Socialist Republic of Vietnam Hochiminh City People's Committee (HCMC-PC) Management Authority for Urban Railways in HCMC (MAUR)

Socialist Republic of Vietnam

Implementation Report on the Project for Support on Set up of Operation & Maintenance Company of Urban Railways in HCMC

March 2013

Japan International Cooperation Agency (JICA) Japan International Consultants for Transportation Co., Ltd



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ACRONYMS AND ABBREVIATIONS

AFC	automatic fare collection
BP	business plan
CP(1)	counterpart
CP(2)	contract package
DIA	Department of Internal Affairs
DPI	Department of Planning and Investment
DOF	Department of Finance
DOT	Department of Transport
EMU	electric multiple unit
EN	English
EPC	engineering, procurement, construction
FS	feasibility study
GC	general consultant
HCMC-PC	Ho Chi Minh People's Committee
HOUTRANS	Ho Chi Minh Urban Transport Master Plan
HR	human resources
IC Card	integrated circuit card
I/F	interface
IPO	initial public offering
IT	information technology
JICA	Japan International Cooperation Agency
JCC	Joint Coordination Committee
JP	Japanese
L/A	loan agreement
LMC	local management consultant
MAUR	Management Authority for Urban Railways
MD	minutes of discussion
MOT	Ministry of Transport
MRB	Hanoi Metropolitan Railway Management Board
MRT	mass rapid transit
O&M	operation& maintenance
OCC	Operation Control Center
ODA	official development assistance
PDM	project design matrix
PMU	project management unit
PO	project operation table
PU	Preparation Unit
PUC	Preparation Unit for Setting up of the O&M Company
RTRI	Railway Technical Research Institute

RVC	Railway Vocational College
SAPI	Special Assistance for Project Implementation
SAPROF	Special Assistance for Project Formation
SF	stored fare
TC	technical cooperation
TOR	terms of reference
UMRT	urban mass rapid transit
VJCC	Vietnam-Japan Human Resources Cooperation Center
VN	Vietnamese
VNR	Vietnam Railway Corporation
VNRA	Vietnam Railway Administration
WB	World Bank
WBS	work breakdown structure

EXECUTIVE SUMMARY

This technical cooperation (TC) project was established to prepare the setting up of the O&M company which will manage urban railways in HCMC. This company is planned to be ready in time for the opening of the Urban Mass Rail Transit (UMRT)Line 1. The counterpart for this project is the Management Authority for Urban Railways (MAUR), which established the Preparation Unit for Setting up of the O&M Company (PUC) for this TC project.

This project consists of two phases: Phase 1 has a duration of two years until the establishment of the O&M company and Phase 2 will be implemented for three years until the opening of Line 1. For the first phase 55 person-months of expert inputs have been completed from the end of March 2011 until March 2013. This report covers the activities and results of the first phase and a brief description is provided below and in succeeding pages.

1. Main Outputs and Outcomes

In this TC project, the concrete targets were (i) to develop the O&M company's charter, general contract of transport, and basic internal rules for the planning, safety, human resources, financial and business departments, as well as (ii) to enhance the potentials of PUC staff through study tours in Japan and other activities. These internal rules were developed as scheduled. In the study tour in Japan, participants gained precious experience which cannot be obtained from ordinary study tours: Participants rode in the train drivers' cabin and worked at a train station for an entire day until midnight.

Discussions with relevant authorities were indispensable in setting up of the O&M company. After the discussions with relevant authorities based on the documents prepared by the PUC, there have been substantial progress in the preparation for establishing the O&M company. Major outputs are shown below.

1) Approval by the HCMC-PC of the Establishment Plan for the O&M Company in HCMC has Become Possible

In the beginning, the HCMC-PC had no plans to set up an O&M company to manage urban railways in the city. But through this TC project, the HCMC-PC's approval of the Establishment Plan for the O&M company can be said to be within reach. Although this plan is part of the approval procedure, it is very important for consensus building, and its approval will prove that this project was satisfactorily carried out.

2) Consensus on the Payment of the Initial Investment and Interest will not Depend on fare Revenue

When reviewing bankrupt urban railway companies in southeast Asia, it was found that the development of an appropriate financial scheme is important to ensure sustainable financial management. The adoption of a financial scheme wherein the payment of the initial investment and its interest does not depend on fare revenue was confirmed with the representative of relevant departments of the HCMC-PC. This occurred after sharing the results of a simulation which

showed the expenditure does not include the depreciation cost for the initial assets. Based on this scheme, subsidies from the HCMC-PC is not needed, except when replacing or increasing assets and assuming that affordable fare levels can be agreed upon by representatives of relevant departments and secured, and that substantial inflation will not take place.

But because bus fares have been maintained at low levels, it is highly possible that fare levels for trains will likewise be suppressed by the HCMC people's council. If the HCMC-PC will subsidize the O&M company to reduce or avoid deficit, the latter's motivation to pursue financial soundness while ensuring safety, as well as maintain self-governance, will decrease.

3) Driver Training and Licensing System

The relevant authorities for driver training are the Vietnam Railway Administration (VNRA), which has the power to interpret relevant laws and regulations, and MAUR, which has to provide the drivers for the UMRT Line 1 opening. Vietnam and Japan have their respective concerns about the training system for drivers. Accordingly, the JICA Project Team and representatives of the general consultant for Line 1 participated in a meeting with the Vietnamese side to explain the concerns of the Japanese side. As a result of this meeting, the VNRA issued a letter to MAUR, about a special arrangement regarding driver training, which could cover the requirements of the Railway Law as well as include the conditions of the JICA Project Team.

The Japanese side was tasked to discuss with the Osaka City Metro about the plan for the latter to issue certificates to trainees who receive theoretical training in Japan. Considering the training system for drivers after line opening, it is more positive for Vietnam to establish a training course from the beginning. The Vietnamese staff, who were originally tutors on diesel locomotives at the Railway Vocational College, could serve as tutors on electric multiple units (EMUs) after receiving trainings in EMU from the Japanese side. Therefore, the JICA Project Team will try promoting to the Vietnam Railways (VNR), i.e., the owner of RVC, and relevant authorities the plan to delegate the training of drivers to the RVC from the beginning.

2. Remaining Issues to Address

1) Development of a management scheme for the O&M Company which conforms to the real operation

In any company operation, including railway companies, quick and correct decision making is required. But MAUR and the PUC agree to delegate authority, especially over expenditure, only to the deputy managing directors of the company. When lower-ranking officials have to make decisions, a power of attorney is to be issued in every case. After studying a company in Vietnam, it was found that its system was not so different from those suggested by MAUR/PUC. Therefore, it was decided that power delegation would follow the customary practices in Vietnam. With this arrangement, it is obvious that prompt business decisions cannot be made.

The delegation of authority to directors who are under deputy managing directors is not prohibited by Vietnamese laws and regulations but is uncommon in companies in Vietnam. Hence, it may take some time for Vietnam to adopt a decision-making system like that existing in Japan. It may be an important issue for the JICA Project Team to tackle in the Phase 2 of this TC project to develop a decision-making system through which business processing can be done quickly.

2) Enthusiasm for Setting up of the O&M Company

The construction of urban railways in HCMC is the first challenge in Vietnam and HCMC and there may be various obstacles to it. Overcoming them would entail hard work from concerned officers in MAUR.

The project for setting up the O&M company started based on the request of MAUR to JICA, but it seems that the former's enthusiasm has waned already after it was clarified that the opening of Line 1 would be postponed for two years at the minimum from the original opening date.

The PUC staff are young, capable, and have experience studying in foreign countries. But in Vietnam, where people recognize seniority, they may have some difficulty demonstrating their capability. It seems MAUR's enthusiasm of MAUR for this project has declined in some means.

On the other hand, the civil works for elevated sections and depot area commenced in August 2012 and contract negotiation for rolling stock and equipment started in January 2013. Furthermore, MAUR chairman, Mr. Luong, expressed his positive opinion to establish the O&M company as early as possible. Following the instructions of top management as much as possible is a good Vietnamese trait. Basing on these, it would seem that the interest to establish the O&M company is still alive.

3. Next Phase of Technical Cooperation

The Establishment Plan for the O&M company was presented during the fourth Joint Coordination Committee (JCC) meeting in January 2013. Though some issues were pointed out, most are on the language used and not on the substance; hence the approval of the plan is foreseeable. As MAUR chairman, Mr. Luong expressed his opinion that the O&M company must be set up as early as possible, he also clarified the role of the PUC in this task and that MAUR could soon get the approval of the HCMC-PC on the Establishment Plan for the O&M company. Regarding the training of drivers, the VNRA and MAUR discussed directly and concrete schemes have become foreseeable. Furthermore, the contractor for CP-3, which had been a pending issue for a long time, was finally decided. It can be said that the early setting up of the O&M company gathers strength. As the HCMC-PC's approval of the Establishment Plan is the precondition for the next phase of the technical cooperation, it is anticipated that MAUR and PUC will settle these pending issues by the end of March 2013.

In the meantime, the construction schedule of Line 1 has been stretched to accommodate an opening two years later than originally planned. This postponement has created a period of two years of inactivity between Phase 1 and Phase 2 of this TC project. Though theoretically it seems feasible to establish the O&M company within three years of Phase 2, it is also a fact that MAUR and the PUC, which have no experience managing urban railways, will take time to understand them fully. This interim period is also important for PUC staff to continuously enhance their capabilities.

Based on these conditions, the activities of the coming TC project for these two years were designed so

that the PUC could develop the management capability of its staff even with the reduced number of experts. Shown below are the activities proposed for the coming TC Phase 2, based on the assumption that the preconditions listed below are fulfilled. Regarding concrete activities, please refer to the project design matrix for the TC project.

1) Preconditions for the Next TC Phase

- (i) MAUR clarifies the role of the PUC as the preparation unit for establishing the O&M company within MAUR (already done);
- (ii) MAUR/PUC will proactively meet with other departments of the HCMC-PC, central government ministries, and other entities;
- (iii) The O&M company should start in 2013 even if there would be further delay in the construction of Line 1; and
- (iv) About 19 staffers will be assigned to the PUC up to March 2015.

2) Terms of Reference for the Next TC Phase

- (i) Setting up of the framework of the O&M company;
- (ii) Acquisition of management knowledge/experience through preparation work of setting up the O&M company;
- (iii) Building up of the outer framework supporting the O&M company; and
- (iv) Preparation of TC Phase 2 activities.

1. **PROJECT INTRODUCTION**

1.1 Background of the Project

With a population of 7.16 million (as of 2009), Ho Chi Minh City is the most populated city in Vietnam. This fact makes it important to enhance the city's role as an international business hub. But even while it has become Vietnam's economic capital, the city is now experiencing problems commonly associated with large metropolises around the world, such as traffic congestion, traffic accidents, and air pollution as the city develops and traffic volumes increase. Major cities in Vietnam target public transportation to reach a 50% share of all transportation modes by 2020. The people of Ho Chi Minh City hopes the future public transportation system will be developed based on the results of the person-trip survey conducted by JICA in 2004.

Providing a good transportation service to the citizens will not be easy without a mass transit system in a megacity as Ho Chi Minh City. The JICA study entitled "Ho Chi Minh Urban Transport Master Plan" (HOUTRANS) came about because of the difficulty in upgrading the capacity of public transportation, such as buses and current railway, and in developing a road network in the central district. This led to suggestions on developing urban railways or urban mass rapid transit (UMRT). Many countries have shown interest in investing in urban railways, such as Germany, Russia, France, and China. Among these countries, Japan would become the first investor in urban railway in HCMC, especially for Line 1 or the Ben Thanh–Suoi Tien section which has a total length of 19.7 km (the Loan Agreement was signed in 2007). This line is currently being constructed and will be operational by 2016. This project covers not only the construction of railway facilities and the procurement of railway equipment, such as rolling stock and a signaling system, but also includes training in train driving, operation management, station works, and the provision of manuals for such tasks.

Because the HCMC Line-1 project is the first urban railway project in Vietnam, the Management Authority for Urban Railway (MAUR) lacks knowledge and experience in handling train operations. MAUR is under the HCMC People's Committee (HCMC-PC) and is in charge of establishing the railway operation and maintenance (O&M) company, which will be the main operator of the urban railway. As an initial step, such an O&M company has to be established in the soonest possible time. However, MAUR will find it difficult to accomplish this goal without any support even with the existence of a JICA-funded SAPI (Special Assistance for Project Implementation) study done in 2008 which lays down a reasonable framework and proper schedule in establishing the O&M company to ensure that Line1 will have an effective and efficient commercial railway operation. Therefore, the Government of Vietnam requested the Government of Japan for technical support.

1.2 Purpose of the Project

The purpose of this technical cooperation (TC) project is to support MAUR's Preparation Unit (PU) to set up the O&M company for urban railways in HCMC. This company will manage not only Line 1, which is now under construction, but also other urban lines to be constructed with government funds.

1.3 Target Area and Relevant Authority for this Project

- (1) Target Area : Ho Chi Minh City, Vietnam
- (2) Implementing Agency : Management Authority for Urban Railways (MAUR). Within MAUR, a Preparation Unit for Setting up of the O&M Company (PUC)was established to be exclusively engaged in this TC project.

2. PROJECT ACTIVITIES

2.1 Implementing Procedures for this Project

This technical cooperation project aims to support MAUR in setting up the O&M company, especially in such areas as creating a sound business plan; writing its company charter; and drafting company regulations on the functions and duties of each department, rules of employment, and general transportation contract, among other things.

Implementing this project involved various actions as shown in Figure 2-1. Except for Action 5, each action consisted of several sub-actions.



Figure 2-1 Interrelationship of Project Actions

In the following sections, the significance, purpose, considerations, and implementation plan are first described by action and sub-action based on the Inception Report, followed by a description of the actual implementation and results, which are enclosed in dashed boxes.

2.2 Planning, Administration, and Safety Tasks (Action 1)

(Action 1-1) To set up the comprehensive plan to control the implementation of TC activities in general

Following the commencement of this technical cooperation (TC) project, a three-month period will be given to build the foundation of this two-year project. By the end of this action, the general implementation plan and accomplishment list of this project will be established. In particular, the tasks to be carried out are as follows:

(1) Establishment of an Implementation Scheme for the PUC

Once the project commences, the following activities will be implemented as soon as possible:

- (i) Development of the tasks of the Preparation Unit;
- (ii) Decision on the tasks of each PUC staff;
- (iii) Establishment of activity procedures and decision-making system in the PUC; and
- (iv) Selection of local management consultants.

In particular, within the first month upon the commencement of this TC project and to kick-start the training for the PUC at the early stage, preparations will be done to set up a management school, select local management consultants, and develop the Japan study tour program.

[Results of the Action]

- (1) The JICA Project Team showed an example of the duties of the Preparation Unit (listed below), but these were not officially recognized by MAUR. Therefore, in one weekly meeting, the JICA Project Team proposed to modify the name of PU to PUC (Preparation Unit for Setting up the O&M Company)to better clarify its role. This proposal was accepted and PU changed to PUC. The proposed tasks of the Preparation Unit are as follows:
 - Prepare documents required to setup the O&M Company;
 - Plan the schedule and actions to setup the O&M Company;
 - Discuss and negotiate with other authorities the setting up of the O&M Company;
 - Study various information to setup the O&M Company;
 - Formulate the tasks, organization, and institutionalization of the O&M Company; and
 - Allocate money from the budget for the above-mentioned tasks.
- (2) The tasks of each PUC staff are decided as follows:
- Mr.Thanh : Team leader, in charge of planning
- Ms. Tra : Deputy team leader, in charge of human resource
- Ms. Duc : In charge of administration and safety
- Ms. Hai : In charge of finance
- Mr. Quan : In charge of business
- (3) The weekly meetings, which were participated in by all PUC staff and the director in charge of organization and training, served as the venue for decision making. The decision-making system for the O&M company will be developed when adjustments among the departments are required.
- (4) The JICA Project Team contracted local management consultants initially for a three-month trial period. The contract was extended up to the end of this TC project.
- (5) Details on the management school, selection of local management consultants, and the study tour in Japan are provided in Chapter 3 of this report.

[Concerns and Suggestions for Improvement]

- (1) In the beginning, MAUR and PUC put more importance on appearances rather than on substance; but the situation gradually reversed. At the initial stage, when the JICA Project Team suggested the importance of advanced information about the contents of presentation, MAUR/PUC questioned the wisdom of this. However, in the final Joint Coordination Committee (JCC) meeting, they tried to do it proactively. While this late change of heart resulted in failure, it can be said that MAUR/PUC has realized the importance of advance information to facilitate consensus building.
- (2) At this stage, the role of the PUC was not clearly defined yet. But MAUR chairman, Mr. Luong, clarified it in a meeting of directors in MAUR held on 15 January 2013 (see Appendix6). Meanwhile, at the fourth JCC meeting, MAUR vice chairman, Mr. Cuong, expressed his determination to obtain funding from the HCMC-PC in order to continue PUC operations in case JICA would not be able to provide support.

- (3) There were a couple of issues surrounding the decision-making system within the PUC, to wit:
 - As PUC/MAUR does not have enough experience in the development of new systems, they have a tendency to avoid measures that are ideal for reaching the target but to settle for measures that present lower or no risks.
 - To ensure prompt decision making, it is important to reduce as much as possible the items that need approval from top management, although in Vietnam, it is common to get instructions on every issue from top management. To develop a prompt and efficient decision-making system for the O&M company, it is also important to delegate responsibility to lower-ranking officials (see Action1-2).
 - From the above discussions, the urgent issue is the enhancement of the PUC's potentials for decision making.

[Output]

• None.

(2) Establishment of the General Implementation Plan and Accomplishment list of this Project

In order to manage this project comprehensively, the Planning Division, which is planned to be the controlling authority in the PUC, has to be established right after project commencement. Through this arrangement, the JICA Project Team and the PUC planning personnel can ensure that all PUC activities, including this TC project, can proceed in proper coordination with each other and that they will amend the work breakdown structure (WBS), which the PUC drafted, in the course of project implementation. Through these activities, the interrelationships among actions can be clarified. Furthermore, each staff will have a better picture of the project activities to be carried out and the targets to accomplish for each action. To avoid discrepancies among actions, overlaps with other actions should be clarified beforehand. The interrelationships between actions are expressed in Table 2-1.

In the first JCC meeting to be held three months after project commencement, the results of these activities will be shared with stakeholders.

Lead Action	Related Action	
Action 1-2	Action1-3 : To formulate the organizations and regulations of	
To formulate the	planning, administration and safety task	
regulations of function	Action2-1 : To formulate the organization and regulations of human	
and duty of each	resources task	
Department	Action3-1 : To formulate the organization and regulations of Financial	
	task	
	Action4-1 : To formulate the organization and regulations of Business	
	task	
Action 1-4	GC's construction schedule	
To formulate the	Action3-5 : To study for securing financial soundness of the company	
operation business		
plan		

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Action 1-5	Action 1-2 · To formulate the regulations of function and duty of each	
To formulate the	department	
company regulations	Action3-2 : To formulate the accounting system	
	Action4-4 : To study business terms, mechanism and management	
	methods for non-fare business	
Action1-7	Action1-6 : To formulate draft regulations for safety management	
To prepare the	system	
requirement of IT	Action2-3 : To prepare the human resource planning	
system of O&M	Action3-2 : To formulate the accounting system	
including financial	Action3-3 : To prepare the plan of budget management	
activity	Action3-4 : To formulate the regulations for procurement	
Action2-2	Action2-3 : To prepare the human resource planning	
To formulate the	Action2-4 : To formulate the job allocation and job grading systems	
working regulations	Action2-5 : To formulate the staff allocation plan	
Action2-6	GC Construction schedule	
To set up the training	Action2-7 : To get approval from MOT regarding driver's license and	
center for drivers	other railway-related laws and regulations	
Action3-2	Action2-3 : To prepare the human resource planning	
To formulate the		
accounting system		
Action4-2	Action 4-3 : To establish the fare pricing and adjustment system.	
To formulate transport		
business statute		

- Prior to the inauguration of this project, the Preparation Unit members already developed the work breakdown structure (WBS) with the help of the short-term JICA expert. At the beginning of this project, PUC members elaborated the contents of the WBS by adding sub-actions based on the Inception Report (IC/R) and by reviewing the implementation schedule indicated there. In projects where activities are developed from the very beginning like this project, the WBS serves as the benchmark for the activities. The JICA Project Team and PUC utilized the WBS to check if there were differences between the planned and actual activities.
- The PUC held a number of meetings with the JICA Project Team to discuss and complete the WBS. In the course of drafting it, PUC staff elaborated the interrelationships between sub-actions.
- The accomplished WBS was presented at the 1st JCC meeting (see Appendix2 for details).
- The project design matrix (PDM) was revised because the construction period was extended and Vietnam's acquisition of technology for psychological aptitude testing was canceled. The WBS was revised as well.
- [Concerns and Suggestions for Improvement]
- None.
- [Output]
- Work breakdown structure.

(3) Development of Information Common for the PUC

After the commencement of this project and as part of the activities in the first three months, information that will be of common concern within the PUC will be gathered. The major tasks are listed below. These activities will not be completed within this period, but it will be continued in this project by assigning staff to each task.

- Update implementation schedule of this project based on the current situation of construction tasks;
- Establish the sole O&M Company in HCMC based on an understanding of the current situation of other lines in HCMC;
- Update the demand forecast data which will be the basis for the financial plan; and
- Check the plan for the financial estimation.

- Although the construction work for Line 1 was not yet started, the groundbreaking ceremony was held on 28August 2012. The PUC and the JICA Project Team regularly coordinated with the Project Management Unit for Line 1 to obtain project information.
- Regarding the current status of the other lines, Line 2 is currently at the stage of detailed design. Line 5 was stopped due to reduced funding from donors. The PUC reviewed the proposal for the operation and maintenance of Line 2 drafted by Line 2 consultants. It was found that this project plans to set up an O&M company for Line 2.MAUR chairman, Mr. Luong, believed that all lines in HCMC should be managed by a single O&M company (see Appendix 6 for details).
- The internal rules of Japanese urban railway companies were translated into Vietnamese as shown in the table below. Double-checking was done by two translators to ensure the high quality of translation. Based on the English version, which was translated from the Vietnamese version, it can be said that the quality of the latter was satisfactory. Besides, there were no complaints from the PUC members about the quality of the translation. The Vietnamese version of the internal rules of Japanese railway companies is in book form for ease of use.

Category	No. of VN Translated Internal Rules
Planning	4
Administration and Safety	4
Human Resources	10
Finance	6
Business	12
Total	36

- Regarding the acquisition of internal rules of Vietnamese companies in similar categories, most
 of these rules required were obtained from the Saigon Bus Company. Because the company's full
 cooperation was not established at the start, they were not cooperative with the PUC/JICA
 Project Team. But gradually necessary data and information were provided to PUC except
 financial documents due to prohibitions stated in their concession contract.
- For demand estimates, socio-economic indicators were reexamined and modest figures were adopted to estimate the financial viability of the O&M company.
- Figures on income and expenditure of this company were re-estimated (see Action 3-5).

[Concerns and Suggestions for Improvement]

- Information on the implementation of each line project was shared in meetings with MAUR. It was recommended that the PUC should draft quarterly reports on the progress of urban railway projects.
- Most companies in HCMC are state-owned—the envisioned O&M company will likely be one. It was assumed that it would be easy for MAUR to contact these SOEs. In reality, however, it was the complete opposite: MAUR and the PUC had no daily communication with them. It was suggested that JCC members from other departments in HCMC-PC be asked to serve as intermediaries between MAUR and these companies. The JICA Project Team hoped MAUR would be encouraged to exert more effort on this task.

[Outputs]

- The implementation status of each line project, latest demand forecasts, and revised financial estimates are included in the Business Plan (currently named Establishment Plan).
- VN version of internal rules of Japanese urban railways.

(4) Enhancement of PUC Staff Potentials

PUC staff are new to railway management. Hence, as already described in the Basic Operation Policy 2, training for the enhancement of PUC staff's potentials will be carried out prior to full-scale operation of the line. The training program will be carried out in May to June 2011, i.e., in the latter period of this action when the JICA Project Team demobilizes. The tentative schedule is shown in the Table 2-2.

Program	Tentative Schedule	Remark
1. Vietnam-Japan Human	23 May–17June 2012	• For the first year, a four-week training will
Resources Cooperation	(For the first term)	be implemented.
Center (VJCC) ¹		• For the second year, the four-week training
management course		course will be divided into two.
2. Training in Japan	January 2012	• A Japanese expert will accompany the
		trainees.
		• For the second year, the same curriculum
		used in the first year will be implemented.

 Table 2-2
 Draft Schedule for PUC Staff Training

¹The VJCC was established with grant assistance from JICA and provides Japanese technical courses such as on quality control and Kaizen.

[Results of the Action]

• The management course at the VJCC was given from 23 May to 17 June 2012 when the JICA Project Team was demobilized. The training was highly appreciated by the PUC staff.

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Торіс	Instructor	No. of Classroom Lessons ¹
1. Taxation law	• Mr. Le Khanh Lam (DTL Auditing Company, Tax and Consulting Partner)	9 including examination
2. Accounting law	• Mr. Duong Hoai Linh (A.I.Global Sun Partners HCMC Branch Manager)	9 including examination
3. Labor law	 Mr. Le Minh Nhut (Le Minh Nhut Law Firm) Ms. Le Thi Phung (General Manager, Firm of Management Consultant) 	9 including examination
4. Enterprise law	• Mr. Nguyen Quy Trong (Lecturer, Dept. of Bridge and Highway Engineering, Faculty of Civil Engineering, HCMC University of Technology)	9 including examination
5. Leadership	• Mr. La Kien My (Consultant for Human Resources management and training of the executive and management roles)	4

Lessons lasted half a day.

• The Japan study tour took place on 10–19 January 2012. This study tour focused on the management and operation of urban railways and included a 24-hour on-site exposure. Although the schedule was tight, it was highly appreciated by the PUC.

Jan.	Morning Program	Afternoon Program
10	Arrive in Osaka JICA orientation until 3 PM	• Lectures at headquarters (relationship between HQ and work sites, crisis and safety management)
11	Lectures at headquarters (company management, publicity, advertisement, and IC card)	• Lectures at headquarters and OCC (training center, outsourcing management, operation management, and Q&A)
12	Tour of drivers' cabin and depot	• Training center (driving license system, simulator, experience in the drivers' cabin)
13	24-hour experience at station and maintenance works at night	
14	Saturday	
15	Sunday	
16	Travel to Tokyo on the Shinkansen	• Lecture at JR East HQ(Company management)
17	Experience of psychological aptitude test at Railway Technical and Research Institute (RTRI)	• Tour of RTRI (tram without catenary power supply, permanence test equipment for embankment against rainfall)
18	Tour of Minato Mirai area (a development project)	 Travel to Narita on the Narita Express (airport access railway service) Fly back to HCMC

[Concerns and Suggestions for Improvement]

- As the number of PUC staff did not increase, the management course at VJCC and the Japan study tour were not conducted on the second year.
- If the management course at the VJCC will be held in the near future, it was recommended that the top management of state-owned companies be asked to give lectures about their management

methods to give PUC staff a concrete image of their respective companies and to give them the chance to know the top managers of these companies from whom they can get information even after finishing the course.

• Because the JICA orientation was added belatedly to the agenda, the schedule became tight. When a similar study tour is planned in the near future, the JICA orientation should be included from the beginning.

[Outputs]

- Implementation report by the VJCC(refer to the mid-term report of the first year)
- Documents prepared for PUC trainees by the Osaka Municipal Transportation Bureau (Osaka City Metro, for short)¹

(Action 1-2) To formulate the regulations of function and duty of each department

In organizational development there is no such thing as a plan that fits all. Organizations are commonly complicated, especially at the early stage of an O&M company, because at this stage the number of staff is relatively small. Various issues are often settled as operational management goes along or are carried out. In the evolution of the organization, new divisions will be added to the overall set-up to cope with needs and issues. In some cases, arrangement of some tasks to the organization will be required in order to activate various personnel in the company. The organization will become complex and the number of staff will increase through such an arrangement. This phenomenon is called the Parkinson's Law. In this case a restructuring of the organization will be required. Thus, it is important that prior to the drafting of regulations on functions and power of each department, a study on the basic organizational knowledge of the company should first be carried out.

In this action a total organization plan of the company will be carried out. In each step the organization for each action will be studied. In this step it is important to examine the consistency of results to the total organization plan (see Action1-1, Table 2-1).

The project roadmap for Action 1-2 is illustrated in Figure 2-2.

¹Osaka City Metro operates subways, buses, and other means of transportation.



Figure 2-2 Roadmap for Action 1-2

- (1) Acquisition of Basic Knowledge on Organizational Setup: A JICA Project Team member presented major topics on setting up an organization.
- (2) Study on the Functions and Powers of Japanese Urban Railways: PUC staff studied the Vietnamese translations of the internal rules of Japanese urban railway companies.
- (3) Sharing of Group Outputs: Results of Actions 1-3, 2-1, 3-1, and 4-1were consolidated into "The function and powers of each department."
- (4) Levels of Authority: Department levels and the powers given to each department director should be delineated. The PUC included the first in the draft of the internal rules. For the latter, refer to (8) below.
- (5) Functions and Power of the O&M Company: The JICA Project Team and PUC staff carefully examined the draft of regulations prepared by the PUC.
- (6) Clarification of Interrelationships of Departments: The JICA Project Team showed documents clearly explaining the interrelationships of departments. Those of railway lines with different donors were discussed and settled with finality.
- (7) Study on Organizational Design: After the draft was completed by the PUC, the staff examined it together with the JICA Project Team. Initially, the PUC staff though of a "Technique-Safety" department. They eventually accepted the opinion of the experts and the safety department was consolidated with the operational department whose management is closely related to them. This department is called "Operation and Safety Department."
- (8) Power of Department Heads: Initially, the PUC thought this issue would be tackled in the next phase. After discussing with the JICA Project Team, an acceptable plan was developed and presented at the JCC meeting.

(9) Draft of Internal Rules: The draft internal rules, which included the functions and power of the O&M company departments, was presented to the second JCC meeting and the members approved them. The definition of each department was later added to this draft, thereby completing the internal rules on the functions and power of the organization.

[Concerns and Suggestions for Improvement]

- (1) During the second and third JCC meetings, the VNRA commented that most incidents happened due to violations of train operating rules which were prepared by the safety section. The possible reason for this could be that the operations section and the safety section are under one department. Accordingly, the safety section should be made independent of the operations department. The JICA Project Team advised the PUC that while the comments of higher authorities should be respected, there are various opinions about the organizational structure for railways. However, the PUC stuck to their original plan to put the section responsible for safety under the operations department. The PUC still has to discuss the JICA Project Team's recommendation with the authority in the central government.
- (2) The O&M company has to put importance on efficiency, although the government does not need to mind it so much. The PUC staff tended to abide by traditional Vietnamese concepts and practices such as on power concentration and show the mind-set of state-owned companies. The JICA Project Team persuaded the PUC to understand the necessity to develop an efficient system compliant with the laws and regulations in Vietnam. Knowing that the number of decisions made in a year at Osaka City Metro is huge, the PUC could understand that the decisions to be made by the head of the proposed O&M company may be difficult.

The JICA Project Team met with an SOE officer to ask him about the situation in his company. From the interview, it was found that the approval of expenditure rests only with the deputy general directors. It seems that in Vietnamese companies, the power over expenditure is seldom delegated to officers lower than deputy general directors. Therefore, the plan to put the power to decide on expenditure only to the deputy general directors was submitted to the third JCC meeting. This issue should be studied further in the next phase.

[Output]

• Organization of the company and the power and responsibilities of each section.

(Action 1-3) To formulate the organizations and regulations of planning, administration, and safety tasks

The contents or tasks on planning, administration, and safety differ per company. Options are also open regarding organizational plans, i.e., whether to establish a department for each task or to establish a consolidated organization for the entire tasks or some parts of the tasks. Although this issue will be addressed in this action, the study on the organizational structure of the O&M company has to be carried out in almost all the actions because the nature of the company's tasks is quite different by task.

These tasks are fundamental requirements in the management of the company and if targets lack specifics, it would be quite difficult to come up with a concrete organizational structure. For PUC staff, they will understand these tasks through the advice and experience of experts in charge of these tasks

based on the experience from the Japanese railway companies.

The project roadmap for Action 1-3 is illustrated in Figure 2-3.



Figure 2-3 Roadmap for Action 1-3

[Results of the Action]

- (1) Study organizational rules of Japanese urban railway companies: The PUC studied the internal rules of Japanese railway companies using the VN version.
- (2) Acquire experience from experts in related fields (especially safety): The JICA Project Team shared their experiences.
- (3) Collect information and documents from Vietnamese companies (Saigon Bus, VNR if possible): The PUC obtained the outline of internal rules of Saigon Bus Co. and studied them.
- (4) Extract business ideas in planning, administration, and safety departments: The JICA Project Team gave examples of JR East and Osaka City Metro, especially in the aspects of planning and safety, to make the concepts easier to understand.
- (5) Acquire experience of the personnel in charge of such business: The JICA Project Team offered some examples.
- (6) Draft organization rules: This was treated in the overall scope.
- (7) Adjustment of the organization and regulations of the O&M company: This was realized in Action1-2.

【 Concerns and Suggestions for Improvement 】

- Though the JICA Project Team did not agree to the PUC's plan for an operations and safety department, it was also important to respect the decision of the PUC.
- The organization itself is not fixed. In some cases, it is better to substantially modify the organizational structure to operationalize the company. The PUC was also asked to understand such an opinion.

[Output]

• Included in Action 1-2.

(Action 1-4) To formulate the operation business plan

The business plan shows the company's future perspective. This step is required at the start of company operations to show stakeholders the former's setup and its purpose. This action is also important so that the staff will obtain proper understanding of what direction the O&M company aims to pursue and what is expected of the staff to help achieve this direction.

The contents of the SAPI study will be utilized as the basis for this particular business plan. Regarding the schedule at the initial stage, information from the General Consultant regarding the financial plan and the business plan will be required. The financial plan as studied in the action for financial tasks will be utilized.

The business plan will be revised every few years according to the progress of construction and the system's preparation for the O&M company.

The project roadmap for Action 1-4 is illustrated in Figure 2-4.



Figure 2-4 Roadmap for Action 1-4

- Instruct PUC staff on the business plan and its contents: The local management consultants (LMCs) provided a business plan for a small company. This plan was easy to understand because the company was small and the business structure was simple.
- (2) (2) Study actual business plan of railway companies through annual reports: The JICA Project Team provided the PUC with the annual reports of major urban railway companies in Asia to help them I drafting the business plan for the O&M company. However, the PUC could not understand

completely the contents of such reports. Therefore, the JICA Project Team prepared the initial draft of the business plan for the PUC to study and elaborate.

- (3) Draft the business plan for the O&M company: The JICA Project Team provided the table of contents first. Based on this, the PUC proposed a modified version which was adopted as basis for drafting the plan.
- (4) Study the construction schedule of Line 1: The groundbreaking ceremony of the elevated section was held on 28 August 2012. As the exchange of opinions on driving licenses with the VNRA also started, discussions on the construction schedule until opening were also carried out.
- (5) Address issues before start of operation of the urban railway company: Through discussions, it was found that the major issues to be addressed in setting up the O&M company were to complete the office IT system and to fix the training system for operations staff, especially drivers, besides preparing various institutional and internal rules.
- (6) Draft the roadmap till the opening: Because the actual construction schedule was already fixed, the roadmap for setting up the O&M company was developed by working backwards.
- (7) Discuss with other departments about implementing their business: Preparing a business plan is a good chance for cross-checking items independently prepared so far. Adjustment was done in the following issues: (1) Harmonizing the fare system used in fare calculation by the PUC staff in charge of finance and the fare revision system developed by the PUC staff in charge of business; (2)Harmonizing the station staff allocation planned by the PUC staff in charge of business with that developed by the PUC staff in charge of human resources; and (3) Deciding if the organizational rule or the regulation on human resources defines the job title.
- (8) Draft the business plan: The initial purpose of this project was set to setup the O&M company. As it became clear that the construction schedule had to be extended and the opening time postponed, the purpose of this project changed to the submission of a business plan and getting the approval by the HCMC-PC. The preparation of the business plan implemented the integration of the results which were studied so far. It was a kind of business prospectus for the O&M company to clarify what services would be provided to passengers. It could also be utilized to explain to relevant personnel in the HCMC-PC about urban railways. The JICA Project Team provided the initial draft to the PUC and the contents were elaborated based on discussions between the JICA Project Team and the PUC. At the third JCC meeting, the outline of the business plan was submitted. At the fourth JCC meeting, the first draft was submitted. Various comments were made by JCC members. Such discussions proved to be important in getting the consensus of relevant departments within the HCMC-PC as early as possible.

[Concerns and Suggestions for Improvement]

- The delay in preparing the office IT system plan was a concern. Though the general contractor was requested to do it, the line project was already at the stage wherein a contractor for Contract Package 3 was already selected. Hence, the situation had to be reviewed first.
- At first MAUR was hesitant in setting up the O&M company at an early stage. But in a November 2012 meeting, they agreed to set it up by 2015. Furthermore, the MAUR chairman, Mr. Luong, expressed his opinion to setup the O&M company within 2013. With this comment MAUR became proactive in setting up the O&M company.

- In the 4th JCC meeting, it was unclear to the JICA Project Team/ PUC whether the DOF wanted to keep the SAPI study's original plan, i.e., infrastructures will be transferred to the O&M company, or to adopt "the right of use without a charge system" in order to show the line project's financial feasibility. The depreciation of infrastructures is large. The profit and loss table shows red for more than 20twenty years if the former option is adopted because since in Vietnam there is no advanced depreciation scheme. he issue that drew the most concern is that consensus on the business plan cannot be established. This is due to the above-mentioned suggestion about the financial results and both options can be adopted without any severe damage. As it seems that MAUR and the JCC members will not oppose the DOF, consensus building can be done sooner or later.
- As MAUR chairman Mr. Luong expressed his opinion to setup the O&M company as early as possible and his request for the HCMC-PC to approve the business plan within March2012.

[Output]

• Business Plan, currently called Establishment Plan (see Appendix 9).

(Action 1-5) To formulate the company charter

The company charter functions as a constitution which logically has to be prepared prior to setting up the O&M company. Contents of company charters differ by country and even by the nature of business in each country. In Japan, the name of the company, the company's purpose, location of its headquarters, the amount of equity, and the name of its board members are generally displayed in the articles of incorporation.

The project roadmap for Action 1-5 is illustrated in Figure 2-5.



Figure 2-5 Roadmap for Action 1-5

[Results of the Action]

- (1) Study articles of incorporation of urban railway companies in the world: The JICA Project Team and the PUC could not find any available charter of urban railway companies.
- (2) Study issues stipulated in Vietnamese regulations on company charters (with the instruction of local management consultant): Items which have to be described in the company charter are defined in the Vietnamese enterprise law and the forms are provided by the HCMC-PC. With the help of the local management consultant, the PUC studied the company charter of local company in Vietnam.
- (3) Study the company charter of the Saigon Bus Co.: The PUC studied the company charter of a Japanese railway company provided by the JICA Project Team.
- (4) Develop the table of contents for the company charter: Done.
- (5) Prepare each chapter: The preparation of each chapter of the company charter was accomplished easily because the HCMC-PC provided the forms.
- (6) Draft the company charter: The draft was presented during the second JCC meeting.

[Concerns and Suggestions for Improvement]

- (1) There was no major issue about the company charter because it was developed based on the format from HCMC-PC.
- (2) Regarding company name, Saigon Metro Company was initially proposed, but it was changed to One Member Limited Liability Company for HCMC Urban Railways, following the comments of higher authorities.

[Output]

• Company charter (it is attached to the Establishment Plan).

(Action 1-6) To formulate draft regulations for safety management system

Passenger safety is of utmost concern, especially for an urban railway transportation company which carries a big volume of passengers every day. Even if equipment and structural engineering are sound, it is also true that equipment fails and humans who operate the trains make mistakes. Thus, the possibility of accidents cannot be neglected. Hence, passenger safety will have primacy over all other concerns of the company.

Since the facilities and rolling stock of urban railways have structures, systems, and technology which can reduce the risk of accidents, the management and staff of the O&M company often are at a loss on what to do when a mishap actually occurs. Hence, it may be better to learn from actual failures, a process recently adopted in Japan. A lecture on this process by an expert is planned and included in this TC project.

The project roadmap for Action 1-6 is illustrated in Figure 2-6.

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Figure 2-6 Roadmap for Action 1-6

- (1) Understand the impact of major accidents: To do this, the PUC collected examples mainly of local accidents from newspaper articles. These accidents, while occurring most often at railroad crossings because Vietnamese urban railway is underdeveloped, could still help the PUC understand the impact of big accidents involving rail systems.
- (2) Know types of urban rail accidents: Regarding the types of accidents occurring in urban railways, the TC expert explained to the PUC about the information abstracted from the safety reports on the Osaka Metro for the past five years. The expert emphasized that most of the accidents due to human error cannot recur because modern urban railway use certain equipment with built-in technology for safety.
- (3) Understand the interrelationships between equipment and staff in urban railways: Together with activities (2) and (6), the TC expert explained to the PUC that the role of humans is fundamental to the safety of modern urban railway. Concretely speaking, even though safety measures based on valuable lessons obtained from past accidents become clear, the most modern safety equipment and technology cannot be installed promptly since this will need considerable time and money. Consequently, safety must be secured by people until such time that modern equipment are installed. And, even if such are already installed, safety must still be secured by people in case of failure of these modern equipment, etc. Therefore, accidents may still happen due to human error.
- (4) Clarify the need for safety management: The safety of rail transportation cannot be realized without a good balance of human capital and modern equipment. Therefore, the prevention of accidents cannot be realized by the effort of only the safety and operations department. The company general director and the entire rail organization should work on safety management. However, such mindset is unfamiliar to the Vietnamese. Accordingly, the TC expert repeatedly

explained to the PUC about the necessity of safety management by the entire organization, showing them essentials and concrete cases, together with sub-actions7and8.

- (5) Learn from the accidents: To concretely explain about the role of people in preventing accidents is difficult. Hence, the JICA Project Team invited Mr. Sekiguchi, an experienced motivational speaker, to present the safety philosophy, especially the role of people, before MAUR and the PUC (total of 86 persons) on 25 June 2012.
- (6) Know the history of safety management in Japan: The TC expert provided the PUC with information on major railway accidents and the history of railway safety measures in Japan, focusing on measures against train collision, train derailment, train fire, prevention of passenger fall from platforms, etc. The TC expert emphasized that railway safety measures are based on valuable lessons obtained from past accidents.
- (7) Study the institution for safety management in Osaka City: Taking Osaka City Metro as example, the TC expert explained to the PUC about safety management practices in Japanese urban railways, in particular about the system wherein top management and work site staff follow a safety control manager who is authorized by top management and wherein each staff has a responsibility to ensure safety regardless of his/her job title or rank in the organization.
- (8) Study the legal institution on safety management in Japan: Regarding the legal institution on the safety management in Japan, the TC expert also explained to the PUC the basis of the document entitled "Companion to the guideline concerning the safety management manual provided for in the transport safety laws," focusing on major points, i.e., the role of top management, communication with work site staff, risk management, compliance with laws, education and training, internal audit, review and improvement, etc.
- (9) Draft safety rules: As a compilation of sub-actions1to8, the PUC came up with the "Draft Safety Management Regulations" using as reference the regulations of railway companies in Japan. The PUC and the JICA Project Team improved the draft regulations on safety management and submitted the draft documents at the 3rd JCC meeting. The JCC members were satisfied with the results of the TC project.

[Concerns and Suggestions for Improvement]

- (1) TC expert has not consented to the current draft drawn up by the PUC because of the following issues:
- Because activities in safety management are concentrated on the "safety and operations department," the feasibility of the current draft is doubtful. The current draft shows the difference in establishing the system for safety management between Vietnam and Japan. In that draft, the responsibility for safety largely resides with the safety and operations department. Cooperation between this department and other departments and divisions is not clearly stipulated in the document. On the other hand, Japanese regulations clearly specify that the responsibility for safety lies with each department and division, depending on their functions or power.
- There are some parts in which "responsible organization" and "descriptive content" of each activity for safety management are not appropriate.
- (2) Therefore, although the TC expert already showed the PUC concrete amendments, the PUC seemed to take a lot of time to reflect this amendment in the current draft. It is considered to be

ascribed to the following:

- Safety management is too high a concept and is based on a lot of knowledge and experience. It cannot readily be applied in Vietnam under the current situation without actual experience in urban railway and safety management.
- Regulations on safety management area concern of the whole company. Formulating appropriate regulations is not easy under the current situation without experience in railway.
- (3) In the next TC phase, railway and work site practices, and preparatory work to establish the O&M company, etc. will be done. To get practical knowledge of and experiences in railway not only through desk work is of considerable importance to the PUC to promote a deeper understanding of safety management for urban railway and improve the current draft.

[Output]

• Draft Safety Management Regulations

(Action 1-7) To prepare the requirement of IT system of O&M including financial activity

Prompt decision making is very crucial in the management of a company. This includes the ability of management to get important management data, such as revenues or expenditures, which are necessary inputs before making decisions. In HCMC's O&M company, an office IT system will be installed to provide the necessary data and numerical information, as well as function as a communication system that offers e-mail services.

Since the business of the office IT system will be under the General Consultant (GC), the GC will prepare tender documents. The PUC, which will be absorbed into the O&M company, will be a client of this system in the future; the PUC has to submit its requirements to the IT system at this stage. After an IT contractor has been decided, the PUC will check the functional specifications with the contractor and make requests based on them.

The following chart shows the outline of the office IT system which will be constructed as a common system for all lines in HCMC. This policy has to be announced to other PMUs in other lines beforehand.

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Figure 2-7 Concrete Image of Office IT System

- (1) Learn basic office IT system from venders (such as SAP) and the JICA Project Team (through materials and presentations): The JICA expert provided the PUC with documents explaining office IT systems.
- (2) PUC referred to the IT systems of other O&M companies (e.g., Osaka City Metro, SMRT) and collected information from PMUs of MAUR:
 - The PUC studied the office IT systems (including financial function) in Japanese railway companies and their development processes.
 - The PUC received lectures on the IT system of Osaka City Metro during the Japan study tour. There are two types of office IT system. One is the system using general-purpose computers with custom-made software like those used for the Osaka City Metro, and the other is the system using servers and ready software like SAP. If the latter IT system is installed after the business routine has stabilized, the routine has to be modified to conform to the software package. This modification needs a lot of adjustment work. In case of HCMC, the introduction of an office IT system was done at the same time as office work in the headquarters commenced. To reduce construction costs, the use of an office IT system with a ready software package can be introduced. The PUC understands this policy.
- (3) Define the necessity for an Office IT system and announce the concept to PMUs: It is the role of the GC/PMU to develop the basic plan for an office IT system and show it to the PUC. But the construction schedule for Contract Package 3 (CP3) has been delayed and the basic plan has not been developed. Thus, the JICA expert provided the outline of office IT system to the PUC and they could get a concrete image of an office IT system.

[Concerns and Suggestions for Improvement]

- The PUC understood that there are two ways to develop the office IT system. In case of the O&M company, the introduction of the system and the commencement of the business will be done at the same time. Accordingly, the ready software system is assumed to be adopted.
- The office IT system is used also in transportation and maintenance work. But these systems are planned in the CP3 of the Line 1 project. Accordingly such systems are defined not to be included in the domain of the target business of the office IT system for the management. The data on office IT system for transportation or maintenance and those on management should be exchanged offline in order to simplify the system's architecture and to reduce construction cost.
- It is preferable if the office IT system can be used as soon as the O&M Company is established. As this system has implications to the internal rules of the O&M company, the PUC and PMU1 have to work together to develop its specifications. But in Line 1 project, tender documents are not yet drafted. At this moment, there is no other choice but wait for their next action because the selection of the contractor for Contract Package 3 has just finished. The PUC has to request relevant personnel to start the preparation of the office IT system at an earlier stage.

[Output]

• Outline of office IT system.

(Action 1-8) To select business activities for which job manuals are necessary

Major rules planned to be prepared in this phase of the TC project (Phase 1) are organizational rules, company charter, employees' regulations, and the general contract of transport. In some cases, job manuals are required which will complement these documents. Through preparatory works of the major regulations and rules in Phase 1, the selection of job manuals which are required for business implementation will be carried out.

Although the office IT system does not form part of the job manuals, they have similar aspects in that they have a guidance function. However, it should be noted that if manuals are voluminous, company staff will have a hard time understanding them. On the other hand, if the copies of manuals are not enough, newcomers will have a difficulty in understanding what they are supposed to do and senior staffers will also be hard put in imparting knowledge to newcomers.

Considering these issues, the selection of tasks and functions that need job manuals will be carried out in Phase 2 of this TC project. Documents which can be used as references in drafting job manuals have to be gathered through project activities. To help draft the required job manuals, the table of contents of regulations and rules of railway companies in Japan will be used as reference, after which studies will be done according to the chart below.



Figure 2-8 Selection Process for the Required Job Manuals

- (1) Before the commencement of this project, it was assumed that all activities in the next phase would involve preparing the manuals. But after studying the work for the next phase, the following were concluded:
 - Work utilizing the office IT system would not need manuals because the input work would be done according to the guidance displayed on the screen(it should be noted that operations manuals provided by suppliers are still required);
 - 2) In some cases when manuals are difficult to understand, work flowcharts would be better references;
 - There are some work which need manuals or forms (e.g., forms used for the application of monthly tickets, train operating rules, and internal rules for the command headquarters in case of accidents);
 - 4) There are some items which need practical instructions (e.g., skills to draw train diagrams); and
 - 5) There are some equipment with functions that need to be confirmed by users (office IT system, train operation simulator, and operations control center or OCC).
- (2) Categorize internal rules of Japanese railway company: Internal rules are not always easy to read and to understand. And detailed rules tend to be developed only after an event happens. This means that all internal rules followed by Japanese railway companies are not necessarily required from the beginning. Therefore, the following categorization was developed to sort the internal rules of Japanese railway companies:
 - Internal rules/ manuals that should be developed from the beginning based on the internal rules of Japanese railway companies
 - Vietnamese versions of the internal rules of Japanese railway companies which should be

- prepared as reference in making rules appropriate for the local setting; and
- Internal rules of Japanese railway companies whose Vietnamese versions are not required.

[Output]

• List of internal rules of Japanese railway companies whose Vietnamese versions are required.

(Action 1-9) To prepare schedule for manual making by job activity priority

As mentioned earlier, both the lack of, and the excess in, manuals will pose difficulty to the staff. To determine the proper volume of work for Phase 2, an implementation plan for preparing the job manuals according to business priority will be required. In this action based on the results of Action1-8, a concrete preparation plan of job manuals in Phase 2 will be determined based on business priority.

[Results of the Action]

Based on Action 1-8, the actions to be implemented in the next stage are shown below according to priority. Actions with high priority mean that these should be done at earlier stage. It is not the order of the importance of the content.

[Priority1] Development of Operating Rules

Preparing the operating rules is the role of the general consultant (GC). This manual is directly related to driver training and should be prepared at an early stage. It is also effective to provide it at an earlier stage because these rules can provide a concrete basis to the CP3 contractor when preparing the specifications of Line 1. Because cooperation between the PUC-JICA Project Team and the PMU1-GC-contractors for this sub-action is crucial, scheduled coordination is required.

[Priority 2] Confirmation of the functions of the Office IT system

Harmonizing the work system studied by the PUC and the specifications for the office IT system prepared by the GC/contractors may be the main work to be done here. This requires adjusting the preparation time of the PUC's outputs to the time the GC/contractors can prepare the functional specifications of this system.

[Priority3] Confirmation of the functions of the OCC

The specifications of the OCC equipment prepared by the GC/contractors should complement the work of dispatchers at the OCC as studied by the PUC. This should be done through discussions between the instructors² for the OCC and the GC/contractors. The schedules to prepare the specifications of OCC equipment and the workflow chart for traffic control should likewise match.

[Priority4] Confirmation of the functions of the train simulator

Instructors and the GC/contractors should discuss and decide the functions/programs that will be provided for the train simulator.

[Priority 5] Development of operations manuals for OCC

² Instructors from Osaka City Metro will be hired to train OCC staff.

Instructors for the OCC will develop operations manuals for dispatchers at the OCC after understanding the functions and operating rules of OCC equipment. Most of them will be flowcharts where dispatching procedures are displayed by scenario.

[Priority 6] Development of workflow charts

Written documents are not easy to understand, but, relevant staff can easily understand workflow charts. However, it is difficult to provide all the workflow charts needed. For important work based on the internal rules developed in the first phase of this technical cooperation, workflow charts will be developed.

[Priority 7] Development of various internal rules /manuals and forms

Various internal rules /manuals and forms extracted from the results of Action 1-8 will be developed.

[Priority 8] Technology acquisition of development skills for train diagrams

The PUC eagerly wishes to obtain the technology and skills of developing train diagrams. To do so, assigning staff to the operations department is required. The development of train diagrams has to be done frequently during the training period before opening the line and before driver training for the main line starts.

[Priority 9] Development of internal rules for the command headquarters in case of accidents These rules are required when an accident happens after opening the line. In these rules, a concrete work site organization should be described. Thus, these rules should be established when the work site organization has become clear.

[Concerns and Suggestions for Improvement]

- A development plan to produce manuals is just a part of the activities in the coming TC. It is more important for the management staff of the O&M company to obtain experience rather than develop manuals. The coming TC phase includes not only Phase 2, but also the intermediate TC stage prior to it.
- CP3 contractor was selected for the Line 1 project. The functional specifications of E&M and rolling stock will be developed within one year. The contractor will start production after confirming these specifications with the PMU/GC. It is better for equipment users to confirm the appropriateness of equipment at this stage.

[Output]

Included in Action 5.

2.3 Human Resources Tasks (Action 2)

In urban railways the handling of equipment is often automated. But in actual operation in case of equipment failure the operation and sometimes the maintenance of equipment have to be carried out manually. Hence, the O&M company has to employ a lot of personnel and the proper management of this workforce is an important facet in the management of the business in the urban railway company. In Action 2, human resource tasks were separated for more detailed study.

(Action 2-1) To formulate the organization and regulations of human resources task

The human resources division has various issues to address, such as pegging the required number of personnel for each site, and estimating the required staff so as to ascertain the additional staff to employ. It also considers the recruitment of staff with proper qualifications and to peg the proper salaries and allowances. With these business issues in mind, the organizational structure of the HR division and the organization rules for HR business have to be formulated.

The project roadmap for Action 2-1 is illustrated in Figure 2-9.



Figure 2-9 Roadmap for Action 2-1

- (1) Study organizational rules on HR business of Japanese urban railway companies: The PUC learned organizational rules by studying Japanese urban railway companies.
- (2) Study the organizational rules on HR business of related Vietnamese companies: The organizational chart of Saigon Bus Co. was obtained and the PUC studied it.
- (3) Acquire experience from HR personnel through interviews, email contact, etc.: This was done when an officer in the HR department of Osaka City Metro visited Vietnam. Thiso fficer presented the practical business of human resources, i.e., staff securement plan, recruitment, human affairs, labor management, human resource utilization, human resource development, retirement, as well as resignation and dismissal. The information he shared included not only the knowledge of internal regulations but also management of and challenges in human resources. These helped the PUC to understand resource development.
- (4) Draft organizational rules for HR business in accordance with total plan (Action 1-2): This was realized in Action1-2.

[Concerns and Suggestions for Improvement]

MAUR has an HR section and it is considered necessary to transfer their experienced staff to the O&M company.

The O&M company is designed in a way that it can be managed by a lean staff to promote business efficiency. It is necessary for the HR section to collaborate with other sections to carry out boundary tasks that cannot be described in internal regulations in detail and to work during busy periods. Though these concepts are important, it seems rather hard to enforce in view of the Vietnamese culture. It is necessary for the PUC staff to cooperate with one another to achieve its goal through the experience of preparing the establishment of the O&M company.

[Output]

• Organizational rule (included in Action1-2).

(Action 2-2) To formulate the working regulations

The rule on employment acts as guide in employing personnel. Japanese labor standards stipulate that employers should base their employment practices on their rules on employment, which have the following aspects: (1) start and end of a working time or day, rest time, number of weekly holidays, holidays, and shift changes; (2) the amount of wages, calculation of and payment for wages, counting period and periods of payment, as well as a system for salary increases; (3) retirement scheme including grounds for dismissal. In this activity, employment rules will be drafted through the proper study of relevant Vietnamese laws and statutes on labor and employment. A simple seniority system, on the other hand, cannot be the sole basis for the wage system. A scheme that provides incentives to motivate the staff should be studied. The Saigon Bus Co. has already introduced such a system.

In each action other than this one, there is no action where the recruiting system is addressed. When discussing plans for staff allocation, the recruiting system and the whole institution have to be studied, too. Therefore, recruitment criteria and other conditions should be studied in this action.

The project roadmap for Action 2-2 is illustrated in Figure 2-10.


