discussions with stakeholders in DHM in Viet Nam, the research team conducted SWOT analysis of each institute in order to identify possible core institutes for conducting domestic training and becoming members of ASEAN academic/training center network as well as training needs/challenges in DHM in the country.

(1) MOH

Strength	Weaknesses
• Health sector represents at all levels (central/province/district/commune), and DHM activities can be directed and implemented across the country. • Places a high priority on DHM (e.g. hosting a drill of ARCH Project) • Has a policy in place on strengthening DHM.	• No formal curriculum of DHM available for medical schools except National Burn Hospital. • Needs further capacity-building and clear policy/plan to train health personnel for DHM • No database of those who have been trained in DHM • Does not know how to select non-medical staff for EMT (e.g. logistical staff)

Opportunities	Threats
• Plan to establish National EMT (Type 1 fixed) at the provincial level. • Plan to develop International EMT and apply for WHO I-EMT accreditation. • The aim of DHM is in line with the ARCH Project and ARCH Project may help MOH to develop the EMT training curriculum.	• No SOP for disaster response plan of hospitals • No official training for EMT • No training course established yet for paramedics.

(2) Hanoi University of Public Health (HUPH)

Strength	Weaknesses
• Has experienced faculty members in emergency and DHM. • Enhancing medical training courses in addition to public health • Has a wide network with international and national organizations/academic institutes in providing training courses.	• No database of those who have been trained in DHM
Opportunities	**Threats**
• Will increase enrollment of health professionals who will work for DHM in the future	-

(3) National Burns Hospital/Department of Disaster Medicine

Strength	Weaknesses
• Well-experienced both in real disaster management and training activities - Has experiences in deploying emergency response team to disaster sites in Viet Nam. - Has experienced team members in managing real disasters. - Department of Disaster Medicine has officially conducted training program of DHM for medical students with their own curriculum • Has a network with international and national organizations	• Resources are not sufficient to meet the needs of DHM training (e.g. budget, faculty, equipment) • No standard curriculum for DHM training has been established yet except short-term courses

Opportunities	Threats
• National Center for Emergency and Disaster Medicine will be established under the hospital • It is currently setting up the Faculty of Disaster Medicine under the hospital, which will be in charge of DHM training for EMTs for medical staff. • The needs/direction of National Center for Emergency and Disaster Medicine is in line with the ARCH Project. The ARCH Project will collaborate with the center to establish standard training curriculum. • Will get positive support from MOH in training activities under the direct supervision of/ in close collaboration with MOH. • Vietnam Association of Emergency and Disaster medicine was recently established under the hospital in December 2020.	• National Center for Emergency and Disaster Medicine is currently set up and it may take time to foster an enabling environment for conducting trainings (e.g. curriculum, equipment)

5.8 Conclusion and Recommendation

(1) Focal points and hub for ASEAN Academic Network

- The National Burn Hospital (NBH): well-experienced both in real disaster management and training activities on DHM. Under NBH, National Center for Emergency and Disaster Medicine as well as the Vietnam Association of Disaster and Emergency Medicine (VNADEM) are being set up, which would also enable NBH to leverage knowledge and experiences in DHM.
- Hanoi University of Public Health (HUPH): plays an important role in public health management in disaster.

  Its network with international/national institutes would also be a great advantage in functioning as a focal point for conducting national training as well as for ASEAN Academic Network.

(2) Training needs for strengthening DHM

- **Standardized training curriculum for DHM**

  There is no standardized training curriculum for DHM established in Viet Nam yet. National Center for Emergency and Disaster Medicine, which is currently set up under National Burn Hospital, is in the process of developing DHM training curriculum and Hanoi University of Public Health is also

planning to enrich DHM related training program. Establishing standardized training curriculum at those two institutes will further strengthen the national capacity of DHM in Viet Nam.

- **EMT Training**

  As Viet Nam aims to strengthen national capacity on DHM by setting up a Type 1 fixed EMT in each province and International EMT, they would like to increase the ability to fulfill both quality and quantity requirement of EMT members based on the skill- based training. Drill/simulation exercises will enable all EMT members (doctors, nurses and related personnel) to work effectively through practical tasks. In particular, establishing training system for non-medical EMT members such as logistician is very important to ensure effective disaster response.

- **Interprofessional education (IPE)**

  As disaster health management requires multidisciplinary team working, IPE is necessary to better deal with disasters and to improve the quality of care.

- **Standard Operating Procedures (SOP) for Hospital Emergency/Disaster Management**

  Providing effective medical services in disasters requires a comprehensive look at the various aspects of disaster management. Establishing SOP for the pre-hospital as well as in the hospital will contribute to strengthening hospital's resilience and improving medical services in disasters.

- **Trauma Care**

  It is also necessary to strengthen the clinical skills for emergency trauma care. In Vietnam, road traffic accidents account for a high proportion of death[15] and improving the trauma care is very important. Training high quality professionals in emergency medicine will help protect lives in disasters.

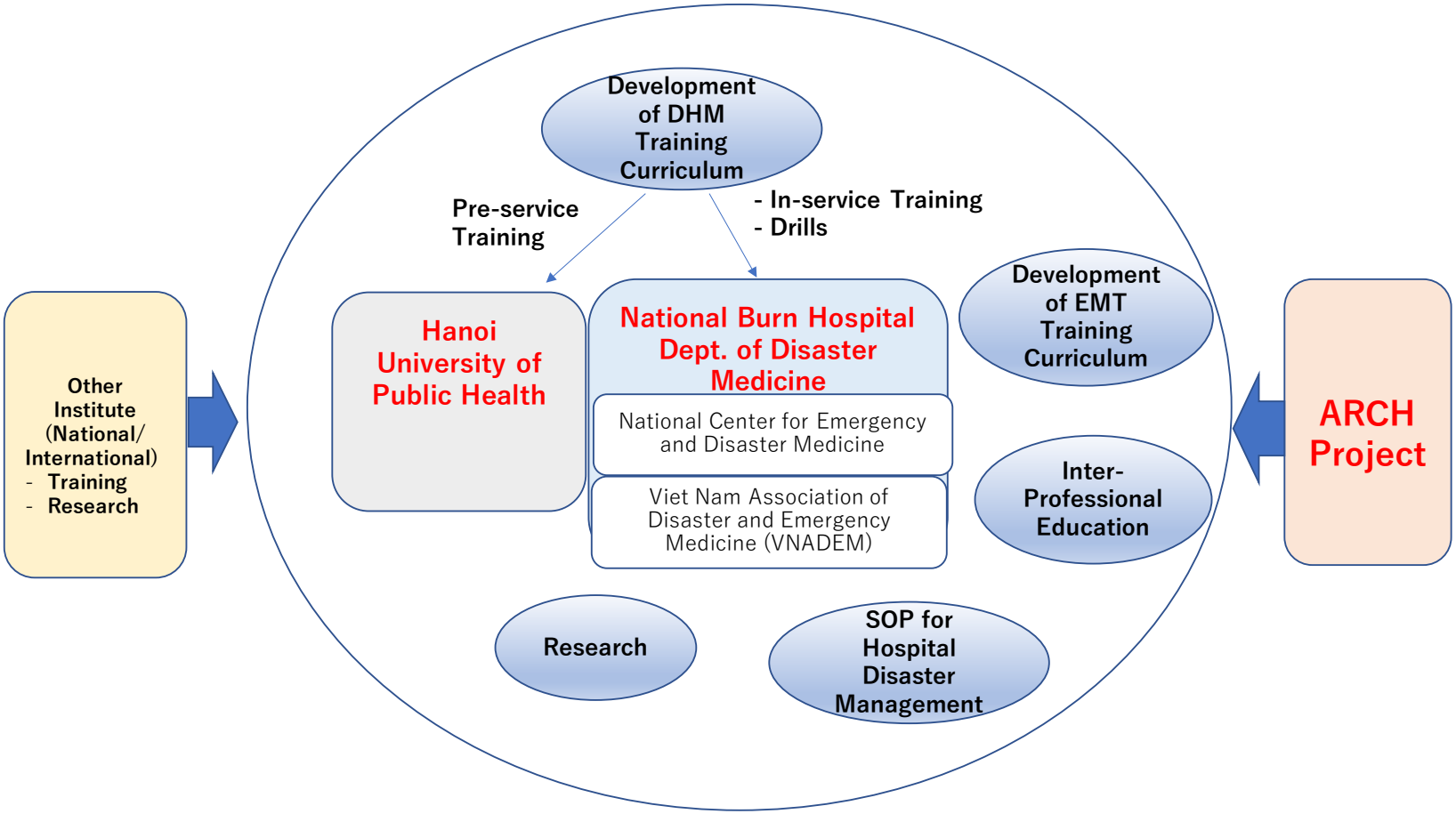
(3) Recommendations

There has been great progress in DHM in Viet Nam in the past few years by establishing relevant training institutes and programs. Developing standard training curriculum for DHM and EMT is the top priority for the country based on the discussions with Vietnamese stakeholders, and this direction is in line with ARCH Project activities. It is expected that ARCH Project will continue discussion with MOH and relevant C/Ps on developing standard training curriculum.

