Lao People's Democratic Republic
Department of Transport of Ministry of Public Works and Transport
Department of Public Works and Transport of Vientiane Capital
Vientiane Capital State Bus Enterprise

Lao People's Democratic Republic

The Project to Enhance the Capacity of Vientiane Capital State Bus Enterprise

Project Final Report

March 2015

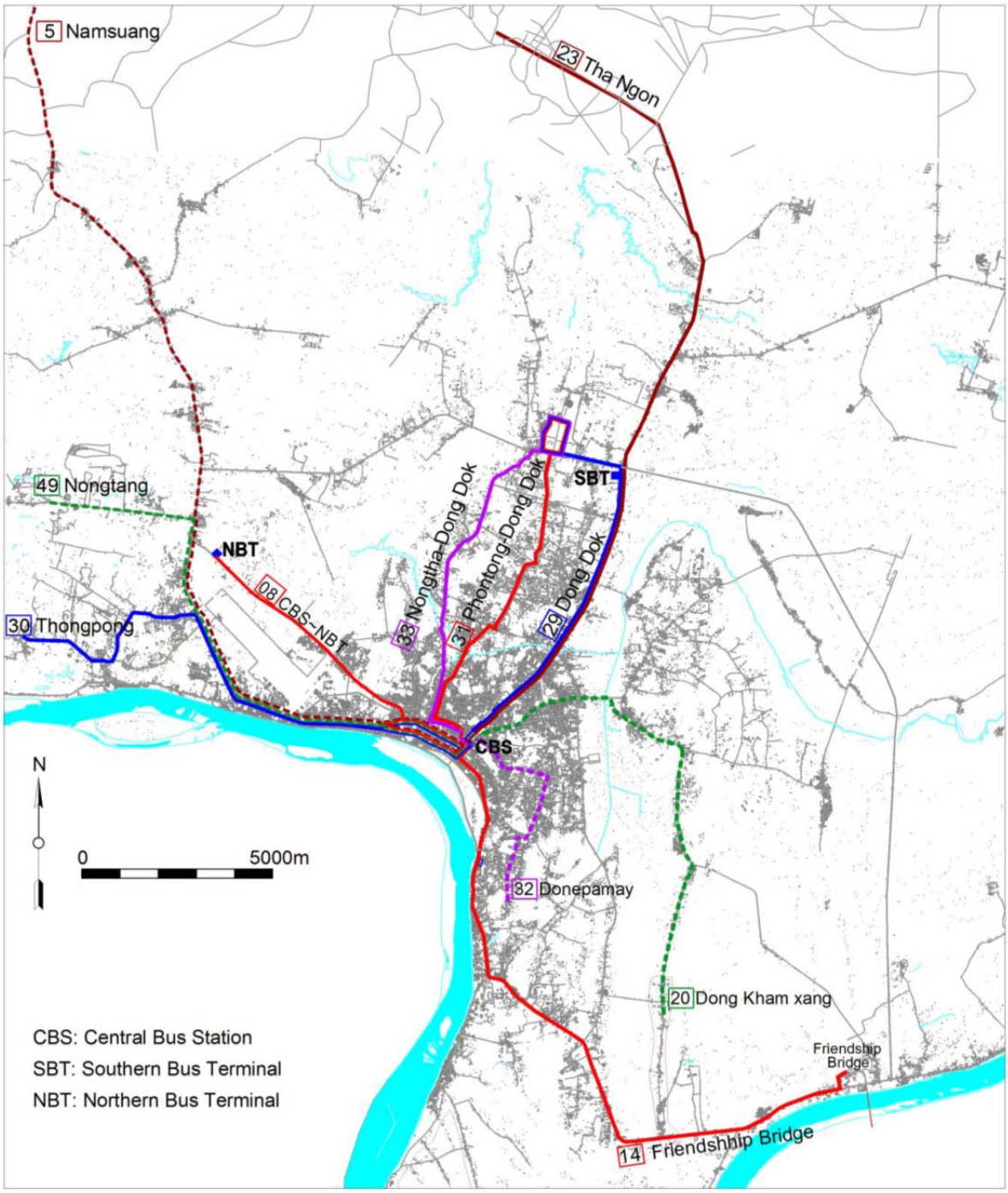
Japan International Cooperation Agency (JICA)
Katahira & Engineers International (KEI)

EI
JR
15-093

Exchange Rate

Currency	Exchange Rate（/Yen）
KIP	0.014
USD	117.93

（as of February, 2015）



No.	Route	Bus	Fare (kip)	CBS departure time and headway
14	CBS – Friendship Bridge	New Bus	6,000	5:50 – 18:00, every 15 minutes
20	CBS- Dong Kham xang	Minibus	4,000	6:30 – 17:20, every 25 minutes
23	CBS – SBT - Tha Ngon	New Bus	5,000	5:45 – 17:30, every 20 ~ 30 minutes
29	CBS – SBT - Dong Dok	New Bus	3,000	6:30 – 18:00, every 15 ~ 20 minutes
30	CBS – Thongpong	New Bus	4,000	6:00 – 17:30, every 20 ~ 30 minutes
31	CBS – Phontong – Dong Dok	New Bus	3,000	6:10 – 17:30, every 20 minutes
32	CBS – Donepamay	Minibus, Electric Bus	2,000	6:30 – 17:55, every 15 ~ 20 minutes
33	CBS – Nongtha – Dongdok	New Bus	3,000	6:10 – 17:20, every 30 ~ 60 minutes
49	CBS – Sikay – Nongtang	Minibus	4,000	6:15 – 17:30, every 35 ~ 60 minutes
08	CBS – Northern Bus Terminal	New Bus	5,000	6:00 – 17:00, every 30 minutes
05	CBS - Namsuamg	Minibus	10,000	10:30, 16:30

VCSBE Town Bus Route Map (as of December 2014)

Photos

<table>
<tr>
<td> 
Arrival of all 42 bus of Grant Aid
（13, June, 2012）</td>
<td> 
Inauguration Ceremony
（6, July, 2012）</td>
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<tr>
<td> 
Installation of Digital Tachograph
（24 - 29 October, 2012）</td>
<td> 
Training on Digital Tachograph
（October nad November, 2012）</td>
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<td> 
Special Meeting on BRT with the Mayor
(7 June, 2013)</td>
<td> 
The Pilot Project of BRT (Bus Exclusive lane)
（17-21 June, 2013）</td>
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The 3rd Trining in Japan
（18 -30 August, 2013）

The 8th Workshop for Financial Analysis
（16 September, 2013）

Traffic Safety Campaign for Bus Use
（26 October, 2013）

Bus Seminar by Japanese Bus Operators in Vientiane Capital
（14 March, 2014）

The 4th Training in Japan by Eagle Bus
（August, 2014）

The 4th Training in Japan by Yokohama City
（August, 2014）

Student Bus Pass Promotion at Secondary School
（December, 2014）

Student Bus Pass Promotion at Secondary School
（February, 2015）

Temporary Bus Station（TBS-B）
（January, 2015）

ICT Bus Pass Training on Drivers
（February 2015）

Commencement Ceremony of ICT Bus Pass
（4 March, 2015）

Students commuting by ICT Bus Pass
（March 2015）

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Abbrivation

ADB	Asian Development Bank
ASCC	Asia Smart City Conference
BRT	Bus Rapid Transit
CBS	Central Bus Station
C/P	Counterpart
DD	Detailed Design
DPWT	Department of Public Works and Transport of Vientiane Capital
EST	Environmentally sustainable transport
GDP	Gross Domestic Product
GOJ	Government of Japan
GOL	Government of Laos
GPS	Global Positioning System
ICT	Information and Communication Technology
IT	Information Technology
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
HCM	Highway Capacity Manual
LOS	Level of Service
MOE	Ministry of Environment
MLIT	Ministry of Land, Infrastructure, Transportation and Tourism (Japan)
MPWT	Department of Transport of the Ministry of Public Works and Transport
M/C	Motor Cycle
M/P	Master Plan
NBT	Northern Bus Terminal
NBO	Northern Bus Terminal Office
NBS	Northern Bus Station
NMT	Non-Motorized Transport
NRSC	National Road Security Committee
NUOL	National University of Laos
ODA	Official Development Assistance
OJT	On the Job Training
PDM	Project Design Matrix
PT	Public Transportation
SBT	Sothern Bus Terminal
P&R	Park and Ride

SBP	Student Bus Pass
TBS	Temporary Bus Station
TDM	Transportation Demand Management
R/D	Record of Discussion
VC	Vientiane Capital
TOR	Terms of Reference
VAT	Value Added Tax
VCSBE	Vientiane Capital State Bus Enterprise

1. Project Outline

1.1 Project Background

In Vientiane Capital, the registered number of the passenger cars increased from 112,827 units in 2002 to 365,903 in 2009, 3.2 times, together with uncountable motor cycles increase due to economic activities, rapid urbanization, and population increase. Meanwhile, a trip share by public transport was surveyed only 4% in 2007. These situations brought about large traffic congestions in the morning and evening peak hours in the urban center, but chronicle urban traffic congestions and serious transportation-related environmental problems are to be expected to spread to all the urban areas in the very near future.

The public transportation of Vientiane Capital is the public buses operated by the Vientiane Capital State Bus Enterprise (VCSBE). However, their buses are aged, all more than ten years, exceeding their service life. They should require heavy repairs and frequent maintenance. In spite of its maintenance effort with a huge expenditure to VCSBE, the number of buses available decreased and then bus service quality worsened. The number of bus users decreased drastically from 7.6 million in 2002 to 2.85 million in 2009. VCSBE reduces their capacity of supplying bus services.

To enhance the capacity of public bus transportation, the Government of Laos (GOL) requested the assistance to the Government of Japan (GOJ). After a series of the studies and discussions by the both parties, the GOJ decided to launch the two projects: “the Project of Improvement of Transpiration Capacity of Public Bus in Vientiane Capital (The Bus Project)” for a grant-aid of procurement of bus vehicles, which provided 42 new buses by May 2012, and “the Project to Enhance the Capacity of Vientiane Capital State Bus Enterprise (The Project)” , for technical assistance in the capacity development of bus operation and corporate management of VCSBE.

The Project aims to improve the bus service quality and to recover credibility of the public bus users by using the new buses provided by the Bus Project. Furthermore, VCSBE is expected to improve vehicle operation, management, and corporate and financial management by itself, accordingly, to renew old buses and increase number of buses in the future. If it is realized, highly qualified public bus service will be achieved in Vientiane Capital. Meanwhile, at the preparation of the Project, it was mutually understood that in order to upgrade the bus service levels, collection and analysis of bus demands, establishment of a proper fare system, and implementation of bus preference measures should be taken. These tasks were out of VCSBE’s jurisdictions, therefore, the Project should have involved the both the Department of Public Works and Transport of Vientiane Capital (DPWT/VC) and the Department of Transport of the Ministry of Public Works and Transport (DoT/MPWT) as well as VCSBE. The DPWT / VC was responsible in collecting

and analyzing the opinions and demands of the citizens, working closely with the Traffic Safety Committees and the DoT/MPWT was responsible in planning and implementing the bus fare and subsidy review, bus preferential measures and formulating the overall policy of public transportation.

1.2 Objectives of the Project

The Consultancy service objectives are to improve service quality of urban bus service and to contribute to extend the bus service area through technical assistance in improvement of corporate management and service quality of VCSBE, and in formulation and implementation of public transportation policy and plan suitable for public bus transportation in Vientiane Capital.

1.3 Scope of the Services

(1) The Consultant shall conduct its services in accordance with the Project defined by R/D (Record of Discussion) signed on 8 August 2011, to achieve Project Objective by implementing activities in TOR. The Consultant will also appreciate the progress of the Project and the results of outputs, and recommend the Project direction to JICA, punctually.

(2) The Consultant will also execute its service taking into consideration that the Project objective is to increase the capacity of Lao side, as well as the project policy and TOR.

(3) The Consultant will prepare the reports mentioned in the Output according to the progress of the Project, and after an explanation and discussion, submit it to Lao side.

1.4 The Project Outline

In August 2011, the Preliminary Study Mission concluded the Record of Discussion (RD) and agreed on the PDM of the project. After commencement of the Project, there were several changes in project environment, as shown in Table 1.4-1, in particular, decision of the reconstruction of the Central Bus Station (hereinafter referred to as “CBS”) was critical. The Mayor of Vientiane Capital gave a concessionaire which included reconstruction of the CBS and operating new shopping center to a construction company, Chitchareune Construction Company Ltd, in February 2012. The CBS was the terminal of all bus routes of VCSBE, therefore daily operation would be totally changed during the construction of the CBS.

Table 1.4-1 Project Environmental Change and Correspondence

Conditions	First Year	Second Year	Third Year
1. New CBS Construction	New CBS Plan	New CBS Basic Design	Preparation for New CBS Construction
2. TBS Operation	Location Basic Plan of TBS A, B and C	TBS Plan Cross-sectional Survey Operation Plan	Preparation for Operation Public Information

Conditions	First Year	Second Year	Third Year
3. BRT	BRT Plan Discussion with Vientiane Capital	Pilot Study Coordination with Traffic Police	Study on Candidate Route
4. ICT Card System	ICT Card System Concept	ICT Student Bus Pass	Implementation
5. IT Operation	Digital Tachograph	GPS pilot operation	Utilizing Digital Tachograph
6. ADB Project	Commuter Bus Study	BRT and NMT Study	BRT investment plan
7. Urban Land Use	Urban M/P	New Land development	Transport landscape
8. Traffic Engineering	JICA STRADA Provision	Traffic Engineering Training	JICA STARADA Training

Source: JICA Project Team

1.4.1 Revised Project Design Matrix (PDM)

To comply with the above mentioned CBS reconstruction issues and concerns, the Project Team reviewed the original PDM with C/Ps and added two outputs, relating to the operation of the Temporary Bus Station (hereinafter referred to as "TBS") and CBS. To accomplish those outputs, relating activities were also added. The revised PDM was discussed at the 2nd JCC meeting and approved. Table 1.4-2 shows the revised PDM.

Table 1.4-2 Project Design Matrixes (PDM) Revised

Narrative Summary	Objectively Verifiable Indicators	Means of verification	Important Assumptions
<u>Super Goal</u> Environmentally sustainable transport (EST) policy is promoted in the target area.			
<u>Overall Goal</u> Public bus service coverage in Vientiane is expanded.	- Number of route and cover area of public bus transportation increase from the ones at the end of the Project.	- Public bus transportation route map	EST policy of Government of Lao does not change.
	- Public bus transportation improvement measures are implemented	- Interviews with persons and officers concerned	
<u>Project Purpose</u> Urban public bus service of VCSBE is improved.	- Level of Service (LOS) is improved.	- Survey record of LOS	- Modal shift policy is implemented. - Traffic management is implemented.
<u>Output</u> 1. Corporate management is improved by VCSBE.	1.1 Income of VCSBE increases.	- Financial statements	- Prices of bus vehicle, fuel and spare parts do not fluctuate considerably. - Traffic volume increase does not exceed the level that might noticeably obstruct the public bus service.
	1.2 Financial statements are prepared.	- Financial statements	
	1.3 Bus vehicle operations are recorded and utilized for corporate management.	- Bus operation records and analysis results	
	1.4 Regulations on daily bus operation are recorded and implemented.	- Regulations on daily bus operation - Audit records of daily bus operation	
	1.5 Operation of Central Bus Station (CBS) is reviewed and improvements of bus stops are planned as number of bus, bus operation.	- Operation plan of CBS - Records of planning - Improvement of bus stops	

Narrative Summary	Objectively Verifiable Indicators	Means of verification	Important Assumptions
2. Measures for improvement of VCSBE's service are implemented in Vientiane responding to citizens' requests.	2.1 Improvement measures of public bus services are implemented upon the requests from citizens.	- Requests for service improvement by citizens - Interview and site visit on implementation of improvement measures	
	2.2 Criteria to measure level of bus service are set	- Criteria to measure bus service levels - Bus service standards	
3. Public transportation policies and plans favourable to public bus are established.	3.1 Bus fares and subsidy for "transport poor" considers through overall public policy and bus service sustainability	- Records of preparation of a public transportation policy - Records of preparation of a medium-term public bus transportation plan	
	3.2 A medium-term plan of public bus transportation includes new bus schedule, routes and bus stops based on the medium-term business and investment plan of VCSBE.	- Medium-term business and investment plan of VCSBE - Medium-term public bus transportation plan	
	3.3 Collaboration with para-transit is established and meetings are held.	- Discussion records with para-transit	
	3.4 Bus preferential measures are discussed, and the measures are implemented by plan.	- Reports of discussion on and implementation of public bus transport preferential measures - Interviews with persons involved	
	3.5 The policies and plans consider progress of urban and road development, new urban master plan and other donors' projects	- Updated public transport policy and plan	
4. Safe and smooth bus operation is conducted at the temporary Bus Station (TBS).	4.1 Advice of TBS construction	- TBS location map - Bus time schedule - Design and construction records of TBS - Design and construction records of a temporary bus station at CBS - Design and construction records of temporary northern bus operation office (NBO)	
	4.2 Safe and smooth bus operation at TBS	4.2 - Test records at TBS - Monitoring records of bus operation - Operation plan and records at TBS - Bus management records at NBO	
	4.3 Safe and smooth bus use at TBS	4.3 - Plan & records of	

Narrative Summary	Objectively Verifiable Indicators	Means of verification	Important Assumptions
		publicity for new CBS construction and TBS operation - Records of bus safety use campaign - Records of publicity for international bus users - Announcement methods & records of bus operation change	
	4.4 Improvement of surrounding traffic facilities	4.4 - Pedestrian guide facilities and records - Records of improvement on signals and intersections - Decrease in illegal parking vehicle - New traffic signals for one-way and left-turn -Improvement of para-transit parking - Records of relocation of Kiosk and business activities	
5. New CBS function is secured.	5.1 Advice of DD plan 5.2 Advice of modification of DD during construction 5.3 Advice of completion of new CBS	Approval records	
Activities 1. Corporate management is improved by VCSBE. 1-1. Improve financial management 1-1-1 Prepare financial statements 1-1-2 Prepare a medium-term business and investment plan 1-1-3 Improve the ticketing and fare collection system with MPWT (Ex. Introduce common ticket, pass, fare box, manual or automatic passenger counting tools, etc.) 1-1-4 Improve the passenger and income recording system 1-1-5 Expand income sources other than bus fare 1-1-6 Take attractive measures for potential bus users (ex. advertisement for promoting public bus, route maps) 1-2. Improve competence of human resources 1-2-1 Improve Staffs' capacity for management & operation including account, planning, operation, maintenance & training 1-2-2 Improve daily bus operation based on the operation regulation 1-3. Improve equipment for O&M and relevant facilities 1-3-1 Install bus operation control equipment		Inputs <Japan side> Experts - Public transport - Corporate management - Route and operation - Bus service - Mechanics - Transport and traffic plan Equipment and Facility - GPS for bus operating and maintenance recording system - Computer set - Software for traffic analysis Trainings in Japan <Lao side> - Counterparts - Work space	- Most of the trained staffs continue working for VCSBE. - Stakeholders are cooperative with transport committee.

Narrative Summary	Objectively Verifiable Indicators	Means of verification	Important Assumptions
1-3-2 Improve each bus operation and vehicle maintenance recording system by computer for management and planning 1-3-3 Improve arrangement and operation of Central Bus Station and bus stop facilities, if any 1-4. Conduct Public Bus Transportation Pilot Program 1-4-1 Operate trial shuttle bus services between Central Bus Station and Dongdok campus of University of Laos			
2. Public bus service improvement measures are implemented responding to citizens' requests. 2-1 Establish transportation committees for effective bus use 2-2 Collect requests and needs for public bus service 2-3 Set criteria to evaluate bus service and target levels of public bus service 2-4 Plan and review bus routes and bus stop locations responding to community demand 2-5 Implement bus services improvement measures (ex. Service coverage ratio. Actual/Plan)			
3. Improve public bus policy and plans 3-1 Review and establish a proper fare structure 3-2 Review subsidy policy for public bus transportation 3-3 Develop medium-term public bus transportation plan 3-4 Promote establishment of collaboration mechanism with other public transportation modes of para-transits (Tuk-tuk, Jambo, Sonteo) 3-5 Promote public bus transport preferential measures 3-6 Update public transportation policy and plan			Precondition VCSBE does not be a target of resolution.
4. Conduct safe and smooth bus operation at temporary Bus Station (TBS). 4.1 Advise for TBS construction 4.2 Conduct safe and smooth bus operation at TBS 4.3 Promote safe and smooth bus use at TBS 4.4 Improve surrounding traffic facilities			
5. Maintain new CBS functions 5.1 Advise for a detailed design (DD) plan 5.2 Advise for modification of DD during construction 5.3 Advise for completion inspection of new CBS			

Source: JICA Project Team

1.4.2 Project Period

The project period was originally scheduled from January 2012 to December 2014. However, with the foregoing changes and revised PDM, duration period was extended until March 2015, in accordance with the revision of the PDM.

The project was conducted for 39 months. The project consists of three periods as follows;

- The First Year Period: from January 2012 to November 2012,
- The Second Year Period: from December 2012 to November 2013, and

· The Third Year Period: from December 2013 to March 2015.

1.4.3 Project Organization

The project organization is shown in Figure 1.4-1. The main counterpart consists of three organizations, the Department of the Ministry of Public Works and Transport (DoT/MPWT), the Department of Public Works and Transport of Vientiane Capital (DPWT/VC) and the Vientiane Capital State Bus Enterprise (VCSBE). VCSBE is able to undertake improvement of urban public bus service by itself, and within its titles. It is indispensable to collaborate with DPWT/VC and DoT/MPWT because they have authority and responsibility for facilitation of public bus service. Therefore, there are three counterparts from VCSBE, DPWT/VC and DoT/MPWT, and each has a role to achieve Output 1, 2, and 3, respectively, thereby strengthening VCSBE corporate management, supporting environment for bus company management, which should be expected to achieve improvement of the urban public bus service.

The JICA Project Team gave suggestions and technical supports to them for achieving objectives and goals of the project.

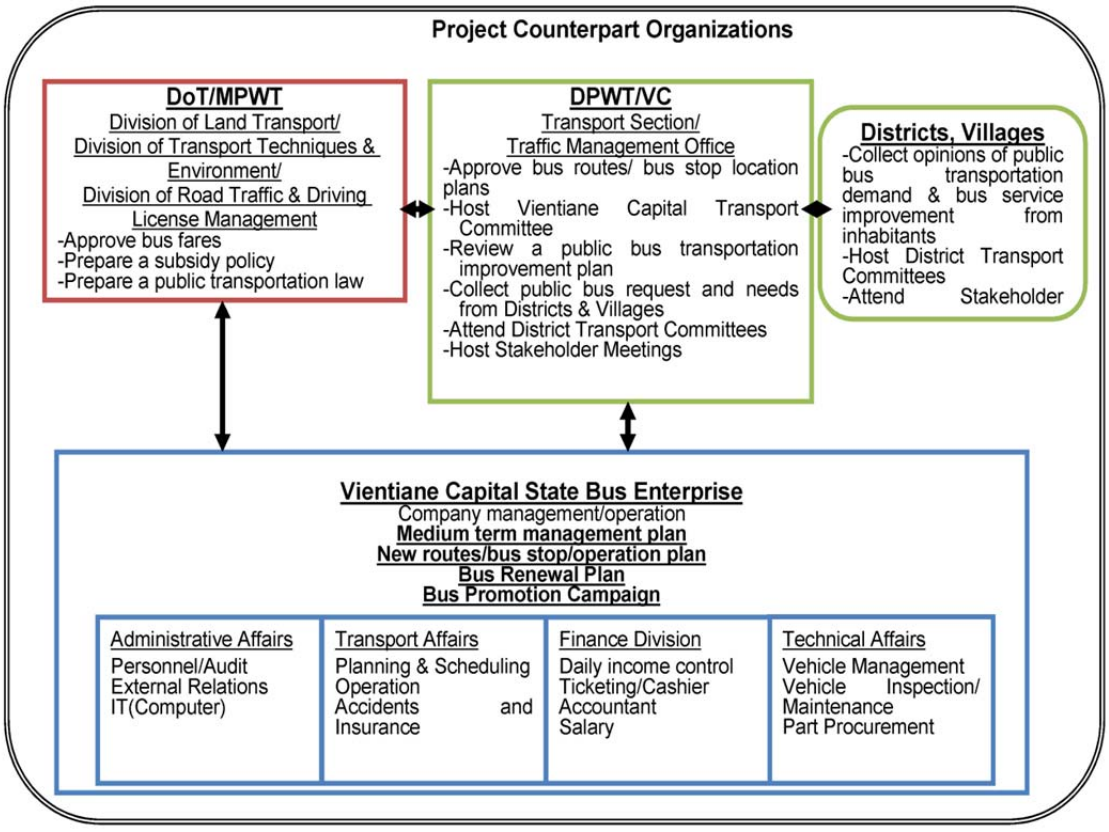


Figure 1.4-1 Project Organization

	Name	Position	Organization
Project Director	Mr. Viengsavath SIPHANDONE	Director General	DoT/MPWT
Project Manager	Mr. Khamphoune TEMERATH	Director	VCSBE
DoT/MPWT	Dr. Bounta ONNAVONG	Director, Division of Planning and Budgeting	DoT/MPWT
	Mr. Phoutthaxay SILICHAK	Officer, Division of Planning and Budgeting	DoT/MPWT
	Mr. Vilaiphan XAYYAVONG	Deputy Director, Division of Vehicle Management	DoT/MPWT
	Mr. Lieng MONTHALATH	Deputy director of land transport division	DoT/MPWT
DPWT/VC	Mr. Dethongkham THAMMAVONG	Director General	DPWT/VC
	Mr. Somsanith HOUATHONOKHAM	Manager, Transport Management Unit	DPWT/VC
VCSBE	Mr. Bounpone PHONGMANY	Deputy Director of Technical Affairs	VCSBE
	Mr. Bouapha PHETVIXAY	Deputy Director of Administrative Affairs	VCSBE
	Mr. Vanly CHANCHALEUNE	Deputy Director of Administrative Affaires	VCSBE
	Mr. Bounma VILAVONG	Division of Personnel	VCSBE
	Mr. Duangta SOUTKHAMHAK	Division of Personnel	VCSBE
	Mr. ThanongsyDethvongsone	Chief of City Bus Section, Division of Transpport	VCSBE
	Ms. Manivone PHENGPHONGSAVATH	Division of Transport	VCSBE
	Mr. Panya VILATHAM	Division of Transport	VCSBE
	Mr. Bounthah SAENNSAKDAVONG	Division of Finance	VCSBE
	Ms. Chansouk CHANTHAVONG	Division of Finance	VCSBE
	Mr. Vongphachanh INSIVILATH	Division of Finance	VCSBE
	Mr. Bounsonk si boun Manh	Vice head of Mechanic, Division of Technical Affairs	VCSBE
	Mr. Kideng VONGDONXAY	Division of Parts Supplies, Division of Technical Affairs	VCSBE
	Mr. Khamsaen VILASACK	Division of Technical Affairs	VCSBE
	Mr. Khayphavanh	ITS Engineer, Division of Technical Affairs	VCSBE
JICA Project Team	Mr. Toda Toshinori	Team Leader/ Public Transportation/ TBS Operation Plan/ ICT Card Plan	KEI
	Mr. Yoshiro Kunimasa	Deputy Team Leader/ Bus Service/ Human Resource Development 2	KEI
	Mr. Shimegi Natsuki	Corporate Management/ Accounting	KEI (Outsource)
	Mr. Murakami Tadaaki	Bus Route and Operation	KEI (Outsource)
	Ms. Mishima Ai	Bus Service/ Human Resource Development 1 ICT Card Promotion/ TBS Bus Service Information	KEI
	Mr. Kobayashi Kiyohito	Vehicle Management and Maintenance	KEI
	Mr. Isizeki Toshiaki	Vehicle Management (IT)	KEI
	Mr. Murata Minoru	Mechanics	KEI (Outsource)
	Mr. Yashiro Shuichi	Transport and Traffic Plan/ TBS Operation	KEI
	Mr. Miyakawa Akiko	Transportation Facility Plan1	KEI
	Dr. Bhoj Raj Pantha	Transportation Facility Plan2	KEI
	Dr. Ota Katsuhisa	ICT Card Promotion/ TBS Bus Service Information	KEI
	Mr. Oda Seiichi	Advisor of Bus Company	Keisei Bus
	Mr. Fujimoto Takahiro	Advisor of Bus Company	Keisei Bus
	Mr. Aizawa Tsutomu	Advisor of Bus Company	Keisei Bus
	Mr. Suzuki Tadao	Advisor of Bus Company	Keisei Bus
	Mr. Ishibashi Hiroshi	Advisor of Bus Company	Keisei Bus
	Mr. Akiyama Yasuo	Advisor of Bus Company	Keisei Bus
	Mr. Nishida Junji	Advisor of Bus Company	KEI (Outsource)

1.4.4 Schedule of JICA Project Team

There were 19 experts assigned for 39 months. Total assignment of the experts was about 97 man-months.