Figure 2-10 Roadmap for Action 2-2

[Results of the Action]

- (1) Study rules of employment in Japanese urban railway companies: The PUC studied the Vietnamese translation of the rules of employment in Japanese urban railway companies.
- (2) Study existing rules of employment in related Vietnamese companies: The PUC studied the rules of employment in several companies, including MAUR, with the support of the local management consultant.
- (3) Refer to local consultants for issues in employment that require due care or priority implementation: This was done accordingly.
- (4) Extract rules of employment for the O&M company from the results of sub-actions 1, 2, and 3: In Vietnam, the rules for employees are not consolidated into a single document like in Japan. The PUC was decided to develop internal rules on employee work hours, recruitment, rewards/penalties, and salaries.
- (5) Study regulations on recruitment and appointment: The PUC studied the regulations and rules of recruitment in Japanese urban railway companies. In Vietnam, the required academic qualifications are stipulated in more detail than in Japan. The PUC drafted regulations on recruitment and appointment with more concrete description than those in Japan.
- (6) Study compensation policy (salary scale and benefits): The PUC mainly studied regulations on compensation in Vietnam because those of Japan are so different. In Vietnam, the national government determines wages, and it was found that in some cases companies determine their own allowances according to company performance.
- (7) Study other important employment issues, if any: It became clear from the LMC's advice that the provisions stipulated in the Vietnamese Labor Act and other relevant laws and regulations are more detailed than those of Japan. Therefore, those of the O&M company were described more

concretely.

(8) Draft rules on employment: The requisite regulations on working hours, recruitment, wages, and rewards/penalties were drafted.

[Concerns and Suggestions for Improvement]

- Though there is no issue about the staff qualifications stipulated in company regulations, enforcing such a rule is another issue. The PUC proposes to elevate the ranking of the O&M company to the top because its staff should have special knowledge and skills in railways. The future issue is how this will be realized.
- It was so difficult to gather information about company regulations even if the companies the JICA Project Team and the PUC approached are owned by Ho Chi Minh City. Nevertheless, it is necessary to continue gathering such information and to adjust internal regulations to conform to the laws and actual labor conditions in Vietnam.

[Outputs]

- Regulations of Work Hours and Resting Hours
- Regulations of payment
- Regulation of Recruitment
- Regulation of Reward and punishment
- Staff Securement for O&M company

(Action 2-3) To prepare the human resource planning

With the expected annual increases in passenger numbers and the opening of new lines such as Line 2, the number of personnel of the O&M company will likewise increase yearly. It should be noted that the railway business requires a substantial gestation period to allow new technical workers or staff to settle into their jobs. Therefore, it may be practical that once a staff is employed, s/he should have a long-term contract. But in Vietnam, since the mobility of employees is high, recruiting staff should consider this mobility.

The project roadmap for Action 2-3 is illustrated in Figure 2-11.



Figure 2-11 Roadmap for Action 2-3

[Results of the Action]

- (1) Understand need for staff securement: A person in charge of human resources for the Osaka City metro presented on human resource issues to the PUC. As a result, the latter understood the need for a long-term plan on staff securement.
- (2) Study the characteristics of the labor market in Vietnam: The PUC tried to get official data on job mobility in Vietnam from the labor department of HCMC-PC, but it was impossible. Therefore, they tried their best to obtain from other data sources, such as the VNR and media, but they could not collect all the needed data.
- (3) Establish database of staff (age, qualification, salary, etc.): Wage levels based on academic background of company staff for each section were developed.
- (4) Forecast the changes in staff numbers to meet business requirement: The number of staff by job class for each section was developed.
- (5) Estimate the decrease in staff numbers caused by external and internal factors: As mentioned in (2), data on job mobility of workers could not be acquired. Therefore, it was just pointed out that the rate of decrease in worker numbers per year, for example 5%, was necessary. The rate needs to be modified based on the actual situation.
- (6) Draft security plan: The number of staff by section and year was estimated based on the number at the commencement of commercial operation, which was estimated in Action 2-5.

[Concerns and Suggestions for Improvement]

- A JICA expert explained the method of calculating the required number of head office staff, operations staff, and maintenance staff. However, actual experience in the business is necessary to understand and utilize this method. It will be necessary to later compare the estimated staff number with the actual number so as to gain further understanding.
- To ensure efficient operation, the number of staff should be minimized. On the other hand, the

O&M company has to shoulder operational responsibility even if staff suddenly resign from their posts. Thus, cooperation among the departments or the sections is also needed.

[Output]

- Estimation of Staff Numbers (HQ&Worksite)
- Staff number for HQ
- Estimation of Maintenance Staff Number Estimates of staff at HQ and work sites.

(Action 2-4) To formulate the job allocation and job grading systems

In railway operations, various personnel, such as drivers, station staff, dispatchers, and maintenance staff, are engaged in their respective daily tasks and duties in train operation. Trains can be operated daily at scheduled times without the need for daily meetings among the staff, because the system under which each staff carries out his/her tasks is established. This arrangement plays an important role in smooth train operation. Hence, the tasks for each job have to be clearly delineated.

When discussing the duties and classifying jobs for the O&M company, the conditions stipulated in the Vietnamese Railway Law have to be considered together with the requirement for modern urban railway operation.

The project roadmap for Action 2-4 is illustrated in Figure 2-12.



Figure 2-12 Roadmap for Action 2-4

[Results of the Action]

- (1) List out points of concern when delineating duties and classifying jobs: The PUC studied the rules of Japanese urban railway companies translated to Vietnamese.
- (2) Study the duties and job classification in Japanese urban railway companies: The PUC studied the rules of Japanese urban railway companies translated to Vietnamese. The JICA Project Team explained the roles of each job class and the interrelationships among job classes. In Japan roles are changed according to scale or status of the office/worksite. At the beginning it seems difficult for the PUC to understand this because of the different system in Vietnam, but they eventually understood it.
- (3) Address information on required human resources of other departments: These were obtained as part of the O&M company's regulations.
- (4) Understand the workflow/business process of each division in the company: The JICA Project Team explained the flow of typical railway work, such as train driving, maintenance of rolling stock, maintenance of facilities, and station business. Along with the training in Japan, the PUC could understand the flow of railway work.
- (5) Study the relationship between duty segregation and salary allocation: The JICA Project Team explained the relationship between job class and salary level, while the PUC studied the compensation system of state-owned enterprises in Vietnam and understood that the government also determines the salaries of railway companies by job category and job class.
- (6) Study specific job titles stipulated in Vietnamese railway laws with reference to the Japanese case: A JICA expert introduced the special post for safety management in Japanese railway companies.
- (7) Draft document on duty segregation and job classification: Using internal regulations of Japanese railway companies as reference, the PUC drafted regulations on duty segregation and job classification, which are comparatively simple and suitable for small companies like the O&M company at the start.

[Concerns and Suggestions for Improvement]

- While the PUC understood duty segregation, they don't have actual experience of such. Thus, they should be supplied with information on the matter continuously.
- It is generally understood in Vietnam that all work description should be written in detail. Accordingly, it is necessary to make the PUC understand the need for flexibility and cooperation among the sections to promote efficient management of the company.

[Output]

• Job Classification and Job Description

(Action 2-5) To formulate the staff allocation plan

While the SAPI study reviewed the staff allocation plan for each site, it was just a rough estimate and as the O&M company, the required staff number by level and work site has to be decided. Meanwhile, the work hours and work form have to be decided. Based on these conditions, the required staff

number will be decided. The results will be modified once train operations start.

Professional skills are needed for this work since precise site watching will be required. Hence, in this project, an expert experienced in railway operations will be invited to HCMC to provide lectures on actual work and the required personnel.

After the department of operation and maintenance is established, it will be responsible for determining the number of drivers and maintenance staff. However, the HR division still needs to understand the process of cross checking.

The project roadmap for Action 2-5 is illustrated in Figure 2-13.



Figure 2-13 Roadmap for Action 2-5

[Results of the Action]

- (1) Study Vietnamese railway and labor laws, and regulations on work periods and shifts in Vietnamese companies: The PUC studied the Labor Act in conjunction with Action 2-2 "To formulate the working regulations."
- (2) Study the features of each business (drivers, maintenance, station staff): A JICA expert explained the features of each business in conjunction with Action 2-2.
- (3) Develop basic principles on work time and duty shift of staff: The PUC developed working time regulations.
- (4) Develop the calculation method for duty volume at each station based on transportation demand forecast: A JICA expert introduced the results of a study by the General Consultant and the staff allocation plan at stations based on the station structure (number of gates)

- (5) Estimate the number of staff at each station based on sub-action (4): The PUC estimated the number of station staff using the method provided by the JICA Project Team.
- (6) Process basic figures to determinate duty time of drivers: The PUC drafted the regulations on working time based on the document provided by the JICA Project Team.
- (7) Estimate number of drivers based on train operating plan and other conditions: It seems that estimating the number of drivers is complicated. The JICA Project Team explained that it could be estimated using the average working time in which a driver can drive trains per day. And the driver's number can be estimated by using total train driving hours.
- (8) Develop the calculation of unit staff per equipment from Japanese data: The JICA Project Team provided the method to calculate the required staff number for facility maintenance and rolling stock maintenance based on the assumed quantity of work or required workers' number in one work from the experience of Japanese railway companies.
- (9) Estimate the staff number for maintenance based on sub-action (8): The required staff number for facility and rolling stock maintenance was estimated.

[Concerns and Suggestions for Improvement]

- In CP-2, the contractor was already selected and they are now checking the specifications prepared by the General Consultant. In addition, the CP-3 contractor has just been selected, and soon they will develop their specifications. As a result, the estimated staff numbers may change according to changes in these specifications.
- In this action, the required staff number was calculated based on the quantity of work. It is different from monthly work assignments or daily staff operation. It should be noted that these activities should be studied as the detailed planning for facilities, rolling stock and train operation progresses.

[Output]

• Included in Action 2-3.

(Action 2-6) To get approval from MOT regarding driver's license and other railway-related laws and regulations

In urban railways, train operation is carried out using electric multiple units (EMUs) and signal systems. It is quite different from that of conventional railways in Vietnam. The Vietnamese Railway Law was prepared based on the existing railways in Vietnam and it does not consider urban railway technologies. A typical example is driver licensing.

The institutions and rules of the O&M company should not have any discrepancies with the Railway Law. Therefore, regarding items which don't comply with it, the proposal to the MOT has to be done beforehand and the ministry's approval should be obtained.

The project roadmap for the proposals to the MOT on driver licensing is illustrated in Figure 2-14. It should be noted that this issue is closely related to the Rules of Employment (Action 2-2) and Planning for Provision of Staff (Action 2-3). If the decision of the central government on driver licensing will be delayed, the implementation of the other actions will also be delayed. Hence, within

half a year after the commencement of this project, the JICA Project Team will try to find the best direction to achieve its goal.



Figure 2-14 Roadmap for Action 2-6

[Results of the Action]

- (1) Clarify the differences between urban and intercity railways: A JICA expert explained the differences through presentations.
- (2) Study the system proposed by the general consultant: A JICA expert explained the GC plan in his presentations.
- (3) Study systems used at the commencement of rail line operation in other countries, including Japan: A JICA expert gave information on the training time before the start of operation in Cairo and Singapore, including information on driver licensing in Japan, and the PUC studied it.
- (4) Verify the safety of the system by consolidating sub-actions 1 to 3: The training period proposed in the GC plan was shorter than that in Japan. A JICA expert explained the reason for shortening the training period. However, the VNRA reminded the expert that the training method that reflects the standards specified by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) of Japan would be preferable. Therefore, it was decided that the training would be done using Japanese standards, i.e., 400 hours of practical training.

Location	Theoretical Training	Practical Training
Japan	400 hours or more	400 hours or more
HCMC Line 1	400 hours	Changed from 200 to 400 hours

(5) Explain necessity for establishing a training center: The VNRA said that the drivers for the line opening should be trained by foreign organizations because no local organization has the knowledge and skills to conduct training. It was found that the VNRA was not amenable to MAUR's plan to establish a training center.

- (6) Develop the system to issue driver licenses: Certificates issued by training centers accredited with the VNRA are required before one can take an exam to apply for a driver's license. The railway company managing the Osaka City Metro, and which would also train drivers for HCMC's Line 1 could not issue such a certificate because training in a foreign country is not under the control of Osaka City Metro.
- (7) Prepare proposal for the MOT: A JICA expert coordinated with the VNRA regarding his views on the training method and obtained the latter's consent to utilize the method used in Japan for driver training (theory and practice). Regarding the issuer of certificates which are required before one can take an exam, the expert developed two plans, i.e., one the certificates would be issued by JIC and the other by the RVC.
- (8) Submit the proposal to the MOT: In December 2012, the first meeting on driver training was held. After the meeting, the VNRA shared its opinions (see table below) with MAUR.

 Regarding drivers for the opening, certificates issued in a foreign country are acceptable. Practical training on the main lines in Japan is not available. In 	It is based on the idea that all drivers for Line 1 opening would be trained in Japan. Osaka City Metro suggested that it is impossible to issue
opening, certificates issued in a foreign country are acceptable.2. Practical training on the main lines in Japan is not available. In	would be trained in Japan. Osaka City Metro suggested that it is impossible to issue
foreign country are acceptable.2. Practical training on the main lines in Japan is not available. In	Osaka City Metro suggested that it is impossible to issue
2. Practical training on the main lines in Japan is not available. In	Osaka City Metro suggested that it is impossible to issue
this case, practical training on HCMC Line 1 after completion of construction is acceptable. Certificates will be issued only for theoretical training done in Japan	certificates for the training provide dso far outside Japan. Regarding the idea to ask Osaka City Metro to issue certificates for theoretical training, the company will be consulted.
3. Certificates issued by a training center approved by the VNRA would be required to take the driver's license examination.	VNRA expressed that they would accept certificates issued by a railway company which has its own training center.RVC is the current training center in Vietnam. If this center obtains the knowledge and skill for EMU for urban railways and conduct training for drivers for Line 1 opening, the financial burden of MAUR would decrease because trainees do not have to be sent to Japan. In addition, the training system for drivers to be trained after opening could be developed simultaneously. Therefore, the JICA expert would advise the VNR, owner of RVC, to ask VNRA to introduce this method.
4. 24 months experience as	VNRA advised MAUR to ask HCMC-PC to officially
assistant driver is required.	request VNRA for a change in the system.
5. To get a driver's license, one	
must pass the exam given by	
VNRA.	
6. Prepare a driver training	This issue has not been addressed.
program after line opening to be	
given by Vietnamese instructors.	

• The VNRA suggested that the certificate for undergoing theoretical training would be accepted as a countermeasure because they prefer certificates to be issued by Japanese railway companies which have training centers. Accordingly, the JICA expert will discuss with the Osaka City Metro

operator about the possibility of agreeing to this suggestion.

• It reduces the burden of the Vietnam side if a training program is established at the Railway Vocational College. This is a rational move as well because drivers can be trained before and after the opening of Line 1 to commercial operations. The implementation of this suggestion depends upon whether or not the VNRA will approve the training course to be conducted by RVC lecturers, who will be trained under a separate technical assistance project from Japan. Regarding this issue, consultations between the VNRA and VNR, which is the owner of the RVC, is necessary.

[Concerns and Suggestions for Improvement]

- There was concern that RVC would not be utilized to train drivers for other urban railway lines constructed with the assistance of other donors even after an urban railway training course is established at RVC with the assistance of Japan. However, it turned out that the training plan for O&M staff was not included in the original plan for HCMC Line 2 project. In that plan, it is assumed that maintenance would be outsourced.
- The RVC expressed its willingness to establish a training course in urban rail driving. The JICA Project Team would request the VNR to aggressively ask the VNRA to approve the plan.

[Outputs]

- Training system of train operation staffs
- Official letter from the VNRA to MAUR (1855_TB-CDSVN VNRA meeting conclusion)

2.4 Financial Tasks (Action 3)

The most important items for company management are human resources, equipment/facilities, and funding. The organization that will be responsible for these tasks will be set up and the accounting system, budgetary planning processes, and material procurement procedures will be established.

It should be noted that financial tasks interact closely with Action1-7 "Office IT System."

(Action 3-1) To formulate the organization and regulations of financial task

The expected and desired tasks related to financial management will be identified before deciding on the ideal organization and staffing. In setting up the financial group, consideration should be given to its relationship with the rest of the company.

The project roadmap for Action 3-1 is illustrated in Figure 2-15.



Figure 2-15 Roadmap for Action 3-1

[Results of the Action]

- (1) Study the organization rules of Japanese urban railway companies: A PUC staff studied the Vietnamese version of the internal rules of Japanese railway companies.
- (2) Implement case studies of Vietnamese companies such as Saigon Bus Co.: The PUC obtained the company rules of Saigon Bus Co. and similar companies and studied them.
- (3) Study finance-related laws: The PUC studied them with the support of local management consultants.
- (4) Extract the detailed business categories in urban railway: The PUC implemented this task with the support of local management consultants.
- (5) Acquire the experience of experts in related fields: Mr. Nishiguchi who has much experience in financial department in Osaka City Metro made a presentation entitled "The way for Osaka City Metro to Restore its Sound Management and its Current Situation."
- (6) Draft the organization rules for this business: Done.
- (7) Adjust the organization rules for this business to those of the O&M company: This was done in Action1-2.

[Concerns and Suggestions for Improvement]

- The PUC brought up a plan to separate the procurement department from the financial department. The JICA Project Team agreed with this plan because this is the usual plan in Vietnam although it may create some redundancy to the organization.
- In the Philippines and Egypt, the procurement department tends to control the procurement of spare parts, thereby generating obstacles to rolling stock maintenance. Hence, the JICA expert pointed out to the PUC that the purpose of the procurement department is to conduct proper procurement procedures and the decision to procure spare parts should be done by the maintenance

department. For the next phases, the organizational structure for financial matters will be re-examined along with the process to design in detail finance-related mechanisms and procedures.

[Output]

• Organizational rules (Included in Action 1-2).

(Action 3-2) To formulate the accounting system

The accounting system in Vietnam follows international standards for accounting, although it differs in some aspects. For example, the depreciation period is quite different from that of Japan. If the accounting principle of the company will be established without studying the Vietnamese standards, a big difference may show especially in calculating profit and loss. Hence, accounting principles for calculating revenue, expenditure, or depreciation should be established based on the Vietnamese accounting standards.

The system for estimating revenue and expenditure, as well as that for generating quarterly and yearly financial statements should be set up. Furthermore, the systems for calculating expenditure and handling cash will be developed. Since these systems will be part of the office IT system, cooperation with the IT team is important.

Close communication with the technical department and procurement division on the specifications and number of items to be used for maintenance is likewise crucial.

The project roadmap for Action 3-2 is illustrated in Figure 2-16.



Figure 2-16 Roadmap for Action 3-2

[Results of the Action]

- (1) Study the accounting system adopted by Japanese urban railway companies: The PUC studied Japan's accounting system for urban railways and found that the detail of the accounting system is defined by laws and regulations. It studied the country's laws and accounting standards (obtained inductively from accounting practices) to establish the accounting system for the O&M company in Vietnam.
- (2) Study the Vietnamese accounting standards and taxation system: The PUC studied Vietnamese laws and accounting standards with the help of local management consultants.
- (3) (3)Study the accounting system used by Vietnamese companies such as the Saigon Bus Co.: The PUC studied the outline of this system.
- (4) Study the accounting items which affect revenue and expenditure (e.g., income, expenditure, depreciation, and others): The PUC studied the accounting items which affect revenue and expenditure based on the modified financial model. Because trains are operated according to fixed train diagrams, the expenditure is not affected by the number of passengers and remains static. The PUC found that being reminded of this fact is important.
- (5) Discuss procurement methods with the technical and procurement departments: Based on MAUR's tender methods, procurement rules were drafted.
- (6) Develop a fund management system including debt financing (relating to office IT system): Since the development of the office IT system was postponed due to delays in the construction schedule, only the basic IT plan will be developed in this TC project.
- (7) Develop the asset management system (relating to office IT system): A JICA expert presented an outline of the asset management system using the office IT system and used it as reference to draft procurement rules for materials.
- (8) Develop the approval system for expenditures: Based on a study of the approval systems within MAUR and others, an outline of the approval system using the office IT system was presented by a JICA expert.
- (9) Adjust this system with that of Power system of job classification: Using as reference the system of Japanese urban railway companies in delegating power within the company, an approval system for expenditure and power delegation was drafted.
- (10) Develop a cash-handling system (revenues at stations and expenditures at each work site): Using as reference the cash handling system of Japanese urban railway companies, a cash handling system was drafted.

[Concerns and Suggestions for Improvement]

• General accounting rules were drafted according to the requirements of the project design matrix, but they are not based on detailed accounting and finance-related tasks. Hence, from the next phase of this TC project, detailed procedures will be designed based on a detailed task flow and will include the preparation of manuals.

[Outputs]

- Accounting rules
- Cash-handling rules at stations

(Action 3-3) To prepare the plan of budget management

Since the budget plan has to be submitted as part of the business plan for an O&M company, it should precede setting up the company. Because the pair of budget planning is accounting, in this action, an accounting plan will also be prepared.

Expecting profit on the first year of operation may be very difficult, because there are a lot of uncertainties at this stage. But revenue after this stage can be estimated based on the results of the previous year. Since the number of on-site staff is fixed regardless of the number of passengers, while the maintenance volume of rolling stock and equipment is based on train number, estimating expenditure can easily be done. But since a long series of small savings will work toward profitability, it is important to find where loss and wastage occur. Since the replacement of equipment has much impact on the cash flow of a company, it is important to formulate a strategy for this. It is likewise essential to establish an organization whose financial division coordinates closely with the planning division.

The assets of this line, which will be constructed/procured as an initial investment, will be taken as an in-kind capital/contribution of the central/local government. This is an important precondition in budget planning. The Task Team headed by the MAUR general manager already submitted this policy to the HCMC-PC for approval. Hence, when the budget for this project is approved, the PUC/JICA Project Team should raise to MAUR the issue of transferring the assets from the central/local government to the O&M company.

The project roadmap for Action 3-3 is illustrated in Figure 2-17. Revising the budget plan prepared in the SAPI study, which is shown at the final stage of the roadmap, coincides with reviewing the profit and loss plans of the O&M company to de done in Action1-1 (3).



Figure 2-17 Roadmap for Action 3-3

[Results of the Action]

- (1) Study the budget planning and accounts settlement of Japanese urban railway companies: The PUC studied the methods for budget planning and accounts settlement adopted by Japanese urban railway companies and used them as references in drafting the budget plan for the O&M company.
- (2) Study the budget planning and accounts settlement of Vietnamese companies such as Saigon Bus Co: The PUC studied the methods for budget planning and accounts settlement adopted by Saigon Bus Co. and used them as references in drafting the budget plan for the O&M company.
- (3) Review the budget plan prepared in the 2008 SAPI study: The financial model prepared in the SAPI study was reviewed in terms of annual budget including those before line opening.
- (4) Understand the items for budget planning/accounting: The PUC clearly understood the budget/accounting items by studying those used by Japanese urban railway companies, MAUR, and other Vietnamese organizations.
- (5) Clarify the budget planning data to be obtained from the office IT system: Outline of the budget preparation system of the office IT system was presented by Expert and which data to be obtained from the Office IT system was studied.
- (6) Study the estimates in the budget plan for the next year: Estimates were obtained by multiplying task volume with unit cost. This basic method was presented by the JICA expert. It was further studied by using the financial model.
- (7) Develop method to prepare the budget plan and accounts settlement system: Develop the method to prepare the budget plan and accounts settlement system by studying those of Japanese urban railway companies, MAUR, and HCMC-PC.

[Concerns and Suggestions for Improvement]

• To finalize the organizational structure of the O&M company, the PUC should have a good understanding of the contents and structure of the financial model and be able to utilize it to prepare the budget plan.

[Outputs]

• Draft budget plan (including the business plan and the financial model)

(Action 3-4) To formulate the regulations for procurement

Spare parts have to be procured beforehand to be readied for use when the need arises. It should be noted that most railway parts are produced specially for railways, and delivery takes a long time. Meanwhile, controlling the stock volume at proper levels is required for sound management.

The O&M company is an organization under the HCMC-PC and transparency of procurement procedures may be required. Providers of materials procured at the maintenance stage may be limited in its nature. Implementing ingenious measures, such as adopting the unit price contract, will be required in order to reduce the cumbersome procedures in general tendering.

In the Line 1 project in HCMC, the cost of spare parts and consumables required for the initial five years of commercial operation will be included in the construction budget. From the sixth year after

opening, international tendering to procure spare parts at competitive prices will be conducted.

The project roadmap for Action 3-4 is illustrated in Figure 2-18.



Figure 2-18 Roadmap for Action 3-4

[Results of the Action]

- (1) Study the material procurement system of Japanese urban railway companies: The PUC studied the material procurement system adopted by Japanese urban railway companies and used as reference to prepare the materials procurement rules.
- (2) Study the material procurement system of Vietnamese companies such as Saigon Bus Co.: The PUC studied the material procurement rule of Saigon Bus Co. and used as reference to prepare the materials procurement rule.
- (3) Clarify the essential points on material procurement in railway business: The JICA expert prepared the essential points of the material procurement rule in urban railway company and presented to the PUC.
- (4) Develop the material code and coordinate it with the storage management system: The asset list of Japanese urban railway companies was studied and used as a reference to prepare the asset list of the O&M company.
- (5) Study the storage management systems in the construction plan: Inquiry was made to the PMU about the specification of the storage management system in the depot.
- (6) Clarify the contracts for construction, receiving services, and procuring materials: Based on the information of MAUR and HCMC-PC, the material procurement rules were prepared which also include procedure for various tender types.
- (7) Clarify the coverage of the office IT system (match with the storage management system): The

JICA expert presented to the PUC the outline of the material procurement system, which could cover data management for accounting purposes but not conduct actual material management in the storage. This office IT system can manage data storage even when offline.

- (8) Clarify the relationship of this system with the accounting system: The JICA expert presented to the PUC the outline of the accounting function in the office IT system. Based on the draft accounting rules and related task procedures, the relationship and mechanism between the accounting rules and the office IT system were examined.
- (9) Clarify the relationship of this system with the budget system: The JICA expert presented to the PUC the outline of the budget preparation function in the office IT system. Based on this, the relationship and mechanism between the budget preparation system and the office IT system were examined.
- (10) Coordinate the office IT system with the power classification system: Coordination with the power for job ladder system was made in a way that the office IT system would have a table for it. The power system itself was simplified at the outset.
- (11) Draft rules on material procurement: The JICA expert presented to the PUC the outline of the material procurement system. The material procurement rules for the O&M company were drafted based on current practices and rules in Vietnam.

【 Concern and Suggestion for Improvement 】

• Material procurement requires a comprehensive plan that would integrate not only financial knowledge but also the actual tasks of material procurement for railway business, i.e., the Japanese storage system that the Line 1 project was planning to develop.

[Outputs]

- Material procurement rules
- Tendering process by tender type
- Draft of Name and Code of Fixed Assets

(Action 3-5) To study for securing financial soundness of the company

In case the O&M company incurs a deficit, the HCMC-PC will subsidize it to compensate for its loss, as in the case of Saigon Bus Co., which currently receives subsidy from the HCMC-PC.

In this action, measures for securing the company's financial soundness will be prepared. The items listed below are for study. Since items 3 and 4 below are also related to Action 4-4, the staff in charge of these items and the staff for Action 4-4 have to work together.

- (i) Examine the financial forecast for the O&M company;
- (ii) Study the debt finance system for the O&M company and the subsidy system of the HCMC-PC;
- (iii) Study the benefits of asset development along the line; and
- (iv) Study the institution to be established for asset development along the line to ensure financial soundness (coordinate with Action 4-4).

[Results of the Action]

- (1) Carry out a close investigation of the financial forecast of the O&M company: The JICA expert modified the financial model developed by the SAPI study based on current figures such as demand forecast, inflation rate, wage level, and others. The expert also calculated the profit/ loss table and future cash flow. Furthermore, the expert clarified the factors that could influence future cash flow such as changes in depreciation. The JICA expert shared the contents, structure, and use of the financial model with the PUC.
- (2) Study debt financing for the O&M company and the subsidy policy of the HCMC-PC: Based on the calculation prepared in sub-action (1), the amount of loan and subsidy from the HCMC-PC was estimated. In the second JCC meeting, these results were presented and the member from the Department of Finance consented to these results.
- (3) Study the benefits of asset development along the line: The JICA Project Team studied the areas that would benefit from the construction of urban railways (see the file in the CD appendix).
- (4) Study the institution to be developed for asset development to ensure financial soundness: The JICA Project Team studied the taxes the city can impose along the line's alignment (see file in the CD appendix).

[Concerns and Suggestions for Improvement]

- (1) Sub-action (2) above was described in the establishment plan for the O&M company, to which the JCC members agreed.
- (2) In order to secure financial soundness, government needs to conduct appropriate measures. The following measures were explained in the establishment plan for the O&M company: (i) Introduction of automobile ownership tax, (ii) Promotion measures to increase use of public transportation (making individual commuting expense as company expenditure, banning automobile use in the central area, etc.), and (iii) Restriction of parking on sidewalks. To illustrate the second measure, a JICA expert presented "The modal shift measures to promote motorcycle commuters to urban railways."
- (3) The measure described in sub-action (2) is critical in securing ridership in the initial phase. In the second phase of this TC, it is necessary for the PUC and MAUR to continue discussing and promoting these measures to the HCMC-PC and relevant organizations.

[Outputs]

- Financial model
- Concrete strategy to promote the use of urban railways
- Use the revenue obtained from developing assets along the railway alignment to support the operating cost of Line 1

2.5 Business Tasks (Action 4)

Training in train operation will be carried out by the general consultant. Regarding the maintenance of rolling stock and equipment, the contractor will be responsible for providing technical training throughout the consignment of maintenance work to them. Meanwhile, the preparation of management

and administrative tasks in railway business is an extension of the training to be given by the general consultant. If there are some training gaps, these will be discussed in the second phase of the TC.

Other than the work mentioned so far, there are other businesses related to railway, i.e., "non-rail businesses" which are included in the actions for the first phase of this TC project.

(Action 4-1) To formulate the organization and regulations of business task

By delineating rail and non-rail business, the corresponding organizational setup will be planned and the regulations to govern this setup will be formulated. The business setup is part of the company organization and the adjustment of the business plan with the total plan will be required.

Though the organizational setup for rail and non-rail business can be designed separately, in the case of the HCMC project, where the work volume for the Line 1 section may be small at first, the assumption will be that both the rail and non-rail business will be carried out by a single organization. The project roadmap for Action 4-1 is illustrated in Figure 2-19.



Figure 2-19 Roadmap for Action 4-1

[Results of the Action]

- (1) Study business rules being applied by Japanese urban railway companies: The PUC studied these internal rules which were translated to Vietnamese.
- (2) Study business rules being applied by Vietnamese companies such as Saigon Bus Co.: The PUC studied the outline of the internal rules of Saigon Bus Co.
- (3) Extract the details in these businesses: With reference to sub-actions (1) and (2), the business details were selected.
- (4) Acquire the experience of the personnel in charge of such businesses: A JICA expert made the presentation entitled "A day in a station."

- (5) Draft the organization rules on these businesses: The PUC drafted the organization rules for the business department.
- (6) Examine and develop regulations related to the organization: Regulations on cash handling at stations and on the business behavior of station personnel were developed
- (7) Adjust with the whole plan: This task was settled in Action 1-2.

[Concerns and Suggestions for Improvement]

• Although the empirical training at the station in Japan and the presentations on station tasks by the JICA expert, i.e., (1) passenger services, (2) cash handling, and (3) securing safety of passenger, were done, there were aspects the PUC still could not understand clearly. In the next phase of the TC, it is necessary to prepare for the commencement of operation by studying related regulations and examining the manuals in detail.

[Outputs]

- Organizational regulations (included in Action 1-2)
- Internal regulations on conducting railway operations by station staff

(Action 4-2) To formulate General Contract of Transport

The general contract of transport is a contract between the O&M company and the passengers. The following will be stipulated in the contract, i.e., fares, cancellation or delay of trains, rules on passenger behavior and belongings, and others.

The project roadmap for Action 4-2 is illustrated in Figure 2-20.



Figure 2-20 Roadmap for Action 4-2

[Results of the Action]

(1) Study the contract used by Japanese urban railway companies: The PUC studied the Vietnamese translation of the "General Contract of Transport" used by Japanese railway companies.

- (2) Clarify the articles of Vietnamese railway law related to this contract: The PUC studied the issues related to the "General Contract of Transport" which are described in Vietnamese railway law.
- (3) Study similar contracts of VNR and Saigon Bus Co.: The JICA expert obtained the needed regulation of the VNR. However, it was found that Saigon Bus Co. did not have a "General Contract of Transport" and their contract was based on a decision of the HCMC-PC, a copy of which was obtained by the PUC.
- (4) Formulate contents table for the General Contract of Transport: As a result of discussions with the JICA Project Team, the PUC formulated the contents table of the General Contract of Transport.
- (5) Formulate General Contract of Transport by examining the contents table: The draft "General Contract of Transport" was formulated based on that of the Osaka City metro. Added to the draft are the rules in IC card handling of JR East.
- (6) Develop regulations related to the General Contract of Transport: In reference to the "General Contract of Transport," the PUC drafted "Regulation on the Issuance of Various Discount Tickets which needs a Certificate for Application" and "Handling Rules for Lost Luggage."

【 Concerns and Suggestions for Improvement 】

- (1) Although it was important to prepare the form of the "General Contract of Transport," it was more important to fine-tune its contents, such as discounted items and discount rates, etc. In the 4th JCC meeting, in order not to adversely affect management, the concrete fare discount ratio was proposed. But this elicited no comment from the JCC members. When discussions on the discount rate are made in the future, it is necessary to implement its study carefully, since it may adversely affect the balance of the company according to the discount ratio.
- (2) For the IC card, it is necessary to continuously implement its study including its standards and the specifications of AFC, etc. The MOT now has a study for formulating their standards. The HCMC-PC has already drawn up the tender documents on the C type.

[Outputs]

- General Contract of Transport
- Handling rules for lost luggage
- Regulation on Issuance of Various Discount Tickets which needs a certificate for application

(Action 4-3) To establish the fare pricing and adjustment system

Vietnam is now in the developing stage and the inflation rate is significant. If fare levels will not be modified at proper intervals, the O&M company will not be managed well. If fare levels are low to satisfy political interests, the subsidy from the HCMC-PC will increase and pressure will be put on the financial capacity of the HCMC-PC. Though fare levels were already discussed in the SAPI study, these will be studied again and the institution which will decide on these will be planned in this project.

After Line 1, several lines will be constructed in HCMC. To promote railway use in commuting, it is preferable to provide an integrated and common fare system to allow passengers to transfer lines conveniently. Another feature, which is to offer fare discounts to special groups, such as children and

the elderly, should be discussed. For these, various fare systems have to be studied. Fare payment systems will also influence the specifications of the automated fare collection (AFC) system, and the approval of the HCMC-PC on the former should be obtained by the end of 2012 at the latest even though fare levels will be fixed at a later stage.

For the development of the fare system, it will be assumed that there will be a common AFC system among the proposed rail lines in HCMC. This also has to be announced to the PMUs in charge of other lines.

The project roadmap for Action 4-3 is illustrated in Figure 2-21.



Figure 2-21 Roadmap for Action 4-3

[Results of the Action]

- Study the fare system (fare based on distance, flat fare) used by Japan urban railway companies: A JICA expert made a presentation on "Fare system in Japan and its fare revision procedure". The JICA Project Team and PUC studied again the results of SAPROF and SAPI studies on fare system.
- (2) Study the fare systems in foreign urban railways: A JICA expert presented and introduced the zone system in London and the unique fare system in Paris.
- (3) Study the fare system in Saigon Bus Co.: The fare system of Saigon Bus Company was determined only through an HCMC-PC ordinance. It turned out that the company has no original fare system. The PUC was able to obtain a copy of the HCMC ordinance.
- (4) Study ticket sales and ticket acceptance system: Ticket sales are not done manually but by automatic ticket vending machines in case of Line 1.All tickets would consist of IC cards; paper ticket will no longer be used.
- (5) Review the results of the SAPI and SAPROF studies: A JICA expert explained the process of setting fares done in the SAPI and SAPROF studies.
- (6) Find the proper fare level while considering inflation ratio: Fare levels at the commencement of

operation by 2017 were calculated based on the study results of the SAPI study. The actual fare at the time of the commencement of operation is concretely determined one year before the commencement of operation, taking into consideration the inflation rate, etc.

- (7) Develop the fare system for various discount system and transfer to other lines.
 - The discount rate for users of Stored Fare Card (SF) was equal to or less than 10% discount and children under 7 years old are free.
 - In case of SF card use, a 50% discount for pupils under the age of 18 and a 40% discount students over the age of 18 was proposed and this was to build consensus among relevant personnel.
 - The transfer to other lines within the jurisdiction of the O&M company would not require a connection fare.
- (8) Study the procedures for revising fare levels in Japan: The PUC studied the "yardstick system" in the presentation on the "Japanese fare system" by an international expert.
- (9) Study the real case in the revision of fare levels in VNR and Saigon Bus Co.:
- The VNR is an inter-city railway and its fare rate cannot be utilized for urban railways. Data on the fare revision system of Saigon Bus Co. was not available.
- Saigon Bus Co. explained the basic calculation for the PUC but they did not provide concrete data to the PUC and the PUC could not understand this measure fully.
- (10) Develop the calculation method to revise fare levels in urban railways:
 - A JICA expert presented the mechanisms for revising fare levels by referring to the models in Singapore, and other countries.
 - There is the fare level that was estimated according to the data obtained from the HOUTRANS study. The fare level at the commencement of operation could be obtained after correcting this basis with the inflation rate.
 - Since the actual data on both ridership and expenditure for operation can be acquired after commencing operation, the initial fares calculated based on these can be used as basis for subsequent revisions.
- (11) Develop ways to calculate subsidies in case of deficit:
 - The O&M company does not shoulder the burden of repayment for the initial investment.
 - If a proper fare level can be maintained and some measures against cash shortage, such as stacking the capital of cash, are provided, deficit should not set in even at the early stage of operation.
- On the other hand, if there is less demand or a larger inflation than expected sets in, it cannot but fall into a deficit. Whatever for the case may be, the mechanism for obtaining financial support from the HCMC-PC has to be developed.
- It can be expected that approval of the revised fares will not be granted. In order to cope with this case, it is necessary to clarify the legal basis why the O&M company could receive subsidy from the HCMC-PC. There are two ways for legally receiving subsidies: One is to be identified as a "public company" which is defined in Decree 31/2005/ND-CP, and the other is through the Railway Law. For the O&M company's case, it was decided that the latter option would be adopted.

(12) Discussion with HCMC-PC on fare levels: At the second JCC meeting, the PUC sought approval

of fare levels for the commencement of operation and the JCC agreed to this.

[Concerns and Suggestions for Improvement]

- (1) Develop fare systems promptly: In the 2nd JCC meeting, the PUC proposed fare levels when operation commences in 2017 and JCC agreed with them in principle. The concrete fare revision system and fare discount ratio were incorporated into the establishment plan for the O&M company and the General Contract of Transport. It is necessary to determine the actual fare one year before the commencement of operation.
- (2) Apart from the subsidy from the HCMC-PC to cover the deficit, a separate subsidy for student discount was proposed because it forms part of the public mission. But this was not approved at the JCC meeting. In order to improve the O&M company's financial condition, a more aggressive lobbying with the HCMC-PC should be done.
- (3) Collecting data from the Vietnam side proved to be more difficult than from the Japanese side. In the second TC phase, it will be necessary to ask HCMC-PC to strengthen its support for MAUR.

[Output]

- Discount Comparison of SF Card and Pupil & Student
- Single Fare Matrix Table between Each Station
- The interest of Deposit & charge fare, and discount amount of SF card
- Fare Setting
- Discount for pupil & student
- Fares and Charges System of Japanese Railways Companies
- Fare revision system

(Action 4-4) To study business terms, mechanism and management methods for non-fare business

Through non-rail businesses, the O&M company will be able to provide convenient and additional services to passengers while earning from such services.

There are railway companies in Japan which earn more from non-rail businesses than from railway business. But since Line 1 is the first railway in HCMC, it may bring about various risks if non-rail businesses are given more focus from the beginning of railway operation. The target of non-rail businesses is to maximize the advantages of railway operations and should involve low risks. Non-rail businesses will be studied in detail in this project.

For sound urban railway operations, the central or city government should subsidize the O&M company. To minimize subsidies, one option is for the HCMC-PC to make the O&M Company the owner of the assets along the line so that it can get yearly income from these assets which can be used to repay the investment in Line 1 and the corresponding interest, as well as subsidize the operations of the O&M company. In HCMC, the construction of an underground mall at Ben Thanh station, currently the terminal of Line 1, is being studied. In order to establish a sound financial foundation for the O&M company, utilization of these assets can be implemented. The risk of this plan is small and it carries the possibility of bringing in considerable profit.

The project roadmap for Action 4-4 is illustrated in Figure 2-22.



Figure 2-22 Roadmap for Action 4-4

[Results of the Action]

- (1) Implement the case study in Japanese urban railways and know their management ways: A JICA expert made a presentation on non-rail business in the JR East.
- (2) Implement the case study of Vietnamese companies such as Saigon Bus Co. and know their management methods: For Saigon Bus, management use gas stations as parking lots for buses and operate driving schools to train bus drivers. Information on the company's achievements and management techniques was not provided to the PUC since they were for internal use only.
- (3) Study use of trains and stations with both elevated and underground facilities for non-rail business: A JICA expert gave a presentation on this topic. Moreover, the PUC formulated the first draft of non-rail business for the O&M company based on data on non-rail business at Osaka City metro and JR East in Japan.
- (4) Investigate candidate companies that can be non-rail business partners: In the investigation of candidates for non-rail business partners in HCMC, candidate companies that can operate stores within the station premises and post advertising at the station or in train were listed. A railway advertising agency in Japan showed its intention to penetrate the Vietnamese market. Although this can be in the form of a tie up with a local advertising agency, this partnership may be considered a powerful candidate.
- (5) Develop regulations on non-rail business: "The Regulation for Real Estate Lending" and "Handling Rule for Railway Advertising" were developed to regulate non-rail business.

[Concerns and Suggestions for Improvement]

- (1) There was a discussion whether a company suffering from deficits and receiving subsidy from the government can engage in non-rail business because it could create confusion with special-purpose companies called "public companies." However, it was decided with finality that to reduce the financial burden on HCMC-PC, the O&M company would be allowed to engage in non-rail business.
- (2) Because there will be no available space for non-rail business along Line 1, the expectation for the O&M company to engage in non-rail business is not significant, although some non-rail revenue can be expected from using station space for commercial facilities, from advertising at the station or in trains and parking lots, etc. These will also be convenient for passengers.
- (3) Regarding the development of the underground station mall at Ben Thanh station, many issues remain which need to be studied, such as the construction standards for underground structures and rights arrangement for ground and underground spaces, etc.

[Outputs]

- Regulations on real estate lending
- Handling rules on rail advertising

2.6 To discuss and prepare the draft activity plan for the second phase (Action 5)

The second phase of this TC project covers the period from setting up the O&M company to the commencement of the revenue service of Line 1. The preliminary tasks for this phase are (i) the preparation of job manuals, and (ii) the establishment of technical departments excluding technical issues in the headquarters.

In Line 1 project, the plan is for the general consultant to train the operations staff, such as drivers, while the contractor will train the maintenance staff. Training for the O&M department staff assigned at the headquarters has not been discussed.

Train diagrams and operating rules are indispensable to training. Although these should be prepared by the operations department at the headquarters, the plan is for the general consultant to prepare them. But it is outside the general consultant's work scope to instruct Vietnamese staff to develop or maintain them. In the maintenance department at the headquarters, tasks other than daily maintenance are to be carried out, for example, how to reduce the number of failures or when to replace equipment/rolling stock. To ask the contractor for training on these may create a conflict of interest.

Considering the above-mentioned issues, the framework for Phase 2 will be studied.

[Results of the Action]

In the beginning, Phase 2 (3 years) of this TC project was planned to be implemented right after TC Phase 1 (2 years) finished. But due to the delay in the construction of Line 1, the opening for commercial operations was postponed by two years. Therefore, there would be an interim period

between Phase 1 and Phase 2. However, MAUR requested JICA to continue providing technical support even during this period. Accordingly, the intermediate TC (tentative name) for such period is currently being studied.

As of this writing, most of the actions of TC Phase 1 have been completed. Actions for the succeeding phase are displayed below.

- (1) Setting up of the O&M company
- Registration of the O&M company(assumed to be done within 2013),
- Preparation of management institution in the O&M company (staffing, preparation of accounting systems, and so on).
- Establishment of the technical departments.
- Sharing of information with Line 2 project.
- (2) Acquisition of management knowledge/experience of the O&M company through preparatory work
 - Implementation of on-the-job training at Osaka City Metro.
- Sharing of information with the MRB in Hanoi.
- Sharing of information and discussions with PMU1 (office IT system, AFC system, train simulator, OCC equipment, train operating rules and so on).
- (3) Development of outer framework for the operation of the O&M company.
- Completion of training scheme for the operations staff through negotiations with the VNRA.
- Preparation of the regulator function.
- (4) Preparation of Phase 2
- Development of PDM, PO, and WBS.

[Concerns and Suggestions for Improvement]

- (1) Though negotiation with the central government is not required when registering the O&M company, there remains a lot of issues that should be negotiated with relevant departments within the HCMC-PC. Thus, it is better to prepare for the registration of the O&M company as early as possible.
 - Revision of the plan for the O&M company (The document, which is now under discussion to get the approval of HCMC-PC, is the framework of the O&M company).
 - Submission of this plan to HCMC-PC(negotiation with relevant departments in HCMC-PC should be done beforehand).
 - Listening to the opinions of relevant departments by HCMC-PC.
 - Official decision of the HCMC-PC chairman on the establishment of the O&M company.
 - Submission of registration documents.
 - Registration of the O&M company by the DPI.
- (2) For additional staff allocation based on the staff development plan for the PUC, the following personnel are required:
- For additional staff to be allocated to the PUC, the involvement of staff with experience in real businesses is desirable.
- It is an important assumption that PMU staff who will be transferred to the maintenance department of the O&M company have obtained enough knowledge on equipment/rolling stock

in the PMU. These personnel should not only function as supervisors for the general consultant in the PMU but should acquire skills/knowledge so that they can find the proper solutions by themselves later on.

- (3) In order for the O&M company to be managed well, it is very important for the PUC staffs to acquire management knowledge/experience through preparatory work for the opening, although the preparation of internal rules/manuals is also important.
 - For prompt decision making, it is important to have the ability to estimate. In the case of Vietnam, which does not have operational experience in urban railways, the preparatory work for the opening is the only chance to obtain such experience. It needs more time to address new issues. Accordingly, the establishment of an O&M company should be planned as early as possible.
- MAUR wants the PUC to undergo an OJT in a head office in Japan. But to do so, plenty of knowledge is required. Besides, information in the headquarters are not made known to people outside of the company. Accordingly, it is difficult for Vietnamese staff to undergo training in the headquarters of a railway company. To somehow accommodate MAUR's request, the JICA Project Team proposed a two-month OJT in Osaka and an intermediate TC project to be conducted by Team members who have work experience at the headquarters of Japanese railway companies (refer to sub-action (2) of the "Results of the Action"). With these trainings, they would have the equivalent qualifications of someone who have work experience in the headquarters of a railway company.
- (4) Regarding the training for driving license, the following two measures will be studied. One is that certificates will be issued by the Osaka City Metro after taking up theoretical lessons in Osaka. The other is that the certificate will be issued by the Railway Vocational College which will establish the EMU course with Japan's technical assistance. Both options aim to establish a new system and this requires regular and prompt consultations/discussions with relevant personnel.
- (5) MAUR does not understand the necessity of Regulator yet. It may be acceptable to add it to the menu of activities when MAUR wants to establish it.

[Outputs]

• PDM and PO of the intermediate TC (Appendix 7)

3. ISSUES, SKILLS, AND LESSONS FROM PROJECT IMPLEMENTATION

3.1 Enhancing Basic Potentials of Each PUC Member

The PUC staff lack the needed know-how and management skills to manage the O&M company, such as the proper appreciation of relevant Vietnamese laws and accounting system in Vietnam. This fact necessitates training which will be conducted in Vietnam and Japan to enhance the potentials and skills of the PUC staff. In the second year of this project, new staff will be hired and training for them will also be planned in the second year.

The training in Vietnam will be held during the period when the JICA Project Team leaves Vietnam so as to allow the PUC staff to devote their time to it. It is preferable to carry out this training as soon as possible, but subcontracting the training also takes time. Hence, it will be planned to start two months after the commencement of this TC project. In order to enhance their planning capability, the PUC staff will be involved in the planning, preparation, and business procedures for this training.

Training contents and the detailed training plan will be discussed and finalized by MAUR and the JICA Project Team.

Target Knowledge	Method	Remark							
1. On railways	Training	• Experience of riding on commuter railways in Tokyo and							
	in Japan	Osaka and study on railway management from railway							
		companies and subsidiaries							
		• Nine-day course to be held for each year of the TC project.							
		• Number of participants will be around 10 at any one time.							
2. On management	Special	• Study on company law, taxation law, accounting system,							
	course at	labor law, and prompt decision making accompanying case							
	VJCC	studies							
		• A four-week course is planned. In the second year the same							
		program will be carried out.							
		• Number of participants will be around 10at any one time							

 Table 3-1
 Capacity Enhancement Training for PUC Staff

[Actual Activities]

Please refer to Action 1-1(4) Enhancement of PUC staff potentiality.

[Issues, Skills, and Lessons Obtained from Experience]

- (1) Study tour in Japan:
- Vietnam side requested the JICA Project Team to increase the duration of the Japanese study tour to the extent possible. As a result, the study tour was extended from eight to 10 days.
 Furthermore, in order to enrich the trainees' experience and following the comments of a JCC member, a 24-hourhands-on experience at a station was added to the schedule.
- MAUR also requested the JICA Project Team to provide lectures other than sightseeing,

according to the comments in JCC. But this course was planned for PUC staff who had no knowledge about urban railways, and lectures would require participants to have some knowledge of the topics. It was very difficult to develop a suitable curriculum.

- (2) Special management course at VJCC:
- The VJCC is a non-profit organization supported by JICA, and the JICA Project Team could consult with them when the concrete curriculum of the special management course was developed. The VJCC is a subsidiary organization of the Foreign Trade University and they have a wide network of resource persons in HCMC. Therefore, they were able to quickly mobilize good lecturers who included a university professor, a bank director, a lawyer, and consultants, based on the request of the JICA Project Team.
- According to the report from the PUC, most of the lectures were favorably rated because the lecturers provided a lot of examples and allotted a Q&A portion. However, the PUC believed there were some lecturers who should not be hired again. One reason for this is that they included unnecessary topics in their lectures, for example, details of regulations, when the basic concepts of laws/regulations would have sufficed.
- The O&M company is a one member limited liability company (LLC) and 100% state-owned. Officers who will be involved in this company, especially from the beginning, would be the best instructors for this course. For the next training, this idea will be studied together with the VJCC.

【 Concerns and Suggestions for Improvement 】

- In the coming TC, the training course in Japan should be designed to help PUC staff become experts in urban railways. Therefore, the training courses to be provided by Japanese railway companies should consider current experience and knowledge of PUC staff.
- Management courses at the VJCC should also be held when the number of PUC staff increases and should consider the results and the experience of the first course.

3.2 Utilizing Local Management Consultants

For this TC project, the assignment of Japanese experts to Vietnam, except for the resident expert who will be dispatched from Osaka City metro, has to be rather short. In their absence, local management consultants will be employed. These consultants are expected to be management experts with sufficient information on the local situation and about Japanese institutions. They should be involved actively not only during periods when the JICA Project Team is not in Vietnam, but throughout their engagement, regularly checking that internal rules and various notices of the O&M company to relevant authorities prepared by the PUC/TC team are not in conflict with Vietnamese regulations. The tasks of the local management consultants are shown below.

Table 3-2 Tasks of Local Management Consultants

Expected Task

- 1. As communicators of the technical knowledge/concept and as management experts who know the local situation well, support the PUC staff in readily understanding the suggestions of the JICA Project Team.
- 2. Serve as good advisors during periods when the JICA Project Team is not in Vietnam.
- 3. Provide basic information on Vietnamese institutions and regulations to the PUC staff, if and when needed.
- 4. Confirm that internal rules are proper and not in conflict with Vietnamese regulations.
- 5. Confirm that company notices to relevant authorities, such as the rules of employment, conform to Vietnamese laws and regulations from the legal/accounting viewpoints.
- 6. Assist in the speedy acquisition of information and prompt decision making
- 7. Answer legal /accounting questions raised by the PUC/JICA Project Team.

[Actual Activities]

- The JICA Project Team hired a certified public accountant and a lawyer as local management consultants. Face-to-face meetings were done once a week, while consultations were carried out through telephone and mail as needed).
- They were highly regarded by the PUC; the latter felt the LMCs provided good advice.

[Issues, Skills, and Lessons Obtained from Experience]

- The O&M company is a one member limited liability company and 100% state-owned. This is a special company, which the LMCs normally may not get as a client. The LMCs could not provide the PUC with the answers which the JICA Project Team expected from them. The JICA Project Team requested the LMCs to provide answers to the questionnaire from the PUC and instructive information to the PUC, as well as advice on a wide range of topics, even if the PUC did not ask the latter from the LMCs in order to enhance the knowledge level of PUC staffs.
- The PUC don't have enough experience in real business nor do they have the capacity to critically evaluate the information and advice from the JICA Project Team. At the same time, the LMCs could not serve as interpreters between the JICA Project Team and the PUC though this was the first task asked of them. However, the JICA Project Team and the PUC were able to utilize their skills and knowledge.

[Concerns and Suggestions for Improvement]

In the coming TC, it is proper to hire LMCs by focusing on their role of conveying the meaning of instruction/advice from the JICA Project Team to the PUC after understanding it by their own.
 It may be proper to hire LMCs with high interpretation skills to enable them to correctly relay messages back and forth. It is not necessary for them to be certified public accountants or lawyers.

3.3 Developing a Prompt Decision-making System

It is important to get prompt decisions based on a critical study of issues in order to enhance the performance of the O&M company. A decision-making process is important not only during the operation of the line but also during this TC project, to wit:

- (i) The decision-making process, which will be shared with the board of the O&M company in the future, should be adopted at the initial stage. In this way, the O&M company can make prompt decisions at the outset (refer to Section 3.1,Action 1-1);
- (ii) Meetings should be held not only to get consensus among officials, but to obtain new ideas through discussions. To heighten the understanding of stakeholders about railway management and operation, opportunities that allow individual explanations and build rapport with them, should be utilized; and
- (iii) Management measures should be established to get detailed schedules of tasks based on the final goal.

[Actual Activities]

- It was clarified to the JICA Project Team the reason why the Vietnamese side could not take action promptly.
- It was made known to the JICA Project Team that the PUC counterparts were not good at managing deadlines, so they would schedule backwards.

[Issues, Skills, and Lessons Obtained from Experience]

- MAUR does not usually negotiate with other authorities/agencies unless ordered by higher authorities. They did not try to discuss matters with other agencies despite instructions and requests from the JICA Project Team.
- Vietnamese counterparts who have experience readily understood the JICA Project Team's suggestions. It seems that they were involved in past ODA projects and they knew how to address new issues.
- The PUC studied what they had to do until they achieved the goal by developing the WBS. However, it seemed that they did not study it from the viewpoint of addressing the issues within the given time.

[Concerns and Suggestions for Improvement]

- MAUR should respect the suggestions of the JICA Project Team. The MAUR chairman may be asked to instruct his staff to do so.
- The JICA Project Team will instruct the PUC regarding the importance of reverse scheduling by clarifying the latter's target outputs or achievements by month or year in order to achieve the goal.
- In HCMC there may be some personnel who had been involved in ODA projects from beginning (i.e., planning) to end (i.e., operation). To involve them in the PUC is thus required. The JICA Project Team requested MAUR to identify such personnel with enough experience.
- Most people tended to place importance on the development of internal rules for the TC project. But it is more important for the PUC to know is that prompt decisions by management is most important in establishing a financially sound O&M company.

• It took the PUC/MAUR some time to understand the fundamental need for making prompt decisions. Because this can be greatly understood only through actual work. Accordingly, it is necessary to set up the O&M company at the early stage of the trial operation.

3.4 **Providing Well-prepared Vietnamese Documents**

A number of internal rules will eventually be prepared in this TC project. These rules have to be described precisely since they will be utilized as main rules by the O&M company. However, most of the references to be used in formulating internal rules of railway companies are written in Japanese and are difficult to understand and translate. Considering these issues, the following procedures will be adopted in the translation of documents into Vietnamese.



Figure 3-1 Procedure for Preparing Vietnamese Translations of Japanese Documents

[Actual Activities]

• Please refer to Action1-1(2) Establishment of the general implementation plan and accomplishment list of this project.

[Issues, Skills, and Lessons Obtained from Experience]

- When document volume was large, translation was outsourced and in-house translators checked the Japanese-to-Vietnamese translations. For translating small documents, the two in-house translators did the work.
- To check the quality of translation work, the JICA Project Team asked in-house translators to translate part of the Vietnamese translations mentioned above to English. After comparing the English version with the original document (i.e., Japanese version), only a few mistakes were found.
- The PUC were asked to report to the JICA Project Team any questionable provisions or text they find in the Vietnamese translations. Because there had been no complaints from them, it could be assumed that the quality of the Japanese to Vietnamese translation was high.

[Concerns and Suggestions for Improvement]

• Railway people know railway well. The collaboration with the Railway Vocational College, in particular, the direct collaboration of TC translators and RVC instructors produced high-quality Vietnamese versions of Japanese railway documents within a short period of time. In the coming TC project, this arrangement will also be adopted.