It is also recommended that Viet Nam share good practices or lessons learned in DHM with other AMS such as DHM training program at National Burn Hospital, the process of establishing EMT, which will be good opportunity for mutual learning in ASEAN.

[15] The number of deaths amounted to approximately 8.25 thousand in 2018.

Network for Capacity Development of DHM in Viet Nam



6. Conclusion and Recommendation

In this chapter, training needs and challenges on DHM are concluded based on the result of the questionnaire and the in-country surveys/online interview. Recommendation is also provided on the qualification requirement for potential core institute(s) in each AMS for ASEAN Academic Network on DHM.

6.1 Training Needs and Challenges on DHM

In most AMS, there is no standardized training curriculum established in DHM. Topics and issues that are commonly required for strengthening the capacity of DHM are as follows:

- Standardized training curriculum for DHM
- EMT training curriculum/module
- Training for Trainers (TOT)
- Inter-professional education (IPE)

For the curriculum for DHM, ARCH Project is developing standard curriculum consisting 2 courses 1) basic course for DHM and 2) coordination course of disaster management, which will be shared with all AMS. ARCH project would also like AMS to conduct their in-country training programs utilizing the developed standard training curriculum. ARCH 2 shall support AMS to organize their in-country training through dispatching experts from other AMS and Japan.

In addition to the above common needs, each country has specific training needs. For those countries that need to further strengthen the capacity of emergency medical services (EMS), skill- based training on EMS such as paramedics/emergency medical technician training, trauma care would be required.

6.2 Qualifications for Member Institutes of ASEAN Academic Network on DHM

1. To implement training course on DHM in order to strengthen the national capacity based on the curriculum being developed by the ARCH Project.
2. To provide comprehensive support for education and training to meet the needs by ensuring that qualified staff and necessary facilities/equipment are in place.
3. To have experience and expertise in education/training on emergency medicine, which serves as a key basis of DHM.
4. To evaluate training programs in an appropriate and timely manner.
5. To appropriately maintain database of all trainers and trainees for future human resource management in DHM
6. To secure human resources for research activities in DHM
7. To have human resources, who are able to perform a series of activities in English (e.g. presentation/discussion in ASEAN Academic Conference, which will be implemented as part of

ASEAN Academic Network, publishing papers in ASEAN academic journals, etc.)

8. To have human resources, who are able to participate in training activities/courses in other countries in ASEAN as a trainer or a training evaluator.

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APPENDICES

Appendix 1: Itinerary, Interviewees and Photos of the In-Country Survey

Appendix 2: Questionnaire Template

Appendix 3: Interview Guide

Appendix 4: Survey Results

Appendix 1:

Itinerary, Interviewees and Photos of the In-Country Survey

Lao PDR

- **Period:** February 12th – 14th, 2020
- **Survey Members:**

ARCH Project, JICA	Mr. Shuichi Ikeda, Chief Advisor Mr. Sho Amemiya, Associate Expert, JICA Dr. Rapeeporn Rojsaengroeng, Princess Chulabhorn Hospital Mr. Valintorn Chewasuchin, Project Officer
Malaysia C/P	Dr. Khairi Bin Kassim, Consultant Emergency Physician
JICA Advisory Committee	Ms. Eiko Yamada
Consultant	Ms. Junko Sato
Notetaker	Mr. Supatsak Pobsuk

- **Itinerary:**

Feb 11th (Tue)	Arrival
Feb 12th (Wed)	14:00 Cabinet Office, Dept. of Health Care, Ministry of Health (MOH)
Feb 13th (Thurs)	09:40 University of Health Sciences 13:30 Mittarphab Hospital
Feb 14th (Fri)	09:30 Vientiane Rescue 1623 15:30 JICA Lao PDR

- **Interviewees:**

1) Ministry of Health

Dr. Bounserth Keoprasith	Deputy Director General of Cabinet
Dr. Vixayyang Chayvangmanh	Vice Division, Department of Health Care and Rehabilitation
Dr. Sommana Rattana	Deputy Director of the Department of Health Care and Rehabilitation
Dr. Sengdavy Xaypadith	Department of Health Professional Education
Dr. Pathoumphone Sitaphone	Technical Officer
Mr. Anivath Thammavong	Technical Officer

2) University of Health Sciences

Dr. Phouthone Vangkonevilay	President
Dr. Vanphanom Sychareun	Dean of the Faculty of Public Health

Dr. Souksavanh Phanpaseuth	Dean of Faculty of Nursing Sciences
Dr. Alongkone Phengsavanh	Vice Dean of the Faculty of Medicine
Dr. Vanila Inthepphavong	Vice Deputy of Academic Affairs Cabinet
Dr. Naly Khaminsou	Vice Dean of Faculty of Medical Technology
Dr. Khamla Phonsayalinkham	Vice Dean of Faculty of Pharmacy
Dr. Somphone Phanthauong	Vice Dean of Faculty of Dentistry
Ms. Phengsy Vongxaya	Staff of Academic Affairs

3) Mittarphab Hospital

Dr. Vangnakhone Dittaphong	Deputy Director and President of Lao Emergency Medicine Society
Dr. Somchemh PMK	Deputy Head of ICU
Dr. Sengphet Vanvilay	Head of ER Department
Dr. Thongsouk Deuangnguene	Medical Doctor, ER
Dr. Bounphet Thammavong	Deputy of Head of Department General Surgery
Mrs. Manilay Bountheung	Head of ER Nurse
Mrs. Keo Souvhavong	Chief of Personnel Division
Mrs. Inpeng Vongsa	Chief of Finance
Ms. Kongkham Bandavong	Logistician

4) Vientiane Rescue 1623

Mr. Bounmy	Chief of Vientiane Rescue 1623
Mr. Anoukhong	Director of Nonghai Operation Center
Mr. Thaksin	Director of Dongdok Operation Center

5) JICA Lao PDR

Mr. Yoshiharu Yoneyama	Chief Representative
Ms. Akiko Sanada	Senior Representative
Ms. Yumiko Inoue	Project Formulation Advisor

Cambodia

- **Period:** February 16th – 19th, 2020
- **Survey Members:**

ARCH Project, JICA	Mr. Shuichi Ikeda, Chief Advisor Mr. Sho Amemiya, Associate Expert, JICA Ms. Phatsawan Sairai, Maharaj Nakorn Chiangmai Hospital

	Mr. Valintorn Chewasuchin, Project Officer
Malaysia C/P	Dr. Khairi Bin Kassim, Consultant Emergency Physician
JICA Advisory Committee	Dr. Satoshi Yamanouchi Ms. Eiko Yamada
Consultant	Ms. Junko Sato
Notetaker	Mr. Supatsak Pobsuk

■ **Itinerary:**

Feb 16th (Sun)	Arrival
Feb 17th (Mon)	10:00 JICA Cambodia 14:45 Ministry of Health (MOH) 16:30 Internal Meeting
Feb 18th (Thu)	13:20 Calmette Hospital 16:00 Internal Meeting
Feb 19th (Wed)	09:30 Cambodian Red Cross 16:00 University of Health Sciences