Table 1.4-3 Schedule of the JICA Project Team (First Year)

Above : Plan
Below : Actual

	Expertise	Name	From	Rating	First Year 2012 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	M/M Total Plan	Actual
Work in Vientiane	Team Leader/ Public Transportation	TODA Toshinori	KEI	2	20 9 (21) 16 29 (14)		8 31 (24) 27 2 (37)	1 30 (30)		11 25 (45)	1 30 (30)			10 23 (45) 10 24 (46)		5.0	4.7
	Team Leader/ IBS Operation Plan	TODA Toshinori	KEI	2													
	Team Leader/ ICT Card Plan	TODA Toshinori	KEI	2													
	Deputy Team Leader/ Bus Service/ Human Resource Development 2	KUNIMASA Yoshiro	KEI	3	20 4 (45) 19 6 (48)								1 15 (45)			3.0	1.6
	Corporate Management/ Accounting	SHIMEGI Natsuki	KEI (Outsource)	3							1 28 (90) 6 3 (90)					3.0	3.0
	Bus Route and Operation	MURAKAMI Tadaaki	KEI (Outsource)	3			1 14 (45) 1 14 (45)				15 28 (45) 12 25 (45)			1 30 (30) 25 23 (30)		4.0	4.0
	Bus Service/ Human Resource Development 1	MISHIMA Ai	KEI	3	17 29 (13)		1 14 (45) 27 2 (37)			1 28 (60) 11 25 (45)				15 13 (30) 10 24 (46)		4.5 3	4.7
	ICT Card Promotion 1	MISHIMA Ai	KEI	3													
	ICT Card Promotion 2	OTA Katsuhisa	KEI	3													
	ICT Card Operation Support	MISHIMA Ai	KEI	3													
	Vehicle Management and Maintenance	KOBAYASHI Kiyohito	KEI	3	1 1 (30) 30 15 (20)			10 9 (30)			9 27 (19)	1 30 (30)			12 30 (19)	3.0	1.9
	Vehicle Management (IT)	ISHIZEKI Toshiaki	KEI	3													
	Mechanics	MURATA Minoru	KEI (Outsource)	3					10 8 (30)					19 17 (30)		1.0	1.0
	Transport and Traffic Plan	YASHIRO Shuichi	KEI	3				1 30 (30)					1 30 (30)			2.0	
	TBS Operation Support	YASHIRO Shuichi	KEI	3													
	TBS Bus Service Information 1	MISHIMA Ai	KEI	3													
	TBS Bus Service Information 2	OTA Katsuhisa	KEI	3													
	Transportation Facility Plan	MIYAKAWA Akiko/ Bhoj Raj Pantha	KEI	4			1 30 (30)	23 22 (30)				21 9 (20)				1.0	1.7
	Advisor of Bus Company 1	ODA Seiichi	KEI (Outsource)	4			1 15 (15)	17 29 (13)				17 31 (15)			1 15 (15)	1.5	0.4
	Advisor of Bus Company 2	FUJIMOTO Takahiro	KEI (Outsource)	4				17 29 (13)									0.4
	Advisor of Bus Company 3	AIZAWA Tsutomu	KEI (Outsource)	4													
	Advisor of Bus Company 4	**SUZUKITadao/ AKIYAMA Yasuo**	KEI (Outsource)	4													
	Advisor of Bus Company 5	ISHIBASHI Hiroshi	KEI (Outsource)	4													
	Advisor of Bus Company 6	**NISHIDA Junji**	KEI (Outsource)	4													
																28.0	23.5
Work in Japan	Team Leader/ Public Transportation	TODA Toshinori	KEI	2	10 15 (6) 11 15 (5)											0.2	0.2
	Bus Seminar Support	MISHIMA Ai	KEI	3													
	ICT Card Operation Support	MISHIMA Ai	KEI	3													
	Advisor of Bus Company	AIZAWA Tsutomu	KEI (Outsource)	4										10 16 (6)		0.2	
	Procurement for Digital Tachograph	KOBAYASHI Kiyohito	KEI	3						15 29 (15) 22 6 (15)						0.5	0.5
	Procurement for Traffic Analysis Software	KOBAYASHI Kiyohito	KEI	3								15 29 (15) 15 29 (15)				0.5	0.5
	Training in Japan						12 24 (13) 12 24 (13)				28 10 (14) 28 10 (14)					1.4	1.2
	Report	Time of Submission					△ IC/R					△ Progress Report I			△ Completion Report I (Japanese Only)		
		JCC						● JCC									
	Monthly Total				1.00 / 1.87	2.23 / 1.87	4.83 / 1.87	2.63 / 3.60	2.03 / 0.87	1.77 / 1.63	2.60 / 4.03	4.97 / 2.73	2.93 / 1.30	3.00 / 2.23	1.70 / 3.67	29.40	24.67

Legend: Plan ■ Actual □

Table 1.4-4 Schedule of the JICA Project Team (Second Year)

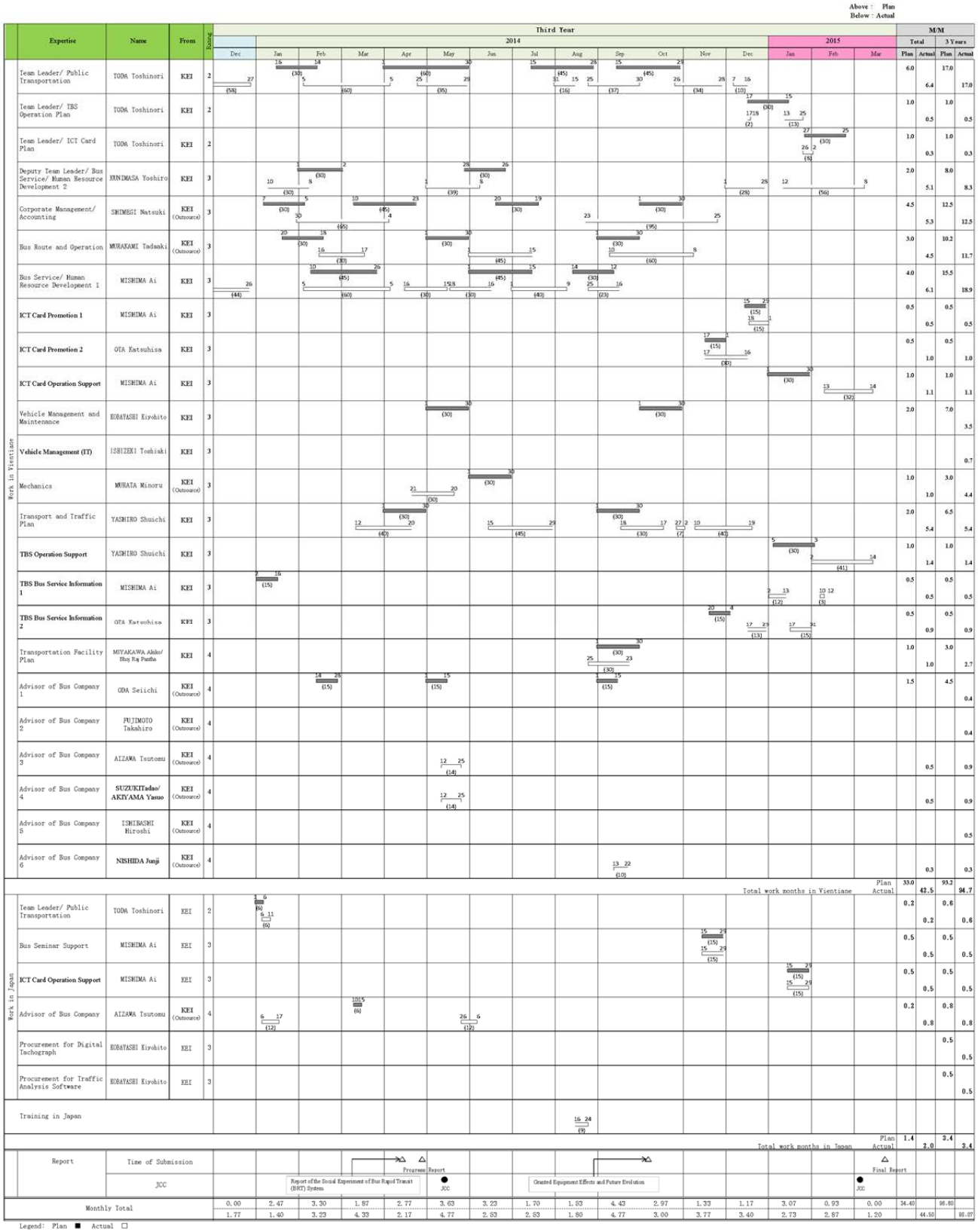
Above : Plan
Below : Actual

	Expertise	Name	From	Rating	Second Year 2013 Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	M/M Total Plan	M/M Total Actual
Work in Vientiane	Team Leader/ Public Transportation	TODA Toshinori	KEI	2	3 28 (26)	17 15 (30) 14 22 (30)			1 (45) 17 12 (26)	15	18	(60)	16	24 (45) 3 28 (26)	7 31 (58)		6.0	5.9
	Team Leader/ TBS Operation Plan	TODA Toshinori	KEI	2														
	Team Leader/ ICT Card Plan	TODA Toshinori	KEI	2														
	Deputy Team Leader/ Bus Service/ Human Resource Development 2	KUNIMASA Yoshiro	KEI	3			1 2 (30) 17 5 (48)			1 30 (30)			16 14 (30)				3.0	1.6
	Corporate Management/ Accounting	SHIMEGI Natsuki	KEI (Outsource)	3		7 (90) 1 6 11 (70)				1 30 (30) 3 29 (27)			23 19 (28)		10 8 (30)		5.0	4.2
	Bus Route and Operation	MURAKAMI Tadaaki	KEI (Outsource)	3			1 5 (36) 1 10 25 23 (38)		(30)	1 30 28 24 (30)	(28)			15 14 (30)			3.2	3.2
	Bus Service/ Human Resource Development 1	MISHIMA Ai	KEI	3	28 (26)	15 13 (30) 14 22 (30)		1 29 (60)	17 12 (26)	1 30 (30)	1 30 (30) (60)	15 29 (15) 31	20 18 (30) 3 17 (15)		1 15 (15) 7 6 (31)	1 30 (30) 13 (44)	7.0	8.1
	ICT Card Promotion 1	MISHIMA Ai	KEI	3														
	ICT Card Promotion 2	OTA Katsuhisa	KEI	3														
	ICT Card Operation Support	MISHIMA Ai	KEI	3														
	Vehicle Management and Maintenance	KOBAYASHI Kiyohito	KEI	3		15 5 (22)		1 30 (30)					20 13 (25)	1 30 (30)			2.0	1.6
	Vehicle Management (IT)	ISHIZEKI Toshiaki	KEI	3			1 21 (21)											0.7
	Mechanics	MURATA Minoru	KEI (Outsource)	3						1 30 (30) 1 30 (30)				8 19 (12)	14 12 (30)		1.0	2.4
	Transport and Traffic Plan	YASHIRO Shuichi	KEI	3				1 30 (30)						15 29 (45)			2.5	
	TBS Operation Support	YASHIRO Shuichi	KEI	3														
	TBS Bus Service Information 1	MISHIMA Ai	KEI	3														
	TBS Bus Service Information 2	OTA Katsuhisa	KEI	3														
	Transportation Facility Plan	MIYAKAWA Akiko/ Bhoj Raj Pantha	KEI	4		10 8 (30)											1.0	
	Advisor of Bus Company 1	ODA Seiichi	KEI (Outsource)	4				1 15 (15)			10 24 (15)			1 15 (15)			1.5	
	Advisor of Bus Company 2	FUJIMOTO Takahiro	KEI (Outsource)	4														
	Advisor of Bus Company 3	AIZAWA Tsutomu	KEI (Outsource)	4											21 3 (14)			0.5
	Advisor of Bus Company 4	**SUZUKITadao/ AKIYAMA Yasuo**	KEI (Outsource)	4											21 3 (14)			0.5
	Advisor of Bus Company 5	ISHIBASHI Hiroshi	KEI (Outsource)	4											21 3 (14)			0.5
	Advisor of Bus Company 6	**NISHIDA Junji**	KEI (Outsource)	4														
																	32.2	29.0
Work in Japan	Team Leader/ Public Transportation	TODA Toshinori	KEI	2		1 6 (6) 4 9 (6)											0.2	0.2
	Bus Seminar Support	MISHIMA Ai	KEI	3														
	ICT Card Operation Support	MISHIMA Ai	KEI	3														
	Advisor of Bus Company	AIZAWA Tsutomu	KEI (Outsource)	4						2025 (6)					1015 (6)		0.4	
	Procurement for Digital Tachograph	KOBAYASHI Kiyohito	KEI	3														
	Procurement for Traffic Analysis Software	KOBAYASHI Kiyohito	KEI	3														
	Training in Japan												15 28 (14) 17 30 (14)					
																	0.6	0.2
	Report	Time of Submission							△ Progress Report II							△ Completion Report II (Japanese Only)		
		JCC					● JCC											
	Monthly Total				0.00 / 1.73	2.83 / 1.97	3.07 / 4.60	5.67 / 2.63	2.33 / 2.23	2.70 / 1.93	3.93 / 2.70	1.53 / 1.03	1.47 / 0.70	3.87 / 2.83	3.90 / 2.57	1.50 / 2.47	32.80	29.17

Legend: Plan ■ Actual □

KEI : Katahira & Engineers International

Table 1.4-5 Schedule of the JICA Project Team (Third Year)



1.5 Method of Project Implementation

1.5.1 Preparations for the Project

(1) Confirmation, Review and Analysis of the Updated Information

The latest information about the operational and financial situation of VCSBE, Public transportation policy and relating activities by other donors were confirmed.

Table 1.5-1 Public Transportation Project in Vientiane Capital

Project	Donor	Objective	Proposed Plan
(1) Master Plan on Comprehensive Urban Transport in Vientiane (2008)	JICA	・Road network ・Traffic management ・Public transportation (PT share 10% ⇒ 25%)	・Ring road construction ・Traffic management Shuttle bus service
(2) The Project of Improvement of Public Transportation Capacity (2010)	JICA	Increase in capacity of bus public transportation	Grant aid of 42 new big buses (Arrival in July 2012)
(3) The Project to Enhance the Capacity of VCSBE (This Project) (2012-2015)	JICA	Urban public bus service of VCSBE is improved	Technical Assistance for C/P ・MPWT ・Vientiane City ・VCSBE
(4) Low-emission Transport Study (2012)	JICA	・Preliminary feasibility of introducing low emission transport ・Propose model projects	・100 EV pioneers subprogram for Vientiane ・EV tourism subprogram for Luang Prabang ・EV introduction support subprogram
JCM for Low Carbon Emission	MOE		
Preliminary Study for the Design and Implementation of the Bus Business Improvement System (2015)	JICA	・Applicability of the “Eagle Bus Business Improvement System” in VCSBE	・Data collection sub-system on the passenger number counting ・Data visualization subsystem ・Cycle implementation subsystem
BRT Project	ADB		

Source: JICA Project Team

(2) Working Group for each activity

At the beginning of the Project, working groups of each activity were planned to be established. However, due to restriction of staff capacity in VCSBE, nominated personnel to each working group was duplicated. Therefore the Project decided to conduct weekly

meetings with core members of C/Ps and conduct activities in the weekly meeting.

In addition, in order to consider the financial support to VCSBE from the government of Lao, a working committee was organized in the project.

(3) Formulation of the project implementation plan and the Objectively Verifiable Indicators

Present operation record and technical report were reviewed in terms of selection of the objective verifiable indicators.

The baseline survey was planned to conduct each year, but not conducted in the first year and the second year, while other survey results were utilized. A project of the Ministry of Environment of Japan (MOE), conducted surveys on the new buses in terms of operational monitoring, fuel consumption, passenger counting, user interview, traffic counting on the road, etc.

(4) Preparation for new bus operation

1) Activities for new bus operation

The project prepared bus yard, recruited and trained bus drivers for the new buses, planned new bus operation, and publicized to the citizens.

2) Arrival of new buses (JICA Grant)

In 2012, a total of 42 new buses and maintenance equipment by JICA Grant Project were transported by land from Bangkok to Vientiane Capital. The records of the delivery date and details numbers of buses and equipment are shown in Table 1.5-2. The 42 new buses were planned to be delivered until 30 April 2012, however due to flood in Bangkok, there was about one (1) month delay on the delivery date, thus the handover ceremony of the new buses was only held on 19 June 2012.

Table 1.5-2 Delivery Date of New Buses

No	Name	Quantity	Date of Arrival
1	Maintenance Equipment (First batch)	2 containers	18 Apr, 2012
2	Bus（1 batch） with Parts	7 vehicles	23 Apr, 2012
3	Bus（2 batch）	8 vehicles	25 Apr, 2012
4	Bus（3 batch）	8 vehicles	22 May, 2012
5	Bus（4 batch）	7 vehicles	24 May, 2012
6	Bus（5 batch）	6 vehicles	29 May, 2012
7	Bus（6 batch）	6 vehicles	6 Jun, 2012
8	Parts	1 set	13 Jun, 20112

Source: VCSBE inspection records

3) Prepare bus yard

It was planned to prepare a bus yard for the new buses, before their arrival. However, the

JICA Project Team recommended utilizing old northern bus station for bus yard and VCSBE considered it. The old northern bus station can be used for waiting space for buses during CBS reconstruction.

4) Recruitment and training of new bus drivers

VCSBE needed 42 drivers for new buses. The drivers for new buses were selected from existing drivers and new drivers were hired for old buses instead of them. VCSBE hired 48 new drivers including stand-by drivers. The drivers for new buses were selected based on two factors, (a) skilled and experienced in bus driving; and (b) particular knowledge of the bus route.

Grant scheme gave initial training for administrators and drivers, respectively. Grant scheme also provided training for vehicle maintenance. Based on those initial trainings, the Project prepared manuals required for new bus operation and continued trainings. Especially, “daily pre-work”, “safety-driving” and “maintenance” were focused, because some bus operation companies in Japan, including Keisei bus, advisor of the Project, emphasized the importance of those activities.

5) Operation plan

VCSBE prepared operation plan of new buses with the assistance of the JICA Project Team. The routes of the new buses were determined in the view of the number of passengers and keeping the new buses to be well-maintained. Since road rehabilitations were conducted on some routes, those routes had been operated by mini buses or suspended bus operation until completion of the rehabilitation works. VCSBE requested DPWT to speed up rehabilitation works through weekly C/P meetings. In July 2012, five (5) routes were operated by new buses out of eight (8) candidate routes.

1.5.2 Procurement of Equipment

The Consultant procured and delivered following equipment in accordance with the procurement procedures of JICA. For “a demonstration experiment of ICT Smart Card”, the JICA Project Team also procured and installed the required equipment, and conducted the demonstration experiment.

- Digital Tachograph（42 units）
- Analytical Software for Digital Tachograph with a personal computer and a printer (1 set)
- Traffic Demand Forecast and Analysis Software (JICA STRADA) and Personal Computers for its operation (3 sets)
- Personal Computer (3 units）

1.5.3 Improve Financial Management (Activity 1)

1.5.3.1 Improve Financial Management (Activity 1-1)

(1) Prepare Financial Statement (1-1-1)

To prepare financial statements for VCSBE, baseline survey was conducted on internal management regulation, existing accounting system, procedures, relevant regulations, information required for account statement, etc. Furthermore, the expert of the Project visited and conducted survey on other state owned companies and private companies, such as MPWT, MOF, Lao Airlines, etc.

Workshops on financial accounting of VCSBE were held. Through the workshops and regular meetings, relating laws, accounting system and financial sheets were reviewed.

Comprehensive analysis of the financial status of VCSBE was conducted and prepared financial statements.

(2) Prepare a Medium-term Business and Investment Plan (1-1-2)

To formulate a Medium-term Management and Investment Plan, a series of consultations were conducted with C/Ps in the first year. Financial status of VCSBE was clarified in the second year, then “the Mid-Term Management Plan 2015-2019” was formulated.

(3) Improve the Ticketing and Fare Collection System with MPWT (1-1-3)

To improve the ticketing and fare collection system, cashless system was considered in order to keep cash handling away from bus drivers. The ICT ticket system was raised to be considered as a pilot project. In order to install a sustainable system for VCSBE, availability of IT companies in Vientiane was studied. Likewise, during the conduct of technical research on ICT system, the Student Bus Pass was proposed and with consensus among concerns, it was introduced as a pilot project. Through the pilot project, sustainable cooperative framework between VCSBE and IT capable Lao company was built and the Student Bus Pass was to be continued by Lao side even after the Project.

(4) Improve the Passenger and Income Recording System (1-1-4)

Present passenger recording system and income recording system were studied. In order to analyze daily passenger and income data, computerization of the passenger and income recording system, MS-Excel trainings were recommended. After the training, spread sheets for passenger and income recoding system was introduced.

(5) Expand Income Sources Other than Bus Fare (1-1-5)

An advertisement on the outside of a bus was considered to expand income sources of VCSBE. VCSBE requested the Chitchareune Construction Company for providing store booths in the new CBS to be rented for kiosks. A new student bus pass was introduced.

(6) Take Attractive Measures for Potential Bus Users (1-1-6)

As an attractive measure of potential bus users, bus use safety education and bus use promotion were planned and prepared. National University of Laos (NUOL) was regarded as potential bus users because there were about 20,000 students and staffs mainly commuting to Dongdok one of the major bus route terminals. It was also expected to get the student familiar to public bus services, after several years later, they would use public buses instead of commuting by private cars or motorcycles.

The student bus pass was introduced and commenced promotions to students of the NUOL, and other colleges and high schools along the bus routes.

1.5.3.2 Improve Competence of Human Resources (Activity 1-2)

(1) Improve Staff's Capacity for Management & Operation Including Accounting, Planning, Operation, Maintenance & Training (1-2-1)

1) Accounting and Management of Corporate

Workshops were conducted to VCSBE financial staffs for 15 times in total. The contents of workshops were from the beginning of financial accounting to exercising of financial analysis.

2) Planning for Bus Operation

In order to prepare an operation plan of new green buses, workshops were conducted intensively in 2012. Since the reconstruction of the CBS was raised, temporary bus stops plans and bus operation plans were also considered. Those issues were continuously discussed through the project period.

3) Transportation Planning

The software of traffic demand forecast and analysis, JICA STRADA, was provided to enhance the capacity of transport planning. On 16 November, 2012, three (3) sets of software with personal computer were provided to DoT/MPWT, VCSBE and the Faculty of Engineering of National University of Lao (NUOL). The reason of providing JICA STRADA to NUOL was corresponding to the request from C/P to disseminate the transport planning technology to upcoming officers and engineers of Lao for the future.

Workshops were conducted six (6) times, cumulative participants were 69.

(2) Improve Daily Bus Operation Based on the Operation Regulation (1-2-2)

1) Daily Pre-work

The JICA Project Team reviewed daily pre-work of drivers and instructed drivers for necessary works for bus operation. Keisei bus, advisor of the project, introduced Japanese

actual operation to drivers. Keisei bus also gave advised executives for bus operation improvement.

2) Bus Driver Training

The JICA Project Team advised to utilize digital Tachograph and the analytical software for driver's safety driving. VCSBE started instruction for drivers upon the results of daily driving record. Keisei bus introduced Japanese bus driver's daily works by Video. Keisei bus also instructed effective acceleration works to drivers.

3) Fuel Control

The JICA Project Team advised to utilize digital Tachograph and the analytical software for fuel control. VCSBE started verifying operation records.

4) Preparation of Manuals

Manuals for bus vehicle and equipment for bus maintenance were translated into Lao. Presentation materials used in seminars and workshops were prepared as manuals.

(3) C/P Training in Japan

Training in Japan was prepared and conducted four (4) times through the Project. For the first year: two (2) times from 12 to 24 March, 2012 and from 28 July to 10 August, 2012. For the second year: 18 to 31 August, 2013. For the third year: from 16 to 23 August, 2013.

The project prepared candidate trainees and considered suitable training plan with C/Ps. Keisei Bus took an important role for training to VCSBE in Japan.

1.5.3.3 Improve Equipment for O&M and Relevant Facilities (Activity1-3)

(1) Install Bus Operation Control Equipment (1-3-1)

The 42 digital Tachographs were installed to the new buses and conducted training in October 2012. Through the project, the digital Tachograph was utilized to control fuel consumption and safety driving.

(2) Improve Each Bus Operation and Vehicle Maintenance Recording System by Computer for Management and Planning (1-3-2)

Computerized parts and vehicle management was installed. Even though the technical department of VCSBE did not have any computer at that time, after the training, VCSBE purchased computers by own budget and started new management.

Fare collection and passenger records were also digitalized in order to analyze the financial status of VCSBE accordingly.

(3) Improve Arrangement and Operation of Central Bus Station and Bus Stop Facilities, if any (1-3-3)

Since the reconstruction of the CBS was approved in February 2012, present CBS was not to be improved anymore. Besides, VCSBE had to negotiate about the design of the new CBS with the construction company. The Project Team advised VCSBE in the view of technical aspects of the bus operation at the new CBS and TBS.

1.5.3.4 Conduct Public Bus Transportation Pilot Program (Activity1-4)

BRT (Bus Rapid Transit) system and ICT system were studied. The first idea was the shuttle bus service between the central bus station and the National University of Laos (NUOL), Dongdok campus. However, through the discussion with C/Ps, route no.14 (CBS – Friendship Bridge) was selected and partially installed temporary bus exclusive lane, at the front of the VCSBE workshop on Tadua road, from 17 to 21 June 2013.

Student Bus Pass with ICT system was studied and installed as a pilot project.

1.5.4 Improve Competence of Human Resource (Activity 2)

1.5.4.1 Establish Transportation Committees for Effective Bus Use (Activity 2-1)

At first, C/P suggested utilizing the National Road Security Committee (NRSC) instead of establishing a new transportation committee. The Project Team requested C/Ps to establish a transportation committee under the NRSC at the regional level. However, the NRSC was not conducted in 2012. Secondary, the Provincial Road Safety Committee was recommended to contact. This committee did not take proper action for the project. Finally, the project concluded to establish transportation committee at NUOL. Besides establishing a transportation committee, the Project discussed with the Mayor, the Vice Mayor, and the Minister of MPWT for the smooth implementation of the Project.

1.5.4.2 Collect Request and Needs for Public Bus Service (Activity 2-2)

The project conducted some interview surveys to bus users, NUOL students and potential bus users. Facebook was also utilized to collect requests and needs for public bus services.

1.5.4.3 Set Criteria to Evaluate Bus Service and Target Levels of Public Bus Service (Activity 2-3)

Bus service indices were studied about European standards and American standards. Statistics in VCSBE were also studied. Comprehensively considered those studies, criteria and target levels suitable for VCSBE were set.

1.5.4.4 Plan and Review Bus Routes and Bus Stop Locations Responding to Community Demand (Activity 2-4)

Bus routes were revised several times during the project in accordance with community's

requests and road rehabilitation completion. Bus stop was an issue of discussion; city buses have stopped not only bus stops, but anywhere along the route on the demand of passengers.

1.5.4.5 Implement Bus Services Improvement Measures (Activity 2-5)

Web site and Facebook of VCSBE were established. An operation hour of bus was prolonged for 30 minutes. New bus routes were tried and the number of bus routes was increased.

1.5.5 Improve Public Bus Policy and Plan (Activity 3)

1.5.5.1 Review and Establish a Proper Bus Fare Structure (Activity 3-1)

The working group for financial support of VCSBE was established and the working group reviewed present fare system. Bus fare systems in other Asian countries were studied and shared with C/Ps through workshops. Training in Japan was also utilized to discuss about proper fare structure in Lao. ICT card system and its fare structure were studied as an alternative method to introduce cashless fare collection system. To introduce the Student Bus Pass, a proper fare structure was studied.

1.5.5.2 Review Subsidy Policy for Public Bus Transportation Plan (Activity 3-2)

Above mentioned working group for financial support of VCSBE studied subsidies in Lao. The conclusion was reported to the Mayor and the Mayor requested tax concession of VCSBE to the Government of Lao.

1.5.5.3 Develop Medium-term Public Bus Transportation Plan (Activity 3-3)

Present policies regarding public bus in Lao were reviewed. "The National Strategy and Action Plan on Environment Sustainable Transport, Lao PDR" set a target share of public bus in Vientiane Capital in 2015 and 2020. To cope with the targets, the project studied required bus numbers to be operated.

1.5.5.4 Promote Establishment of Collaboration Mechanism with Other Public Transportation Modes of Para-transits (Tuk-tuk, Jambo, Sonteo) (Activity 3-4)

DPWT is in charge of control para-transits in Vientiane Capital and MPWT is in charge of para-transit of inter provincial.

The Vientiane Capital has a policy not to increase Tuk-tuk and Jambo, therefore DPWT has not approved registrations new Tuk-tuk in these days. Since the reconstruction plan of the CBS was approved, TBS allocation required coordination between concerns, including VCSBE and para-transits. Those issues have been managed by DPWT and Vientiane Capital.

DoT/MPWT ordered to move north bound long distance buses to the Northern Bus Station

(NBS) from the CBS. VCSBE canceled such bus services, besides private operators undertook a role. On the other hand, VCSBE started frequent bus service between the CBS and NBS.

1.5.5.5 Promote Public Bus Transport Preferential Measures (Activity3-5)

Traffic police was invited to the regular meetings and discussed about public bus promotion in the view of traffic safety. BRT pilot project was also discussed as a measure of public bus promotion and in order to commence the BRT pilot project, illegal parking was strictly enforced.

1.5.5.6 Update Public Transportation Policy and Plan (Activity3-6)

The Project made an advice on revising the road transport law, and the law was legislated in 2012.

1.5.6 Conduct Safe and Smooth Bus Operation at Temporary Bus Station (Activity 4)

1.5.6.1 Advice for TBS Construction (Activity4-1)

The Project made an advice on TBS construction. The construction work is included concession contract between Vientiane Capital and the developer. The developer is in charge of the construction of TBS.

1.5.6.2 Conduct Safe and Smooth Bus Operation at TBS (Activity4-2)

The Project conducts safe and smooth operation at TBS.

1.5.6.3 Promote Safe and Smooth Bus Operation at TBS (Activity4-3)

The Project promotes safe and smooth bus operation at TBS.

1.5.6.4 Improve Surrounding Traffic Facilities (Activity4-4)

The Project improves surrounding traffic facilities at TBS.

1.5.7 Maintain New CBS Function (Activity 5)

1.5.7.1 Advice for the Detailed Design Plan (Activity5-1)

The Project Team gave advices for the concept design of the new CBS in terms of bus operation. The advice was also reflected to detailed design plan.

1.5.7.2 Advice for Modification of the Detailed Design during Construction (Activity5-2)

The Project Team planned to give advices for modification of the detailed design during construction. However, the construction works have not started at the end of the Project.

1.5.7.3 Advice for Completions Inspection of New CBS (Activity5-3)

The Project Team discussed with DPWT for completions inspection of the new CBS.