3.5 Exchanging Information and Collaborating with the HCMC-PC and Government

The PUC is in close contact with PMU1 and other departments under the HCMC-PC. It is important for the PUC to exchange information and cooperate with these organizations and other stakeholders to carry out smooth project implementation and efficient business operations. Toward this end, the Joint Coordination Committee (JCC) will be set up and meetings will be held twice a year.

Table 3-3	Schedule	of JCC	Meetings
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2010	010 Fiscal Year2011							Fiscal Year2012																
3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
			\triangle						\triangle									\triangle				\triangle		

It is also essential to coordinate with the MOT and the VNRA, especially on resolving driver licensing issues and other technical aspects stipulated in the Railway Law. Although these are tasks for the PUC staff, the JICA Project Team has to keep a close tab on the activities of the PUC staff. When the latter encounters problems or are faced with difficulties in carrying out their tasks, the JICA Project Team should ascertain the problems and provide advice to help solve them.



Figure 3-2 Relationship of PUC with HCMC-PC Departments and Central Government Ministries

[Actual Activities]

- 1. *First JCC Meeting* (23 June 2011, MAUR office: The agenda was as follows (see Appendix 4 for the minutes):
 - (1) Special presentation by JICA expert, Mr. Katsuta on the "Inauguration of Technical Assistance named The Project for Support on Set up of Operation & Maintenance Company of Urban Railways in Ho Chi Minh City."
 - (2) Working Regulations and Work Program of JCC for 2011.
 - (3) Inception Report (ICR) and Work Breakdown Structure (WBS).

[Issues, Skills, and Lessons Obtained from Experience]

- The JCC members commented mainly on the study tour in Japan, about which they said should not be merely a sightseeing activity. Most of the comments were not about the scope and methodology of the TC project.
- Preparations for the first JCC meeting were carried caredully. After the meeting, preparation of the minutes was likewise given meticulous attention and substantial energy and time.
- Though the PUC staff were competent, they had difficulty engaging the directors of the HCMC-PC departments. This is because they are relatively young, necessitating older and more experienced personnel for meetings with other departments to get their advice. A JICA Project Team member recommended to MAUR to identify these personnel who could easily negotiate with the JCC members.
- 2. *Second JCC Meeting* (8 December 2011, MAUR office): The agenda was as follows (see Appendix 4 for the minutes):
 - Organizational structure, functions, duties, power and authority of the departments of the O&M company over the urban railway sector in HCMC City.
 - (2) Charter of the O&M company.
 - (3) Report on driver training and issuance of driving licenses.
 - (4) Report on the ticketing system and fare setting to be carried out by the O&M company.
 - (5) Study report on the financial mechanism.

[Issues, Skills, and Lessons Obtained from Experience]

- Items (1) and (2) of the agenda refer to the achievements of the PUC study, while (3) and (4) are the contents of the JICA Project Team's interim report. Item (5) refers to the results of the financial simulation done in this TC project. Because the results presented to the JCC were concrete, the JCC members gave positive and constructive comments.
- Preparing for the second JCC meeting was still similar to that for the first meeting, although the JCC members were more relaxed now especially during the Q&A portion, during which the quality of questions and answers substantially improved.
- 3. *Third JCC Meeting* (22 November2012, MAUR office): The agenda was as follows (see Appendix 4 for the minutes):
 - (1) Modification of the MOU, PDM, and PO.
 - (2) Results of PUC including the outline of Business Plan

(3) Project terminal evaluation results.

[Issues, Skills, and Lessons Obtained from Experience]

- Comments from the JCC members in the second JCC meeting were repeated in this JCC. This is because the PUC could not accurately grasp the meaning of their comments. Further discussions about the comments after the meeting proved helpful.
- JCC members raised a number of issues about the Business Plan, but it was eventually approved. The terminal evaluation result was also approved. The JCC members agreed that two issues need to be addressed by the end of this TC project. One was to get approval for the business plan, which was renamed to Establishment Plan, from the HCMC-PC, and the other one was to get the consensus of the VNRA on the training system for drivers. At this moment, both issues are conducted on time despite the tight schedule.
- 4. *Fourth JCC Meeting* (24 January 2013, MAUR office): The agenda was as follows (see Appendix 4 for the minutes):
 - (1) Establishment Plan for the O&M Company
 - (2) Outline of the coming TC project.

[Issues, Skills, and Lessons Obtained from Experience]

- MAUR worked proactively with the JCC members in providing relevant organizations with advanced explanation about documents with pending issues (e.g., Establishment Plan for the O&M company). Despite this, the DOF did not provide the PUC time to explain due to its own tight deadlines. MAUR eventually understood the importance of advanced information and coordination with other entities.
- It may be hard for people without financial knowledge to understand the comments from the DOF. MAUR/PUC tended to overreact to the comments of the DOF. For instance, the PUC prepared documents for the fourth JCC meeting without consulting the JICA Project Team. As a result, the documents created further confusion.
- In order to get the HCMC-PC's approval of the Establishment Plan as early as possible, the JICA Project Team and PUC members discussed the comments and suggestions of the JCC members, but some were unclear. Since the DOF avoided having advanced discussions with the PUC on the unclear comments and suggestions made during the third JCC meeting, the same were only clarified during the fourth JCC meeting. But as the discussion points were already selected, the discussions about these issues did not create confusion.
- There was no objection about the plan for the coming TC.
- Regarding the training for drivers, based on the instruction from the VNRA, two options have to be studied. One is for Osaka City Metro to certify trainees who undertook the theoretical trainings in Osaka, and the other is for the Railway Vocational College to certify their trainees. At this moment, no option was adopted yet, although the Japanese side already prepared a roadmap to train the Line 1 drivers in HCMC.
3.6 JICA Project Team Composition

The composition of the JICA Project Team is shown in Figure 3-3. Besides this team, a resident expert will stay in HCMC for the duration of the project. This expert will lead the JICA Project Team when the chief expert is not in the project area, i.e., HCMC.



©; Group Leader, O; Sub leader

Figure 3-3 JICA Project Team

[Actual Activities]

- A JIC officer dispatched from Osaka City Metro stays in HCMC.
- The JICA Project Team did not join the technology transfer on psychological aptitude test project since this technology transfer was stopped (see Action 2-8). Dispatching other experts was done as planned (see Appendix 3 "The assignment result of the experts").

[Concerns and Suggestions for Improvement]

- In the beginning, the JICA Project Team assumed that its role was to provide the PUC with advanced railway knowledge and experience and that the PUC would have more planning initiative. However, the PUC assumed that its role was merely as counterparts of the Team. Hence, the workload of the JICA Project Team was initially heavier than estimated because the PUC members had little knowledge and experience in planning and promoting the plan to various stakeholders.
- MAUR chairman, Mr. Luong, resolved this impasse, informing everyone that the mission of the PUC was to establish the O&M company.

4. ACHIEVEMENT OF PROJECT PURPOSE

JICA dispatched an Evaluation Team for this TC project in November2012. The results of evaluation and the recommendations are described in this chapter.

4.1 Summary of Evaluation

The findings of the Evaluation Team, which studied the progress of and prospects for this TC project, are summarized below. As a conclusion, the project could be said to be "B: High."

Aspect	Level	Significant Assessment	Remark
1. Actual results	А	Input and outputs seem fairly good	Prospect of achieving the project is
of Outputs,		in general.	high.
Activities,		Project implementation seems to be	
Inputs		fairly good.	
2. Relevance	А	Project meets the policies of	There is concern about implementing
		Vietnam and Japan.	the second phase of this TC project
		_	due to the postponement of Line
			1 opening.
3. Effectiveness	В	Preparation for tasks in planning,	Project circumstances changed due to
		administration, safety, human	the postponed opening of Line 1 by
		resource, financial, and business is	two years, i.e., 2018.
		appreciated.	
4. Efficiency	В	Training in Japan was rated as very	There is good coordination with other
		good.	projects, which is important.
5. Impact	С	No risks except for the delay in	Line 1 opening was postponed to
(Effect)		setting up the O&M company	around 2018 and there's no possibility
			that line would be completed finished
			within 3 years (i.e., 2013-2016).
6. Sustainability	В	There is no change in the need to	Budget will be constrained.
		establish a company in HCMC-PC.	

 Table 4.1
 Summary of the Evaluation Study

4.2 Recommendations

Based on the evaluation results, the Evaluation Team made the following recommendations to the JICA Project Team in order to ensure the achievement of project goals.

4.2.1 General Recommendations

- (1) **More Initiative from the Counterparts:** Key to a successful technical cooperation is the commitment and strong initiative of counterparts. For this TC project, the counterparts showed initiative and active participation to some extent, but as some of the Japanese experts pointed out, more initiative is needed in future technical cooperation.
- (2) Enhanced Information Sharing and Coordination with Other UMRT Lines and Relevant Organizations: The O&M company in HCMC is not only for UMRT Line 1. Eventually, it will manage other lines (e.g., Line 2). Sharing information and coordinating with other organizations, including development partners and other public transportation entities (such as Hanoi MRB, Saigon Bus, etc.), are essential from the early stage of planning and construction.

4.2.2 Issues to Address up to March 2013

- (1) **Remaining Tasks:** List the remaining tasks step by step and accomplish them on or before the deadline.
- (2) **Establishment Plan:** Clarify the step-by-step procedure necessary for the plan to be approved by HCMC-PC.
- (3) **PDM and PO:** Draft the activity plan for Phase 2 as indicated in Action 5 of this TC project. At the same time, draft a tentative PDM and PO for Phase 2, with the precondition that this phase starts when the O&M company has been registered.
- (4) Activity Plan for Interim Period: Draft the activity plan for the period between the end of Phase 1 and the beginning of Phase 2. During this interim period, MAUR and the PUC will have to prepare for the Phase 2 TC project.
- (5) **Driver Training and License Issuance:** Through discussions with the MOT and VNRA, MAUR and the PUC should clarify and get written approval on what training requirements must be fulfilled and how driver's licenses should be issued. This is necessary for the first batch of drivers and operational staff (such as station staff), who would be trained by the general consultant for Line1 construction and for the second and later batches of drivers who would be trained by the O&M company or a credited training institution.

4.2.3 Interim Tasks (After March 2013 till Start of Phase 2)

- (1) Start Procedure to Register the O&M Company: From the SAPI study, the O&M company should be set up at least 3 (three) years before opening railway services. Currently, Line1 is scheduled to open any time between 2017 and 2018. Thus, the O&M company must start its preparatory operation around 2014 to 2015. Registration of the O&M company takes one year; so, MAUR/PUC must start the registration process in 2013.
- (2) **Involve MOT to Finalize Safety Regulations and Rules:** Rules and regulations on safety management are necessary at the national level. Draft necessary regulations and rules through close and detailed discussions with the MOT and VNRA. This should be done in close coordination with Hanoi UMRT team, MRB, and others.
- (3) **Monitor Line 1 Construction Progress:** Monitor Line1 construction progress and revise the activity plan accordingly. The O&M company should be setup three years before opening and the precondition for the TC project to restart (as Phase 2) may be that the O&M company has been registered or registration is foreseeable in the very near future.

4.3 Lessons Learned

(1) Appropriate Consideration of Delays in Project Implementation

For a TC project which is closely associated with a construction project, delays in the construction will directly affect TC project activities, outputs, project purpose, and achievement. Thus, when designing such TC projects, a realistic consideration of the possibility of delays is necessary. The

O&M project is divided into Phase1 and Phase 2 to adjust to the delay, but the PDM was not appropriately designed to accommodate delays.

(2) Inclusion of Midlevel Staff as Counterpart Member

The Project counterpart members were young staff. While their enthusiasm and commitment are commendable, the inclusion of midlevel staff with more experience and knowledge to the pool of counterparts will be necessary to ensure quick and smooth operation of the chain of command within the O&M company.

(3) Information Sharing and Coordination with MOT

The UMRT was introduced to Vietnam for the first time, and its first and new step is the setting up of a railway O&M company. Laws and regulations, as well as the institutional framework for urban railway operation, have not been formulated; thus, more coordination with the supervising ministry, the MOT, will be essential when implementing this new project.

5. ACTIVITIES IN THE REMAINING PERIOD

The Establishment Plan for the O&M company was submitted to the JCC during its fourth meeting and discussed then. Though there were some issues, most were about the language used and not on the substance or issues. As MAUR chairman, Mr. Luong expressed his opinion that the O&M company must be set up as early as possible. He also clarified the role of the PUC in this task and informed the body that MAUR could soon get the approval of the HCMC-PC on the Establishment Plan for the O&M company. Regarding the training of drivers, the VNRA and MAUR discussed this directly and concrete decisions have become foreseeable. Furthermore, the contractor for CP-3, which had been a pending issue for a long time, was finally decided. It can be said that the early setting up of the O&M company is gathering speed. As the HCMC-PC's approval of the Establishment Plan is the precondition for the next phase of the technical cooperation, it is anticipated that MAUR and PUC will settle these pending issues by the end of March 2013.

Shown below are the activities proposed for the coming TC phase based on the assumption that the some preconditions are fulfilled.

1. Preconditions for the Next TC Phase

- (1) MAUR clarifies the role of the PUC as the preparation unit for establishing the O&M company inside MAUR (already done).
- (2) MAUR/PUC will proactively meet with other departments of the HCMC-PC, central government ministries, and other entities.
- (3) The O&M company should start in 2013 even if there will be further delays in the construction of Line 1.
- (4) About 19 staffers will be assigned to the PUC up to March 2015.

2. Terms of Reference for the Next TC Phase

- (1) Setting up of the framework of the O&M company;
- Acquisition of management knowledge/experience through preparation work of setting up the O&M company;
- (3) Building up of the outer framework supporting the O&M company;
- (4) Preparation of TC Phase 2 activities.

The project design matrix for the next TC phase shows the activities (see Appendix 7).

6. APPENDICES

Appendix 1	:	Latest PDM
Appendix 2	:	Detailed Action Plan (WBS)
Appendix 3	:	Assignment result of the experts
Appendix 4	:	Minutes of the Joint Coordination Committee Meeting
Appendix 5	:	Equipment provided by JICA
Appendix 6	:	Instructions of MAUR Chairman Mr. Luong (81/TB-BQLDSDT)
Appendix 7	:	PDM and PO for Next TC Phase
Appendix 8	:	Establishment Plan for the O&M Company

(Note: Results of the TC Phase 1 prepared by the Japanese side and the documents prepared by the counterparts are saved in a CD.)

Appendix 1

Latest PDM

Project Design Matrix Project on Support on Set up of Operation & Maintenance Company of Urban Railways in HCMC

Project Implementation Period: From Mar.2011 (24 months) Implementation Agency: Preparation Unit (PU) for set up of O&M Company (PUC) under Management Authority for Urban Railways (MAUR)

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3-5 Measures to preserve the financial soundness of the company are defined. 3-5 Paper for financial soundness preservation measures 4. Preparation work of Business task is completed. 4-1 Organization of Business task is prepared. 4-1 Organization and regulations of Business task is prepared. 4. Preparation work of Business task is completed. 4-1 Organization and regulations of Business task is prepared. 4-2 4-2 General Contract of Transport business statute is formulated. 4-3 Fare pricing and adjustment system is established. 4-3 Fare pricing and adjustment system is established. 5. Draft activity plan for 2 nd phase is prepared. 5-1 Necessary activities are defined for 2 nd phase of TC so as to start UMRT operation. 5-1 Draft activity plan for 2 nd phase		3-4	Procurement system is formulated.	3-4	material and equipment		
4. Preparation work of Business task is completed. 4-1 Organization of Business task is prepared. 4-1 Organization and regulations of Business Department 4. Preparation work of Business task is completed. 4-1 Organization of Business task is prepared. 4-1 Organization and regulations of Business Department 4-2 General Contract of formulated. Transport business statute is formulated. 4-2 General Contract of Transport Business statute 4-3 Fare pricing and adjustment system is established. 4-3 Fare pricing and adjustment system 5. Draft activity plan for 2 nd phase is prepared. 5-1 Necessary activities are defined for 2 nd phase of TC so as to start UMRT operation. 5-1 Draft activity plan for 2 nd phase		3-5	Measures to preserve the financial soundness of the	3-5	Paper for financial soundness preservation		
4. Preparation work of Business 4-1 Organization of Business task is prepared. 4-1 Organization and regulations of Business task is completed. 4-2 General Contract of Transport business statute is formulated. 4-2 General Contract of Transport business statute is formulated. 4-3 Fare pricing and adjustment system is established. 4-3 Fare pricing and adjustment system is established. 4-4 Study report of non-fare business 5. Draft activity plan for 2 nd phase is prepared. 5-1 Necessary activities are defined for 2 nd phase of TC so as to start UMRT operation. 5-1 Draft activity plan for 2 nd phase			company are defined.		measures		
task is completed. 4-2 General Contract of Transport business statute is formulated. 4-2 General Contract of Transport business statute is formulated. 4-3 Fare pricing and adjustment system is established. 4-3 Fare pricing and adjustment system is established. 4-4 Study report of non-fare business 5. Draft activity plan for 2 nd phase is prepared. 5-1 Necessary activities are defined for 2 nd phase of TC so as to start UMRT operation. 5-1 Draft activity plan for 2 nd phase	4. Preparation work of Business	4-1	Organization of Business task is prepared.	4-1	Organization and regulations of Business		
 4-2 General Contract of Transport Dusiness statute is formulated. 4-3 Fare pricing and adjustment system is established. 4-4 Possibility for non-fare business is defined. 5. Draft activity plan for 2nd phase is prepared. 5.1 Necessary activities are defined for 2nd phase of TC so as to start UMRT operation. 4-2 General Contract of Transport Business statute is graph of the start of the st	task is completed.	4.0	Conorol Contract of Transport husings, statute is	10	Department		
4-3 Fare pricing and adjustment system is established. 4-3 Fare pricing and adjustment system is established. 5. Draft activity plan for 2 nd phase is prepared. 5-1 Necessary activities are defined for 2 nd phase of TC is prepared. 5-1 Draft activity plan for 2 nd phase is o as to start UMRT operation. 5-1 Draft activity plan for 2 nd phase		4-2	General Contract OF Transport Dusiness statute is	4-2	General Contract OF Transport Business statute		
4-4 Possibility for non-fare business is defined. 4-4 Study report of non-fare business 5. Draft activity plan for 2 nd phase for 2 nd phase of TC is prepared. 5-1 Necessary activities are defined for 2 nd phase of TC so as to start UMRT operation. 5-1 Draft activity plan for 2 nd phase		4-3	Fare pricing and adjustment system is established	4-3	Fare pricing and adjustment system		
5. Draft activity plan for 2 nd phase 5-1 Necessary activities are defined for 2 nd phase of TC is prepared. 5-1 Draft activity plan for 2 nd phase		4-4	Possibility for non-fare husiness is defined	4-4	Study report of non-fare business		
is prepared. so as to start UMRT operation.	5. Draft activity plan for 2 nd phase	5-1	Necessary activities are defined for 2 nd phase of TC.	5-1	Draft activity plan for 2 nd phase		
	is prepared.		so as to start UMRT operation.				

1

Activi	ties	Inputs		
		(Japanese side)	(Vietnamese side)	Preconditions
0	Review and analyze	1. Dispatch of Japanese Experts	1. Assignment of Counterpart	There is no big change in
0-1	To review and analyze the present situation and		Personnel for Preparation Unit	urban railway policy of
	surroundings	Fields of Experts	• First Period(3/2011-3/2012) 10 persons	Vietnam central
1.	Planning, Administration and Safety tasks	- Chief Expert/Planning: 1 person	- Planning, Administration and Safety:	government and HCMC
1-1	To setup the comprehensive plan to control the	- Administration and Safety: 1 person	4persons	
	implementation of TC activities in general.	- Human Resources: 1 person	- Human Resources: 2persons	
1-2	To formulate the regulations of function and duty of each	- Finance: 1 person	- Finance: 2persons	
	Department.	- Business: 2 persons	- Business management: 2 persons	
1-3	To formulate the organizations and regulations of	- Psychological test: 2 persons	• Second Period (3/2012-3/2013) 9	
	Planning, Administration and Safety task.	- Specific issues: several	persons	
1-4	To formulate the operation business plan.		Depending on the practical situation of	
1-5	To formulate the <u>charter of the</u> company regulations .		project personnel will be disposed for	
1-6	To formulate draft regulations for safety management	2. Counterpart training in Japan	suitable position	
	system.	At least 19 persons		
1-7	To prepare the requirement propose the necessity of IT		2. Provision of facilities for the Project	
	system of O&M including financial activity.	3. Equipment	implementation :	
1-8	To select business activities for which job manuals are	Items needed for Project implementation.	- Project office	
	necessary.		- vvorking equipment	
1-9	To prepare schedule for manual making by job activity	4. Expense	2 Evenence	
_	priority.	- Cost for employment of local consultants	3. Expense	
2.	Human Resources tasks	- Other expenses.	- Local cost for personnel	
2-1	Io formulate the organization and regulations of human	- TC assistants:	- Other expenses:	
	resources task.	lananoso interpretor: 2 persons	For research travelling training other	
2-2	To formulate the working regulations.	English interpreter: 1 person	activities	
2-3	To prepare the human resource planning.		activities	
2-4	To formulate the job allocation and job grading systems.			
2-5	To contruct the staff allocation plan.			
2-0	To set up training plan/aveter for appretion staffs			
27	To get approval from MOT regarding driver's license and			
2-1	other relevant related laws and regulations			
2-8	To train the psychological test evaluator			
2	Financial tasks			
J .	To formulate the organization and regulations of			
3-1	Financial task			
3-2	To formulate the accounting system			
3-3	To prepare the plan of budget management			
3-4	To formulate the regulations for procurement			
3-5	To study for securing financial soundness of the			
00	company			
4	Business tasks			
4-1	To formulate the organization and regulations of			
	Business task.			
4-2	To formulate General Contract of Transport-business			
4-3	statute.			
4-4	To establish the fare pricing and adjustment system.			
	To study business terms, mechanism and management			
	methods for non-fare business.			
5.	Planning for 2 nd phase of TC			
5-1	To discuss and prepare the draft activity plan for 2nd			
	phase			
			·	

* TC: Technical cooperation project VNRA: Vietnam Railway Administration, MOT: Ministry of Transport

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Appendix 2

Detailed Action Plan (WBS)

Work Breakdown Structure (WBS)

		Fiscal Year	2011					2011											2012							PU	STA	FF		JICA	Remarks
Items			3	4	5 6	7	7 8	3 9	10	11	12	1	2	3	4	5	6 7	8	9	10	11	12	1 2	3		10	51		1	experts	Keinur Kö
1.	Planning, Adı	nin and Safety				_			_																Ðức	Hải (Quân	Thành	Trà		
1			<u> </u>	Ajkow		10				-	-		\square					+		\square						\square			-		
	Establishment of the General Project	ct Implementation Plan and its	4/1	< 2	5/15 6/		7/18		_																						
1-1	Target List	1	4/1	Miyan	1ga 6/5			_	_										_												
			4/1	Nagai	5/15			7/31	1										_												
			Hos	omi 5/16	22 6/2	7-7/03	8	/22-30 1	10/1		->	12/31		_				_													
	Activities	Result of expecting		< ·			>	_	_	_				_				_	_												
1.1.1	for the PU																														
	Define the role & duty of PU	The role & duty of PU Main personel and member personel of each		<->		_		_	_					_				_	_											Support Mr. Aikawa	Mr Cương & Ms
	Decide on the roles of each PU staff;	action/activity will be defined		•••																											Huyên
	Establish the activities procedures, the	Decision making system of PU: from weekly		<>																					0	0	0	•	0	Support Mr. Aikawa	The decision making system of
	decision making system of PU	meeting (at the initial stage) to board meeting		_	_	_			_																						PU in this TC
	Select local management consultants	Support of local consultant in relevant fields		•	-	-		_	-					-	_	_		_	_			_							T	Mr. Aikawa in charge	
1.1.2	plan and accomplishment list of this project																														
	Enrichment of WBS by utilizing ICR	WBS and ICR is revised Avoid discrepancies among actions or staffs		•		•		_	_					-				_							•	•	•	•	•		
	activities)	Relationship between the timing of major		•	_	•																						•		Support Mr. Aikawa	
1.1.3	Gather base data for the PU	events and each actions will be clarified				+			-										-												
	Translate internal rules of Japanese railway	Internal rules of Japanese railway companies		•	•																									Translators	
	companies Collect internal rules of Vietnamese	(VietNamese version) Contents of internal rules of Vietnamese				_		_	_					-				_													
	transportation companies (Ex: SaiGon bus,	transportation companies	<u> </u>			-	_			-	-		\square					+		\square					0	•	•	0	0		
1	update the current situation and implementation schedule of line 1 and others	current situation and implementation schedule of HCM city urban railways system		┫	_+	-+-	_+-	_+	-+	<u>†</u>	<u>+</u>	<u> </u>	<u> </u> +		+-			_+-		Łł		+-	_+	<u> </u>				•			
1	Revise the demand forecast data	The basis for the financial plan with the			T	Τ	Τ	Τ	T	Γ	Γ			T		T		Τ			T	Τ				su		rt		Mr. Hosomi in	Related to GC
1.1.4	Basic training for PU		L			\pm	\pm											\pm												cnarge	
	Study at the VICC			1	5/23-6/1	7	T	Γ						T	T	T		Γ		1	T	Τ								Mr. Aikawa in	
1	Study at the VJCC																								•	•	•	•	Ľ	charge of setup	
1	Study in Japan				T	Τ		Τ	T	Γ	[T		Τ		Τ				Τ			•	•	•	•	•	Mr. Miyanaga in	scheduled in January
-		1	\vdash	\vdash					+	+	+		\vdash	+	+	\neg		+		⊢┤		+	+	\vdash		+	\neg		+	cnarge	2012
1-2	Draft the rules on the Functions and	Powers of Each Department	\vdash		/10 Miy	anaga			+	+	+		\vdash	+	+			+	+	╞┼┤		+	+			+	\neg		+	1	
	Activities	Result of expecting	\vdash		, 1.7	╞	→ //:		+	1	1			+	+			+	1	╞╴┨		+				\neg			┢	1	
		1 · · · · · · · · · · · · · · · · · · ·				-													-											- Mr. Aikawa provide	
		Summary of basic awareness/knowledge of the			•	•																								information and support - LC instruct (Ex: supply	
1.2.1	Implement the basic study on the organization	organization																										•	0	good books on the	
																														organization)	
1.2.2	Study the internal rules for function and power	Summary of Japanese railway company			ł	٠																			•		•	•		All experts in charge of	
		organization			_	_		_	_									_	_			_								provison of internal rules	
1.2.3	Study the result of other group	groups			•		•																					•			
1.2.4	Clarify the whole menu of powers	All the power and duties of the O&M				•	•																					•		support Mr Miyanaga	
1.2.5	Clarify the functions and powers of	Evention and accurate of dependence				+	•																							support	
1.2.5	departments	Functions and powers of departments																										•	0	Mr. Miyanaga	
1.2.6	Clarify the relationships among departments	Relationships among departments				•	•																		0	о	о	•	0	support Mr Miyanaga	
127	Study how to design the organizations	Principal for design the organisation of O&M						•		1																		•	0	support	
1.2.7		company						-	_										_									•	0	Mr. Miyanaga	
1.2.8	on decision making	General approval plan of each category				•		*																				•	0	support Mr. Miyanaga	
1.2.9	Draft the rule on the functions and powers of	Draft of the rule on the functions and powers				•		*																				•	0	support	
	each department	of each department (frame rule)			_									-		_		_											-	Mr. Miyanaga	
1.2	Draft the Organization Rules on the	Planning, Admin and Safety			_			Aika	awa	-				-		_		_													
1-3	Department		┣_	\vdash	+	+	Mi	10/ yanaga		10/3	d dar		\vdash	-	-+		_	+	+	┝╌╽	\rightarrow	+	+	$\left - \right $		-	_		-		
-	A		-	\vdash	+	8,	/1 <		⇒/=∪ > 	^{11/}	/15		\vdash	-	-+		_	+	+	┝╌╽	\rightarrow	+	+	$\left - \right $		-	_		-		
131	Activities Study the organization rules of Japanese urbon	Result of expecting	-	\vdash	+	+	+	+	+	+			\vdash	-	-+		_	+	+	┝╌╽	\rightarrow	+	+	$\left - \right $		-	_		-		
1.3.1	railways	Summary of Japanese organization rules of					•																		•			•		Provision of information	
1.3.2	Acquire the expericence from Japanese experts in related fields (especially, safety	PAS department.					•			1	1														•			•		Provision of information(Mr. Miyanaga)	
1.0 -	Collect information, documents from	C				4-			•	1	1			T				T	1						1				Ì		
1.3.3	vieinamese companies (SaiGon bus, VNR if possible)	Summary of obtained relevant documents								1	1														•			•			
	Entropy the humans - income	Summary of mission function, duties, power of			Τ	1			1									Τ								1	╡			support Mr.	
1.3.4	administration and safety department	Business images on the planing,					-	+	*	1	1														•			•		Miyanaga and Mr.	
	Acquire the expericence of the personal in	administration and safety department	<u> </u>	\vdash	_	+			_	-	-							+	_	$\left \right $		_		$\left \right $		-+	+		-	Aikawa	
1.3.5	charge of such business	Summary of practical expericence		\square			+		*																•			•		provision of information(Mr. Nagai)	
1.3.6	Draft the organization rules	Draft of the organization rules					1		*											[[•			•		support Mr. Miyanaga	
	Adjustment the organization and regulation to	Organization rules of this department is	\vdash		+	+	+	+	+	1	1			+	+			+	1	╞╴┨		+				\neg			┢	support Mr	
1.3.7	be fixed with these of O&M company	compatible with Organization rules of O&M company.						+	1	┢	1														•			•		Miyanaga	
1-4	Draft the Business Plan of the Com	pany			+	╈		+	+	1	1							╈					-			\uparrow			t		
	Activities	Result of expecting				╋		\top	+	1	1							+				+				\uparrow	\neg		\vdash		
1.4 1	Local consultants instruct PU staff on what is	Concept, basic knowledge of husiness plan			6/1	9		9/19	9	1	1							+				+			0	•		•	0	Local consultant	3 month trial, from
	the business plan and what are their contents Study actual business plan of railway	C	\vdash	\vdash		+			-+	+									*	\vdash	-+	+	_	\vdash	~	-	-	-		Lecture	19 June
1.4.2	companinies through annual report	Contents of railway business plan		\square	•													+	*	\square				\square	•	•	•	•	•	Mr. Shintani	
1.4.3	Draft the content of business plan of O&M company	The content of business plan is prepared								1	1								←								•	•		support Mr. Aikawa	
1.4.4	Study the construction schedule of line 1	Construction schedule of line 1				1		Τ	Τ									Τ	+							1		•		support	
	Aware which issues need to be completed by	List of necessary preparation for the business	\vdash	⊢┼	+	+	+	+	+	\vdash	-	\vdash	\vdash	+		+		+	+		-+	+	+	\vdash	\dashv	+			╞	support	
1.4.5	the time opening of urban railway company	operation commencement of line 1	<u> </u>	\vdash		+			_		<u> </u>	\square	\square					+	-	F ∎		-	_	\square	0	0	0	•	0	Mr. Aikawa	
1.4.6	commencement	Summary of the profit and loss plan	L																		< →					•	•	0	L	support Mr. Aikawa and Mr. Hosomi	
1.4.7	Draft the roadmap till the opening	The road map is prepared				Τ												Τ			•	->						•		support	
140	Discuss with other departments about how to	Information from other departments	\vdash	┝┼	+	+	+	+	+	+	+	\vdash	\vdash	+				+	+	⊢∣							0		_	support	
1.4.8	implement their business	mormation nom other departments	<u> </u>	\vdash	+	+	+	_	-	-			\vdash	+				+	_	$\left \right $		_	-	$\left \right $	U	U	U	•	0	Mr. Aikawa	
1.4.9	Draft the business plan	Draft of the business plan	1																			+					•	٠		Mr. Aikawa	

	Fiscal Year	2011			I		2011	l		1	1							2012	-					_	Р	U ST	AFF		JICA	Remarks
Items	nin and Safety	3	4	5	6	7	8	9 10	11	12	1	2	3	4	5	6	7 8	89	10	11	12	1	2 3	Dá	Hai	Onê	n Thài	ah Tuà	experts	
1. I tanning, Au																			-				_	Du	. 1141	Qua	n Thai			
1-5 Draft the ArticlesCharter of the Inc.	orporation Company						Ai 1	kawa 0/1	12/	1 12/:	15	2/10	3/10																	
Activities	Result of expecting																													
1.5.1 Study the articles of incorporation for urban railway companies the charter of the company	Concept, basic knowledge of the articles of incorporation the charter of the company for							•	•	•																			support	
in the world	urban railway																		_				_		_				Mr. AIKAWA	
1.5.2 regulations on the articles of charter incorporation (with the instruction of local management consultant)	Draft - list of major points to be considered							•	-															•	•	•	•	•	Support Local management consultant	
1.5.3 Study up the articles of <u>charter</u> incorporation	List or summary of articles of charter							•	•	•														•	•	•	•	•		
	meorporation in vietnam																							-					Lactura Mr. Shintani	
1.5.4 Develop the contents for-the articles of incorporation the charter of the Company	Draft the content of incorporation of O&M company the charter of the Company																							0	0	0	•	0	support Mr. AIKAWA	
1.5.5 Each department prepare the content of corporation in it's field	Draft of each department											-												•	•	•	•	•		
1.5.6 Collect drafts of each department	Summary of drafts											•	*														•		support Mr. AIKAWA	
Draft-the articles of incorporation the charter	Draft-of the articles of incorporation. the											•	*																support	
1.5.7 of the Company	charter of the Company																	_	_				_	_	-		•	_	Mr. AIKAWA	
1-6 Draft the Rules for the Safety Enhan	ncement				_		_		-																					
Activities	Result of avpacting	<u> </u>	\vdash	-	M	iyanag	9/15-30		-	12/	/13	<	3/17 ►	-	-+	+	+	+		╞	\vdash	+	+	+	\vdash	+	-	_		
1.6.1 Understand the impacts/ consequence of the	Result of expecting	-	\vdash	+	+	+	+		-	\vdash	\vdash	\vdash	+	\neg	\dashv	+	+	+	+	\vdash	\vdash	+	+	+	+	+	-	+	support Mr	
serious accidents in Vietnam and other countries	List of impacts of serious accidents							•	•															•					Miyanaga	
Understand what types of accidents occuring	List of types of accidents occuring in urban	-			1		\top	•	•	1			┫		\neg	+		\uparrow	1			\uparrow	\top	+	\uparrow	\uparrow	\uparrow	1	support Mr.	
experts)	railway																							•					Aikawa	
Understand the ralationships between 1.6.3 equipment and staff in the railways (Input	List of relationships between equipment and								-	-																			support Mr.	
from Japanese experts)			\vdash		-	+	+		-	-	-	$ \downarrow $		-	-	+	+	+	+	<u> </u>	\vdash	+	+	_	-	-	-	+	support Mr.	
1.6.4 Clarify the needs for safety management	List of the necessity of safety management											Ì												•					Miyanaga	
1.6.5 Learn from the failures (lecture by experts)	Summary/minutes of lectures											•	→											•					Lcuture Mr. Sekiguchi	
1.6.6 Study the history of safety management in	Summary of history of safety management in													-	•									•					support Mr.	
1_{67} Study the institution for safety management in	Summary of institution for safety management																		-				-		-			-	support Mr.	
1.0.7 Osaka Metro	in Osaka Metro														_		_	_	+				_	•	-			_	Miyanaga	
1.6.8 Study the legal institution on the safety management (safety audit and so on)	on the safety management																•							•					support Mr. Miyanaga	
1.6.9 Draft the rules for safety management	Draft of the rules for safety management																•	+						•					support Mr. Miyanaga	
Arrange Requirements on Study fur	nction of the Office IT System																													
¹⁻⁷ including Financial Business																														
Activities	Result of expecting								_										_									_		
1.7.1 (such as SAP,), JICA expets (through	Understanding about the necessity of the Office IT system														-			+						•	•	•	•	•	support Mr. Miyanaga	
material and presentation) PU refer IT system of other O&M companies	Technical parameters for the office IT system						-						_					_	_				_					_		Focus on Office IT
1.7.2 (Osakametro, SMRT,); collect information from PMUs of MAUR:	are defined basically														•									•	•	•	•	•	support Mr. Miyanaga	system on the study
Define the necessity for the office IT system	The outline of the office 11 system is studied																•	•											support Mr	tour în Japan
1.7.3 then announce the concept to PMUs	Necessity for the office IT system is clarified																							•	0	0	•	0	Miyanaga	
Make comments of the specification which	PU participate in preparing of tender																									0		0	support Mr.	Depend on the
document for Office IT system	document																								•	Ŭ		0	Miyanaga	package of office IT
1.7.5 PU suggest the outline of the office IT system	Outline of the office IT system		ΙT		Ī	Γ							Ī	Ţ	Ī							ſ				0		0	support Mr.	system, however, it can not defined at
	· · · · · · · · · · · · · · · · · · ·		\square									\square							_		\square		\perp			Ľ		Ľ	Miyanaga	this time
		┣—					Δ.	ikawa	<u>† -</u>		-	10	-†		-†	- -	-+-	- -				7	+	+	+	-	-			
1-8 Selection of the Businesses which N	Need Implementation Manuals	<u> </u>	\vdash	+	+	М	10 yanaga	/1 € - 1 <u>8</u> /1	7	(1 12 €-> 17/	(15 ²) (23 :	∢ …	▶ \$/17	\neg	-	+	+	+	+	\vdash	\vdash	+	+	+	+	+	-	+		
		-	\vdash			Ē	Naga	i 10/1-1	5 11/1	> 5 12/1	1	<u> </u>	≯		-+	+		+	+	\vdash		+	+	+	+		+	+		
Activities	Result of expecting						Ŧ	÷		->	\mathbf{T}			ł	\neg	+	+	+				+	+	\uparrow	\uparrow	\uparrow	1	+		
Select the implementation manuals required	List of implementation manuals required for	l			1				1		1					\uparrow			-					1.	1_	_	1_		Mr. Aikawa in	
railways in Japan	daily operation											Ш												•	°	°	°	°	charge	
Exclude the implementation manuals:																														
line 1 and other lines	T 11 / 6 / 1 / 7																			-									Mr. Aikawa in	
1.8.2 Prepared by GC of line 1 & other consultants;	rinal list of implementation manuals																							•			•		charge	
 Can be prepared by working saff of O&M company. 																														
Define the business which need preparation of	List of business which need implementation		\vdash		\neg	+	+			+	+	\vdash				+		+	+	-	┝─┤		+	+	+		-	+	Mr. Aikawa in	
implementation manuals	manuals		\square						-	-	-	\square							_			1	_	•	-		•	+	charge	
1-9 Dratt the Preparation Plan for the the Priority for	Implementation Manuals Based on the Businesses																	"												
1-9 the Priority for the Businesses Image: Constraint of the Businesses Image: Cons																														
Gather documents which can be used as 1.9.1 reference for drafting the job manuals (in	Collection of these documents													ſ								_			0	0	•	•	Mr. Aikawa in	
phrase 2 of TC project)		├	\vdash	-	_	_	+		-	┢	┢	$\left \cdot \right $	+	\dashv	\rightarrow	+	+	+		<u> </u>		-	+	+	+	-	-	+	Cnarge Mr. Aikawa in	
1.9.2 priority	ine list of manuals					In HC	MC																	•			•		charge	
						Adjus	stmer	nt																						
Main																														
				0	M	ember																								

	Activities	Result of expecting	Y E A R 1 - 2011 Y E A R 2 - 2012			PU			JICA Rema
			2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12	2 3 Duc	Hai	Quan	Thanh	Tra	KS
2 2-1	Human Resources task To formulate the organization and regulations of human resources task		$\begin{array}{c c c c c c c c c c c c c c c c c c c $					•	
1	Study orgnizational rules on HR business of JP urban railway companies	List of detailed business						s w	Support Mr. atanabe
2	Study orgnizational rules on HR business of related VN companies	categories in HR field						s w	iupport other Mr. compar iatanabe ies if possib
3	Acquire experience from HR personnels through interviews, email contact. etc	Enrich detailed business categories in HR field						S W	iupport Mr. atanabe r. Maeda
4	Draft organizational rules for HR business in accordance with total plan (Action 1-2)	Draft of organizational rules for HR business					0	s w	iupport Mr. 'atanabe
2-2	To formulate the working regulations		Watanabe 10/1 to 11/29 2/10 to 3/25 Nagai 10/1 - 15 11/15 to 12/14					•	
1	Study rules of employment in JP urban railway companies Study existing rules of employment	Selection of related rules of employment in JP urban railway companies Selection of related rules of employment in VN						s Wi	Support
3	in related VN companies Refer to local consultants for issues in employment that are required due care or priority implementation	companies List of issues in employment required due care or priority implementation						w	LC
4	Extract rules of employment for O&M company from the result of sub items 1,2,3	Contents of rules of employment relating to O&M company						s w	upport Mr. atanabe
5 6	Study regulations of recruitment and appointment Study compensation policy (salary, benefit) (<i>refer to 2.4.5</i>)	Basic regulations of recruitment and appointment Basic regulations of compensation policy			0			S 	Gupport Mr. atanabe Support Mr. datanabe Ir. Nagai
7	Study other important issues of employment if any (this will be identified based on consultants' advice or situation at that time)	Basic regulations of other important issues of employment						s w	iupport Mr. atanabe Support Mr
2-3	To prepare the human resource planning		Watanabe 2/10 to 3/25 Maeda 2/16 to 2/21					•	atanabe
1	Understand staff securement with the support of JP experts	Outline of staff securement						S W Mr	iupport Mr. atanabe r. Maeda
2	Study the characteristic of labour market in VN	Outline of characteristic of labour market in VN						S W	Support Mr. atanabe LC
3	qualification, salary, etc)	Database of staffs			0		0	W	Mr. atanabe
4	Forecast the change in staffs number according to the requirement of business (<i>adopt information from</i> <i>other departments</i>)	Method of forecasting the number of staffs						s w	iupport Mr. 'atanabe
5	Estimate the decrease in staffs number (caused by external and internal factors)	Method of estimating the decrease in staffs number						s w	iupport Mr. atanabe Support
6	Draft securement plan	Draft of securement plan		<u> </u>				w	Mr. atanabe
2-4	To formulate the job allocation and job grading systems		Watanabe 2/10 to 3/25 Aikawa 2/10 to 3/10					•	
1	List out points of concern in drafting duty segregation and job classification in general Study the duty segregation and job	List of main points of concern in drafting duty segregation and job						Inf A S	iormatio n JKAWA Support
2 3	classification in JP urban railway companies Acquire requirements from other departments	List of requirements		0	0	0	0	Wa S	Mr. atanabe Support Mr. datanabe
4	Understand workflow/business process of each division in the company	The workflow of each division in the company						s	iupport Mr. atanabe
5	Study the relation between duty segregation and salary allocation (<i>refer to 2.2.6</i>)	The relation between duty segregation and salary allocation			0			s w	upport Mr. atanabe
6	Study specific job titles which are stipulated in VN Railway Laws with reference to JP case	Proposal for such job titles						s w	iupport Mr. atanabe
7	Draft the duty segregation and job classification	Draft of the duty segregation and job classification						w	Mr. Mr.

	Activities	Result of expecting					YEAR	1 - 20	011								Υ	ΞAF	R 2 -	201	2						PI	1		JICA	Remar
	retivities	Result of expecting	1	2	3	4	5 6	7	8 9) ·	10 [·]	11 12	2 1	2	3	4	5	6	7	8	9	1) 11	1 12		1					ks
2	Human Resources task		4	5	0	,	0 9	10	11 12	<u>-</u>	1	2 3	4		0		0	3	10		12		2	5	Du	c Hai	Quar	Than	hTra		
	To formulate the staff allocation													Watan	abe	ţ	+	+	+		•	*									
2.5	plan													Mae	da														-		
1	Study VN Railway Laws, VN Labour Laws and the cases in VN companies on basic principles for working time and duty shift in VN	Basic principles for working time and duty shift in VN														-			•												
2	Study the features of each business (driver, maintenance, station staff)	Understanding of the features of each business															-		•											Support Mr. Watanabe Mr. Maeda	
3	Develop basic principles for working time and duty shift of staffs	Basic principles for working time and duty shift																	*											Support Mr. Watanabe Mr. Maeda	
4	Develop the calculation way for duty volume at each station based on transport demand forecast	The calculation way of duty volume at each station																+		•								0		Support Mr. Watanabe Mr. Maeda	-
5	Estimate the number of staff at each station based on sub Item 3	The method of estimating the number of staff at each station																+		•										Support Mr. Watanabe	Tasks
6	Process basic figures to determinate duty time of drivers	Process of basic figures for determination of duty time for drivers																			•							0		Support Mr. Watanabe	of Operati on and Mainten
7	Estimate the number of driver based on train operation plan and sub item 5	The method of estimating the number of driver required																			→									Support Mr. Watanabe	ance depart ments
8	Develop the calculation way of unit staff per equipment from JP data	The calculation way of unit staff per equipment																		•								0		Support Mr. Watanabe	
9	Estimate the staff number for maintenance	The method of estimating staffs number for maintenance																		•										Support Mr. Watanabe	
10	Estimate the number of staff at each station; number of maintenance workers; number of drivers	Draft of staff assignment plan																			-	•								Support Mr. Watanabe	
	To set up the entitled Training		Wo	tanaha													*	-													
2-6	Centre for drivers <u>To set up</u> training plan/system for operation staffs			ikawa Iagai	6/1 6/19	9 to 8 to 7/18 to 7/18	2 3 1 3 10	10/1 to 1 0/1 to 10/ 0/1 - 15	11/29 30 12/1 11/15 - 12	- 15 2/14	2/1 2/:	0 to 3/2: 0 to 3/1	5		H	-	-												•		
1	Study training course in JP urban railway companies and VN railway schools	Outline of requirements for training			+																									Informatio n Mr. Watanabe	Osaka/ Tokyo metro VN railway vocatio nal
2	Confirm with GC the preparation plan for textbooks, equipments, instructors and training plan	The preparation plan of GC																												Informatio n Aikawa	GC
3	Make basic plan of establishing the training center Cooperate with railway agencies (Vocational College, VNRA, etc) to discuss about training plan/system for operation staffs	Proposals of training plan/system for operation staffs																												Support Mr. Watanabe Mr. Nagai	
4	Develop training curricula in class for drivers and maintenance <u>operation</u> staffs	Training curricula in class for drivers and maintenance operation staffs																												Support Mr. Watanabe	
5	Develop practical training plan with trains for-drivers and maintenance operation staffs	Practical training plan with trains for drivers and maintenance, operation staffs				-		•																						Support Mr. Watanabe	
6	Prepare additional procurement plan of equipments if needed <u>facilities</u> for training by cooperating with CP3	Procurement plan of equipments Preparation plan for facilities																									0			Support Mr. Watanabe	
7	Develop method of implemeting proficiency test <u>Study human</u> resource for operations staffs and <u>lecturers/instructors</u>	Method of implemeting proficiency testProposal for human resource for operations staffs and lecturers/instructors																												Support Mr. Watanabe	
8	Kevise and enrich the plan of establishing the training center in which explains the neccesity of this eenter Submit the training plan for operation staffs to VNRA	The plan of establishing the training center Agreement of VNRA (MOT) about training system for drivers						•											•									0			

	Fiscal Year							201	11									-			20	12			_	-				рі	IST	AFF		JICA	Remark
Items		3	4	5	6		7	8	9	10	11	12	1	2	3	4	5	5	6	7	8	9	10	11	12	1	2	3		1	1 31	AFF	1	experts	s
3. Financial tasks										4																			Ðức	Håi	Quân	Thành	Trà		
3-1 Financial task Activities	Result of expecting			Iw	asaki		8/4	8/22	2 10/	⁴ ~ ¹⁰	/15							_												•			0		
			_		T		•	~		♦																									
 Study the organization rule for this business of Japanese urban railways 	Summary the organization and regulation rule for this financial business				•			•																						•			0	Provision of information (Mr Nagai)	
2. Implement case studies of Vietnamese companies such as Saigon Bus Co.	Summary of basic knowledge of				•			•																						•			0	support	
3. Study the related law of financial tasks	financial business				•			-																						•			0	support	
4. Extract the detail business categories in this business	Business images on the finance department						4			-	•																			•			0	support	
5. Acquire the experience of experts in related fields	Draft of the organization rule for								•		,																			•			0	support	
6. Draft the organization rule for this business	this business									•	,	•																		•			0	support	
7. Adjustment the organization rules for this business to be fixed with these of O&M company	Organization rules for this business is compatible with Organization rules of O&M company										•																			•			0	support	
3-2 To formulate the acc	counting system					T	wasak	i		10/23	11/	21				t														•	0				
1. Study the accounting	Selection of related accounting	-	_		_					÷	` →`				_	-		_																	
system in Japanese urban railways	system in JP urban railways companies.								•		•																			•				Provision of information (Mr Iwasaki)	
2. Study the Vietnamese accounting standard and taxation system in Vietnam	Summary of basic awareness of the accounting system and taxation system in Vietnam							4	•		,	•																		•				support	
3. Study the accounting system in the Vietnamese companies such as Saigon Bus Co.	Selection of related accounting system in Saigon Bus Co.											•			•															•				support	
4. Study the accounting items which affects revenue and expenditure(recognition criteria of income and expenditure,depreciation and others)	Draft of the accounting items which affects revenue and expenditure (recognition criteria of income and expenditure,depreciation and others)	÷.											•																	•	0			support	
5. Discuss with technical departments and procurement department about how to implement tender method of procurement contract	Information from Other department useful for accounting system															•														•	0			support	
6. Develop the fund management system including debt finance system (Relating to Office IT system)	Draft of the fund management system including debt finance system is established.(Relating to Office IT system)															•			->											•	0			support	Office IT system
7. Develop the asset management system (Relating to Office IT system)	Draft of The asset management system is established.															-			->											•	0			support	Office IT system
8. Develop the approval sytem for the expenditures	Draft of the approval system for the expenditures are established.									•						•														•	о			support	
9. Adjust this system with that of Power system of job classification	The accounting system with the power system of job classification is established															•														•	0			support	
10. Develop the cash handling system(revenues at stations, expenditures at each work sites)	Draft of The cash handling system is formulated.															•			->											•	0			support	
3-3 To prepare the plan Activities	of budget management Result of expecting															-														•	0				
1. Study the preparation ways for budget plan and account settlement of Japanese urban railways	Summary the preparation ways for budget plan and account settlement of Japanese urban railways																					4		,						•	0			Provision of information (Mr Iwasaki)	
2. Study the preparation way for budget plan and account settlement of the Vietnamese companies such as Saigon Bus Co	Selection of the preparation way for budget plan and account settlement of the Vietnamese companies such as Saigon Bus Co.																					*		,						•	0			support	
3. Review the budget plan prepared in SAPI	The budget plan is reviewed in SAPI.																					*		,						•	ο			support	
4. Understand the items for budget plan/accounting	List of the items for budget plan/accounting						Ţ											Ţ				•		,											
5. Clarify the data for budget plan to be obtained from the office IT system.	List of the necessity of the data for budget plan. Such as the solution for examining income and expenditure is decided																						•		-					•	o			support	
6. Study the basis for the estimation of the budget plan for the next year	Estimation of the budget plan for the next year															L							-		•					•	ο			support	
7. Develop the method to prepare the budget plan and account system	The method to prepare the budget plan and account system are fomulated																							-			•			•	ο			support	

	Fiscal Year						20	11											20	12								р	IST	1 FF		JICA	Remark
Items		3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3			551	111	-	experts	s
3. Financial tasks									4																		Ðúc	Håi	Quân	Thànl	n Trà		
3-4 To formulate the reg	ulations for procurement																										ο	•	ο				
Activities	Result of expecting								Iwa	saki		2/10	\leftrightarrow	3/1																			
1. Study the material	Summary the material										4			,																		Provision of	
Japanese urban railways	urban railways																										0	•	0			(Mr Iwasaki)	
2. Study the material procurement system in the Vietnamese companies such as Saigan Buy Co	Summary the material procurement system in the Vietnamese companies such as										•			♦													0	•	о			support	
3. Clarify the essential points on the material procurement in railway	The essential points on the material procurement in railway business is formulated										+			→													0	•	о			support	
business	busiless is formulated.																																
4. Develop-the material code and coordinate with storage management system	Set up the material code for O&M Co.													•			*										0	•	0			support	
5. Study the storage management systems in the contruction plan	The storage systems in the contruction plan is identified													•			•										о	•	о			support	
6. Clarify the way to make contract of construction, receiving service and procuring materials	The way to make contract of construction, receiving service and procuring materials													•		-											0	•	0			support	
7. Clarify the territory of Office IT System (Coordination with storage management system)	The territory of Office IT System is decided																•		•								o	•	0			support	Office IT system
8.Clarify the relationship of this system with accounting system	The relationship of this system with accounting system																•		-								0	•	0			support	
9. Clarify the relationship of this system with budget system	Impact on the cash flow																•		•								0	•	0			support	
10.Coordinate of this system with Power classification system	The material procurement system and the accounting system were combined																•		•								о	•	о			support	
11. Draft the rules on the material procurement	Draft of the rules on the material procurement																•										о	•	о			support	
3-5 To study for securing company	g financial soundness of the																											•					
Activities	Result of expecting	4	←	→ 5/15	€ 6/19	7/18		10/1	$\leftrightarrow_{10/2}$	•	>	4																					
1. Carry out a close investigation of the financial forecast of the O&M Company	The financial forecast of the O&M Company is reviewed	Naga	i		•			10/1	10/1	<u> </u>	• 12/1	+																•				support	
2. Study the debt finance system for the O&M Company and the subsidy policy from the HCM PC	Draft of the useful subsidy policy is considered								•									•				Neg	gotiatio	m		>		•	0			support	Related with HCMC
3. Study the benefits of asset development along the line	The recommendation of the useful																							-				•	0			support	
4. Study the instituion to be developed for asset development to ensure financial soundness	policy is considered							•	-															-				•				support	
Joint Coordination C	Committee				\triangle						\triangle									\triangle				\triangle									
						In I	ICMC																										

Main Member

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Note:

+ Suggest to increase time period for Iwasaki san;
+ Assign local consultants (Especial Vneses accounting system);
+ Study IT system from the 1st year (for accounting system)

Note:	Fiscal Year																				201	12							р	USTA	FF			
ONorm </td <td>Items</td> <td></td> <td></td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>1 1</td> <td>2 1</td> <td>2</td> <td>3</td> <td></td> <td></td> <td>C DIA</td> <td></td> <td>I</td> <td>JICA Experts</td> <td>Remarks</td>	Items			3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	1 1	2 1	2	3			C DIA		I	JICA Experts	Remarks
Image: Sector set in the set in the sector set in the	4. 4-1	Business		_																			_					Đức	Hải	Quân	Thành	1 Trà		
		Draft the Organization Rules an	d regulations on business tasks		Y.	.Fukud	a	8/1	\leftrightarrow	8/30																		0	0	•	0	0		
		Activities	Result of expecting						_					_															_					
		4.1.1. Study the organization rules on these businesses in Japanese urban				~	\rightarrow																					0	0	•		0	Information from Mr.	
		railway 4.1.2. Study the organization rules on	category to know how they run up																						_			•	Ŭ			Ŭ	Fukuda	
		these businesses in Vietnam companies	their business				<	\rightarrow																					0	•				
		4.1.3. Extract the detail business							<		\rightarrow																		0	•	0		Support from Mr.	
		4.1.4 Acquiring the experience of the	Retrieve the feature of Vietnam urban railway Co.	۱ 																									0		Ŭ		Fukuda	
<form>And the state of the state o</form>		personel in charge of such businesses	-						<u> </u>		\rightarrow																		0	٠			Fukuda	
		4.1.5. Draft the Organization Rules on these Businesses	Organization rule of company is								\leftrightarrow																		о	٠			Support from Mr. Fukuda	
		4.1.6. Adjustment works with total plan	established								<	\rightarrow																	0	•	0		Support from Mr.	
	4-2	will be needed																				_							0		Ŭ	-	Fukuda	
	72	To formulate transport business stat	ute the General Transport Contract		Y.	Fukuda	a				11/1	5 👄	11/29					06/01		06/20			_		+					٠	о			
		Activities	Result of expecting								,-		11/25					00/01		00/30														
		4.2.1. Study this contract in Japanese																															Information from Mr.	
		urban railways	-											\hookrightarrow																•			Fukuda	
<form>Image: product of the state of the state</form>		4.2.2. Clarify the articles of Vietnamese railway law related to this contract	The proposal of General Transport Contract in layout											\leftarrow	\rightarrow															•				
		4.2.3. Study this contract of VNR and													\leftarrow	\rightarrow														-			Support from Mr.	
<form> Norm Norm</form>		SaigonBus Co.														-														•			Fukuda	
		4.2.4. Develop the contents of this contract	Make the proposal more detailed												\leftarrow	ĺ	\rightarrow													•			Support from Mr. Fukuda	
<form> Image: Image:</form>		4.2.5. Reflect the result of the study in																<	\rightarrow														Support from Mr.	
		4.3 tariff system	Retrieve some relations from 4.3 to																											•	0		Fukuda	
		4.2.6.Study the contents of this contract	complete the proposal														-	<	\rightarrow											٠	о		Support from Mr. Fukuda	
		4.2.7. Draft the Genaral Transport	The General Transport Contract is															_	,											•			Support from Mr.	
	4.2	Contract	nearly completed	-	-					_					_	_									1	<u> </u>				•	0	\vdash	Fukuda	
	4-3			<u> </u>			L																											
		To establish the fare pricir	ng and adjustment system		٦	F.Nagai	i		10	/1 - 15	\Leftrightarrow	← 11/15	$\rightarrow^{12/}$	14														ο	0	•	0			
					Υ.	.Fukud	a				11/1	5 🔶	11/29																-					
						Shiomi		(/4 - 9																										
		Activities	Result of expecting																															
		4.3.1. Study the fare system (fare on the					\uparrow		$\langle \rangle$																								Information from Mr.	
		distance, flat fare) in Japan urban railways																										0	0	•			Fukuda and Mr.Shiomi	
		4.3.2. Study the fare system in foreign	Get the feature of fare system				\leftarrow		\rightarrow																			0	0	•			Information from Mr.	
		urban railway	-																				_		_			0	0	•			Aikawa	
		4.3.3.Study the fare system in Saigon bus company					\leftarrow		\rightarrow																			0	0	•			Support from Mr. Hosomi	
		4.3.4. Study ticket sale and ticket AFC	Retrieve the feature of ticket sale								<		>																				Support from Mr.	PMU of
		system (ticket vending machine and AFC)	system and ticket aceptance system																										0	•			Fukuda and Mr Nagai	other lines
Soft and		4.3.5. Review the Result of SAPI and	Retrieve the idea about fare level of				/		/																								Support from Mr.	
		SAPROF study	SAPI and SAFROF						/																				0	•			Hosomi and Mr. Nagai	
		4.3.6. Find the proper fare level in considering of the inflation ratio since	Draft fare level in Ho Chi Minh City											/		/													0	•	0		Support from Mr	
		then 4.3.7. Develop the fare system for									/																		Ű		Ŭ		Fukuda, Mr Hosomi, Mr Shiomi and Mr	
1.5. Subject proteines for resides in the residue of the law in the residue of		various discount and transfer to other	Build up the fare system for transfer and discount fare system							ĺ	<		>																0	•			Nagai	
		4.3.8 Study the procedures for revision																															Support from Mr	
$ \frac{1}{12} + \frac{1}{12}$		of fare levels in Japan	Rerieve the fare level for Urban							ĺ	<		>																0	•			Fukuda and Mr Nagai	
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Appendix 3

Assignment result of the experts

			2010					Fisc	cal Y	ear	2011				
Assignment tasks	Name	Organization	3	4	5	6	7	8	9	10	11	12	1	2	3
Chief advisor/Planning	T.AIKAWA	JARTS	4/1		5/15	6/19	7/	18	10/1	10	12/1 0/30	12/1	52,	/10	3/10
Administaration/Safety	H.MIYANAGA	JARTS	4/1		é	6/19			9/3	0		12	2/1		3/17
Human resources	M.WATANABE	JARTS				6/19		8/2	10/1			11/29	2/:	10	3/25
Financial task	M.IWASAKI	Japan Project Finance				6/19	8/4		8/22	10/26	11/16	12/7	2/1 12/23	2/13	
Business(1)	T.NAGAI	JARTS	4/1		5/15	0,15	7/18		10/-	10/18	11/15	12/14			
Business(2)	Y. FUKUDA	Kotsusu Service					8/1			9/29 11	1/15	11/29			
Management(1)	S. NISHIGUCHI	Osaka City Metro								10/24	10/28				
Management(2)	M.SHIOMI	Tama driving school				6/28	7/3								
Transport planning	Dr.A.HOSOMI	JARTS			5/16 5/	22 6/27	7/20 7/3 7/3	8/15	8/21		12/	11 12	/25		
Safety philosophy	M.SEKIGUCHI	JR East Personnel Service													
Practical HR	A. SAZANAMI	Osaka City Metro													
Drivers' duty and assignment	H.NAKAGAWA	Osaka City Metro												2/20	2/25
Asset development along railways	H.OKA	Keihan Railway							10/	11	11/10				

Results of Experts' Mobilization (FY 2012)

Assingned tasks	Name	Organization	Fiscal Year 2012												
			4	5	6	7	8	9	10	11	12	1	2	3	
Chief Adviser/ Planning	T. AIKAWA	ЛС	4/12	5/11	6/18	7/14			11/	/8	1/24	1/20	2/4		
Administration/ Safety	T.NAKANO	ЛС	4/13				8/6 8/18	9/21	10/8		12/22	1/10		3/20	
Human Resources	M. WATANABE	ЛС	5/7		6/1 7/2		8/4			11/11	12/9	2/17			
Financial task	M. IWASAKI	Japan Project FInance	5	/9	6/21 6/22 6/17	7 /21	8/8	9/10 9/23	/30 10/3	10/31	1/	6	2/4		
Business (1)	T. NAGAI	ЛС			6/17	7/16		10/1		11/18	12/10	1/20	2/7		
Business (2)	Y. FUKUDA	Kotsu service		6/5		7/4									
Management (1)	S. NISHIGUCHI	Osaka City Metro													
Management (2)	M. SHIOMI	Tama Driving School			7/1	7/6									
Transport planning	A. HOSOMI	ЛС			6/23	7/7		9/28	10/12	12/2	12/16				
Safety philosohpy	M.SEKIGUCHI	JR East Personnel Service			6/21 6/	/26									
Practical HR	A. SAZANAMI	Osaka City Metro			7/	/9 7/14									
DriverS' duty and assignment	H. NAKAGAWA	Osaka City Metro													
Asset development along railways	H. OKA	Keihan Railway													
	Report						Prog	\triangle ress report					Fii	\triangle nal report	
JCC meeting															
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Appendix 4

Minutes of the Joint Coordination Committee Meeting

PEOPLE'S COMMITTEE OF HO CHI MINH CITY JOINT COORDINATION COMMITTEE TO SUPPORT THE TECHNICAL COOPERATION PROJECT FOR "SUPPORT ON SETUP OF OPERATION & MAINTENANCE COMPANY OF URBAN RAILWAYS IN HO CHI MINH CITY

Code: 01/BB-UBĐPC

Hochiminh City, August 2, 2011

MINUTE OF MEETING First Session of Joint Coordination Committee

Time: 8:00 – 12:00, June 23, 2011

Place: Hall of Management Authority for Urban Railways – 29 Le Quy Don, Ward 7, District 3, Ho Chi Minh City, Vietnam.