■ **Interviewees:**

1) Ministry of Health

Dr. Sung Vintak	Director of Department of International Cooperation
Dr. Phum Samsong	Deputy Director of Department of Human Resource
Mr. Ean Sokoeu	Chief of Disaster Management and Environmental Health
Ms. Lak Muy Seomg	Deputy Director, Department of Preventive Medicine
Dr. Teng Srey	Deputy Director, Department of Communicable Disease Control
Mr. Huy Meng Hut	Chief Bilateral, Department of International Cooperation
Dr. Him Sokrey	Deputy Director of Department of International Cooperation
Dr. Kol Hero	Director of Department of Preventive Medicine

2) Calmette Hospital

Dr. Chhor Nareth	Chief of Emergency Department
Mr. Seang Sothea	Assistant Chief of Nurse and responsible personnel for nurse training
Ms. Tong Sreynet	Staff at Technical Bureau

3) Cambodia Red Cross

Ms. Pum Chantieo	Secretary General
Mr. Huon Chambora	Director of Communication Department
Mr. Uy Samon	Deputy Director of Disaster Management
Mr. Va Sopheak	Head of Department of Communicable and Non-Communicable Diseases
Ms. Hout Chengchhay	Head of Public Relations
Ms. Mom Chanthy	Deputy Director of Health Department
Ms. Chea Somaly	Deputy Director of Communication Department

4) University of Health Sciences

Prof. Saphonn Vonthanak	Rector
Associate Prof. Seng Sopheap	Vice Rector

5) JICA Cambodia

Mr. Junichi Miura	Senior Representative
Mr. Tadashi Ogasawara	Project Formulation Advisor

Viet Nam

- **Date:** March 1st, 2021
- **Time:** 13:30 – 16:30
- **Survey Members:**

ARCH Project	Mr. Shuichi Ikeda, Chief Advisor Mr. Taro Kita, Project Coordinator Dr. Phumin Silapunt, Deputy Director of Chulabhorn Hospital Dr. Isara Ariyachaipanich, Chulabhorn Hospital Dr. Rapeeporn Rojsaengroeng, Princess Chulabhorn Hospital Dr. Kriangsak Pintatham, Chiangrai Prachanukroh Hospital Dr. Prasit Wuthisuthimethawee, Prince of Songkla University/ Songklanagarind Hospital Dr. Nopmanee Tantivesruangdet, Rajavithi Hospital Ms.Sansana Limpaporn, National Institute for Emergency Medicine (NIEM) Ms. Kittima Yuddhasaraprasiddhi, NIEM Ms. Dangfun Promkhum, NIEM Mr. Valintorn Chewasuchin, Project Officer

	Ms. Ob-orm Utthasit, Project Officer
JICA HQ	Mr. Sho Amemiya Ms. Yumiko Yamashita
JICA Advisory Committee	Dr. Tatsuro Kai
Consultant	Ms. Junko Sato
Notetaker	Ms. Thita Ornin Mr. Thianchai Surimas

■ **Online Interview**

13:30 – 13:40	**Test Run** Participants are required to sit in the front of their computer to participate in the test run for Microsoft Teams meeting practice before the opening of the meeting.
13:40 – 13:50	**Welcome Remark**
13:50 – 14:40	**Interview on Policy framework and Strategy** • National policy/ strategy on Disaster Health Management (DHM) • Emergency Response System • Progress on DHM since ARCH started • Human resource development plan for DHM • Training program for EMT •The most needed education and training program in DHM • Education/training institutes, which play a core role in DHM education in the country and in a network building with major educational institutes in other ASEAN member states (AMS) • Support from donors: current support in emergency medicine and DHM & Support needed
14:40 – 15:10	**Interview on perspective of Medical Facility** • Emergency Medicine and DHM Training • The most difficult medical requirements/needs to respond in the past disasters • Most needed skills/knowledge for EMTs in the country • The most needed resources to meet the training needs/requirement • Partnership with other/international institutes to provide DHM training • Relevant Academic Society/Professional Organization

15:10 – 16:00	**Interview on Academic/ Educational perspective** • Basic information (e.g. Vision, faculty members &students) • Emergency medicine and DHM Training •Training needs/Challenges in training DHM • Training capacity (faculty/facilities/equipment) • Support from other donors • Partnership with other/international institutes to provide DHM training
16:00 – 16:20	**Online Interview with Ex-participants of JICA Training Course on Disaster Medicine and Emergency Medicine in ASEAN Countries** • Useful knowledge/skills gained from the training, which can help strengthen capacity for disaster health management (DHM) in your country • Most urgent needs for strengthening EMS and disaster health management in your country
16:20 – 16:30	**Closing Remark**

■ **Interviewees**

1) Ministry of Health

Dr. NGUYEN CONG SINH	Deputy Director, Department of Planning and Finance
Mr. NGUYEN HUY MINH	Official, Department of Planning and Finance

2) Viet Duc University Hospital/Ministry of Health

Dr. NGUYEN DUC CHINH	Ass.Prof. Chief of Department

3) National Institute of Burns

Dr. NGUYEN NHU LAM	Ass.Prof. Deputy Director
Dr. NGUYEN TIEN DUNG	PhD

4) Hanoi University of Public Health

Dr. DO THI HANH TRANG	PhD

Photos

MOH Cabinet Office (Lao PDR)

MOH Cabinet Office (Lao PDR)

University of Health Sciences (Lao PDR)

Vientiane Rescue 1623 (Lao PDR)

Vientiane Rescue 1623 (Lao PDR)

Calmette Hospital (Cambodia)

Calmette Hospital (Cambodia)

Appendix 2: Questionnaire Template

Questionnaire

Objectives of the Study

1) To identify **possible educational/training institutes** which are capable to conduct domestic training programs on DHM in each ASEAN Member States (AMS)
2) To identify **target personnel for education/training** in Disaster Health Management (DHM) in AMS
3) To identify **training/competency needs** of personnel in Disaster Health Management(DHM)
4) To identify **needs for external supports** in case that the above institutes will organize domestic training programs on DHM
5) To identify AMS with capacities to provide external support on area-specific DHM Training Program
6) To specify AMS educational/training institutes which will be members of ASEAN academic/training centers network on DHM whose purpose is to strengthen regional and domestic capacities on DHM in collaboration with ASEAN regional disaster training center which is considered to be established in the POA on DHM

Respondent(s)

Name	Organization	E-mail

Instruction

Please write or select the most suitable answer.

Please try to answer all questions. But if some question is not applicable to your country/organization, please write “not applicable.”

1. Current medical education system in each AMS

1.1 Please explain the steps to become doctor/nurse*

Doctor	
Nurse	

Remarks	

*【Example】Japanese case(doctor): 6 years at university →passing the National Examination for Medical Practioners→2 years of clinical resident training at university hospitals/clinical training hospitals→ 3 years of training for specialty after completing clinical resident training →passing exam for specialized doctors →acquisition of certification for specialized doctors

1.2 Which agencies/organizations manage ambulance services in your country?

1.3 Who is an ambulance crew member? (type of profession)

1.4 How is ambulance crew trained? (e.g. organizer in training, duration of training, content)

1.5 Number of educational institutes

1) Doctor	Number of institutes	2) Nurse	Number of institutes
Postgraduate		Postgraduate	
University/College		University/College	

1.6 License

1.6.1 Is national examination for medical license conducted in your country?	Doctor: 1. Yes 2. No Nurse: 1. Yes 2. No
1.6.2 How often is license renewed? (e.g. every 5 years)	Doctor: Nurse:
Remarks	

2. Emergency medicine program

2.1 Is training curriculum available for doctors and nurses working for ER?	1. Yes 2. No
2.2 If yes, which institute has the training curriculum?	
2.3 How long is the training period?	
2.4 Do they obtain certification?	1. Yes 2. No
2.5 What are the main challenges in ensuring the quality of emergency medicine education in your country?	
2.6 Please specify other educational qualifications for building competency on Disaster Health Management in your country. (e.g. Masters in Public Health)	
Remarks	