1.6 Achievement of the Project

Table 1.6-1 Project Achievement

Description	PDM Activities	Results 1st Year Nov 2011 ~ Nov 2012	Results 2nd Year Dec 2012 ~ Nov 2013	Results 3rd Year Dec 2013 ~ Mar 2015	Further Actions
(1) Overall Goal	Public bus service coverage in Vientiane is expanded.				
(2) Project Purpose	Urban public bus service of VCSBE is improved.	Trip: Sep. 2012 Base: 177 trip/day (2010) Result: 263 trip/day Plan: 211 trip/day (2015) Bus Capacity: Sep. 2012 Base: 196,000 km/day Results: 373,600pop-km/day Plan: 331,000pop-km/day (2015)	Trip: Sep. 2013 Results: 225trip/day Plan: 211 trip/day (2015) Bus Capacity: Sep. 2013 Results: 377,700pop-km/day Plan: 331,000pop-km/day (2015)	Trip: Sep. 2014 Results: 256trip/day Plan: 211 trip/day (2015) Bus Capacity: Sep. 2014 Results: 332,000pop-km/day Plan: 331,000pop-km/day (2015)	
(3) Output【1】 Corporate management is improved by VCSBE.	【1】 1-1. Improve financial management	1. Review of preparation process for a medium corporate plan 2. Financial analysis & sheets preparation (1) Confirmation of account system for public corporation (2) Confirmation of account law (3) Review of financial sheets including P/L and B/C (4) Training of new account system (5) Review of cash flow 3. Improvement of fare collection 4. Improvement of fare system and structure (1) IC ticket demonstration in Lao University (2) Introduction plan preparation (3) ICT system (1st plan) preparation with specification and B/Q (4) Review of pre-paid card (5) Fare structure review (6) One-man bus introduction 5. Bus users extension plan (1) Preparation of traffic committee at Lao University (2) Publicity and advertisement, Bus user's survey (3) Bus User Survey (4) Test operation of new route (ITEC) (5) Preparation of Bus use safety education and bus use promotion	1. Check process of financial sheets preparation 2. Overall analysis of the present financial performance and the past operating result 3. Interview survey (MPWT DOP, MOF DOA, Lao Airline, DATA Com, Water Supply, LTEC, and MOF Tax Dep.) 4. Interview survey of VCSBE 5. Check inner working process /account system 6. Check operation status and management accounting 7. Fare calculation and profit/loss analysis 8. Review of subsidies in other countries 9. Review of operation results after new bus grant 10. Recommendation report on subsidies by working group	1. Preparation of medium term corporate management plan (1) Basic Principle of Management (2) Financial Plan (3) Actual operation according to the approaches (4) Relationship among stakeholders 2. Discussion of measures to improve profits of VCSBE (1) P/L and risk for student bus pass (2) Fare setting of SBP	1. Implement medium term corporation management plan 2. Improve financial management of VCSBE to purchase new buses by own budget
	1-2. Improve competence of human resources	1. C/Training in Japan (2 trips & 10 staffs) 2. Preparation of manuals for operation regulation improvement (1) Digital tachograph operation (2) Financial management (3) New bus drive and management	1. Excel training to improve operation and vehicle maintenance capacity 2. Training to improve the capacity of finance & account i) 1st: Financial account ii) 2nd: Cost reduction iii) 3rd: Management characteristics & profit improvement iv) 4th Introduction of cash flow calculation v) 5th : Unit cost calculation vi) 6th: Organization reform vii) 7th : Exercise of preparation of VCSBE C/F viii) 8th: VCSBE Financial analysis 3. JICA STRADA Training i) 1st: Outline and STRADA introduction ii) 2nd: Traffic demand focus and excises by Excel iii) 3rd: JICA STRADA exercise iv) 4th : Project Evaluation	1. QC training for bus operation and vehicle maintenance i) Cost analysis of maintenance ii) Cost analysis for spare part iii) Data analysis of Digital tachograph iv) Fuel data analysis v) Review of integration with account program 2. Training to improve the capacity of finance & account i) New account system & training of B/S revision ii) Revising Profit/Loss calculation iii) Cash flow calculation 3. JICA STRADA training at Engineering Faculty of NUOL v) 5th : Interchange Analyzer a. Demand forecast and interchange analysis b. Interchange survey and traffic analysis 4. Bus operation and driver Training ・Drivers training ・Management Seminar	

Description	PDM Activities	Results 1st Year Nov 2011 ~ Nov 2012	Results 2nd Year Dec 2012 ~ Nov 2013	Results 3rd Year Dec 2013 ~ Mar 2015	Further Actions
			4.3rd Training in Japan: 8 C/Ps: from 8 August 2013 for 14days	5.4th Training in Japan: 5 C/Ps: from 16 August 2014 for 7 days	
	1-3. Improve equipment for O&M and relevant facilities	1. Installation of equipment for bus management (1) Digital tachograph (42 units) (2) Computer set・STRADA (3 sets) 2. Improvement of data recording system of operation and maintenance (1) Training of Digital Tachograph management (2) Computer use for parts and vehicle management (3) Improvement of operation of CBS& bus stops (4) Safety operation in CBS (5) Discussion of a land for new bus station in NUOL (6) Review of bus routes (7) Review of time table of each route <u>Activity not to be done for a new CBS plan</u> -Improvement of CBS facility	1. Training of cost analysis done by staff of VCSBE (1) Setting of data collection system ・Fuel supply data by computer (2) Computer system of documentation ・Preparation of operation flow (3) Assistance in analysis capacity of VCSBE staff 3. Training of vehicle maintenance i) Proper maintenace by equipment provided by grant aid ii) Planned exchange of parts provided by grant aid 4. Preparation of driving and maintenance manual i) Translation of relevant parts of maker manual into Lao	1. Training of cost analysis done by staff of VCSBE (1) Setting of data collection system i) Training of operation management by Digital tachograph ii) Fuel supply data by computer (2) Computer system of documentation i) Review of operational flow 2. Data use for review of routes with management judgment (1) Present operation review i) Route and bus allocation ii) Study of recording method (2) Proposal of data system and its analysis 3. Training of vehicle maintenance i) Procurement planning of spare parts 4. Preparation of driving and maintenance manual i) Utilize manuals	1. Accurate Passenger Recording System 2. Visualize present bus use
	1-4. Conduct Public Bus Transportation Pilot Program	1. Study of BRT social experiment 2. Preparation of BRT social experiment <u>Additional activity</u> <u>Assistance in VCSBE workshop renovation plan by JICA follow-up project</u>	1. Implementation of BRT social experiments: Setting a bus exclusive lane on Tadua road, 300m at VCSBE workshop from 17 to 21 June 2013 2. Preparation of introduction of ICT ticketing system as social experiment (1) Review of system specification and cost estimation (2) Coordination with ADB project	1. Recommendation for BRT Implementation i) Study of BRT implementation on Kayson Road (Traffic Survey & Analysis, Meeting and Consultation with C/Ps, traffic signal control, bus stops, publications, etc.) ii) Recommendation for improvement of traffic signal control 2. ICT student bus pass social experiment (1) Tender and contract (2) Test run (3) Operation	1. SBP targets on freshmen during enrollment season in September and October 2. Introduce variety period of bus pass, such as 3 months, 6months and one year 3. Extend the bus pass system to all citizens in Vientiane Capital in the future 4. Utilize present ICT bus card system and expand the functions in the future
【2】 Measures for improvement of VCSBE's service are implemented in Vientiane responding to citizens' requests.	2-1 Establish transportation committees for effective bus use	1. Preparation of transportation committee at NUOL	1. Setting of traffic meeting with NUOL for student bus pass 2. Seminar on Public Bus Use for students of NUOL 3. The Discussion Meeting of the Traffic Safety Training Campaign Preparation	1. Meeting with NUOL 2. Bus Pass Seminar at NUOL and other schools 3. Bus potential users survey by district	
	2-2 Collect requests and needs for public bus service	1. Bus use survey for students of NUOL 2. Review of service requirement from the student	1. Survey of bus use survey and its analysis	1. Meeting for NUOL bus pass 2. Questionnaire Survey to NUOL students at bus pass seminar 3. Questionnaire to purchasers of bus pass 4. Public Opinion through Facebook of VCSBE	
	2-3 Set criteria to evaluate bus service and target levels of public bus service	1. Analysis of bus user survey data 2. Use of bus user survey by MOE project in December 2012	1. Setting of bus operation index with VCSBE 2. Study of bus user survey method	1. Summary of Bus Service Level	
	2-4 Plan and review bus routes and bus stop locations responding to community demand	[Activates to be planned in 2nd Year] 1. Review of route extension from Friendship bridge to Tadua 2. Operation of CBS and Tadua	1. Revival of CBS-Nongtha-Dongdok(No.33) 2. Extension to SEA Game Village	1. Discussion with NUOL for new routes 2. New routes for Northern Bus Terminal 3. Extension of route :No.14 to Budda Park 4. GIS training for bus location	1. Introduction of community bus services in the highly population density and accessibility constrained areas 2. Introduce new medium size buses

Description	PDM Activities	Results 1st Year Nov 2011 ~ Nov 2012	Results 2nd Year Dec 2012 ~ Nov 2013	Results 3rd Year Dec 2013 ~ Mar 2015	Further Actions
				planning	
	2-5 Implement bus services improvement measures (ex. Service coverage ratio. Actual/Plan)	[Activates to be planned in 2nd Year] 1. Study of bus user information by setting Website 2. Preparation of bus user safety education and a promotion program	1. Preparation of setting a website of VCSBE - Letter submission to VC & MPWT for Website opening permit 2. Time extension of the last bus by 30 mts. from CBS: No.14 & No. 29 3. Trial of revival 16 routes which are abolished before	1. Preparation of setting a website of VCSBE - Setting Website and Coordination with other Websites: MPWT, Tourist, & Facebook 2. Review of time extension 3. Study of procedure of open and close bus routes	1. Increase public bus service area
【3】 Public transportation policies and plans favourable to public bus are established.	3-1 Review and establish a proper fare structure	1. Review of a flat fare at C/Meeting 2. Data collection for operation cost by digital tachograph 3. Survey for bus fare in other countries 4. Leaning of bus fare structure at training in Japan 5. Review of introducing bus fare periodic card 6. Review of incentives for IC prepaid card	1. Review of a flat fare at C/P meeting	1. Review of bus drivers wages 2. Training of capacity improvement for financial and account management, regarding cost management and fare setting	1. Establish price for each variety periods of bus pass
	3-2 Review subsidy policy for public bus transportation	1. Leaning of subsidies in Japan 2. Study of introducing subsidies 3. Study of preferential tax 4. Study of subsidies to student bus pass	1. Working group for financial subsidies 2. Recommendation of subsidies plan to the City	1. Advice for setting subsidies	1. Follow-up tax concession process 2. Consider subsidy for VCSBE in the future
	3-3 Develop medium-term public bus transportation plan	[2nd Year activity]	1. Meeting for preparation of public bus transportation plan	1. Prepare public bus transportation plan	1. Authorize Medium-term Public Bus Transportation Plan
	3-4 Promote establishment of collaboration mechanism with other public transportation modes of para-transits (Tuk-tuk, Jambo, Sonteo)	[2nd Year activity]	1. Discussion with coordination with para-transit	1. Setting of coordination with paratransit on TBS	
	3-5 Promote public bus transport preferential measures	1. Discussion with traffic police at C/P meeting 2. Plan for BRT social experiment in 2nd Year	1. Setting the working group with Traffic police 2. Advice at BRT social experiment	1. Setting of bus preferential or exclusive lane, enforcement of illegal parking removal	1. Enforce the roadside parking regulation with the traffic police as a part of the bus preference measures
	3-6 Update public transportation policy and plan	1. Advice for revising the road transport law, and the law was passed by parliament.	1. Advice for new CBS and TBS plan 2. Bus safety school seminar for promotion of bus use and safety: 26 October 2013	1. Advice for new CBS and TBS plan 2.. Proposal for study on master plan of transportation in Vientiane 3. Bus seminar by Japanese bus companies	1. Coordinate with other donors in public transport policies and projects
		Following Activities are conducted by voluntary base in the 1st year	Additional activities by revised PDM	Construction of TBS B from June 2014 to January 2015. TBS A and C are not started yet.	
【4】 Safe and smooth bus operation is conducted at the temporary Bus Station (TBS).	4.1 Advice for TBS construction 4.2 Conduct safe and smooth bus operation at TBS 4.3 Promote safe and smooth bus use at TBS 4.4 Improve surrounding traffic facilities	As issuance of a new CBS plan in March 2012, voluntary advice to a CBS plan started by JICA instruction. 1. Advice for temporary bus station plan 2. Advice for safety operation at TBS	As PDM revised at JCC in 2013, Activities 4.1 & 4.2 started, while Activities 4.3 & 4.4 needs input increase from Japan side.	4.1 Advice for construction of TBS A,B and C 4.2 Preparation of new operation plan 4.3 Information 4.4(1) Advice and planning for smoothness with sounding traffic and facilities 4.4(2) coordination with Tuk-tuk and Sonteo	1. Implementation and monitoring of TBS operation plan
【5】 New CBS function is secured.	5.1 Advise for a DD plan 5.2 Advise for a modification of DD during construction 5.3 Advise for completion inspection of new CBS	1. Advise for new CBS plan	Advise for new CBS design i) One floor plan, refusing underground and 2nd floor design ii) Natural ventilation design iii) Coordination with surrounding development plan	Advice for Construction 5.1 Advise for detailed design of CBS 5.2 Advice for design revision during construction 5.3 Advice of completion inspection of a New CBS	1. Preparation of a bus operation plan at new CBS

2. Project Activities

The flow chart of the Project is shown in Figure 2.1-1.

2.1 Arrangement of the Meeting

2.1.1 Joint Coordinate Committee (JCC)

The Project Coordination Meetings were held to discuss on the progress of the Project with three (3) counterpart organizations and various stakeholders. The kick-off meeting was held on 27 January, 2012. Prior to this meeting, a pre kick-off meeting for the VCSBE staff and key concerned persons was conducted in advance to discuss some issues and to confirm the contents of the inception report. The first Joint Coordinate Committee (JCC) was successfully conducted on 24 April, 2012. JCC meetings were conducted four (4) times through the project, three (3) for the annual progress and one (1) for the evaluation of the project. At the second JCC meeting on 12 February, 2013, the Project Design Matrix of the Project was revised and approved by the JCC.

Table 2.1-1 Joint Coordinate Committee Meetings

Year	No.	Date	Meeting	Attendee	Description
1st	1	25 Jan, 2012	Pre Kick-off Meeting for VCSBE	19	· Project Outline
	2	27 Jan, 2012	Kick-off Meeting	34	· Project Outline
	3	24 Apr, 2012	JCC (First)	32	· Discussion and agreement on the Inception report
2nd	4	26 Dec, 2012	Review of Project Design Matrix	22	· Review of Present Project Design Matrix · Additional Work for New CBS Construction
	5	12 Feb, 2013	JCC (Second)	29	· Agreement on the revised PDM · Set-up the working group for preparation for financial support policies
3rd	6	12 May, 2014	JCC (Third)	26	· Progress of the project · Confirmed the schedule of TBS and CBS · Student Bus Pass · Time Table installation
	7	8 Aug, 2014	Discussion Meeting with JICA Head Quarter	12	· Bus Operation · TBS/ CBS · JCC Meeting Results
	8	6 Mar, 2015	JCC (Fourth)	24	· Achievements of the Project · Evaluation of the Project

2.1.2 Special Meeting

In this project, special meetings were held to discuss issues and concerns in implementing the pilot projects among high level members.

On 13 November, 2012, public transportation issues in Vientiane Capital were discussed among C/Ps with DoE/VC and Handicap International. The problems of the reconstruction of CBS were shared and bus safety campaign was agreed to conduct.

On 29 April, 2013, the Discussion Meeting of Public Transport in Vientiane Capital was held with the attendance of the Mayor of Vientiane Capital, the Minister of the MPWT and the Ambassador of Japan to the Lao PDR. At the meeting, tax exemption for VCSBE was basically agreed to formulate to a short term policy and subsidy from the government would be considered as a long term policy. The outline of a BRT pilot project and an ICT card system to be installed as a pilot project were also agreed.

On 23 December, 2013, Meeting on Introduction of ICT student bus pass social experiment and Future Optimum BRT System Introduction was chaired by the Mayor. The results of BRT pilot project were reported and lessons and learns were noted. Scheme of the student bus pass and BRT system to be implemented were discussed and agreed.

On 11 March 2014, Discussion Meeting was chaired by the Vice Mayor. The Project reported the results of BRT Experiment Preliminary Survey on Kayson Phomvihane Road.

Table 2.1-2 Special Meeting

Year	No.	Date	Meeting	Attendee	Description
1st	1	13 Nov, 2012	Meeting on Road Traffic and Safety Issues in Cooperation with Traffic Relevant Organizations	20	· Traffic Safety Class for pupils · Promotion of bus use · Temporally Bus Station · BRT
2nd	2	29 Apr, 2013	Discussion Meeting of the Public Transport in Vientiane Capital	20	· Tax concession and subsidy to VCSBE · BRT implementation · Extension of bus operating hours · CBS/ TBS · Small/electric bus was requested to Japan
3rd	3	23 Dec, 2013	Meeting on Introduction of ICT student bus pass social experiment and Future Optimum BRT System Introduction	30	· Apply Japanese model in order to help the traffic relief by using public transportation · Discussion on implementing the Project · Public Bus Used Festival
	4	11 Mar, 2014	Discussion Meeting of the BRT Experiment Preliminary Survey Result report	19	· Preliminary Survey Results on Kayson Phomvihane Road · Required prior preparation for BRT lanes
	5	11 Jan, 2015	Discussion on Introduction of Varity of Bus Pass for Student and Ordinary	10	· Measure of expanding user of student bus pass · Introduce various durations of bus pass · Expand to ordinary people

2.1.3 Seminar and Workshop

Following seminars and workshops were conducted for C/Ps. Details are shown in each section and appendix.

Table 2.1-3 Number of Seminar/ Workshop

No.	Theme	Number of Seminar/Workshop
1	Accounting and Management of Corporate	15
2	Planning for Bus Operation	8
3	Transportation Planning	6
4	Maintenance	3
5	Drivers' Training and Seminar by Keisei Bus	2
6	Digital Tachograph	5
7	Discussion on BRT with high-level officers	2
8	Bus Service Level	4
9	GIS Training	4
10	Fare and Subsidy	5
11	Traffic Safety	2
12	Japanese Bus Experience	2
13	University Bus Pass Seminar	Refer to "Report of the ICT Student Bus Pass Social Experiment"

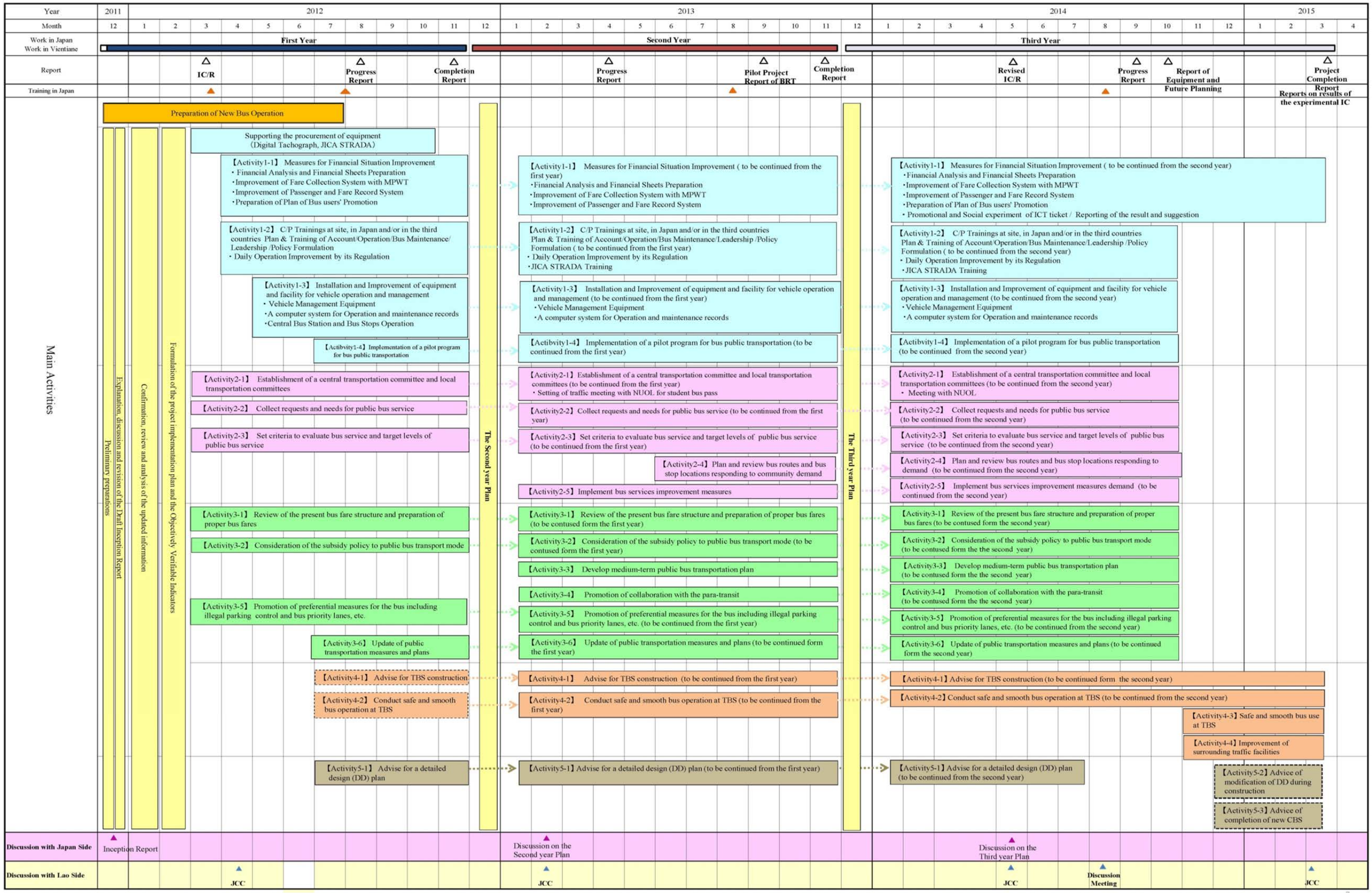


Figure 2.1-1 Project Flow Chart

2.1.4 Related Activity

The JICA Project Team participated in a MLIT seminar on 20 January 2012, presented the Project outline and exchanged opinions with the stakeholders (Lao side: counterparts, public transport organizations, Japanese side: MLIT and bus companies). Useful opinions and suggestions from the seminar were gained and reflected into the project plan.

ADB commenced NMT project and BRT project in Vientiane. The Project Team consulted with ADB consultants and experts, exchanged opinions on public transportation in Vientiane.

Dr. Nakamura, Yokohama National University, supported this project and conducted some lectures when the C/Ps came to Japan. He also came to Vientiane and conducted some seminars for the C/Ps.

Table 2.1-4 Related Activity

No.	Date	Activity	Organization	Description
1	20 Jan, 2012	Public Private Seminar on Bus System and BRT in Vientiane	MLIT	· Outline of Policies on Automobiles and Bus Services in Japan (MLIT) · Current Conditions and Future Prospects for Urban Public Transport in Vientiane (MPWT) · Proposal for Bus Rapid Transit in Vientiane (Dr. Nakamura, Yokohama National University) · Bus Related Activities by JICA and "Project to Enhance the Capacity of Vientiane Capital VCSBE" (JICA) · Overview of Nishitetsu Bus
2	10 Sep, 2012	Meeting	Dr. Nakamura, Yokohama National University	· Clock-wise timetable · Night-time bus service · Fare box and receipt (and IC card) · Driver's salary, training and motivation · Bus terminal design · Curb-side bus lanes
3	8 May, 2013	Special Meeting	ADB Consultant	· Discussion on ADB traffic project
4	17 May, 2013	Meeting between MLIT and VCSBE at VCSBE	MLIT	· Discussion on Public Bus Transportation System in Vientiane Capital
5	3 Jul, 2014	National Capacity Building Workshop on Sustainable and Inclusive Transport Development	UNESCP and UN-Habitat	· Presentation on Public Bus Transportation in Vientiane City
6	30 Oct. 2014	3rd Asia Smart City Conference (ASCC)	The City of Yokohama, supported by MOFA, MOE and JICA	· A global platform to share best practices, technologies and expertise and to discuss actions and challenges of sustainable, resilient and competitive urban development among representatives of emerging Asian countries and international organizations.
7	21 -26 Jan, 2015	JICA Project	Eagle Bus	· Bus Operation and Management · Bus System · Site Survey

2.2 Bus Delivery

New green buses transported by land from Thai to Vientiane in six (6) times. Finally, all 42 buses arrived in June 2012, and operation started in July 2012.

Arrival of First Batch

All 42 Buses

Handover Ceremony

Ceremony for Start Operation

Vientiane to have 42 new buses

Meuangkham Noradeth

Forty-two new buses donated by the Japanese government will be in service by the end of this year, improving transportation in Vientiane.

The Department of Transport and the Japan International Cooperation Agency (JICA) on Tuesday held the first Joint Coordinating Committee Meeting for the Project to Enhance the Operations of Vientiane Capital State Bus Enterprise (VCSBE).

The meeting consulted on and approved a yearly project plan, evaluated and listened to the progress of the project and finalised an implementation plan, according to the Director General of the Department of Transport, Mr Viengsavath Siphandone.

"I am pleased to say that next month we will see the arrival of all the 42 brand new low-emission buses in Laos," said the Chief Representative of the JICA Laos Office, Mr Masato Togawa.

He said the buses will go a long way towards upgrading public transport in Vientiane.

He also expected the introduction of the vehicles would help to ease congestion and reduce overall carbon emissions by decreasing the number of motorbikes and cars on the road as more people opt to use public transport.

The project aims to improve the quality of bus transport and restore the public's faith in state-run bus services.

The VCSBE will improve vehicle operations and management as well as corporate financial management, to improve its capacity to repair old buses and to add more after JICA's involvement in the project ends.

In Vientiane, the number of registered vehicles rose from 112,827 in 2002 to 365,903 in 2009, along with an uncountable increase in the number of motorcycles. The increases are attributed to economic growth, rapid urbanisation and population growth, according to a project report.

Director of VCSBE Mr Khamphone Temerath said seven of the buses had already arrived, eight more will arrive today and the remainder will arrive next month, after which a plan will be set up to put the buses into service.

Initially, test services will run from the Morning Market bus station to the National University of Laos Dongdok campus, the Lao-Thai Friendship Bridge, Mittaphab Hospital and to Donedeng, Dongkhamxang, Tha-ngone, Nongtaeng and Thongpong villages, he added.

Mr Khamphone said bus fares still need to be considered but guaranteed that all services would depart on time.

The new buses arrive in Vientiane.

News Article of Vientiane Times on 25 April, 2012

Figure 2.2-1 Arrival of New Bus

2.3 Corporate Management of VCSBE (Act 1)

2.3.1 Improve Financial Management (Act 1-1)

(1) Prepare Financial Statement (1-1-1)

Based on a corporate financial analysis conducted, financial statements have been prepared through the procedure as shown below.

Table 2.3-1 Procedure for Preparation of Financial Statement

Activities	Items	Context
1. Baseline survey of VCSBE	Internal management regulation, existing accounting system, accounting procedure including duties, existing voucher system, current situation of the fixed asset ledger and each ledger required for the balance sheet	Conduct with C/P
2. Baseline survey of relevant regulation	Current revision status on Law on Accounting 2008 and other relevant regulations 2005	Conduct interviews on preferred level of information disclosure to relevant agencies and organizations, donors, banking institutions and stock market
3. Gather information required for account statement	Account heading and heading code	Interview survey as above.
4. Prepare balance sheet	Prepare first balance sheet from the simple accounting heading through checking balances	Hold workshops for counterpart on the importance of the first balance sheet
5. Support introduction of book keeping	・Information transfer requires once only as a process for information disclosure. ・On introduction of new accounting system, encourage good communication between supplier and C/P, and develop capacity to allow appropriate instruction as required.	・Keep C/P involvement to minimum for transfer activity ・Finalize based on comments of VCSBE, other corporations, Private companies and the government
6. Conduct training of book keeping	・Survey current bookkeeping ability among staff of the financial section ・Aims that a toll staff to acquire knowledge equivalent to level 3 of booking keep accredited by Japan Chamber of Commerce and Industry, and level 2 for staff of management /chief level	Assist implementation of short-term training
7. Prepare Cash Flow Statement (C/S)	Preparation of C/S, which have 2 methods for preparation and display, as well as different merit and demerit	Examine an option to adopt with C/P through workshops

Source: JICA Project Team

(2) Prepare a Medium-term Business and Investment Plan (1-1-2)

A midterm business and investment plan was prepared. This activity is elaborated in section “2.5.3 Develop Medium-term Public Bus Transportation Plan (Act 3-3)”.

(3) Improve the Ticketing and Fare Collection System (1-1-3)

1) Present Fare System and Fare Collection System

The present fare system is a flat fare system determined by the route. The fare is determined by a formula of distance and operating costs, including labor costs, fuel cost, maintenance cost, etc. In the view of student support, the fare price between CBS and Dongdok is set cheaper price than the formula.

Bus tickets for intercity buses and international buses are sold at the ticket selling booth. Whereas, the city bus is paid in cash, hand in hand from a passenger to a driver or a conductor. Collected fare is submitted to the financial department of VCSBE, everyday.

2) Discussion on Ticketing and Fare Collection System

The JICA Project Team discussed on the ticketing and fare collection system with C/Ps. Introducing a fare by distance was considered, but concluded difficult to implement under present capacity of VCSBE. ICT system was studied to modernize the fare collection system and considered to be introduced as a pilot project.

Seminar of the ICT ticket system was conducted at the Faculty of Engineering of NUOL and discussed the feasibility of the system in Vientiane Capital.

Table 2.3-2 Seminars for ICT Ticketing System

Year	No.	Date	Seminar / Workshop	Participants
1st	1	20 Jan, 2012	"Public Private Seminar on Bus System and BRT in Vientiane" · JICA's Bus Related Activities and "Project to Enhance the Capacity of Vientiane Capital VCSBE" (JICA)	About 100
	2	9 July, 2012	Seminar on Green Transportation and ICT Ticketing System at Faculty of Engineering of NUOL	157

- Target

1st Plan: The Project considered introducing cashless system. It was regarded as difficult to install a full cashless system at once, therefore it was planned to install gradually, 1) install receipt for ticket selling, 2) ICT card and cash simultaneous use, and 3) sole use of ICT card. Based on this plan, a specification of the installing ICT card system was prepared by N-wave, a Japanese ICT company experienced introducing ICT system in Bangladesh by JICA.

2nd Plan: The detailed financial statements of VCSBE were turned out and turned down the 1st plan, which requires operation and maintenance cost not affordable to VCSBE. The Project conducted market research and found that prepaid card system had introduced to the Friendship Bridge. As it regarded as precedent, prepaid card system was considered.