Participants:

✤ Joint Coordination Committee (JCC):

- Mr. Nguyen Do Luong, Chairman of Management Authority for Urban Railways, President of JCC, Presider of the Meeting

- Ms. Nguyen Thi Thanh, Deputy Director of Department of Internal Affairs

- Mr. Tran Bach Ngoc, Deputy Manager of ODA Management Division, Department of Planning and Investment

- Mr. Hoang Nhu Cuong, Vice Chairman of Management Authority for Urban Railways

- Ms. Vu Minh Huyen, Manager of Organization and Training Division, Management Authority for Urban Railways

- Mr. Le Khac Huynh, Chief of Office, Management Authority for Urban Railways office

- Mr. Nguyen Phuoc Thinh, Manager of Finance-Accounting Division, Management Authority for Urban Railways

- Mr. Huynh Hung, Manager of Infrastructure Division, VNRA

- Mr. Doan Hong Minh, Deputy Manager of Department Division, Department of

Internal Affairs

- Mr. Tran Hong Hai, Deputy Manager of Repair Investment Division, Department of Finance.

- Mr. Le Hai Phong, Director of Passenger Public Transport Operating Center, Department of Transportation.

- Mr. Nguyen Phuoc Lap, Organization Department of HCMC committee
- Mr. Nagase Toshio, Senior Representative, JICA Vietnam
- Mr. Aikawa Tetsuro, Leader of JICA Project team

✤ JICA Representative:

- Mr. Katsuta Hozumi, Senior Advisor, JICA Head Office
- Mr. Wakasugi Satoshi, Deputy Director, JICA Head Office
- Mr. Oda Shiro, Representative, JICA Vietnam Office
- Mr. Anzo Hiroshi, Senior Program Coordinator, JICA Liaison Office in HCMC
- Ms. Nguyen Dieu Linh, Program Coordinator, JICA Vietnam Office
- Ms. Tran Thi Tuyet Phuong, JICA's Senior Assistant

✤ JICA experts:

- Mr. Tadamasa Nagai, Expert
- Mr. Masahiro Watanabe, Expert
- Mr. Hideyuki Miyanaga, Expert
- Mr. Akira Hosomi, Expert
- Ms. Phan Khanh Trang, Interpreter
- Ms. Vu Thi Thuy Anh, Interpreter
- Ms. Le Hong Ngoc Han, Interpreter
- Ms. Tran Thuy Lan Ngoc, Administrator

* Preparation Unit:

- Mr. Tran Dang Thanh
- Ms. Nguyen Thi Huong Tra
- Mr. Vu Minh Duc
- Mr. Phan Hong Quan

- Ms. Nguyen Thi Hoang Hai

* Other participants:

- Ms. Tran Thanh Huyen, Office expert of Management Authority for Urban Railways Office

Meeting's secretary: Ms. Nguyen Thi Huong Tra.

Issues under discussion:

1. The approval of Working Regulations; Working Program in 2011 of JCC.

- Working Program in 2011 of JCC: was approved at the meeting.

- Working Regulations of JCC:

➢ Mr. Tran Hong Hai:

- Item 2,3 of Article 4: "project process" should be clearly written as "process of Technical Corporation project"

Mr. Nguyen Do Luong (JCC's President): agreed with this amendment.

- Item 4 of Article 4: "To support the settlement of issues beyond the authority of Management Authority for Urban Railways" should be modified into "To support measures, opinions to settle issues ..." because JCC can only contribute opinions; whereas it's Ho Chi Minh City People's Committee who makes decision.

Mr. Nguyen Do Luong (JCC's President): The sentence will be reviewed and modified reasonably.

- Article 4: only responsibilities, not powers of members are described.

Mr. Nguyen Do Luong (JCC's President): The powers of members will be supplemented.

- The Working Regulation doesn't express how to coordinate with JICA

Mr. Nguyen Do Luong (JCC's President): Since JICA's Deputy Representative and Expert Team Leader of the Project are also members of JCC, they will report to JICA. *Mr. Hoang Nhu Cuong (JCC's Standing Section):* When the coordination is required, JICA and Management Authority for Urban Railways shall convene a meeting between 2 Parties to exchange contents (ad hoc meeting or meeting before session of JCC), in which Representative of JICA Vietnam Office will be invited. Representatives of JICA shall also be invited to JCC's sessions.

2. Inception Report (ICR), Work Breakdown Structure (WBS)

➤ Mr. Tran Hong Hai:

- The function and main business field of O&M Company which are either operation or business or both of operation and business should be re-researched.

- There are 2 methods on how to decide the fare mechanism. The 1^{st} method is to reckon depreciation for repayment and to record all transactions of the operation cost while the 2^{nd} method is to exclude the depreciation. Thus, it is necessary to compare these two methods as well as to consider the affordability of city-dwellers in comparison with other means of transportation to settle a reasonable fare mechanism.

- The expression that People's Committee of Hochiminh City shall have to approve the fare by 2012 is unfeasible because the railway is expected to go into operation in 2016.

- Non-fare business should be clarified.

- Training course in Japan should be detailed in study curriculum other than visiting companies.

- The expression that assets of line are contribution capitals of the Government is inaccurate because O&M Company is 100% Stated owned One Member Limited Liability Company; hence, the Government transferred the assets to the Company for it to manage.

- The expression that the spare parts procured from the sixth year after opening shall need negotiations to get competitive price is unfeasible. This is because all equipment is Japanese origin, other options should be considered. - The statement that People's Committee of Hochiminh City hasn't provided enough subsidies has no basis.

- There is no financial scheme for O&M Company in the beginning period (2012 - 2016) when metro line doesn't go into operation.

Answer for opinions

Mr. Hoang Nhu Cuong: ICR aims to raise issues that need to be studied in the project; issues contributed by Mr. Hai shall be studied by Preparation Unit in this project. This meaningful comment shall become orientation for Preparation Unit to study in time ahead.

- The project shall re-study the function and major operation field of O&M Company.

- The project shall study the two methods of fare mechanism settlement.

- According to the report, People's Committee of Hochiminh City needs to approve the fare by 2012 as supposed that metro line will commence operation in 2014; hence, the modification can be done based on real situation.

- On conducting this project, businesses of non-fare sales will be enumerated in details as well as what types of business the People's Committee of Hochiminh City should assign to O&M Company or to other companies shall be clarified

- There shall have a detailed program for training course in Japan.

- Government's capital contribution is among issues to be necessarily studied for its involvement to fare structure (i.e.: depreciation will be included or excluded).

- It's necessary to study and set-up the regulation on international tendering for equipment.

- People's Committee of Hochiminh City provides sufficient subsidy to bus operators; yet, the bus operators receive subsidy late.

- Financial scheme of O&M Company is the result to be achieved in the project.

> Mr. Aikawa: As explained by Mr. Cuong, this meeting will raise issues that need to be settled and settlement directions. Next JCC's session shall report the settlement of those issues. At that time, advice and comments for these settlements will be welcome. Regarding the implementation plan, it is described in WBS. In order to establish an O&M Company, the three following issues shall be preconditions:

- Hochiminh City owns 100% of capital

- Hochiminh City shall be responsible for initial capital and loan interest. O&M Company shall not have to pay these sums.

- Hochiminh City shall provide subsidy to O&M Company until its finance is stable.

These issues have been repeatedly mentioned as in SAPI's report; hence everyone already understands them thoroughly. However, it's still necessary to make emphasis once more when JCC's President reports to People's Committee of Hochiminh City.

Mr. Le Hai Phong:

- Connected fare system needs to be studied.
- Feeder bus lines should be studied.

- The relationship between O&M Company and other Public Transportation Companies should be studied.

> Mr. Doan Hong Minh:

- Regarding Action 1.2, it's difficult to accomplish within 2 months. Besides, this should belong to HR's business.

- To pay attention to plans of employment, training and staff allocation.

- To study recruitment criteria.

- Action 1.4 overlaps with Business works. Otherwise, Action 1.4 should also require the participation of Finance staff.

- To study deeply Driver Training Center and IT system.

> Mr. Huynh Hung:

- The Driver Training Center is whether internal center of O&M Company or center authorized by the ministry should be identified on basis of referring regulations of Vietnam and Japan, then to define which organization will issue driver license and which place will conduct train driving tests.

- Since Vietnamese Railway Law hasn't regulated job titles in urban railways, and driving license issuance, it's necessary to study this. Then, compose circular on specific regulations for urban railways and submit to Ministry of Transportation to consider and issue.

Answers

Mr. Hoang Nhu Cuong:

- Regarding opinion of Mr. Phong, the project takes note and will study the necessity of feeder bus lines.

- Regarding opinion of Mr. Minh, the task assignment for Preparation Unit members is described clearly in Inception Report.

- The time of Action 1.2 can be extended if 2 months is too short because the expert in charge of this Action is residential expert of the project.

- Driver Training Center and IT Office System shall be carefully studied.

- Regarding opinion of Mr. Hung, whether the Training Center belongs to the company or Ministerial school will be decided.

- To study regulations of Japan to draft specific circular for urban railways and submit it to Ministry of Transportation.

Mr. Nguyen Do Luong (Conclusion of JCC's President): To suggest JCC's members to send extra opinions if any within 7 days after this first session. Preparation Unit shall consider, revise, and supplement them into Inception Report.

- Preparation Unit acquires opinions/comments of JCC's members to supplement and modify the Inception Report.

- To approve the contents of Inception Report and Work Breakdown Structure with supplement opinions of JCC's members.

- Preparation Unit shall complete Working Regulation, Working Program in 2011 of JCC and Inception Report, Work Breakdown Structure and send to JCC's members.

These above mentioned issues are the content which were discussed and agreed in the first session of JCC./.

SECRETARY

PRESIDENT

Nguyen Thi Huong Tra

NGUYEN DO LUONG

PEOPLE'S COMMITTEE OF HO CHI MINH CITY JOINT COORDINATION COMMITTEE TO SUPPORT THE TECHNICAL COOPERATION PROJECT FOR "SUPPORT ON SETUP OF OPERATION & MAINTENANCE COMPANY OF URBAN RAILWAYS IN HO CHI MINH CITY

Code: 02/BB-UBĐPC

Ho Chi Minh City, December 26, 2011

MINUTE OF MEETING Second Session of Joint Coordination Committee

Time: 13:30 – 18:00, December 8, 2011

Place: Hall of Management Authority for Urban Railways – 29 Le Quy Don, Ward 7, District 3, Ho Chi Minh City, Vietnam.

Participants:

✤ Joint Coordination Committee (JCC):

- Mr. Hoang Nhu Cuong, Vice Chairman of Management Authority for Urban Railways, Chairman of the meeting

- Ms. Nguyen Thi Thanh, Deputy Director of Department of Internal Affairs

- Mr. Tran Bach Ngoc, Deputy Manager of ODA Management Division, Department of Planning and Investment

- Mr. Huynh Hung, Manager of Infrastructure Division, VNRA

- Mr. Doan Hong Minh, Deputy Manager of Department Division, Department of Internal Affairs

- Mr. Tran Hong Hai, Deputy Manager of Repair Investment Division, Department of Finance

- Mr. Le Hoan, Manager of Investment and Planning Division, Passenger Public Transport Operating Center, Department of Transportation

- Ms. Vu Minh Huyen, Manager of Organization and Training Division,

Management Authority for Urban Railways

- Mr. Le Khac Huynh, Chief of Office, Management Authority for Urban Railways
- Mr. Nguyen Phuoc Thinh, Manager of Finance-Accounting Division,

Management Authority for Urban Railways

- Mr. Nagase Toshio, Senior Representative of JICA in Vietnam
- Mr. Aikawa Tetsuro, Leader of JICA Project team

* JICA Representative:

- Mr. Oda Shiro, Representative, JICA Vietnam Office
- Mr. Anzo Hiroshi, Senior Program Coordinator, JICA Liaison Office in HCMC
- Ms. Nguyen Dieu Linh, Program Coordinator, JICA Vietnam Office
- Ms. Phan Thi Thanh Truc, JICA's Senior Assistant

✤ JICA experts:

- Mr. Nagai Tadamasa, Expert
- Mr. Miyanaga Hideyuki, Expert
- Mr. Iwasaki Masayoshi, Expert
- Ms. Nguyen Hoang Anh, Interpreter
- Ms. Phan Khanh Trang, Interpreter
- Ms. Vu Thi Thuy Anh, Interpreter
- Ms. Le Hong Ngoc Han, Interpreter
- Ms. Tran Thuy Lan Ngoc, Administrator

* Preparation Unit (PUC):

- Mr. Tran Dang Thanh
- Ms. Nguyen Thi Huong Tra
- Mr. Vu Minh Duc
- Mr. Phan Hong Quan
- Ms. Nguyen Thi Hoang Hai

* Other participants:

- Ms. Tran Thanh Huyen, Office expert of Management Authority for Urban Railways Office

Meeting's secretary: Ms. Nguyen Thi Huong Tra.

Issues under discussion- Opinions of JCC's members:

1. Interim report:

> Mr Huynh Hung:

- In terms of organizational structure, PUC should consider to organize the company into 3 layers in which the first layer is leaders, the second layer is supportive departments, the third layer is units, then compare this idea with 2-layer model as reported.

- PUC should clarify how OCC operates when many lines open.

- In order to get the best solution in delimiting responsibility for each department, it is necessary to compare the organizational structure in the report with other options. For example, regarding department specialization, it should be considered to assign one single department to be in charge of safety tasks; the Technique Department can divided into one division of rolling stocks management and another division of infrastructure maintenance (road, bridge, signal,...)

- Regarding driving license: It should be noted that obligatory conditions are that persons who directly driving railway traffic means must possess driving license issued by Ministry of Transportation; having diplomas or certificates issued by authorized training establishments; having driven safely and attending the national exam to be issued the driving license. However, as line Ben Thanh – Suoi Tien is the first line, some difficulties can be seen in terms of training establishment such as facilities, curriculum, teachers. Thus, the project can consider to send 11 first persons to train in Japan, then registering for the exam in Vietnam to be issued the driving license. The Exam Board can consist of representatives of O&M Company, VNRA and Japanese experts.

➤ Mr Tran Đang Thanh:

- PUC also studied 3-layer structure. PUC however acknowledge that if 2-layer structure is applied, the departments will be grouped under management of Vice General Directors, the information conveyance from up to below will accordingly be fast and more effective. - In the documents sent to JCC's members, it is also expressed that each operation unit will be organized basing on particularity of each line but also centralizing at OCC.

- PUC studied options including separating department/division like Mr Hung's comment. Yet, it should be noted that since urban railways are equipped automatic systems ATP, ATO which help to ensure the safety, the safety mainly relates to humans who operate the trains. Moreover, the core issue of safety management is preventing accident, not solving accident. Thus, the persons who are specialized in technique are most suitable for this safety task. That is the reason why Operation & Safety Management Department should be formed. Similarly, in the initial years after opening, the Technique Department will manage both infrastructure and facilities and it can considered to be separated into smaller divisions in later stage.

➢ Mr Hoang Nhu Cuong (conclusion): The study team take into account opinions of Mr Hung:

- Relating to organizational structure, PUC will study again every option and having further explanation for the option chosen.

- Regarding 11 first persons for driver training, they will receive basic training in Osaka then training in Vietnam and be issued the certificate by Osaka City Metro. After that Ministry of Transportation will hold the exam (if necessary) to issue the driving license.

➤ Mr Tran Hong Hai:

- PUC should be careful with assumed numbers to ensure they are extracted from reliable sources:

• Inflation rate in next years

• The assumption that in 2020, the construction of all metro lines completes is merely subjective point of view and should not be raised in the report.

• GDP per person of 2 million VND is estimated for national population, thus it is more reasonable to calculate GDP per person in HCM City.

• The team should provide detailed documents of calculation.

- Agree with the formula: 8000 VND + 800 VND (per km) x Number of km travelled but PUC should study roadmap of fare increase in each two years to improve cash flow.

- PUC should study Law on Budget to give suggestion whether O&M company should be public company or entirely business company. In the first 5-10 years, the O&M company should be public company so that the company can receive subsidy from HCM city. In case it is entirely business company, as it does not receive the subsidy, it will easily go into bankrupt if the inflation rate increases highly. Furthermore, the team should study the subsidy managed through intermediate agency (the case of bus is Passenger Public Transport Operating Center).

Mr Hoang Nhu Cuong (conclusion):

- Basing on Mr Hai's comments, PUC will check assumptions then working with Mr Hai about detailed numbers.

> Mr Doan Hong Minh:

- Public companies currently apply model of Member Council. However, as this project studies urban railway company, the model of President can be considered to apply, and further explanation for the model chosen is required.

- The tasks that the company has to implement should be pointed out first, then the tasks for each department can be identified, and finally number of staffs required and roadmap for training can be determined.

- The layout for departments as suggested is appropriate because departments can be at the same level and have mutual support if necessary.

- PUC can refer to current sample of Charter for one member liability limited company. Nevertheless, at present time PUC need to focus on specifying function, duty, power and relationship among departments, President and members.

Mr Hoang Nhu Cuong (conclusion):

- PUC adopt Mr Minh's idea and will make further study.

 \succ *Mr Anzo Hiroshi:* The study team can refer to types of companies in various fields from many sources, yet, it is important to concentrate on the

case of HCM. Regarding the financial issue, PUC not only have to send detailed data but also discuss face-to-face with Department of Finance. Moreover, because the subsidy issue of bus is useful for the study, HCM PC should support PUC to gather efficient information.

Mr Nagase Toshio:

money will be required.

- The study team should consider the necessity of increasing training time for driver in Japan to ensure the quality and operation safety.

- In Hanoi, a study reported that though student passengers pay 3,000 VND per each trip currently, they answered they can pay 8,000-10,000VND per each trip in an enquete. PUC should study the opinion of passengers to set up fare level and it should

 be noted for enhancement of fare levels, enhancement of service level to ensure the comfortableness for passengers will be required
 The company should be established as soon as possible though some extra

> Mr Hoang Nhu Cuong (conclusion):

- PUC need to study the necessity of increase the training time in Japan beside 400 hours suggested by GC.

- PUC need to identify each type of passenger and study accompanied services for passenger.

- PUC need to study the time of establishing the Company. In case the time comes soon, PUC need to study tasks of company during the time 2014-2018 before the line opens and estimating staffs required.

> *Mr Tran Hong Hai:* JICA should consider financial support on the survey of types of passengers.

> *Mr Oda Shiro:* JICA will consider about this issue and it can be implemented in the second stage of the project if possible. JICA will also think about tasks need to be done during the time 2014-2018.

> Mr Hoang Nhu Cuong (Final conclusion):

- After taking into account opinions of JCC's members, PUC will continue to upgrade and complete this study.

2. The approval of Working program of JCC

- Working programe in 2012-2013 of JCC: The meeting approved.

These above mentioned issues are the content which were discussed and agreed in the second session of JCC.

SECRETARY

As authorized by **PRESIDENT**

Nguyen Thi Huong Tra

Hoang Nhu Cuong
PEOPLE'S COMMITTEE OF HO CHI MINH CITY JOINT COORDINATION COMMITTEE TO SUPPORT THE TECHNICAL COOPERATION PROJECT FOR "SUPPORT ON SETUP OF OPERATION & MAINTENANCE COMPANY OF URBAN RAILWAYS IN HO CHI MINH CITY"

Code: 01/BB-UBĐPC

Ho Chi Minh City, December 10, 2012

MINUTE OF MEETING Third Session of Joint Coordination Committee

Time: 8:00 – 12:00, November 22, 2012

Place: Hall of Management Authority for Urban Railways – 29 Le Quy Don, Ward 7, District 3, Ho Chi Minh City, Vietnam.

Participants:

✤ Joint Coordination Committee (JCC):

- Mr. Hoang Nhu Cuong, Vice Chairman of Management Authority for Urban Railways, Member of Evaluation Team – chairing the meeting

- Ms. Nguyen Thi Thanh, Deputy Director of Department of Home Affairs

- Mr. Le Khac Huynh, Standing Vice Chairman of Management Authority for Urban Railways

- Ms. Vu Minh Huyen, Manager of Training and Organizing Division, Management Authority for Urban Railways

- Mr. Nguyen Phuoc Thinh, Manager of Finance-Accounting Division, Management Authority for Urban Railways

- Mr. Huynh Hung, Manager of Infrastructure Division, VNRA

- Mr. Le Hai Phong, Director of Passenger Public Transport Operating Center, Department of Transportation

- Mr. Tran Hong Hai, Deputy Manager of Repair Investment Division, Department of Finance

- Mr. Aikawa Tetsuro, Leader of JICA Project team

* JICA Representative:

- Mr. Toyoda Masatomo, Chief Representative of JICA Ho Chi Minh Liaison Office (on behalf of Mr. Nagase Toshio, Deputy Chief Representative of JICA Vietnam Office)

- Mr. Katsuta Hozumi, Senior Advisor of JICA – Leader of Evaluation Team

- Mr. Wakasugi Satoshi, Deputy Director of Transportation and ICT Division 1, Transportation and ICT Group, Economic Infrastructure Department – Member of Evaluation Team

- Mr. Kaneda Koki, JICA Consultant Member of Evaluation Team
- Ms. Tran Thi Tuyet Phuong, Senior Assistant, JICA Ho Chi Minh Liaison Office
- Ms. Phan Thi Thanh Truc, Senior Assistant, JICA Ho Chi Minh Liaison Office *JICA experts:*
- Mr. Nagai Tadamasa, Expert
- Mr. Nakano Tadashi, Expert
- Mr. Watanabe Masahiro, Expert
- Ms. Phan Khanh Trang, Interpreter
- Ms. Vo Sy Bich Hanh, Interpreter
- Ms. Le Hong Ngoc Han, Interpreter

* Preparation Unit:

- Mr. Tran Dang Thanh
- Ms. Nguyen Thi Huong Tra
- Mr. Vu Minh Duc
- Mr. Phan Hong Quan
- Ms. Nguyen Thi Hoang Hai

* Other participants:

- Mr. Pham Dinh Duc, Deputy Manager – In charge of Land Transport Management Division, Department of Transportation (on behalf of Mr Duong Hong Thanh, Deputy Director of Department of Transportation)

- Mr. Tran Bach Ngoc, Deputy Manager of ODA Management Division, Department of Planning and Investment (on behalf of Mr Lam Nguyen Khoi, Deputy Director of Department of Planning and Investment)

- Ms. Do Thi Nhu Hieu, Official of The Office, Management Authority for Urban Railways.

Issues under discussion:

1. Mr. Hoang Nhu Cuong delivered welcome speech

2. Mr. Toyoda Masatomo delivered speech on behalf of JICA Office

3. Mr. Hoang Nhu Cuong reported shortly the modification of MOU, PDM, PO and project implementation status since after 2nd JCC meeting up to November 2012

> The modification of MOU, PDM and PO was approved by JCC.

4. PUC made presentation about study result

> The outline of Business Plan was approved by JCC.

5. Mr. Hoang Nhu Cuong reported shortly the project terminal evaluation result

> The project terminal evaluation result was approved by JCC.

6. Opinions of JCC

Mr. Huynh Hung:

I highly appreciate and agree with the report of PUC. Besides, I have some comments as following:

- Adding organization structure in which the relationship between parent company and subsidiaries is clarified.

- Clarifying the issues of technology transfer between equipment suppliers and O&M company.

- Making comparison between two options: (1) 01 Operation and Safety Department, (2) 02 separated departments: Operation Department and Safety Department. Moreover, normally the department in charge of issuing safety management regulation will be in charge of monitoring the safety regulations' compliance and solving the incidents. Yet, this report shows all departments in the companies join all these activities.

- As driving license, job titles, maintenance procedure, techno-economic norms in urban railways require the issuance of a lot of regulations, it takes time to study and issue those regulations. Regarding driving license, VNRA worked with Japanese experts and MAUR many times. Solutions for this issue expect to be agreed in the next meeting in December 2012 between MAUR and VNRA.

- In order to prepare for operation and maintenance works, the project owner have to compose the maintenance procedure including technology criteria, construction procedure, equipment replacement standard/term, etc. Therefore, it is necessary to establish the O&M company soon to carry out those works. JICA should continue to support for studying the soon establishment of O&M company.

Mr. Hoang Nhu Cuong (conclusion):

PUC and Japanese experts should absorb Mr. Hung's opinions. We agree that since the amount of preparation works for operating and maintaining metro lines is very huge, O&M company should be established soon to carry out those works.

➤ Mr. Tran Hong Hai:

- Business Plan seemly focuses on company organization but not finance issues as like in 2nd JCC meeting. The Business Plan proposes model of the company is business company and fare is decided by the company, which does not accord with Budget Law. In case of public company, HCM city's budget will compensate for the fare which will be decided by HCM city.

- The report stated "the company has accumulated cash flow": if the company has profit, it cannot receive the subsidy.

- The time of establishing the company should not be fixed as 2016. Instead of it, it should be revised into at least 02 years before the completion of metro line 1.

- The operation cost of the company before having revenue was not mentioned in the Business Plan although this is an important issue.

- Financial forecast: although 2nd JCC meeting agreed to increase the fare once per 2 years, corresponding financial analysis was not shown in this 3rd JCC meeting, which does not make JCC figure the subsidy of HCMC.

- Fare discount for students should be proposed 01 year after operating metro line because company business result (profit or loss) will be just recognized at this time.

- Fare discount should be applied only to apparent and well-decided objects.

- In case of 100% state owned one member limited liability company, Member Council or General Director has no right to sell company asset (state asset)

➤ Mr. Aikawa:

- We expect Mr. Hai will arrange the time to discuss with study team so that we can explain issues and ask his opinions before 4th JCC meeting occurs.

➢ Mr. Hoang Nhu Cuong (conclusion):

- The issue mostly centralizes in type of company. The current Business Plan studies only business company. However, basing on Mr Hai's comment, PUC should study public company model also, then reporting in 4th JCC meeting so that JCC can decide the suitable type of O&M company. PUC has to complete the study within this December and sending to JCC prior to the 4th meeting.

- Regarding the establishment of O&M company, PUC will study more to find out reasons for the necessity of establishing the company soon.

Mr. Pham Dinh Duc:

- Reconsidering the duty allocation for General Director because in most of existing Vietnamese companies, General Director also manages one or more departments.

- Demand forecast for early years is so optimistic (Scenario 2 and 3 have the same data with Scenario 1)

- Business Plan should specify train headway in each time span (not only rush hour), starting time of first train, last train from 2 endpoints, etc.

- Referring to bus case to study ratio and objects of fare discount.

- Company domain of business at the beginning stage should be limited in urban railway operation, providing public transport service by bus and taxi should be done in later time.

Mr. Hoang Nhu Cuong (conclusion):

- The company organizational structure was approved in 2nd JCC meeting.

- The contents such as demand forecast, train operation time, etc. base on data of metro line 1.

- PUC should arrange the meeting with Mr. Duc to explain in details the above issues.

Mr. Nguyen Phuoc Thinh:

- Company name: considering to add the word "development", eg: "Ho Chi Minh City metro development one member limited company"

- Adding the company business domain: (6) Non-fare business

- Company authority: (14) should be revised into Establish, Merge and Dissolve the subsidiary companies.

- Organization: adding Youth Union

- Finance (Repayment of the initial facilities): it should be noted that depot category includes infrastructure and electric-mechanic equipment.

- Regulation of Accounting system:

- Article 10: checking again the diagram
- Article 13: modifying "income" into "revenue"
- Article 14: including Instruction 22/2012/CT-UBND which defines the role of managing and monitoring capital

- Punishment for passenger is too high.

Mr. Hoang Nhu Cuong (conclusion):

- PUC will appoint the meeting with Mr. Thinh to explain further above issues.

Mr. Katsuta Hozumi:

- The postponement of line 1 construction has influenced the progress of Technical cooperation project for "Support on setup of operation & maintenance company of urban railways in Ho Chi Minh City". JICA acknowledge the importance of O&M company establishment to Ho Chi Minh City so JICA continue to support this project. As counterparts in this project are MAUR and relevant departments of Ho Chi Minh People's Committee, the departments are expected to continue to support this project.

- We highly appreciate MAUR's effective coordination with Evaluation Team to complete the evaluation work and PUC's efforts during the last time.

Mr. Hoang Nhu Cuong (Final conclusion):

Basing on comments of JCC, PUC and the experts study again following issues:

- Organizational structure that represents the relationship between parent company and subsidiaries.

- Technology and maintenance know-how transfer of equipment suppliers of metro line 1.

- 02 options including establishing 01 Operation - Safety Department or 02 departments (Operation Department and Safety Department).

- Company model: Business company and Public company.

- Management role of General Director.

- Company name (Vietnamese and English), logo, etc.

- PUC make 03 appointments with Mr. Hai (Department of Finance), Mr. Duc and Mr. Thanh (Department of Transportation) and Mr. Thinh (MAUR) to report and explain in details issues commented by JCC, providing related documents as requested and asking for their implementing instructions.

The meeting ended at 12:00 on the same day.

Above are the contents which were discussed and agreed in the 3rd session of JCC./.

SECRETARY

ON BEHALF OF PRESIDENT STANDING MEMBER OF JCC

Nguyen Thi Huong Tra

Hoang Nhu Cuong

PEOPLE'S COMMITTEE OF HO CHI MINH CITY JOINT COORDINATION COMMITTEE TO SUPPORT THE TECHNICAL COOPERATION PROJECT FOR "SUPPORT ON SETUP OF OPERATION & MAINTENANCE COMPANY OF URBAN RAILWAYS IN HO CHI MINH CITY"

Code: 01/BB-UBĐPC

Ho Chi Minh City, February 7, 2013

MINUTE OF MEETING Fourth Session meeting of Joint Coordination Committee

Time: 8:00 – 12:00, January 24, 2013

Place: Hall of Management Authority for Urban Railways – 29 Le Quy Don, Ward 7, District 3, Ho Chi Minh City, Vietnam.

Participants:

***** Joint Coordination Committee (JCC):

– Mr. Hoang Nhu Cuong, Vice Chairman of Management Authority for Urban Railways, Standing Member of JCC - chairing the meeting

- Mr Doan Hong Minh, Head of Department Division, Department of Home Affairs.

– Mr Duong Hong Thanh, Deputy Director of Department of Transportation.

– Mr. Tran Hong Hai, Deputy Manager of Repair Investment Division, Department of Finance

– Mr. Le Khac Huynh, Standing Vice Chairman of Management Authority for Urban Railways

– Ms. Vu Minh Huyen, Manager of Training and Organizing Division, Management Authority for Urban Railways

– Mr. Nguyen Phuoc Thinh, Manager of Finance-Accounting Division, Management Authority for Urban Railways

- Mr. Le Hai Phong, Director of Passenger Public Transport Operating

Center, Department of Transportation

- Mr. Aikawa Tetsuro, Leader of JICA Project team

* JICA Representative:

- Mr. Katsuta Hozumi, Senior Advisor of JICA

- Mr. Toyoda Masatomo, Chief Representative of JICA Ho Chi Minh Liaison Office.

– Ms. Tran Thi Tuyet Phuong, Senior Assistant, JICA Ho Chi Minh Liaison Office

– Ms. Phan Thi Thanh Truc, Senior Assistant, JICA Ho Chi Minh Liaison Office

✤ JICA experts:

- Mr. Nagai Tadamasa, Expert
- Mr. Nakano Tadashi, Expert
- Mr. Masayoshi Iwasaki, Expert
- Ms. Phan Khanh Trang, Interpreter
- Ms. Vo Sy Bich Hanh, Interpreter
- Ms. Le Hong Ngoc Han, Interpreter

***** *Preparation Unit (PUC):*

- Mr. Tran Dang Thanh
- Mr. Vu Minh Duc
- Mr. Phan Hong Quan
- Ms. Nguyen Thi Hoang Hai

***** Other participants:

- Mr. Tran Bach Ngoc, Deputy Manager of ODA Management Division, Department of Planning and Investment (on behalf of Mr Lam Nguyen Khoi, Deputy Director of Department of Planning and Investment).

– Leaderships of Divisions, PMUs of Management Authority for Urban Railways: Project Management Unit line 1, Project Management Unit line 2, Investment and Planning Project Management Unit, Project Management Unit line 5, Division of Technique, Division of Planning and Investment, Division of Finance-Accounting,

– Ms. Huynh Thi Thuy An, Official of The Office, Management Authority for Urban Railways.

Issues under discussion:

1. Mr. Hoang Nhu Cuong delivered welcome speech for the JCC 4th session meeting, and summarized reports on the status of project implementation until January / 2013; achievements and progress over the Work Breakdown Structure (WBS).

2. Mr. Toyoda Masatomo - Chief Representative of JICA Ho Chi Minh Liaison Office gave a speech.

3. PUC presented on the Draft of Establishment Plan for Operation and Maintenance Company (O&M Company) in Ho Chi Minh City.

4. Mr. Aikawa Tetsuro presented the Project team's recommendations related to the content of setting up O & M Company.

5. Opinion of the Joint Coordination Committee:

Mr. Duong Hong Thanh:

– Draft of Establishment Plan has just mentioned about technical aspects original one did not mention about the main purpose for establishing O&M Company. It is to develop mass rapid public transport system to serve citizens and reduce traffic congestion. Not merely focus on the company business model as mentioned in the draft plan.

- Public transportation business of the O&M Company will be subsidized from People's Committee.

- Currently, the Asian Development Bank (ADB) has funded sustainable urban transport research to study the access method to all 11 stations of Metro line No.2. Accordingly Metro line No.1, there is no research on the utility access to the station. Therefore, proposing JICA to support on this issue.

- Agree with the proposal to setup O&M Company at the end of 2013 or early 2014 at the latest, but should clearly identify the progress of implementation plan.

- Agree on the proposal to allow Non-fare business to balance the fare revenue and the expenditure. However, there is a new option in which the non-fare business revenue will be used to compensate subsidy of the State. This is called indirect subsidy.

– In the next phase of the TC, need to focus on developing the complete model of the company: functions, tasks, powers and relationships with other agencies, standard of job title for personnel; management mechanism, the relationship between Non-fare business and public passenger transport.

– About discount proposal: Study the current regulation as the basis (update along with Law of Disability).

➢ Mr. Hoang Nhu Cuong

Currently there's no any JICA feedback on funding research of feeder bus connected to the metro station along the Hanoi Highway. Suggesting the Department of Transportation proposed officially to JICA on this issue. In case, If JICA does not fund, the PC will combine study with line No.2 or find other funding sources.

Mr. Katsuta Hozomi

On researching proposals of bus connection, JICA delegation will come to discuss in the next week. At that time it should be discussed about this issue.

Mr. Aikawa Tetsuro

The O & M Company provides the public service and its fare level needs approval of HCMC-PC. Accordingly it needs subsidies from the PC when they have deficit. In such this company's model, is this company requested to submit all income to the state budget or not?

Mr. Tran Hong Hai

– Although the company's model is a Business company or Public company, that the income will not be paid back to state budget daily, or monthly. The O&M Company will keep the money and the government will not manage their income. Moreover, at the year-end settlement, in the case of ticket sale's income is not enough to cover, the government will cover losses.

- Notice that using the term "Public company" is not accurate, the Company's model is a One-member limited liability company in operating the public sector.

– The time of Company's establishment: Noticing the consistency between the draft plan and appendix data about the establishment time.

- Need to determine the operation fund from the establishment time until the time of commercial exploitation.

– Need to build the payroll salary of management personnel (Board Member, Board of Directors, etc.) in accordance with the guidelines from the Ministry of Labor, War Invalids and Social Affairs for One-member liability limited Company in the public sector.

- The use of term "capital contribution in kind" is not proper. HCMC-PC will transfer all assets from infrastructure till Rolling Stock, etc. to the Company for managing. The interest payment will be paid by the city budget responsibility.

- Recommendations on fare adjustments and provisions on the PC's responsibility in the Company Charter are inappropriate.

- Agreeing the proposal of Non-fare business but it is necessary to clarify the initial capital investment for this activity. In addition, it should need to propose in Business Plan for Non-fare business contents.

– Notice on the anti-inflation content is inappropriate and unnecessary.

- Revise notes in the financial tables so as to be appropriate and consistent.

- Comparing the previous studies, the contents of this report becomes worse. The interval of fare adjustment was decided to be done every two years but a revision plan by every five years still remains in this plan.

Mr. Hoang Nhu Cuong

- Notice on the using old data in the previous study (such as SAPI study).

- Redefining the Company's salary mechanism.

- Currently, for the Non-fare business issue should be concentrated on getting the guidance from the city. Further study Non-fare business will be conducted in the next phase of TC.

– PUC should note all the comments and update the draft of Establishment plan for O&M Company.

➢ Mr. Le Hai Phong

- Agree on the proposal of Non-fare business (advertising, parking, etc.)

- It is important on the subsidy policy not for the O&M Company to provide low quality service for promoting passengers.

➤ Mr. Tran Bach Ngoc

- The PUC accomplishes Company's Establishment plan accordingly on comments of JCC members.

- Agree with other comments about the Company's model which is the one-member liability limited company operating in the public sector, and the salary mechanism should follow current regulations.

- Need to unify the time of establishment and to make the basis of convincing explanation to HCMC-PC for consideration.

- Agree with the proposal of Non-fare business. And the details of this content will be studied in the next phase.

– PUC continues to coordinate with Japanese experts to finalize the organizational structure of the company and defining functions / obligations of positions as well as the training plan in the next stage (if any).

- Department of Planning and Investment will coordinate with MAUR in receiving assistance of JICA in the next phase.

Mr. Doan Hong Minh

– About the right of the O&M Company: Notice that is not necessary to repeat the rights which are defined in the Law of Enterprises; should focus deeply on rights that O&M Company wants to obtain additional rights (for example: Right on Non-fare business). Such non fare business should not affect to the safety train operation which is the main task of O&M Company.

– About the sequence of Company's establishment: The company is a one-member limited liability company with 100% state capital, the People's Committee is the owner which appoints chairman of the board members (BOM) and the General Director. The vice presidents are appointed by the Chairman after being approved by the HCMC-PC. Proposing project team to update this issue.

- The rights of the owner, the Board of Members to be specified in the charter.

- Clarify the allocated powers for PUC, as well how to delegate and how is the impact of this issue to the relationship between PUC and MAUR.

Mr. Hoang Nhu Cuong (General conclusion)

Based on the comments of JCC members, PUC should study with experts for adjusting and improving the draft of Establishment plan for O&M Company. There are six groups of problems are as follows:

- Clarify the time of establishment, additional study on the financial mechanism of salary and operating funds for the period from the preparation till the official operation.

- Adjust contents based on the JCC members comments about wording, information content (company's name, recommendations, salary mechanism, the fare compensation for disabled persons, the Company's right etc)

– Specify clearly the O & M Company's properties: infrastructure, equipment is under the management of the O&M Company. Clarification of the Company's revenue: Revenue will be managed by the O&M Company, handling losses and offset losses will be settled at the end of the year.

– Non-fare business: JCC members agreed in principle. The detailed study will be conducted in the next phase of TC project.

 Reload the provisions of Company's organization such as appointment and dismissal in the Company's Charter

- Regarding the clarification of the PUC's role: no need to mention in the Business plan. This content will be studied detail in the next phase of TC project.

6. Mr. Hoang Nhu Cuong presented main activities in the next phase of TC project

Notice that the 2nd issue about Metro line 2 study, Japanese experts' proposal which integrate together the detail study of Metro line No.2.

7. Mr. Katsuta Hozomi

- The construction delay of Metro line No.1 project which affects to the TC project's schedule. JICA is still willing to continue supporting the project with the original scale. However the support of JICA in the next stage (waiting period) the number of experts will be reduced to a certain level. Therefore JICA hopes PUC members strengthen self-motivation to be able to gain the work and contents of this waiting period.

Enhance the exchange information with other agencies (PMU line No. 2, the Hanoi Metropolitan Rail Transport Project Board)

- Continue to work with VNRA on issues related to the training of train drivers for urban railways.

- Notice to further study on safety issues in urban railway. There are currently no relevant safety regulations.

– JICA is concerning about if the HCMC-PC will approve on time the Establishment Plan in late March 2013 because this is the precondition to continue the next co-operation, and is an important step to promote the establishment of O&M Company. This is the purpose of the first phase of technical cooperation projects.

– The purpose of the next stage of TC project is to promote the establishment of O & M Company. Therefore, JICA also looks forward to continuing to support MAUR for implementing the next phase.

Mr. Doan Hong Minh

- Basically agree with unified activities' content in the next phase of TC project proposed by MAUR.

– Notice when submitting the Business Plan, should clearly state issues such as the preparation for establishing the O&M company, activities to be done after the company is established, the setup time of the O&M Company, training plan of personnel and operating funds (to ensure the economical and efficient) ... in order that the HCMC-PC has basis for approval of this Business Plan.

Members of JCC have agreed with unified the activities' content for the next phase of TC project which is proposed by MAUR.

Mr. Hoang Nhu Cuong (Conclusion)

- Affirming the necessity of continuing the TC project to establish O & M Company as well as JICA's anxiety especially approval of Establishment Plan for continuing to support the next phase of the project.

- PUC members should update and complete the contents for the next phase of TC project according to the opinion of JCC members, and then has an official report to JICA.

The meeting ended at 12h00 on the same day.

These are the contents were discussed and agreed at the 4th meeting of the Joint Coordination Committee. /.

SECRETARY

ON BE HALF OF CHAIRMAN STANDING JOINT COORDINATION COMMITTEE

VU MINH DUC

VICE CHAIRMAN OF MAUR HOANG NHU CUONG

Appendix 5

Equipment provided by JICA

Appendix 6

Instructions of MAUR Chairman Mr. Luong (81/TB-BQLDSDT)

HO CHI MINH CITY PEOPLE'S COMMITTEE MANAGEMENT AUTHORITY FOR URBAN RAILWAYS

SOCIALIST REPUBLIC OF VIETNAM Independence – Freedom – Happiness

No. 81/TB -BQLÐSÐT

Ho Chi Minh City, January 16, 2013

NOTICE

Conclusions drawn by Mr. Nguyen Do Luong, Chairman of the Management Authority for Urban Railways (MAUR) at the meeting on Operation and Maintenance of Urban Railways.

On January 15, 2013, at MAUR office's meeting room, MAUR Chairman, Mr. Nguyen Do Luong chaired the meeting on the Operation and Maintenance of Urban Railways.

Present at the meeting were Vice Chairmen including Mr. Hoang Nhu Cuong and Mr. Nguyen Van Quoc, and Heads of Divisions, Sections, and Units under MAUR, namely: Project Management Unit 1 (PMU1), Project Management Unit 2 (PMU2), Project Management Unit 5 (PMU5), Project Investment Preparation Management Unit, Organization and Training Division, Planning and Investment Division, Accounting and Finance Division, Technical Division and Office.

After listening to the reports by Organization and Training Division and comments from other meeting attendees, MAUR Chairman, Mr. Nguyen Do Luong has come to conclusions as follows:

1. To concentrate on the establishment of Operation and Maintenance Company (O&M Company) of Urban Railways, which is set up based on HCMC UMRT Project, Ben Thanh – Suoi Tien Section (Line 1). The $\oint c$ ope of study of the Technical Assistance Project namely "Support on Set up of Operation & Maintenance Company of Urban Railways in Ho Chi Minh city" in order to establish the O&M Company for Urban Railways in the City should also be based on the ongoing HCMC UMRT Project, Ben Thanh – Suoi Tien Section (Line 1). To consistently adopt the viewpoint of "An O&M Company of Urban Railways in the City" for all budget-funded urban railway projects. Though urban railway projects will be executed following the guidelines of project donors;, attention should also be paid to the possibility of connection in the future.

2. To finalize required documents to submit to Ho Chi Minh City People's Committee (HPC) in order to establish the O&M Company of Urban Railways in the City in 2013 with sufficient legal entity and clear determination of functions to form a basis for implementing subsequent steps including preparation of cost estimate, setting up operation plan, staff training and

recruitment, coordination with management units of projects to work with respective Contractors for technology transfer.

3. It is requested that during the course of project execution, heads of project management units shall ensure the following two (02) issues: ticketing system and signaling system shall be synchronous with that of UMRT Project, Ben Thanh – Suoi Tien section (Line 1).

- To assign Vice Chairman, Mr. Hoang Nhu Cuong to instruct PUM1 to promptly determine these two systems of UMRT Project, Ben Thanh – Suoi Tien section (Line 1) in order to form a basis for other project management units to carry out respective projects. The ticketing system should take into account the integration of the urban railway system and the public transport system in the City.

4. To assign the Organization and Training Division (PUC Group), PMU1 and PMU2 to coordinate to:

- Develop the roadmap for the establishment of the O&M Company of Urban Railways in the City with an open approach, based on the study results of the Technical Assistance Project namely "Support on Set up of Operation & Maintenance Company of Urban Railways in Ho Chi Minh city"

- Determine the organization of the O&M Company of Urban Railways in the City (e.g.: number of sections/units, their functions and responsibilities, etc.)

- Determine the budget to implement the training and technology transfer to the aforesaid sections/units)

- Determine the quantity and category of management and operation staff of the O&M Company of Urban Railways in the City.

- Vice Chairman, Mr. Nguyen Van Quoc is requested to direct PMU2 to identify the quantity of required staff for Metro Line 2 (e.g.: number of train drivers, operation staff at stations, etc.)

- Organization and Training Division (PUC) Group shall coordinate to update relevant information to serve the establishment of the O&M Company of Urban Railways in the City.

5. Heads of project management units are requested to work closely with relevant consultants and contractors to ensure that operation and maintenance shall be consistent, with respect to the three (03) concluded viewpoints mentioned above, including business model, ticketing system and signaling system.

By the order of the Chairman, MAUR Office would like to notify the above conclusions for your information and implementation./.

Recipients:

- Meeting attendees; City Party's Standing Committee;

- MAUR leaders (Chairman, VC)
- Office (CVP, TH)
- Filed: VT 14

ON BEHALF OF CHAIRMAN P.p. OFFICE MANAGER DEPUTY OFFICE MANAGER (signed and sealed) Do Hoai Thu

Appendix 7

PDM and PO for Next TC Phase

Major Activities of Intermediate TC (PDM)

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1

Activities	Inputs (JP side)	(VN side)	Preconditions
1.Preparation of the framework of the O&M Company	1. Dispatch of Japanese Experts	1. Assignment of Counterpart	
1-1 Registration of the O&M Company	Fields of Experts	- Board members:	
1-2 Preparation of the management institution of the	- Expert 1: 1 person	3 persons	
O&M Company	- Expert 2: 1 person	Safety:	
1-3 Setting up of operation and technical departments	2. Counterpart training in	4 persons	
1-4 Information sharing with Line 2 project	2 month/training x	- Human Resources. 2 persons	
2. Acquisition of management knowledge/experience	2 personnel/training x	- Finance/procurement:	
through preparation works of the O&M Company	5 training/year	- Business management:	
2-1 Implementation of OJR in Osaka City Metro	3. Equipment	2 persons	
2-2Information sharing with Hanoi MRB	1^{st} phase are transferred to MAUR	2 persons	
 2-3 Information sharing with Halor MHD 2-3 Information sharing and discussion with PMU1 (the Office IT system, AFC, train simulator, OCC, train operation rule and station office layout) 3. Development of the institutional framework around the O&M Company 3-1 Completion of the training system for the operating staffs through negotiation with VNRA 3-2 Preparation of the Regulator functions 4. Preparation of TC Phase 2 Development of PDM and PO 	 and utilized for this TC 4. Expense Cost for special management training course Cost for employment of local consultants Other expenses for research, travelling, training TC assistants: Interpreter: 2 persons 	 Technical (Rolling stock): 2 persons Technical (Equipment): 2 persons At the beginning 5 staffs and at the ending stage 19 staffs 2. Provision of facilities for the Project implementation : Project office Working equipment 3. Expense Local cost for personnel Cost for office rent and equipment. Other expenses: 	
		For research, travelling, training, other activities	

	2013				2014												2015							
	Apr.	May	ηuh	JuL	Aug	Sep	Oct	Νον	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1 Preparation of the framework of the O&M Company																								
1.1 Registration of the O&M Company																								
1.2 Preparation of the remaining management system of the O&M Company																								
1.3 Setting up of operation and technical departments																								
1.4 Information sharing with Line 2project																								
Acquisition of management knowledge/experience through preparation works of the O&M Company																								
2.1 Implemntation of OJT in Osaka City Metro																								
2.2 Information sharing with Hanoi MRB																								
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3.2 Preparation of Regulator functions																								
4 Preparation of TC Phase 2																								
4.1 Development of PDM and PO																								

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Appendix 8

Establishment Plan for the O&M Company

Socialist Republic of Vietnam Ho Chi Minh City People's Committee (HCMC-PC) Management Authority for Urban Railways in HCMC (MAUR)

The Project for Support on Set up of Operation & Maintenance Company of Urban Railways in Ho Chi Minh City

Final Report Supplementary Volume Establishment Plan of the O&M Company

JAPAN INTERNATIONAL COOPERATION AGENCY Japan International Consultants for Transportation Co., Ltd.

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MANAGEMENT AUTHORITY FOR URBAN RAILWAYS

SOCIALIST REBUPLIC OF VIET NAM Independence – Freedom – Happiness

Ho Chi Minh City, , 2012

Draft for

Establishment Plan of the O&M Company (Version 10)

1 Feb. 2013

Beginning Part

Together with Ha Noi capital, Ho Chi Minh City is the significant economic, cultural and educational center of Viet Nam. Ho Chi Minh City is about 2 thousand square kilometers in area. The population was 7.4 million people in 2010 and is expected to be more than 9 million in 2020. As a result of high population density in the city, the traffic volume has been increased significantly and the problem of heavy traffic has been escalated day by day. One of the serious issues is the share of vehicles. At present, motor cycles are made up more than 90% in the total urban traffic demand. In order to alleviate this alarming problem, Ho Chi Minh City holds a public objective to increase the scale of citizen using public transport means from 10% at present to 30% in 2025.

To achieve this objective, a model and effective public transport system which includes UMRT, LRT and buses is necessary. Pursuant to Ho Chi Minh City transportation development planning by 2020 and the vision after 2020 which was approved by the Prime Minister of Viet Nam (Decision No. 101/QD-TTg on January 22, 2007), Ho Chi Minh City will build 07 central urban railway lines which connect major centers of the city, 01 tramways line (presently, replaced by BRT) and 02 monorail lines.

(Pictures in Appendix and Table 1.1 List of Urban Railway lines in HCMC updated in 2012 attached in Appendix)

L	ine	Length	Terminal stations
Lir	ne-1	19.7 km	Ben Thanh – Suoi Tien
Line-2	Phase-1	11.3 km	Ben Thanh – Tham Luong
	Phase-2	8.7 km	Thu Thiem – An Suong
Line-3	(3a)	16.2 km	Ben Thanh – Tan Kien
	(3b)	12.1 km	Cong Hoa Roundabout – Hiep Binh Phuoc
Lir	ne-4	36.0 km	Ben Cat Bridge – Nguyen Van Linh
Line-5	Phase-1	8.89 km	Bay Hien Roundabout – Saigon Bridge
	Phase-2	14.5 km	District 8 – Bay Hien Roundabout
Lir	ne-6	6.0 km	Ba Queo – Phu Lam Rounabout
Tramway	Line1	12.5 km	Saigon – Western Bus Terminal
	Line2	14.0 km	Nguyen Van Linh – District 2
Monorail	Line3	8.5 km	Go Vap Roundabout – Quang Trung Software Park

 Table 1.1 List of Urban Railway lines in HCMC updated in 2012

Source: Management Authority of Urban Railways

Together with ongoing construction project, from 2008, Ho Chi Minh City began to study about operation and maintenance for urban railway. The purpose is to ensure that urban railway system of Ho Chi Minh will be operated effectively right after finishing of construction work. Up to 2010, Ho Chi Minh city confirmed the orientation that one Operation and Maintenance Company will be established for all urban railway lines financed by government budget. From April 2010, with support of JICA experts in frame of Technical Cooperation project between JICA and Ho Chi Minh city, preparation studies following this orientation were commenced.