3. Current education and training for disaster health management (DHM) for EMT members including medical personnel

3.1 Please click the check boxes to the followings if the training is available for medical personnel in your country.	3.2 If it is available, please specify which organization provide the training for each topic.
	Name of the organization
☐ mass casualty incident (MCI),	( )
☐ chemical, biological, radiological, nuclear, explosive (CBRNE)	( )
☐ Psychological care	( )
☐ water, sanitation and hygiene (WASH)	( )
☐ Public health	( )
☐ Logistics	( )
☐ business continuity plan (BCP)	( )

☐ safety and security ☐ Others (pls. specify) ( )	( ) ( ) ( )	
3.3 If it is available, how long is the training course? 3.4 And how often is it conducted? (e.g. twice a year)		
	Duration of the course	Frequency
☐ mass casualty incident (MCI), ☐ chemical, biological, radiological, nuclear, explosive (CBRNE) ☐ Psychological care ☐ WASH ☐ Public health ☐ Logistics ☐ business continuity plan (BCP) ☐ safety and security ☐ Others (pls. specify) ( )	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
Remarks		
3.5 Please click the check boxes to the following if any external training course is available in your country.	3.6 If it is available, please specify which organization provide the training for each topic	
☐ Basic disaster life support (BDLS) ☐ Advanced disaster life support (ADLS) Major Incident Medical Management and Support (MIMMS) ☐ Field MIMMS ☐ Hospital MIMMS	Name of organization ( ) ( ) ( ) ( )	

☐ advanced trauma life support (ATLS)	( )
☐ International Trauma Life Support (ITLS)	( )
☐ Incident Command System (ICS)	( )
☐ Psychological First Aid (PFA)	( )
☐ Others (pls. specify)	( )
Remarks	

4. Education and training needs for DHM/Needs for external supports

4.1 What kind of training programme does your country need most?
4.2 What type of support needed from curriculum committee* in carrying out DHM training in your country? Please specify.

*Curriculum committee is planned to be set up under ARCH Project, which is comprised of representatives from AMS.

5. Potential core educational institute(s) to develop curriculum and conduct training courses for DHM in each AMS

5.1 Which institute(s) will be eligible to lead training activities in your country and to contribute to networking with relevant institutes in other AMS under the POA for ALD?
5.2 Please specify the reason for 5.1
5.3 Are there any academic society (e.g. Society for Acute Medicine) or NGO in your country, which provide DHM training program?

If yes, please specify the names of organization(s).

6. Others

6.1 Do you think current DHM education/training in your country give special consideration to multicultural issues (e.g. culture, religion, gender) in disaster management?	1. Yes (go to 6.2) 2. No (go to 6.3)
6.2 If yes, please give an example	
6.3 If no, what should be included in DHM education in order to work in a multicultural environment?	
6.4 What are the challenges in providing training programs for DHM?	

If you have any further comment about this survey please write here freely.

END

Thank you very much for your cooperation.

Appendix 3: Interview Guide

Interview Guide

1) MOH

Needed Information	Survey Items	Remarks
National Policy/Strategy related to Disaster Health Management (DHM)	- Any change in national policy/strategy for DHM? ⇨ If yes, how it has been changed/what is the progress? - Policy/Plan for human resource development in DHM	To acquire the latest national policy/ strategy on DHM
Budget for DHM	Year (the past 3 years), Budget	
Possible education/training institutes for DHM to conduct domestic training programs in the country	- To provide the names of main institutes (private or public) providing education/training for DHM - How does MOH support the institute (e.g. technical, financial)	
Training/competency needs to improve the national capacity of DHM	- The most needed education and training in DHM - Challenges in DHM education/training	
External supports from donors	- Current support from donors (technical and financial), - areas of assistance	
Educational/training institutes which will be members of ASEAN academic/training centers	- Education/training institutes, which play a core role in DHM education in the country and in a network building with major educational institutes in other AMS - The reason for the above	
Others	Resistance for receiving medical teams from other countries in the event of a disaster in the country (if any), and the reason	

2) Hospital (emergency medicine dept, dept of disaster medicine)

Needed Information	Survey Items	Remarks
Basic Information	faculty, facilities about the department	To observe facility if it is possible
Training/competency needs of personnel in DHM	- In-service training program for DHM (e.g. topic, training period, faculty) - The most difficult medical requirements/needs to respond in the past disasters - The most needed resources to meet the training needs/requirement	To acquire the training program/materials
External supports from donors and partners	- Current support from donors (technical and financial), areas of assistance - Networking with domestic/overseas institutes in capacity development in DHM (e.g. training, exchange program)	
Educational/training institutes which will be members of ASEAN academic/training centers	- Education/training institutes, which play a core role in DHM education in the country and in a network building with major educational institutes in other AMS - The reason for the above	
Others	- Specific image of “cooperation and collaboration with other countries” at a disaster site - Important points to work in a multicultural setting	

3) Potential core educational institute(s) to develop curriculum and conduct training courses for DHM in each AMS

<table>
<tr><th>Needed Information</th><th>Survey Items</th><th>Remarks</th></tr>
<tr><td>Basic Information</td><td>Year of establishment, Vision, # of faculty members & students</td><td></td></tr>
<tr><td>Process of the training curriculum development</td><td>- Who develops curriculum? (e.g. curriculum committee)
- Process of curriculum development</td><td></td></tr>
<tr><td>Overview of the current training program for DHM</td><td>contents, number of credits, learning objectives, trainees,</td><td>To acquire the training curriculum/ syllabus, if available</td></tr>
<tr><td rowspan="2">SWOT Analysis of the institute as a core institute in strengthening DHM in order to identify
- training/competency needs in DHM
- needs for external supports in organizing domestic training programs on DHM</td><td><u>Strength</u>
e.g.
- Internal resources such as skilled, knowledgeable staff
- Accredited curriculum
- Physical presence/location
- Available capital</td><td><u>Weakness</u>
e.g.
- Lack of technology
- Lack of trained faculty
- Poor quality</td></tr>
<tr><td><u>Opportunities</u>
e.g.
- Emerging needs for DHM
- Increased student enrolment
- National/International Network
- External/Donor supports</td><td><u>Threats</u>
e.g.
- Competitors
- Insufficient enrolment to cover costs
- Lack of demands</td></tr>
</table>

4) NGO/Association, which provide support for strengthening DHM

Needed Information	Survey Items	Remarks
Training program for DHM		
Target of support		
Challenges in DHM education in the country		
Future of support or project in the area of capacity development in DHM		

Appendix 4: Survey Results

Respondents

Country	Officials that responded
Brunei	MOH
Cambodia	MOH
Indonesia	・Center of Health Crisis, Ministry of Health ・Disaster Health Management Division, Center for Health Policy and Management (CHPM) Faculty of Medicine, Public Health and Nursing (FoM-PHN), Universitas Gadjah Mada ・Medical Faculty, University of Brawijaya
Laos	MOH
Malaysia	BPP KKM (MOH)
Myanmar	Ministry of Health and Sports
Phillipines	・Office of the Civil Defense ・Health Emergency Management Bureau ・Philippine College of Emergency Medicine ・Department of the Interior and Local Government
Singapore	・MOH ・Ng Teng Fong General Hospital, MOH
Thailand	Thai College of Emergency Physician
Vienam	MOH