3rd Plan: The project conducted technical research on ICT of system developers in Lao. Considering the ability, Student Bus Pass was considered. The student bus pass is valid for whole city bus routes. The first target was NUOL, later enlarged to all school students, teachers and staffs in Vientiane Capital. This plan was discussed with the Mayor, the Minister of MPWT, the president of NUOL and others on 23 Dec, 2013

3) Student Bus Pass

The student bus pass was planned and decided to be introduced as a pilot project. The pass system adopted the ICT card system.

(4) Improve the Passenger and Income Recording System (1-1-4)

1) Present Passenger Income Recording System

Divers of the city bus submit daily incomes to the financial department of VCSBE, day by day after the operation at CBS.

VCSBE sets a planning number of passengers to each route per round trip. The planning number is an average passenger, and regularly counted by the staffs of the planning department. A driver has to submit the amount of fare of the planning number multiple to the trip of a day. In case, the total daily fare amount is less than the planning number, a driver should pay later. Or the total daily fare amount is more than the planning number, driver can take the surplus.

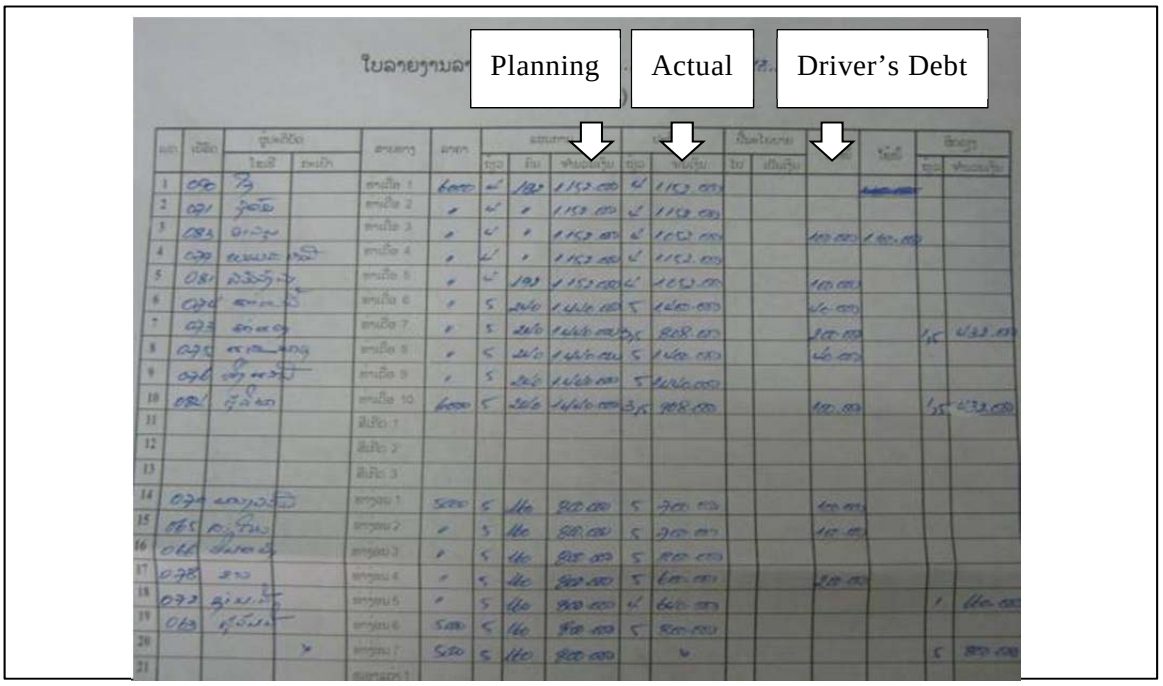


Figure 2.3-1 Income Recording Paper

In August 2012, a split sheet file (MS-Excel) was introduced. The financial department and the planning department share the information of the number of operations per vehicle with this spreadsheet.

ສະຫລຸບລາຍຮັບແຕ່ລະສາຍທາງຂອງວັນທີ 1 / 6/ 2014.

Bus	Bus Staff				Planning			Actual				Balance		Debt
No	Driver	Conductor	Route	Price	Trip	No Pssg	Total	Trip	Total	Debt	Ticket	Trip	Total	Payment
11	ຄຳເພັດ		ດອນປ່າໃໝ່1	2,000	3	45	90,000	2.5	75,000			0.5	15,000	
12	ອຸລາ		ດອນປ່າໃໝ່2	2,000	3	45	90,000	3	90,000					
13	ຊຽງທອງ		ດອນປ່າໃໝ່3	2,000	3	45	90,000					3	90,000	
ລວມ	ລົດໝໍ້ໄຟ				9	135	270,000	5.5	165,000			3.5	105,000	
073	ສົມພູ		ໜອງແຕ່ງ 1	4,000	5	90	360,000	5		360,000				
074	ວັນຄຳ		ໜອງແຕ່ງ 2	4,000	5	90	360,000	5	250,000	110,000				
079	ຄຳແດງ		ໜອງແຕ່ງ 3	4,000	5	90	360,000	5	330,000	30,000				
090	ບຸນລາດ		ດົງຄຳຊ້າງ1	4,000	5	125	500,000	3	300,000			2	200,000	
077	ຕືວຄຳ		ດົງຄຳຊ້າງ2	4,000	5	125	500,000	5	500,000					
047	ໄຊ່		ດົງຄຳຊ້າງ3	4,000	5	125	500,000	5	500,000					
064	ສຸລິຍາວົງ		ດົງຄຳຊ້າງ4	4,000	6	150	600,000	6	500,000			1	100,000	
085	ສີສຸພັນ		ດົງຄຳຊ້າງ5	4,000	6	150	600,000	6	600,000					
061	ໃພບຸນ		ດອນປ່າໃໝ່1	2,000	6	150	300,000	6	300,000					
069	ພອນປະເສີດ		ດອນປ່າໃໝ່2	2,000	6	150	300,000	6	300,000					
072	ສຸລິຍາ		ດອນປ່າໃໝ່3	2,000	6	150	300,000	6	300,000					
083	ຄຳຕາ		ດອນປ່າໃໝ່4	2,000	6	150	300,000	6	300,000					
086	ໄຊຍະສິດ		ນ້ຳຊວ່ງ	10,000	2	52	520,000	2	480,000	40,000				
	ລົດນ້ອຍ				68	1597	5,500,000	66	4,660,000	540,000		3	300,000	

Figure 2.3-2 Spread Sheet of Income Record

2) Discussion and Trial on Passenger Income Recording System

Present passenger income collecting system of the city bus is cash in hand. It has a limitation of accuracy in fare collection and data collection of passenger movements. The JICA Project Team raised an idea of cash free and automatically passenger recording system with low operation costs. To realize this idea, ICT card was studied. At first, an ITS company, N-Wave was hired to prepare a specification for ICT card system procurement. N-Wave had an experience to introduce ICT bus card system in Dhaka, Bangladesh. However, their proposed system required maintenance and operation cost annually, which was not affordable to VCSBE. The JICA Project Team reconsidered and studied ability of ITS companies in Vientiane Capital. In consideration of such abilities, simplified system was proposed, which was a student bus pass for whole city bus route valid for one year.

In February 2015, ICT card system was introduced as a pilot project.

(5) Other Income Sources (1-1-5)

1) Other Income Source at Present

Present income is mainly fare income with a few rental car fees, an advertisement and payment from small shops in the CBS. In 2014, other income sources share only 2% of whole income.

2) Discussion on Other Income Source

Advertisement on the body of a bus was prohibited at the beginning of the project. However, the safety campaign was a trigger to alleviate the advertisement on the body, after that the regulation has been changed and started advertisement on bus body and inside of the bus.

First Advertisement for Road Safety

Advertisement on Bus Body

Figure 2.3-3 Advertisement on Bus

(6) Attractive Measures for Potential Bus Users (1-1-6)

Campaigns and promotions were conducted as a part of pilot program aiming to expand bus users.

Table 2.3-3 Campaigns for Pilot Program

Activity	Implementation schedule	Objective	Target	Media
Press release	Beginning of and during the Project as required	Encourage understanding and collaboration with the Project	Public	Newspapers / Television
Campaign Promoting the use of public bus service	After the completion of the procurement of new vehicles and installation of equipment as required	Increase bus user number	Public (employee and student in particular)	Newspapers / Television/Educational activities for company and educational institution
Publicity of pilot program	Before and during implementation of pilot program	Explain pilot program and promote understanding	Public	Newspapers / Television /Radio

Source: JICA Project Team

National University of Laos (NUOL) was a target to promote and attract bus service in this project. Various activities were conducted at NUOL as Bus Seminars and the Student Bus Pass promotions as the prime example. Student Bus Pass promotions were expanded to other colleges and secondary schools along the bus routes.

Table 2.3-4 Bus Pass Seminar

Year	No.	Date	Seminar	Attendee	Description
2nd	1	9 Mar, 2013	Public Bus Use for Students of NUOL	24 + NUOL Students(about 200)	· Project Outline · Vientiane Capital Public Bus Survey Results · Public Bus Service Standard / Training / Social Experiment · Financial Management of Public Bus Enterprise
3rd	2	2014 - 2015	Student Bus Pass Promotion	More than 8,000	· Student Bus Pass Promotion at NUOL and other Colleges and Secondary schools

2.3.2 Improve Competence of Human Resources (Act 1-2)

2.3.2.1 Improve Staff's Capacity for Management & Operation (1-2-1)

(1) Accounting and Management of Corporate

Following seminars and workshops were constantly conducted. Main participants were VCSBE staffs.

Table 2.3-5 Workshops for Account and Management

Year	No.	Date	Seminar / Workshop	Participants
1st	1	10 Aug, 2012	Outline of financial accounting	11
	2	7 Sep, 2012	Cost reduction	11
	3	27 Sep, 2012	The features of the management of the public bus company& Revenue growth	4
2nd	4	15 Mar, 2013	Introduction of Cash Flow Statement	12
	5	5 Apr, 2013	Cost per unit analysis	11
	6	4 Jun, 2013	Organization Structure Reform	7 At Regular Meeting
	7	21 Jun, 2013	MS-Excel Training for Accountant	8
	8	5 Sep, 2013	Exercise to make C/F	11
	9	16 Sep, 2013	Financial Analysis	11
	10	19 Feb, 2014	Management Planning	6
3rd	11	27 Feb, 2014	External Environment Analysis	6
	12	11 Mar, 2014	Exercise of Financial Analysis	7
	13	26 Mar, 2014	Price Setting for University bus Pass	6
	14	13 Nov, 2014	Consensus building on Management Plan and Finance	9
	15	21 Nov, 2014	Report of Progress of Management Plan	18

(2) Planning for Bus Operation

In the first year, preparation for new green bus was a main issue. After the new CBS construction plan turned out, CBS and TBS were issues of discussion. The JICA Project Team advised to VCSBE to secure bus operation during the construction and after the construction.

On 30 October, 2013, Keisei Bus conducted seminar for VCSBE staff to introduce better management of the bus operation. On 1 November, Keisei Bus gave advices to management class of VCSBE.

On 14 July, 2014, in order to formulate the mid term public bus transportation plan, a

seminar was conducted and reviewed transport M/P and present situation.

On 19 September, 2014, the newest traffic counting technology was introduced.

Table 2.3-6 Workshops for Bus Operation Planning

Year	No.	Date	Seminar / Workshop	Participants
1st	1	12 Mar, 2012	Preparation of New Bus Operation	7 At Regular Meeting
	2	9 May, 2012	Public Transport Facility Planning and Design	7 At Regular Meeting
	3	18 May, 2012	Good Public Transport Facility	6 At Regular Meeting
	4	28 Aug, 2012	Temporary Bus Stop During construction of CBS	7 At Regular Meeting
2nd	5	30 Oct, 2013	- Roll call and Bus operation management - Shuttle bus operation - Bus fare setting	18
	6	1 Nov, 2013	Bus Operation Seminar for Executives	3
3rd	7	14 Jul, 2014	Seminar for Public Bus Transportation in Vientiane Capital	15
	8	19 Sep, 2014	Traffic Counting by Smartphone and ITS application	13

(3) Transportation Planning

Workshops were conducted using JICA STRADA at the faculty of engineering of NUOL.

Table 2.3-7 Workshops for Transportation Planning

Year	No.	Date	Seminar / Workshop	Participants
2nd	1	1 Mar, 2013	Introduction of Transportation Planning	8
	2	7 Mar, 2013	Outline of Transportation Demand Forecast, - Excel practice, - Practice 1 : Update Network	10
	3	15 Mar, 2013	Practice 2 : One-way Traffic Regulation in CBS	6
	4	22 Mar, 2013	Other Program Modules	6
3rd	5	24 & 25 Feb, 2014	Introduction of Traffic Engineering	26
	6	14 May, 2014	Intersection Analysis	13

Picture 2.3-1 JICA STRADA Training on 14 May, 2014

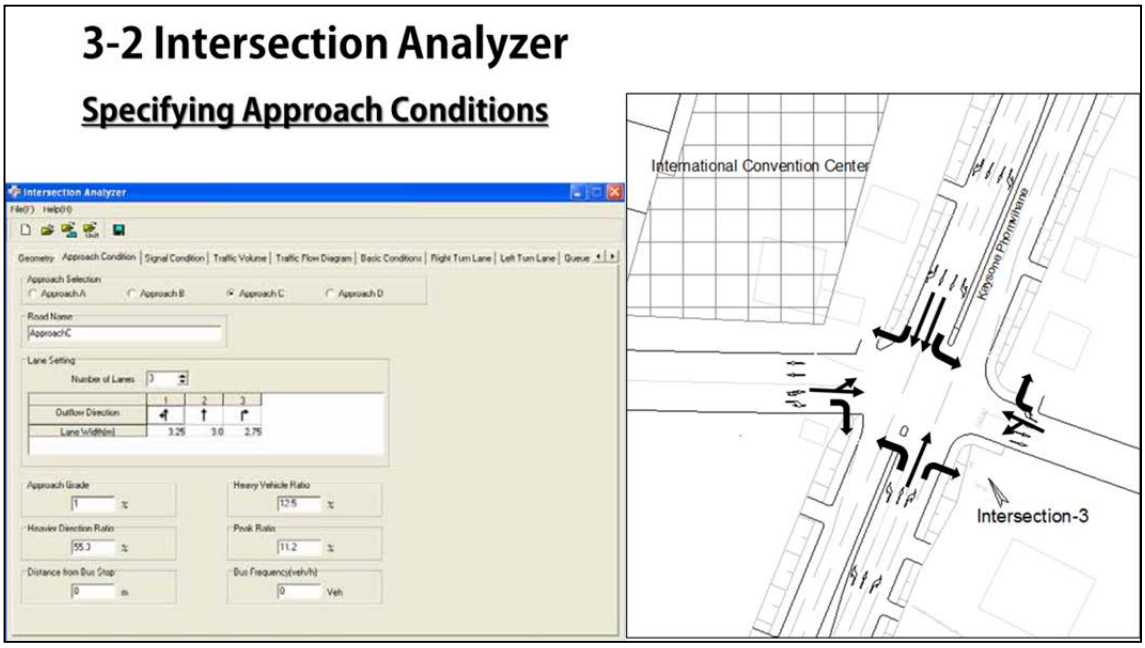


Figure 2.3-4 Explanation of Intersection Analyzer (a component of JICA STRADA)

(4) Maintenance

The Project Team conducted following workshops in order to well maintain new buses. The expert of Mechanic had conducted on-the-job training in the workshop of VCSBE. The maintenance record sheets were proposed to be introduced.

Table 2.3-8 Workshops for Maintenance

Year	No.	Date	Seminar / Workshop	Participants
2nd	1	19 Feb, 2013	IT Introduction for Maintenance	8
	2	23 May, 2013	Daily Maintenance Training	16
3rd	3	15 May, 2014	Quality Control (QC) & Digital Tachograph Analyze	8

Training in the Meeting Room

Check an Engine Belt by Gauge

Picture 2.3-2 Workshop for Daily Maintenance

Account Name: **Inventory Daily Sheet** **Type of vehicle……. Code……...**

Number of Account : **VCSBE** **Part number…….. Type of part……...**

Certificate		Unit	Price	Total monthly receipt				Monthly stock issue					Monthly balance out standing		Remark
Date	Number			Quantity	Cash	Credit	Total	Quantity	Production	Maintenance	Management	Total amount	Quantity	Price	

Maintenance Record

Bus No:……. Plate Number:…… VIN Number:……

Date	Kilometre number	Part number	Quantity	Price	Total	Number	Name

Source: JICA Project Team

Figure 2.3-5 Proposed Maintenance Records

2.3.2.2 Improve Daily Bus Operation Based on the Operation Regulation (1-2-2)

(1) Daily Pre-work

Drivers come to the office in the morning and fills up a working record, then pick up the key of the bus. Before departure, drivers check engine oil and cooling water.

Coming to the office at CBS

Working Record

Key box in the office

Check engine oil and cooling water

Picture 2.3-3 Pre-work by Driver

(2) Bus Driver Training

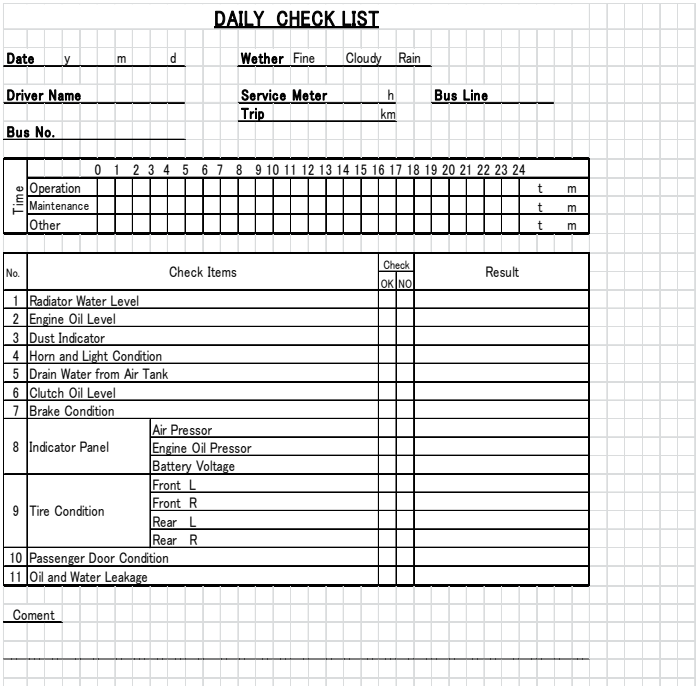
The driver's meeting had been conducted every two weeks. At the meeting, efficient driving was trained by a manager of drivers. Daily driving records of each driver are analyzed and utilized for driving improvement.

Keisei bus, advisor of this project, conducted a workshop for drivers. The training was focused on efficient driving for fuel consumption and to respect passengers. It also introduced drivers' daily works of Keisei bus in Japan. Keisei bus also conducted a seminar for managers of bus drivers. In the seminar, Keisei Bus proposed bus timetables for terminals and bus stops on the route, and explained the payroll system of Keisei Bus.

Table 2.3-9 Workshop and Seminar for Bus Deriver

Year	No.	Date	Seminar / Workshop	Participants
3rd	1	22 May, 2014	Bus Driver's Training by Keisei Bus	50
	2	23 May, 2014	Seminar for Managers of Bus Drivers by Keisei Bus	5

Picture 2.3-4 Bus Driver Training by Keisei Bus



DAILY CHECK LIST

Date y m d Wether Fine Cloudy Rain

Driver Name Service Meter h Bus Line

Trip km

Bus No.

Time	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		
Operation		t	m
Maintenance		t	m
Other		t	m

No.	Check Items		Check OK	Check NO	Result
1	Radiator Water Level				
2	Engine Oil Level				
3	Dust Indicator				
4	Horn and Light Condition				
5	Drain Water from Air Tank				
6	Clutch Oil Level				
7	Brake Condition				
8	Indicator Panel	Air Pressor			
		Engine Oil Pressor			
		Battery Voltage			
9	Tire Condition	Front L			
		Front R			
		Rear L			
		Rear R			
10	Passenger Door Condition				
11	Oil and Water Leakage				

Coment

Figure 2.3-6 Draft Daily Check List for a Driver

(3) Fuel Control

Fuel consumption control is the crucial issue for the finance of VCSBE. VCSBE started to utilize digital Tachograph to control fuel consumption. The technical department manages digital Tachograph data and summarizes operation trips of each green bus. The summary is compared to trip record managed by planning department. If there is a discrepancy between two records, the driver is inquired. Upon an actual operation, refilled fuel is determined.

(4) Manuals

Based on material developed for meetings and seminars for the Project, operation manuals were prepared.

Table 2.3-10 Prepared Manuals for VCSBE in the Project

Manual	Approach	Organization/ Department
1. Maintenance & management for equipment & machinery : digital Tachograph and system	• Translate attached manuals by the grant project in English to Thai	VCSBE/ Technical Dep.
2. Guideline for bus service evaluation	• Refer to EU standard and the Highway Capacity Manual (HCM)	VCSBE/ Planning Dep.
3. Transportation planning/traffic survey	• Prepare Demand Forecast Model (JICA STRADA) Manual • Instruction of Methodology for baseline survey	NUOL/ Faculty of Engineering
4. Financial management	• Seminar and workshops	VCSBE/ Financial Dep.
5. Vehicle management & maintenance	• Revise VCSBE manuals through workshops	VCSBE/ Technical Dep.

Source: JICA Project Team

2.3.2.3 Training in Japan

Training in Japan was conducted for 4 times through the whole period of the Project.

Table 2.3-11 Training in Japan

Category	Planning	Operation management	Operation/ vehicle maintenance
First Year, First Training in Japan: 14 days in March 2012			
Target organization and group (5persons)	Three members of MPWT	One member of Vientiane Capital (Director General of DPWT)	One member of VCSBE (Director of VCSBE)
Training implementation body and site visit	MLIT/Keisei Bus/Geiyou Bus/University of Hiroshima/ Okayama City/ Hiroshima City		
Training content	Public Transportation Plan/ TDM/ Law and regulation related to Bus transportation and management/ Bus operation & management/ Evaluation system of bus service/ Bus Station/ Digital tachograph/ driver management (daily management)/ Bus corporate management/ vehicle maintenance/ BRT/ ICT fare collection system demonstration /Bus traffic safety		

Category	Planning	Operation management	Operation/ vehicle maintenance	
	education			
First Year, Second Training in Japan: 14 days in July 2012				
Target organization and group (5persons)	One staff of MPWT	One staff of Vientiane Capital	Three staff of VCSBE	
Training implementation body and site visit	MLIT/Keisei Bus/ Hiroshima Electric Railway/ Okayama City/ Matsuyama City Bus/ driving lesson school			
Training content	Bus operation management/ Bus route location/ Passenger service/ ICT fare collection and data collection system/ Law and regulation related to Bus transportation/Bus vehicle maintenance/ BRT/ Bus Drivers' Education			
Second Year, Third Training in Japan: 14 days in August 2013				
Target organization and group (5persons)	One member of MPWT	Two members of Vientiane Capital	Two members of VCSBE	
Training implementation body and site visit	MLIT/Eagle Bus/Keisei Bus/TOSHIBA company/Nagoya University/Okayama City/ Ryobi Bus/Tamano Community Bus/Sagamihara City/Kanacyu Bus/Dr.Nakamura lecture			
Training content	Law and regulation related to Bus transportation and management/ TDM/ Subsidy for bus operation/ Bus corporate management/ Data collection and analysis system of bus service/ Bus operation and financial management / EV/ Revitalization of deficit local bus operation/ Community bus service in remote area/ Bus route selection/ Bus user service/ Bus maintenance & management/ Environmentally sustainable transportation connecting Bus and bicycle use / BRT			
Third Year, Fourth Training in Japan: 5 days in August 2014				
Target organization and group (8persons)	Two members of MPWT	Three members of Vientiane Capital	One member of Ministry of finance	Two members of VCSBE
Training implementation body and site visit	MLIT/ Eagle Bus / Kawagoe City / Yokohama City / Yokohama City Bus			
Training content	TDM/ Law and regulation related to Bus transportation and management / Bus drivers' management/ Bus corporate management / Bus operation and financial management / Data collection and analysis system of bus service / Bus operation by state enterprise and private bus company			

Source: JICA Project Team

2.3.3 Improve Equipment for O&M and Relevant Facilities (Act 1-3)

2.3.3.1 Install Bus Operation Control Equipment (1-3-1)

Digital Tachograph was installed in 42 new buses in order to manage bus operation. The digital Tachograph can record driving hours, distance, tachometer, and speed. The analytical software analyzes operation records by each driver, in terms of safety driving and fuel efficiency and cost performance.

From 24 to 29, October 2012, the digital Tachograph was installed in 42 buses. A personal computer for management with the analysis software was installed in the office as well as a printer. An orientation about the effect of utilizing the Tachograph and its management

method was conducted for administrative personnel. Another orientation about the effect of utilizing the Tachograph and its handling method was also conducted for the bus drivers. After that, the digital Tachograph was started to operate in November 2012.

Installation

Installing condition

Picture 2.3-5 Installation of Digital Tachograph

Table 2.3-12 Digital Tachograph Training for VCSBE

Year	No.	Date	Seminar / Workshop	Participants
1st	1	29 Oct, 2012	Digital Tachograph Seminar for driver	10
	2	29 Oct, 2012	Digital Tachograph Seminar for driver	13
	3	12 Nov, 2012	Digital Tachograph Seminar for driver	21
	4	13 Nov, 2012	Digital Tachograph Seminar for driver	16
	5	14 Nov, 2012	Digital Tachograph Seminar for Administrator	7

2.3.3.2 Improve Each Bus Operation and Vehicle Maintenance Recording System by Computer for Management and Planning (1-3-2)

At the beginning of the project, all records of VCSBE relating bus operation, bus fare collection, maintenance record, and fuel consumption were written by hand.

Through this project, VCSBE started to utilize personal computers and record information in electric format. Vehicle operation and maintenance records are regularly reported in the weekly C/P meeting and shared among executives of VCSBE.

([illegible])Weekly Record for Bus Operation

(ວັນທີ)From Date : 13 ເດືອນ 01 ປີ 2015 (ຫາ)To (ວັນທີ) Date : 19 ເດືອນ : 01 ປີ 2015

No	Rout No	Rout Name	Planned: Bus operation	Planned: Passenger/Trip	Planned: Passenger	Planned: Trip	Actual: Passenger	Actual: Trip	Actual: Bus operation	Actual: Average Pass/Trip	No of operation day	Compare with plan Trip	Compare percent %	Compare with pass/Trip last week	Compare percent %	Remark
1	30	Thongpong	2	34	2618	77	2010	75	2	27	7	(-2)	97.40%	(+2)	108.00%	Driver get sick
2	49	Nongteang	2	20	1400	70	989	59	2	17	7	(-11)	84.29%	(+4)	130.77%	Bus reparing + Driver get sick
3	33	Nongtha	2	32	2464	77	1960	72	2	27	7	(-5)	93.51%	(+3)	112.50%	Driver get sick
4	31	Phontong	6	45	11025	245	9739	231	6	42	7	(-14)	94.29%	-	100.00%	Driver get sick
5	29	Dongdok	6	54	13608	252	12581	242	6	52	7	(-10)	96.03%	-	100.00%	Traffic jam + Driver get sick
6	23	Thangon	6	57	11571	203	10390	186	6	56	7	(-17)	91.63%	(+2)	103.70%	Traffic jam + Accident +Driver get sick
7	14	Friendship Brig	10	65	22295	343	20455	324.5	10	63	7	(-18.5)	94.61%	-	100.00%	Bus reparing +Driver get sick
8	09	Thalard	[illegible] 20/03/14 [illegible] (Stop operation since 20/03/14 for waiting improvement)													
9	08	North Bus terminal	4	46	7406	161	6981	159	4	44	7	(-2)	98.76%	(-1)	97.78%	Bus reparing
10	47	Donenoakkoon	1	15	630	42	369	42	1	9	7	-	100.00%	(-2)	81.82%	-
11	minibus	Thongpong	[illegible] 13/9/14 [illegible] 20/29/14 [illegible] (Start operation 13/9/14.Stop operation 20/29/14 by using new buses operation)													
12	minibus	North Bus terminal	[illegible] 16/04/14 [illegible] (Stop operation since 16/04/14 by using new buses operation)													
13	20	DongkhamXang	5	26	4550	175	3993	169.5	5	24	7	(-5.5)	96.86%	-	100.00%	Bus reparing
14	32	Donepamai	5	24	4872	203	3091	159	4	19	7	(-44)	78.33%	(-1)	95.00%	Bus reparing +Driver get sick
15	32 (Elec)	Donepamai	3	15	1575	105	525	35	2	15	7	(-70)	33.33%	-	100.00%	Run out of Battery

[illegible]

[illegible]

---ooo---

Vientiane Capital
DPWT
VCSBE

[illegible] ISUZU

Weekly Report of ISUZU Bus Condition

I. Digital Tachograph:
- Broken of Digital Techograph of bus No. 132

II. GPS Installed on 6buses 138,140,160,162,165:
- Working in normal condition however sometimes, Internet signal was low connection.

III. LED Route sign:
- Cannot display of LED route signs, Bus No. 131, 160, 144.

IV. Belting Condition:

No	Name of Drivers	Bus No.	Km	Hm	Date of Maintenance	List of Broken	List of Repairing	Remark
01	[illegible] Mr.Songha.	160	148.079	8.020	12/01/2015	-	- AC System Cleaning.	
02	[illegible] Mr.Bounthab.	165	180.807	7.683	12/01/2015	- Breaking Right Low Beam	- AC System Cleaning. -Changed a low beam light bulb	
03	[illegible] Mr.Saengduean.	144	180.100	7.[illegible]	12/01/2015	- fan belt tearing - Rear light of passenger door blackout	- Replaced two fan belts - Changed light bulb of rear passenger door.	
04	[illegible] Mr.Phanthong.	166	149.242	7.637	12/01/2015	- a Radiator leaking. - Mudguard tearing.	- AC system cleaning. - Regularly Tyre Replacement - Welded radiator - Changed new Mudguard.	