Presently, Line 1 is still under tendering stage. Elevated section construction package (one among three main construction/E&M packages) of Line 1 was contracted in this May; will commence from this September. Tendering of two other packages is promptly on going. Line 2 signed contract of the Implementation Consultant (IC) package in January 2012. Tendering of Consulting Service (CS) packages is ongoing. Line 5 has finished FS and

submitted construction investment project to HCMC PC for approval. Other urban railway lines in network are on F.S study and called for investment. Therefore, at the initial stage right after the establishment of the O&M Company, Line 1 will be the first Line to finish the construction work and to be operated by the O&M Company.

In the short term, The Business Plan of the O&M Company will focus on issues of general management the O&M Company; issues of management, operation of Line 1 and preparation for other lines. The Business Plan should be improved / updated time by time, following the implementation progress of urban railways system in HCM city.

The Establishment Plan of the O&M Company has nine parts:

Part One: Necessity of establishment of the O&M Company
Part Two: Model of the O&M Company
Part Three: Legal Position, Mission-Authority
Part Four: Company Organization – Personnel
Part Five: Demand Forecast
Part Six: Finance
Part Seven: Implementation plan
Part Eight: Safety Operation
Part Nine: Service Quality

Part One: Necessity of establishment of the O&M Company

- I. Legal basis
 - The Railway Law (2005);
 - The Enterprises Law (2006);
 - Decision No 14/2011/QĐ-TTg dated March 04, 2011 of The Prime Minister about Criterion, list of classification state enterprise.

II. Practical Requirements

1. Ho Chi Minh city urban railway system present implementation situation:

- 1.1 Line 1 (Ben Thanh Suoi Tien):
- (1) Scope of the project:

- Construction investment projects approval in 2007 (decisions No of HCMC PC 1453/QD-UBND dated 06 April 2007, 4870/QD-UBND dated October 25 2007, 2721/QD-UBND dated June 26 2008 and 4480/QD-UBND dated September 21 2011).

- Donator: Japan International Cooperation Agency (JICA).

- Alignment, length: 19.7km, including 2.6km underground section (Ben Thanh Market, Le Loi street, Opera house, Nguyen Sieu street, Ba Son area) and 11.7km elevated section (following Van Thanh arroyo, Van Thanh park, crossing Dien Bien Phu st, Sai Gon river, inside Ha Noi high way, Suoi Tien bus terminal, Long Binh depot)

- Stations: 03 underground stations and 11 elevated stations.

- Depot: 27.4-hectare at Long Binh Ward, the District 9

- Total project cost: 47.325,2 billion VNĐ, be equivalent 2.490,8 million USD.

(2) Schedule:

Construction of elevated section is expected to start in 4th quarter of 2012 and finish in 2016. Completion the whole line will be in 2018.

1.2 Line 2 (Phase-1: Ben Thanh – Tham Luong)

- Construction investment projects approval in 2010 (decisions No of HCMC PC 4474/QD-UBND dated 11 October 2010).

- Donator: Asian Development Bank (ADB), KfW Bank and European Investment Bank (EIB)

- Alignment, length: total length of 11.322km, passing across Districts 1, 3, 10, 12, Tan Binh, Tan Phu in the Ho Chi Minh City territory. The length of the underground section is 9.315km, the transition section is 0.232km, the elevated section is 0.778 km, the connecting section to depot is 0.997km.

- Stations: 10 underground stations and 01 elevated station.

- Depot: 22.3ha, located in Tan Thoi Nhat Ward District 12.

- Total project cost: 26,116 billion VND, be equivalent to 1,374.5 million USD.

(3) Schedule:

Construction and erection work is expected to start from middle of 2013 and finish by middle of 2018.

1.3 Line 5 (Phase-1: Bay Hien Roundabout – Saigon Bridge)

Scope of the project:

- Construction investment projects approval: on going.

- Donator: Spain

Alignment, length: 8.89 km from Bay Hien Crossroad to Saigon Bridge (Underground 6.59 km, Elevated 2.3 km);

- Stations: 07 underground stations and 01 elevated station.

- Depot: mini depot under Hoang Van Thu Park

- Total project cost: 857 million Euro.

1.4 Others urban railways lines (including phase 2 of line 2, phase 2 of line 5): FS and calling for investment for these lines are ongoing.

2. Necessity of establishment of the O&M Company

After completion of urban railways, commuter trains will be operated and station service has to be commenced. At the depot, the maintenance works are carried out. To operate such operation and maintenance works without trouble, the management organization is indispensable.

Now PMUs for construction of each Line have been established but there is no urban railway company in HCMC. Accordingly the O&M Company has to be established.
Part Two: Model of the O&M Company

I. Objectives, requirements and orientation of establishing the O&M Company

1. Purpose of the O&M Company

Contribution for development of HCMC through providing public mass transport services

2. Target of the train operation works by the O&M Company

- (1) Implementation of safety and punctual operation;
- (2) Provision of comfortable commuting;
- (3) Realization of financially sound management.

II. Models of the O&M Company

1. Models of O&M Companies in some countries

- (1) Most of urban railways are operated by public entities. This is due to the fact that in order to construct the urban railways, huge fund is required but the fare revenue is not sufficient to compensate the construction cost. Please see APPENDIX <u>2</u>;
- (2) In some Asian countries, to mitigate the financial burden of the Government, PPP scheme was adopted. But all these financial schemes were failed since the urban railway are not profitable at the initial stage.

2. Situation in Ho Chi Minh city, Vietnam

- (1) Since the route map of the urban railways is already opened to public and the routes are selected on the main roads to reduce the asset procurement cost, the lands along the line are already developed. Hence Transit Oriented Development (This is the basis of private oriented development) cannot be done in HCMC basically.
- (2) Relevant Vietnamese regulation:

(2.1) Item 2 Article 55 of Railway Law (2005) "Urban railway investment, construction, management and business shall be organized by provincial-level People's Committees"

(2.2) Decision No 24/2011/QĐ-TTg dated March 04, 2011 about Criterion, list of classification state enterprise: Government hold 100% capital of enterprises managing, operating urban railway infrastructure and enterprises managing urban railways transportation.

(2.3) The Enterprises Law (2005): Stipulate about establishment, management organization and operation of limited liability companies, shareholding companies, partnerships and private enterprises in all economic sectors, corporate groups.

Pursuant to (2.1) and (2.2) HCMC PC holds 100% capital of enterprises managing, operating urban railway infrastructure and enterprises managing urban railways transportation. And pursuant to (2.3), the O&M Company in Ho Chi Minh City is one Member Limited Liability Company 100% state budget, owned by HCMC PC.

3. Basic policies of the O&M Company

This Company is One-Member-Limited-Liability Company managed by Member's council system.

The organization structure is designed in consideration of the requirements for sound management and the business environment. To draft this, some organization structures of existing companies are referred; railway companies such as Japanese railway companies, Vietnam Railway (VNR) etc., and Vietnamese companies such as Saigon bus etc. It is also designed with consideration of issues required for sound management and the business environment surrounding this company.

The table below shows the Concrete polices and the major instances incorporated in the organization design of the O&M Company

	Basic policy	Concrete policy	Major instance
1	To establish the proper organization structure for sound management	To promote rapid decision making	 -2-teir system is adopted, in which each department will be directly instructed and supervised by the board of general director -Dispatchers for each line conduct daily train operation at the

Table2-1 Concrete Polices built in the organization design of the Company

			consolidated OCC (Operation Control Center)
		To establish internal cooperation and mutual supervision system	-Finance section and procurement section is separated.
		To develop the lean organization	-At initial stage the number of departments is reduced as much as possible.
			-Safety department and operation department are combined into one department.
2	To consider the business environment	To respect specific requirements stipulated in laws and regulations for One Member Limited Liability Company 100% capitalized by Government	-Positions stipulated in laws and regulations, such as Members' council, Controller etc., are established.
		To respect the difference of technology for each line	-Operation Divisions and Maintenance Divisions established by each donor are in charge of managing their lines.

Part Three: Legal Position, Mission - Authority

I. Legal position

1. Name of the Company

One Member Limited Liability Company for HCMC Urban Railways (hereinafter it is called as **the O&M Company**)

2. Location of the Company

Staffs of the Operation department of the headquarters have to go to the OCC to support the dispatchers when disruption happens on the main line. For this reason, the headquarters and OCC should be located adjacently to each other inside the Long Binh depot of Line 1 (District 9).

3. Feature of this company

(1) This company is established as a 100% state owned One Member Limited Liability Company for the public transport service. Fare level will be decided by HCMC-PC and the O&M Company will receive subsidy from HCMC-PC.

(2) This company will conduct the various non-fare businesses in order to provide the commuters convenience and to mitigate the burden of the subsidy of HCMC-PC.

Accordingly it is recommendable that HCMC-PC will allow the O&M Company to conduct non fare business. The concrete plan of non-fare business will be studied in the coming period.

(3) As the railway system of urban railways is complicated and new and its training of staffs needs time, it is required to hire capable staffs and retain them to the Company for a long time. Therefore the company rating for this company should be defined as the highest one. (Pursuant to Joint Circular No. 23/2005/TTLT-BLDTBXH-BTC dated 31

August 2005)

II. Domain of business

Basic business domain of this company is displayed below. This company conduct non-fare business other than railway business in order to provide convenience for passengers and to mitigate the burden of subsidy by HCMC-PC. For detail, please refer to the Non-fare business in Chapter 9.

The concrete category of non-fare business will be described in future when these are clarified. It should be strictly secured for the non-fare business not to affect safety train operation since the train operation is the main business.

- (1) Public transport by urban railways;
- (2) Non fare business

III. Authority

In order to accomplish the business purpose of the Company, the authorities are given to the Company. Concrete authorities are displayed in the Company Charter based on Article 8 of Enterprise Law.

IV. Business Strategy

- (1) To conduct sustainable sound operation;
- (2) To conduct safety operations;
- (3) To place great importance on the provision of good services;
- (4) To conduct efficient operations.

Part Four: Company Organization - Personnel

I. Company Management Principles

- (1) To conduct the business quickly/directly;
- (2) To carry out efficient interactive adjustment among department easily
- (3) To establish lean organization
- (4) To secure specialized knowledge for the business
- (5) To respect the difference of technology of each line

II. Organization structure

1. Concrete organization structure

The organization structure plan at the commencement of commercial operation is as shown as below.



Fig4-1 Organization structure of the Operation and Maintenance Company

Note1; Director board include General Director (GD) and 3 Vice General Director who help GD in 3 main fields (1) Administration – Human resource – Training; (2) Finance – Planning - Business; (3) Technical – Operation - Maintenance.

Note2; In the opening stage, O&M Company focus on necessary preparation and then operation and maintenance the line No.1; at this time, the amount of works are not too much, in order to make compact organization, saving employee fee and cost so that Safety and Operation Management department will be combined together. Later on, this department will be separated in 2 departments when necessity such as Safety department and Operation management department.

Note3; Operation and Maintenance units will be established for 1 line or many lines with same technical features to take full advantage of infrastructure, employees of these units.

III. Personnel

1. Realization of a lean organization

Since HCMC line 1 has advanced rolling stock (EMU: Electric Multiple Unit), railway equipment and facilities, a lean organization is realized.

Though 10 titles of railway employees are designated as those in direct service of train operation in Vietnamese railway law and regulations, only 3 titles are needed for HCMC line 1.

	Titles of railway employees in direct service of train operation (38/2010/TT-BGTVT)	Actual condition of HCMC line 1
1-1	Train operating controller in main line ("Nhân viên điều độ chạy tàu tuyến" in Vietnamese)	Train dispatchers in OCC control and manage all over the line including train route and signal in the depot All signal control at station are consolidated in
1-2	Train operating controller at stations	the OCC Note:
	("Nhân viên điêu độ chạy tàu ga" in Vietnamese)	In real operation, though there is no direct operation at the station, some staffs who has
2	Traffic management at station ("Trực ban chạy tàu ga" in Vietnamese)	knowledge in signal operation are allocated at every station where turnout is installed in order to carry out some operational tasks requested from OCC.
		In modern urban railways, the experience of drivers is useful since in modern railways since trains are operated through communication between drivers and dispatchers in OCC though

Table4-1 Comparison VNR and HCMC line 1

		in VNR the traffic control is done by cooperative work between operational staffs in stations and dispatcher in OCC.
3	Train captain	Not necessary since the driver together with conductor can do the train captain's task such as door opening/closing, announcement in emergency etc. from EMU cabin.
4	Chief of train-sets composition ("Trưởng dồn" in Vietnamese)	Not necessary since basically composition of train-sets is not changed except inside the depot.
5	Shunter ("Nhân viên gác ghi" in Vietnamese)	Not necessary since all the switch (turn out) on mainline and depot will be operated automatically by the OCC
6	Coupler ("Nhân viên ghép nối đầu máy, toa xe" in Vietnamese)	Same as 4.
7	Railway, bridge and tunnel patroller and tunnel guard	On urban railways train speed and frequency is so high that it is dangerous to patrol during the operation time zone.
		Track or facility maintenance staffs do such tasks in the night time after train operation is finished.
8	Level crossing, bridges for both trains and other kind of transport means and railway tunnel guard	Not necessary since all urban railway lines in HCMC are underground or elevated. Hence, there is no level crossing.
9	Driver	Necessary. Drivers are in charge of train operation not only on the main line but also in the depot.
10	Driver assistant	Not necessary since EMU type train is designed to be operated by only a single driver

2. The staff number required at the commencement of commercial operation

The staff number required at the commencement of commercial operation is as shown as below. It should be noted that these figure may vary according to the change of preconditions.

Category	Department or Section	Number of
		staff
Headquarters	Members council / Board of	10
	directors / Supervisor	
	Administration – Legislation Dept.	5
	Human Resource Dept.	3
	Training Center	0
	Finance – Accounting Dept.	7
	Planning – Investment Dept.	7
	Material – Equipment – Service Dept.	3
	Business – Public relation Dept.	12
	Technical Dept.	29
	Safety – Operation Management Dept.	26
	Sub Total	102
Operation Division 1 (Line 1)	Director	1
	Drivers	56
	Station staffs	152
	IC Card Center staffs	4
	Sub Total	213
Maintenance Division (Line 1)	Director	1
	Rolling stock maintenance staffs	15
	Track maintenance staffs	13
	Signal/Electric maintenance staffs	35
	AFC maintenance staffs	15
	Sub Total	79
Gra	nd Total	394

Table4-2 The Staff Number Required

for the Commencement of Commercial Operation

Note1; If Safety dept. is separated from Operation dept., staff number for Safety dept. may increase to 3 by one and those of the operation dept. may be 26.

Note2; for the maintenance division, 1 manager per each category is added to the result of the staff number estimation for the maintenance staffs

Notes 3; secretary/clerks are not included in this table.

3. Time for employment of staffs

(1) Time for employment of the officers in the headquarters

The required staffs for the headquarters should be put gradually into PUC. It is necessary that these staffs come from MAUR, especially from PMUs for technology/personnel transfer from construction projects to the O&M Company.

(2) Time for employment of the staffs who operate railways directly

The operating staffs have to be employed by the time the Company starts training of staffs prior to the opening. Concretely speaking, the time when the Company starts its training may be several months prior to the completion of the elevated section. At this moment it is assumed that to be Sept. Y2015 at earliest.

1. Assumptions

Assumptions for estimation are as follows:

- (1) Modal share of public transport including buses is estimated as 16% in Y2020.
- (2) The demand in Y2050 which is used for design target of infrastructure is estimated by assuming long term socio economic condition. It is hard to estimate this because there is no future population by wards and future transport network in such long term, however the demand is forecasted based on the demand of Y2020 by assuming long term socio-economic status as shown in the table below.

Items	2020	2050
Population in HCMC(Million)	9.0	13.5
Modal Share of Public Transport (%)	16.0	30.0
Trip Demand on Public Transport (Mil/day)	6.88	19.35

Table 5-1 Assumed Socio-Economic Status in 2050

2. Result of Demand Forecasting

2.1 Result of Demand Forecasting

In order to check the financial stability of the O&M Company, there are three results of the demand forecasting were calculated at options. The first option (option-1) is the one which uses the result of demand forecasting straightly and this is used for the basis for design for construction. However, the financial stability of the company should be examined in pessimistic way since there is a great possibility that the number of passengers cannot increase that much. Therefore, opition-3 is prepared that the increase rate of the passenger after 2020 is same as the one for the predicted rate of population growth in the whole HCMC. The option-2 is the average between option-1 and option-3 and it can be considered as the moderate scenario and this option would be used for the financial analysis.

	Year of operation commencement	2020	2030	2040
Option – 1 (Optimistic scenario, for construction)	156,000	314,000	549,000	676,000
Option – 2 (Moderate scenario, for financial analysis)	156,000	314,000	460,000	556,000
Option – 3 (Most pessimistic scenario)	156,000	314,000	371,000	437,000

Table 5.2 Result of Demand Forecasting on Line-1 (pax/day)

Source: Ben Thanh - Suoi Tien Study prepared by GC



Fig5.1. Number of Passengers by station-2020-



Fig5.2. Number of Passengers by station-2040-

2.2 Average trip length of passengers

Average trip length of passengers is estimated as 9.0km per trip according to the result of demand forecasting.

I. Objectives of financial activities

The objectives of financial activities are as follows:

- (1) To establish robust capital structure for provision of safe and stable urban railway services;
- (2) To provide appropriate funding for required expenditure on the basis of efficient management of company's income and outside funding sources;
- (3) To provide sufficient budget for sound maintenance;
- (4) To ensure the funding for replacement and increase of equipment and rolling stock;
- (5) To provide sufficient budget for enhancement of service quality.

II. Capital Policy

1. Ownership of the facilities

There are some ways for the ownership of the railway asset as described in the following table.

Option	Type of ownership	Its features
A	All asset is owned by the Company	Basic scheme of the railway company in the world. Under this scheme the responsibility for the safety is clear.
		The burden of the repayment for the asset may be heavy for the Company and some mitigation measures have to be prepared. Regarding tax for the asset (for example, import tax) some special arrangement may be required.
В	Infrastructure is owned by the government. Equipment/rolling stock are owned by the Company	This scheme was developed to mitigate the financial burden of the national railway companies and it was utilized in Europe. It is said that the competition can be introduced under this scheme. It can be done on the intercity railways where the train number is rather small but in case of urban railways the train number in the peak hour is

Table 6-1	Туре	of the	asset	ownership
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		large and the multiple operator system cannot be introduced.
		Under this scheme the responsibility for the safety becomes unclear and the conflict between the asset owner and the Company may be brought about. Typical tragedies i.e., Clapham Junction accident (1988) and Paddington accident (1999), due to this scheme happened in UK.
		An authority for the asset owned by the government is required. In case of type A, this authority is not required.
С	All assets are owned by the government.	Under this scheme the responsibility for the safety becomes unclear since the responsibility of the asset renewal and those of the train operation and maintenance is separated.
		Some conflict may be brought about between the asset owner and the Company since for the asset owner it is cost saving to postpone the asset renewal and for the Company it is cost saving to carry out the asset renewal without extension to help lowering their operation, maintenance cost.
		An authority for the asset owned by the government is required. In case of type A, this authority is not required.

From the above table, regarding asset ownership, the Option B is selected. In case of this Option, the right of use of the infrastructure is given to the O&M Company

2. Repayment of the initial facilities

The repayment of the asset is expressed as below.

(1) For infrastructure portion, the central government will repay ODA loan and its interest invested for this portion.

(2) For E&M portion including rolling stock, HCMC-PC will repay ODA loan and its interest invested for this portion.

(3) The O&M Company have no duty to pay for these initial investment.

3. Asset renewal

Basically asset renewal has to be done with the fare revenue at the matured stage. But if the Company cannot conduct asset renewal by themselves, HCMC-PC will support the Company.

4. Capital for the O&M company

Capital in cash will be provided to the Company from HCMC-PC when the Company is established. This cash is used for procurement of initial office equipment, salary for staffs, saving the deficit at the initial stage of operation etc.

Regarding capital in kind: E&M asset coming from the project will be given to O&M company after completion of the construction project,

Table6-2	Capitals	of the	Company
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Categories	Concrete items/amount	Remarks
Capital in cash	152.9 Billion VND (*)	To avoid deficit at the initial stage
Capital in kind	E&M including rolling stock are	Base on the Decree as below:
	from HCMC-PC	(Decree 38/2007-NĐ-CP)

(*) data is obtained from the APPENDIX "Result of Financial Estimation"

5. Summary

The capital policy of the O&M Company is illustrated in the following figure. The main points are summarized as follows:

- (1) Physical asset required for railway operation was financed by ODA and state budget;
- (2) Infrastructure part is financed directly by the central government whereas the rolling stock and E&M portion is to be on-lent to HCM PC and its repayment is responsible by HCM PC not by the O&M Company;
- (3) The right to use for the infrastructure portion (tunnel, elevated structure, track works, etc.) is to be given to the O&M, the company does not needs to depreciate the asset;
- (4) Initial rolling stock and the E&M facilities are injected into O&M Company as

equity in kind by HCM PC, so that the company needs to depreciate the asset;

- (5) The opening expense is to be financed by the HCM PC budget and Working capital of the O&M Company is provided by HCMC-PC.
- (6) Operation and maintenance costs should be financed by the revenue of O&M Company;
- (7) Renewal investment is to be financed partly by the internal cash reserve and if the cash reserve is not sufficient, then financed by subsidy from HCMC-PC.



Figure 6-1 Capital Policy

III. Policy on financial soundness

1. To increase ridership:

Promotion of ridership increase could not be done by the O&M Company alone and need strong support from HCMC-PC since it may require some changes of social system in order to promote citizens to use urban railways. This may be one of the major tasks of HCMPC, DOT MAUR as the regulator.

1.1 Policy for promotion

As the measures without allocating the budget from the Government, such as introduction of policies or strict clamping down of intra urban automobile/motor bike traffic may be effective.

- (i) Introduction of fee system which suppress the use of motorbike and cars
- (ii) Introduction of policies which encourage the use of public transport
 - In Japan, the cost for commuting is borne by employers and these costs are recognized as the expense of the enterprises by the Tax office
 - Introduction of ERP package is conducted in some foreign countries (In detail, please see APPENDIX)
- Parking lot on the pavement for motorbike and cars could be clamped down strictly.
 - Conducting this policy, walking on the pavement becomes easier and commuters who use the urban railways could easily go to their office from the urban railway stations on foot.

1-2 Enhancement of convenience of transfer to/from other modes

At the beginning stage, transfer to other mode would be the transfer to the bus transport since no other lines of urban railways would be operated at that moment.

Construction of station plaza is the most important issue but at this moment any station plaza projects are not constructed yet. Construction budget required for station plaza is not large. But it would take time to relocate the land holders around the station plaza to another place. HCMC-PC has to start these projects as soon as possible.

Connecting feeder bus service after opening of Line 1 has to be prepared. Basically this is the task for rerouting of bus service along the right of way of Line 1. And to develop policies to encourage the motor-bike commuters to transfer to the urban railways is also required.

MAUR will work cooperatively with DOT and DPI in order to conduct these projects smoothly.

2. Revision of fare level every two years

Adjustment of fare level is proposed to be conducted every two years. Of course for such revision the approval of HCMC-PC is required.

IV. Revenue

1. Revenue from ticket sales

Initial fare is set at Base Price of 5,000 VND + 500VND/km distance price x travelled distance (convert back to datum of year 2011). Thus with 9.0km of average travelling distance, average fare for a passenger would be 9,500 VND in the 2011 price and 15,200 VND (In the year of beginning commercial operation, including inflation ratio). The fare level is assumed to be increased every two years. This figure is to be revised one year prior to the opening.

Fare discount will be applied to:

- (i) SF Card promotion;
- (ii) Children discount;
- (iii) Pupil and Student monthly pass;

With the passenger number based on the moderate case forecast (156,000 passengers/day in the initial operation year), the revenue size from the ticket sales would be 35.0 Million USD (about 730 Billion VND).

2. Non fare business

As described in the above section, minimum level of non-fare business is assumed since there is no land asset to be utilized and the non-fare business would be limited to the use of the railway related assets. The ratio of the non-fare business is assumed as follows:

- (i) 2017-21: 1.0% of the total revenue;
- (ii) 2022-26: 3.0% of the total revenue;
- (iii) 2026- : 5.0% of the total revenue.

Investment for non-fare business by the O&M Company does not need since the non-fare business at the initial stage is a business to provide the tenants the right to conduct their business inside the right of railways. Hence investment required for the business of the tenant will be done by the tenant itself.

V. Expenses

1. Regular activities

1.1. Staff costs

The following monthly staff costs are assumed to forecast the personnel expenses. The figures are followed the Degree No 103/2012/NĐ-CP, relevant regulations with annual inflation ratio of 7%.

Position	Monthly Staff Cost (USD)
	incl. social benefit costs
Members council/Chairman/Supervisor	896
Head and deputy head of department and	882
division	
Engineer and staffs/dispatcher in HQ	378
Drivers and manager of drivers' depot	707
Station master	479
Station staff	255
Maintenance worker	291

Table	6.3	Monthly	y Staff	Cost
	~ ~ ~			~ ~ ~ ~

Note: Monthly Staff Cost is estimated for the opening year.

1.2. Power Costs

Electric power costs for operating trains, stations and depots are considered based on the estimated power consumption (KW) according to the train operation (traction power) and general usage (non-traction power) with the following tariff table.

Tariff Category	VND/KW	Assumed Period
Peak rate	2,177	06:00 - 19:00
Off-peak rate	1,217	19:00 – 24:00
Midnight rate	754	00:01 - 06:00

 Table 6.4 Power Tariff Table

Although the above tariff rate was assumed for cost calculation, actual tariff to be applied should be negotiated with EVN for special tariff application for urban railways prior to the start of training which will use the trains. Strategy and road map must be prepared for acquiring special tariff for the urban railway as being practiced in Japan.

<u>Source:</u> Circular No 38/2012/**TT-BCT** of Ministry of Industry and Trade regulating on electricity prices in 2012 and implementation guide

1.3. Cleaning costs

Cleaning costs of stations and trains are calculated on the basis of labor cost and consumables estimated for each station and train.

1.4. Spare parts costs

Spare parts cost are categorized as minor maintenance (every year), medium maintenance (every four year) and major maintenance (every eight year) and estimated accordingly. However, for the initial five years after the opening, the spare parts cost are not counted as expenses of the O&M Company since it is a part of the five year maintenance package attached to the Package 3 (E&M, Rolling Stock, Track Work and Maintenance).

2. For repairing, upgrading, increasing, replacing of equipment

Basically investment of renewal (repairing, increasing, replacing equipment and facilities) is planned to be financed by internal cash reserve which would be accumulated as "the renewal investment reserve" by generating net profit year by year. However, if the accumulated reserve is not sufficient for the planned renewal investment, HCM PC would extend financial support or subsidy to the O&M Company. The following figure shows the timing and amount of renewal investments in the long run.



Figure 6.2 Renewal Investment Plan

3. Profit Reserve

Company's profit after compensating losses as provided for by Law's provision and paying financial obligations will be distributed as follows:

- (i) Contribute 10% to financial reserve fund until the remainder is 25% of charter capital;
- (ii) The remaining profit will be distributed to reward fund and welfare fund. The distribution ratio into each fund will be decided by the Members Council after it consults with Labor Union Committee and receives acceptance of the Owner;
- (iii) The leftover profit after relevant contribution to the above-mentioned funds will be added to the investment development fund of the Company.

VI. Demarcation of budget between construction project and the Company

On the following table, demarcation of the cost between the project and the O&M Company is displayed. PUC has to discuss the support from HCMC-PC on the cost which the O&M Company has to shoulder before opening. It should be noted that the support for operation deficit and the support as the institution is quite different.

Items	Project	The O&M Company
Construction cost of equipment	In charge	
Training cost of O&M Staffs	In charge	
Staffs cost till the opening		In charge
Power and water supply cost after commissioning test		In charge
Procurement cost of furniture/automobile		In charge
Procurement cost of desk top PC	In charge for Office IT system	In charge for procurement of PC other than Office IT system

Table 6.5 Demarcation of the budget provision

VII. Financial support from HCMC

Financial support from HCMC-PC other than the capital will be applied for :

- (1) Opening expense
- (2) Discount for student and pupil
- (3) Discount or Free of charge for disabled people;
- (4) Lower fare level case than proposed by the O&M Company
- (5) Renewal of equipment and rolling stock

VIII. Financial forecast for the first five years of Line 1

1. Balance sheet (Date: 12/ 31/2022)

Table 6.6 Balance sheet

Assets	Amount	Liability/Equity	Amount
A. Current Assets and Short-term Investment	201.178	A. Liabilities	0
I. Cash accounts		I. Current liabilities	0
II. Financial short-term investment	0	II. Long-term liabilities	0
III. Receivable accounts	0	III. Others	0
IV. Inventories	0		
V. Other current assets	0		
VI. Administrative cost	0		
B. Fixed Assets and Long-term Investment			
I. Fixed Assets	569.356		
- Original rate	870.61	B. Owner's equity	770.53
- Accumulated depreciation (*)	-301.254	I. Capital sources and funds	770.53
II. Long-term financial investment	0	1. Business capital	870.61
III. Costs for construction in process	0	2. Un distributed profit	-100.076
IV. Long-term deposits	0		
V. Long-term cost	0	II. Budget resources	0
Total	770.53	Total	770.53

2. Profit and Loss statement

	1	2	3	4	5
(in US\$ M illion)	2018	2019	2020	2021	2022
1. Revenue	35.3	38.7	53.2	88.1	102.9
a. Fare Revenue	35.0	38.3	52.7	87.2	101.9
b. Non Fare Revenue	0.4	0.4	0.5	0.9	1.0
2. Operation & Maintenance Costs	18.5	20.6	23.2	25.9	28.8
a. Staff costs	3.4	3.6	3.9	4.1	4.3
b. Power costs	9.3	10.6	12.0	13.5	15.2
c. Cleaning (Labor&Consumables) cost	0.3	0.3	0.3	0.4	0.4
d. S pares cost	-	-	-	-	-
- Mainor maintenace costs (yearly)	0.0	0.0	0.0	0.0	0.0
- Medium maintenance costs (every 4 years)	0.0	0.0	0.0	0.0	0.0
- Major maintenance costs (every 8 years)	0.0	0.0	0.0	0.0	0.0
f. Cost of non-fare business	0.2	0.2	0.3	0.5	0.6
g. Other Costs	3.9	4.3	4.9	5.4	6.0
3. Depreciation	60.3	60.3	60.3	60.9	60.9
a. Civil Work UG (Under ground))	0.0	0.0	0.0	0.0	0.0
b. Civil Work EL (Elevated)	0.0	0.0	0.0	0.0	0.0
c. E&M	53.5	53.5	53.5	53.5	53.5
d. Rolling Stock	6.7	6.7	6.7	6.7	6.7
g. Addition/Renewal (Rolling Stock/E&M)	0	0	0	0.7	0.7
4. Loan Interest	0.0	0.0	0.0	0.0	0.0
5. Net Income before Tax	-43.4	-42.2	-30.2	1.2	13.1
6. Income Tax	0.0	0.0	0.0	0.0	0.0
7. Net Income after Tax	-43.4	-42.2	-30.2	1.2	13.1

Table 6.7 Profit and Loss Statement for initial five years

3. Cash flow statement

Table 6.8 Cash Flow Statement for initial five years

	1	2	3	4	5
(in US\$ Million)	2017	2018	2019	2020	2021
1. Operating Cash Flow	16.8	18.1	30.0	62.1	74.1
a. Net Income after Tax	-43.4	-42.2	-30.2	1.2	13.1
b. Depreciation	60.3	60.3	60.3	60.9	60.9
2. Investment Cash Flow	0.0	0.0	0.0	-20.6	0.0
a. Initial Investment	-	-	-	-	-
b. Addition/Renewal (Rolling Stock)	0.0	0.0	0.0	-20.6	0.0
c. Renewal (E&M including Depot)	0.0	0.0	0.0	0.0	0.0
3. Financial Cash Flow	0.0	0.0	0.0	0.0	0.0
a. Subsidy from HCMC	0.0	0.0	0.0	0.0	0.0
b. Repayment of Loan Principal from HCMC	0.0	0.0	0.0	0.0	0.0
4. VAT payment	0.0	0.0	0.0	0.0	0.0
a. Sales	0.0	0.0	0.0	0.0	0.0
b. Expenditure	0.0	0.0	0.0	0.0	0.0
5. Net Cash Flow	16.8	18.1	30.0	41.5	74.1
6. Cumulative Cash Flow Before Short Term Borrowing	16.8	34.9	65.0	106.5	180.6
7. Short Term Borrowing	0.0	0.0	0.0	0.0	0.0
8. Cumulative Cash Flow After Short Term Borrowing	16.8	34.9	65.0	106.5	180.6

Part Seven: Implementation plan

I. Establishment time of the O&M company

In case of HCMC, at first construction project was established without the O&M Company but as is displayed in the table below, normally the O&M Company is set up at first and then construction project starts.

Country/City	Name of the Company	Establishment time	Start of construction	Opening year
Japan/Tokyo	Tsukuba Express	1997	2000	2004
Indonesia/Jakarta	PT MRT Jakarta	2008	2009	2016
India/Delhi	DMRC	1995	1998	2002
Thai/Bangkok	BTS	Before1995	1995	1999

Table 7.1 Establishment Time of the O&M Company in Other Countries

And in reality, preparation works of the O&M Company has the following problems

(1) There are a lot of preparation works to do before opening

People who are foreigner to urban railways tend to think that there is no activities for the O&M Company to carry out since it is the operator. But there are a lot of issues to be done by the O&M Company before opening. In the following table, the activities to be done by the O&M Company before opening are displayed.

Table 7.2 Activities to be done by the O&M Company before opening

(1) Implementation	of schedule	management
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- (2) Development of authority function for urban railways in MAUR
- (3) Setting up of the Operation department
- (4) Setting up the Technical department (Rolling stock)
- (5) Setting up the Technical department (Equipment)
- (6) Development of the public transport networks
- (7) Development of good relationships between the O&M Company and relevant entities
- (8) Employment of staffs
- (9) Supervision of trainings
- (10) Preparation of work sites

(11) Preparation of contracts and procurement

(12) Implementation of the train operation for trainings (Trial run)

- (13) Preparation of Rail business
- (14) Preparation of non-fare business

(2) It needs more time than normal case due to lacking of knowledge /experience

For the operation of urban railways, there are a lot of things to be prepared before opening. For these preparations, consensus building with relevant authorities in HCMC-PC and the Ministries of the central government are required.

Since there is no knowledge and experience on urban railways in Vietnam, it takes more time than normal case for consensus building. Three years of SAPI does not include the time to get knowledge/ experience. In order to compensate such conditions, to set-up of the O&M Company at early stage is required.

(3) Viewpoint of the operation is required in order to develop efficient facilities and to provide good service to the passengers

Now construction of Line 1 has started and it is the last time to modify its design or specifications if needed for enhancement of work efficiency and convenience of passengers. In order to conduct it, the O&M Company is needed as early as possible.

(4) Viewpoint for the network buildings is required as plural projects of urban railways already started

It is said that in case of Hanoi, each line project has conducted independently without the viewpoint for the building of urban railway network. It is difficult for each line project to have a viewpoint of networks since they are not responsible in other lines. Accordingly it was found that the specifications relating to the network need to be reconsidered after the discussion of the O&M Company started.

Now Line 1 project commenced fully and Line 2 project comes into tendering stage. It is important to review these projects from the viewpoint of network or operation. For this purpose, the set-up of the O&M Company at early stage is required.

(5) There is no legal basis of the activities for the preparation of the opening and the setting up of the O&M Company

Now Preparation Unit for setting up of the O&M Company (PUC) is defined as the counterpart of the JICA Technical Cooperation project team and there is no legal basis for setting up of the O&M Company.

Accordingly they have to be terminated if JICA TC project is terminated. Even in such cases, the PUC staffs should remain to be engaged in the preparation works continuously. It is time to set up the O&M Company for the legal basis of the preparation works.

Accordingly it is better to set up the O&M Company as early as possible. It may take a year to conduct the procedures for the establishment of the O&M Company. On the precondition that this proposal is accepted at the end of March 2013, establishment of the O&M Company is to be done within 2013 at earliest.

II. Cost for opening

The opening cost of the O&M Company is displayed as follows. These cost during the period without revenue should be burdened yearly by HCMC.

It should be noted that the staff number will increase three years prior to the opening since preparation of the staff training starts three years before opening. Accordingly even if the O&M Company is established at earlier stage, the opening cost will not increase so much.

In the same meaning in case that the opening of Line 1 would be postponed by one year, the increase of staff cost for the opening staff cost is only one %. The time for setting- up of the Company does not affect the increase of the total opening cost so much.

Regarding staff number by unit interval time, please see Table 7.5. For detail, please see the Financial Calculation Sheet (Appendix no.9).

Table 7.3 Cost for the Opening

Unit; Million USD

Items	2014	2015	2016	2017	Total
Office space rental cost	0.006	0.018	0.023	-	0.047
Office furniture and equipment for staff	0.123	0.422	-	-	0.545
Personal Computers	0.012	0.022	0.021	0.012	0.066
Advertisement cost	-	-	-	0.572	0.572
Staff cost	0.180	0.686	1.869	3.238	5.973
Utility cost for head office	0.035	0.070	0.119	0.155	0.379
Total	0.356	1.218	2.031	3.977	7.582

Note 1; It is assumed that the O&M Company will be established in 2013. And it is assumed that Line 1 will start its operation in 2018.

Note 2; Utility cost are such as Electricity, Water, Security, Cleaning and High-Speed Internet.

Note 3; Office space has to be rented since the HQ building cannot be built from the beginning of the O&M Company (10 square meter per staff). It is assumed that the HQ building will be completed at the end of 2016.

Note4; Personal Computer should be procured for the headquarter staff and managers at sites. (500USD per staff)

Year	2014	2015	2016	2017
HQ	23	46	78	102
Work site	0	67	151	292
Total	23	113	229	394

Table 7.4 Staff Number by time

II. Time for employment of staffs

1. Time for employment of the officers in the headquarters

The required staffs for the headquarters should be put gradually into PUC and it is planned that they are staffs from MAUR.

2. Time for employment of the staffs who operate railways directly

The operating staffs have to be employed by the time the Company starts training of staffs prior to the opening. Concretely speaking, the time when the Company starts its training may be several months prior to the completion of the elevated section. At this moment it is assumed to be September Y2015 as already mentioned.

No.	Categories	Job title	Academic back ground	Number of staffs recruited
1	Back office	Officers in HQ	Graduate university (management, law, accounting)	37
2	Transport	Head of Division	Graduate university(railway)	1
3	including safety department	Station staffs for business	Graduate High school who can speak English	141
4	in HQ	Station staffs for operation including IC card center	Railway vocational college (station operation) or university (railway)	15
5		Drivers including managers in drivers' the dept.	Railway vocational college(drivers)	56
6		Dispatchers	Graduate railway college (drivers) or university (railway)	19
7		Officers in HQ	Graduate university (railway)	7
8	Maintenance	Head of Division	Graduate university (Technical)	1
9		Rolling stock workers at work site	Graduate High school (Mechanical/ Electric)	6
10		Rolling stock engineers at work site	Graduate university (Mechanical/Electric)	7
11		Rolling stock officers in HQ		6
12		Signal/ telecom/ Power supply workers at work site	Graduate High school (Electric)	12
13		Signal/telecom/Powersupplyengineers at work site	Graduate university (Electric)	22

Table 7-5 Staff Recruiting Plan

14	Signal/ telecom/ Power supply officers in HQ		5
15	AFC workers at work site	Graduate High school (Mechanical/ Electric)	6
16	AFC engineers at work site	Graduate university (Mechanical/Electric)	9
17	AFC officers in HQ		2
18	Civil engineers at work site	Graduate High school (Electric)	6
19	Civil engineers at work site	Graduate university (Electric)	7
20	Civil officers in HQ		14

Note 1; The number of staffs in HQ except staffs mentioned at Note 5 is summation of job number 1, 5, 6, 9, 12, 15 and 18

Note 2; Station staffs for operation are also engaged in the management duties in the stations.

Note3; In the maintenance div. managers are included in the number of engineers.

Note4; In the OCC, managers are included in the number of dispatchers.

Notes5; Board members (10) and existing PUC members (5) are not included in this table.

Notes 6; Secretary/clerks are not included in this table.

There may be a natural decrease of staffs so that some additional staffs, such as 5%, has to be recruited

III. Staff training plan for the opening

Regarding staff training, the following should be noted.

- *Staffs in charge of direct operation need to comply with Vietnamese regulation-
- Especially drivers need certificate from the training center approved by VNRA and driving license from VNRA

For the training of maintenance staffs, it will be consigned to the supplier for E&M. Hence the maintenance staff training plan will be developed based on their training plan.

1. Training of drivers

As there are no urban railways in Vietnam, the initial drivers for the opening have to be trained by foreign instructors. For the staffs after the opening, the training system only with Vietnamese instructors has to be developed during first batch training.

	Conditions	Description		
1	Academic background	In the current regulations for National railways no academic background is stipulated.		
		Graduate more than or equal to high school		
2	Textbooks, curriculums, instructors and equipment	Basically textbooks, curriculums and instructors used for this training is those approved by MLIT		
	should be those approved by VNRA	Regarding the equipment for training, in Japan, it is impossible for the foreigners to be trained on the main line. Hence practical training will be done on the main line of Line 1 after its completion in Vietnam. At this moment, in Vietnam, there is no training equipment for urban railways but before opening all the equipment /rolling stock on the main line can be utilized for training. VNRA accepted this idea.		
3	Certificate issued by a training center or issued by a foreign entity approved by VNRA	VNRA regards the certificate for theory training issued by organization which has their own training center of EMU as the certificate required for the examination by VNRA		
4	Experience of assistant driver for 24 months	VNRA has an idea that 24 months experience as an assistant driver will be modified so as to be able to complete trainings within the commissioning and test period whose duration is 9 months originally.		
5	Pass the exam for driving license taken by VNRA			

Table7-6 Drivers' training for the opening

2. Training of other staffs in charge of direct operation

Trainings for the opening staffs other than drivers is planned as is shown in the following table.

			Category 2
	Conditions	Category 1 (Dispatchers)	(Operation managers at stations*)
1	Textbooks	Same with those for drivers' training	Textbooks, "General information about railways" "Operational rules", "Signal and tracks" and "Safety works" out of textbooks for drivers' training will be used for the class room lesson for Category 2. "Station business" will be added for
2	Curriculum for theory	Same with those for drivers' training (Totally 400 hours)	their class room lesson. Regarding "Operational rules", "Signal and tracks", the contents instructed for Category 2 will be focused on the topics required for the station staffs. (Totally 200 hours)
3	Instructors	Instructors who are trained by Japanese instructors	Instructors who are trained by Japanese instructors
4	Practical trainings	A part of students who will be Vietnamese core staffs will receive empirical training in Japan. During commissioning test period, On the Job Training by	A part of students who will be Vietnamese core staffs will receive empirical training in Japan During commissioning test period, Vietnamese core staffs will receive
		Japanese instructors/ Vietnamese core staffs will train Vietnamese staffs at OCC.	On the Job Training from Japanese instructors. Core staffs will train VN station staffs.
5	Time for recruitment	For newly graduated guy, the O&M Company has to hire them when they graduate their schools. It may be September of respective year.	Ditto

Table 7-7 Training plan for the operation staffs except drivers for the opening

Note; Task of Operation Manager is assigned on the station master/manager.

IV. Master schedule

Grand schedule including construction schedule and training schedule is displayed in the figure below. The key date is the completion date of elevated section (expected to be finished in March 2017) since the training on the main line can start after the key date.

		2013	2014	2015	2016	2017	
Genetication	Elevated section					9Months	
Construction	Underground section						Under tendering process
Review specifications from viewpoint of operation							Office IT system, OCC equipment and train simulator
Trainings of direct operation	Class room lesson for opening staffs						The earliest training will start in Sept. 2015
staffs	Practical training for opening staffs						
Preparation of the company	Preparation of setting up of the O&M Company		Establishmer Company	t of the 2013)			Including staff recruitment
	Development of the system of the O&M Company						Including staff recruitment
	Preparation for the opening						
Technical Cooperation		Interm	ediate TC	><	Ph2		

Part Eight: Safety Operation

I. Operation policy of the O&M Company for the initial five years

1. Safety of infrastructure and equipment

Tracks consist of rail and sleepers with anti-vibration mechanism which has a function to mitigate noise caused by the vehicle vibration and have been used in a lot of projects in Japan. Roadbed is made of concrete except in some sections and saving maintenance workload can be attained in combination with sleepers with anti-vibration system. Rail breaking accident is prevented by using high-quality rail. Long rail of vibration and noise suppression is used



Example of railroad ties anti-vibration system

Underground station, based on the lessons of the underground station fire that killed more than 100 people in Daegu city South Korea, is constructed based on the standard of Japan which was established through studying by the experts from Fire Defense Agency and officers from railways. Since this standard was established by conducting experiments and simulations based on actual accidents, a high safety structure with cheaper construction costs and cheaper operating costs of the underground station can be obtained. In addition there are emergency generators in Ba Son station, which make it possible to supply power to each underground station in case of power loss.(Please also see APPENDIX 5)

On platforms wall type of a Platform Screen Door (PSD) are installed to improve cooling efficiency of the platform and the safety of the passengers.



Example of Platform Screen Doors (PSD)

On the platform of the station of elevated section, half height platform screen doors are installed in order to maintain the safety of the passengers. At each station, not only information display for passengers and automatic broadcasting but also a Closed-Circuit Tele-Vision (CCTV) monitoring for safety are equipped with which station staffs can monitor and guide passengers in the station premise at the station master's room. In addition, on the platform, Emergency Call Button is provided with which passengers can report to the station staff at emergency. Since the platform door is installed on the platform, this device may be used seldom but on the platform there may be a lot of passengers. When something happens, this equipment can be utilized. From these we

can understand that the specifications for Line 1 is planned elaborately in order to secure passengers' safety.



Example of half size Platform Screen Doors (PSD)

A train-set consists of three coaches at the beginning. It can be expanded to six coaches in a train-set to accommodate the increased passenger volume. Trains are made of aluminum. They have facilities of trains as follow; 20m as rolling stock length, four-door on one side, air conditioning control system, Variable Voltage Variable Frequency (VVVF) controller, Automatic Train Operation (ATO). These are based on the STRASYA whose original rolling stock has a proven track record that more than 4,000 have been produced in Japan so far. Rolling stock is not a commodity product like automobile. The number of rolling stock produced per year is not large. In such a situation, since this type is produced in such large numbers and they are operated every day, so-called initial trouble is exhausted and stable quality can be expected.

The biggest accident caused by human error is the train collision caused by passing the red signal and derailment caused by running at excessive speed. In Japan safety of the railway has been established by the experience of past failure. Line 1 in HCMC can introduce the latest technology such as ATP developed in Japan based on the past
experience. This equipment is based on the state of art computing technology which Japan is good at. Of course, safety of ATP and ATO equipment has been secured by dual system architecture.

In the past, train fire accidents which cause scores of casualties happened frequently. At that time, trains were hauled by steam locomotives and trains consisted of wooden coaches. Nowadays since the coaches are made of metal, the rolling stock itself will burn no longer, but the risk of smoking still remains. To cope with this issue, a flame-retardant material is used for products such as the surface of the seat that could burn.



Example of STRASYA's standardized rolling stock

For the signal equipment Communications-Based Train Control (CBTC) system is adopted on this line. This system has track circuits for rail fracture detection and train detection at the turnout in stations. This is a cab signal system and no signal is installed on the ground except inside the depots. By adopting cab signal, misjudgment of signals by train drivers can be eliminated.

Regarding the communication equipment, train radio is equipped on the cabin which can be used by drivers for communication with Operation Control Center (OCC) when, for example, trouble of rolling stock happens. Regarding other communication facilities, communication measures developed specially for each task, such as radio for dispatchers, telephones system along the line and radio for maintenance are equipped. With them the communication measures can be secured at emergency and maintenance works.

Regarding power facilities, power is received from two lines of different sources to receive substations located at two sites. The power supply can be secured even if one of line fails to a power outage. The power substation feeding electric power to overhead wires also receives from two feeding substations as same manner mentioned above. Transformer and rectifiers are installed as a double system to prevent accidental feeding. For the bracket which supports overhead catenaries, those which have been proven in Japan are adopted. For the pole, those made of steel is used since it is easy for maintenance and cheap due to its simple structure.

The depot has not only the stabling yard at night, but also train inspection facilities for monthly inspection, important part inspection and overhaul inspection, car-body washing and grinding facilities for wheel shape reforming. In the depot, the headquarters of O&M Company, OCC and maintenance equipment for tracks are also situated.

Even though the operation of each line itself is independently conducted, passengers transfer to another line in order to arrive at their destination. For this reason, mutual cooperation between the lines is desirable. The integrated effect of the dispatchers can be expected if all the lines are located in an integrated OCC. Hence in OCC sufficient space is provided for installation of OCC equipment for other lines as well as Line 1. In the OCC, not only the equipment for the train operation management, but also monitoring and control of power network, monitoring equipment on station security, remote monitoring equipment for disaster prevention are provided.

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Example of Operation Control Center (OCC)

2. Safety secured by employees

Though Line 1 is proud of its high safety level protected by the state of art safety devices, the role of staffs who operate rolling stock/equipment is also important. In the following, the role of staffs in each work category for securing safety in normal and contingency operation is introduced.

2.1 Dispatchers in OCC

[In normal operation]

Safety of train operation is secured with equipment. After train operation, maintenance works are carried out. Safety of maintenance works are secured by attention of human being. For such works, the dispatcher confirms the termination of train operation first. After that, they issue permission on maintenance works commencement. The maintenance works is to be completed prior to train operation in the morning. The dispatcher confirms that prior to the train operation in every morning.

With these manners, the dispatchers keep safety of trains from derailment which occurs when a train invades into a section under maintenance or keep safety of maintenance staffs from the injury/death which occurs when the maintenance staffs are hit by a running train.

[In contingency]

Safety of train operation is secured with equipment even in contingency. Every kind of information on train operation is gathered to OCC. The dispatcher's role is to control train/traffic operation in consideration of these information comprehensively. The dispatchers give proper information and instruction to the train drivers when they have difficulty, for example, in coping with rolling stock failure. In case of train delay, the dispatcher will adjust train headways so as not to be crowded with passengers on the platform of each station excessively. In case of disruption of train operation in a section, the dispatcher may order the turn round operation at intermediate stations where turn back equipment is installed. In case of train fire, the dispatcher instructs drivers and station staffs for the evacuation of passengers according to the manuals. Information of occurrence of such incidents is announced by internal broadcasting and email to each work site simultaneously.

Dispatchers hold conference to study if there is better instruction than those done after a big trouble happened. Operation training utilizing spare console for Automatic Traffic Supervisor system is done repeatedly in order to be familiarized to its operation.

2.2 Drivers [In normal operation]

Trains are operated by a single driver. As the platform door is installed on the platform in this line, the train has to be stopped at the stopping point accurately. In case of train operation, to stop at the accurate point with the braking system is rather difficult in comparison with that of automobile or motorbike. Hence ATO (Automatic Train Operation device) is installed.

As ATO itself is not the safety device, drivers can drive the train manually in case of ATO's failure. Even in such a situation, ATP (Automatic Train Protection device) secures the train safety and train collision accident does not happen. Hence for drivers to maintain its driving skill without ATO is important. Driving without ATO will be planned in the

time zone except for the rush hour in the morning and evening when there are some loose fittings.

There are some tracks without ATP inside the depot or stabling yards inside the station since in case of shunting, passengers are not boarding and the maximum speed is limited to 15km/hour or less so as not to make incidents. But if wrong driving is done, the turn outs are broken and the derailment of rolling stock may happen. Drivers are instructed that these sites are the place where cautious driving is especially required and drivers are instructed to confirm the indication of the shunting signal. Sometimes a tutorial driver rides on the cabin in order to supervise the driving of each driver.

[In contingency]

A driver has to drive his train to the nearest station at least when the signal or equipment on board is failed. When the train fire happens in the underground section, drivers are requested to continue its driving without stopping. In such a case, drivers take the necessary actions by communicating with dispatchers in OCC. It is too late for drivers to read manuals and then take required actions by the time failures happen. And if such manners are adopted, wrong actions may happen. Repetitive training conference should be held periodically. In such conferences, case studies are conducted to maintain the capability to cope with such failures or emergencies.

2.3 Stations

[In normal operation]

Switching of turn out and operation of signal are done by OCC through remote control operation in case of Line1. Furthermore, the safety of passengers at boarding and alighting is secured by the platform door system and the station staffs don't need to take care of them basically.

[In contingency]

When fire accident happens in the underground stations, station staffs conduct passengers for evacuation considering the safety as the top priority.

In case when a train is obliged to stop between stations for a long time, station staffs may

have to conduct passengers to the nearest station for evacuation in corporation with drivers. Such procedures have to be defined beforehand. In order to conduct all the procedures without mistakes, not only learning at school but also repetitive training at work site is required.

2.4 Maintenance staff

[In normal operation]

As rolling stock, rail and equipment are aged as years passed by, the safety of train operation cannot be maintained due to the aged deterioration if the proper maintenance is not done. Hence it is required to maintain these equipment and replace the spare parts in order to get its desired performance on a steady basis. Some of maintenance works are mechanized but all of them are not mechanized yet. Maintenance staffs must have capability to evaluate the current situation of equipment and to work correctly by following the prescribed procedures. For such, it is required to get knowledge through substantial learning and to obtain judgment capability and work sequence through repetitive training.

By the way, there are some possibilities that a train will collide with the work instruments left on the tracks or in a worst case a train will derail due to them, if work instruments are not taken away from the work site. In rolling stock maintenance, some possibilities of incidents which may occur due to the carelessness during fixing the parts to the body or trucks were left remaining.

These accidents should be prevented by clarifying the confirmation sequence and personnel in charge of confirmation after work.

[In contingency]

When rolling stock, tracks and equipment are failed, maintenance staffs has to carry out the necessary works after grasping the situation correctly and identifying the way to recover, i.e., first aid or repair.

Anyway, to secure train operation safety is important. And also like in normal operation, it is important to confirm if the trains can be operated without danger.

Since the operation in contingency does not happen frequently, it is forgetful and staffs cannot learn through OJT. Hence trainings with assumed occurrence of an incident should be conducted periodically.

3. Safety conducted by management

To secure safety, the role of management is also important. The followings are the issues to be conducted by management of the Company.

3.1 Build up the culture in which the safety has a top priority

The Company sets up the Safety department in order to display that the safety is important for the Company. The president and executive officers of the Company will take the lead to the actions for enhancement of the safety

3.2 Not to neglect the safety investment

Secure spare parts required for maintenance fully and implement replacement of equipment based on the recommended interval for the replacement. The budget required for these will be secured strictly.

3.3 Utilize the experience of failures/ incidents

Experience of failures/incidents provides precious information to enhance its safety level since behind failures/incidents various causes are laid and it is a good chance to catch them.

When any cause of incidents is found, countermeasures against it are developed. In such cases to conduct Plan-Do-Check-Action circle is important to settle these countermeasures.

Review a small incident

Heinrich's law says that there are 300 small incidents behind one serious accident



Iceberg (big failure fault) hides its main body (small failures fault) under the sea: "Heinrich's law"; the ratio of each fault probability at work is [1:29:300].

4. Establishment of operation system only by Vietnamese

In other countries, there are some cases that operation and maintenance is consigned to foreign companies so as not to face difficulties in train operation. For the general managers of the company, it may be a good option since they don't have difficulty in train operation. But with this option, they shoulder heavy burden of expense since the cost for foreign people is expensive.

Hence in Line 1 project, it is planned that all the operation activities are carried out only by Vietnamese from the beginning. It may be heavy study for the Vietnamese staffs to learn urban railways by the time of opening. But without these heavy studies, they can't obtain knowledge and skills to manage urban railways by themselves.

Of course, after opening, there may be some trouble which Vietnamese staffs cannot manage well. It is planned that Japanese advisors will stay in HCMC for 5 years to support the O&M Company in such a difficult situation.

5. Technical transfer of maintenance after opening

For the maintenance works, experience is required in its nature. Hence in the Line 1 project, maintenance works is consigned to the supplier for the initial 5 years. The staffs

of the O&M Company will get skills and experience by working with the experts of the supplier. In this case, Vietnamese staffs have to have a mind to carry out works by themselves without the help from the experts as soon as possible.

Part Nine: Service quality and Non-fare Business

I. Quality of service and fare level

In this section, the service provided and fare level is introduced. The service provided from the Company is the train operation.

1. Travel time

30 minutes from Ben Thanh to Suoi Tien terminal. Travel time between major stations is displayed in the following table.

Origin	Destination	Travel time	Remarks
Ben Thanh	City Opera	1M30S	
	Tan Cang	9M00S	Interchange station with Line5
	An Phu Metro	13M00S	
	Thu Duc	21M00S	
	Suoin Tien	29M00S	

 Table 9.1 Travel time from Benh Thanh station to the Major stations

2. Frequency of train operation at peak level

At the initial stage, it is planned that trains are operated every 4 minutes 30 second at peak hour in the morning of the working day in order to cover the peak demand. On the weekend the number of commuters will decrease and high frequency service is not required. Hence the frequency of the train operation will be reduced in order to save the operating cost. When the number of passenger increases and the capacity enhancement is required in the future, the headway of train operation will be shortened by increasing the train-set number.