1. Current medical education system in each AMS

Country	1.1 Steps to become a Doctor/Nurse		
	Doctor	Nurse	Related occupation
Brunei	Secondary School 6th form A level → Medical School (MBBS 5-6 years) → Post-graduate Foundation year (2 years internship) →Basic Specialist Training (at least 3 years) →Advanced Specialist Training (at least 3 years) → Passed / Exit → Specialist	Secondary School O level →IBTE (Certificate in Nursing) Secondary School O level → Polyteknik (Diploma in Nursing) Polyteknik (Diploma in Nursing) → Institute of Health Sciences University (Degree in Nursing)	
Cambodia	After completing 4-year studies, medical students can choose from 3 specialty courses including anesthesiology, critical care, and emergency medicine. Under the emergency medicine course, there is one module of 6-8 hours for disaster, which is newly introduced.		
Indonesia	• At least 4 years at university and they must made a thesis. They will get academic degree of S.Ked (or Bachelor of medical) • 2 years for co-ass program at academic hospital and they must passing the national examination for medical practitioners. Then they will get professional degree as doctor (Dr) or MD. • 1 year for internship program in one hospital. They must passing the examination internship to get registration certificate for competency (STR). After this they are ready to be a general physician or continue for specialized doctor program.	**Bachelor of Nursing** • Accomplished academic program at least 4 years at university and required to submit a thesis to finish and get academic degree of S.Kep (or BSN/Bachelor of Nursing) • Accomplished practitioners program through clinical training at least 1 year at hospitals, health care facilities, community and get professional degree of Ns or Ners from university. University that holds accreditation level at least B could run the practitioners program. • Pass the national examination for nursing practitioners and hold a registration certificate of competency as a general nurse (STR) issued by the National Board of Nursing **Postgraduate of nursing** • Accomplished 2 years of prosgraduate academic program and required to submit thesis to acquire Master of Nursing degree (M.Kep/Master • Completed 1 year of clinical resident training at clinical training hospitals, health facilities and passed training specialty exam to acquire specialized nursing degree	
Laos	6 years at university →passing the National Examination for Medical Practitioners→3 years of clinical resident training at university hospitals/clinical → passing exam for specialized doctors→ acquisition of certification for specialized doctors	1. 3 years of Nurse for Diploma → 1.5 years of Nurse for Bachelor 2. 4 years of Nurse for Bachelor	

1. Current medical education system in each AMS

Country	1.1 Steps to become a Doctor/Nurse		
	Doctor	Nurse	Related occupation
Malaysia	Undergraduate – 5 years (university)→ Passing the National Exam → Clinical resident training at government hospitals – 2 years → Government compulsory service – 3 years(inclusive of clinical resident training at government hospitals) → Specialty training – 4 years→ Subspecialty training – 3 years	Diploma 3 years (Nursing college) Bachelor 4 years (Univerisity)	(Medical Assistant) Undergraduate – 3 years diploma program (MOH and Private college/universities) or 4 years degree program in Emergency Care by public university→ registration by Medical Assistants Board→For MOH qualified Medical Assistants' to undergo 6 months compulsory placement program in emergency Department. Postgraduate training -Post basic in various fields 6/12 mths
Myanmar	6 years at university → 1 years of clinical resident training at university hospitals/clinical training hospitals→ 3 years of training for specialty after Passing the Entrance exam for the speciality→passing exam for specialized doctors → will get certification for specialized doctors	2 years for the Diploma and 4 years for Bachalor of Nursing	
Philippines	4 years college course (Pre-med course) in a University→ 4 years proper medicine (including clinical clerkship)→ 1 year post graduate internship Medical Board examination by the Professional Regulation Commission→ 3－4 years clinical residency training in a hospital→ 2 years Sub-specialty training (must pass the Diplomate and Fellowship with written and oral examination) and clinical research	4 years nursing course (including clinical practice) Nursing board examination	
Singapore	a) Licence Acquisition ・Basic medical degree (local and recognized overseas universities) □ This includes the completion of a house officer training program (about 1 year) to equip new medical graduates with the basic skills of clinical practice b) Registration: Singapore Medical Council c) Renewal of Licence/ Registration ・1 or 2 yearly renewal of practicing certificate based on accumulation of sufficient participation under the Continuing Medical Education (CME) events under the Singapore Medical Council	a) Licence Acquisition ・ Diploma or Degree in Nursing □ This includes a supervised clinical attachment at healthcare institutions in Singapore b) Registration： Singapore Nursing Board c) Renewal of Licence/Registration ・Annual. Additionally, Nurses who have not practiced nursing for a continuous period of 5 years are required to attend a Return-to-Nursing programme before they can practice Nursing again	

1. Current medical education system in each AMS

Country	1.1 Steps to become a Doctor/Nurse		
	Doctor	Nurse	Related occupation
Thailand	Secondary school Six year in Faculty of Medicine: passing national license examination (3 steps) One year as internship and two years of residency program in MOPH hospital Three to five years of specialist training program: Board examination Two to three years of sub-specialist training program: Sub-board examination	Seconadary school Four years in Faculty of Nursing Four months in specialist program Two years for PhD program	
Vietnam	Under-graduating : 6 years at medical university Post graduating : Additional 3 years of residence for certification for specialized doctors Practical post – graduating • Orientation : 1 year • First degree specialized : 18months • Second degree specialized : 24 months Academic post – graduating • Master degree : 2 years • PhD : 4 years	Under-graduating program • Regular system - General Nursing program (full time): 4 years. - Upgrade nursing program (for nursing college): 1,5 years • Service system (for secondary nurse/ midwife) - Bachelor of nursing program (part time): 4 years - Anesthesia nursing program (part time): 4 years - Midwifery nursing program (part time): 4 year	

1. Current medical education system in each AMS (cont'd)

Country	1.2 Agency/organization managing ambulance services	1.3 Ambulance Member	1.4 Ambulance Crew Training
Brunei	Ministry of Health (Emergency Medical Ambulance Services)	Paramedics, nurses, assistant nurses, ambulance officers, ambulance drivers	1. institute of Health Science/ Polytechnic -Diploma in Paramedic 2. IBTE- assistant nurse/paramedics
Cambodia	Mostly managed by and stationed at the government referral hospitals. Hospitals with 119 emergency system • Calmette Hospital • Khmer–Soviet Friendship Hospital (KSFH) • Preah Kossamak Hospital • Royal Cambodian Armed Forces (RCAF) brigade (Brigade 70)	In case of Calmette hospital • 1 doctor • 2 nurses • 1 driver	There is no standard training system for ambulance crew members including emergency medical technicians or paramedics. Nurses of ambulance service team are trained by hospital doctors to use some drugs such as adrenaline and atropine.
Indonesia	• National Command Center 119/ PSC (Public Safety Center) 119 by Ministry of Health. Almost each province and district have PSC 119 also and managed by Province/ district health office. • Hospital • Primary Health Care	• 1 doctor • 2 nurses • 1 driver	The training will organized by each hospital. Then the trained ambulance crew and system will be simulated.
Laos	Dispatch Center at Mittaphab Hospital	First Responder, Nurse, EMT	No standardized training system for ambulance crew members and different organizations have supported training programs for rescue volunteers
Malaysia	I. Ministry Of Health I. Other Government agencies e.g. University Hospital, Army, Fire and Rescue Department., Civil Defence II. Private Ambulance Service	I. Medical Assistant II. Staff nurse III. Ambulance Driver IV. First Aider	Medical Assistants are trained for 3 years (Diploma) at MOH and Private colleges or 4 years (degree program) in public universities. At the end of their studies they are awarded with Diploma in Medical Assistant or a Degree in Emergency care. The Diploma/Degree covers subjects such as Medical, Surgical, Orthopedics, Pediatrics, Gynecology & Obstetrics, Psychiatric, Emergency medicine, Pre-Hospital Care, Primary health care and others. Apart from theory, clinical practical's in various area are given to Medical Assistant students to ensure the objectives of the training are being met. In addition, qualified Medical Assistants have to go through compulsory placement program (Structured) for 6 months in emergency departments to enhance their competence level in handling emergency cases particularly in Pre-Hospital Care. For private ambulance crew, there are alternate training pathways which includes: - Diploma in Paramedical Science - Emergency Medical Technician Course
Myanmar	Ministry of health and Sports	Nurses, Nurse Aid, Sometimes Doctors	In the hospital. No specific training school for the ambulance crews. Ministry of Health and Sports opened the 1st EMS training center for the ambulance crews in Jan.2019.
Philippines	・Hospitals, Bureau of Fire Protection, Health Service of Local Government Units (LGU) ・Rescue Units from LGU and other Volunteer/ Non-Government Organization (NGO) ・ Ambulance/Rescue Units i.e. Txt Fire, Ace Core, Philippine Red Cross ・Ambulance driver	Doctor (Not always available), Nurse (Not always available), First Aid Trained Personnel, Barangay Health Workers, Emergency Medical Technician (EMT)	Basic Life Support (BLS) 1 to 2 day training Standard First Aid (SFA)3 day training Emergency Medical Technician (EMT) 10 days training being conducted by Health Emergency Management Bureau of Department of Health (DOH), Philippine Red Cross (PRC), Philippine Heart Association (PHA), American Heart Association (AHA) in the Philippines plus Advance Cardiac Life Support for Ty 2 Ambulance.