Source: VCSBE

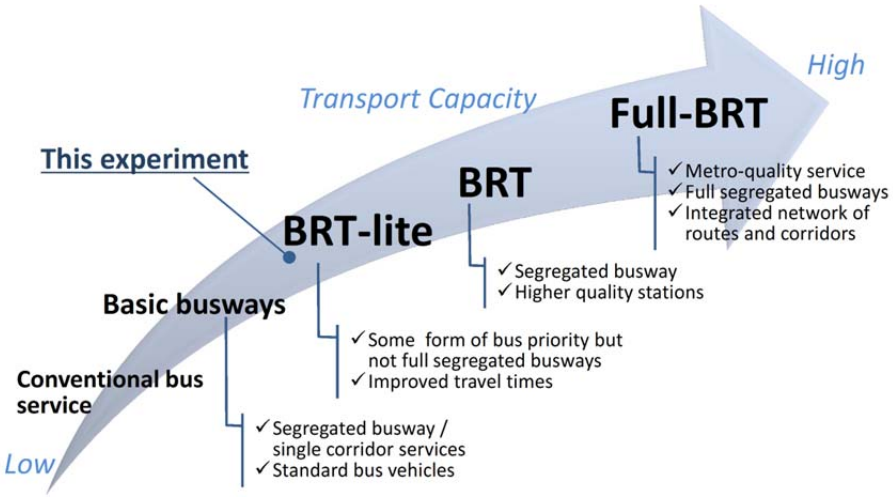
Figure 2.3-7 Bus Operation and Maintenance Report of VCSBE

2.3.4 Conduct Public Bus Transportation Pilot Program (Act 1-4)

2.3.4.1 BRT Pilot Program

(1) Study of Bus Rapid Transit (BRT) System

A small-scale preliminary experiment was planned as the first stage. BRT can be classified into three categories; i) BRT lite, ii) standard BRT and iii) Full BRT according to the scale of infrastructure and system as shown in Figure 2.3-8. The BRT pilot project for this project is categorized in regarded corresponding to between Basic Busways and BRT-lite.



Source: JICA Project Team based on "Bus Rapid Transit Planning Guide", Institute for Transportation & Development Policy, June 2007

Figure 2.3-8 Concept of BRT

At the beginning of the project, a shuttle bus service between the CBS and Dongdok Campus of the National University of Laos was the main target. Accordingly, discussion with C/Ps, the first candidate route came between the CBS and the friendship bridge and the CBS and Dongdok Campus came the second. These considerations and actual implementations were closely collaborated with C/Ps and the JICA Project Team.

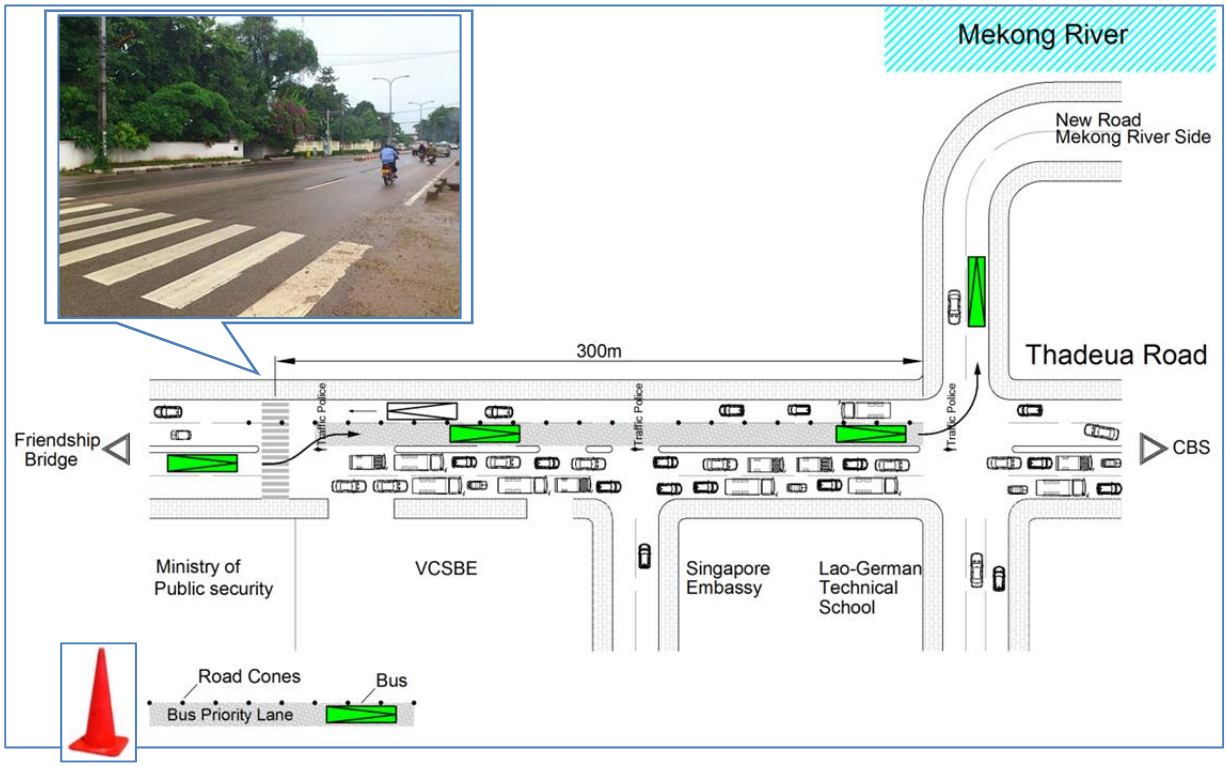
Table 2.3-13 Preparation and Implementation of the BRT Pilot Project

Date	Activity
29th April 2013	Consultation meeting in Vientiane Capital, explanation of the BRT social experiment to solve traffic during peak hour.
4th June 2013	JICA Project Team proposed a BRT social-experiment plan at the regular C/P meeting.
7th June 2013	Vientiane Capital held a meeting of which MPWT, Traffic Police, VCSBE, and JICA Project Team were convened for implementation of the BRT social - experiment.
10th June 2013	JICA Project Team started the travel time survey.
11th June 2013	The detail implementation plan of the experiment was discussed at regular C/P meetings which Traffic Police attended.
12th June 2013	Vientiane Capital submitted an announcement (No.1354/CVGO).
13th June 2013	Newspaper advertisement was published for the experiment announcement. VCSBE put up the social experiment information in the bus.
14th June 2013	Newspaper advertisement was published for the experiment announcement.
17th June – 21st June 2013	Social experiment was conducted. (Except 20th June)
18th June 2013	The JICA Project Team conducted a traffic count survey
26th June 2013	The JICA Project Team finished the travel time survey
2nd July 2013	Presentation of the result of BRT social experiment at MPWT
10th July 2013	Presentation of the result of BRT social experiment at Vientiane Capital

Source: JICA Project Team

According to the preliminary survey result, traffic congestion at the inbound lane of Thadeua road occurs from Km3 to an intersection of That Khao road on Thadeua road, from 7:00 a.m. to 8:30 a.m. in the morning peak hours. Since the buses are operated every 15 minutes per direction, six (6) buses pass through this congested section during the pilot project. Hence, the travel time from Friendship Bridge to the beginning point of the targeted congested section is estimated at 25 - 35 minutes.

As the inbound bus shall avoid the traffic congestion section, which goes to CBS from Friendship Bridge, a bus priority lane was prepared by using one lane of opposite lanes, as reversible lane. The bus priority lane had one lane and the length was 300m between Km3, in front of VCSBE, and the intersection of Thadeua road and Lao-Thai road. In this target, out of a total of four lanes with two-inbound and two-outbound, the outbound reduced to one lane and inbound became three lanes including a bus priority lane. Moreover, as for inbound from an intersection of Lao-Thai Road and Thadeua road where a bus priority lane finishes, a bus bypass crowded Thadeua Road, and go through new road, Donchan road, along the Mekong River to That Khao Road. Figure 2.3-9 shows the BRT social experiment for BRT social experiment.



Source: JICA Project Team

Figure 2.3-9 BRT Pilot Project at Tadeua Road

(2) Discussion on BRT

There was continuous discussion at the regular C/P meeting. In addition, following discussion meetings were conducted with high-level officials in attendance of the Mayor.

Table 2.3-14 Discussion on BRT

Year	No.	Date	Seminar / Workshop	Participants
2nd	1	29 Apr, 2013	Discussion Meeting of the Public Transport in Vientiane Capital (See section "2.1.2 Special Meeting")	20
	2	23 Dec, 2013	Meeting on Introduction of ICT student bus pass social experiment and Future Optimum BRT System Introduction for Vientiane Capital. (See section "2.1.2 Special Meeting")	30
3rd	3	11 Mar, 2014	Discussion Meeting of the BRT Experiment Preliminary Survey Result report (See section "2.1.2 Special Meeting")	19

Picture 2.3-6 Discussion on BRT Pilot Project with the Mayor (23 Dec, 2013)

(3) Implementation of BRT Pilot Project

1) Tadeua Road

Date:	17th June (Mon) to 21st June (Fri)
Time:	7:00 a.m. ~ 8:30 a.m.
Target bus route:	Inbound bus from Friendship Bridge to CBS route
Method:	Preparing a bus priority lane by adopting a reversible lane system.
Location of introduction of a bus priority lane:	km3 of Thadeua road (in front of VCSBE)
Number of buses:	6 inbound buses pass through a priority lane per day during the experiment time.

Road Cone arrangement

Bus Exclusive Lane (Inbound)

Picture 2.3-7 BRT Pilot Project on Tadeua Road

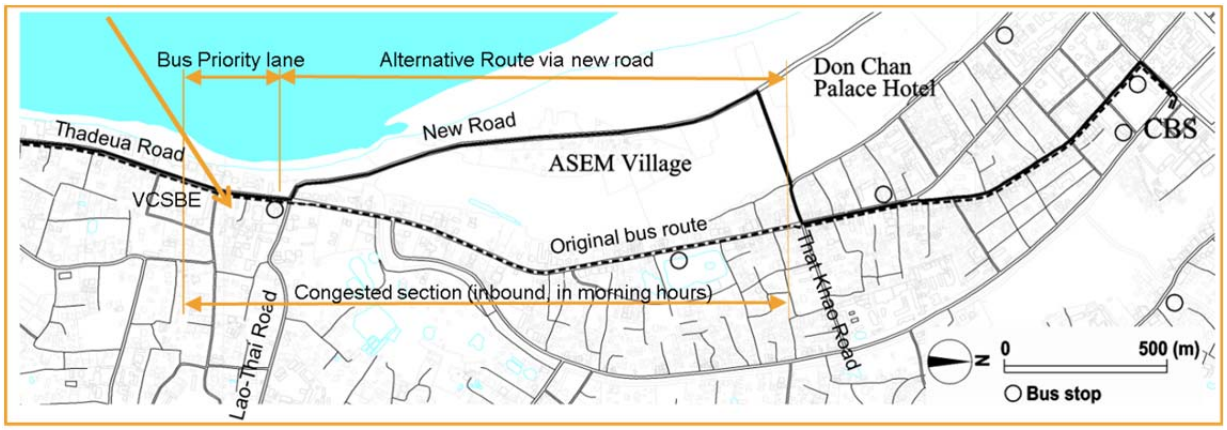


Figure 2.3-10 Location of BRT Pilot Project on Tadua Road

2) Kayson Phomvihane Road

Another BRT pilot project was studied on Kayson Phomvihane Road a part of the bus route 29, between the CBS and the Dongdok campus of the NUOL. This route is congested in the morning hour at 7 am. The most congested area was at the intersection of the American University. On 11 March, 2014, the project held a Discussion Meeting of the BRT Experiment Preliminary Survey Result with attendance of the traffic police. At the meeting, Lao side requested the JICA Project Team to conduct field surveys around the bottleneck intersection with the traffic police. The field surveys were conducted from 7:30 to 8:30 for two (2) days on 26 and 27 March. The field surveys consist of counting traffic volume by each direction, queue length, travel time by car, and etc. The results were summarized and shared with C/Ps, and reported to VCSBE, the traffic police, MPWT and the Vientiane Capital. The project was also reported the results to the vice Minister of MPWT and recommended to improve the intersection before conducting the pilot survey. It was concluded the capacity of the intersection was not enough to provide an exclusive lane of bus in the existing right of way, therefore, the pilot project would cause heavy traffic congestion without comprehensive improvements, in terms of signal control, restrictions on turn movements, and etc., including traffic demand control and construction works. The pilot project has not been conducted yet.

(4) Recommendation

Based on this experiment, further improvement measures with procedure of installation of the bus lane are recommended as shown in Figure 2.3-11.

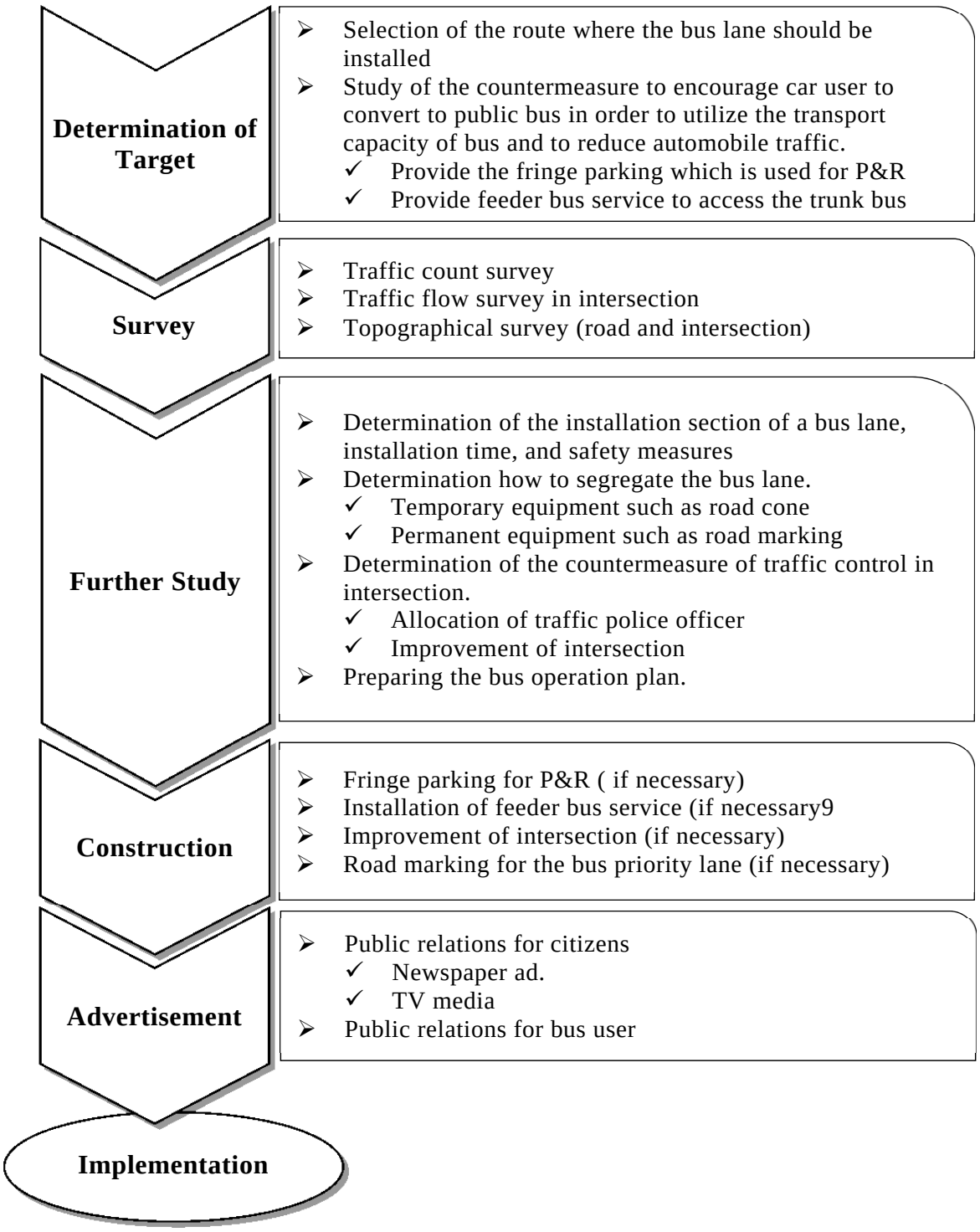


Figure 2.3-11 Recommended Procedure of installation of Bus lane

2.3.4.2 An Experiment of ICT Smart Card

(1) **Background of ICT Student Bus Pass (SBP)**

Present fare collection from bus drivers to the finance department of VCSBE is fixed amount based on planned passenger of each round trip of a bus. This eases fare collection, but makes it difficult to grasp the reality of actual bus sales and find out the current issues

and needs. To tackle with this issue, the JICA Project Team suggested introducing ICT fare collection system. The system facilitates fare collection and enables to accumulate bus usage data, such as an attribution of card holder, bus use, and number of passengers by route and time. Introducing new system also promotes people to use the bus.

The Project selected a student as a target group. Because when children understand the importance of public transportation, it will disperse to their parents. In addition, young generation is eager and faster to learn new technologies than adults, such as new ICT Technology. Therefore, the Student Bus Pass (hereinafter referred to as "SBP") expected to be the one of the primary measures to mitigate the issues by encouraging student modal shift from motorcycle / car use to public bus use.

The Project carefully considered about the ICT card system regarding functions, target group, system requirements, and operation method. The actual implementation works had started since June 2014. Further explanation of the ICT fare collection system is described in the report of "ICT Student Bus Pass Social Experiment Introduction" by the JICA Project Team.

(2) Implementation of ICT SBP Social Experiment

The following Table 2.3-15 shows work flow of SBP social experiment.

Table 2.3-15 Category and Task Flow of SBP

Promotion and dissemination of SBP to students	Develop and set up the ICT card system
Discussion and agreement between the JICA Project Team and relevant organizations.	Tender and Contract between the JICA Project Team and ICT card system development company.
SBP explanation Seminar at NUOL.	ICT Card System preparation and equipment purchase and set up.
SBP card registration and paper based SBP issuance.	ICT Card System test run and modification.
Seminar at High School and College.	SBP issuance and system equipment installation.
Change of SBP form paper based card to ICT card.	

SBP Promotion at Secondary School

SBP Promotion Poser

Bus Pass Sale & Registration at NUOL

SBP Sale & Registration at Secondary School

Figure 2.3-12 Student Bus Pass Promotion and Sales

- **Target Group:**

Students and officers of the National University of Laos, and other schools and colleges which are located along VCSBE bus routes.

- **ICT SBP Development:**

The JICA Project Team contracted with Banque Pour Le Commerce Exierieur Lao (BCEL) for SBP ICT card system preparation after tender competition among IT companies in Laos. Card holder's information is reiterated in system server and card by BCEL.

- **SBP card use and price setting assumption:**

SBP can use all VCSBE bus routes within Vientiane Capital for a year. Since the school day in a year is around 8 months in total and current bus use purpose for students is mainly for shopping at the center of Vientiane city on weekends, assumption of SBP price setting is considered based on 2 days and 8 month bus use so that SBP holder will benefit is high by purchasing SBP compare to cash pay or other private car or motorcycle use. After discussion of relevant organizations, the price of SBP was set at 400,000KIP per year.

- **Explanation Seminar for Student Bus Pass introduction:**

The Project conducted SBP explanation seminar for student to explain the purpose of the SBP and its benefit for students and society. The seminar had started from May 2014 and continued until 2015 the JICA Project termination month.

➢ Card Issuance Process

The Project sets two phases of SBP issuance and dissemination due to smooth card expansion in the early phase of the social experiment during ICT card system preparation stage. Paper based SBP with laminate coating was firstly issued during ICT SBP card system preparation as tentative SBP (See Figure 2.3-13). This tentative card is supposed to be changed after ICT card system implementation. The tentative SBP card surface printing contents are basically same as ICT card – ID photo, card holder's name and expiry date. Both SBP can use for all VCSBE city buses in Vientiane Capital. The ICT card reader device is installed only on 42 new buses so that SBP holder has to show the ID photo and expiry date printed card side to drivers to be identified when they ride on the bus which has no ICT device. As a procedure of SBP issuance, firstly, a student shall submit a SBP application form in which have to be filled out necessary information to be registered. After the registration and payment, the VCSBE issues tentative paper based laminate courting SBP to applicants immediately. When the ICT card SBP is ready to issue, that tentative card is collected by VCSBE and the new IC card is provided to the card holder. VCSBE and Banque Pour Le Commerce Exierieur Lao (BCEL) register all SBP card holders' information for ICT card system implementation. Flow of card issuance is shown Figure 2.3-15.

Figure 2.3-13 Temporary Student Bus Pass

Figure 2.3-14 ICT Student Bus Pass

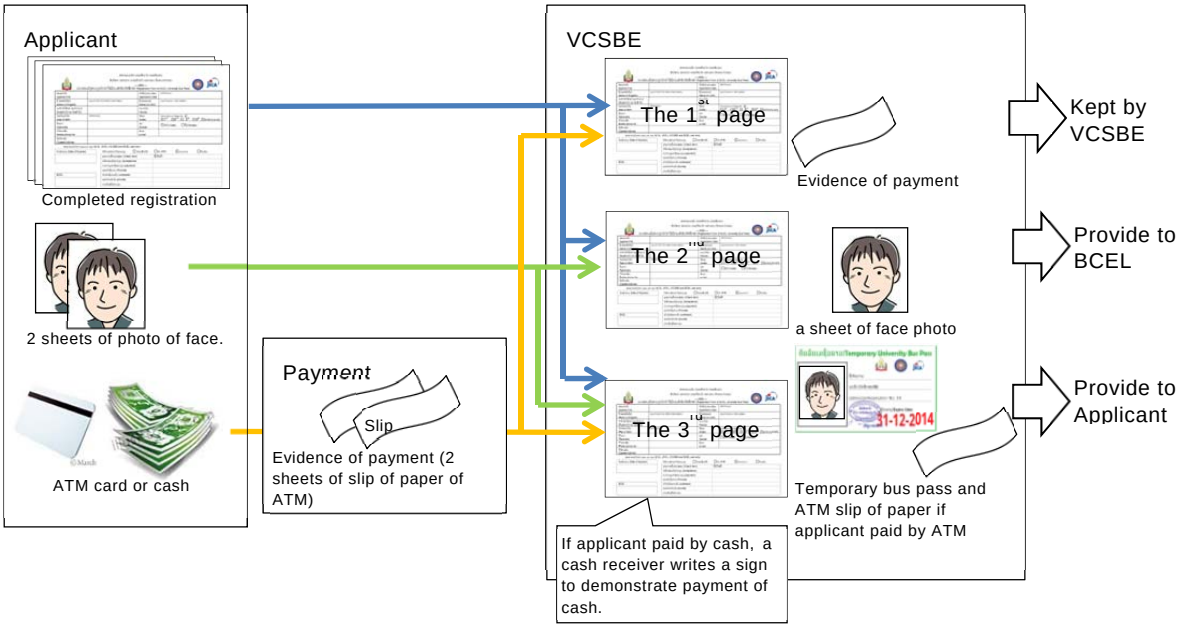


Figure 2.3-15 SBP card application flow

(3) **Remaining Issue and Future prospect**

This social experiment is expected to continue and expand within Vientiane City to enhance modal shift from private car and motorcycle use to mitigate traffic congestion in Vientiane Capital. Further promotion and leadership by the government to disseminate Bus Pass is required. Together with SBP promotion, traffic control introduction such as prohibiting illegal parking and prevention of driving private car and motorcycle in the center of Vientiane city should be considered.

2.4 Public Bus Service Improvement Measures Responding to Citizen's Request (Act 2)

2.4.1 Establishment of Transport Committees for Effective Bus Use (Act 2-1)

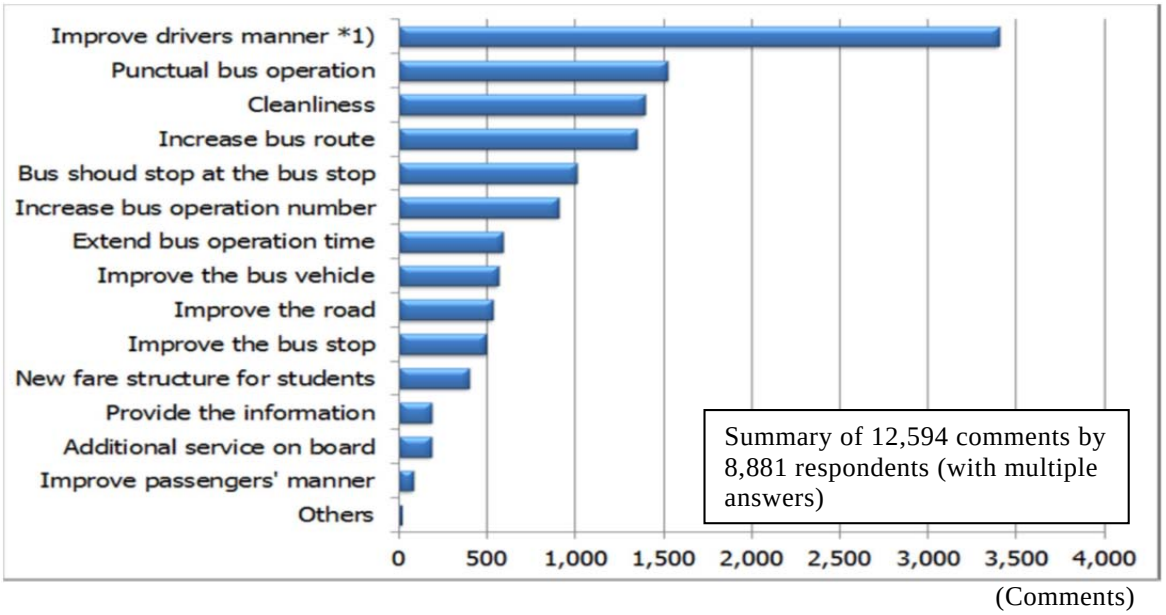
There were mainly two objectives to establish transport committees for effective bus use. The first objective was to coordinate concerning entities to conduct activities promoting bus uses in Vientiane Capital. The second objective was to collect requests and opinions from citizens directly. Transport Committees were not established in this project, even though the objectives were achieved by other methods.

In the first year, 2012, the JICA Project Team discussed with the Vice Minister of the MPWT and he instructed to utilize the National Road Safety Committee (NRSC) instead of establishing new transport committees. Following the instruction, MPWT send a request letter to the NRSC and it was accepted. However, the NRSC had not been held in 2012. Therefore, instead of the NRSC, the project focused on the NUOL to establish a transport committee since the NUOL was the main target regarded its students as potential bus users. Through the project, several seminars and workshops were conducted in the NUOL, the

project and staffs of the NUOL, teachers and students discussed about public transportation improvement in Vientiane Capital, closely. In 2014, promotion of the Student Bus Pass was officially launched and the NUOL assigned 6 (six) personnel's as members of the working team for the Student Bus Pass promotion. The Project and the NUOL jointly conducted briefing sessions at each faculty.

2.4.2 Collect Requests and Needs for Public Bus Service (Act 2-2)

Results of bus user survey at the CBS and bus needs survey at the NUOL were summarized. As a sample of the results, the bus needs of the NUOL students are shown in Figure 2.4-1. As baseline surveys, bus user surveys were conducted as shown in Table 2.4-1



Source: JICA Project Team

Figure 2.4-1 Student Needs for Improvement of Bus Service

Table 2.4-1 Bus User Interviews

Year	No.	Date	Interview Survey	Target	Samples
0	0	Aug, 2011	Bus User Interview Survey conducted for preparatory study	Bus Passengers at CBS	300
1st	1	9 Jul, 2012 21 Oct, 2012	Student Bus Needs Interview Survey at NUOL Faculty of Engineering/ Dongdok Campus	Student of NUOL	8,364
		21 Nov, 2012	Bus User Survey at CBS	Bus users at CBS	517
2nd	2	9 Mar, 2013	Public Bus Use for students of NUOL	Students of NUOL	Some
3rd	3	Feb, 2014	Bus User Interview Survey	Bus Passengers at CBS	200
	4	Mar, 2014	Bus Potential User Interview	Residents Living along Bus Routes	800
	5	May, 2014	University Bus Pass Introduction Interview Survey	Student	7,748

The Project conducted interview with passengers on the bus. A VCSBE staff of planning department conducted interview with JICA Project Team.


Picture 2.4-1 Interview with Passengers by VCSBE Staff

2.4.3 Set Criteria to Evaluate Bus Service and Target Levels of Public Bus Service (Act 2-3)

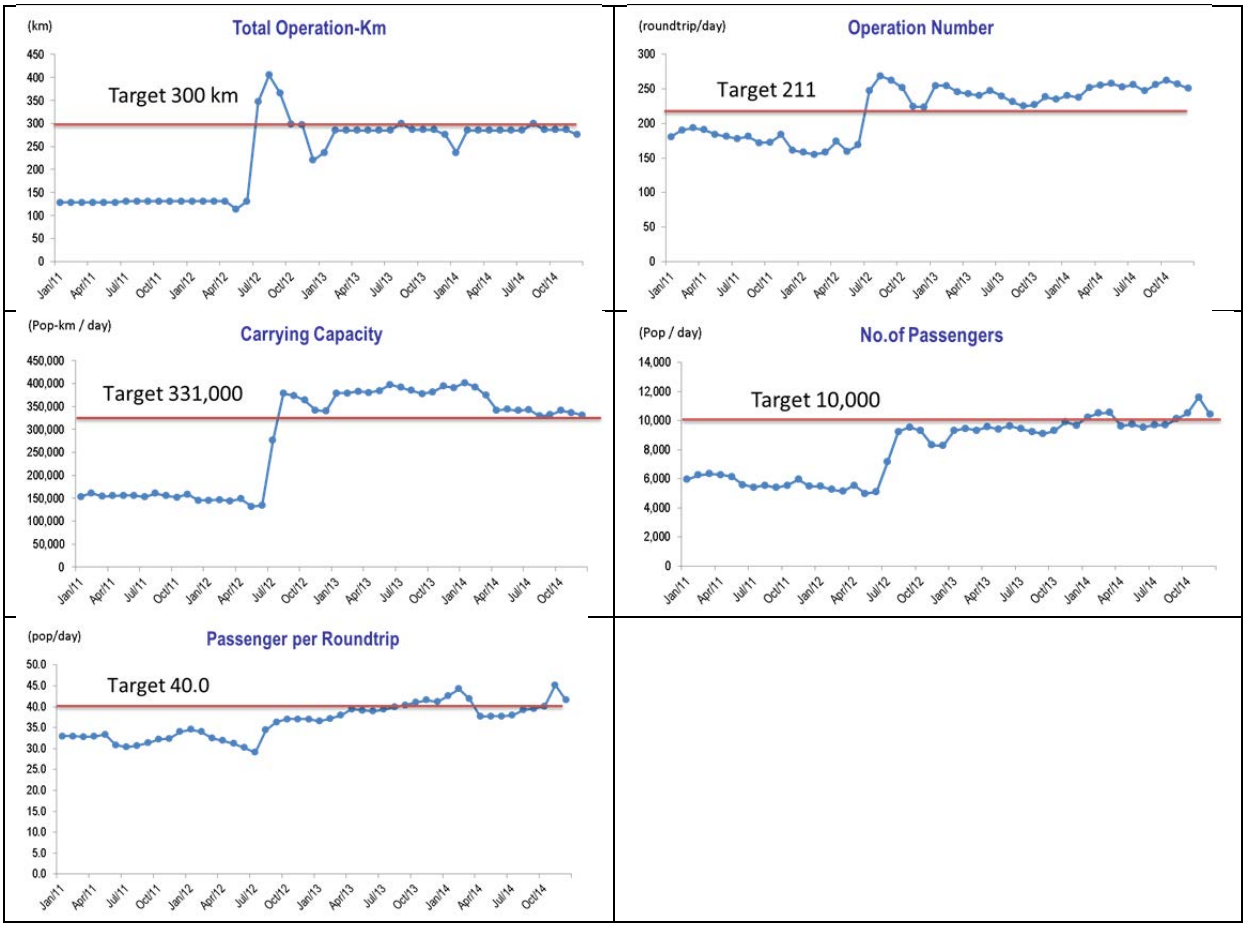
Through the workshops, C/Ps agreed to set following indices as a bus service level measurement in Vientiane Capital.