In the daytime, the headway will be extended considering the convenience of the passengers in order to save the operating cost

Table9.2 Number of trains per hour in the working day

O'clock	Number of trains	Headway	Remarks
4	0		
5	4	15M00S	

6	7	8M30S	Peak hour in the morning
7	13	4M30S	Peak hour in the morning
8	14	4M30S	Peak hour in the morning
9	12	5M00S	Peak hour in the morning
10	10	6M00S	
11	9	6M30S	
12	9	6M30S	
13	9	6M30S	
14	9	6M30S	
15	9	6M30S	
16	9	6M30S	
17	11	5M30S	Peak hour in the evening
18	11	5M30S	Peak hour in the evening
19	11	5M30S	Peak hour in the evening
20	10	6M00S	
21	9	6M30S	
22	8	7M30S	
23	7	8M30S	
24	0		

Source; Updated based on the Systems Operation Plan prepared by GC

3. Operation duration per day

The first train from Suoi Tien terminal is planned to start this station at 5; 00. The last train for Suoi Tien terminal from Ben Thanh station will start at 23; 20 For passengers the longer the operation duration is, the more convenient it is for passengers. But in the midnight, the number of passengers may be small and the maintenance time has to be secured.

4. Policy on Fare level

4.1 Precondition of fare system

Ticket handling system at the station consists of ticket vending machines, automatic fare adjustment system, Automatic Fare Collection (AFC), and the card issuance machine. IC card system including for a single journey will be introduced.

AFC with frequent failures cannot be used since a lot of passengers pass through these machines daily. For these devices, since they have a lot of mechanical actuation units, high durability is required. The equipment installed in Line 1 may be sufficient to meet with these expectations.



Figure 9.2 Example of gates of Automatic Fare Collection system (AFC)

4.2 Fare system

(1) Adoption of distance based system

In urban railways passengers buy tickets at stations where any complicated system could be adopted. In developed countries, as tickets have been sold manually for a long time, a zone system has been adopted in order to simplify the ticket price system among the stations so that station staffs could easily memorize the ticket price.

But nowadays, tickets are sold through computer system even if they are sold manually. Hence perfect distance based system could be applied to the Line1 of HCMC. Of course rounding up by 1000 VND should be done to simplify the cash handling. By adopting this system, computing software system for fare calculation could be simplified. With this system passengers would have no trouble for buying a ticket since they normally use a stored fare card with which passengers would not need to mind the fare price, and when they have to buy a single journey ticket they only have to select the station names of their origin and destination.

(2) Discounting system

The purpose of the discount fare is as follows. One is to promote more passengers. The other is to provide social welfare.

On Line 1, it is planned to provide the following discounting system for promotion On Line 1, to promote Stored Fare Card (SFC) is important in order to simplify the cash handling at stations. Hence discounting fare for SFC promotion should be provided. It is common for public transport to provide discount fare for students and children. Regarding the discount tickets for students and pupils, the cost has to be shouldered by HCMC-PC since this is a part of the social welfare.

HCMC is the city which has a lot of travelers from all over the world. To promote them to ride on the urban railways is important not only for the Company but also for HCMC. Discounting system for tourist promotion is planned in future.

Regarding discount ticket for disabled people, the cost for discounting should be fully shouldered also by HCMC-PC.

Туре	Concrete discounting (Planned)	Notes
Stored fare card promotion	10 % or less discount from the normal one is provided for SFC holders	Monthly pass will not be provided at the beginning.
Promotion for children under 7	100 % discount from the normal fare is provided	Before elementary school
Promotion for pupils	50% discount from the normal fare is provided for students with SFC	Under age of 18

Table9.2 Various Discount Fares

Promotion for Students	40% discount from the normal fare is provided for students with SFC	
Discounting for disabled personnel	50% discount or free of charge from the normal fare is provided for disabled people with SFC	Law No.51/2010/QH12 Law of Disabled personnel
Promotion for tourists	One/three day pass is provided in future	

- 4.3 Fare price and its modification of fare price along the time
 - (1) Initial stage

In HCMC, there is no real data to base for determining fare price for urban railway. Hence for the fare level for the opening, HOUTRANS data has to be used as the basis for the calculation.

HOUTRANS provided the fare level with which the maximum fare revenue could be obtained. In another word, it is the most preferable fare level also for citizens. To utilize this data, modification by Consumer Price Inflation ratio (CPI) is required. The method of calculation to set the fare price in the year of 2018 is as follows:

Basic fare level in Y2018 = HOUTRANS data in Y2006 x (1+CPI2006) x (1+ CPI2007) x...x (1+CPI2017)

(2) After opening

After opening, concrete passenger number could be obtained. With cost data, the O&M Company could calculate the proper fare level. The calculation formula for the fare level is as follows:

Fare level = Cost including depreciation except for the initial asset x 1.10 (profit) /passenger km in the previous year

In this stage, the decision of the fare level has to be carefully treated as expressed in the following table.

Revenue after opening	Meanings	Actions
Beneath the estimated one	Demand is smaller than estimated	Option 1; Fare level is revised based on the actual data
		Option 2; If Option 1 is not be reasonable, the financial support should be requested due to the lower demand than assumed
Above the estimated one	Demand is larger than estimated	Fare level should not be modified

Table9.3 Fare level after opening

(3) In the future

At the initial stage after opening, there is no choice other than the way mentioned above. Hence the formula mentioned above would have to be utilized for a certain period. But when the financial situation of the O&M Company becomes stabled, the above mentioned formula would be too simple and would not be able to incentivize the O&M Company for improvement of their management.

In these situations, MAUR would need to develop a better calculating system for the fare level by referring to the Japanese system or the Singaporean system.

5. Non-fare business

5.1 Nature of non-fare business in urban railways

As railway is normally not a profitable business, non-fare business in the railway company is significant since the profit ratio of non-fare business is large if it utilizes railway asset.

The significance of non-fare business is as follows:

- (1) To support the sound operation of the Company financially;
- (2) To provide the convenience for passengers.

If there are no shops inside the station premise, passengers have to drop into some shops on the way to and the station. If there is no advertisement in the station premise or coach, passengers have nothing to do with boredom during waiting for a train or in the coach

5.2 Strategy for non-fare business of this project

The following is the strategy for the non-rail business:

- Big business cannot be done since the Company does not have any spare land or fund which can be used for non-fare business;
- (2) Gradually expand the category for non-fare business. At the initial year 1% of the fare revenue and at the ultimate 5 % of the fare revenue;
- (3) Collaborate with local company who has know-how and networks in that field and fund since the Company does not have know-how in that field and fund-

5.3 Concrete target for implementation categories

There following is the concrete target for the implementation categories which already are displayed in the domain of the Company:

- (1) Advertisement;
- (2) Shops and KIOSK in the station premise;
- (3) Parking lot for motor-bike
- (4) Optical Fiber Cable (Space lending)

The concrete plan of non-fare business will be studied in the coming period.

APPENDIX

- 1. Outline of the urban railway network in HCMC
- 2. Scheme of the O&M Organization
- 3. Organization and staff number at the initial stage
- 4. List of internal rules of the O&M Company already prepared
- **5.** Company Charter of the O&M Company
- 6. Fire Fighting & Emergency Plan
- 7. Train diagram at the opening (GC)
- 8. Outline of Office IT system
- 9. Result of Financial Estimation



Outline of the urban railway network in HCMC

APPENDIX 2

Scheme of the O&M Organization

1. Operational Organizations of Metros in the World

Most of metros in the world are operated by public entities that are a part of their respective local governments. In other words, they are not established as joint stock companies. Please see Table 1.

Area	City	Name of Operating Entities	Owner of the	Number
	-	Deiling Mass Transit Deilung	Company	of route
	Beijing	Operation Co. Ltd.	Public sector	12
		Beijing MTR Corporation Limited.	Public sector	2
	Shanghai	Shanghai Shentong Metro Group Co.,Ltd.	Originally public sector, now a listed company	11
	Hong Kong	MTR Corporation Limited	Originally public sector, now a listed company	9
	Taipei	Taipei Rapid Transit Corporation	Originally public sector, now a listed company	9
		Seoul Metro	Public sector	4
Asia	Seoul	Seoul Metropolitan Rapid Transit Corporation (SMRTC)	Public sector	4
		Seoul Line 9 Operation Co., Ltd	Private sector	1
	Tokyo	Tokyo Metro Co., Ltd.	Public sector	9
		Bureau of Transportation, Tokyo Metropolitan Government	Public sector	4
	Osaka	Bureau of Transportation, Osaka Metropolitan Government	Public sector	8
	Bangkok	Bangkok Metro Company Limited	Private sector	1
	Delhi	Delhi Metro Rail Corporation Ltd. (DMRC)	Public sector	3
	Singapore	Singapore Mass Rapid Transit Corporation Ltd. (SMRT)	Public sector	4
		SBS Transit	Private sector	1
ca	Montreal	Société de Transport de Montréal (STM)	Not identified	4
neri	Toronto	Toronto Transit Commission (TTC)	Public sector	4
An	Chicago	Chicago Transit Authority (CTA)	Public sector	8
orth	New York	MTA New York City Transit (NYCT)	Public sector	27
ž	Washington DC	Washington Metropolitan Area Transit Authority (WMATA)	Public sector	5

Table 1 Metros in the World

Area	City	Name of Operating Entities	Owner of the Company	Number of route
	San Francisco	San Francisco Bay Area Rapid Transit District (BART)	Public sector	5
erica	Mexico City	Sistema de Transporte Colectivo (STC Metro)	Not identified	11
Ŭ	Buenos Aires	Metrovías SA	Not identified	6
k Middle /	Santiago	Empresa dde TRansporte Suburbano de Pasajeros Metro S.A. (Metro de Santiago)	Not identified	5
South 8	Sao Paulo	Companhia do Metropolitano de São Paulo-Metrô	Not identified	4
	Moscow	Moskovski Metropoliten	Public sector	12
	St. Petersburg	St. Petersburg Metropoliten	Public sector	5
	A 4h	Athens-Piraeus Electric Railways S.A (ISAP)	Not identified	1
	Atnens	Attiko Metro Operation Company S.A (AMEL)	Not identified	2
	Budapest	Budapest Transport Closely Held Corporation (BKV Zrt)	Public sector	3
be	Stockholm Storstockholms Lokaltrafik (SL) (Stockholm Public Transport)		Not identified	3
JICO	Berlin	Berliner Verkehrsbetriebe (BVG)	Public sector	9
Щ	Roma	Met. Ro, Metropolitana di Roma S.p.A	Public sector	2
	Milano	Azienda	Not identified	3
	Oslo	Oslo T-banedrift AS	Not identified	6
	Paris	Régie Autonome des Transports Parisiens (RATP)	Public sector	16
	London	London Underground Limited (LUL)	Public sector	11
	Madrid	Metro de Madrid S.A	Not identified	14
	Barcelona	Ferrocarril Metropolita de Barcelona S.A (TMB)	Public sector	6
	Lisbon	Metropolitano de Lisboa, E.P.E		4
Middle East	Tehran	Tehran Urban & Suburban Railway Operation Co. (TUSROC)		4
Africa	Cairo	Cairo Metro	Public sector	2

Source: JICA Study Team

Note: There are some metros whose ownership structure could not be clearly identified.

There are some metro operators which are now changed their organization form from a public owned entity to the joint stock company by initial public offering. In this table, only two cases, i.e., Seoul Line 9 Operation Co., Ltd and the company for Bangkok urban railways could be identified as organizations established by private funding. In the case of New York Metro, it is operated by New York City Transit Authority. The term authority here does not mean that it is an entity for regulation or supervision, but rather that it is an entity that is owned by the local government and is not a joint stock company. This fact shows that the construction cost of urban railways is high and it is not profitable business. Only some different cases are BMCL in Bangkok, Seoul Line 9 in Korea and SMRT in Singapore.

Considering these facts, it is appropriate that the operational organization in HCMC be established as a public entity.

2. Legal Study

According to the decision 14/2011/QD-TTg "Decision for Classification of and List of Enterprise with One Hundred (100) Per Cent State Owned Capital", the state is to hold 100% charter capital of enterprises operating in the industries relating to the "management and operation of urban railways".

Article 55.2 of Vietnamese Railway Law says that the investment, construction, management and business on urban railway system shall be organized by the provincial people committees. Additionally, under Article 82.8 and 85.2 of the Law on the organization of the People Council and People Committee, the provincial People Committee (PC) can exercise the representative right for state-owned capital in enterprises and organize the management of works/projects of urban transportation. Thus, generally, the PC can hold 100% charter capital of a state-owned entity engaged in urban transportation business. Hence it is clear that "the state" in the decision 14/2011/QD-TTg includes not only "the central government" but also "provincial government". In reality there exists 100% provincial government owned company in Vietnam. (For the details, please see "3.7 Legal Study on the relationship among the related laws and regulations" in this chapter.)



Since Railway Law, the upper level regulation, says that the urban railways has to managed by provincial PC, "the state" used in the decision, the lower regulation, means the provincial PC

Figure 1 Responsibility for urban railway

While the above argument is only for the urban railway with state investment, private enterprises are generally permissible under Article 4.2 of "Decision 71/2010/QD-TTg on the issuance of regulation on pilot investment in Public-Private Partnership (PPP) forms". Decision 71 says that railways are among the areas in which it is permitted to apply pilot investment in the form of PPP.

3. Functional Study

For the public entity suggested in 3.1.1, two options are left for O&M organization. One is the direct operation by HPC, and the other is establishment of a 100% state owned company. As HPC is a part of government and not a company required by the Decision as the entity for the operation of the urban railways, the direct operation by HPC may not be suitable. But for your reference, these two options are compared as follows.

In Table 2, the options are compared and it shows that 100% state owned company has more advantages. The following are the reasons for this determination.

(Finance comparison)

In order to free the O&M organization from the burden of amortization and interest payments incurred by initial construction conducted by HPC/MOT/VNRA/VNR, the O&M company should be separated from these government entities.

(Organizational comparison)

In the case of direct operation, the special requirements in railway business tend to be ignored while the total management by the city is being initiated. In regards to human resource

management when under direct operation, management officers tend to come from totally different organizations and then leave, so it is difficult to keep continuous and consolidated management. To cope with this, Osaka Metro in Japan, for example, operates as one of the bureaus within the city administrative structure of Osaka, and has a special arrangement such that once management officers have been assigned to the Osaka Metro, they will not be transferred to another bureau.

(Other comparison)

The investors will be able to receive profit when the company is publically-listed.

 Table 2
 Comparison of Direct Operation and 100% State Owned Company

	Evaluation Criteria	Direct Operation by Authority, HPC	100 % State Owned Company
Finance	Separation of the O&M organization from amortization and interest payment of construction cost	Impossible	Possible
tion	Easiness of retaining staff in the O&M Organization	Difficult	Easy
Organiza	Flexibility in the management	Low	High
Others	Founders' profit by Initial Public Offering	No	Yes

Source: JICA Study Team

4. Summary

Based on the description in Section 3.1.1, it can be said that the operation of the urban railways should be carried out by public entities and not by a joint stock company. However, in the description of Section 3.1.2, under the current conditions, the Vietnamese Decision requires that the O&M of urban railways be carried out by a 100% state owned company. And Section 3.1.3 shows that operation by the O&M company would be more advantageous than direct operation by a department of HPC. Table 2 also shows that a 100% state owned company can provide profit to its founders when an IPO is issued in the future.

Interviews and discussions with stakeholders of this study indicated that there was no support for the option of direct operation by a department under HPC.

Consequently, the Study Team recommends the adoption of a "100% state owned company" as a company scheme.

APPENDIX 3

					Staff Allocation Plan	
-	Unit		Title	Head Office		
Department		Responsibility		Special requirement	total	
Members' Council including chairman	*NA	Acting on behalf of the company owner in exercising his/her rights and obligations.	*NA		5	
Ū.		· · · · · · · · · · · · · · · · · · ·	General Director			
			Operation		1	
Board of Directors	*NA	Running the day-to-day business operation.	Dupty General Director -			
			Facilities arcolling slocks			
			Dupty General Director - Administration		1	
		Inspecting lawfulness, fiduciary and diligence of chairman of the	ecting lawfulness, fiduciary and diligence of chairman of the			
Board of Supervisors	*NA	company and director or general director.	Supervisor		1	
	Subtotal /Cộng				10	
	Director	- General affairs (such as managing official documents and seals).				
		 Arrangement of official meeting such as Boad meeting, staleholder's meeting. 	Deputy director		1	
	General Services	- Reorganization of company				
Administration-Legislation		 Saleguarding security and protecting official secrets Discovering, investigating and dealing with corruption and other 	Staff	Administration needs manpower	2	
		illegal actions by staff.				
	Legal work	- Legal advice to other units.	Deputy director	It should be noted that secretary itself is not cour	1	
		- i revenuity incyal actions by contparty stall	Staff	Staffs may not need at the beginning stage		
	Subtotal Managing Director				5	
	managing Director	- Personnel/labor-management, planning of human resource development incl.	Deputy director			
Human Resources	Human resources	r Recruitment, Wages, Training	Deputy director		-	
		- Health walfare program - Praise and Blarne	Staff		1	
	Subtotal /Cộng Director				3	
		- Accounting management. - Tax management - Asset management	Deputy director		1	
	Revenue & Expense		Stoff(Accounting)		2	
			Stan(Accounting)	Accounting management needs manpower	2	
Finance-Accounting			Staff (Asset)		1	
	Finance	- Financial plan and insurance management	Deputy director		1	
		- Cash Management - Budget control				
	Ocheck	·	Staff		1	
	Director				1	
	Business planning	Managing business strategies and plan.	Deputy director		1	
			Staff	This work does not need daily		
			Manager		1	
	Environment management	Planning, monitoring and investigating of environment issues		The relocation issue is finished by the opening		
Planning-Investment			Staff	and environment issue such as noise may not happen		
i laining-investment	- Pl	- Planning of fare rate / - Establishment and revision of tariff structure / hương mại - Promotion Release /	Deputy director		1	
	Thương mại		Staff		1	
			Deputy director		1	
	IT Management	 Plannig and maiteining of Office IT system. Supporting the company staff on IT issues 	Chaff			
	Cubtotal		Staff			
	Director				7	
			Deputy director			
Material-Equipment	Procurement	Procuring materials and out-source services Supplies management			1	
		11 11 11 14 14 1 1	Staff		1	
	Director				3	
		Handling day-to-day station business.	Deputy director			
	Station business	 > Pasenger services (Lost & founds, guidance) > Ticketing 				
		> etc	Staff		1	
	Advertisement	Managing advertisement services.	Deputy director		1	
			Staff	There are a lot of spaces for advertizement	2	
Business-Public Relation	Shops	Managing retailing services (incl. resturants as future options)	Manager		1	
			Staff		1	
	Rental Space	Managing rental space and parking lots	Deputy director		1	
			Staff		1	
	D. d. Frankright	Planning, coordinating and implementing of corporate public	Deputy director		1	
	Public relations	relations	Staff		1	
	Subtotal				12	

Organization and staff number at the initial stage

	Director				1
			Deputy director		1
		Handling Rolling Stock	Staff(trucks and traction)		1
	Rolling stocks	> Inspection > Repair > Cleaning /	Staffs(exterior and interior)		1
		 Management of workign staff numbers and spare parts 	Staffs(planning budget)		1
			Staff(failure investigation)		1
		Handling Track > Maintenance	Deputy director Staffs(technology)		1
	Track	 Inspection Repair Species parts and consumption management 	Staff(planning and budget)		1
		> spare parts and consumables management > management of construction and renewal works	Staff(failure investigation)		1
		Handling Structure	Deputy director		1
	Structure	 Maintenance Inspection Repair Spare parts and consumables management 	Staff	Outsourced and works for outsourcing is done at HQ*	3
		Handling Architecture	Deputy director		1
Technical	Architecture	> Maintenance > Inspection > Repair	Staff	Outsourced and works for outsourcing is done at HQ*	3
		Handling Signal/ Telecomm/ Power/AFC > Maintenance > Inspection > Repair > Spare parts and consumables management > management of replacement and renewal works	Deputy director		1
	Electrical		Staff(Power technology)		1
			Staff(power maintenance planning)		1
			Staff(Signal and telecom technology)		1
			Staff(Signal and telecom maintenance planning)		1
			Staff(AFC technology)		1
			Staff(AFC maintenance planning)		1
		Maintaining Mechanical / Station E&M	Deputy director		1
	Mechanical		Staff(Escalators and so on)	Outsourced and works for outsourcing is done at HQ*	3
	Subtotal				29
	Director		-		1
		- Developing quality assurance policies (including train operation	Deputy director		1
	Safety plan	Training and supervising safety programs Statistics and analysis of accidents&incidents Management of operational risks	Staff		1
Safety-Operation	Traffic planning	- Developing train time table - Ridership statistics	Deputy director Staff		1
	Driver's operation/training	-Developing drivers operation plan -Managing and training drivers.	Deputy director Staff		1
	occ	- Controlling railway traffic and power - Monitoring and supporting station operation	Deputy director		4
	Output	• .	Dispatoriel	I IOLSO SOO UIG AFFENDIA	15
Total	Subtotal				26
TOLAI					102

*; One is for contract, the second one is for inspection after completion of maintenance and the third one is for general affairs such as estimation of budget and failure investigation

APPENDIX 4

List of internal rules of the O&M Company already prepared

PUC have drafted basic internal rules required for the Company so far. The list of these internal rules prepared in this project is displayed as follows. Concrete internal rules are displayed in the APPENDIX.

Activity	Prepared Documents	Pages
1-2 Regulations of functions and duty of each Department	Regulations on the Organization & responsibilities	9p
1 4 Puginaga plan	Outline	19p
1-4 Busiliess plan	Details	90p
1-5 Charter of O&M Company	Charter of O&M Company	35p
1-6 Draft regulations for safety management system	Regulations for safety management system	19p
	Payment regulation	7p
	Recruitment regulation	3p
2-2 Working regulations	Reward and punishment regulation	5p
	Working time regulation	4p
	Training regulations	7p
	Training Contract	4p
2-4 Job allocation and job grading system	Regulation on the Job classification and job description	7p
2-6 Training plan for operation staffs	Training regulation	7p
3-2 Accounting system including	Accounting rule	22p
and income allocation.	Cash handling at station regulation	4p
3-4 Regulations of procurement for outsourcing, material and equipment	Material procurement regulations	16p
4-2 General Contract of Transport	General Contract of Transport	30p
	Rules for the sales of discounting tickets	10P
4-3 Fare pricing and adjustment	Fare revision system	24p
system	Handling rule for ticket revenue	4p
	Business manner of staff for passenger	10p
	Handling rule on the lost and found	13p
	Rule for Non Fare Business	4p
business	Contract standard for lending of the buildings	5p

APPENDIX 5

SOCIALIST REPUBLIC OF VIETNAM Independence - Freedom - Happiness

CHARTER ONE MEMBER LIMITED LIABILITY SAIGON URBAN RAILWAYS COMPANY

Legal foundation:

- Enterprises Law No. 60/2005/QH11 of November 29, 2005 of the Socialist Republic of Vietnam;

– Decree No. 102/2010/NĐ-CP of October 01, 2010 of the Government specifying the implementation of some articles in the Enterprises Law;

– Decree No. 86/2007/NĐ-CP of May 28, 2007 of the Government promulgating Labor and Salary management in 100% State owned One member limited liability company;

– Circular No. 27/2010/TT-BLĐTBXH of September 14, 2010 of Ministry of Labor, Invalids and Social Affairs on Guiding the implementation of wage control, reward and bonus in State owned One member limited liability company;

– Decision No. .../QĐ- of of Hochiminh City People's Committee on establishing State owned One member limited liability company-for HCMC Urban Railways;

Regulations of this Charter are legal foundation for business of the One member limited liability Company for HCMC Urban Railways.

The Charter contains the following chapters and articles:

Chapter I

GENERAL PROVISIONS

Article 1. Name, address of the Company

1. Full name of the Company: One member limited liability Saigon urban railways Company.

2. Abbreviated name: Saigon urban railways Company

3. International name: Saigon urban railways Company

4. Headquarter: No

Phone no:;

Fax:;

This is legal address of the Company for transacting, receiving mails, documents ...

5. Subordinate units of the Company:

Training center, Operation divisions, Maintenance divisions.

Article 2. Legal entity status of the company

1. One member Limited liability Saigon urban railways Company (hereinafter referred to as the Company) is an enterprise which operates as stipulated by Enterprise Law, shall have legal entity status from the date of issuance of the business registration certificate.

2. The Company shall have its own seal, be independent in its assets and capital, be entitled to open bank accounts in VND and foreign currencies at banks, state treasury and credit organizations as stipulated by Law's provisions.

3. The Company shall have its own Charter and organize its operation accordance with law and

its charter. The Charter shall be approved by the Company's Owner (hereinafter referred to as the Owner).

4. The Company shall bear certain responsibilities for its finance over debts within charter capital scope.

5. The Company shall be liable for its business result, be able to account independently and enjoy autonomy in its finance.

6. The Company shall be entitled to set up funds as stipulated by provisions of Enterprise Law and decision of the Owner.

7. The Company shall be entitled to enjoy its ownership of the name, symbol, and trademark of the Company as stipulated by Law.

8. The Company shall not be entitled to issue shares but can issue other securities accordance with law on securities.

Article 3. Operation objectives, business lines and operation duration of the Company

1. Operation objectives:

- Managing operation of urban railways in Hochiminh City;

- Providing safe, friendly transport service for inhabitants.

- Making effective business, fulfilling obligations assigned by Hociminh City People's Committee.

- Training titles relating to management, operation, maintenance of urban railways equipment.

2. Business lines:

- Providing public urban mass rapid transit service in the city.

- Providing service related to passenger transport activities on urban railway in the city.

- Non-fare business.

3. Operation duration

- The Company's operation duration is 100 years from the date of receiving its enterprise registration certificate.

- This duration shall be extended or shortened pursuant to decision of the Owner.

Article 4. Legal representative of the Company

The Company's General Director (hereinafter referred to as General Director) is legal representative of the Company, who shall have rights and obligations as stipulated by Law and this Charter.

Article 5. Vietnamese Communist Organization and Social politics organizations

1. Vietnamese Communist Organization in the Company shall operate within the framework of the Constitution and Law as well as charter of Vietnamese Communist Party.

2. Labor Unions, Communist Youth Unions and other socio-politics organizations of the Company shall operate within the framework of the Constitution and Law as well as charters of these organizations which are as stipulated by Law's provisions.

3. The Company shall respect and create favorable conditions for these organizations to operate their functions, obligations, charters properly.

Article 6. Charter capital, adjustment mode of the Company's charter capital

1. The Company's charter capital is wholly owned by the State, 100% contributed by the Owner.

2. The Company's charter capital is: δ

(In words: billion VND).

3. During the Company's operation, the Owner shall be entitled to decide on increasing charter capital, the Company shall promptly adjust its balance sheet and register to Business Registration Office the supplementary charter capital including:

– Profit after tax of the Company.

- The Owner makes supplementary investment to the Company.
- Value of work asset to be newly transferred.

- Other source of capital as stipulated by Law.

Article 7. Name and address of the Owner

1. Owner's name: Hochiminh City People's Committee

2. Address: No. 86 Le Thanh Ton Street, District 1, Hochiminh City.

Phone No.: (08)38296052 - (08)38295026

Fax No.: (08)38295675

Chapter II

RIGHTS AND OBLIGATIONS OF THE COMPANY

Article 8. Rights of the Company

1. To enjoy business autonomy; take initiative in choosing business lines, localities, and forms of business and investment; take initiative in expanding market, size and business lines; to be encouraged, given incentives, and facilitated by the State to provide public products or services;

2. To choose forms and methods of mobilizing, distributing and utilizing capital;

3. To take initiative in the search for markets, customers, and in signing contracts;

4. To recruit, hire and use laborers, train laborers to meet business requirements; to choose wage, bonus payment mode as stipulated by law;

5. To take initiative in applying modern science and technology to enhance business effectiveness and competitiveness;

6. To enjoy autonomy in deciding the company's business and internal relationship;

7. To possess, use and dispose of the company's assets;;

8. To deny any requests for supply of resources that are not stipulated by law;

9. To lodge complaints and denunciations as stipulated by Law on complains and denunciations;

10. To participate in legal proceedings directly or via authorized representatives;

11. Other rights as stipulated by law.

Article 9. Obligations of the Company

1. To conduct business within business lines recorded in the business registration certificates; ensure business conditions as stipulated by law;

2. To make annual business plans, development strategy of the company to submit to competent authorities for approval and organizing implementation.

3. To organize accounting work, make and submit truthful and accurate financial statements on time as stipulated by Law on accounting;

4. To register tax identification numbers, declare and pay tax and perform other financial obligations as stipulated by Law;

5. To sign and perform working contract, collective labor agreement well; ensure legal and proper rights and interests of laborers as stipulated by Law on labor; implement social insurance,

medical insurance and other insurance for laborers sufficiently as stipulated by Law;

6. To ensure and be responsible for service's quality as specified by registered standard;

7. To implement the statistical regime as stipulated by Law on statistics; periodically report sufficient information relating to enterprises and their financial status to competent State agencies; correct and supplement any declared or reported information that are found incorrect and insufficient afterward;

8. To abide by the laws on national defense, security, public order and safety, fire-explosion preventing and fighting, protection of natural resources, environment, historical and cultural places, and famous landscapes.

9. To respect the establishment and operation of political, sociopolitical organizations within the frame of Constitution, the Law and charters of these organizations. To well implement the democratic regulations at offices, to build coordinating regulations among socio-political organizations in the Company to contribute stabilizing business and development of the Company.

10. Other obligations as stipulated by law.

Article 10. Rights and obligations on capital, assets, finance management

1. Capital and assets of the Company:

a) Capital of the Company consists of the Capital invested into the Company by the Owner and other sources of capital as stipulated by Law's provisions.

b) Value of land using right is counted into the Company's capital as stipulated by Law on Land and decisions of the Owner.

c) The Company's assets include fixed assets, moveable assets, be arisen from the Company's charter capital, lending capital and other legal sources of capital (if any) under the management and usage of the Company.

2. The Company shall be entitled:

a) To manage, use capital source and assets of the Company to make business and implement other legal benefits.

b) To choose form, method of mobilizing, contributing and using capital.

c) To decide capital and assets of the Company as stipulated by Law, financial management regime of the Company and this Charter.

d) To use capital and assets of the Company for external investment with forms as stipulated by Law and level grading of the Owner and to secure principles of efficiency, preserving and developing capital, increasing income and causing no impact to the Company's operating goals.3. The Company shall be liable:

a) To periodically inventory, re-evaluate assets of the Company as stipulated by Law.

b) To implement accounting work, inventory regime as stipulated by Law.

c) To periodically report financial status of the Company to the Owner and relevant State offices, be responsible for the truthiness and accuracy of these financial statements; to organize implementing auditing financial statement, to disclose financial status of the Company as stipulated by Law.

d) To bear inspecting, supervising of competent authorities on financial work of the Company as stipulated by Law.

e) Other obligations on capital, assets and financial management as stipulated by Law.

Chapter III RIGHTS AND OBLIGATIONS OF THE OWNER

Article 11. Rights of the Owner

1. To decide, amend and supplement the content of the Company's Charter;

2. To decide objectives, development strategy, annual and long-term's business plans of the Company;

3. To decide organizational structure of the Company; to appoint, remove, dismiss managerial positions in the Company (Members' Council, Chairman of Members' Council, Supervisor of the Company); to give opinion on appointment, removing, dismissing the Company's General Director.

4. To decide investment projects, assets purchasing and selling, borrowing and lending contract valued equal or over 50% of total asset value recorded in the latest financial statement of the Company at the soonest time;

5. To decide to increase the Charter capital; to transfer partly or in whole of the charter capital to other organizations, individuals;

6. To decide measures for developing market, marketing and technology;

7. To decide the establishment of subsidiary companies, to contribute capital to other Companies;

8. To organize monitoring and evaluating business of the Company; management business of the Members' Council as stipulated by Law.

9. To decide to use profit after fulfilling tax and other financial obligations of the Company;

10. To decide re-organization of the Company, dissolution and bankruptcy requirement of the Company, withdrawal of the Company's whole asset after the Company has finished its dissolution or bankruptcy;

11. Other obligations as stipulated by Enterprises Law and this Charter.

Article 12. Obligations and liabilities of the Owner

1. To make capital contribution fully and on time as committed; if not, to be liable for all debts and other property liabilities of the Company;

2. To observe the Company's charter;

3. To observe laws on deciding investment projects, assets purchasing and selling, borrowing and lending contracts according to level grading between the Owner and authorized representative of the Owner;

4. To perform other obligations as stipulated by Enterprises Law and the Company's charter.

Chapter IV

ORGANIZING MANAGEMENT AND OPERATION OF THE COMPANY

Article 13. Management structure of the Company

Management structure of the Company consists of:

- The Members' Council of the Company (hereinafter referred to as the Members' Council);

- The Company's General Director (hereinafter referred to as the General Director);

- The Company's Supervisor (hereinafter referred to as the Supervisor). Department and divisions:

- Administration - General Affair - Legislation Department;

- Human Resources Department;

- Finance Accounting Department;
- Planning and Investment Department;
- Material Equipment Service Department;
- Business Public relation Department;
- Safety Operation management Department;
- Technique Department;
- Training Center;
- Operation Divisions;
- Maintenance Divisions.

Based on business activities requirement of the Company in each period and the principle of neatness, efficiency, the Company's organization system may change to match real situation.

Article 14. The Members' Council

1. The Members' Council in the name of the Owner shall organize implementing rights and obligations of the Owner, be in the name of the Company entitled to implement rights and obligations of the Company, be responsible to law and the Owner for implementing assigned rights and obligations as stipulated by Enterprises Law and relating Law.

2. Rights, obligations, tasks in details and working mode of the Councils' Member to the Owner are as stipulated by the Company's Charter and relating Law.

Article 15. Member of Members' Council

1. Members' Council consists of fully and partly responsible members. Number of members is 5.

2. Chairman and members of the Members' Council shall be decided by the Owner on appointment, removing, reward, discipline. Term of members of the Members'Council is 5 years. Members of the Members' Council may be reappointed or replaced.

3. Members of the Members' Council shall be removed or replaced under following cases:

a) In violation of law or being removed, replaced as stipulated by the Company's Charter; for this case, Members' Council, Supervisors are entitled to recommend the Owner supplement, replace members of Members' Council.

b) Be lack of ability, skill to undertake the assigned tasks; be lost of restricted in civil act capacity.

c) Applying for resignation.

d) On having decision on mobilizing or assigning other work.

e) Be untruthfull in implementing rights or abusing position, power for benefit of his/her own or of any other individuals.

f) When the Company may not fulfill the obligations or targets assigned by the Owner but cannot explain objective reasons that may be accepted by the Owner.

g) Other cases as stipulated by the Owner.

4. Members of Members' Council shall jointly be responsible to law and the Owner for decisions of Members' Council except for any member against that decision.

Article 16. Requirement for members of Members' Council

Members of Members' Council shall qualify the basic requirements as follows:

1. Permanently reside in Vietnam. To be Vietnamese citizen.

2. Bachelor degree and be capable of doing business and managing enterprises. Chairman of Members' Council shall be at least 3 years experienced in managing, operating major business lines of the Company.

3. To be in good health, to have virtuous characters, righteous, integrity, to have knowledge in law and sense of law observance.

4. Do not concurrently hold leadership in State system and other enterprises.

5. To not be prohibited subjects for holding executive management title as stipulated by Article 13 of Enterprises Law.

Article 17. Obligations of members of the Members' Council, General Director and Supervisors

Members of Members' Council, General Director and Supervisors are liable to:

1. Abide by the Law, the Company's Charter, decision of the Owner in implementing assigned rights and obligations;

2. Implement the assigned rights and tasks honestly, carefully and in the best way to secure the maximum legal benefits of the Company and the Owner;

3. Be loyal to benefits of the Company and the Owner. Not to use information, know-how, business opportunities of the company or abuse position, power and use the company's assets for benefits of his/her own or of any other organizations or individuals;

4. Inform promptly, sufficiently and exactly the Company of enterprises owned by themselves or their related persons or enterprises in which they or their related persons have capital contributions or controlling shares. This notice shall be posted at the head office and branches of the Company

5. Other obligations as stipulated by this Law and the Company's Charter.

Article 18. Obligations and rights of Members' Council

1. To organize making and deciding on development strategy; long term's, short term's and annual plans of the Company;

2. To decide plans and to use capital, land, and other resources that are handed to the Company by the Owner;

3. To decide to purchase, sell assets, contracts of borrowing, lending, lending of assets valued less than 50% of total assets' value recorded in the

Company's latest financial report;

4. To decide measures for developing market, marketing and technology of the Company; investment plans including those of fund for repairing works, tendering projects, undertaking tendering works in business domain, social technology corporation projects valued less than 50% of total assets' value recorded in latest financial statement of the Company

5. To decide organization structure, management staff, worker and other internal management rule of the Company.

6. To decide to appoint, remove, dismiss, sign or cancel contract and wage grade; other benefits for Deputy General Director, Chief Accountant according to suggestions of the Company's General Director.

7. To decide form of internal rewards as suggested by General Director; or to propose State-level's agencies to compliment, admit form of rewards and emulation titles on the basis of

suggestion of General Director. Chairman of the Members' Council shall also be the Chairman of Emulation-Reward and Discipline Committee of the Company.

8. To check, monitor General Director in implementing his/her rights, obligations.

9. To report to the Owner the result and annual business status of the Company.

10. To propose the Owner for decision on issues under authority of the Owner;

11. To report annual financial report, options for after-tax profit using or debts, loss handling during business for the Owner to decide;

12. To organize implementing decisions of the Owner

13. To decide to establish new, re-organize, dissolve units under the Company, branches, representative office of the Company in domestic and abroad as stipulated by Law

14. Other rights and obligations as stipulated by Law and charter of the Company;

Article 19. Decisions of the Members' Council should be accepted by the Owner

Decisions of the Members' Council on the following issues should be accepted by the 'Owner:

1. Decision on development strategy, long-term's, mid-term's and annual plans; adjustment, supplement of major business lines of the Company; highly risk domains, projects;

2. Approval of investment plans; sales and purchase contract, borrowing and lending contracts and other contracts exceeding authorized norm specified at Clause 3 and 4 of Article 18;

3. Other decisions specified at Clause 13 of Article 18;

4. Decisions on changing the Company's charter capital; transferring of part or whole of the Company's charter capital to other organizations, individuals;

5. Approving financial statement; plans for using profits after paying tax and fulfilling other financial obligations of the Company, plans for handling losses in business;

6. Decision on supplementing, amending the Company's Charter;

7. Decision on appointing, removing, dismissing, signing-cancelling a contract with the Company's General Director.

Article 20. Chairman of Members' Council

1. The Owner shall elect one of members of Members' Council to be the Chairman.

2. The term of the Chairman of the Members' Council shall be five years. The chairman of the Members' Council may be re-elected for unlimited number of terms.

3. Chairman of the Members' Council shall have the following rights and obligations:

a) To prepare, or organize the preparation of working agenda, programs and plans of the Members' Council;

b) To prepare, or organize the preparation of, the agenda, contents and materials for meetings of the Members' Council or the members' comments;

c) To convene and chair over meetings of the Members' Council or organize the gathering of the members' comments;

d) To supervise or organize the supervisions of implementing decisions made by the Members' Council;

e) To sign on behalf of the Members' Council its decisions;

f) Other rights and obligations as stipulated by this Law and the Company's Charter.

4. In case Chairman of Members' Council leaves Vietnam for over 30 days, he/she shall make a written authorization for another member to implement his/her rights and obligations. If there is no authorized member or Chairman of the Members' Council cannot work, the other members

shall vote for one of temporary members to implement rights and obligations of Chairman of Members' Council by major vote principle.

Article 21. Convention of meetings of the Members' Council

1. Meetings of the Members' Council shall be convened at least once a month to consider and decide issues under its rights and obligations.

2. A meeting of the Members' Council may be convened at any time at the request of its Chairman to settle urgent matters of the Company or at the request of over half of members of the Members' Council.

3. Meetings of the Members' Council shall be convened at the Company's headquarter.

4. Members of the Members' Council may make written recommendations on the meeting agenda. A recommendation must contain the following contents:

- Full name, permanent address, identity number of the recommender.

- Contents recommended for inclusion in the meeting agenda.

- Reasons for recommendations.

The Chairman of the Member's Council must accept the recommendation and add it into the meeting agenda if it contains all abovementioned contents and is sent to the head office at least three working days before the date of opening the meeting of the Members' Council.

5. The meeting invitation may be notified in the form of invitation card and must be sent directly to each member of the Members' Council at least seven working days before the date of meeting. The meeting invitation must clearly specify the time, venue and agenda of the meeting 6. The materials of a meeting must be sent to all members in 02 working days before opening of the meeting at the latest.

7. If the Chairman of the Members' Council does not convene the meeting at the request of the number of members as stipulated in Clause 2 of this Article, within fifteen days as from the date of receiving the request, such members shall be entitled to convene a meeting of the Members' Council.

Article 22. Conditions and formalities of a meeting of the Members' Council

1. Meetings of the Members' Council shall be legally convened if at least 2/3 (two-thirds) of members attend that meeting. Each member shall have one equal vote. Members' Council may approve its decision by written opinion.

2. A decision of Members' Council may be approved if it is accepted by over $\frac{1}{2}$ (half) of attending members. The following cases must be accepted by at least $\frac{3}{4}$ (three-fourths) of attending members: recommendations on amending, supplementing the Company's Charter, re-organizing the Company, transferring a part or in whole of the Company's charter capital.

3. Where the numbers of votes for and against are equal, decision of the Chairman of the Members' Council shall be the final one. Members of the Members' Council are entitled to stick to his/her opinion but have to implement decisions of the Members' Council. Decisions of the Members' Council shall be legally valid from the date of approval unless otherwise stipulated by the Owner.

4. Contents of meetings of the Members' Council (discussion, opinions, voting results, decisions of Members' Council, conclusion of the Members' Council, etc.) must be written into minute of meetings of the Members' Council.

The meeting's minute must be completed and approved when the meeting finished. The meeting's minute shall include the following main contents:

- Time, venue, purpose and agenda of the meeting.
- Matters discussed and voted; summary of opinions of members on each matter.
- Total numbers of votes "for", "against" and "blank" for each voting matter.
- Decisions approved.
- Full names and signatures of attending members or their authorized representatives.

Article 23. The Company's General Director

1. The General Director shall be selected, appointed or signed a contract by the Members' Council after being approved by the Owner.

2. The General Director shall be appointed or signed a contract with term of 05 years to operate daily business of the Company as stipulated by the goal, plans in conformity with the Company's Charter and resolutions, decisions of the Members' Council, be responsible before the Law and the Members' Council in implementing its assigned rights and obligations.

Article 24. Requirement for the General Director

The General Director shall qualify all of the following standards:

1. Having full civil act capacity and not being prohibited from managing an enterprise as stipulated by Enterprises Law.

2. Not being related persons of the Members' Council who has direct power to appoint authorized representative-at-law. Related persons are as stipulated by Clause 17 Article 4 of Enterprises Law.

3. To be in good health, to have virtuous characters, righteous, integrity, to have knowledge in law and sense of law observance.

4. Having relevant expertise and experience in business management or major business lines of the company.

Article 25. Replacing, removing or cancelling contract with the Compay's General Director.

Members' Council of the Company decides on removing or cancelling contracts before term with the General Director after the Owner has approved.

The General Director shall be removed or cancelled the contract before term under the following cases:

1. When the Company may not fulfill the obligations or targets assigned by the Owner but cannot explain objective reasons that may be accepted by the Owner.

2. Be dishonest in implementing rights and obligations or abuse positions, rights for benefits of his/her own or of any other individuals; report dishonestly the Company's financial status from over 2 times or 1 times in which report's content is seriously untrue.

3. Be prosecuted for violating the law.

- 4. Be lost or limited of civil act capacity.
- 5. Apply for resignation.
- 6. When there is any decision on mobilizing or assigning a different work.
- 7. Other cases decided by the Owner.
Article 26. Rights and obligations of the General Director

1. To organize the implementation of decisions of the Members' Council.

2. To decide issues relating to daily business of the Company within the scope of its assigned power, tasks.

3. To organize the setting up and implementation of annual business plans, construction investment plans, works maintaining plans, assets purchasing and selling, using of capital, land, resources, borrowing, lending, leasing, renting assets, biding method, biding undertaking in business after being approved by the Members' Council.

4. To build and organize implementing of internal management rule after approval decision of the Members' Council.

5. To organize implementing of tasks of investor of approved investment projects;

6. To propose the organization structure, organization system, regular staff and to organize implementation after approval;

7. To sign contracts in the name of the Company in case of not under the control of Chairman of Members' Council.

8. To recruit, sign, cancel contracts, reward-punish and to decide wage grade, other benefits of labor; appointing, removing, dismissing, reward, discipline, salary mode, grading level, increasing salary and other benefits of managers, deputy managers and equivalent tittles of the Company.

9. To organize implementing of annual financial report of the Company as stipulated by the Law.

10. To propose distribution options for after-tax profit or settlement of debts, loss during business.

11. Other rights and obligations as stipulated by Enterprise Law and this Charter.

Article 27. Relationship between Members' Council and General Director in managing, operating the Company

1. When organizing the implementation of resolution, decision of the Members' Council, if finds any matters that may be disadvantageous to the Company, General Director shall report to Members' Council for consideration and revision of that resolution, decision. The Members' Council shall consider recommendation of General Director. In case the Members' Council does not revise resolution, decision, General Director shall implement that resolution, decision but be entitled to petition the matter to the Owner.

2. Within 15 days from the ending day of quarter, year, the General Director shall send written report on business status and implementation orientation plan for the next term of the Company to the Members' Council.

3. Chairman of the Members' Council is entitled to attend or detach a representative of Members' Council to attend the hand-over meetings, preparatory meeting for proposals to be submitted to Members' Council chaired by the General Director. Chairman of the Members' Council or the representative of Members' Council is entitled to give opinion but not entitled to conclude the meeting.

4. The General Director is invited to meetings of Members' Council and is entitled to give opinion but not entitled to vote.

Article 28. Deputy General Directors, Chief Accountant and subordinate departments, divisions

The Company shall have from 1 to 3 Deputy General Directors and 1 Chief Accountant.

1. Deputy General Directors and Chief Accountant shall be selected, appointed or signed contract with term of 5 years by the Members' Council as suggested by General Director and shall be re-appointed or re-signed the contract.

2. Deputy General Director shall assist General Director managing the company as assigned and authorized by written document, be responsible before the General Director and the Law for his/her assigned or authorized tasks.

3. Chief accountant's tasks are to organize implementing of accounting works, finance of the Company, to assist the Members' Council, General Director of the Company to monitor the Company's finance as stipulated by Law on finance, accounting; to be responsible before the Members' Council, General Director and the Law for his/her assigned tasks.

4. Specialized departments are functioned at consulting, assisting the Owner and Board of General Directors in managing, operating business.

5. Company has subordinate enterprises according to its business demand.

6. Specific tasks of specialized departments are specified at internal management rule of the Company.

7. During business, General Director is entitled to propose the Members' Council to change structure, regular staff, number and functions of specialized departments, subordinate enterprises of the Company to match the Company's business demand and Law's provisions. The Members' Council considers, decides on proposals of General Director.

Article 29. Supervisors

1. The Owner shall appoint from one to three Supervisors working for a term of three years. Supervisors shall be responsible to the Owner for exercising their rights and duties

2. Supervisors may be fully or partly responsible supervisors.

3. In case an appointment is made for two Supervisors and more, the Owner shall assign one general staff responsible for making task schedule, assigning, coordinating tasks of Supervisors.

Article 30. Standards and requirements for Supervisor

Supervisors must meet the following qualifications and conditions:

1. Having full civil act capacity and not being prohibited from establishing and managing an enterprise as stipulated by Enterprises Law;

2. Supervisors shall not concurrently hold managing positions of the Company (including members of the Members' Council, General Director, Deputy General Director, Chief Accountant, Manager, Deputy Manager, Director, Deputy Director or relating to Members' Council, General Director, Deputy General Director, Chief Accountant of the Company, position to be entitled to directly appoint Supervisor).

3. Be specialized or experienced in accounting, auditing or be practically specialized or experienced in major business lines of the Company.

Article 31. Tasks of Supervisors

1. To check the lawfulness, honesty and diligence of the Members' Council, General Director in

performing the Owner's rights and managing business operations of the Company;

2. To appraise financial statements, business performance, management evaluation reports before they are submitted to the Owner or relevant state agencies;

3. To make proposals to the Owner for amending and supplementing the organizational structure, business operation of the Company;

4. Supervisors shall be entitled to review any dossiers and documents of the Company at the head office, branches, or offices of the Company's subordinate divisions. The Members' Council, General Director and other managers shall be liable to fully and promptly provide information relating to the exercise of the Owner's rights, management, operation and business of the company at the request of Supervisors; Supervisors are entitled to use the Company's stamp to implement tasks as stipulated by Law and The Company's Charter for Supervisors.

5. Other tasks as requested and decided by the Owner.

6. Working regulation of Supervisors are specified at Operating regulation of the Company.

Article 32. Reward, salary and other benefits of the Members' Council, General Director, Supervisor

1. The Members' Council, Supervisor in charge, General Director,

Deputy General Directors, Chief Accountant will enjoy annual salaries. Salary and bonus levels depend on the company's business results and efficiency and the results of management, administration, or activities control.

2. Salaries and bonuses shall be paid as follows:

a. Every month, the Members' Council, Supervisor in charge, General Director, Deputy General Directors, and Chief Accountant will be advanced 70% of salaries temporarily calculated for the month while the remaining

30% shall only be settled and paid at the year-end. Every year, Members' Council, Supervisors in charge, General Director, Deputy General Directors and Chief Accountant will be advanced 70% of bonuses for the year while the remaining 30% shall only be settled and paid upon the expiration of their term.

b. The remaining 30% of salaries and bonuses shall be paid to the above-mentioned subjects based on financial management rule and supervisory rule, evaluation rule applied to the Members' Council, General Director, Deputy General Directors, Supervisors, Chief Accountant of one-member limited liability companies promulgated by Ministry of Finance.

c. In case enterprise classification results and results of evaluation of the management, administration or control by the Members' Council, members of Board of General Directors, Chief Accountant, Supervisors who fail to meet provided requirements may not receive the remaining 30% of their annual salaries and the remaining 30% of their term of office's bonuses.

d. In case the Supervisor may concurrently hold another position(s), he/she may receive only the salary for one position and bonus decided by the Members' Council.

Article 33. Management, monitoring of the Owner of the Company

1. Implementing goal, function and operation direction:

a) Operation goal, business lines, development strategy, business financial investment plans of the Company;

b) Investment categories; investment into highly risk domains, lines, project plans;

c) Be in charge of providing public goods, services;

d) Result of implementing goals, tasks assigned by the Owner.

2. Regarding capital and finance:

h) Preserving, developing capital of the Company;

i) Investment, debts and debt payment capability performance of the Company;

j) Financial result, business efficiency, profit ratio per State's budget;

k) Overall salary budget of the Company.

3. Regarding the organization and personnel

a) Re-organizing, dissolving, bankruptcy; amending the Company's Charter;

b) Appointment, removing, dismissing managing titles of the Company, mode of salary, bonus, tasks implementation and operation result of the Members' Council, Supervisor, General Director of the Company.

4. Acceptance of decisions of the Owner and Charter of the Company.

5. Mode of notification, report of the Members' Council and liability of the Owner on handling petitions of the Members' Council.

a) Within 30 days after the end of a quarter or year, the Members' Council shall send a written report on the Company's operation and business results and orientations for its operation in the coming period;

b) Within 5 working days the Members' Council shall send a written report on its decisions on the company's organizational structure and internal management rule; salary grade and rank, basic salary and salary payment for employees and managers: reward and disciplining of the General Director; or matters subject to approval of the Owner specified in this Charter.

c) Within 30 days after receiving a report of the Members' Council and petitions, approvals of the members' Council as specified at Article 19 of this Charter, the Owner shall decide to approve in writing or issue a reply to the Company.

6. Other contents as stipulated by Enterprises Law and relevant Law.

Chapter V FINANCE OF THE COMPANY

Article 34. Fiscal year

The fiscal year of the Company begins in January 1st and ends in December 31st of Western Calendar annually. The first fiscal year of the Company begins in the date of receiving its business registration certificate and lasts in December 31st of the same year.

Article 35. Management of capital, asset, revenue, cost, cost price of the Company.

Management of capital, asset, revenue, cost, cost price of the Company shall be made as stipulated by financial management rules issued by the Members' Council. The content of the Company's financial management rules shall be as stipulated by current Law's provisions on financial structure of One member limited liability Company pursuant to regulations stipulated by the Ministry of Finance.

Article 36. Profit distribution principle

The Members' Council based on regulations of Ministry of Finance and other Law's provisions shall submit the utilization of after-tax profit to the Owner for decision.

Article 37. Plans of finance, accounting, auditing

1. Investment plans and projects, long-term's and annual financial plans of the Company, works maintenance annual plan which are made as stipulated by construction investment management rule from time to time and other regulations of the Owner.

2. The Members' Council shall submit the Company's annual financial plan to the Owner for decision and report the implementation result to the Owner to make basis for supervising and evaluating the result of managing, operating the Company's business.

3. At the end of fiscal year, the Company shall organize making financial report, auditing implementation report as stipulated by regulations of the Ministry of Finance and Law's provision at that time.

4. Within 90 days from the end of fiscal year, the Company's audited financial settlement report shall be submitted to Supervisor for investigating the Company's financial report. The Members' Council shall be responsible for submitting the annual financial report which has been investigated by Supervisor to the Owner for approval. After the Owner may approve the annual financial report, the Company shall send it to competent authorities as stipulated by regulations.

5. The Owner shall approve the Company's financial report after 15 days from the date of receiving that report.

6. The Company shall publicize its finance pursuant to democratic regulation at the Company and regulations of the State.

Chapter VI

COLLECTIVE EMPLOYEES IN THE COMPANY

Article 38. Collective employees in the Company

Titles in the Company namely as General Director, Deputy General Directors, Chief Accountant, Head and Deputy Head of departments, Director, Deputy Directors of subordinate divisions of the Company and employees shall be as stipulated by Law on labor and other current relevant Laws' provisions.

1. Employees shall take part in managing the Company as follows:

a) The Company's all-member-meeting or meeting of employees' delegates;

b) Conference implementing tasks of the Company's subordinate divisions;

c) Approving the establishment of labor union in the Company;

d) Approving Idea contribution box;

e) The General Director shall meet and work with employees periodically;

f) Implementing the right to propose, complain and denounce as stipulated by Law' provisions.

2. Employees are entitled to discuss, contribute ideas before the relevant positions decide the following issues:

a) Orientation, tasks, plans, business development method, business re-arrangement of the Company;

b) Changing the Company' ownership;

c) Internal rules, regulations of the Company that directly relate to rights and obligations of employees on the basis of Law's provisions;

d) Measures on labor protection, improving working condition, spiritual life, environment hygiene, training and re-training employees in the Company;

e) Voting for trust survey for the Company's positions upon requested.

3. Employees are entitled to discuss and vote for the following issues:

a) Contents or amended, supplemented contents of collective labor agreement for employees' representative to negotiate the agreement with the General Director.

b) Regulation on using welfare, reward fund and other planned target of the Company relating directly to rights and obligations of employees as stipulated by Law.

c) Signing, cancelling working contract as stipulated by Law on Labor.

Article 39. Labor relationship, recruitment, salary and bonus regime

1. Relationship between the Company and its labors shall be as stipulated by Law on Labor and other conditions in working contracts.

2. Labor recruitment criteria:

a) Actual work demand.

b) Recruited labor shall have professional qualifications, working skill and personal conditions to qualify the work the Company wants to recruit.

3. Salary, bonus and benefits of labor:

a) Salary and bonus of the Company shall comply with current Guiding ordinance of Labor-Invalids and Social Affairs on regime of labor management, salary, allowances and income for 100% capital State-owned One member Limited Liability Company.

b) Salary and allowance of all the Company's employees shall be discussed in working contract, salary payment regime and shall concurrently based on principles as follows:

- Works' characteristic;

- Business efficiency of the Company;

- Appropriate with regulations of Law on Labor and other Laws' provisions.

4. Labor must be favored with all benefits as stipulated by Law on Labor and other Laws' provisions.

Chapter VII

DISSOLUTION AND BANKRUPTCY OF THE COMPANY

Article 40. Dissolution and re-organization of the Company

1. The Company shall liquidate under the following cases:

a) The operation duration stated in the company's charter expires without any decision to renew;

b) The Company does not fulfill obligations assigned by the Owner after applying necessary measures;

c) According to decision of the Owner;

d) To be withdrawn its business registration certificate.

2. The Owner shall be entitled to decide on dissolving the Company as stipulated by the Law. Procedure for dissolution shall comply with article158 of Enterprises Law. The Company shall be dissolved only after paying off all its debts and other property liabilities.

3. The re-organizing the Company shall be submitted to the Owner for decision considering by the Members' Council. Procedure for re-organizing the Company shall comply with Law's provisions.