1. Current medical education system in each AMS (cont'd)

Country	1.2 Agency/organization managing ambulance services	1.3 Ambulance Member	1.4 Ambulance Crew Training
Singapore	The Singapore Civil Defence Force (SCDF)	An ambulance crew comprise 3 staff – 1 paramedic and 2 Emergency Medical Technicians (of which 1 is the ambulance driver).	Emergency Medical Technicians (including drivers) are required to attend a 5 weeks EMT course at the Civil Defence Academy (CDA) to familarise themselves with the BCLS + AED, and EMS Protocols. The training comprises a combination of self-study, theory, and practical modules. Paramedics are required to attend an 8 weeks EMT course at the Singapore Armed Forces Medical Training Institute (SMTI) to familiarize themselves with BCLS + AED protocols. Additionally, paramedics will also undergo 12 – 14 months on the job training in the ambulance and Obstetrics and Pediatrics and ED attachments. This will be followed by a 10 month enhanced EMS course at the SMTI which includes online training, JIBC Practicum, theory, and simulation.
Thailand			National training curriculum provided by National Institute for Emergency Medicine (NIEM) Fourty hours for emergency medical recuer (EMR) One hundred and fifteen hours for emergency medical technician (EMT) Two years for advanced emergency medical technician (A-EMT) Four years for paramedic (EMT-P) EMR 80 centers EMT 40 centers A-EMT 7 centers
Vietnam	• Public sector: 115 call center belonging to provincial Department of Health • Some private company • Some volunteer	Decree 01/2008/QĐ-BYT dated 21/01/2008 (Minister of Health) mentioned that the crew members are • Physician • Nurses • Driver	• Short training courses: 1 – 2 months • Some emergency or intensive care courses as in medical university (already specialist before or after being employee)

1. Current medical education system in each AMS (Cont'd)

Country	1.5 # of Edu.Institute						1.6 License					
	Doctor		Nurse		Related Occupation		National exam			License Renewal		
	Post-graduate	Univ./ College	Post-graduate	Univ./ College	Post-graduate	Univ./ College	Doctor	Nurse	Related Occupation	Doctor	Nurse	Related Occupation
Brunei	1	1	2	1			Yes	Yes		Every year	Every year	
Cambodia	unknown	5	unknown	BNS:6 ADN:18 PNS:4			Yes	Yes				
Indonesia		65	13	304			Yes	Yes		Every 5 years	Every 5 years	
Laos	2	1	0	6			No *under prepration	No *under preparation		Every 5 years	*Just started *plan to renew every 5 years	
Malaysia	3	Approx. 20	4	Approx. 25	4 (medical assistant)	19 (medical assistant)	No	No	No (medical assistant)	Every year	Every year	Every year
Myanmar	5	5	2	2			Yes	Yes		Every 5 years	Every 5 years	
Philippine	22	32	32	62			Yes	Yes		Every 3 years	Every 3 years	
Singapore	1	2	1	1			Yes	Yes		Every 1 – 2 years	Every year	
Thailand	19	Uni:12 College: 1	28	Univ.:12 College:6			Yes	Yes		Every 5 years	Every 5 years	
	EMR 80 centers EMT 40 centers											
Vietnam	unknown	12	unknown	Nursing school: 100			No	No		Every 5 years	Every 5 years	

*Nurse (Cambodia) BNS: Bachelor of Nursing Science, AND: Associate Degree in Nursing, PNS: Practice Nurses

2. Emergency medicine education and training

Country	2.1 Training curriculum for EM			2.2 (if yes in 2.1) which institute has the training curriculum?	2.3 Training period	2.4 Certification for EM training	2.5 Challenges in EM education	2.6 Other educational qualification for competency on DHM
	Doctor	Nurse	Related occupation					
Brunei	Yes (Mmed and BST)	No		Institute of Heatlh Sciences University and RIPAS Hospital	3 years (doctor)	Yes	• Capacity of teaching faculty and case workload is not optimal or adequate • There is no established curriculum on DHM nor much expertise – but we do hold ad-hoc workshops or small courses on DHM (usually only for Emergency Services/operational level)	None
Cambodia	Yes	Yes		University of Health Sciences Calmett Hospital			No standard training system	
Indonesia	Yes	Yes		• In national curricula of bachelor of nursing, emergency nursing and disaster nursing are embedded. All nursing institutions must have these 2 subjects. • University of Brawijaya Malang has postgraduate nursing program on emergency nursing.	2 years		Emergency medicine education in Indonesia has just start this year, but the implementation still has some challenges in universities related to spesific requirement to open master/specialist programme such as inadequate number of lecture etc	Some universities (Medical faculty) has curriculum for disaster health for undergraduate and postgraduate program. For example, in Faculty of Medicine, Public Health and Nursing, University of Gajah Mada has disaster health management program for medical, nursing, an nutrition undergraduate program studies (during 1 semester), and also it has been developed in public health postgraduate program (during 2 weeks lecturing). Other universities are University of Airlangga, University of Syiah Kuala, Universitas Pertahanan Indonesia, IPB University, etc.

2. Emergency medicine education and training

Country	2.1 Training curriculum for EM			2.2 (if yes in 2.1) which institute has the training curriculum?	2.3 Training period	2.4 Certification for EM training	2.5 Challenges in EM education	2.6 Other educational qualification for competency on DHM
Laos	Yes	Yes		University of Health Sciences Faculty of medicine Faculty of Nursing Science ongoing	1 year	Yes	• Limited human resources • Medical resources in lao language are limited • Teacher number • capacity are lacking • Law and regulation • Human resources: teacher limited, paramedic, emergency nurses, EMT • Equipment • Budget	Master of Public Health EMT
Malaysia	Yes	Yes	Yes (medical assistant)	3 public universities conducting a structured program for Emergency Medicine specialty training (Masters in Emergency Medicine). Medical assistants and nurses can do post basic for emergency services (Advanced Diploma in Emergency Care) and it will be done at medical assistant college	4 years (Doctors) 12 months (Medical assistants and nurses)	Yes (medical assistant)	The main challenge is the place for study is limited for the doctors doing master and also for medical assistant/nurses doing post basic.	Doctors – Subspecialty training in Pre-Hospital Care and Disaster (2 years)
Myanmar	Yes	Yes		University of Nursing (Yangon) University of Medicine(1), University of Medicine(2), University of Medicine(Mandalay)	3 years for doctors 18 month for nurses	Yes	Training program	Masters in Public Health and Masters in Emergency Medicine
Phillipines	Yes	No		Philippine General Hospital, East Avenue Medical Center, Saint Luke's Medical Center, etc.	3 years	Yes	Training Curriculum following International/ASEAN standards	Masters in Public Administration or Public Health or Crisis Management
Singapore	Yes	Yes		National University of Singapore (Yong Loo Lin School of Medicine); National Technological University (Lee Kong Chian School of Medicine), Duke-NUS Medical School	Doctor:5 years Nurse:1 year	Yes	• Course training capacity • System maintenance/ Staff attrition • Availability of staff to attend courses • Need for re-certification after certificates expire • Budget	Internal training under Ministry of Health Masters in Public Health European Masters in Disaster Medicine