Table 2.4-2 Bus Service Indices for City Bus

Quality criteria	Index	2011 (Before New Bus)	2012 (After New Bus)	2013	2014	2015 (Target)
Network	Total operation length	128km (Feb)	366km (Sep)	286km (Sep)	286km (Sep)	300km
Operation	Operation Number (Roundtrips per day)	190 (Feb)	263 (Sep)	225 (Sep)	256 (Sep)	211 (Preliminary Survey[1])
	Carrying capacity (Pop-km per day)	161,000 (Feb)	373,600 (Sep)	377,700 (Sep)	333,000 (Sep)	331,000 (Preliminary Survey)
Passenger	Number of Passenger (Pop per day)	6,270 (Feb)	9,540 (Sep)	9,100 (Sep)	10,140 (Sep)	10,000
	Passenger per Roundtrip (Pop per roundtrip)	32.9 (Feb)	36.3 (Sep)	41.6 (Sep)	39.6 (Sep)	40

Source: JICA Project Team

[1] JICA Outline Design Study Report on The Project for Improvement of Transportation Capacity of Public Bus in Vientiane Capital, 2011



Source: JICA Project Team

Figure 2.4-2 Monthly Bus Service Indices for City Bus

To formulate above mentioned bus service indices, workshops shown in Table 2.4-3 were conducted. European and American standards were reviewed. Considering those standards and VCSBE's recording data regarding operation and passenger, above mentioned indices were selected. Reviewed standards are shown as below.

- European Standards: Transportation – Logistics and services – Public passenger transportation – Service quality definition, targeting and measurement (BS EN 13816:2002)
- American Standards: TCRP Report 100, Transit Capacity and Quality of Service Manual, 2nd Edition, 2003

Table 2.4-3 Workshops for Bus Service Level

Year	No.	Date	Seminar / Workshop	Participants
1st	1	1 Mar, 2012	Presentation of Bus Service Quality No.1	5 At Regular Meeting
2nd	2	2 Apr, 2013	Presentation of Bus Service Quality No.2	5 At Regular Meeting
3rd	3	5 Feb, 2014	Bus Service Improvement: On-time Operation at Bus Stops	5 At Regular Meeting
	4	4 Feb, 2015	Criteria to Measure Level of Service	6 At Regular Meeting

2.4.3.1 Level of Service

(1) Frequency

Actual operation of new green buses on a typical weekday was analyzed as shown in Table 2.4-4. The frequency was analyzed on Digital Tachograph data.

Table 2.4-4 Actual Frequency of Bus Operation

No	Route Name		6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
14	Friendship Bridge	Bus	5	2	4	4	4	5	3	5	3	4	5	3	1
		Ave.	0:15	0:25	0:15	0:15	0:16	0:13	0:18	0:13	0:18	0:15	0:13	0:18	0:35
		Max	0:25	0:30	0:20	0:20	0:20	0:20	0:20	0:15	0:25	0:15	0:15	0:20	0:35
		Min	0:10	0:20	0:10	0:05	0:15	0:05	0:15	0:05	0:05	0:15	0:10	0:15	0:35
23	Thangon	Bus	3	3	3	1	3	1	3	3	2	3	2	1	0
		Ave.	0:25	0:23	0:20	0:50	0:23	0:25	0:31	0:18	0:22	0:26	0:27	0:45	
		Max	0:40	0:30	0:30	0:50	0:30	0:25	0:55	0:30	0:30	0:30	0:30	0:45	
		Min	0:10	0:20	0:05	0:50	0:20	0:25	0:20	0:00	0:15	0:20	0:25	0:45	
29	Dongdok	Bus	2	4	2	4	4	2	3	3	3	3	3	3	0
		Ave.	0:20	0:13	0:22	0:18	0:15	0:30	0:20	0:20	0:21	0:18	0:21	0:18	
		Max	0:20	0:20	0:30	0:30	0:25	0:45	0:30	0:25	0:30	0:25	0:30	0:25	
		Min	0:20	0:05	0:15	0:10	0:10	0:15	0:15	0:10	0:15	0:10	0:15	0:10	
30	Thong Pong	Bus	1	1	1	1	1	1	1	1	1	1	1	0	0
		Ave./ Max/ Min		1:00	1:10	0:50	1:10	0:50	1:10	1:00	1:00	0:50	1:15		
31	Phontong (Dongdok)	Bus	2	3	3	2	3	3	3	3	3	3	3	3	0
		Ave.	0:30	0:23	0:16	0:20	0:26	0:20	0:20	0:20	0:20	0:20	0:20	0:20	
		Max	0:30	0:35	0:30	0:20	0:50	0:20	0:30	0:20	0:30	0:20	0:30	0:20	
		Min	0:30	0:15	0:00	0:20	0:00	0:20	0:05	0:20	0:00	0:20	0:00	0:20	
33	Nongtha (Dongdok)	Bus	1	1	1	1	1	1	1	1	1	1	1	0	0
		Ave./ Max/ Min		0:45	1:20	0:50	1:10	1:00	0:55	1:00	1:05	1:00	0:55		
8	Northern Bus Station	Bus	2	2	2	2	2	2	2	2	2	2	2	1	0
		Ave.	0:40	0:35	0:30	0:30	0:30	0:30	0:25	0:35	0:25	0:35	0:30	0:40	
		Max	0:40	0:45	0:30	0:35	0:35	0:35	0:30	0:45	0:30	0:45	0:40	0:40	
		Min	0:40	0:25	0:30	0:25	0:25	0:25	0:20	0:25	0:20	0:25	0:20	0:40	
47	Don Nok Khoum (Faculty of Law)	Bus	0	1	0	0	1	0	1	0	1	0	1	0	0
		Ave./ Max/ Min					3:50		1:55		1:45		2:20		

Date: 13 November, 2014 (Thr)

Source: JICA Project Team

(2) Punctuality

Punctuality was also evaluated upon above typical daily weekday. Actual departure time was compared to operation plan as shown in Table 2.4-5. Both inbound and outbound were evaluated. About 65% of bus departs from CBS or terminal stations within 10 minute delay.

- 96% operated.
- 29 times (7%) depart earlier than planned.

- 22 times (5%) delay not less than 30 minutes, most of them are inbound.
- 58 times (14%) delay not less than 20 minutes and less than 30 minutes.
- 20 times (5%) delay not less than 10 minutes less than 20 minutes.

Table 2.4-5 Punctuality of Bus Operation

						Trip 1		Trip 2		Trip 3		Trip 4		Trip 5		Trip 6		Trip 7	
No.	Route No.	Route Name	Seq. No.	Plan/Bus No.	Driver No.	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound
1	14	Friendship Bridge	1	Plan		5:50	6:40	8:20	9:10	10:50	11:40	13:20	14:10	15:50	16:40	0:00	0:00	0:00	0:00
				152	219	5:50	6:45	8:30	9:20	11:00	11:50	13:30	14:20	16:00	16:45	0:00	0:00	0:00	0:00
2	14	Friendship Bridge	2	Plan		6:05	6:55	8:35	9:25	11:05	11:55	13:35	14:25	16:05	16:55	0:00	0:00	0:00	0:00
				148	122	6:15	7:10	8:40	9:40	11:15	12:15	13:45	14:45	16:15	17:15	0:00	0:00	0:00	0:00
3	14	Friendship Bridge	3	Plan		6:20	7:10	8:50	9:40	11:20	12:10	13:50	14:40	16:20	17:10	0:00	0:00	0:00	0:00
				171	125	6:30	7:15	9:00	9:50	11:20	12:20	13:50	14:20	16:30	17:20	0:00	0:00	0:00	0:00
4	14	Friendship Bridge	4	Plan		6:35	7:25	9:05	9:55	11:35	12:25	14:05	14:55	16:35	17:25	0:00	0:00	0:00	0:00
				156	102	6:40	7:30	9:15	10:05	11:40	12:30	14:15	15:05	16:40	17:40	0:00	0:00	0:00	0:00
5	14	Friendship Bridge	5	Plan		6:50	7:40	9:20	10:10	11:50	12:40	14:20	15:10	16:50	17:40	0:00	0:00	0:00	0:00
				134	217	6:50	7:45	9:20	10:20	11:50	12:45	14:20	15:20	16:50	17:45	0:00	0:00	0:00	0:00
6	14	Friendship Bridge	6	Plan		7:05	7:55	9:35	10:25	12:05	12:55	14:35	15:25	17:05	17:55	0:00	0:00	0:00	0:00
				142	244	7:20	8:20	9:40	10:30	12:10	13:05	14:45	15:30	17:10	18:10	0:00	0:00	0:00	0:00
7	14	Friendship Bridge	7	Plan		7:20	8:10	9:50	10:40	12:20	13:10	14:50	15:40	17:20	18:10	0:00	0:00	0:00	0:00
				167	254	7:40	8:40	10:15	11:10	12:45	13:40	15:15	16:10	17:45	18:40	0:00	0:00	0:00	0:00
8	14	Friendship Bridge	8	Plan		7:35	8:25	10:05	10:55	12:35	13:25	15:05	15:55	17:35	18:25	0:00	0:00	0:00	0:00
				159	143	8:00	9:00	10:30	11:30	13:00	14:00	15:30	16:30	18:20	19:15	0:00	0:00	0:00	0:00
9	14	Friendship Bridge	9	Plan		7:50	8:40	10:20	11:10	12:50	13:40	15:20	16:10	18:00	18:50	0:00	0:00	0:00	0:00
				160	113	8:15	9:10	10:45	11:40	13:15	14:10	15:45	16:40	0:00	0:00	0:00	0:00	0:00	0:00
10	14	Friendship Bridge	10	Plan		8:05	8:55	10:35	11:25	13:05	13:55	15:35	16:25	0:00	0:00	0:00	0:00	0:00	0:00
				138	107	0:00	0:00	10:00	10:50	12:30	13:20	15:00	15:50	17:30	18:20	0:00	0:00	0:00	0:00
11	23	Thangon	1	Plan		5:45	6:50	8:15	9:25	10:45	11:55	13:15	14:25	15:45	16:55	0:00	0:00	0:00	0:00
				165	224	5:50	6:45	8:20	9:30	10:50	12:00	13:20	14:15	15:50	17:10	0:00	0:00	0:00	0:00
12	23	Thangon	2	Plan		6:10	7:20	8:40	9:50	11:10	12:20	13:40	14:50	16:10	17:20	0:00	0:00	0:00	0:00
				132	105	6:30	7:15	8:50	9:50	11:15	12:20	13:45	14:50	16:20	17:50	0:00	0:00	0:00	0:00
13	23	Thangon	3	Plan		6:35	7:45	9:05	10:15	11:35	12:45	14:05	15:15	16:35	17:45	0:00	0:00	0:00	0:00
				140	128	6:40	7:45	8:15	10:15	13:45	12:45	14:15	15:15	16:45	18:15	0:00	0:00	0:00	0:00
14	23	Thangon	4	Plan		7:00	8:10	9:30	10:40	12:00	13:20	14:30	15:40	17:00	18:10	0:00	0:00	0:00	0:00
				146	194	7:00	8:00	9:40	10:30	12:10	13:10	14:30	15:40	17:30	18:40	0:00	0:00	0:00	0:00
15	23	Thangon	5	Plan		7:25	8:35	9:55	11:05	12:25	13:35	14:55	16:05	17:30	18:40	0:00	0:00	0:00	0:00
				169	196	7:30	8:30	10:00	11:10	12:30	13:30	15:00	16:10	0:00	0:00	0:00	0:00	0:00	0:00
16	23	Thangon	6	Plan		7:50	9:00	10:20	11:30	12:50	14:00	15:20	16:30	0:00	0:00	0:00	0:00	0:00	0:00
				149	248	7:50	9:00	10:20	11:20	12:50	14:00	15:30	16:30	0:00	0:00	0:00	0:00	0:00	0:00
17	29	Dongdok	1	Plan		6:30	7:00	8:00	8:40	10:00	10:40	12:00	12:40	14:00	14:40	16:00	16:40	18:00	18:40
				155	116	6:30	7:00	8:00	8:50	10:00	10:45	12:00	12:45	14:00	14:45	16:00	17:20	0:00	0:00
18	29	Dongdok	2	Plan		6:45	7:20	8:20	9:00	10:20	11:00	12:20	13:00	14:20	15:00	16:20	17:00	0:00	0:00
				163	152	6:50	7:30	8:30	9:00	10:20	11:20	12:30	13:10	14:20	15:00	16:20	17:30	0:00	0:00
19	29	Dongdok	3	Plan		7:00	7:40	8:40	9:20	10:40	11:20	12:40	13:20	14:40	15:20	16:40	17:20	0:00	0:00
				147	135	7:10	7:45	9:00	9:45	10:45	11:30	12:45	13:30	14:50	15:30	16:50	18:00	0:00	0:00
20	29	Dongdok	4	Plan		7:15	7:55	9:00	9:40	11:00	11:40	13:00	13:40	15:00	15:40	17:00	17:40	0:00	0:00
				141	181	7:20	8:00	9:10	9:45	10:10	11:45	13:10	13:45	15:10	16:15	17:10	18:00	0:00	0:00
21	29	Dongdok	5	Plan		7:30	8:10	9:20	10:00	11:20	12:00	13:20	14:00	15:20	16:00	17:20	18:00	0:00	0:00
				133	126	7:40	8:20	9:20	10:15	11:30	12:15	13:20	14:00	15:20	16:00	17:20	18:15	0:00	0:00
22	29	Dongdok	6	Plan		7:45	8:25	9:40	10:20	11:40	12:20	13:40	14:20	15:40	16:20	17:40	18:20	0:00	0:00
				166	141	7:45	8:30	9:45	10:20	11:45	12:30	13:45	14:20	15:45	16:30	17:45	18:20	0:00	0:00
23	30	Thong Pong	1	Plan		6:20	7:10	8:20	9:10	10:20	11:10	12:20	13:10	14:20	15:10	16:20	17:10	0:00	0:00
				168	201	6:30	7:10	8:40	9:20	10:40	11:20	12:40	13:20	14:40	15:30	16:45	17:30	0:00	0:00
24	30	Thong Pong	2	Plan		7:20	8:10	9:20	10:10	11:20	12:10	13:20	14:10	15:20	16:10	17:20	18:10	0:00	0:00
				139	114	7:30	8:15	9:30	10:20	11:30	12:30	13:40	14:15	15:30	16:15	0:00	0:00	0:00	0:00
25	31	Phontong (Dongdok)	1	Plan		6:10	6:50	8:10	8:50	10:10	10:50	12:10	12:50	14:10	14:50	16:10	16:50	0:00	0:00
				162	255	6:10	7:50	8:10	9:00	10:10	10:50	12:10	12:50	14:10	14:50	16:10	17:00	0:00	0:00
26	31	Phontong (Dongdok)	2	Plan		6:30	7:10	8:30	9:10	10:30	11:10	12:30	13:10	14:30	15:10	16:30	17:10	0:00	0:00
				158	234	6:40	7:10	8:40	8:20	10:40	11:30	12:40	13:20	14:40	15:20	16:40	17:30	0:00	0:00
27	31	Phontong (Dongdok)	3	Plan		6:50	7:30	8:50	9:30	10:50	11:30	12:50	13:30	14:50	15:30	16:50	17:30	0:00	0:00
				137	151	7:00	7:45	9:00	9:45	11:00	11:45	13:00	13:40	15:00	15:45	17:00	18:00	0:00	0:00
28	31	Phontong (Dongdok)	4	Plan		7:10	7:50	9:10	9:50	11:10	11:50	13:10	13:50	15:10	15:50	17:10	17:50	0:00	0:00
				145	136	7:15	8:00	9:20	10:00	11:20	12:00	13:20	14:00	15:20	16:00	17:20	18:00	0:00	0:00
29	31	Phontong (Dongdok)	5	Plan		7:30	8:10	9:30	10:10	11:30	12:10	13:30	14:10	15:30	16:10	17:30	18:10	0:00	0:00
				136	200	7:50	8:40	0:00	0:00	11:40	12:20	13:40	14:20	15:40	16:20	17:40	18:20	0:00	0:00
30	31	Phontong (Dongdok)	6	Plan		7:50	8:30	9:50	10:30	11:50	12:30	13:50	14:30	15:50	16:30	0:00	0:00	0:00	0:00
				131	225	8:10	8:50	10:10	10:50	12:15	13:00	14:10	15:00	16:10	17:00	0:00	0:00	0:00	0:00
31	33	Nongtha (Dongdok)	1	Plan		6:40	7:30	8:40	9:30	10:40	11:30	12:40	13:30	14:40	15:30	16:40	17:30	0:00	0:00
				153	161	6:45	7:15	8:50	9:30	10:50	11:30	12:45	13:20	14:50	15:30	16:45	17:45	0:00	0:00
32	33	Nongtha (Dongdok)	2	Plan		7:40	8:30	9:40	10:30	11:40	12:30	13:40	14:30	15:40	16:30	0:00	0:00	0:00	0:00
				135	180	7:30	8:15	9:40	10:15	11:50	12:40	13:45	14:20	15:50	16:30	0:00	0:00	0:00	0:00
33	8	Northern Bus Station	1	Plan		6:00	6:50	8:00	8:50	10:00	10:50	12:00	12:50	14:00	14:50	16:00	16:50	0:00	0:00
				164	138	5:50	6:50	8:10	9:00	10:05	11:00	12:00	13:00	14:00	15:00	16:00	17:00	0:00	0:00
34	8	Northern Bus Station	2	Plan		6:30	7:20	8:30	9:20	10:30	11:20	12:30	13:20	14:30	15:20	16:30	17:20	0:00	0:00
				154	232	6:30	7:30	8:40	9:00	10:40	11:30	12:30	13:30	14:30	15:30	16:40	17:30	0:00	0:00
35	8	Northern Bus Station	3	Plan		7:00	7:50	9:00	9:50	11:00	11:50	13:00	13:50	15:00	15:50	17:00	17:50	0:00	0:00
				170	222	7:15	8:10	9:15	10:00	11:15	12:10	13:15	14:00	15:15	16:10	17:20	18:00	0:00	0:00
36	8	Northern Bus Station	4	Plan		7:30	8:20	9:30	10:20	11:30	12:20	13:30	14:20	15:30	16:20	17:30	18:20	0:00	0:00
				144	123	7:40	8:40	9:40	10:30	11:40	12:30	13:40	14:40	15:40	16:40	0:00	0:00	0:00	0:00
37	47	Don Nok Khoum (Faculty	1	Plan		6:45	7:20	8:45	9:20	10:45	11:20	12:45	13:20	14:45	15:20	16:45	17:20	0:00	0:00
				143	158	7:00	0:00	0:00	0:00	10:50	11:30	12:45	13:20	14:30	15:10	16:50	17:50	0:00	0:00

Earlier than plan / Not operating
10-20 minutes
20-30 minutes
More than 30 minutes

Date: 13 November, 2014 (Thr)

Source: JICA Project Team

(3) Bus Fare Level

Transportation fare is determined by multiple costing. However, the assumptions for calculation are not realistic and one of the reasons of deficit of VCSBE. Even though, the calculation formula is difficult to be amended due to bureaucracy. Anyhow, compared to other East Asian countries, the present fare level in Vientiane Capital is high enough

compared to GDP per Capita, therefore it is difficult to hike fares. Fare of Sonteo is basically set same fare of the bus.

(4) Bus Operation Hours

Present operation hour of public bus departing from the CBS is about 6 am to 6pm. There are some requests from the citizen to prolong operation hour, however, due to constraint of the arrangement of the drivers, it was difficult to prolong the operation hours unless drastically change in driver payroll system as well as a welfare system.

(5) Number of Passengers

VCSBE has statistics on the number of passengers. The number of passengers for city bus is calculated based on the daily resumption from drivers. Logically, the number cannot exceed the planned number of passengers, because the planned number is obligated to drivers in submission amount of fares to finance department.

The number is not assured in accuracy, nonetheless, the planned number revised regularly and continuously recorded. Therefore the consistency of the statistics is secured.

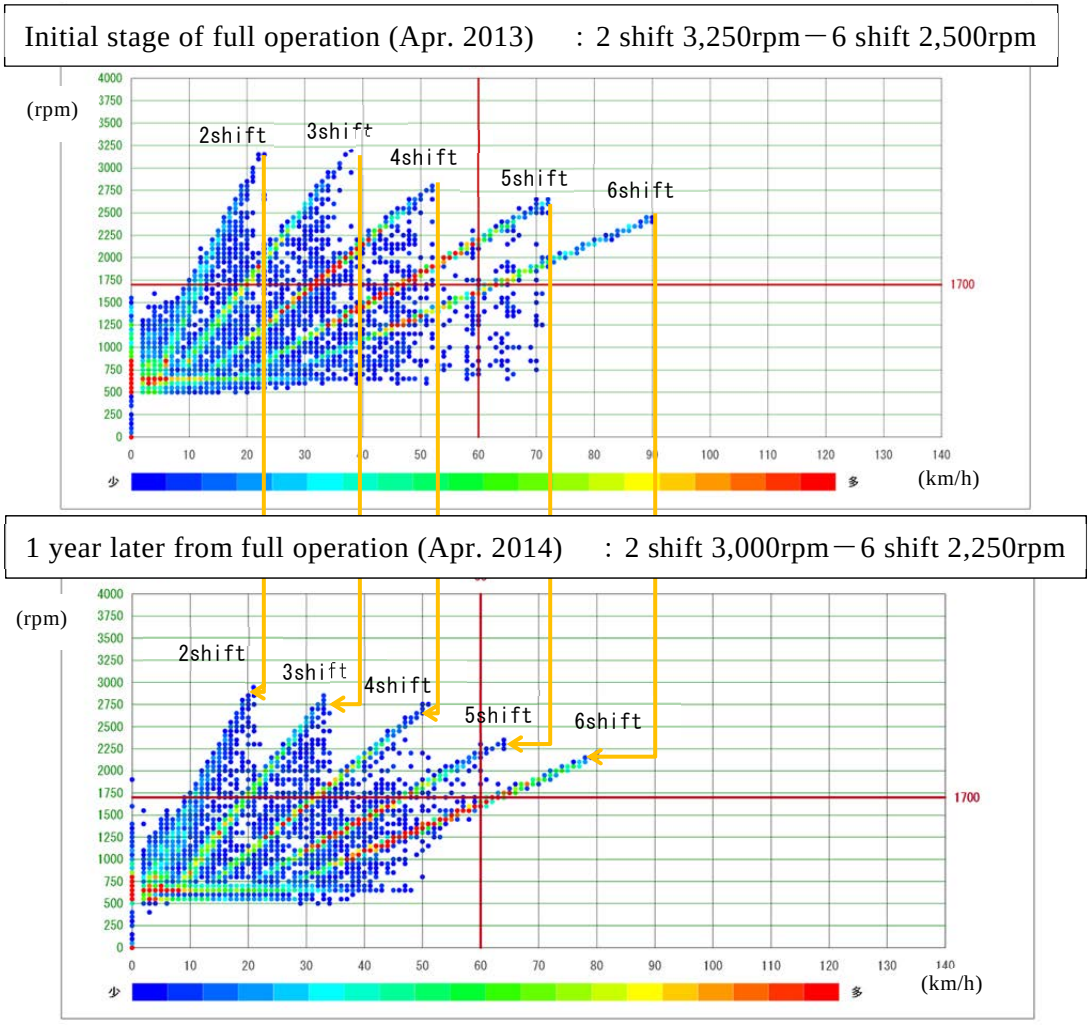
2.4.3.2 Bus Traffic Accident

About 100 traffic accidents involving VCSBE buses occur annually. 2 or 3 serious accidents occur per year for inter provincial buses, whereas no serious accident for city buses. If a driver causes a serious traffic accident, the driver is accused for penalty and jailed for 2 or 3 months in general. In Japan, if a driver causes a serious accident, the bus company of the driver is imposed an administrative inspection and punishment, in Lao, there is no such administrative action to bus companies. VCSBE has dismissed a driver who caused an accident and jailed.

In these days, small accidents of passengers on board are increasing caused by starting bus before sitting or insufficient illuminating in the car. VCSBE has contracted comprehensive insurance for whole buses. The insurance covers person, property and vehicles. In case a driver caused an accident, a driver has to owe 70% of compensation. In case a driver involved an accident caused by others, the compensation ratio of the driver is determined case by case.

2.4.3.3 Safety Driving

The manager of driver supervises and instructs driving maneuvers by using records of Digital Tachograph. Figure 2.4-3 shows an improvement of a driver.



*According to the above scatter chart, acceleration conditions are analyzed. In the chart, the vertical line indicates the engine revolutions, horizontal line indicates the speed. The speed goes up according to the rise of the engine speed. The five lines on the chart roughly show the result of driving under the transmission from the 2nd to 6th shift speed. A gently curved line stands for slow acceleration and the riding comfort will increase. Red and yellow points show high frequency. In this case, the data indicate that idling time, the area of 30-60km/h in speed and 1,000～1,800rpm in engine revolutions are frequently used. After one year of full operation of Digital Tachograph, the maximum speed at each shift changing has decreased. And it is finding out to change shift ahead of time.

Source: JICA Project Team

Figure 2.4-3 Improved Drive Acceleration Analyzed by Digital Tachograph

2.4.3.4 Complaint from Passengers

VCSBE shows a contact for complaint with telephone number in the CBS. Complaints are recorded and the most common complaint is manner of drivers, sometimes delay of bus operation is complained. The manager of the driver instructs drivers to improve manner at the meeting with drivers every 15 days when changing drivers' assignment of bus routes.

2.4.4 Plan and Review Bus Routes and Bus Stop Locations Responding to Community Demand (Act 2-4)

(1) Bus Stop Operation

VCSBE has a principle to increase the number of bus stops in Vientiane Capital from 98 to

176. The bus installation is outsourced to a private advertising company. VCSBE has requested the advertising company to install bus stops eagerly.

There are bus stops in the city center and at major schools and hospitals. However, bus stops at wherever a passenger request. On the other hand, the most common request to the bus service is to improve accuracy of bus operation; therefore the JICA Project Team has recommended securing boarding and alighting at bus stops to VCSBE, at least in the city area. The recommendation intends to improve accuracy of bus operation, road safety and usability of bus service. However, drivers have been corresponding to passengers' need and it has not yet realized.

(2) Bus Stop Concession

The installation and maintenance of bus stops are outsourced to an advertising company. VCSBE indicated required bus stops roughly, the company installs at proper locations. The company paid the contract amount to the Vientiane Capital as for the right to manage advertisement on bus stops. The company gets incomes from the advertisement.

(3) GIS Training

GIS training was conducted to enhance the capacity of C/Ps in terms of bus route planning and bus location planning. A working group was set for the training, consisting of VCSBE 3 persons, DoT/MPWT 2 persons, DPWT 5 persons, NUOL 6 persons and Traffic Police 1 person.

Table 2.4-6 GIS Trainings

Year	No.	Date	Seminar / Workshop	Participants
3rd	1	9 Sep, 2014	1. Overview of GIS 2. ArcGIS Basics 3. Understanding GIS Data 4. Coordinate Systems 5. Working with Arc Map	12
	2	11 Sep, 2014	6. Creating New Features, Digitization and Managing Map Layers 7. Using Coordinate Systems 8. Symbolizing, Layout, Labeling 9. Data and Map Exporting and Printing	14
	3	16 Sep, 2014	10. Data Conversion to/from GIS (Google Earth, AutoCAD,…) 11. Importing GPS Data 12. Geo-database 13. Editing GIS Data 14. Projection and Transformation of GIS Data	14
	4	18 Sep, 2014	15. Performing Simple Analysis (Spatial, Network, Tracking Analysis, etc.) 16. Preparing Base Map 17. Preparing Bus Route Map, Bus Stop 18. Working with Multiple Data Frames	15

2.4.5 Implement Bus Services Improvement Measures (Act 2-5)

2.4.5.1 Public Information

(1) Web Site

VCSBE established a website and a Facebook page. The website provides mainly bus operation information and a Facebook provides news and announcements.