Article 41. Assets liquidation procedure

1. On dissolving, the Owner and the Members' Council shall establish a Liquidation Council to determine and evaluate the market value of all the assets legally owned by the Company and shall organize liquidating these assets as stipulated by regulations.

2. Utilizing the Company's assets to pay debts or sell, selling mode, selling price shall be decided by the Members' Council and shall be agreed by the Owner on the basis of complying with the current Law.

3. All the collected money belongs to the Company's assets. After paying in full such items as: liquidation fee (if any), debts, salaries for employees..., the remaining sum of money shall be given back to the Owner.

Article 42. Bankruptcy of the Company

The bankruptcy of the Company shall comply with the provisions of law on bankruptcy.

Article 43. Disputes, legal proceeding

1. Disputes of the Company with relevant parties shall be first settled by discussion by all parties as stipulated by this Charter and provisions of Enterprises Law.

2. When it fails to self-settlement, it will be brought to competent Court for settlement.

3. When there is internal dispute, the Company shall report the case and ask for solution decision of the Owner.

Chapter VIII BOOKS AND FILES OF THE COMPANY

Article 44. The right to get access to books and files of the Company

1. In cases the Owner is entitled to request the Members' Council, General Director(s) of the Company in written document to provide any files, document relating to implementation of any rights of the Owner as stipulated by this Charter.

2. The General Director shall be liable to organize keeping and securing files, document of the Company.

Article 45. Disclosure of information

1. The General Director decides and is liable for disclosure of information. Files keeping department shall only be permitted to provide information to the outside by decision of the General Director or any person authorized by the General Director.

2. Form, content and information keeping place shall comply with Law's provisions.

3. When it's requested for inspecting, supervision by competent State office, the General Director shall be liable to provide information as stipulated by Law on inspecting, supervision.

Chapter IX

INTERNAL DISPUTES AND AMENDMENT OF THE COMPANY'S CHARTER Article 46. Disputes and dispute settlement

1. Any dispute, complaint relating to the Company's business between the Owner and the Company; the Owner and the Members' Council, General Director; the Members' Council, General Director and assisting board shall be settled as stipulated by this Charter and Working operation of the Company.

2. If the settlement of dispute as stipulated by this Charter shall not be accepted by Parties, the dispute may be brought to competent court for settlement as stipulated by the Law by any Party.

Article 47. Amendment, supplementation of the Charter

1. Any amendment, supplementation of this Charter shall be decided by the Owner.

2. The Members' Council may request the Owner for options of amending, supplementing the Charter.

Article 48. Implementation effect

1. This Charter consists of 9 chapters 48 articles, is approved and accepted totally by the Owner. Individuals and organizations subject to relevant applicants of this Charter shall comply with duties and power as assigned.

2. Issues relating to business of the Companies unmentioned in this Charter shall prevail Enterprises Law and related legal document.

3. When this Charter may have any provisions against or inconformity with the newly promulgated Law, that provision shall not be implemented, it should suggest that the Owner decide to supplement, amend this Charter to match that newly promulgated Law.

4. This Charter may take effect to the One member Limited Liability Saigon urban railways Company from the date it is signed for promulgation by the Owner being the Hochiminh City People's Committee.

..... , day month year

APPENDIX 6

Fire Fighting & Emergency Plan

Some stations of Line 1 will be constructed under the ground. Fire accidents at underground stations will seldom occur but the potential for damage is enormous. Therefore all the countermeasures against fire should be taken not only at the construction stage but also at the operation stage.

Basically the civil structures of the station will be decorated with non-flammable materials and designed for passengers to easily evacuate from the platform without harm. The car bodies of rolling stock will be made of stainless steel and the interior of the cars will be decorated with non-flammable material or fabric.

1 Lessons from Accidents

Here lessons from two serious accidents are discussed. One is the most severe accident by fire in Japan. Japan Railways received precious lessons from this accident. The other is the most severe fire accident at an underground station. It occurred in the Republic of Korea.

1.1 Fire Accident inside the Hokuriku Tunnel in Japan

At midnight in 1972, a fire accident occurred on an express train running in the Hokuriku tunnel in Central Japan. The train was stopped inside the tunnel with emergency brake applied by the conductor on board. The force of the fire was so strong that it was necessary to detach the burning coach from the other coaches in the train. However, suddenly power supply was stopped and the detachment had to be stopped. The train could not proceed outside of the tunnel. This accident happened at midnight and most of passengers were asleep in sleeping coaches. It took a lot of time for evacuation of passengers. At a result, 30 passengers lost their lives and 714 passengers were injured.

The lessons learned from this accident were the following.

- Making rolling stock inflammable,
- Reinforcing lighting facilities in long tunnels,

• Establishing a rule to keep trains running until they escape from tunnels in which train fires have broken out



Figure1 Picture at the Hokuriku Tunnel Fire Accident

1.2 Fire Accident at Daegu Metro in Korea

In Feb 2003, a man who wanted to suicide scattered petrol inside a coach of the Metro and set it on fire. This train had just arrived at the central station of the subway in Daegu City in South Korea (This train is referred to as train A).

After the outbreak of the fire, the CCP of the subway systems was unaware of the situation of the fire accident and they did not immediately stop other trains entering this station. As a result, a train, headed in the opposite direction, entered the station (this train is referred to as Train B). The platform arrangement of this station was a side platform arrangement and Train B stopped beside Train A, i.e., the burning train.

At first the controller of the CCP could not comprehend the situation. Curiously enough, the occurrence of the fire was informed to the CCP from a fire station outside the station. Before an order could be issued by the CCP to start Train B or to open the doors, the

power supply was stopped due to the fire and lighting was also blacked out. Meanwhile Train B also caught fire with the spreading fire from Train A.

The passengers inside Train B could not evacuate from the coaches since the doors of the train-set were closed as a result of the driver of Train B exiting from the train without opening the doors, As a result, the number of fatalities was counted at 192 and the member of injured, including heavy injury, was 148. Of the 192 fatalities, 142 persons died inside Train B.



Source: JICA Study Team

Figure 2 Schematic chart of Central Station in Daegu during fire accident

The lessons learned from this accident were as follows.

1) Modification of train operation to control fire in tunnel sections

Other trains at adjacent stations will be stopped and never permitted to enter the station where a burning train is stopped.

In case that a burning train stops at a station or a station is in flames, the arriving train will be stopped in front of the station.

2) Major modification of rolling stock specification for fire prevention

Adoption of materials with anti-melting/protection Equipment of doors at the connecting section between coaches for compartmentalization of each coach against fire 3) Providing clearer indications of the location of fire extinguishers and emergency handles for doors.

2. Principles on Fire fighting and Evacuation in Case of Train Fire Accident

2.1 Fire Fighting

Based on above mentioned lessons, the following should be established as a principle for train operation in case of train fires.

When a train fire accident is reported to the driver during running in the underground section, the driver shall keep running to the next station without stopping although it is a principle of train operation to stop the train immediately when the driver has knowledge of some trouble on board.

Controllers will stop other trains at adjacent stations and never start them to the station where the burning train is stopped.

In case that a burning train stops at a station or a station is burning, generally controllers will stop the arriving train in front of the station.

Fire fighting at the initial stage will be carried out by station staff. They will also operate the fire extinction and smoke extraction facilities from the station office. After arrival of a fire fighting team, they will be engaged in fire fighting in a full scale operation.

2.2 Evacuation of passengers

Basically station staff will play a central role in evacuating passengers from fire situations.

The typical action in case of a train fire in the vicinity of stations is expressed in the following chart.



Case1.Action of station staff in case of burning train arriving at stations

Figure 3 Action of Station Staff in Case of Arriving of Burning Train



Case 2 Action of station staff in case that a burning train stops between stations







Figure 5 Action of station staff in case of fire in the station premises

APPENDIX 7

Train diagram at the opening (GC)

HCMC Line1 Ben Thanh ~ Suoi Tien Station Train Diagram (2014)



HCMC Line1 Ben Thanh ~ Suoi Tien Station Train Diagram (2014)

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HCMC Line1 Ben Thanh ~ Suoi Tien Station Train Diagram (2014)



HCMC Line1 Ben Thanh ~ Suoi Tien Station Train Diagram (2014)



2

Outline of Office IT system

1. Introduction 1.1 General Overview of Office IT system

ERP system covers the technology and concepts for the integrated business management from the viewpoint of effective use of management resources, i.e. cash, human resources, assets etc. Most of railway companies in developed countries use ERP system to mainly form the business processes in their support activities.

	Engineering			
Support	HR			
Activities	Finance & Accounting			
	Procurement			rgin
Prime	Operation		Revenue Mngt.	Ма
Activities	Maintenance	Overhaul		
	Urban Railwa : Major business processes will be co : Major business processes can be co	ay Value Chain overed by Office IT System overed by Office IT System.	1 (future option)	

1. Introduction 1.1 General Overview of Office IT system

The following figure shows the financial relations between O&M Co. and other entities. Because those transactions and report data will be kept in ERP system, the data in ERP shall be protected from threats such as unauthorized access. Thus, internal control described in chapter 3 shall be considered as mandatory requirement.

Financial relations between O&M Co. and Others



3

2. Function 2.1. Functional Overview

The following function will be provided by ERP system. (For the details, please see Appendix-1 "Business Process Map")

Functional Overview

Function		Description
Finance & Accounting	Budgeting & Controlling	 This function provides WBS code on projects for projects progress monitoring, and benefit/cost center code for managerial accounting. These coding also enable company to set the cost allocation factors.
	Period Closing	- Financial closing (non-consolidated) Incl. Tax calculation. (Financial report must be prepared by market-available application software for easy editing.)
	Account Receivable Management	 Client management through master database. Account receivable recording and controlling
	Account Payable Management	 Supplier management through master database. Account payable recording and controlling
	Payment	- Bank account balance, payment check and foreign gain/loss. (FB data can be produced as future option.)
	Treasury	 Cash management and controlling linked to payment obligation and receivable.
	Fixed Assets	- Fixed assets management which has interface with procurement module and provides automatic depreciation calculation)

5

2. Function 2.1. Functional Overview

(Continued from previous page)

Functional (Overview	
Function		Description
Procurement	Material Purchasing	- Parts management, purchasing and receiving
	Refurbishment & Modification	 Construction-in-progress management and interface with Fixed- asset for assets recognition.
	Inventory management *1	- Inventory management
HR	HR	 Staff management through HR master database. Salary calculation based on HR master database. (Calculation of projected benefit obligation (PBO) is excluded.)
Revenue	Fare	- Revenue recognition
	Non-Fare	 Revenue recognition Period distribution based on contract information.

6

*1 : This is only for financial reporting, not for physical inventory management.

2. Function 2.2. Budgeting & Controlling



2. Function 2.2. Budgeting & Controlling



2. Function 2.3. AR,AP Management and Payment



2. Function 2.4. Treasury

Objective	 Securing company's cash resources to prevent cash shortage.
Required Function	• Cash management based on AP/AR data and budjet plan.

2. Function 2.5. Material Purchasing



2. Function 2.6. HR



2. Function 2.7. Revenue & AR Management

Objective	Manage revenue and cash data accurately.
Required Function	 Revenue recognition based on contract information <<i>After introducing interoperable AFC system></i> Interface with AFC system (Central Server) monthly basis to record revenue data and AR(AP) data. AR recording and balance management.
Required Report	Revenue data monthly basis.

13

2. Function 2.7. Revenue & AR Management



APPENDIX 9

Result of Financial Estimation

Financial Plan for HCMC UMRT Line No.1

Kế hoạch tài chính cho dự án Xây dựng Tuyến đường sắt đô thị TPHCM Tuyến 1

<Draft> / <Bản thảo>

January 31th, 2013 Chỉnh sửa ngày 31 tháng 1 năm 2013 JICA TC team

Mô tả BẢNG KÊ LÕ VÀ LÃI & BẢNG KÊ DÒNG NGÂN LƯU

		2. PL&CFS						
BÁO CÁO LỜI VÀ LÕ	Mô tả	PROFIT AND LOSS STATEMENT	Description					
1). Doanh thu	Công thức a+b	1). Revenue	Formula a+b					
a. Doanh thu từ hoạt động kinh doanh	Xem "Yêu cầu SAPROF"	a. Operating Revenue	See "DemandsSAPROF"	٦L			4.DemandsSAPORF	1
b. Doanh thu khác	Doanh thu từ việc vận hành X 1/9	b. Other Revenue	Operation Revenue X 1/9	\Box			Yêu cầu SAPORF	
2). Chi phí bảo dưỡng và vận hành	Công thức a+b+d+e+f+g	2). Operation & Maintenance Costs	Formula a+b+c+d+e+f+g					
a. Các chi phí nhân viên	Xem "Tổng các chi phí của Công ty O&M"	a. Staff costs	See "Total O&M Costs"					_
b. Chi phí điện năng	như trên	b. Power costs	ditto				6.Staff Costs	
c. Chi phí vệ sinh (nhân công và tiêu dùng)	như trên	c. Cleaning (Labor & Consumables) cost	ditto			5 TotalO&M cost	Z Treation Dower	-
d. Các chi phí phụ tùng	như trên	d. Spares cost	ditto	_ ≁-		Tổng chi phí của công ty O&M	Điện năng sức kéo	
e. Các chi phí phục hồi	như trên	e. Renewals	ditto				8.Noc-Traction Power	i
f. Chi phí KD ngoài bán vé	như trên	f. Cost of non-fare business	ditto			For consideration of canital	Điện năng không sức kéo	,
g. Các chi phí khác	như trên	g. Other Costs	ditto	_/		/ Xem xét vốn		
3). Khấu hao	Công thức a+b+d+e+f	3). Depreciation	Formula a+b+c+d+e+f					
a. Xây dựng đoạn đi ngầm	Xem "Đầu tư và Khấu hao"	a. Civil Work UG	See "Invest ment & Depreciation"			9.Investment & Depreciation Đầu tự & Khấu hao		
b. Xây dựng đoạn đi cao	như trên	b. Civil Work EL	ditto			1 Investment 2008-2019		
c. Mua sắm và lắp đặt các thiết bị cơ điện	như trên	c. E&M	ditto			Đầu tư 2008 - 2019		
 d. Depot (bao gồm trong phần mua sắm và lắp đặt các thiết bị cơ điện) 	như trên	d. Depot(included in M&E)	ditto			A. ELIGIBLEPORTION / VÓN VAY B. NON ELIGIBLE		
e. Đầu máy toa xe	như trên	e. Rolling Stock	ditto			PORTION / VÓN ĐÓI	10 New Cost	
 f. Phần bổ sung/Phục hồi (Đầu máy toa xe/mua sắm va lắp đặt các thiết bị cơ điện) 	à như trên	f. Addition/Renewal (Rolling Stock/E&M)	ditto	_/		C. Interest during Construction / Lãi vay	Chi phí mới	
4). Thu nhập thuần chưa thuế	Công thức 1-2-3	4). Net Income before Tax	Formula 1-2-3			trong thời gian xây dựng		
5). Thuế thu nhập	Công thức 4 x tỉ lệ thuế	5). Income Tax	Formula 4 x tax rate					
6). Thu nhập thuần sau khi tính thuế	Công thức 4-5	6). Net Income after Tax	Formula 4-5			/ Chi phí đầu kỳ		
						E. Investment for Office	11. Opening	
BÁO CÁO BÀNG KÊ DÒNG NGÂN LƯU	Mô tả	CASH FLOW STATEMENT	Description			/ Đầu tư hệ thống CNTT	Υ	
1. Dòng ngân lưu trong hoạt động kinh doanh	Công thức a+b	1. Operating Cash Flow	Formula a+b			ngoài vé	↑	_
a. Thu nhập thuần sau thuế	P/L 6) Thu nhập thuần sau thuế	a. Net Income after Tax	P/L 6) Net Income after tax				12. Open Brea	ak
b. Khấu hao	P/L 3) Khấu hao	b. Depreciation	P/L 3) Depreciaton			shotage in 2017		
2. Dòng ngân lưu trong đầu tư	Công thức a+b+c	2. Investment Cash Flow	Formula a+b+c			/ Bù đắp sự thiêu hụt vê tiền mặt trong năm 2017	13.11	
a. Đầu tư ban đầu	Không áp dụng	a. Initial Investment	Not applicable	ן וך				
b. Đầu tư vào việc phục hồi/bổ sung (đầu máy toa xe)	Xem "Đầu tư và Khấu hao"	b. Addition/Renewal (Rolling Stock)	See "Invest ment & Depreciation"			2. Additiona/Renewal		
 c. Phục hồi (Mua sắm& lắp đặt các thiết bị cơ điện bac gồm Depot) 	Xem "Đầu tư và Khấu hao"	c. Renewal (E&M including Depot)	See "Invest ment & Depreciation"			Bo sung / Phục hồi		
3. Dòng ngân lưu trong Tài chính	Trợ cấp từ TPHCM	3. Financial Cash Flow	Subsidy from HCMC		$ \leftarrow$	3. Depreciation Khấu hao		
4. Dòng ngân lưu thuần	Công thức 1-2+3	4. Net Cash Flow	Formula 1-2+3					

Description of PROFIT AND LOSS STATEMENT & CASH FLOW STATEMENT

_

For consideration of subsidy /Xem xét trợ cấp 3. CFS for Subsidy

1.Description

<assumption></assumption>	<dự tính=""></dự>	<=If you change this yellow cell,	you can simulate / Nếu tha	ay đổi ô màu vàng này thì c	:ó thể mô phỏng được			
 [0] Revenue percentage of ticket price exemption and reduction for social-policy beneficiaries Discount rate for SF card Avarage trip 	(0) Tỉ lệ lạm phát - Phần trăm giá vé miễn giảm dành cho những người được hưởng chính sách phúc lợi xã hội - Tỉ lệ chiết khấu dành cho thể SF - Trung bình chuyến đi	5.6% 10% 9km 2 350 000	Free under 7 years old (0-6) VND	0-4:7.90%, 5-9: 8.30%, 10	0-14: 8.44%, Statictical Office	e in HCMC, Adjustment ra	atio based on Osaka Metro	50%
[4] Staff agata	[1] Cáo chỉ phí phâp viập	300,000	58,000	2.2	4		20 1 55	1 70
		Chairman, General Manager, Dupty General Manager and Supervisors / Chù tịch, Lương Tổng GĐ, Ph ó Tổng GĐ và các Giám sát	Dept Head, Deputy Dept Head / Quản lý	Engineer /Staff /dispatcher /Công nhân lành nghề/ K sư	Driver, Dept Manager ý / Phó TP	Station Manager / Công nhân bậc 4/7	Station Staff Nhân viên vă n phòng/ Công nhân phổ thông	Maintenance Staff / Nhân viên văn phòng
(a) Monthly direct salary based on Decree No.103/2012/ND- CP and other relevant regulations (b) Social & Reconfits cost markup rate	 (a) Lương trực tiếp hàng tháng dựa trên Nghị định 103/2012/ND-CP và một số quy định có liên quan (b) Tỉ là chỉ phí phí phí khi k và bải 	637	629	264	502	33	7 175	201
(c) Monthly Staff cost (Direct Salary + Social benefits cost) in 2012 price [US\$] = (a) * (1+(b))	(c) Chi phí nhân viên hàng tháng (Lương trực tiếp + Chi phí phúc lợi & xã hội) theo giá năm 2012 = (a)* (1+(b))	896	882	378	8 707	47	255	291
[2] Power costs	[2] Chi nhí điện năng							
Tariff in 2012 (No.38/2012/TT-BCT on 22/12/2012)	Bảng giá năm 2012 (TT số 38/2012/TT-BTC)	Tariff / Bảng giá Peak rate / Cao điểm Off-peak rate / Giờ bình thường Midnight rate / Thấp điểm	VND/kw 2,177 1,217 754	Assumed period 06:0 19:0 00:0	I / Thời gian dự tính 0-19:00 0-24:00 1-06:00			
[3] Spares cost	[3] Chi phí phụ từng							
		2018	2023	2033				
 Spares cost ratio against to Construction cost Construction cost total (Base cost for JBIC financing) Total Trains incl Spare & Maintenance 	- Tỉ lệ chi phí phụ tùng dựa vào chi phí Xây dựng - Tổng chi phí xây dựng (Chi phí cơ sở cho JBIC giải ngân) - Tổng số tàu bao gồm chi phí Bảo dưỡng và Phụ tùng	0.225% 1,385,823,514 12	0.450% - 12	- 2	<mark>%</mark> ▲ * For the details: See "9.Ir <mark>4</mark> ^ Xem chi tiết tại: "9.Đầu tu	nvestment&Depreciation" ư và chiết khấu"		
[4] Cost of non-fare business * Costs of non-fare business include staff cost and cost of goods p	[4] Chi phí KD ngoài bán vé purchased. / Chi phí kinh doanh ngoài vé bao gồm chi phí nhân viên và chi	phí mua hàng hóa	of revenue / của Doanh ti	ıu				
[5] Other Costs Ratio	[5] Tỉ lệ các chi phí khác		_					
* "Other costs" includes insurance cost, utility cost (such as electric	c power and water for office), outsourcing fee (such as security, cleaning a	30% nd secretary services). / "Các chi phí khác"	bao gồm chi phí bảo hiểm, ch	phí công trình tiện ích (ví dụ	như cung cấp điện và nước) và	i các chi phí thuê mướn ngoà	ii (như bảo vệ, các dịch vụ vệ sin	h và thư ký).
[6] Additional/Renewal Investments	[6]							
 Intermediate overhaul of rolling stock Intermediate overhaul of E&M 	 Trung tu đầu máy toa xe Trung tu các thiết bị điện cơ 	<u>30%</u> 50%	of original cost inflated in o of original cost inflated in o	overhaul year / Chi phí gốc overhaul year / Chi phí gốc	bị lạm phát trong năm duy tu bị lạm phát trong năm duy tu	1		
[7] Dividend	[7] Cổ tức	0%	OMLLC is one member LI	.C				
[8] Foreign Currency Rate	[8] Tỉ lệ ngoại hối	92.10 0.0044 20,850	Yen/USD Yen/VND VND/USD	<u>SBV/2013/01/31</u>				
[9] Inflation Rates	(9) Tỷ lê lam phát	2018 - 2023	2024 - 2033	2034 - 2043	2044 - 2051	1		
- Inflation rate per year - Vietnam	- Tỷ lệ lạm phát mỗi năm Tử là lạm phát từ 2012 đến 2018 – (1 , (2))//2018A 2012)	7.0%	6.0%	5.0%	% <u>5.0%</u>	World Bank Data Base	http://data.worldbank.org/ir	ndicator/FP.CPI.TOTL.ZG?p
 Inflation rate inflation 2 to 2012 to 2018 = (1+ (a))*(2018-2012) Escalation rate - staff cost: Inflation rate x 70% Inflation rate per year - Japan 	 Ti lệ trượt - Các chi phí nhân viên Ti lệ trượt - Các chi phí nhân viên Tý lệ lạm phát mỗi năm- Nhật bản 	4.9%	59.08% 4.2% 1.5%	3.5% 3.5% 1.9%	% 75.38% % 3.5% % 1.9%	2018-2023:10 yr average	e, 2024-2051: 20 yr average (1960-2006 data, Informatior
		- Fluctuation of exchange rates: JE	TRO homepage / Mức dao độ 1	ng tỷ giá hối đoái: trang chủ JI	ETRO	Research Department, P Japan)	Policy Bureau, Ministry of Lanc	I, Infrastructure and Transpo
- Escalation rate - staff cost before opening	- Tỉ lệ trượt - Các chi phí nhân viên	4.9%]					
* For long term estimation, the inflation rate is considered as a major between Vietnam and Japan, the average annual change in exchan ác đầu máy toa xe, vì những thiết bị này được nhập khẩu từ Nhật.	or factor affecting costs. The rate of infaltion in Japan is applied to renewa nge rate, in last 5 years, 1%, is added to Japanese inflation rates. / Theo đ Tý lệ tăng trưởng kinh tế ở Việt Nam sẽ được áp dụng cho những khoản c	al and additional purchasing of E&M and roll ánh giá dài hạn, sự tăng trưởng kinh thế đư chi phí khác. Do sự dao động giữa đồng Việ	ing stocks, because they will b ợc xem là yếu tố chính ảnh hu t Nam và đồng yên Nhật, sự tl	e imported from Japan. The r ởng chi phí. Tỷ lệ tăng trưởng ay đổi trong tỉ giá hối đoái tru	rate in Vietnam is applied for oth y kinh tế ở Nhật Bản được tính c ng bình (1%) trong 5 năm vừa q	er items. To consider the flu cho các chi phí thay thế và mu ua được thêm vào tỷ lệ tăng	ictuation of exchange rate ua thêm các thiết bị cơ điện và c trường kinh tế Nhật Bản	



0% Exempted based on MOF Circular No.129-2008-TT-BTC "Circular on Value Added Tax"Article A, II, 16, Expenditure VAT could be ccounted as ecpense of the company.

page=5

and ort,

1a. Conditions

PROFIT AND LOSS STATEMENT	BẢNG KÊ CÁO LÕ VÀ LÃI																											
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
(in US\$ Million	I) (Bằng Triệu USD))	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	204
1. Revenue *1	1. Doanh thu	without VA	AT 35.3	38.7	53.2	88.1	102.9	104.0	114.9	116.2	137.2	142.6	165.9	171.2	210.8	214.7	246.6	253.3	287.2	294.2	328.5	334.1	383.1	386.2	419.2	422.7	469.1	4
a. Operating Revenue	a. Doanh thu từ hoạt động kinh doanh	100% 1.	0 35.0	38.3	52.7	87.2	101.9	103.0	113.8	115.0	135.8	141.2	164.2	169.4	208.6	212.4	244.0	250.7	284.2	291.1	325.1	330.6	379.1	382.1	414.9	418.3	464.2	46
b. Other Revenue (= a. / 9)	b. Doanh thu khác (= a./9)		0.4	0.4	0.5	0.9	1.0	1.1	1.2	1.2	1.4	1.5	1.7	1.8	2.2	2.2	2.6	2.6	3.0	3.1	3.4	3.5	4.0	4.0	4.4	4.4	4.9	
2. Operation & Maintenance Costs	2. Chi phí bảo dưỡng và vận hành		18.5	20.6	23.2	25.9	28.8	38.8	53.4	63.0	67.5	75.4	84.2	96.5	104.1	115.2	127.5	152.1	157.2	168.6	181.2	200.8	209.3	225.0	242.1	282.4	280.7	3
a. Staff costs	a. Các chi phí nhân viên		3.4	3.6	3.9	4.1	4.3	4.6	5.2	5.5	5.8	6.1	6.3	6.7	7.0	7.3	7.7	8.1	8.5	8.9	9.3	9.8	10.2	10.7	11.3	11.8	12.4	
b. Power costs	b. Chi phí điện năng		9.3	10.6	12.0	13.5	15.2	17.1	19.0	20.4	21.8	23.3	24.9	26.6	28.4	30.4	32.5	34.7	36.7	38.6	40.7	42.8	45.1	47.5	50.0	52.6	55.4	4
c. Cleaning (Labor&Consumables) cost	 c. Chi phí vệ sinh (Nhân công và hao mòn) 		0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	
d. Spares cost *2	d. Các chi phí phụ tùng *2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Mainor maintenace costs (yearly)	 Chi phí bảo dưỡng - nhỏ (hàng năm) 		0.0	0.0	0.0	0.0	0.0	4.9	13.8	17.5	21.6	26.1	31.1	36.6	42.7	49.3	56.6	64.6	75.7	82.6	90.1	98.4	107.5	117.4	128.3	140.2	153.3	10
- Medium maintenance costs (every 4 years)	 Chi phí bảo dưỡng - trung bình (04 năm/lần) 		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	2.6	0.0	0.0	0.0	3.9	0.0	0.0	0.0	5.6	0.0	0.0	0.0	7.2	0.0	
- Maior maintenance costs (every 8 years)	- Chi phí bảo dưỡng - lớn (08 năm/lần)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	
f. Cost of non-fare business	f. Chi phí KD ngoài bán vé	000/																										
(60% of b. "other revenue")	(60% của doanh thu khác)	60%	0.2	0.2	0.3	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.3	1.3	1.5	1.6	1.8	1.8	2.1	2.1	2.4	2.4	2.6	2.6	2.9	
g. Other Costs	g. Các chi phí khác		3.9	4.3	4.9	5.4	6.0	8.1	9.8	10.5	11.4	12.2	13.1	14.1	15.2	16.3	17.6	18.9	20.1	21.2	22.4	23.7	25.0	26.4	27.8	29.4	31.0	:
h. VAT as expense due to exemption	* *		1.4	1.5	1.8	2.0	2.2	3.1	4.4	5.2	5.6	6.3	7.1	8.2	8.8	9.8	10.9	13.1	13.5	14.5	15.6	17.4	18.1	19.5	21.0	24.6	24.4	
3. Depreciation	3. Khấu hao	"1"=on, "0"=off	60.3	60.3	60.3	60.9	60.9	70.0	63.2	63.2	64.3	64.3	84.1	72.7	72.7	72.7	72.7	94.1	94.1	94.1	95.6	95.6	112.5	103.9	104.3	103.2	103.2	1
a. Civil Work UG (Under ground))	a. Xây dựng đoạn đi ngầm	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
b. Civil Work EL (Elevated)	b. Xây dựng đoạn đi cao	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
c. E&M	c. Mua sắm và lắp đặt các thiết bị cơ điện	1	53.5	53.5	53.5	53.5	53.5	45.4	37.2	37.2	37.2	37.2	25.8	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	7.2	7.2	7.2	7.2	
d. Depot(included in E&M)	 d. Depot (bao gồm trong phần mua sắm và lắp đặt các thiết bị cơ điện) 	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
e. Rolling Stock	e. Đầu máy toa xe	1	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	
f. Addition/Renewal (Rolling Stock/E&M)	f. Phần bổ sung/Phục hồi (Đầu máy toa xe/mua sắm và lắp đặt các thiết bị cơ điện)	1	0.0	0.0	0.0	0.7	0.7	17.9	19.3	19.3	20.4	20.4	51.6	51.6	51.6	51.6	51.6	73.0	73.0	73.0	74.6	74.6	91.4	90.0	90.4	89.3	89.3	
4. Loan Interest			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5. Net Income before Tax	4. Thu nhập thuần chưa thuế		-43.4	-42.2	-30.2	1.2	13.1	-4.8	-1.7	-10.1	5.5	2.9	-2.4	1.9	34.0	26.7	46.4	7.2	36.0	31.4	51.7	37.7	61.2	57.3	72.8	37.0	85.2	1
6. Income Tax	5. Thuế Thu nhập		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	1.7	1.3	2.3	0.4	4.5	7.9	12.9	9.4	15.3	14.3	18.2	9.3	21.3	
7. Net Income after Tax	6. Thu nhập thuần sau thuế		-43.4	-42.2	-30.2	1.2	13.1	-4.8	-1.7	-10.1	5.2	2.8	-2.4	1.8	32.3	25.4	44.1	6.8	31.5	23.6	38.8	28.3	45.9	42.9	54.6	27.8	63.9	
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A 1 A 10 AA 1 A 0A 1 A 0	PROFIT AND LOSS STATEMENT	BÁNG KẾ CÁO LÕ VÀ LÀI																															
Note: A set in the set	(in US\$ Million)	(Bằng Triệu USD)	1 20 ⁻	1 2 18 201	3 19 2020	4 2021	5 2022 2	6 7 2023 202	, 8 24 2025	9 2026	10 2027	11 2028 2	12 13 2029 2030	14 2031	15 2032	16 2033	17 · 2034 20	18 19 035 2036	20 5 2037	21 2038	22 2 2039 20	3 24 40 204	25 I 2042	26 2043	27 204	28 204	5 2	29 046	30 2047	31 2048	32 2049	33 2050	34 2051
	1. Revenue *1 a. Operating Revenue	1. Doanh thu wit	ithout VAT 3	35.3 38	8.7 53.2	88.1 87.2	102.9	104.0 11 103.0 11	4.9 116.	2 137.2	142.6	165.9	171.2 210. 169.4 208	.8 214. 6 212	7 246.6	253.3 250.7	287.2 2	94.2 328	.5 334.1	383.1 379.1	386.2 4 382.1 4	19.2 42	2.7 469.	1 473 2 468	.1 52	2.6 52	26.8	590.7 584.6	592.7 586 5	641.5 634.9	643.7 637.0	722.2	722.2
	b. Other Revenue (= a. / 9)	 b. Doanh thu khác (= a./9) chi phí hóa duẩng và vập hòph 	1.0 0	0.4 0	0.4 0.5	0.9	1.0	1.1	1.2 1.	2 1.4	1.5	1.7	1.8 2.	.2 2.1	2 2.6	2.6	3.0	3.1 3.	.4 3.5	4.0	4.0	4.4	4.4 4.	9 4	.9	5.4	5.5	6.2	6.2	6.7	6.7	7.5	7.5
	a. Staff costs	a. Các chi phí báo dương và vận nănh A. Các chi phí nhân viên	I	3.4 3	3.6 3.9	4.1	4.3	4.6	5.2 5.	5 5.8	6.1	6.3	6.7 7.	.0 7.3	3 7.7	8.1	8.5	8.9 9	.2 200.8	10.2	10.7	11.3	1.8 12.	4 13	.2 53	6.0	16.8	17.6	420.3	453.7	20.3	21.3	22.3
	b. Power costs c. Cleaning (Labor&Consumables) cost	b. Chi phi điện năng c. Chi phí vệ sinh (Nhân công và hao mòn)		9.3 10 0.3 0	0.6 12.0 0.3 0.3	13.5 0.4	15.2 0.4	17.1 1 0.4	9.0 20. 0.4 0.	4 21.8 5 0.5	23.3 0.5	24.9 0.6	26.6 28. 0.6 0.	.4 30.4 .7 0.1	4 32.5 7 0.8	34.7 0.8	36.7 0.9	38.6 40 0.9 1	.7 42.8 .0 1.0	45.1 1.1	47.5 1.1	50.0 5 1.2	52.6 55. 1.2 1.	4 58 3 1	.3 6 .4	5.8 6 1.4	69.3 1.5	72.9 1.6	76.8 1.7	80.9 1.8	85.2 1.9	89.7 2.0	94.4 2.1
	 d. Spares cost *2 - Mainor maintenace costs (yearly) 	d. Các chi phí phụ tùng *2 - Chi phí bảo dưỡng - nhỏ (hàng năm)	-	 0.0 0	- 0.0	- 0.0	- 0.0	4.9 1	- 3.8 17.	- 5 21.6	- 26.1	- 31.1	 36.6 42.	.7 49.3	- 3 56.6	- 64.6	- 75.7	82.6 90	.1 98.4	- 107.5	- 117.4 1:	 28.3 14	- 10.2 153.	- 3 167	- .6 18	- 3.3 20	00.5	- 219.4	- 240.1	- 262.8	- 287.8	- 315.1	- 345.1
	Medium maintenance costs (every 4 years) Major maintenance costs (every 8 years)	 - Chi phí bảo dưỡng - trung bình (04 năm/lần) - Chi phí bảo dưỡng - lớn (08 năm/lần) 		0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 1.	3 0.0 3 0.0	0.0	0.0	2.6 0. 0.0 0.	.0 0.	0.0	3.9 6.5	0.0	0.0 0	.0 5.6	0.0	0.0	0.0	7.2 0. 2.8 0.	0 C	.0	0.0	9.1 0.0	0.0	0.0	0.0	11.6 20.8	0.0	0.0
	f. Cost of non-fare business	f. Chi phí KD ngoài bán vé (00%) của dao thến kết (00%)	%	0.2 0	0.2 0.3	0.5	0.6	0.6	0.7 0.	7 0.8	0.9	1.0	1.1 1.	.3 1.3	3 1.5	1.6	1.8	1.8 2	.1 2.1	2.4	2.4	2.6	2.6 2.	93	.0	3.3	3.3	3.7	3.7	4.0	4.0	4.5	4.5
	g. Other Costs	g. Các chi phí khác		3.9 4	4.3 4.9	5.4	6.0	8.1	9.8 10.	5 11.4	12.2	13.1	14.1 15.	.2 16.	3 17.6	18.9	20.1	21.2 22	.4 23.7	25.0	26.4	27.8 2	9.4 31.	0 32	.7 3	6.6 3	38.6	40.7	43.0	45.4	47.9	50.6	53.4
	h. VAT as expense due to exemption 3. Depreciation	3. Khấu hao	6	1.4 1 60.3 60	1.5 1.8 0.3 60.3	2.0 60.9	2.2 60.9	3.1 70.0 6	4.4 5. 3.2 63.	2 5.6 2 64.3	6.3 64.3	7.1 84.1	8.2 8. 72.7 72.	.8 9.1 .7 72.1	8 10.9 7 72.7	13.1 94.1	13.5 94.1	14.5 15. 94.1 95.	.6 17.4 .6 95.6	18.1 112.5	19.5 103.9 1	21.0 2 04.3 10	4.6 24. 03.2 103.	4 26 2 92	.3 2 .3 9	9.0 3 2.3 9	32.2 92.3	33.8 92.3	36.5 92.3	39.5 120.5	45.9 120.5	46.2 121.5	50.0 119.3
APA APA APA APA APA APA </th <td>a. Civil Work UG (Under ground)) b. Civil Work EL (Elevated)</td> <td>a. Xây dựng đoạn đi ngâm 0 b. Xây dựng đoạn đi cao 0</td> <td></td> <td>0.0 C</td> <td>0.0 0.0 0.0 0.0</td> <td>0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0 0. 0.0 0.</td> <td>0 0.0 0 0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0 0. 0.0 0.</td> <td>.0 0.0 .0 0.0</td> <td>.0 0.0 .0 0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0 0.</td> <td>.0 0.0 .0 0.0</td> <td>0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0 0. 0.0 0.</td> <td>0 0 0 0</td> <td>.0 .0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td> <td>0.0</td> <td>0.0 0.0</td> <td>0.0 0.0</td>	a. Civil Work UG (Under ground)) b. Civil Work EL (Elevated)	a. Xây dựng đoạn đi ngâm 0 b. Xây dựng đoạn đi cao 0		0.0 C	0.0 0.0 0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0. 0.0 0.	0 0.0 0 0.0	0.0 0.0	0.0 0.0	0.0 0. 0.0 0.	.0 0.0 .0 0.0	.0 0.0 .0 0.0	0.0 0.0	0.0 0.0	0.0 0.	.0 0.0 .0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0. 0.0 0.	0 0 0 0	.0 .0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0
	c. E&M	c. Mua sắm và lắp đặt các thiết bị cơ điện 1 d. Depot (bao cồm trong phần mua sắm và lắp	5	53.5 53	3.5 53.5	53.5	53.5	45.4 3	7.2 37.	2 37.2	37.2	25.8	14.4 14.	.4 14.4	4 14.4	14.4	14.4	14.4 14	.4 14.4	14.4	7.2	7.2	7.2 7.	2 7	.2	7.2	7.2	7.2	7.2	0.0	0.0	0.0	0.0
Image: Processing of the second of the se	d. Depot(included in E&M)	đặt các thiết bị cơ điện)		0.0 0	0.0 0.0 67 67	0.0	0.0	0.0	0.0 0. 67 6	0 0.0	0.0	0.0	0.0 0. 67 6	.0 0.0	0 0.0	0.0	0.0	0.0 0	.0 0.0	0.0	0.0	0.0	0.0 0. 67 6) () 7 6	.0	0.0 6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	f. Addition/Renewal	f. Phần bổ sung/Phục hồi (Đầu máy toa xe/mua		0.0 0	0.0 0.0	0.7	0.7	17.9 1	9.3 19.	3 20.4	20.4	51.6	51.6 51.	.6 51.0	.6 51.6	73.0	73.0	73.0 74	.6 74.6	91.4	90.0	0.7 90.4 8	0.7 0. 19.3 89.	, 0 3 78	., .4 7	8.4	78.4	78.4	78.4	120.5	120.5	121.5	119.3
	(Rolling Stock/E&M) 4. Loan Interest	sâm và lập đặt các thiết bị cơ điện)		0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0.	0 0.0	0.0	0.0	0.0 0.	.0 0.	0.0	0.0	0.0	0.0 0	.0 0.0	0.0	0.0	0.0	0.0 0.	D 0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5. Net Income before Tax 6. Income Tax	4. Thu nhập thuần chưa thuế 5. Thuế Thu nhập	-4	43.4 -42 0.0 0	2.2 -30.2 0.0 0.0	1.2 0.0	13.1 0.0	-4.8 - 0.0	1.7 -10. 0.0 0.	1 5.5 0 0.3	2.9 0.1	-2.4 0.0	1.9 34. 0.1 1.	.0 26. .7 1.	7 46.4 3 2.3	7.2 0.4	36.0 4.5	31.4 51 7.9 12	.7 37.7 .9 9.4	61.2 15.3	57.3 14.3	72.8 3 18.2	9.3 85. 9.3 21.	2 78 3 19	.6 9 .6 2	5.0 6 3.7 ·	63.2 15.8	108.7 27.2	80.1 20.0	67.3 16.8	-2.2 0.0	71.3 17.8	31.1 7.8
	7. Net Income after Tax	6. Thu nhập thuần sau thuế	-4	13.4 -42	2.2 -30.2	1.2	13.1	-4.8 -	1.7 -10.	1 5.2	2.8	-2.4	1.8 32.	.3 25.4	4 44.1	6.8	31.5	23.6 38	.8 28.3	45.9	42.9	54.6 2	.7.8 63.	9 58	.9 7	1.2 4	47.4	81.5	60.1	50.5	-2.2	53.5	23.3
Data Description No No <th></th> <th></th> <th><= If you chang</th> <th>ge this yellow</th> <th>v cell, you can</th> <th>simulate / Né</th> <th>ếu thay đối ô m</th> <th>nàu vàng này</th> <th>thì có thể mô</th> <th>phỏng được</th> <th></th>			<= If you chang	ge this yellow	v cell, you can	simulate / Né	ếu thay đối ô m	nàu vàng này	thì có thể mô	phỏng được																							
LineLin	CASH FLOW STATEMENT	BẢNG KÊ DÒNG NGÂN L ƯU																															
Solution: Solution: <t< th=""><td>(in US\$ Million)</td><td>(Bằng Triệu USD)</td><td>201</td><td>18 201</td><td>19 2020</td><td>2021</td><td>2022 2</td><td>2023 202</td><td>24 2025</td><td>2026</td><td>2027</td><td>2028 2</td><td>2029 2030</td><td>2031</td><td>2032</td><td>2033</td><td>2034 20</td><td>035 2036</td><td>3 2037</td><td>2038</td><td>2039 20</td><td>40 204</td><td>2042</td><td>2043</td><td>2044</td><td>204</td><td>5 2</td><td>046</td><td>2047</td><td>2048</td><td>2049</td><td>2050</td><td>2051</td></t<>	(in US\$ Million)	(Bằng Triệu USD)	201	18 201	19 2020	2021	2022 2	2023 202	24 2025	2026	2027	2028 2	2029 2030	2031	2032	2033	2034 20	035 2036	3 2037	2038	2039 20	40 204	2042	2043	2044	204	5 2	046	2047	2048	2049	2050	2051
1. Norm 1. No	1. Operating Cash Flow a. Net Income after Tax	 Dòng ngân lưu trong hoạt động kinh doanh a. Thu nhập thuần sau thuế 	1 -4	16.8 18 13.4 -42	8.1 30.0 2.2 -30.2	62.1 1.2	74.1 13.1	65.2 6 -4.8 -	1.5 53. 1.7 -10.	1 69.5 1 5.2	67.1 2.8	81.7 -2.4	74.6 105. 1.8 32.	.0 98. .3 25.4	.1 116.8 .4 44.1	100.9 6.8	125.6 1 31.5	17.7 134 23.6 38	.4 123.9 .8 28.3	158.4 45.9	146.9 1 42.9	58.9 13 54.6 2	31.0 167. 27.8 63.	1 151 9 58	.2 16 .9 7	3.5 13 1.2 4	39.7 47.4	173.8 81.5	152.4 60.1	171.0 50.5	118.3 -2.2	175.0 53.5	142.6 23.3
Normality	b. Depreciation 2. Investment Cash Flow	b. Khấu hao 2. Dòng ngân lưu trọng đầu tự	6	60.3 60 0.0 0	0.3 60.3	-20.6	60.9	70.0 6	3.2 63. 2.7 0	2 64.3 0 -32.8	64.3	84.1	72.7 72.	7 72.	7 72.7	94.1	94.1	94.1 95	.6 95.6	112.5	-304.1 -	04.3 10 12.4	0.0 0.	2 92 0 -120	.3 9	2.3 9	92.3	92.3	92.3	120.5	120.5	121.5	119.3
And Marked Ma	a. Initial Investment	a. Đầu tự ban đầu	-		-	-	-		-	-	-	-		-		-	-		-	-	-		-	-	-	-	0.0	-	-	-	-	-	-
Import Norm	b. Addition/Renewal (Rolling Stock)	b. Đau từ vào việc phục nói/bo sung (dau may toa xe) b. Đau từ vào việc phục nói/bo sung (dau may toa xe)	m Donot)	0.0 0	0.0 0.0	-20.6	0.0	0.0 -4	0.0 0.	0 -32.8	0.0	0.0	216.1 0	.0 0.0	0 0.0	-/3.8	0.0	0.0 -84	.4 0.0	-16.1	0.0 -	0.0	0.0 0.	J U	.0	0.0	0.0	0.0	0.0	-326.1	0.0	-29.9	0.0
 	3. Financial Cash Flow	3. Dòng ngân lựu trong Tài chính	in Depot)	0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0.	0 0.0	0.0	0.0	0.0 0.	.0 0.1	0.0	-231.0	0.0	0.0 0.	.0 0.0	-304.1	0.0	0.0	0.0 0.	0 0	.4	0.0	0.0	0.0	0.0	-399.0	-399.0	0.0	0.0
All All Market <	a. Subsidy from HCMC b. Repayment of Loan Principal from HCMC	a. Tiền trợ cấp từ TPHCM		0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0	0 00	0.0	0.0	0.0 0	0 01	0 00	0.0	0.0	0.0 0	0 00	0.0	0.0	0.0	0.0 0		0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
A BADAM Org O B	3.5 VAT effect to CF (VAT exempted)			0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0.	0 0.0	0.0	0.0	0.0 0.	.0 0.1	0.0	0.0	0.0	0.0 0	.0 0.0	0.0	0.0	0.0	0.0 0.	0 0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
a. b. b. b. p. b.	a. Sales b. Expenditure	09	% %	0.0 0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0 0.	0 0.0	0.0	0.0	0.0 0.	.0 0.0 .0 0.0	.0 0.0 .0 0.0	0.0	0.0	0.0 0.	.0 0.0 .0 0.0	0.0	0.0	0.0	0.0 0. 0.0 0.	0 0 0 0	.0 .0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S = 0.0000000000000000000000000000000000	c. VAT payment 4. Net Cash Flow	4. Dòng ngân lựu thuận	1	0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0.	0 0.0	0.0	0.0	0.0 0.	0 0.	0 0.0	-203.9	0.0	0.0 0	0 0.0	0.0	0.0	0.0	0.0 0.	0 0 1 30	.0 .8 16	0.0	0.0	0.0	0.0	-554.7	-281.2	-254.5	0.0
All and services All	5. Cumulative Cash Flow Before Short Term Borrow	v 5. Dòng ngân lưu lũy tích	- 1	16.8 34	4.9 65.0	106.5	180.6	159.8 17	8.6 231.	7 268.4	335.5	201.1	59.6 164.	.5 262.	6 379.4	175.5	301.1 4	18.7 468	.8 592.7	431.0	273.8 4	20.2 55	51.2 718.	4 749	.1 91	2.7 10	52.4	1226.1	1378.5	823.8	542.6	288.1	430.7
mark	6. Cumulative Cash Flow After Short Term Borrowing		<u> </u>	0.0 0 16.8 34	4.9 65.0	0.0 106.5	180.6	0.0 159.8 17	0.0 0. '8.6 231.	0 0.0 7 268.4	0.0 335.5	201.1	59.6 164.	.0 0.0	.0 0.0 .6 379.4	0.0 175.5	0.0 301.1 4	18.7 468	.0 0.0	0.0 431.0	273.8 4	0.0 20.2 55	0.0 0. 51.2 718.	5 0 4 749	.0 .1 91	0.0 2.7 10	52.4 ⁻	0.0 1226.1	0.0 1378.5	823.8	0.0 542.6	288.1	430.7
Amendes Average	Risk Reserve (10% of Net Cash Flow)			1.7 1	1.8 3.0	4.2	7.4	0.0	1.9 5.	3 3.7	6.7	0.0	0.0 10.	.5 9.6	8 11.7	0.0	12.6	11.8 5	.0 12.4	0.0	0.0	14.6	3.1 16.	7 3	.1 1	6.4	14.0	17.4	15.2	0.0	0.0	0.0	14.3
MACE ALCON (MP) 0 (M) (M) 24	Cumulative Risk Reserve Reserve for Renewal Investment		1	1.7 3 15.2 16	3.5 6.5 6.3 27.0	10.6 37.4	18.1 66.7	18.1 1 -20.8 1	9.9 25. 6.9 47.	3 28.9 8 33.0	35.6 60.4	35.6 -134.4 -	35.6 46. •141.6 94.	.1 55.9 .5 88.3	9 67.6 3 105.1	67.6 -203.9	80.2 113.0 1	91.9 96 05.9 45	.9 109.3 .0 111.5	109.3 -161.7	109.3 1 -157.2 1	24.0 13 31.8 11	7.1 153. 7.9 150.	8 156 4 27	.9 17 .7 14	3.2 18 7.2 12	87.2 25.7	204.6 156.4	219.8 137.1	219.8 -554.7	219.8 -281.2	219.8 -254.5	234.1 128.3
Inclusion Inclusion <t< th=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																																	
The state of the s	HCMPC Subsidy (if C67 is negative)	(in LIS\$ Million) 43	1																														
The statute																																	
marks marks mark <	Big. Loan Balance		_	0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0.	0.0	0.0	0.0	0.0 0.	.0 0.	0.0	0.0	0.0	0.0 0	.0 0.0	0.0	0.0	0.0	0.0 0.	o 0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
begin part with black or 0 0	Borrowing Repayment Interest	10 5.09	0 yr <mark>%</mark>	0.0 0	0.0 0.0 0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0. 0.0 0.	0 0.0 0 0.0	0.0 0.0	0.0 0.0	0.0 0.	.0 0.0 .0 0.0	.0 0.0 .0 0.0	0.0	0.0 0.0	0.0 0.	.0 0.0 .0 0.0	0.0	0.0 0.0	0.0	0.0 0. 0.0 0.	0 0 0 0	.0 .0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0
Alternative provessions Alternative pr	Repayment Principal End Loan Balance	Grace period	- yr	0.0 0	0.0 0.0	0.0	0.0	0.0 0.0	0.0 0.	0 0.0	0.0 0.0	0.0	0.0 0.	.0 0. .0 0.	0.0	0.0	0.0	0.0 0.	.0 0.0 .0 0.0	0.0	0.0	0.0	0.0 0.	0 C 0 C	.0 .0	0.0 0.0	0.0 0.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0
bit bi																																	
No. or Fiesd (see or field) No. or field (see or field) <t< th=""><td>No 6 December 2000</td><td></td><td>2</td><td>2018 20</td><td>019 2020</td><td>2021</td><td>2022</td><td>2023 2</td><td>024 202</td><td>25 2026</td><td>2027</td><td>2028</td><td>2029 203</td><td>30 203</td><td>31 2032</td><td>2033</td><td>2034</td><td>2035 20</td><td>36 2037</td><td>2038</td><td>2039</td><td>2040 2</td><td>2041 204</td><td>2 20</td><td>43 2</td><td>044 2</td><td>2045</td><td>2046</td><td>2047</td><td>2048</td><td>2049</td><td>2050</td><td>2051</td></t<>	No 6 December 2000		2	2018 20	019 2020	2021	2022	2023 2	024 202	25 2026	2027	2028	2029 203	30 203	31 2032	2033	2034	2035 20	36 2037	2038	2039	2040 2	2041 204	2 20	43 2	044 2	2045	2046	2047	2048	2049	2050	2051
Description State St	No. of Passengers per day [000 persons] No. of Passengers per year [000,000 persons]		53.	.504 58.7	749 64.882	2 107.64	335 114.6 1	16.11 11	544 34 7.87 119.4	9 354 13 121.15	126.2	401 137.25 1	414 45 141.83 154.3	36 157.4	473 47 162.08	487	500 171.28 17	513 52 75.63 179.	4 533 31 182.56	185.34	546 187.02 18	8.71 190.41	556 55 831 191.0347	2 192.79	44 194.34	053 195.89	572 9906 196	574 6.53606 19	576 97.17832 1	578 197.82586 1	580 198.47875	580 198.479 19	580 98.478752
Definition Seas Case with Higher Starting Fare (incl. Cost and Full Dep.) 10,200 10,200 10,200 20,200 22,800 23,800 <	Revenue assumption		0	172 0	72 0.01	0.01	1.00	1.00 1	00 1.0	0 1 2 9	1.00	1.27	107 15	E 15	E 170	1 72	1.01	101 01	0 2.10	0.07	0.07) EE (LEE 20		10 0	10 1	2 10	2.46	2.46	2.74	2.74	4.10	4.10
Initializing baseliniting Date 1 <th< th=""><td>Option : Base Case with Higher Starting Fare (incl. C</td><td>Cost and Full Dep.)</td><td>15,2</td><td>200 15,2</td><td>200 19,000</td><td>19,000</td><td>20,900 20</td><td>0,900 22,8</td><td>.09 1.0 300 22,80</td><td>9 1.28 0 26,600</td><td>26,600</td><td>1.37 28,500 2</td><td>1.37 1.5</td><td>io 1.5: 10 32,300</td><td>0 36,100</td><td>36,100 3</td><td>1.91</td><td>,900 43,70</td><td>0 2.10 0 43,700</td><td>49,400</td><td>49,400 53,</td><td>200 53,</td><td>200 58,90</td><td>2 2.8</td><td>0 64,</td><td>.10 3 300 64,</td><td>600 7</td><td>3.46 72,200</td><td>3.46 72,200</td><td>3.74 77,900</td><td>3.74 77,900</td><td>4.19 87,400</td><td>4.19 87,400</td></th<>	Option : Base Case with Higher Starting Fare (incl. C	Cost and Full Dep.)	15,2	200 15,2	200 19,000	19,000	20,900 20	0,900 22,8	.09 1.0 300 22,80	9 1.28 0 26,600	26,600	1.37 28,500 2	1.37 1.5	io 1.5: 10 32,300	0 36,100	36,100 3	1.91	,900 43,70	0 2.10 0 43,700	49,400	49,400 53,	200 53,	200 58,90	2 2.8	0 64,	.10 3 300 64,	600 7	3.46 72,200	3.46 72,200	3.74 77,900	3.74 77,900	4.19 87,400	4.19 87,400
Dividend Columative Dividend Columative Divid	Inflation Sensitivity Case		1	I.01 1.0	.01 1.01	1.01	1.01	1.47 1	.47 1.4	7 1.47	1.47	1.94	1.94 1.9	14 1.94	4 1.94	2.58	2.58	2.58 2.5	68 2.58	3.32	3.32	3.32 3	.32 3.3	2 4.2	4 4	.24 4	4.24	4.24	4.24	5.34	5.34	5.34	5.34
Dividend Cé tric 0% 0 00			1	1 2	3	4	5	6 7	, 8	9	10	11	12 13	14	15	16	17	18 19	20	21	22 2	3 24	25	26	27	28		29	30	31	32	33	34
Deferred Tax Calculation Tinh bas So fluid 0.0 <	Dividend	Cố tức 00	%	0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0.	0 0.0	0.0	0.0	0.0 0.	.0 0.0	0.0	0.0	0.0	0.0 0.	.0 0.0	0.0	0.0	0.0	0.0 0.	0 0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Determed Tax Calculation Thin bin Shub divort shaping I 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 24 24 24 24 24 24 24 24 24 24 24 24 24 26 27 28 24 </th <td>Cumulative Dividend</td> <td>long so co tực</td> <td></td> <td>0.0 0</td> <td>0.0 0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0 0.</td> <td>0 0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0 0.</td> <td>.0 0.0</td> <td>.0 0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0 0</td> <td>.0 0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0 0.</td> <td>5 0</td> <td>.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td>	Cumulative Dividend	long so co tực		0.0 0	0.0 0.0	0.0	0.0	0.0	0.0 0.	0 0.0	0.0	0.0	0.0 0.	.0 0.0	.0 0.0	0.0	0.0	0.0 0	.0 0.0	0.0	0.0	0.0	0.0 0.	5 0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
belfore Tax Calculation Thinda's 8d huld drop: chichem Ucass car/forward) Khola's Amagessing Thinda's 8d huld drop: chichem Stability Stability <td></td>																																	
Net income before Tax Thu nhập thuận chưa thuế 2018 2019 2020 2021 2022 2023 2024 2032 2034 2035 2038 2039 2040 2041 2042 2046 2046 2047 2048 2049 2050 2051 Net income before Tax Thu nhập thuận chưa thuế -43.4 -42.2 -30.2 1.2 13.1 -4.8 -1.7 -10.1 5.5 2.9 -2.4 1.9 34.0 28.7 48.4 7.2 30.0 0.0 <t< th=""><td>Deferred Tax Calculation (Loss carryforward)</td><td>Tính toán Số thuế được trả chậm Khoản lỗ mang sang</td><td>1</td><td>1 2</td><td>3</td><td>4</td><td>5</td><td>6 7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12 13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18 19</td><td>20</td><td>21</td><td>22 2</td><td>3 24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>:</td><td>29</td><td>30</td><td>31</td><td>32</td><td>33</td><td>34</td></t<>	Deferred Tax Calculation (Loss carryforward)	Tính toán Số thuế được trả chậm Khoản lỗ mang sang	1	1 2	3	4	5	6 7	8	9	10	11	12 13	14	15	16	17	18 19	20	21	22 2	3 24	25	26	27	28	:	29	30	31	32	33	34
And magned balance back into magned balance back into an magned back into an magned balance back into an magned	Net income before Tax	Thu nhận thuận chua thuấ	201	18 201	19 2020	2021	2022 2	2023 202	24 2025	2026	2027	2028 2	2029 2030	2031	2032	2033	2034 20	21 4 2036	<u>5</u> 2037	2038	2039 20	40 204	2042	2043	204	204	5 2	109.7	2047	2048	2049	2050	2051
-4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -4 -5 -5 -5 -5 -5 -5 -5 -5 -5 -5 -6 <th< th=""><td>-5</td><td>-5</td><td>-</td><td>-43.4 -4 0.0</td><td>42.2 -30.2 0.0 0.0</td><td>z 1.2 0 0.0</td><td>13.1</td><td>-4.8 29.1</td><td>-1.7 -10 42.2 30</td><td>.i 5.5 0.2 0.0</td><td>2.9 0.0</td><td>-2.4 1.8</td><td>1.9 34 1.6 0</td><td>4.∪ 26 D.O 0</td><td>0.7 46.4 0.0 0.0</td><td>7.2 0.0</td><td>36.0 0.0</td><td>31.4 5 0.0 (</td><td>1.7 37.7 0.0 0.0</td><td>61.2 0.0</td><td>57.3 0.0</td><td>0.0</td><td>37.0 85 0.0 0</td><td>.2 7:</td><td>ช.ซ 0.0</td><td>95.0 0.0</td><td>o3.2 0.0</td><td>108.7</td><td>80.1 0.0</td><td>67.3 0.0</td><td>-2.2 0.0</td><td>/1.3 0.0</td><td>31.1 0.0</td></th<>	-5	-5	-	-43.4 -4 0.0	42.2 -30.2 0.0 0.0	z 1.2 0 0.0	13.1	-4.8 29.1	-1.7 -10 42.2 30	.i 5.5 0.2 0.0	2.9 0.0	-2.4 1.8	1.9 34 1.6 0	4.∪ 26 D.O 0	0.7 46.4 0.0 0.0	7.2 0.0	36.0 0.0	31.4 5 0.0 (1.7 37.7 0.0 0.0	61.2 0.0	57.3 0.0	0.0	37.0 85 0.0 0	.2 7:	ช.ซ 0.0	95.0 0.0	o3.2 0.0	108.7	80.1 0.0	67.3 0.0	-2.2 0.0	/1.3 0.0	31.1 0.0
-2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -2 -0 0.0 4.34 4.22 30.2 0.0 4.8 1.7 10.1 0.0 0.2 0.0	-4 -3	-4 -3		0.0 0.0	0.0 0.0	0 0.0 0 42.2	29.1 42.2	42.2 30.2	30.2 0 0.0 0	0.0 0.0	1.8 1.7	1.7 10.1	10.1 0 0.0 0	0.0 0.0 0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0	0.0 0.0 0.0 0.0	0.0	0.0 0.0	0.0 0.0	0.0 0	.0	D.O D.O	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0
- -	-2	-2		0.0	0.0 43.4	4 42.2	30.2	0.0	0.0 4	.8 1.7	10.1	0.0	0.0 2	2.4 0	0.0 0.0	0.0	0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0 0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Income for Taxation Ihu napp tinh thue 0 0.0	Subject Year	Năm tính		43.4 4	43.4 42.2 42.2 30.2	2 30.2 2 0.0	0.0	4.8	4.8 1	./ 10.1	0.0	2.4	2.4 0 0.0 0	0.0 0	0.0 0.0	0.0	0.0	0.0 0	0.0 0.0 0.0 0.0	0.0	0.0	0.0	0.0 0	.0	0.0 0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0
Tax Amount (NoLoss Carry Forward Calculation) Tổng số thuế 0.0 <td>Income for Taxation</td> <td>Thu nhập tính thuế</td> <td></td> <td>0.0</td> <td>0.0 0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0 0</td> <td>0.0 0.0</td> <td>0.0</td> <td>0.0</td> <td>0.0 19</td> <td>9.9 24</td> <td>4.4 46.4</td> <td>7.2</td> <td>36.0</td> <td>31.4 5</td> <td>1.7 37.7</td> <td>61.2</td> <td>57.3</td> <td>72.8</td> <td>37.0 85</td> <td>.2 7</td> <td>8.6</td> <td>95.0</td> <td>63.2</td> <td>108.7</td> <td>80.1</td> <td>67.3</td> <td>0.0</td> <td>69.2</td> <td>31.1</td>	Income for Taxation	Thu nhập tính thuế		0.0	0.0 0.0	0.0	0.0	0.0	0.0 0	0.0 0.0	0.0	0.0	0.0 19	9.9 24	4.4 46.4	7.2	36.0	31.4 5	1.7 37.7	61.2	57.3	72.8	37.0 85	.2 7	8.6	95.0	63.2	108.7	80.1	67.3	0.0	69.2	31.1
Income Tax rate Ti lé thué thu nhập 0% 0% 0% 0% 0% 0% 0% 5.00\% 5.00\% 5.00\% 5.00\% 5.00\% 5.00\% 5.00\% 5.00\% 5.00\% 5.0	Tax Amount (NoLoss Carry Forward Calculation)	Tổng số thuế		0.0	0.0 0.0	0.0	0.0	0.0	0.0 0	0.0 0.3	0.1	0.0	0.1 1	1.7 1	.3 2.3	0.4	4.5	7.9 12	2.9 9.4	15.3	14.3	18.2	9.3 21	.3 1	9.6	23.7	15.8	27.2	20.0	16.8	0.0	17.8	7.8
	Income Tax rate *Pursuant to the Circular 130/2008/TT-BTC	Tỉ lệ thuê thu nhập Theo thông tư Số 130/2008/TT-BTC		0%	0% 0%	6 0%	0%	0%	0% 5.00	% 5.00%	5.00%	5.00%	5.00% 5.00	1% 5.00	% 5.00%	5.00%	12.5%	25% 25	5% 25%	25%	25%	25%	25% 25	% 25	%	25%	25%	25%	25%	25%	25%	25%	25%