2. Emergency medicine education and training

Country	2.1 Training curriculum for EM			2.2 (if yes in 2.1) which institute has the training curriculum?	2.3 Training period	2.4 Certification for EM training	2.5 Challenges in EM education	2.6 Other educational qualification for competency on DHM
Thailand	Yes	Yes		College of Emergency Medicine	3 years	Yes	to meet World Federation for Medical Education (WFME) standard	Master of Public Health Fellowship program in disaster medicine and emergency medical service (in process) Master degree in disaster management
Vietnam	Yes	Yes		• All medical universities • some nursing schools	2 - 3 years for specialized doctor 6 months for specialized nurses	Yes	• Curriculum is not standardized (material, ..) nationally • Shortage of education centers as well as lecturers • Training course is mainly focused on professional practice, however, the organization such as the coordination mechanism, EMTCC, forms … is not always mentioned during the training course, • The participants are not really interested in the emergency medicine and pre-hospital care. • Infrastructure and training facilities such as mannequins are not qualified.	Masters in Public Health

3. Current education and training for disaster health management (DHM) for EMT members including medical personnel

Country	3.1 Availability of trainiing program	3.2 Training Institute	3.3 Training period	3.4 Frequency	3.5 External Training provided	3.6 Organizer for 3.5
Brunei	mass casualty incident (MCI)	Ministry of Health and NDMC	2 days	at least 1/year	Incident command system (ICS)	MPTC CAE Rimba Panaga (BSP)
	chemical, biological, radiological, nuclear, explosive (CBRNE)	Ministry of Health and NDMC	4 days	at least 1/year		
	Water, sanitation and hygiene (WASH)	Public Health Department MOH	varies	at least 1/year		
	Public Health	Public Health Department MOH	varies	at least 1/year		
Cambodia	mass casualty incident (MCI)	Dept of Human Resource Development, MOH				
	Public Health					
Indonesia	mass casualty incident (MCI)	・Center of Health Crisis (integrated in Disaster Health Management Training) ・Army	4-5 days	yearly	Basic disaster life support (BDLS)	Army MOH,NGO, University
	chemical, biological, radiological, nuclear, explosive (CBRNE)	National Agency for Counter Terrorism	3 days	yearly	Advanced disaster life support (ADLS)	Army MOH,NGO, University
	Psychological care	Center of Health Crisis (integrated in Disaster Health Management Training) and University, and NGO	4-5 days	yearly	Field MIMMS（Major Incident Medical Management and Support）	NGOs and Universities
	water, sanitation and hygiene (WASH)	Center of Health Crisis (integrated in Disaster Health Management Training), UNICEF, University, NGO)	4-5 days	yearly	Hospital MIMMS	NGOs and Universities
	Public health	Center of Health Crisis (integrated in Disaster Health Management Training), University	4-5 days	yearly	advanced trauma life support (ATLS)	Trauma Commission (Indonesian Surgeon Association)
	Logistics	Center of Health Crisis (integrated in Disaster Health Management Training	4-5 days	yearly	Incident Command System (ICS)	NDMA , MoH, Army
	safety and security	NDMA, NGO.	4-5 days	yearly	Psychological First Aid (PFA)	MoH, NGOs and Universities
	(Others) Contgency plan for health sector / DHO, Hospital, LDMA, and Primary health care	University and hospital MoH and university	4-5 days	yearly	（Others） Hospital disaster plan	MoH, NGOs and Universities
	Training for disaster health cluster	MoH and university	4-5 days	yearly		
	Hospital disaster plan	MoH and university	4-5 days	yearly		

3. Current education and training for disaster health management (DHM) for EMT members including medical personnel

Country	3.1 Availability of trainiing program	3.2 Training Institute	3.3 Training period	3.4 Frequency	3.5 External Training provided	3.6 Organizer for 3.5
	*Remarks: Disaster Health Management training conducted annually in 5 days training Programme					
Laos	mass casualty incident (MCI)	Emergency Department of Central Hospital	3 days	1/year	Basic disaster life support (BDLS)	Department of Central Hospital
	chemical, biological, radiological, nuclear, explosive (CBRNE)	Ministry of science and Technology, Emergency Department of Central Hospital, CDC Department	3 days	1/year	Advanced disaster life support (ADLS)	Emergency Department of Central Hospital, CDC Department
	Psychological care	Psychological care Department of Mohosot Hospital, Health Care and Rehabilitation Department	5 days	1/year	Field MIMMS	Emergency of Central Hospital, Cabinet of MoH
	water, sanitation and hygiene (WASH)	Center of Sanitation and Water Supply, Hygiene and Health Promotion Department, MoH	5 days	1/year	Hospital MIMMS	Emergency Department of Central Hospital
	Public health	Health Care and Rehabilitation Department, CDC Department, Cabinet of MoH	5 days	1/year	advanced trauma life support (ATLS)	Emergency Department of Central Hospital
	Logistics	Food and Drug Department, Medical Products Supply Center	5 days	1/year	International Trauma Life Support (ITLS)	Emergency Department of Central Hospital
	Business continuity plan(BCP)	Planning Department, Finance Department	5 days	1/year	Incident Command System (ICS)	Emergency Department of Central Hospital
					Psychological First Aid (PFA)	Psychological care Department of Mohosot Hospital, Health Care and Rehabilitation Department
Malaysia	mass casualty incident (MCI)	Hospital Serdang, Selangor	4 days	1 -2 times/ year	Basic disaster life support (BDLS)	Hospital Selayang, Selangor
	chemical, biological, radiological, nuclear, explosive (CBRNE)	Hospital Selayang, Selangor	3 days	1 -2 times/ year	Advanced disaster life support (ADLS)	Hospital Selayang, Selangor
	public health	National Institute of Health, NIH	3 days	1 -2 times/ year	Advanced trauma life support (ATLS)	College of Surgeons, Academy of Medicine, Malaysia
	Logistics	National Disaster Management Agency Malaysia	1 day	1-2 times /year	Incident Command System (ICS)	National Disaster Management Agency
					Psychological First Aid (PFA)	Mental Health Unit, MoH Malaysia
Myanmar	mass casualty incident (MCI)	Ministry of health and sports	3days to 1 week	twice/yeaer	Field MIMMS	Australisian college of Emergency Medicine
	water, sanitation and hygiene (WASH)	Ministry of health and sports			Hospital MIMMS	Australisian college of Emergency Medicine

3. Current education and training for disaster health management (DHM) for EMT members including medical personnel

Country	3.1 Availability of trainiing program	3.2 Training Institute	3.3 Training period	3.4 Frequency	3.5 External Training provided	3.6 Organizer for 3.5
	Public health	Ministry of health and sports			advanced trauma life support (ATLS)	Australisian college of Emergency Medicine
Phillipines	mass casualty incident (MCI)	Health Emeregncy Management Bureau – Department of Health (HEMB-DOH)	5 days	needs-based, as requested	advanced trauma life support (ATLS)	Philippine College of Surgeons
	chemical, biological, radiological, nuclear, explosive (CBRNE)	HEMB-DOH in collaboration with national agencies and hospitals including Philippine Nuclear Research Institute	3 days	needs-based, as requested	Incident Command System (ICS)	Office of the Civil Defense
	Psychological care	East Avenue Medical Center, Philippine General Hospital		needs-based, as requested	Psychological First Aid (PFA)	HEMB-DOH
	water, sanitation and hygiene (WASH)	HEMB-DOH	5 days	needs-based, as requested		
	public health	HEMB-DOH	3 days	needs-based, as requested		
	Logistics	Technical Support from international organizations for SUMA		needs-based, as requested		
	safety and security	Office of the Civil Defense, Department of Interior and Local Government	1 day	needs-based, as requested		
	Business Continuity Plan (BCP)			needs-based, as requested		
	mental health and psychosocial support (MHPSS)			needs-based, as requested		
Singapore	mass casualty incident (MCI)	SingHealth Academy	up to 3 days	2/year	Basic disaster life support (BDLS)	SingHealth Alice Lee Institute of Advanced Nursing
	chemical, biological, radiological, nuclear, explosive (CBRNE)	ditto	ditto	ditto	Advanced disaster life support (ADLS)	Singhealth Academy
	Psychological care	ditto	ditto	ditto	Advanced trauma life support (ATLS)	Tan Tock Seng Hospital; The Singapore Trauma Conference
	water, sanitation and hygiene (WASH)	ditto	ditto	ditto	International Trauma Life Support (ITLS)	SingHealth Academy
	Public health	ditto	ditto	ditto	Incident Command System (ICS)	SingHealth Academy
	Logistics	ditto	ditto	ditto	Psychological First Aid (PFA)	Singapore Red Cross Society; SingHealth Academy
	business continuity plan (BCP)	ditto	ditto	ditto	Pre-Hospital Trauma Life Support	Tan Tock Seng Hospital; SingHealth Academy
Thailand	Mass casualty incident (MCI)	NIEM	2-3 days	yearly	Basic disaster life support (BDLS)	Royal College of Surgeon of Thailand