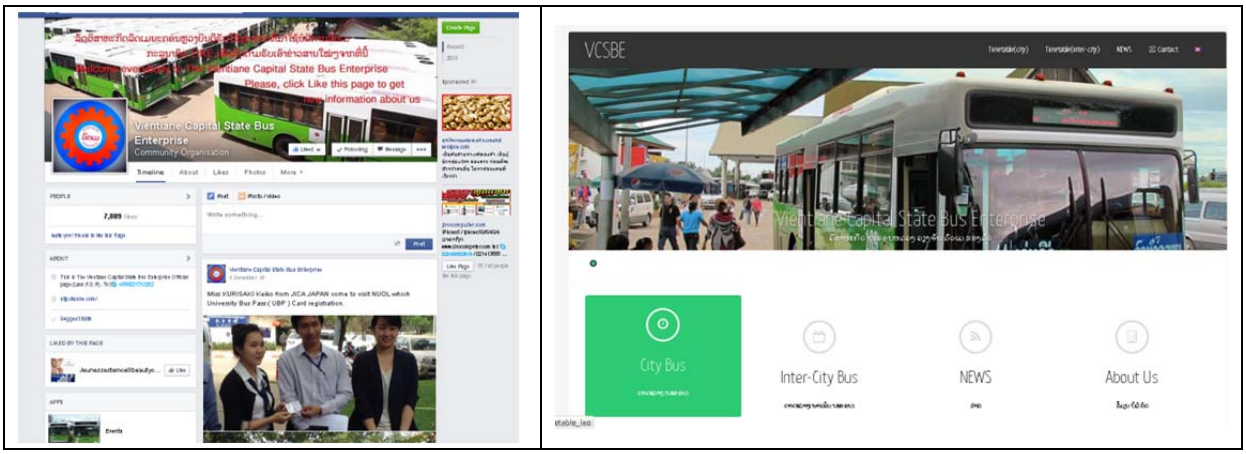


Figure 2.4-4 VCSBE Facebook and Website

(2) Poster

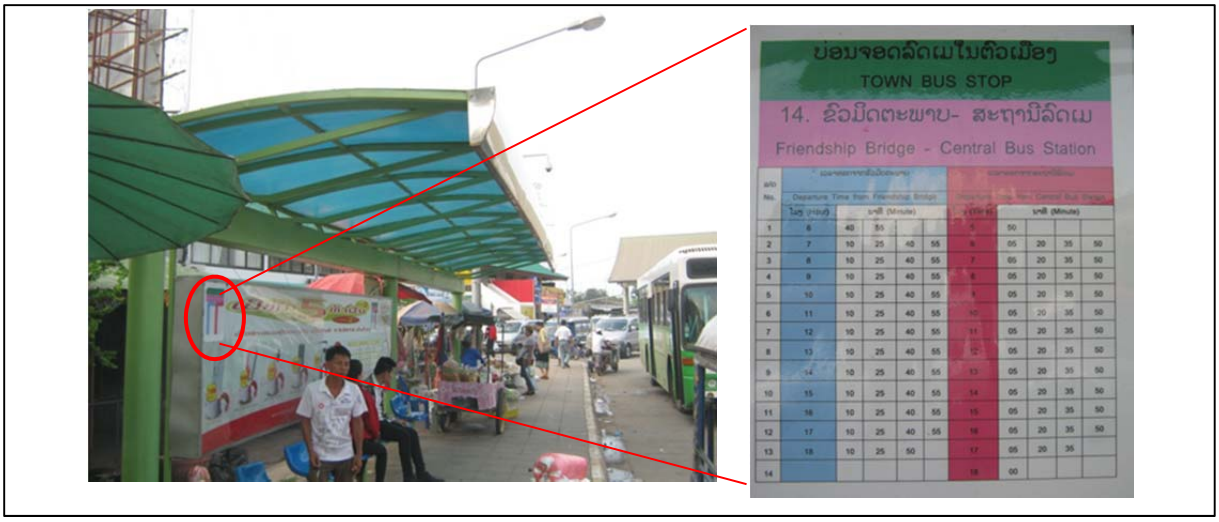
To promote student bus pass, posters were prepared. The posters were posted at the CBS and schools.

Figure 2.4-5 Poster and Brochure for SBP Promotion

(3) Time Table

The project placed a time table at some bus stops, Friendship Bridge and some bus stops around Dongdok Campus. However, after a few months later, somebody broke away those

time tables and no longer showed at the bus stops.



Picture 2.4-2 Table at the Friendship Bridge Bus Stop

2.4.5.2 Bus Operation

(1) Bus Operation Hours

VCSBE considered requests of the extension of bus operating hours from passengers, bus operating hours were extended for No.14 and 29. The last bus departure time was prolonged for 30 minutes in 2012.

Further expansion of the bus operation hours was discussed in the project. However, following issues came out to be solved.

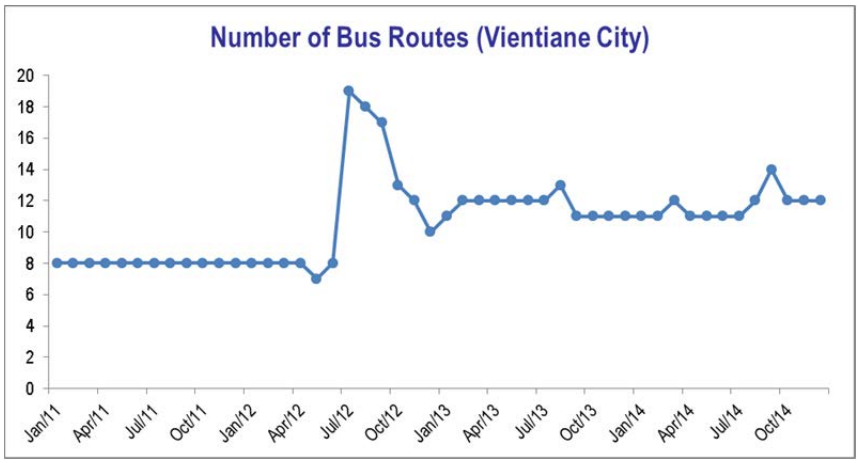
- The present operation is one driver for one bus. Drivers work from beginning until end of the allocated bus operation, which is more than 12 hours per day.
- Number of drivers should be increased because the present operation cannot afford to extend operating hours, at the same time, working conditions of drivers shall be revised in order to efficient bus operation.
- However, increasing bus drivers increases financial cost of VCSBE. It is required further study on cost and benefit.
- For the study, passenger monitoring is required. Eagle bus offered to study their passenger monitoring system with VCSBE. The study will suggest more efficient bus operation, including extension of bus operating hours.

(2) Bus Routes Restructuring

VCSBE replaced old bus to new green bus in 2012. Utilizing some old buses which were rather good condition, tried to revive abolished bus routes upon request of districts. In July 2012, the number of bus route reached to 19, however, the number of passengers was not enough to keep operation such revived routes and sequentially abolished again. The number of bus route was 10 in December 20114. The reason why not attracting

passengers were assumed that ancient old bus with scarce operation was not competitive to other transportation.

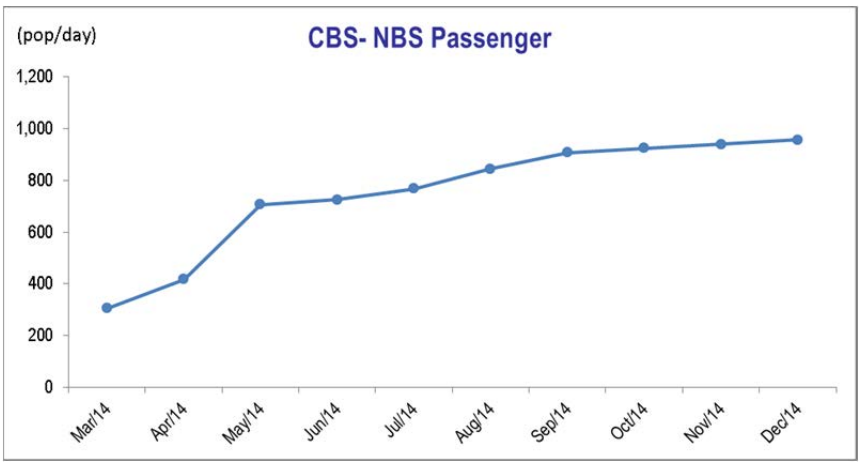
In 2013 and 2014, bus operated in 10 to 14 routes upon request from districts.



Source: VCSBE

Figure 2.4-6 Number of Bus Routes between January 2011 and December 2014

In March 2014, MPWT ordered transportation services for long distance toward North, to move from the CBS to the Northern Bus Station (NBS). According to the order, private vans moved to the NBS. VCSBE had to move inter provincial bus toward Talad to the NBS, with considering efficiency, VCSBE abolished the route, instead, established a frequent service between the CBS and the NBS. The number of passengers of that route has been increasing and reached to 957 per day in December 2014.



Source: VCSBE

Figure 2.4-7 Daily Passenger between CBS and NBS

In accordance with the request of NUOL to expand bus route, VCSBE expanded bus route to a dormitory of SEA Game Village and Nongviengkham, however, the number of passengers were not enough and canceled accordingly.

VCSBE expanded route No.14 from the Friendship Bridge to Budda Park, because the

road had been rehabilitated. The number of passengers increased and kept fare price same.

As stated above, VCSBE tries new routes, expansion of existing routes upon request of districts and university, abolishes unprofitable routes, and reallocates big bus or mini bus upon the number of passengers, flexibly.

Table 2.4-7 Bus Operation in Vientiane City

No.	Route	2000		2014 (Dec.)		Memo
		Buses	Trips/day	Buses	Trips/day	
14	Thadeua (Friendship Bridge)	9	46	10*	49	Extended to Budda Park in January 2015
33	Nongtha	2	13	2*	11	
31	Phontong	5	34	6*	35	
40	Nonghay	1	8			Resumed in August 2012, stopped in September
23	Thangone	4	21	6*	29	
26	36km	2	9			Resumed in July 2012, stopped in August
43	Ban xok	2	9			
29	Dongdok	3	24	6*	37	
32	Donepamay	2	20	7	24	2 EV Bus + 5 Minibus in December 2014
30	Thongpong	3	19	2*	12	
3	Tatthong	2	13			Resumed in July 2012, stopped in September
41	Hath Khancha	1	5			
13	Sithantay	2	10			Resumed in August 2012, stopped in September
17	Lathkhouay	2	11			
28	Khoksaard	2	10			Resumed in July 2012, stopped in October
47	Donnokkhom	1	8	1*	6	
34	Nongping	1	8			Resumed in July 2012, stopped in November
20	Dongkhamxang	2	12	5	25	
8	Northern Bus Terminal			4*	24	
5	Numsuamg			1	2	
49	Nongteng			2	10	
48	Sikerd					Resumed in July 2012, stopped in July
56	Nakrauy					Resumed in August 2012, stopped in October
27	Thadindeang					Resumed in November 2012, stopped in November 2012
25	Vernkhay					Resumed in August 2012, stopped in November
	Total	46	280	52	264	

Note) * : Operated by new green bus.

(3) Required Transportation Capacity in Vientiane City

In 2000, VCSBE operated 18 routes with 26 big buses and 30 mini buses provided by JICA. Due to deterioration of buses, the operation routes had been decreased and came to 8 in

2010. In July 2014, with new green bus provided JICA, the bus routes were increased to 19 but abolished again due to lack of competence of old buses. In December 2014, bus routes of city bus were 12 with operating 37 new green buses, 13 minibuses and 2 electric buses with some stand by buses. To keep the present bus service, it is required to update old mini buses and deteriorating electric buses.

2.5 Improve Public Bus Policy and Plan (Act 3)

2.5.1 Review and Establish a Proper Fare Structure (Act 3-1)

The working group for financial support of VCSBE was established and the working group reviewed present fare system at first. The fare level of the city bus in Vientiane Capital was compared to other ASEAN countries, as the results, the fare level in Vientiane Capital was concluded highly enough and difficult to hike fares. Also the working group studied the formula to determine fare price of transportation in Laos upon multiple costing, and found unreasonable assumptions. Even though, it was expected too much time to revise such formula, and the working group concentrated on studying about financial aid for VCSBE.

Table 2.5-1 Workshop for Fare Structure and Subsidy

Year	No.	Date	Seminar / Workshop	Participants
2nd	1	19 Feb, 2013	Concept of financial support for the Public Transport Company	11
	2	22 Mar, 2013	Types of financial support	11
	3	29 Mar, 2013	Examples of foreign countries and impacts of subsidies	11
	4	8 Apr, 2013	Summary of discussion and confirmation of application for tax concession	11
3rd	5	13Nov, 2014	Confirm the progress and further process of tax concession	13

2.5.2 Review Subsidy Policy for Public Bus Transportation (Act 3-2)

(1) Three ways as Financial Aid for Public Transport

Financial aid to public transport from the government can be classified into three categories, such as Tax concession or exemption, Subsidies and, Funding. The definition of each term is described as below.

1) Tax concession

Tax concession means implementation of the Tax reduction or Tax exemption to a company. Cash payment from the Government is not necessary. The target Taxations here are VAT, Profit Tax, and Minimum Profit Tax.

2) Subsidies

Subsidy means that the provision of economic benefits for the company or some companies met with the certain criteria by government.

3) Funding

Funding means financial aid as grants or loans, by making a large amount of aid for the

purchase of a large number of busses or related equipment at one time.

(2) Tax Concession

1) Taxation on revenue

Regarding the Taxation on revenue, accrual and paid amount in last 4 years is shown in the table as below. As the actual procedure for implementation, stakeholders are limited to the related ministries and VCSBE; therefore this concession is reasonable and feasible.

Description	2009	2010	2011	2012	Average
VAT(Sales, kip)	1,507,429,403	2,813,188,616	3,133,804,835	311,720,075	2,691,535,732

2) Taxation on expense

Regarding the Taxation on expense, accrual and paid amount in last 4 years is shown in the table as below. As the actual procedure for implementation, it is necessary to define the scope of the exemption and decide the way of procedure from two ways, ex-ante or ex-post[2]. Therefore, this concession is relatively complicated and takes time for the implementation.

Description	2009	2010	2011	2012	Average
VAT(Expense,kip)	583,039,983	1,468,400,479	1,645,788,321	1,516,894,519	1,303,530,826

3) Taxation on the profit and the scale of transaction

Regarding the Taxation on the profit and the scale of thee transaction, accrual and paid amount in last 4 years is shown in the table as below. As the actual procedure for implementation, both ex-ante and ex-post ways can be adopted. However, the number of stakeholders is limited. Therefore, ex-ante way is easier and expected for implementation.

Description	2009	2010	2011	2012	Average
Profit or Minimum Profit Tax (kip)	865,950,957	263,116,979	313,384,483	331,172,007	584,254,390

(3) Types, Payer and Target of subsidy

As the subsidy for the transportation company, subsidies are divided into two types. One is the subsidy for the capital asset, such as bus body or infrastructure for BRT, the other is operational support. Both subsidies have some points of advantage and disadvantage.

[2] In this text, “ex-ante” means the way of practice which is necessary to the proceedings before the transaction. Therefore, the price on the actual time of the transaction is deal with tax free price or the price including the effect of subsidy. For if the "pre" of VAT, by the amount of trade tax at the time of transaction to be sought and the corresponding well-known to those of skill is required for each transaction. "And" post, at the time of the transaction, said that the general conduct transactions at a price, receive a refund of taxes and subsidies after the transaction. If "post" of VAT, at the time of the transaction to trade at a price including tax once, then he will be able to submit to the authorities, evidence relating to transactions exempt, subject to refund on the settlement. Then, well-known to the trader is not required.

And more, by expanding the scope of subsidy in addition to the direct subsidy for the bus company, the nature and practices of the subsidy are a wider variety. The table below is the summary of the types of subsidy.

Types of subsidy		Revenue		Expense		Target
		Relation	Timing	Relation	Timing	
Operation	Fare	Good	Ex-post	Fair	Ex-ante	Bus company/ Bus passenger vulnerable people (Elderly people or Child)/ Student
	Bus fuel	Fair	Ex-ante	Good	Ex-ante	Bus company/ Bus passenger
	Full cost			Good	Ex-post	Bus company
Capital asset	Bus body			Good	Ex-ante	Bus company
	ICT			Fair	Ex-ante /Ex-post	Bus company/ Bus passenger

In addition, the nature of subsidies can be classified by payer, target, which is shown in the table as below. These points and the purpose of subsidy should be made into consideration for the decision making.

Payer	Target				
	Bus company	Bus passenger	vulnerable (Elderly people/ Child)	Student	Policy participants e.g.) Park & Ride
Central Government	・Fund ・National policy promotion by specified financial resource				
Ministries	・Tax concession ・Subsidy for capital assets ・Subsidy for bus operation ・Transportation policy promotion	・Subsidy for bus operation ・Transportation policy promotion	・Subsidy for bus operation ・Social welfare policy promotion	・Subsidy for bus operation ・Educational policy promotion	・Fare subsidy ・Participation to the respective policies
Local government	・Subsidy for bus operation ・Urban development policy/ Urban transportation network	・Fare subsidy ・Welfare	・Fare subsidy ・Welfare	・Fare subsidy ・Welfare	

(4) Financial support status in other countries

In other major ASEAN countries, current status of subsidies to bus companies and fuel subsidies are summarized in Table 2.5-2. From this matrix, it is recognized that tax concession or disburse as subsidy are provided in all countries.

In Thailand, subsidy for fuel is provided in whole country, and subsidy for operation is provided to the public bus company; however, the carry forwarded loss has been increasing. This situation shows the difficulty of the management of the bus company which provides

only bus operation service.

In Singapore, where the privatization has been highly progressed, the subsidy for the capital assets, such as bus body and infrastructure for the contactless smart card system, is provided. Therefore, the main work of the bus company is only operation and maintenance.

(5) Policy priorities and business outlook

With considering of feasibility, the difficulty of coordination among stakeholders, and the advantages / disadvantages of each aid, following order should be taken as a policy priority as financial support

1st priority: Tax exemption or reduction

2nd priority: Subsidy for the company's bus service

3rd priority: Subsidy for the capital assets such as bus body

In case those 1st and 2nd policies are adopted, VCSBE will be able to gradually accumulate profit, and there is a possibility to purchase bus bodies by own funding in the future.

(6) Risks in case of no financial support

VCSBE annually submits Financial Statements to MPWT and VC. These reports are showing severe financial situation of management. Therefore, if no financial support policy is adopted, there is high possibility of defaulting of VCSBE. Once this default occurs, Vientiane city has no public transportation and causes public absence. Furthermore, it will accelerate the motorization and deterioration of the environment.

Regarding the Grant of busses by JICA, it is assumed that VCSBE continues its operation; therefore, if VCSBE becomes difficult to continue management, there is a possibility that it will cause difficulty on next financial cooperation in the field of transportation in the future.

(7) Report to the Mayor

The working group submitted a report to the Mayor of Vientiane Capital and recommended to request tax concession of VCSBE to the Government of Lao. The application to the government is now proceeding.

Table 2.5-2 Financial Assistance in ASEAN Country

		Indonesia	Thailand	Philippine	Singapore	Malaysia	Vietnam
The name of Public Bus (Transportation) company		TransJakarta, bus rapid transit (BRT)	Bangkok Mass Transit Authority (BMTA)	N/A	N/A	・Rapid KL ・Rapid Penang	・Ho Chi Minh-Ho Chi Minh Transport Management and Operation Center ・Hanoi-Hanoi Transport Management and Operation Center
Remarks regarding the situation of management			Revenue was 7,902Mil Baht, Cost was 10,593, and Net loss was 5,125Mil Baht in2010, Carry forwarded loss is 77Bil Baht.	N/A	N/A	(Rapid KL) ・This company operates 167 routes with 1400 buses covering 980 residential areas with a ridership of about 400,000 per day. ・Operate not only bus, but also operateLRT and Monorel.	N/A
Subsidy for	Operation	Since its first year of operation until 2012, it is estimated that the city has invested over 5 trillion Indonesian rupiah ($450 million USD) for busway infrastructure and to cover the TransJakarta operation. Now, nearly 4 trillion Indonesian rupiah ($436 million USD) is currently allocated for ground transportation each year.	6.9% of Revenue (7.9Bil Baht) (2010) 7.3% of Revenue (8Bil Baht) (2009)	N/A	N/A	N/A	・Ho Chi Minh-VND1.27 trillion (US$60.4 million; 2011), VND574Mil (2008) ・Hanoi-VND1.1 trillion (USD52.7 million; 2011)
	Vehicle		Thailand	N/A	Bus interchanges are funded entirely by the Government. In addition, public buses are also exempted from COE (Certificate of Entitlement) payments. The Government also pays for the development and software cost of the contactless smartcard system. Therefore, bus and train operators are only responsible for operations, maintenance costs and investments in service improvements.	N/A	N/A
	Fuel (whole country)	Though government had provided subsidy for diesel or other oil, cut it in this year.	Provide subsidy for diesel	Provide subsidy for diesel	N/A	Provide RM 10,000 Mil (25,000 Bil Lip) subsidy for liquefied petroleum gas (LNG), diesel and petrol, and retail price of diesel is RM1.75 (4476 Kip, 2010)	Provode subsidy, 1,000 VND per litter, for the fuel suppliers.
The Private Bus (Transportation) companies		In more remote areas, and between smaller towns, most services are provided with minibuses or minivans.	Many private busses in various sizes, types, and prices, from half size, full size, double length, open window, fan, and air conditioned	・All bus companies are private ・Many private busses in various sizes, types, and prices, from half size, full size, double length, open window, fan, and air conditioned	All bus companies are private	(KL) Other rail-based services, such as KTM Komuter, KLIA Ekspres and KLIA Transit are operated by other companies. There are also many other bus operators such as Metrobus, Len Seng Omnibus Co. Ltd., and Selangor Omnibus Co. Ltd.	・Ho Chi Minh-15 businesses operating in the public transport sector
Related Data source and related information			Income Statement of Bangkok Mass Transit Authority (BMTA), HP(http://www.bmta.co.th/th/about_profit.php)	N/A	Gov HP(http://www.ptc.gov.sg/regulation/fareRegulation.htm)	Export fuel to other countries	

Source: JICA Project Team

2.5.3 Develop Medium-term Public Bus Transportation Plan (Act 3-3)

(1) Prepare a Midterm Business and Investment Plan

The medium-term management plan for 2015-2019 was prepared by the Project. VCSBE will reformulate the medium-term business and investment plan into Lao official style and submit to DPWT and the Mayor to be approved.

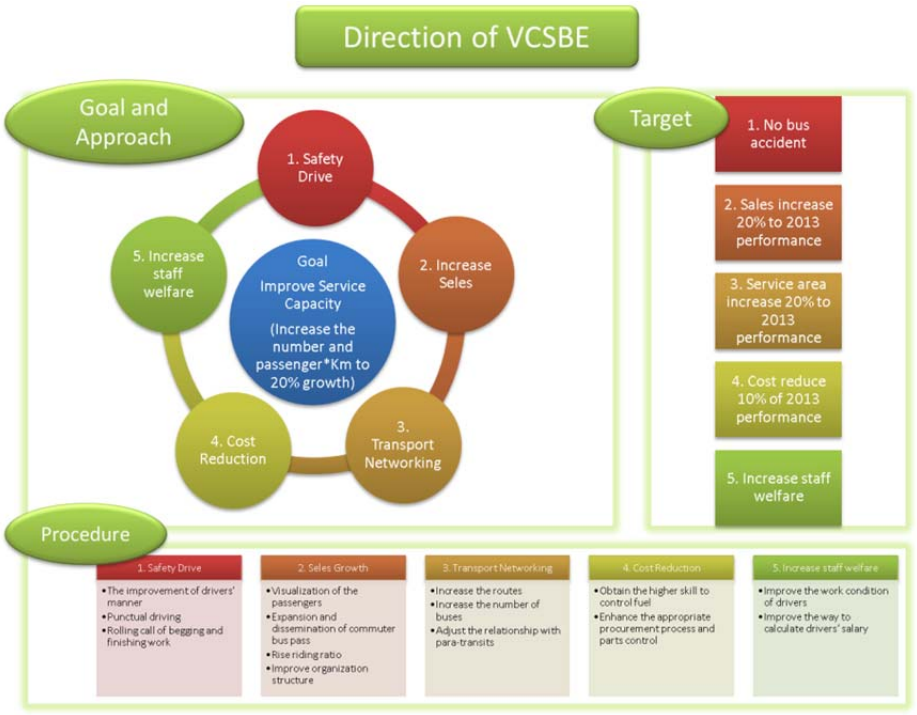


Figure 2.5-1 Overview of Midterm Management Plan of VCSBE (2015-2019)

In the midterm management plan, two scenarios of financial plan were considered with renewal of old buses for next 5 years. One was a case to maintain the same size of bus operation, and the other was a case to expand the size to 20% growth. The first case required USD 4,194,000 and the second case required USD 4,696,000. Detailed plan is shown in the attachment.

Table 2.5-3 Repayment for the Investment of Bus Procurements

(Unit: USD)

Schedule of repayment	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year
Maintain the current scale	0	236,000	247,000	251,000	257,000	202,000	222,000	245,000
	9th Year	10th Year	11th Year	12th Year	13th Year	14th Year	15th Year	Total
	269,000	296,000	326,000	359,000	392,000	423,000	469,000	4,194,000
Schedule of repayment	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year	8th Year
Expand the size to 20% growth	0	337,000	321,000	301,000	283,000	216,000	238,000	262,000
	9th Year	10th Year	11th Year	12th Year	13th Year	14th Year	15th Year	Total
	288,000	317,000	348,000	386,000	423,000	465,000	511,000	4,696,000

Source: JICA Project Team

(2) Midterm Public Bus Transportation Plan

As the population and economy grow, the public transport system has to convert motorcycle and private car-dominant system to a comprehensive public transport system to cope with the increasing traffic demand. An efficient and safe public transport system reduces the total number of traffic volume as well as contributing to alleviating traffic congestion, reducing the number of traffic accidents and reducing air pollutants emitted by vehicles.

JICA Project Team reviewed the transport policies and plans in Vientiane Capital and discussed with MPWT to update a midterm public bus transportation plan of 2015-2025.

1) Target Share of Public Transport

i) JICA Urban Transport Master plan (Transport M/P) in 2008

A targeted share of Medium-Term Public Transport in 2018 will be 25% according to the overall transport policy sited in "the Study of Master Plan of Comprehensive Urban Transport in Vientiane Capital in Lao"(JICA,2008). To achieve this target, direction of the modal change by mode is presented as follows. Table 2.5-4 shows the target shares.

1. Targeted Modal Share of Public Transport in 2018: 25%
2. Modal Shift and Staging Target

2013: Reducing of Motor Cycle (M/C) by 15% & Car by 5% for Work
M/C for School by 40% Increase in Public Transport share ⇒15%

2018: Reducing of M/C by 35% & Car by 10% for Work
M/C for School by 70% Increase in Public Transport share ⇒25%

2025: Reducing of M/C(75%) & Car (30%) for Work
M/C for School (90%) Increase in Public Transport share⇒40%

Table 2.5-4 Public Transport Share Target of Transport M/P

(Unit: trip)

Mode	2007		2013		2018		2025	
Walk（NMT）	241,268	25%	276,109	22%	308,991	20%	349,556	18%
M/C	572,739	60%	625,728	51%	589,646	39%	460,894	24%
Car	106,199	11%	149,474	12%	227,772	15%	351,794	18%
Public Transport	37,427	4%	187,655	15%	382,615	25%	766,675	40%
Total	957,633	100%	1,238,966	100%	1,509,024	100%	1,928,919	100%

Source: JICA Transport M/P (2008)

ii) The National Strategy and Action Plan on Environmentally Sustainable Transport, Lao PDR in March 2011.

The Government of Lao PDR formulated a strategy called "The National Strategy and Action Plan on Environmentally Sustainable Transport, Lao PDR" in March 2011. The

Strategy aims at; The Strategy reviewed the current status of transport in Laos and analyzed issues to be addressed, and proposed action plans by 2015 and 2020 to achieve environmentally sustainable transport (EST). The issues varied such as; air pollution, noises, alternative fuels, safety, and congestions. To cope with them, several sub-goals with numerical targets were proposed.

- ✓ Promoting a modal shift to non-motorized modal such as bicycle and foot to 25% in 2015 and 30 % in 2020,
- ✓ Promoting a modal shift to public transport such as bus together with paratransit of taxi, Tuk-tuk, to 15% in 2015 and 30% in 2020,
- ✓ Keeping travel ratio with private vehicles below 10% in all traffic modals,
- ✓ Reducing a ratio of travelling by motorcycles to 50% and 30% respectively in 2015 and 2020,
- ✓ Improving service qualities of public transports including bus operating management system (BRT, operation intervals, etc.),
- ✓ Introducing vehicles with less environmental impacts such as lower emission vehicles.

iii) Summary

Transport M/P showed the bus unit numbers required in the future. Transport M/P and EST both set the target shares of public transport respectively.

Table 2.5-5 Target of Public Transport Share

Year	Transport M/P	EST
2013	15% (264 Buses)	-
2015	-	15%
2018	25% (310 Buses)	20% (interpolation Year 2015-2020)
2020	≒30% (interpolation Year 2018-2025)	30%
2025	40% (352 Buses)	-

2) Short Term Target

In the Project, reviving 18 routes, which was operated in 2000, was aimed. Even though once revived by old mini-bus, passengers were not enough to be sustaining those routes. The major reason are lucking in comfort of used bus, lucking in convenience of operation service number and confliction with other transportation modes. To comply with this target, the required number of buses was estimated as 54 including reserves for maintenance.

Table 2.5-6 Required Number of Bus to Revive 18 Routes

No.	Route	Round Distance (km)	Required Travel Time (Min.)			Required No.of Bus (Unit)	Trip No.	Capacity
			Round	Waiting	Total		(Trips/day)	(PAXKM/Day)
40	Nonghay	30	60	10 x 2	80	4	24	18,000
26	36km	72	144	10 x 2	164	7	24	43,200
43	Ban xok	46	92	10 x 2	112	5	24	27,600

No.	Route	Round Distance (km)	Required Travel Time (Min.)			Required No.of Bus (Unit)	Trip No.	Capacity
			Round	Waiting	Total		(Trips/day)	(PAXKM/Day)
3	Tatthong	30	60	10 x 2	80	4	24	18,000
41	Hath Khancha	60	120	10 x 2	140	6	24	36,000
13	Sithantay	58	116	10 x 2	136	6	24	34,800
17	Lathkhouay	46	92	10 x 2	112	5	24	27,600
28	Khoksaard	56	112	10 x 2	132	6	24	33,600
47	Donnokkhom	20	40	10 x 2	60	3	24	12,000
34	Nongping	20	40	10 x 2	60	3	24	12,000
Total						49	240	262,800
Grand Total (10% Contingency)						54		

Note) Nominal Speed 30km/h., Head Time 30min, Operating Hr.6:00-18:00, Bus Capacity 25PAX/Unit
Source: JICA Project Team

3) Midterm Public Bus Transportation Plan

JICA Project Team examined the future target of public bus modal shares in consideration of the share of the present situation.

Table 2.5-7 Revised Midterm public Bus Transportation Plan (2015-2025)

	2013	2015	2018	2020	2025
Public Bus Modal Share	4%	10%	15%	20%	25%
Number of Buses	52	106	264	284	310

Source: JICA Project Team

4) Information Sharing

On 3 July, 2014, the JICA Project Team made a presentation on the public transportation in Vientiane Capital for UNESCP and UN-Habitat upon a request of VCSBE.

2.5.4 Promote Establishment of Collaboration Mechanism with Other Public Transportation Modes of Para-transit (Tuk-tuk, Jambo, Sonteo) (Act 3-4)

The Vientiane Capital has a principle to reduce the total number of Tuk-tuk and Jambo and relocate them outside of the city gradually. In this regards, DPWT has not allowed new registration of Tuk-tuk and Jambo, as the result the number reduced from 2,090 in 2008 to 1,250 in 2014.

Table 2.5-8 Number of Registered Paratransit

Mode	2008	2014	2014/2008
Tuk-tuk/ Jambo	2,090	1,250	60%
Sonteo	262	602	230%
Taxi	132	98	74%

Source: DPWT

DPWT took initiative to collaborate between VCSBE and other transport modes of para-transit in this Project. Especially, to build the new CBS, consensus on TBS construction was required since there were some conflicts between the planned location of TBS and Tuk-tuk parking space. The Vientiane Capital organized a committee with concerns, to settle relocation of kiosks and street vendors in and around the CBS. The committee made recommendations to the Mayor.

The Director General of Dot/ MPWT ordered north bound long distance buses to move to the Northern Bus Station (NBS) from the CBS. This order was made to sort out around CBS during construction of the new CBS. VCSBE decided to cancel a route required to relocate the departure place from the CBS to the NBS, whereas vans operate the route. On the other hand, VCSBE started bus service between the CBS and the NBS frequently.

2.5.5 Promote Public Bus Transport Preference Measure (Act 3-5)

Illegal parking is an issue to be solved to improve public transportation, because it prevents smooth traffic flow and threats passengers when boarding and alighting a bus. The Project intended to cooperate with Traffic Police and conducted the BRT pilot project with them.

- Discussion with traffic police at C/P meeting
- Plan for BRT social experiment in the 2nd Year
- Setting the working group with Traffic police
- Advice at BRT social experiment
- Setting of exclusive lane, enforcement of illegal parking removal

2.5.6 Update Public Transportation Policy and Plan (Act 3-6)

(1) Law and Regulation

Laws relating to the public bus operation are shown as below;

- Traffic Transport Law,
- Land Transport Law,
- Multimodal Transport law,
- Urban Planning Law, and
- Environmental Protection Law.

Land Transport Law was revised in 2012. The JICA Project Team discussed with MPWT and following articles relating public transportation are newly added:

- Article 23 Public Passenger Transport,
- Article 24 Transportation of Passengers on Specific Routes,
- Article 25 Transportation of Passengers on Nonspecific Routes,

- Article 26 Rights, Obligations and Roles of Public Transportation Provider, and
- Article 27 Rights, Obligations and Roles of Passenger.

In addition, following articles relating to stations are updated;

- Article 43 Type of Station,
- Article 44 Size of Passenger Transport Station, and
- Article 45 Goods or Animal Station.

(2) Policy and Plan

The Government of Lao formulated a strategy called "The National Strategy and Action Plan on Environmentally Sustainable Transport, Lao PDR" in March 2011. The Strategy aims at; The Strategy reviewed the current status of transport in Laos and analyzed issues to be addressed, and proposed action plans by 2015 and 2020 to achieve environmentally sustainable transport (EST). The issues varied such as; air pollution, noises, alternative fuels, safety, and congestions.

(3) Bus Promotion and Safety Campaign

Safety Campaign has been conducted by traffic police in Vientiane Capital. The project proposed and collaborated with that activity and educated students of the advantages of public transportation. The discussion meeting of the traffic safety training campaign was conducted chaired by the Vice Mayor of Vientiane Capital, and confirmed the safety campaign.

DoT/ MPWT has a fund to encourage road safety in Lao supported by the World Bank. C/P proposed to collaboratively conduct safety activity with that fund. A road safety awareness campaign was conducted at around Pattuxay Square on 10 May, 2013, as a part of the World Traffic Safety Week. The Project cooperated to the campaign and VCSBE provided bus transport for participants.

Table 2.5-9 Traffic Safety Campaign

Year	No.	Date	Seminar	Attendee	Description
1st	1	13 Nov, 2012	Meeting on Road Traffic and Safety Issues in Cooperation with Traffic Relevant Organizations	20	· Traffic Safety Class for pupils · Promotion of bus use · Temporally Bus Station · BRT
2nd	2	14 Oct, 2013	The Discussion Meeting of the Traffic Safety Training Campaign Preparation	20	· Safety Campaign for School
	3	26 Oct, 2013	Traffic Safety Training Campaign at Vientiane Secondary School	About 100	· Traffic Safety Education · Demonstration of safety road crossing for pedestrians

Vientiane students learn about the safe use of public transport

Students all aboard school bus push

Bounfaeng Phaymanivong

Public transport use among Vientiane's schoolchildren may be on the rise under a campaign to teach students about the safe use of buses.

The Vientiane Public Transport Enterprise brought together 60 students from Nahaidiew Primary School and Vientiane Secondary School on Saturday to learn about the safe use of public transport and road safety in general.

Vientiane Public Transport Enterprise Director, Mr Khamphoun Temelath, said lessons were taught based on the experience of Japanese schoolchildren, who frequently used public transport on their own.

"We specifically focus on young passengers to enable them to use public buses on their own safely while going to school," he said.

The campaign, which is aimed at reducing congestion and accidents on the city's roads, is part of a project to enhance the capacity of the Vientiane Capital State Bus Enterprise.

Mr Khamphoun said the push would be expanded to include adult passengers in a bid to fight congestion, petrol expenses and air pollution.

Vientiane faces ever-worsening traffic congestion and accidents because of an increased number of vehicles on the road and inappropriate parking practises.

Mr Khamphou said public transport had never caused a road accident that resulted in a fatality in Vientiane.

Last year, the Japanese government donated 42 new buses to Laos to ease traffic congestion and reduce carbon emissions by lowering the number of motorbikes and cars on the road.

In the 2011-12 fiscal year, 6,150 road accidents in Laos claimed 898 lives and left 10,461 injured.

Figure 2.5-2 Road Safety Campaign for Student

(4) Japanese Experience

Lao side requested supports from Japanese bus companies to VCSBE in terms of management supports and management participation. The JICA Project Team organized a bus seminar by Japanese Bus Operators in Vientiane Capital. Participants from Japan were Yokohama City, Okayama Electric Train Company, Eagle Bus, and chaired by Dr. Nakamura, Yokohama National University. The seminar conducted on 14 March, 2014, in attendance of the Minister of MPWT, the vice Mayor of Vientiane Capital, Mr. Koizumi, Director of JICA Headquarter and concerns of transportation service in Lao. On the previous day, a discussion meeting was conducted with VCSBE and Japanese Bus Operators.

Table 2.5-10 Seminar of Bus Management and Operation Improvement in Japan

Year	No.	Date	Seminar	Attendee	Description
3rd	1	13 Mar, 2014	Bus Management and Operation Improvement in Japanese Practices and Experiences	15	· Japanese experience and Lao experience · Exchange opinion
	2	14 Mar, 2014	Seminar for Bus Management and Operation Improvement in Japanese Practices and Experiences	55	· Yokohama City · Okayama Electric Train Company · Eagle Bus · Dr. Nakamura Fumihiko, Yokohama National University

2.6 Conduct Safe and Smooth Bus Operation at Temporary Bus Station (TBS) (Act 4)

2.6.1 Advice for TBS Construction (Act 4-1)

TBS service was planned to start in December, 2014, but procedures to decide on operation

locations has been delayed. The Project team supported TBS operation plan by defining issues, points of concern and proposed operation locations.

City mayor issued permission for TBS-A, and operation becomes possible. TBS-B is currently continuing the discussion with city council about relocation of kiosk at the site. There are 3 proposed locations for TBS-C, and discussions are continuing on operation locations. As soon as permissions are obtained for all TBS, operations will begin.

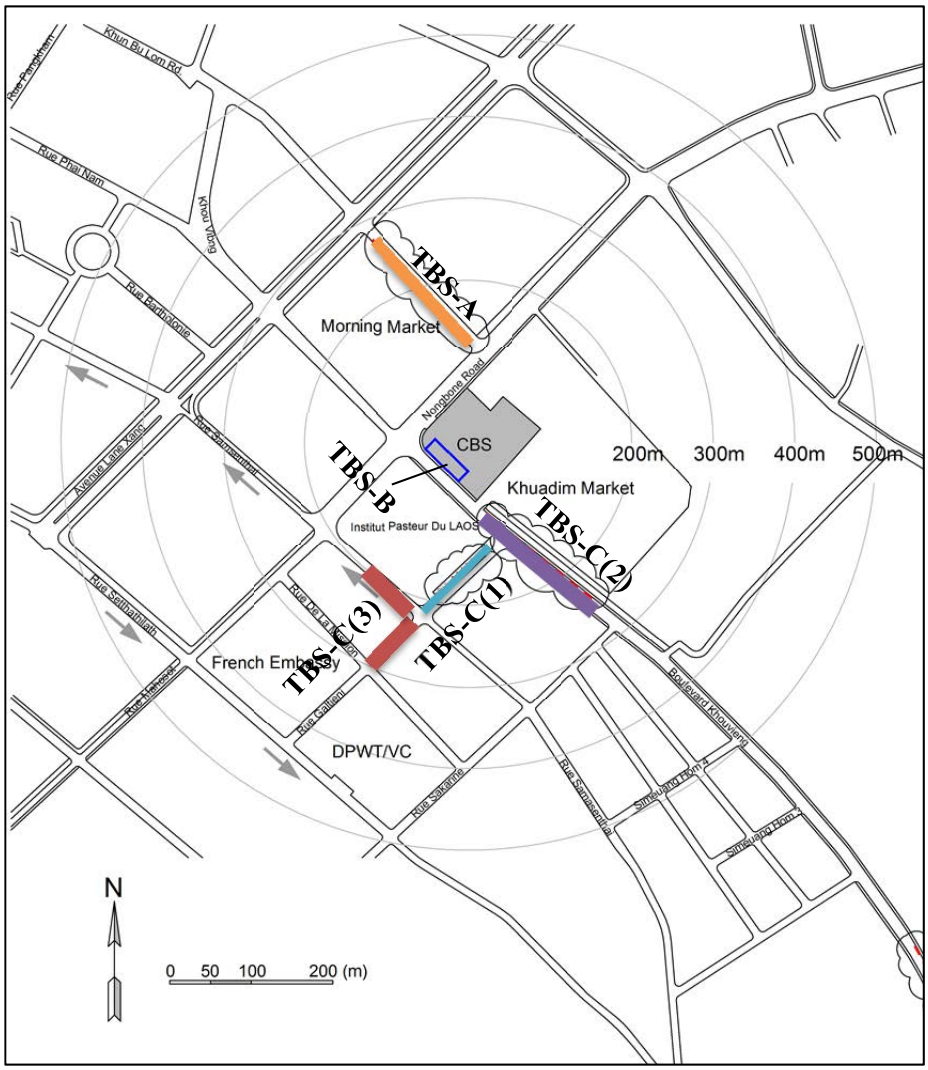


Figure 2.6-1 TBS Location Map

2.6.1.1 Issues and Consideration of TBS

(1) TBS-A

TBS-A has approval from the former city mayor and confirmation of Trade and Industry Department of the City to begin the operation. Currently TBS-A is preparing for the operation.

a) TBS-A cannot turn to the left at a crossing with Nongbone road, which is exit from TBS-A. For this reason, the bus route is set to the right direction.

b) The distance between the parallel bus bay should be 5m.

c) Construction contractor (CCC) for a new CBS will remove and install benches from current CBS.

d) Cooperation of the traffic police will be neede to ensure pedestrians safety. Buyers from Khua Din market have to cross Nongbone road to reach TBS-A

	
Road condition at TBS-A	Intersection at Nongbone Road, a view from TBS-A (right turn only)

Picture 2.6-1 TBS-A

(2) TBS-B

a) The office building for the bus company has been constructed and handed over on 5th February after the inspection and sign up. Bus stop has been also installed.

b) Entry to TBS-B proposed by turning left from Khouvieng road bypassing TBS-C (Pasteur Institute before parking). Currently turning left in the proposed intersection is prohibited. Exclusive permission for buses to turn left needs to be discussed with DPWT.

	
TBS-B Bus Company Office	TBS-B Bus Shelter

Picture 2.6-2 TBS-B

(3) TBS-C

There are three candidates for operational location. Final decision for operational locations are under discussion. As for TBS-C (3), local authorities proposed new location in this year. For this purpose, this location was also considered.

i) TBS-C (1): Pasteur Institute Location

Advantage

a) This road has enough width which can be secured for bus parking space without influencing traffic movement.
b) A distance to CBS is closer; there is no much influence on users' travel time.
c) Standby is possible for buses coming from TBS-B.

Disadvantage

a) Left turn is prohibited in the intersection of Khouvien Road. It must be offered to DPWT to allow only for buses to turn left.
b) There are heavy traffic flows in both directions of Khouvien road. Entry from the west side is not easy.
c) Consultation to the traffic police to ensure pedestrians' safety. Pedestrian crossing on Khouvieng road will be crowded in the morning.

	
TBS-C(1) Condition of Tuk-Tuk and Sonteo Parking (1)	TBS-C(1) Condition of Tuk-Tuk and Sonteo Parking (2)

Picture 2.6-3 TBS-C Option 1

ii) TBS-C (2): Khouvien Road

Advantage

a) A distance to CBS is closer, there is no much influence on users' travel time.

Disadvantage

a) This road is narrow when bus parking and stopping on the road secure only one lane. There is a commercial facility, therefore traffic problem will occur.

b) Consumption of gasoline will increase because of operation route.

	
TBS-C(2) Road Condition	TBS-C(2) Commercial Facility

Picture 2.6-4 TBS-C Option2

iii) TBS-C (3) Samsenthai Street and Galtieni Street

Above mentioned two (2) options have constraints on land use. Considering alternatives upon the suggestion of the head of the district, JICA Project Team conducted field survey and made an alternative proposal for TBS-C location place. Proposed TBS-C option 3, consist of two (2) roads, cater for the big and mini buses respectively. Features and points of this option are listed below.

	
TBS-C(3) Samsenthai Street (A-A) Road Condition	TBS-C(3) Galtieni Street (B-B) Road Condition

Picture 2.6-5 TBS-C Option3

Feature

A-A: Samsenthai Street	B-B: Galtieni Street
➢ The road is already bus operation route. ➢ If roadside is used for bus stops of minibuses, two traffic lanes with approximately 3.0m can be secured for other traffic. ➢ Effective utilization of existing bus stop	➢ Head of the District suggested the location. ➢ Traffic volume is very small and traffic congestion will not occur. ➢ Sidewalk is wide and enough for boarding and alighting.

Point of Concern

- Distance to CBS become longer by 150 m in comparison with a past plan.
- Necessity to coordinate road lane marking on Samsentai Street
- Necessity to install bus shelters (at the cost of CBS Constriction Company)

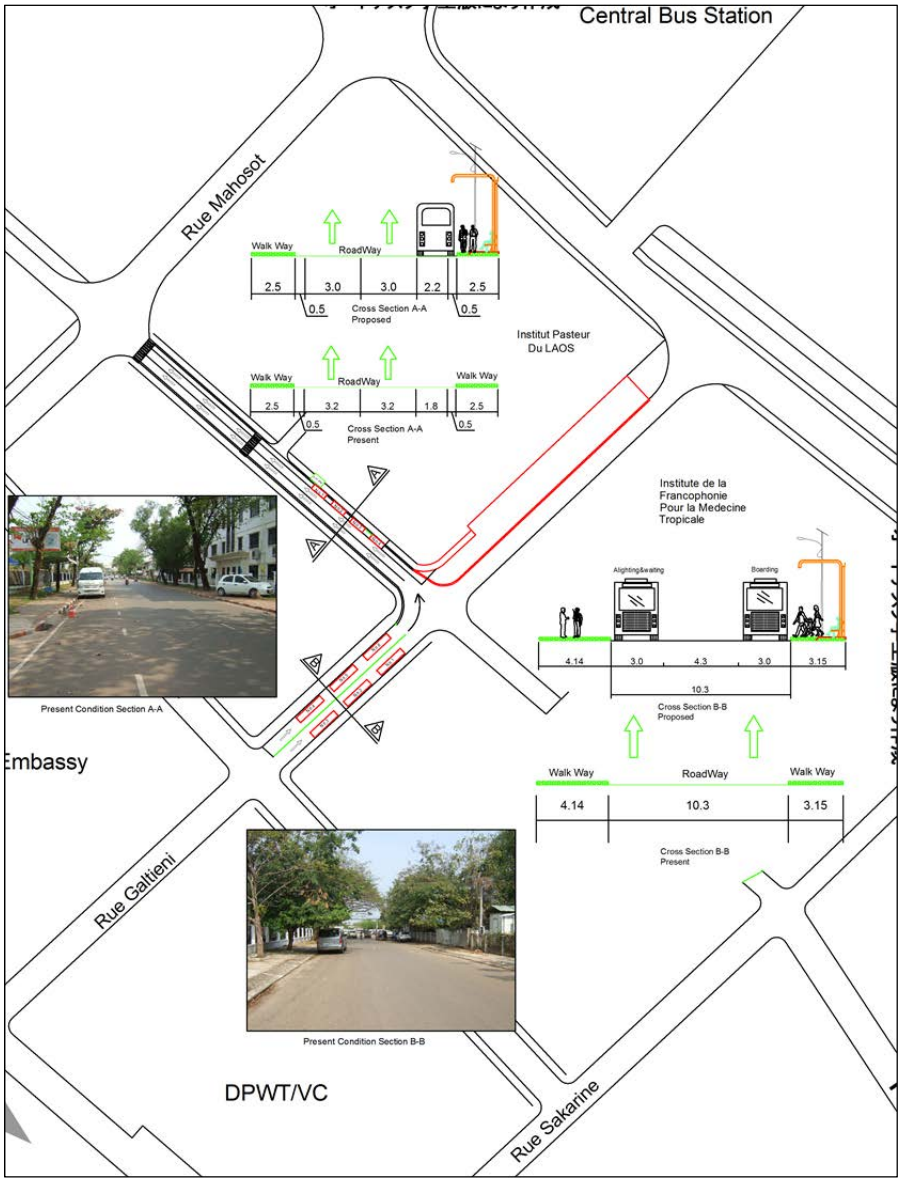


Figure 2.6-2 Detail Map of TBS-C Option3

2.6.1.2 Operation Plan

In consideration of the issues and considerations, the bus arrangement plan in TBS-C is proposed below.

(1) Proposal from VCSBE (Original)

Bus operation plan in TBS-A

No.	Bus Route	Type	Frequency, Remark
1	31 Phontong	ISUZU	every 20 minutes, 3 trips/hour
2	33 Nongtha-Dongdok	ISUZU	every 60 minutes. 1 trips/hour
3	30 Thongpong	ISUZU	every 60 minutes, 1 trips/hour
4	49 Nongteang	Minibus	every 35 minutes (morning), 60~120 minutes .(afternoon) 1~2 trips/hour
5	32 Donepamai	Minibus,EV	every 15~20minutes, 3~4 trips/hour
6	Bus standby area		for 4 minibuses of route 32
	Total		11 trips/hour

Bus operation plan at TBS-B

No.	Bus Route	Type	Frequency, Remark
1	29 Dongdok	ISUZU	every 15~20 minutes, 3~4 trips/hour
2	23 Thangon	ISUZU	every 25 minutes, 2 trips/hour
3	Vientiane-Bangkok	HD	18:00, 18:30
	Vientiane-Khonkaen	HD	08:15, 14;45
	Vientiane-Udonthany	HD	08:00, 09:00, 10:30, 11:30, 14:00, 15:00, 16:30, 18:00
	Vientiane-Nongkhai	HD	07:30, 09:30, 12:40, 14:30, 15:30, 18:00
	Total		7 trips/hour

Bus operation plan at TBS-C

No.	Bus Route	Type	Frequency, Remark
1	14 Friendship Bridge	ISUZU	every 15 minutes, 4 trips/hour
2	14 Friendship Bridge	ISUZU	Stand-by
3	08 Northern Bus terminal	ISUZU	every 30 minutes, 2 trips/hour
4	47 Faculty of Law	ISUZU	every 120 minutes, 0.5 trips/hour
5	20 Dongkhamxang	Minibus	every 25 minutes, 2~3 trips/hour
6	05 Namxuang	Minibus	10:00, 16:30
7	19 Paksap	HINO	11:00, 16:30
	Total		13 trips/hour

Note: This proposal does not consider standby of international buses.

(2) Alternative 1 for TBS-A (in the case of TBS-C (1), or TBS-C (2))

Bus operation plan at TBS-A（Route 05 and 19 are allocated in TBS-A.）

No.	Bus Route	Type	Frequency, Remark
1	31 Phontong	ISUZU	every 20 minutes, 3 trips/hour
2	33 Nongtha-Dongdok	ISUZU	every 60 minutes. 1 trips/hour

3	30 Thongpong	ISUZU	every 60 minutes, 1 trips/hour
4	49 Nongteang	Minibus	every 35 minutes (morning), 60 minutes .(afternoon) 1~2 trips/hour
5	32 Donepamai	Minibus,EV	every 15~20minutes, 3~4 trips/hour
6	05 Namxuang	Minibus	10:30, 16:30
7	19 Parksap	HINO	11:00, 16:30
8	Bus standby area		for 4 minibuses of route 32
	Total		11 trips/hour

Bus operation plan at TBS-B（Same as original）

No.	Bus Route	Type	Frequency, Remark
1	29 Dongdok	ISUZU	every 15~20 minutes, 3~4 trips/hour
2	23 Thangon	ISUZU	every 25 minutes, 2 trips/hour
3	Vientiane-Bangkok	HD	18:00, 18:30
	Vientiane-Khonkaen	HD	08:15, 14;45
	Vientiane-Udonthany	HD	08:00, 09:00, 10:30, 11:30, 14:00, 15:00, 16:30, 18:00
	Vientiane-Nongkhai	HD	07:30, 09:30, 12:40, 14:30, 15:30, 18:00
	Total		7 trips/hour

Bus operation plan at TBS-C (Stand-by of international bus are allocated)

No.	Bus Route	Type	Frequency, Remark
1	14 Friendship Bridge	ISUZU	every 15 minutes, 4 trips/hour
2	14 Friendship Bridge	ISUZU	Stand-by
3	29 Dongdok	ISUZU	Stand-by
4	08 Northern Bus terminal	ISUZU	every 30 minutes, 2 trips/hour
5	47 Faculty of Law	ISUZU	every 120 minutes, 0.5 trips/hour
6	20 Dongkhamxang	Minibus	every 25 minutes, 2~3 trips/hour
7	International Bus	HD	Stand-by
8	International Bus	HD	Stand-by
	Total		9 trips/hour

(3) Alternative 1 TBS-A (case of TBS-C (3))

Bus operation plan at TBS-A（Route 05, 08 and 19 are allocated in TBS-A. Route 32 moved to TBS-C.）

No.	Bus Route	Type	Frequency, Remark
1	31 Phontong	ISUZU	every 20 minutes, 3 trips/hour
2	33 Nongtha-Dongdok	ISUZU	every 60 minutes. 1 trips/hour
3	30 Thongpong	ISUZU	every 60 minutes, 1 trips/hour
4	08 Northern Bus terminal	ISUZU	every 30 minutes, 2 trips/hour
5	49 Nongteang	Minibus	every 35 minutes (morning), 60~120 minutes .(afternoon) 1~2 trips/hour
6	05 Namxuang	Minibus	10:30, 16:30
7	19 Parksap	HINO	
8	Bus standby area		for 4 minibuses of route 32
	Total		9 trips/hour

Bus operation plan at TBS-B（Same as original）

No.	Bus Route	Type	Frequency, Remark
1	29 Dongdok	ISUZU	every 15~20 minutes, 3~4 trips/hour
2	23 Thangon	ISUZU	every 25 minutes, 2 trips/hour
3	Vientiane-Bangkok	HD	18:00, 18:30
	Vientiane-Khonkaen	HD	08:15, 14;45
	Vientiane-Udonthany	HD	08:00, 09:00, 10:30, 11:30, 14:00, 15:00, 16:30, 18:00
	Vientiane-Nongkhai	HD	07:30, 09:30, 12:40, 14:30, 15:30, 18:00
	Total		7 trips/hour

Bus operation plan at TBS-C (3) A-A (Route 32 is allocated in TBS-A.)

No.	Bus Route	Type	Frequency, Remark
1	20 Dongkhamxang	Minibus	every 25 minutes, 2~3 trips/hour
2	32 Donepamai	Minibus,EV	every 15~20minutes, 3~4 trips/hour
3	49 Nongteang	Minibus	every 35 minutes (morning), 60~120 minutes .(afternoon) 1~2 trips/hour
	Total		8 trips/hour

Bus operation plan at TBS-C (3) B-B (Route 08 is allocated in TBS-A)

No.	Bus Route	Type	Frequency, Remark
1	14 Friendship Bridge	ISUZU	every 15 minutes, 4 trips/hour
2	14 Friendship Bridge	ISUZU	Stand-by
3	29 Dongdok	ISUZU	Stand-by
4	47 Faculty of Law	ISUZU	every 120 minutes, 0.5 trips/hour
5	International Bus	HD	Stand-by
6	International Bus	HD	Stand-by
	Total		1 trips/hour

2.6.1.3 Parking Management and Parking Capacity

1) 20 buses are parking at CBS during the night time. When the construction of CBS starts mini buses will move to old northern bus terminal (VCSBE proposed). New green buses will be parked at the workshop.
2) A fuel is considered to supply from the Workshop of the facility. The distance from CBS to the Workshop is 3km and to old northern bus terminal is 5 km. It is proposed to provide a fuel supplying facility to the old bus terminal, because fuel consumption would increase.
3) TBS has not enough parking spaces for standby buses returning to TBS after the operation. The project proposes to perform bus waiting, drivers' break time and schedule arrangement at a destination of bus routes and without staying for long parking at TBS.
4) Private bus companies (CBS operation fee pay to VCSBE) are operating at CBS currently. But the private bus companies are not consideration in TBS planning.

2.7 Maintain New CBS Functions (Act 5)

The new CBS will be constructed after preparation TBS. As of March 2015, the TBS has not been constructed and present CBS has still been operated.

The Project Team reviewed a basic concept of the new CBS construction plan in terms of bus operation, and advised VCSBE to insist requirements for bus operation in the new CBS to the developer. On 14 February, 2013, comprehensive comments were submitted to DPWT. Most of the comments were applied to the revised basic concept. After those modifications, finally the Vientiane Capital made contract with Chitchareune Construction Company in January 2014. The detailed design of the new CBS was following to the basic concept; however, VCSBE should carefully observe the actual construction.

3. Issues and Practices

In this project, it was succeeded to involve high level government officials, such as the Mayor of Vientiane Capital and the Minister of the MPWT. From time to time, the project organized special meetings or discussions with relating authorities chaired by the Mayor or the vice Mayor. Through such special meetings, concerns shared issues of public transportation in Vientiane Capital, and made consensus on conducting transport safety activities in this project. Outline of ICT student bus pass was also agreed in such meetings. A BRT pilot project was successfully conducted with the support of the traffic police of Vientiane Capital it was an outstanding outcome of collaboration between the project and the traffic police. The project involved the NUOL and promoted ICT Student Bus Pass with the NUOL. On the other hand, it took very long time for coordination between many concerns and temporary bus stops could not start operation during the project. Lao side should properly install bus facilities and operate bus operation among temporary bus stops. VCSBE decided to continue ICT Student Bus Pass, and how to increase the number of selling, especially not using present bus users is an issue to be tackled by VCSBE.

The weekly C/P meeting has been held through the project. It was very fruitful to share issues among C/Ps and JICA Project Team. For VCSBE, staffs have shared problems of each department and discussed on such problems. Information sharing is preceded in VCSBE. VCSBE became able to check driving record by Digital Tachograph in order to manage fuel consumptions. VCSBE is willing to conduct such weekly meeting among concerning organizations.

The JICA Project Team has members of Keisei Bus as an advisor. Keisei bus conducted surveys and seminars in Vientiane Capital, and based on the experience, contents of training in Japan were modified to suit to VCSBE.

The Project derived another project “Preliminary Study for the Design and Implementation of the Bus Business Improvement System” conducted by Eagle Bus Company, which was a trainer of training in Japan and conducted the seminar in Vientiane Capital. C/P very much interested in the technology of Eagle Bus Company to improve bus operation using censors to count passengers of each bus and analyze the data immediately. Japan Research Institute for Social System (JRISS) was another fruit of the project. Mr. Nishida, CEO of JRISS and Adjunct Professor of Kyoto University, attended as advisor for ITS technology. JRISS is conducting another project of JICA to introduce technologies for new location information system and traffic observation system for urban transport improvement. Yokohama City is considering providing second buses to Vientiane Capital.

4. Recommendation

Based on issues and practices, the JICA Project Team recommends as follows;

(1) Corporate management is improved by VCSBE

- Implement medium term corporation management plan
- Improve financial management of VCSBE to purchase new buses by own budget
- Introduce an accurate passenger recording system
- Visualize present bus use
- Expand business cooperation, such as Eagle Bus

(2) Measures for improvement of VCSBE's service are implemented in Vientiane responding to citizens' requests

- Introduce community bus services in the high population density and accessibility constrained areas
- Introduce new medium size buses
- Increase public bus service area

(3) Public transportation policies and plans favorable to public bus are established

- Follow-up tax concession application process and consider subsidy for VCSBE in the future
- Enforce the roadside parking regulation with the traffic police as a part of the bus preference measures
- Coordinate with other donors in Public Transportation policies and projects

(4) Safe and smooth bus operation is conducted at the temporary Bus Station (TBS)

- Implement and monitor TBS operation plan

(5) New CBS function is secured

- Prepare a bus operation plan at new CBS

New green bus provided by JICA is a key to support bus service in Vientiane Capital involving many concerns. The Project Team looks forward attracting attention of citizens on the public bus and gathering specialist from various aspects cooperating with Japan and Lao.