3. Current education and training for disaster health management (DHM) for EMT members including medical personnel

Country	3.1 Availability of trainiing program	3.2 Training Institute	3.3 Training period	3.4 Frequency	3.5 External Training provided	3.6 Organizer for 3.5
	CBRNE	Department of Disaster Prevention and Mitigation (DDPM)	2-3 days	10 times/year	Advanced disaster life support (ADLS)	Royal Colledge of Surgeon of Thailand
	Psychological care	Department of Mental health, MOPH	2-3 days	yearly	Hospital MIMMS	MOPH, DDPM
	Water, sanitation and hygiene (WASH)	The Thai Red Cross Society	2-3 days	yearly	Advanced trauma life support (ATLS)	MOPH, DDPM
	Public health	Department of Disease Control, Ministry of Public Health	6 days	yearly	International Trauma Life Support (ITLS)	Royal College of Surgeon of Thailand
	Logistics	Siriraj hospital, faculty of medicine	2-3 days	yearly	Incident command system (ICS)	MOPH, DDPM
	safety and security	*part of other course			Psychological First Aid (PFA)	Department of Mental Health
					Pre-Hospital Trauma Life Support (PHTLS)	Royal College of Surgeon of Thailand
Vietnam	mass casualty incident (MCI)	some NGO	<1 week	occasional		
	CBRNE	some NGO				
	Psychological care	some NGO				
	Public health	some NGO				

4. Education and training needs for DHM/Support needed from curriculum committee

Country	4.1 Training needs	4.2 Support needed
Brunei	ATLS and DLS (basic and advanced) that is specific to ASEAN	Experts and Teaching faculty
Cambodia	Safe hospital Training of Trainer Emergency Medical Team Coordination Cell (EMTCC) Skill based training on EMS Mental Health	Standardized training curriculumfor DHM Training of Trainer
Indonesia	We need most a training of accredited international EMT	Technical support
Laos	MCI Basic health emergency life support for public health Disaster in wide area and emergency medical system Education for Paramedic and EMT Disaster Health Management EMT PARAMEDIC NURSE	Curriculum Training of Trainer Paramedic EMT
Malaysia	Training of trainers to conduct the AMS training. Awareness of mental health in disaster	Standardized curriculum for AMS training
Myanmar	Advanced disaster life support, Incident Command System (ICS), Psychological First Aid (PFA)	Technical support
Phillipines	1. Logistics management 2. Clinical management in severe and austere environment 3. Safety and security training 4. Water, Sanitation, & Hygiene (WASH) for EMT personnel 5. Country to Country coordination, (ASEAN standard training curriculum on DHM training)	Module development to standardize training at the ASEAN Level and training management with complete provision for training tools and devices
Singapore	Opportunity to participate in disaster drills Training in health assessment	Sharing of training material “Train-the-Trainer” type of training
Thailand	Logistic, Emergency Medical Team Cell Coordination, MIMMS	Standard curriculum Instructor course
Vietnam	Undergraduate curriculum and training program MIMMS chemical, biological, radiological, nuclear, explosive (CBRNE) MCI ICS ATLS ITLS Psychological care PFA Logistic	Standard curriculum in AMS

5. Potential core educational institute(s) to develop curriculum and conduct training courses for DHM in each AMS

Country	5.1 leading institute for training & networking in ASEAN	5.2 Reason	5.3 Academic society/NGO that provide DHM training
Brunei	University or institute		No
Cambodia	University of Health Sciences	UHS is the only public university of health sciences in Cambodia, which is affiliated with MOH and the Ministry of Education, Youth and Sport.	
Indonesia	University of Gadjah Mada	They have curriculum for disaster health for undergraduate and postgraduate program. They have conducted many trainings related to disaster health management, throughout Indonesia every year. They also have a team that is experienced in various major disasters in Indonesia. University of Gadjah Mada is involved in some PWG Meeting and ARCH Project RCC Meeting, also in 4th RCD Preparation.	MDMC (Muhammadiyah Disaster Management Center), LPBI NU, Indonesia Red Cross, MPBI, etc
Laos	University of Health Sciences		
Malaysia	Hospital Serdang	Hospital Serdang coordinates the nationwide training under MOH	Mercy Malaysia
Myanmar	Emergency Medical Service Training Center (Nay Pyi Taw)	That is the only training center	
Philippines	DOH led by the Health Human Resource Development Bureau and HEMB in collaboration with other training providers	HEMB is mandated to conduct competency training in relation to Disaster Health Management / Disaster Risk Reduction Management in Health	・Philippine Red Cross ・Metro Manila Development Authority ・World Health Organization ・Anti-Terrorism Assistance Program of US Department of State
Singapore	Department of Emergency Medicine, Ng Teng Fong General Hospital	Identified by the Ministry to lead training and curriculum development for disaster health management	Singapore Red Cross
Thailand	Thai College of Emergency Physician, Chulabhorn Disaster and Emergency medicine Center	There are members who specialize in disaster medicine, mass casualty incident and EMS Chulabhorn Disaster and Emergency medicine Center, Princess Churabhorn Colledge of Medicial Science, Chulabhorn Royal Academy	Asian Disaster Preparedness Center (ADPC) Thai Red Cross Society Thai Association for Emergency Medicine (TAEM)
Vietnam	National Burn Hospital (Department of Disaster medicine)	Department of Disaster Medicine which is a department of The Vietnam National Burn Hospital (NBH) is officially conducting training program of disaster health management for medical students. Base on this department, National center for Emergency and Disaster Medicine is currently set up with missions of training, research, coordination and cooperation in emergency and disaster medicine. In addition, the Vietnam Association of Emergency and Disaster medicine will be established and located at the NBH.	Red cross association: few basic training course for public health in DHM

6. Others

Country	6.1 Special consideration to multicultural issues in DHM	6.2 (if yes) Example	6.3 (if no) Topics to be included in DHM education	6.4 Challenges in DHM education
Brunei	No			We do not have an established one. Some available but it is quite patchy.
Cambodia	NA			
Indonesia	Yes	Briefing about specific culture		We only train a few officers and often they are not decision makers. So the implementation of the training is hampered because of difficulties in advocating for leaders.
Laos	Yes	In disaster management the culture and gender is very importance for example: monk should be separate from woman and have to be stay in temple but during disaster to be have special place for them. The gender is very importance too should be consideration for example: W.C for women in the camp or shelter.		Knowledge Budget Human resource Experience
Malaysia	No		Understanding local culture and religious sensitivity	Limited financial allocation and experienced trainers
Myanmar	No		No Special Need	Ministry of Health and Sports Approval
Phillipines	No		Acclimatization / simulation	Limited Choice of Participants because of the few personnel who are involved in the program; competing priorities on health
Singapore	Yes	Being a multiracial society, Singapore's DHM education takes into account multiracial sensitivities		
Thailand	No		Laws, regulations, and cultural perspective for EMT International coordination standard	Experts or Instructors Budget
Vietnam	No		Gender Elderly Minor Ethnic Groups	Shortage of resource No standard curriculum, training materials Not interesting aspects