Source> / <Nguồn> All information is from " Preliminary Financial analysis for HCMC UMRT Line No.1"by NJPT / Tắt cả thông tin trên được lấy từ "Phân tích tài chính ban đầu cho dự ăn Xây dựng tuyển DSĐT TPHCM (Tuyển 1) của NJPT

2. PL&CFS

CASH FLOW STATEMENT	BẢNG KÊ DÒNG NGÂN LƯU																																		
(in US\$ Millio	n) (Bằng Triệu USD)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
1. Revenue	1. Doanh thu	35.3	38.7	53.2	88.1	102.9	104.0	114.9	116.2	137.2	142.6	165.9	171.2	210.8	214.7	246.6	253.3	287.2	294.2	328.5	334.1	383.1	386.2	419.2	422.7	469.1	473.1	522.6	526.8	590.7	592.7	641.5	643.7	722.2	722.2
a. Operating Revenue ^{*1, *2}	a. Doanh thu từ hoạt động kinh doanh ^{*1, *2}	35.0	38.3	52.7	87.2	101.9	103.0	113.8	115.0	135.8	141.2	164.2	169.4	208.6	212.4	244.0	250.7	284.2	291.1	325.1	330.6	379.1	382.1	414.9	418.3	464.2	468.1	517.2	521.3	584.6	586.5	634.9	637.0	714.6	714.6
b. Other Revenue (= a. / 9)	b. Doanh thu khác (= a./9)	0.4	0.4	0.5	0.9	1.0	1.1	1.2	1.2	1.4	1.5	1.7	1.8	2.2	2.2	2.6	2.6	3.0	3.1	3.4	3.5	4.0	4.0	4.4	4.4	4.9	4.9	5.4	5.5	6.2	6.2	6.7	6.7	7.5	7.5
2. Operation & Maintenance Costs ¹³	2. Chi phí bảo dưỡng và vận hành ^{*3}	18.5	20.6	23.2	46.6	28.8	124.8	96.1	63.0	100.2	75.4	300.3	312.6	104.1	115.2	127.5	456.9	157.2	168.6	265.6	200.8	529.5	529.1	254.6	282.4	280.7	422.7	335.4	371.3	389.8	420.3	1179.4	924.9	958.8	571.8
a. Staff costs ^{*4}	a. Các chi phí nhân viên ^{*4}	3.4	3.6	3.9	4.1	4.3	4.6	5.2	5.5	5.8	6.1	6.3	6.7	7.0	7.3	7.7	8.1	8.5	8.9	9.3	9.8	10.2	10.7	11.3	11.8	12.4	13.0	16.0	16.8	17.6	18.5	19.4	20.3	21.3	22.3
b. Power costs	b. Chi phí điện năng	9.3	10.6	12.0	13.5	15.2	17.1	19.0	20.4	21.8	23.3	24.9	26.6	28.4	30.4	32.5	34.7	36.7	38.6	40.7	42.8	45.1	47.5	50.0	52.6	55.4	58.3	65.8	69.3	72.9	76.8	80.9	85.2	89.7	94.4
c. Cleaning (Labor&Consumables) costs	c. Chi phí vệ sinh (Nhân công và hao mòn)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
d. Mainor maintenace costs (yearly)	d. Chi phí bảo dưỡng - nhỏ (hàng năm)	0.0	0.0	0.0	0.0	0.0	4.9	13.8	17.5	21.6	26.1	31.1	36.6	42.7	49.3	56.6	64.6	75.7	82.6	90.1	98.4	107.5	117.4	128.3	140.2	153.3	167.6	183.3	200.5	219.4	240.1	262.8	287.8	315.1	345.1
e. Medium maintenance costs (Every 4 years) - *4	e. Chi phí bảo dưỡng - trung bình (04 năm/lần) 📲	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	2.6	0.0	0.0	0.0	3.9	0.0	0.0	0.0	5.6	0.0	0.0	0.0	7.2	0.0	0.0	0.0	9.1	0.0	0.0	0.0	11.6	0.0	0.0
f. Major maintenance costs (Every 8 years)	f. Chi phí bảo dưỡng - lớn (08 năm/lần)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	0.0	0.0
g. Additional/Renewal (Rolling Stock, E&M Depot) ^{`5}	g. Phân bô sung/Phục hôi (Đầu máy toa xe/ thiết bị cơ điện cho Depot)	0.0	0.0	0.0	20.6	0.0	86.0	42.7	0.0	32.8	0.0	216.1	216.1	0.0	0.0	0.0	304.8	0.0	0.0	84.4	0.0	320.2	304.1	12.4	0.0	0.0	120.4	0.0	0.0	0.0	0.0	725.7	399.6	429.5	0.0
h. Costs of non-fare business (60% of other revenue	h. Chi phí KD ngoài bán vé (60% của doanh thu khác) 60%	0.2	0.2	0.3	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.3	1.3	1.5	1.6	1.8	1.8	2.1	2.1	2.4	2.4	2.6	2.6	2.9	3.0	3.3	3.3	3.7	3.7	4.0	4.0	4.5	4.5
i. Other Costs ^{*7}	i. Các chi phí khác ^{*7}	3.9	4.3	4.9	5.4	6.0	8.1	9.8	10.5	11.4	12.2	13.1	14.1	15.2	16.3	17.6	18.9	20.1	21.2	22.4	23.7	25.0	26.4	27.8	29.4	31.0	32.7	36.6	38.6	40.7	43.0	45.4	47.9	50.6	53.4
j. VAT		1.4	1.5	1.8	2.0	2.2	3.1	4.4	5.2	5.6	6.3	7.1	8.2	8.8	9.8	10.9	13.1	13.5	14.5	15.6	17.4	18.1	19.5	21.0	24.6	24.4	26.3	29.0	32.2	33.8	36.5	39.5	45.9	46.2	50.0
3. Net Cash Flow before tax (1-2) *8	3. Dòng ngân lưu thuần chưa thuế (1-2) ^{*8}	16.8	18.1	30.0	41.5	74.1	-20.8	18.8	53.1	37.0	67.2	-134.4	-141.5	106.7	99.4	119.1	-203.5	130.1	125.5	62.9	133.4	-146.4	-142.9	164.7	140.3	188.4	50.4	187.3	155.5	200.9	172.4	-537.8	-281.2	-236.7	150.3

3. Net Cash Flow before tax (1-2)*
3. Dong gân lur thuân chur thuế (1-2)*
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Operation Revenue Caluculation with demands in SAPROF / Tính doanh thu từ hoạt động kinh doanh theo yêu cầu trong SAPROF

<Assumption> / <Dự tính> Inflation Rate (2012-2023) / Tỷ lệ lạm phát (2012-2023) Inflation Rate (2024-2033) / Tỷ lệ lạm phát (2024-2033) Inflation Rate (2034-2043) / Tỷ lệ lạm phát (2034-2043) Inflation Rate (2044-) (a) 7.0% Business day 6.0% 252 5.0% 5.0% Full year adjustn (b) 20,850 /ND=1US\$ Foreign Currency rate / Tỉ lệ ngoại hối roreign Currency rate / 1 i le ngoại noi
 percentage of ticket price exemption and reduction for social-policy beneficiaries (here it is assumed as Free charge.) "Article 21.- 109/2006/ND-CP"
 / Phần trăm giá vé miền giảm dành cho những người được hưởng chính sách phúc lợi xã hội (giả định Miễn phí.) "Điều 21 - 109/2006/ND-CP"
 Discount rate for SF card / Tỉ lệ chiết khẩu dành cho thể SF
 Avarage trịp / Trung bình chuyến đị
 Ridership factor for sensitivity Anal
 100% Fare Increase sensitivity
 100% Fare Option Sensitivity (if "1" Rate of ridership increase per 5.6% (c) year Year / Năm 2020-2030 (d) 10% (e) 100% Fare Option Sensitivity (if "1", Finalized Base Rate Fare, else Sensitivity Analysis) (f) 2031-2043 5000 VND Base Rate in 2012

[1]	[2]	[3]	[3]'	[4]	[5]	[5]'	[5]"	[5]'''		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
#	vear / Năm	Rate in 20 / Ti lệ nă	018 Base m 2018	Inflation Rate / Tỷ lệ lạm phát	BaseRate after E years / Tỉ lệ cơ bản sa trượt giá mỗ	scalation every 2 s(*1) au khi tính toán i 2 năm (*1)	Finalized Bas	se Rate Fare		Number of / Số hàr	passengers Ih khách	Average Trip / Trung bình chuyến đi	average fare per person / Phí trung bình	Operation Revenue / Doanh thu vận hà nh	Ratio for SF Card User / Tỉ lệ dành cho người sử dụng thẻ SF	Discout Rate for SF Card User / Tỉ lệ chiết khấu dành cho người sử dung thẻ SF	Student Ratio	Discount Rate for Student	Pupil Ratio	Discount Rate for Pupil
		VND	VND	(%)	VND	VND	VND	VND	000persons	/ day / 000ngườ	ri / ngày	km	US\$	Mil.US\$	(%)	(%)	(%)	(%)	(%)	(%)
		Base Rate / Tỉ lệ cơ bản	Km Rate / Tỉ lệ km		[3]*{1+[4]}	[3]'*{1+[4]}	Round Up Number of [5]	Round Up Number of [5]'	Base (Moderate) / cơ bản	After applying factor /	After applying ticket price exemption (Child Exemption) / Sau khi áp dụng miễn vé		{[9]*[3]'*(1+[4])+[5]} / (b)	[9]*[7]*342days*100 0person/10^6			12%	0%	7%	0%
0	2018	8,000	800	7.0%	8,000	800	8,000	800	156	156	148	9.0	0.73	35.0	50.00	10%	12%	0%	7%	0%
1	2019	8,000	800	7.0%	8,000	800	8,000	800	172	172	162	9.0	0.73	38.3	52.89	10%	12%	0%	7%	0%
2	2020	8,000	800	7.0%	9,159	916	10,000	1,000	190	190	179	9.0	0.91	52.7	55.60	10%	12%	0%	7%	0%
3	2021	8,000	800	7.0%	9,159	916	10,000	1,000	314	314	297	9.0	0.91	87.2 101.0	58.17	10%	12%	0%	7%	0%
5	2022	8,000	800	7.0%	10,486	1,049	11,000	1,100	330	330	310	9.0	1.00	101.9	62.86	10%	12%	0%	7%	0%
6	2023	8,000	800	6.0%	11 782	1,043	12 000	1,100	344	344	325	9.0	1.00	113.8	65.00	10%	12%	0%	7%	0%
7	2025	8.000	800	6.0%	11.782	1,178	12.000	1.200	349	349	329	9.0	1.09	115.0	67.13	10%	12%	0%	7%	0%
8	2026	8,000	800	6.0%	13,239	1,324	14,000	1,400	354	354	334	9.0	1.28	135.8	69.12	10%	12%	0%	7%	0%
9	2027	8,000	800	6.0%	13,239	1,324	14,000	1,400	369	369	348	9.0	1.28	141.2	71.00	10%	12%	0%	7%	0%
10	2028	8,000	800	6.0%	14,875	1,488	15,000	1,500	401	401	378	9.0	1.37	164.2	72.76	10%	12%	0%	7%	0%
11	2029	8,000	800	6.0%	14,875	1,488	15,000	1,500	414	414	391	9.0	1.37	169.4	74.41	10%	12%	0%	7%	0%
12	2030	8,000	800	6.0%	16,714	1,671	17,000	1,700	451	451	426	9.0	1.55	208.6	75.96	10%	12%	0%	7%	0%
13	2031	8,000	800	6.0%	16,/14	1,671	17,000	1,700	460	460	434	9.0	1.55	212.4	77.42	10%	12%	0%	7%	0%
14	2032	8,000	800	6.0%	18,779	1,878	19,000	1,900	4/3	4/3	447	9.0	1.73	244.0	/8./9	10%	12%	0%	7%	0%
15	2033	8,000	800	5.0%	20 704	1,070	21 000	1,900	407 500	407	400	9.0	1.73	200.7	81.20	10%	12%	0%	7%	0%
10	2034	8,000	800	5.0%	20,704	2,070	21,000	2,100	513	513	472	9.0	1.91	204.2	82.43	10%	12%	0%	7%	0%
18	2036	8.000	800	5.0%	22.827	2,283	23.000	2,300	524	524	494	9.0	2.10	325.1	83.49	10%	12%	0%	7%	0%
19	2037	8,000	800	5.0%	22,827	2,283	23,000	2,300	533	533	503	9.0	2.10	330.6	84.50	10%	12%	0%	7%	0%
20	2038	8,000	800	5.0%	25,166	2,517	26,000	2,600	541	541	511	9.0	2.37	379.1	85.44	10%	12%	0%	7%	0%
21	2039	8,000	800	5.0%	25,166	2,517	26,000	2,600	546	546	516	9.0	2.37	382.1	86.32	10%	12%	0%	7%	0%
22	2040	8,000	800	5.0%	27,746	2,775	28,000	2,800	551	551	520	9.0	2.55	414.9	87.15	10%	12%	0%	7%	0%
23	2041	8,000	800	5.0%	27,746	2,775	28,000	2,800	556	556	525	9.0	2.55	418.3	87.93	10%	12%	0%	7%	0%
24	2042	8,000	800	5.0%	30,590	3,059	31,000	3,100	558	558	527	9.0	2.82	464.2	88.67	10%	12%	0%	7%	0%
25	2043	8,000	800	5.0%	30,590	3,059	31,000	3,100	563	563	532	9.0	2.82	468.1	89.35	10%	12%	0%	7%	0%
26	2044	8,000	800	5.0%	33,725	3,3/3	34,000	3,400	508	568	536	9.0	3.10	517.2	90.00	10%	12%	0%	7%	0%
21	2045	8,000	800	5.0%	37,120	3,373	34,000	3,400	574	572	540	9.0	3.10	521.3	90.00 90.00	10%	12%	0%	7%	0%
20	2047	8,000	800	5.0%	37,182	3,718	38,000	3,800	576	576	544	9.0	3 46	586.5	90.00	10%	12%	0%	7%	0%
30	2048	8,000	800	5.0%	40,993	4,099	41,000	4,100	578	578	545	9.0	3.74	634.9	90.00	10%	12%	0%	7%	0%
31	2049	8,000	800	5.0%	40,993	4,099	41,000	4,100	580	580	547	9.0	3.74	637.0	90.00	10%	12%	0%	7%	0%
32	2050	8,000	800	5.0%	45,195	4,520	46,000	4,600	580	580	547	9.0	4.19	714.6	90.00	10%	12%	0%	7%	0%
33	2051	8,000	800	5.0%	45,195	4,520	46,000	4,600	580	580	547	9.0	4.19	714.6	90.00	10%	12%	0%	7%	0%
NOTE /								Ric	dership Sensit	ivity										

*1 : Fare increase by economic growth is considered every 2 years until 2025 to compensate the replacement of E&M.

<Source> / <Nguồn>

- " Preliminary Financial analysis for HCMC UMRT Line No.1" prepared by NJPT / "Phân tích tài chính ban đầu cho Dự án Xây dựng tuyến đường sắt đô thị TPHCM Tuyến 1" của NJPT

- [3] [3] [6] : from Working Paper 36 prepared by NJPT / từ tờ trình làm việc số 36 do ban CVC thực hiện
 - (a) from "Japan Center for Economic Research (JCER), Changing Demographics in Asia (January 2007)". / từ Trung tâm nghiên cứu kinh tế Nhật Bản, Thay đổi nhân khẩu học tại châu Á (tháng 1 năm 2007)

Holiday 113 342.34

Rate / Tỉ	lệ
	3.7%
	1.1%

< Total O&M costs >	< Tổng các chi phí của Công ty O&M>				
		2018	2024	2034	Description / Mô tá
Cleaning (Labor & Consumables) cost	Chi phí vệ sinh (Nhân công và Tiêu dùng)	288,960	301,920	327,840	(Stations(6 x 2000 + 5 x 3000 + 5000 + 10000 +4000) + Total trains x No.of car/train x 60) x 6
					(Ga(6 x 2000 + 5 x 3000 + 5000 + 10000 + 4000) + Tổng số tàu x Số toa x 60) x 6
Spares cost	Chi phí về phụ tùng	3,118,103	6,236,206	9,354,309	Spares cost ratio X Construction cost / Ti lệ chi phí phụ tùng x Chi phí xây dựng
Renewals	Chi phí phục hồi	0	5,904,327	29,036,765	2,000,000 with escalation in 2022 / 5,000,000 with escalation in 2032
					2,000,000 kèm truợt giá năm 2022 / 5,000,000 kèm trượt giá năm 2032

-Gource? / - Hgubn? All information comes from "Preliminary Financial analysis for HCMC UMRT Line No.1" and "O&M company organization" prepared by NJPT Talk a date things in druce lay for "Phan tich lat chinh ban dbu cho Du an Xby oung during sail do thi ["PHCML Tuyfen 1.8." Ed choic Cong ty O&M" clia NJPT Talk a clia chings in druce lay for "Phan tich lat chinh ban dbu cho Du an Xby oung during sail do thi ["PHCML Tuyfen 1.8." Ed choic Cong ty O&M" clia NJPT

Annual Allocation without Escalation	Phân bố hàng năm không tính trượt giá																																				
	(Unit:US\$)	Đơn vị: USD		Open/O&M 1	08M 2	08M 3	08M 4	0&M 5	0&M 6	08M 7	0&M 8	08M 9	O&M 10	08M 11	08M 12	08M 13	08M 14	0&M 15	08M 16	08M 17	0&M 18	O&M 19	O&M 20	08M 21	08M 22	0&M 23	08M 24	0&M 25	08M 26	08M 27	0&M 28	O&M 29	0&M 30	O&M 31	08M 32	0&M 33	08M 34
		Aver	ige increasing	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051
Staff costs	Các chi phi nhân viên	ratio /Tilib (2	(2024-2034) Ra tăng binh quân / Ti li 024-2034)	io in 2018 i năm 2018																																	
Management Operations	Quản lý Văn bành			3.2% 673,819	673,819 1 829 760	673,819 1 925 517	673,819 1 925 517	673,819 1 925 517	673,819 1 925 517	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819 2 176 387	673,819	673,819 2 751 163	673,819 2 751 163	673,819 2 751 163	673,819 2 751 163	673,819 2 751 163	673,819 2 751 163	673,819 2 751 163	673,819 2 751 163
Maintenance	Báo dưỡng Sub-Total	Công		4.4% 928,044 3,431,623	928,044 3,431,623	984,960 3,584,297	984,960 3,584,297	984,960 3,584,297	984,960 3,584,297	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,084,565 3,934,771	1,184,169 4,609,151	1,184,169 4,609,151	1,184,169 4,609,151	1,184,169 4,609,151	1,184,169 4,609,151	1,184,169 4,609,151	1,184,169 4,609,151	1,184,169 4,609,151
Refer to " 6. Staff costs	Xem phần "6. Các chi phi nhân viên																																				
Power costs Traction	Các chi phí điện năng Có sức kéo Không vớn king		1.8%	9.8% 2,054,623	2,641,556	3,228,488	3,815,421	4,402,354	4,989,287	5,576,220	5,687,745	5,799,269	5,910,793	6,022,318	6,133,842	6,245,366	6,356,891	6,468,415	6,579,940	6,691,464	6,726,990	6,762,704	6,798,608	6,834,702	6,870,988	6,907,467	6,944,140	6,981,007	7,018,070	8,085,519	8,128,446	8,171,601	8,214,985	8,258,599	8,302,445	8,346,523	8,390,836
Refer to "7. Traction Power"	Sub-Total Xem phần "7. Điện năng sức kéo	Cộng	0.0%	9,282,949	9,869,882	10,456,815	11,043,748	11,630,681	12,217,614	12,804,547	12,916,071	13,027,596	13,139,120	13,250,644	13,362,169	13,473,693	13,585,217	13,696,742	13,808,266	13,919,791	13,955,316	13,991,031	14,026,934	14,063,029	14,099,315	14,135,794	14,172,466	14,209,333	14,246,396	15,313,846	15,356,773	15,399,928	15,443,312	15,486,926	15,530,771	15,574,850	15,619,163
Refer to "8. Non-Traction Power "	Xem phần "8. Điện năng không sức kéo"																																				
Cleaning (Labor & Consumables) cost	Chi phí vệ sinh (Nhân công & tiêu dùng)		0.8%	1.4% 288,960	291,120	293,280	295,440	297,600	299,760	301,920	304,512	307,104	309,696	312,288	314,880	317,472	320,064	322,656	325,248	327,840	328,622	329,407	330,193	330,981	331,771	332,562	333,356	334,151	334,949	335,748	336,549	337,352	338,158	338,965	339,773	340,584	341,397
Mainor Mediu, Maior	nhờ trung bình , lớn		4.1%	12.7% 2,664,531 2.2% 453.572	3,108,620 529,167	3,552,708 604,762	3,996,797 680,358	4,440,885 755,953	4,884,974 831,548	5,329,062 907,144	5,595,515 952,501	5,861,968 997,858	6,128,421 1.043,215	6,394,874 1.088.572	6,661,328 1,133,930	6,927,781 1,179,287	7,194,234	7,460,687	7,727,140	7,993,593	8,089,037 1.376,963	8,185,620 1,393,404	8,283,357 1,410.041	8,382,261	8,482,345 1,443,914	8,583,625 1,461,154	8,686,114 1.478.600	8,789,826 1.496,255	8,894,777 1,514,120	9,000,981	9,108,453 1.550,494	9,217,209	9,327,263 1,587,741	9,438,631 1,606,698	9,551,328 1.625.882	9,665,372 1.645.295	9,780,777
*: Contractor will take care of maintena	nce for first 5 years. / Nhà thầu sẽ phụ trách công tác bảo du	öng																																			
Renewals	Các chi phí phục hồi		17.3%	0.0% -	-	-	-			5,904,327	8,217,571	10,530,815	12,844,059	15,157,302	17,470,546	19,783,790	22,097,033	24,410,277	26,723,521	29,036,765	30,483,525	32,002,370	33,596,893	35,270,862	37,028,237	38,873,174	40,810,034	42,843,399	44,978,077	47,219,115	49,571,814	52,041,735	54,634,721	57,356,903	60,214,718	63,214,924	66,364,615
Other Costs (30%)	Các chi phi khác (30%)			23.1% 4,836,490	0,109,124	0,047,009	0,880,192	0,212,820	0,040,408	0,983,233	7,111,011	1,238,789	7,300,007	1,494,340	7,022,123	7,749,901	1,811,019	8,000,407	8,133,235	8,201,013	8,300,413	8,300,270	8,390,089	8,441,370	8,487,035	8,034,372	8,081,092	8,029,301	8,077,004	9,237,578	9,255,420	9,339,794	9,391,687	9,444,111	9,497,072	9,000,076	9,004,028
TOTAL	1040 0040			100.0% 20,956,125	22,300,030	24,035,421	20,400,031	20,022,241	28,303,030	30,100,004	39,031,933	41,000,001	44,703,830	47,032,755	50,455,746	53,300,095	00,233,043	39,100,091	01,907,940	04,034,400	00,473,047	00,100,013	00,077,770	71,000,100	13,001,900	70,000,402	11,000,034	60,237,036	62,000,090	07,240,015	09,021,001	82,014,177	50,332,032	50,201,303	101,300,057	104,000,753	107,564,072
Annual Allocation with Escalation	Phân bố hàng năm có tính trượt giá																																				
				Open/O&M	O&M	08M	O&M	08.M	O&M	O8M	O&M	O&M	O&M	O&M	O&M	08.M	08M	0&M	O&M	O&M	O&M	O&M	08M	O&M	O8M	O&M	O&M	O&M	O&M	O8M	O&M	O&M	O&M	O&M	08M	08M	O&M
A	(Unit:Million US\$)	Đơn vị: M USD	Escalat	on / Trượt giá 2018	2019	2 2020	3 2021	4 2022	5 2023	6 2024	7 2025	2026	9 2027	10 2028	11 2029	12 2030	13 2031	14 2032	15 2033	16 2034	17 2035	18 2036	19 2037	20 2038	21 2039	22 2040	23 2041	24 2042	25 2043	26 2044	27 2045	28 2046	29 2047	30 2048	31 2049	32 2050	33 2051
Management Operations	Cac chi phi nhan vien Quân lý Văn bành			4.9% 0.7	0.7	0.7	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.3	1.3	1.4	1.4	1.5	1.6 5.1	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.5	2.6 10.5	2.7	2.8 11.6	3.0 12.1	3.1 12.7	3.3 13.3
Maintenance	Báo dưỡng Sub-Total			4.9% 0.9	1.0	1.1	1.1 4.1	1.2	1.3 4.6	1.4	1.5 5.5	1.6 5.8	1.7	1.7	1.8 6.7	1.9	2.0 7.3	2.1 7.7	2.2	2.3 8.5	2.4 8.9	2.6 9.3	2.7	2.8 10.2	3.0 10.7	3.1 11.3	3.3 11.8	3.4 12.4	3.6 13.0	4.1 16.0	4.3 16.8	4.5 17.6	4.7 18.5	5.0 19.4	5.2 20.3	5.5 21.3	5.7 22.3
Power costs Traction	Các chi phí điện năng Có sức kéo			-> 2.1	2.8	7.0	4.7	5.8	7.0	8.3	9.0	9.7	10.5	6.00% 11.3	12.2	13.2	14.2	15.3	16.5	17.6	18.6	19.7	20.8	5.00%	23.1	24.4	25.8	27.2	28.7	34.7	36.7	38.7	5.00% 40.9	43.1	45.5	48.1	50.7
Non-traction	Không sức kéo Sub-Total	Cộng		- 7.2	7.7 10.6	8.3 12.0	8.9 13.5	9.5 15.2	10.1 17.1	10.7 19.0	11.4 20.4	12.1 21.8	12.8 23.3	13.6 24.9	14.4 26.6	15.2 28.4	16.2 30.4	17.1 32.5	18.2 34.7	19.1 36.7	20.0 38.6	21.0 40.7	22.1 42.8	23.2 45.1	24.3 47.5	25.5 50.0	26.8 52.6	28.2 55.4	29.6 58.3	31.1 65.8	32.6 69.3	34.2 72.9	35.9 76.8	37.7 80.9	39.6 85.2	41.6 89.7	43.7 94.4
Cleaning (Labor & Consumables) cost	Chi phi vệ sinh (Nhân công & tiêu dùng)			0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
Spares cost Mainor	Chi phi phụ tùng nhỏ								4.9	7.9	8.8	9.8	10.9	12.0	13.3	14.6	16.1	17.7	19.4	21.1	22.4	23.8	25.3	26.9	28.6	30.3	32.2	34.3	36.4	38.7	41.1	43.7	46.4	49.3	52.4	55.6	59.1
Mediu, Major	trung binh , lớn Sub-Total	Cộng		:			1		0.8 5.7	0.9 8.8	1.0 9.8	1.1 10.9	1.2 12.1	1.4 13.4	1.5 14.8	1.7 16.3	1.8 17.9	2.0 19.7	2.2 21.6	2.6 23.6	2.7 25.1	2.9 26.7	3.1 28.4	3.3 30.1	3.5 32.0	3.7 34.0	3.9 36.1	4.2 38.4	4.4 40.8	4.7 43.4	5.0 46.1	5.3 49.0	5.6 52.0	6.0 55.3	6.4 58.7	6.8 62.4	7.2 66.3
* : Contractor will take care of maintenance for fir	st 5 years. / Nhà thầu sẽ phụ trách công tác bảo dưỡng																																				
December 1	A										0.7		15.0		~ .								70.4				400.0	*** *			150.1	175.7	100 7	010 5	0.05 4	050 5	000.0
Renewals	Các chỉ phí phục hồi				-	-				5.9	8.7 10 F	11.8	15.3	19.1	23.4	28.1	33.2	38.9	45.1	54.6	60.2	66.3 22.4	73.1	80.6	88.9	98.0	108.0	119.0	131.2	144.6	159.4	175.7	193.7	213.5	235.4	259.5	286.0

O&M Company Organization / Tổ	chức công ty O&M							Staff Al	location	1 Plan /	Kế hoạ	ach phâr	ı bố nh	ân viêr	n						alary (alculation /	Tính to	án lượng		
						He	ead Offi	ice												Monthly Salary (incl.	alary c			annaong		
Department / Bô phân	Unit / Đơn vi	Title				Т	'ại trụ s	ð						V	Vork site	9			Total	Social&Benefit) [USD]						
Boparanont, Bộ phận	onici bon q		3/	Q/	3/	Q/	3/	9/	3/	۹/	total	3/	۹/	3/	9/	3/	9/	total	/ Tổng	Lương hàng tháng(Bao gồm						
			2014	2014	2015	2015	2016	2016	2017	2017	/ tổng	2015	2015	2016	2016	2017	2017	/ tổng		phúc lợi xã hội) [Bằng USD]		2014	2	2015	2	2016
	MM		6	6	6	6	6	6	6	6		6	6	6	6	6	6				MM	USD	MM	USD	MM	USD
Members Council/Chairman / Chủ tịch	NA	NA	5	5	5	5	5	5	5	5	5							-	5	896	60	53,758	60	53,758	60	53,758
Board of General Directors	NA	General Director /Tổng Giám đốc	1	1	1	1	1	1	1	1	1							-	1	896	12	10,752	12	10,752	12	10,752
/ Ban Tông Giám Đốc		Deputy General Director / Phó Tổng Giám Đốc	1	1	1	2	2	3	3	3	3							-	3	896	12	10,752	18	16,127	30	26,879
Board of Supervisors	Subtotal /Công		7	7	7	8	8	9	9	10	10	0	0	0	0	0	0	-	10	890	84	75.261	90	80.637	102	91,389
		Head/ Giám đốc Điều hành				1	1	1	1	1	1							-	1	882	0	0	6	5,294	12	10,588
Human resources/Nhân sư		Deputy Head / Phó Trưởng phòng	1	1	1	1	1	1	1	1	1							1	1	882	12	10,588	12	10,588	12	10,588
		Staff / Nhân viên	1	1	1	1	1	1	1	1	1		0	0	0	0	0	-	1	378	12	4,540	12	4,540	12	4,540
		Subtotal /Cộng Head/ Giám đốc Điều bành	2	2	2	3	3	3	1	3	1	0	U	0	0	0	U	0	3	882	24	15,128	30	5 294	12	25,715
		Deputy Head / Phó Trưởng phòng	1	1	1	2	2	2	3	3	3								3	882	12	10,588	18	15,881	24	21,175
Administration / Hanh chinh		Staff / Nhân viên	1	1	1	2	2	2	3	3	3							,	3	378	12	4,540	18	6,810	24	9,080
		Subtotal /Cộng	2	2	2	5	5	5	7	7	7	0	0	0	0	0	0	0	7		24	15,128	42	27,986	60	40,843
		Head/ Giám độc Điều hành	1	1	1	1	1	1	1	1	1							-	1	882	12	10.599	10	5,294	12	10,588
Finance / Tài chính		Staff / Nhân viên	1	1	1	2	2	2	3	4	4								4	378	12	4,540	18	6.810	30	11.351
		Subtotal /Cộng	2	2	2	5	5	6	6	7	7	0	0	0	0	0	0	0	7		24	15,128	42	27,986	66	43,113
		Head/ Giám đốc Điều hành				1	1	1	1	1	1							-	1	882	0	0	6	5,294	12	10,588
Planning / Kế hoạch		Deputy Head / Phó Trưởng phòng	1	1	1	2	2	2	3	4	4							-	4	882	12	10,588	18	15,881	24	21,175
		Staff / Nhân viên	1	1	1	1	1	2	2	2	2	0	0	0	0	0	0	-	2	378	12	4,540	12	4,540	18	6,810
		Head/ Giám đốc Điều hành	2	2	2	1	4	1	1	1	1	0	U	U	U	0	U	U	1	882	24	13,120	6	5.294	12	10.588
Deseuse estilles dèse 9 Mus sée		Deputy Head /Phó Trưởng phòng				1	1	1	1	1	1							-	1	882	0	0	6	5,294	12	10,588
Procurement/Hop dong & Mua sam		Staff / Nhân viên					1	1	1	1	1							-	1	378	0	0	0	0	12	4,540
		Subtotal /Cộng	0	0	0	2	3	3	3	3	3	0	0	0	0	0	0	0	3		0	0	12	10,588	36	25,715
		Head/ Giam doc Điều hành	1	1	1	1	1	1	1	1	1								1	882	12	10 599	6	5,294	12	37.057
Commercial/Thương mại		Staff / Nhân viên	1	1	1	2	2	4	4	6	6							-	6	378	12	4,540	18	6,810	36	13,621
		Subtotal /Cộng	2	2	2	6	6	9	9	12	12	0	0	0	0	0	0	0	12		24	15,128	48	33,279	90	61,265
	Subtotal /Cộng		17	17	17	33	34	40	43	49	49	0	0	0	0	0	0	0	49		204	150,900	300	226,612	444	326,614
		Head / Trưởng phòng				1	1	1	1	1	1		1	1	1	1	1	1	2	882	0	0	12	10,588	24	21,175
	Operation/ Safety/ Vận h ành An toàn	Deputy Head/ Pho Trường phong Staff / Nhân viên	1	1	1	2	2	2	2	2	2								2	378	12	10,588	18	15,881	24	21,175
		Subtotal /Cộng	2	2	2	4	4	5	5	5	5	0	1	1	1	1	1	1	6	010	24	15,128	42	31,009	66	49,161
		Deputy head / Phó Trưởng phòng					1	4	4	4	4							-	4	882	0	0	0	0	30	26,469
	OCC Trung tâm điều độ	Dispatcher / Điều vận					3	15	15	15	15							-	15	378	0	0	0	0	108	40,862
Operation and Safety		Subtotal /Cộng	0	0	0	0	4	19	19	19	19	0	0	0	0	0	0	0	19		0	0	0	0	138	67,331
	Train operation	Deputy Head at drivers depot / Pho Trường phòn Driver / Tài xế	g								-		6 8	6	50	50	50	6 50	50	707	0	0	36	25,435	348	245.876
	Điêu vận tàu	Subtotal /Cộng	0	0	0	0	0	0	0	0	0	0	14	14	56	56	56	56	56		0	0	84	59,349	420	296,747
	Station business	Station master/ Trưởng ga									-		5	15	15	15	15	15	15	479	0	0	30	14,384	180	86,301
	Kinh doanh tại ga	Staff / Nhân viên									-					141	141	141	141	255	0	0	0	0	0	0
	Subtotal /Câng	Subtotal /Cộng	0	2	0	0	0	0 24	24	24	24	0	20	15	15	213	213	213	156 237		24	15 128	30	14,384	180	499,540
	Subiolai /Cộng		2	2	2	4	0	24	24	24	24	0	20	30	12	213	213	213	231		24	13,120	150	104,742	004	499,540
		Head/ Giám đốc Điều hành				1	1	1	1	1	1		1	1	1	1	1	1	2	882	0	0	12	10,588	24	21,175
		Deputy head /Phó Trưởng phòng	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	2	882	12	10,588	18	15,881	24	21,175
Facilties/	Rolling stocks	Staff/Engineer	1	1	1	1	1	2	2	4	4		6	6	6	6	6	6	10	479	12	5,753	48	23,014	90	43,151
Rolling Stocks	/ Dau may toa xe	Worker / Công nhân Subtotal / Công	2	2	2	2	2	3	3	5	- 5	0	7	7	6 13	13	6 13	13	6 18	255	24	16 341	78	49 483	36	9,197
Trang thiết bị	Track /Structure	Deputy head / Phó Trưởng phòng	1	1	1	5	5	5	5	5	5		4	4	4	4	4	4	9	882	12	10,588	60	52,938	108	95,288
/ вай тау тоа хе	/Architecture/ Electrical&Mechanical	Staff/Engineer	1	1	1	1	1	5	5	18	18		35	35	35	35	35	35	53	479	12	5,753	222	106,438	456	218,630
	/ Đường ray / Công trình	Worker / Công nhân									-				26	26	26	26	26	255	0	0	0	0	156	39,854
	/ Kiến trúc/Cơ & Điện	Subtotal / Cộng	2	2	2	6	6	10	10	23	23	0	39	39	65	65	65	65	88		24	16,341	282	159,376	720	353,772
Total / Tổng	Subtotal /Cong		23	23	23	46	51	78	81	102	102	0	47	47	151	292	292	292	394		276	198,710	816	208,859	2,142	448,471
<sourece> / <nguồn></nguồn></sourece>			-5	20				.0		1 102	1.02	Ĭ	0.			202	102	202		Escalation / Trượt giá		0.049		0.049	_,	1.466
Number of staffs ; "O&M Company plan - Mobiliza	ation plan" by NJPT / Số lượng nh	ân viên; "Kế hoạch công ty O&M - Kế hoạch huy động nhân viên	r i																							
Monthly Salary; JETRO homepage / trang chủ J	IETRO																			Management / Quản lý		182,723		287,846		478,893
																				Operation / Vận hành		18,318		133,045		732,443

Number of HQ staffs	23	23	23	46	51	78	81	102	-	20	30	30	30	30
Mangers at sites			14	20	30	30	30	30						
Totale PC required	23	23	37	66	81	108	111	132						

23 43 42 24

Maintenance / Bảo dưỡng

Yearly

39,574

240,615

265,296

686,187

657,564 1,868,900

6. Staff Costs

Traction Power cost / Chi phí Điện năng sức kéo	2018	2023	2033	2043	Description / Formula Mô tả/ Công thức
in VND	28,545,354,916	77,471,737,120	92,966,084,543	112,334,018,823	Electricity Pequired (kw) x Electricity Price $([1] \times [7] + [2] \times [9] + [2] \times [0])$
in USD	1,369,082	3,715,671	4,458,805	5,387,723	
					Lượng điện được yêu cầu (kw) x Giá điện ([1]x[7]+[2]x[8]+[3]x[9])

2023

2033 2043

< Traction	power cons	umption > / ·	<lượng th="" tiêu<=""><th>ı thụ điện nà</th><th>ing sức kéo</th><th>></th><th></th><th></th><th></th><th></th><th></th><th></th></lượng>	ı thụ điện nà	ing sức kéo	>						
		Base kw/car km (kw cơ bản/ km toa xe)	Car type (load factor) / Loại toa (Tông số tải trọng)	Motor Factor / Yếu tố đ ộng cơ	Speed factor /Yếu tố tốc độ	Station Start-Stop factor / Thông số khởi hành - kết thúc tại ga	3rd Rail Factor / Thông số đ ường ray thứ 3	Train Configuratio n Factor / Thông số cấu hình của tàu	Tunnel Factor / Thông số đ ường hầm	Total Correction Factor / Thông số sửa chữa tổng	Traction Power Consumption for Project System (kw/car.km) / Lượng tiểu thụ điện nă ng sức kéo cho hệ thống dự án (kw/toa.km)	
Old MTR		2.46	0	0	0	0	0	0	0	1	2.46	
PB System	Estimate	2.35	+Ve	+Ve	+Ve	+Ve	0	+Ve	+Ve	0.85	2.00 ((*3)
+Ve	= beneficial	(reduces pov	wer consump	otion) / = Lợi	nhuận (Trừ	lượng tiêu th	ụ điện năng)					

< Verification of above Traction power consumption (*3) > / <Xác minh lượng tiêu thụ điện năng nói trên (^3)>

Estimation by train operation simulator "Notchman" / Ước tính lượng điện năng tiêu thụ bằng thiết bị "Notchman" ghi lại hoạt động của tàu

The result of total power consumption of 3 car train-set between Benh Than and Suoi Tien Terminal is as follows . / Kết quả tiêu thụ điện năng tổng thể của 3 hệ thống tàu giữa Bến Thành và Suối Tiên như sau

Ratio of traction / Tỉ lệ sức kéo	5%	15%	40%	Average
UP / Lên	68.4	105	176.1	116.5
Down / Xuống	103.9	153.4	194.2	150.5
Total / Tổng	172.3	258.4	370.3	267
Kw/car/km / kw/toa/km	1.5	2.2	3.1	2.3

Hour commencing / Giờ bắt đầu	(*1) Trains Operating / Vận hành tàu	(*2) Electricity Required (kw) / Lượng điện yê u cầu	(*1) Trains Operating / Vận hành tàu	(*2) Electricity Required (kw) / Lượng điện yêu cầu	(*1) Trains Operating / Vận hành tàu	(*2) Electricity Required (kw) / Lượng điện yêu cầu	(*1) Trains Operating / Vận hành tà u	(*2) Electricity Required (kw) / Lượng điện yêu cầu
No. of cars / train	3		6	6	6		6	i
05:00	7.5	1,771	10	4,722	12.0	5,667	14.5	6,847
06:00	12.0	2,833	16	7,555	19.2	9,066	23.2	10,955
07:00	15.0	3,542	20	9,444	24.0	11,333	29	13,694
08:00	15.0	3,542	20	9,444	24.0	11,333	29	13,694
09:00	12.0	2,833	16	7,555	19.2	9,066	23.2	10,955
10:00	10.5	2,479	14	6,611	16.8	7,933	20.3	9,586
11:00	9.0	2,125	12	5,667	14.4	6,800	17.4	8,216
12:00	7.5	1,771	10	4,722	12.0	5,667	14.5	6,847
13:00	6.0	1,417	8	3,778	9.6	4,533	11.6	5,478
14:00	4.5	1,062	6	2,833	7.2	3,400	8.7	4,108
15:00	4.5	1,062	6	2,833	7.2	3,400	8.7	4,108
16:00	6.0	1,417	8	3,778	9.6	4,533	11.6	5,478
17:00	9.0	2,125	12	5,667	14.4	6,800	17.4	8,216
18:00	12.2	2,869	18	8,500	21.6	10,200	26.1	12,325
19:00	12.2	2,869	18	8,500	21.6	10,200	26.1	12,325
20:00	9.0	2,125	12	5,667	14.4	6,800	17.4	8,216
21:00	7.5	1,//1	10	4,722	12.0	5,667	14.5	6,847
22:00	6.0	1,417	8	3,778	9.6	4,533	11.6	5,478
23:00	3.0	708	4	1,889	4.8	2,267	5.8	2,739
1 Sub total/ Công 06:00-19:00	193.9	29 076 3	166.0	78 396 7	100.2	94.064.0	240 7	113 661
21 Sub total / Công 19:00-24:00	37.7	8 889 3	52.0	24 554 9	62.4	29 465 8	75.4	35 605
31 Sub total/ Công 00:01-06:00	7.5	1 770 8	10.0	4 722 1	12.0	5 666 5	14.5	6 847
4 Daily Total/ Tổng bàng ngày $= [1] + [2] + [3]$	168.3	1,770.0	228.0	4,722.1	273.6	5,000.0	330.6	0,047
5 Route Length/ Chiều dài tuyến đường (km)	19.7		220.0		210.0		000.0	
6 Track Length / Chiều dài đường sắt(km) = [5] x 2	39.4		39.4		39.4		39.4	

2018

Tariff in 2012 / Bång giá năm 2012 [7] Peak rate/ Cao điểm [8] Off-peak rate / Giờ bình thường [9] Midnight rate / Thấp điểm VND/kw Assumed period / Thời gian dự tính 2,177 1,217 754 06:00-19:00 19:00-24:00 00:01-06:00

< Sourece> / <Nguồn>
All information is from " Preliminary Financial analysis for HCMC UMRT Line No.1"by NJPT / Tất cả thông tin trên được lấy từ "Kế hoạch tài chính ban đầu cho dự án xây dựng tuyến đường sắt đô thị TPHCM, Tuyến 1" của NJPT

Non-Traction power cost / Chi phí điện năng không sức kéo	2018	2023	2033-	Description
in 2012VND / Bằng VND	100,424,842,802	100,424,842,802	100,424,842,802	Purchased Eletricity x Weighted average electricity price
in USD / Bằng USD	4,816,539	4,816,539	4,816,539	([3]x[4])

Lượng điện được yêu cầu (kw) x Giá điện ([1]x[7]+[2]x[8]+[3]x[9])

				[1]	[2]	[3]
					= [1] X 25%	= [1]-[2]
Station No. / Số ga	Tên ga	Station Name	Type / Loại	Electricity / Lượng điện (MWh/year)	From Regenerative Braking / Từ sự phanh ho àn nhiệt	Purchased Electricity / Lượng đ iện mua (MWh/year)
1	Bến Thành	Ben Thanh	U/G I/C (L2)	7,687	1,922	5,765
2	Nhà hát thành phố	Opera House	U/G I/C (L4)	7,585	1,896	5,689
3	Ba Son	Ba Son	U/G	7,609	1,902	5,707
4	Công viên Văn Thánh	Van Thanh Park	EL	3,220	805	2,415
5	Tân Cảng	Tan Cang	EL	4,061	1,015	3,046
6	Thảo Điền	Thao Dien	EL	3,220	805	2,415
7	Metro An Phú	An Phu Meetro	EL	2,636	659	1,977
8	Rạch Chiếc	Rach Chiec	EL	3,220	805	2,415
9	Phước Long	Phuoc Long	EL	3,220	805	2,415
10	Bình Thái	Binh Thai	EL	3,220	805	2,415
11	Thủ Đức	Thu Duc	EL	3,220	805	2,415
12	High Tech	High Tech	EL	3,220	805	2,415
13	Suối Tiên	Suoi Tien Park	EL	3,220	805	2,415
14		Suoi Tien Car Park	EL	3,027	757	2,270
Depot			-	8,505	0	8,505
	Cộng (Ga)	Sub Total (Stations)		58,365	14,591	43,774
	Cộng (Depot)	Sub Total (Depot)		8,505	0	8,505
	Tổng cộng	Total		66,870		52,279

[4] Weighted average electricity price (2012 prices) VND/kwh	2018	2021	2031-
Stations / Ga	1,849	1,849	1,849
Depot	2,289	2,289	2,289

<Sourece> / <Nguồn>

All information is from " Preliminary Financial analysis for HCMC UMRT Line No.1"by NJPT. / Tất cả thông tin được lấy từ "Phân tích tài chính cơ bản cho dự án xây dựng đường sắt đô thị TPHCM Tuyến 1" của NJPT
US\$ Million	Ineu USD															
1. Investment (2008-2019)	1. Đầu tư (2008 - 2019)		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
A. ELIGIBLE PORTION	A. VÓN VAY															
I) Procurement/Construction		2,033.5	-	-	-	-	414.4	295.0	461.5	637.2	164.1	19.3	20.2	10.5	5.5	5.8
PACKAGE 1: Civil (Underground)	GÓI 1: Xây dựng đoạn đi ngầm	314.2	-	-	-	-	78.5	69.1	81.1	60.9	24.5	-	-	-		-
PACKAGE 2: Civil (Elevated)	GÓI 2: Xây dựng doạn đi cao	427.2	-	-	-	-	115.3	106.8	149.5	53.6	2.0	-	-	-		-
PACKAGE 3: E&M, Rolling Stock, Track Work, Maintenance	GÓI 3: Mua sắm và lấp đặt các thiết bị cơ điện, toa xe, đầu máy toa xe và hợp đồng bảo dưỡng	639.6	-	-	-	-	121.5	25.6	65.6	309.6	79.0	12.8	12.8	6.4	3.2	3.2
PACKAGE 4: OM Office IT system	Gói thầu số 4: Hệ thống CNTT văn ph òng công ty OM	4.8	-	-	-	-	-	0.6	0.0	4.2	-	-	-	-	-	-
Base cost for JBIC financing	Chi phí cơ sở cho JBIC giải ngân	1,385.8	-	-	-	-	315.4	202.1	296.2	428.3	105.5	12.8	12.8	6.4	3.2	3.2
Forecasted Amount of Risk	Dự phòng rùi ro	207.9	-	-	-	-	47.3	30.3	44.4	64.2	15.8	1.9	1.9	1.0	0.5	0.5
Price escalation	Tỉ lê trượt giá	439.8	-	-	-	-	51.7	62.5	120.9	144.6	42.8	4.6	5.5	3.2	1.8	2.1
II) Consulting services	II) Dịch vụ tư vấn	98.7	-	24.2	10.7	9.3	12.6	12.6	13.3	5.5	4.0	1.6	1.6	3.3	-	
Base cost	Chi phí cơ bản	73.3	-	21.9	7.6	8.3	8.3	8.3	9.2	2.2	1.5	1.5	1.5	3.0		-
Addition/deduction		16.4		0.1	2.1	0.1	3.1	3.2	2.9	2.8	2.2	-	-	-		-
Physical contingency	Dự phòng phí	9.0	-	2.2	1.0	0.8	1.1	1.1	1.2	0.5	0.4	0.1	0.1	0.3		-
Total (I+II)	Tổng (I+II)	2,132.2	-	24.2	10.7	9.3	426.9	307.6	474.8	642.7	168.2	21.0	21.8	13.8	5.5	5.8
B. NON ELIGIBLE PORTION	B. VÔN ĐỔI ỨNG															
a. Land Acquisition	 a. Chi phí bồi thường giải phóng mặt bằng 	73.9	-	18.5	18.5	18.5	18.5	-	-		-	-	-	-	-	-
Base cost	Chi phí cơ bản	73.9	-	18.5	18.5	18.5	18.5	-	-	-	-	-	-	-		-
Price escalation	Tỉ lệ trượt giá	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Physical contingency	Dự phòng phí	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b.Administration cost	Chi phí quản lý dự án	70.0	0.7	1.6	22.2	17.4	7.0	3.5	3.6	10.4	0.7	0.7	0.7	0.7	0.7	-
c. VAT	c. Thuế giá trị gia tăng	145.1	-	2.2	0.8	0.8	32.4	21.0	30.5	42.6	10.7	1.4	1.4	0.9	0.3	-
d. Import tax	d. Thuế nhập khẩu	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Total (a+b+c+d)	Tổng (a+b+c+d)	289.0	0.7	22.3	41.5	36.7	57.9	24.5	34.1	53.0	11.4	2.1	2.1	1.7	1.0	-
Total (A+B)	Tông (A+B)	2,421.2	0.7	46.4	52.2	46.0	484.8	332.1	508.9	695.7	179.6	23.1	23.9	15.5	6.5	5.8
C. Interest during Construction	C. Lãi vay trong thời gian xây dựng	69.4	-	0.1	0.1	-	1.9	3.1	5.0	7.6	8.3	8.4	8.6	8.7	8.7	8.8
TOTAL (A+B+C)	TÓNG ((A+B+C)	2,490.6	0.7	46.5	52.3	46.0	486.7	335.3	513.9	703.3	187.9	31.5	32.5	24.1	15.2	14.5
D. Opening Expenses	D. Chi phí đầu kỳ	7.6					0.4	1.2	2.0	4.0						
E. Investment for Office IT and Non-fare business	E. Đầu tư hệ thống CNTT văn phòng v à kinh doanh ngoài vé															
Total (D+E)	Tổng (D+E)	7.6	-	-	-	-	0.4	1.2	2.0	4.0	-	-	-	-	-	
TOTAL (A+B+C+D+E)	TÔNG CỘNG (A+B+C+D+E)	2,498.2	0.7	46.5	52.3	46.0	487.0	336.5	516.0	707.3	187.9	31.5	32.5	24.1	15.2	14.5
For the details: See "Current Investment	Cost as of 4480/QĐ-UBND" / Xem chi	tiết tại "Chi ph	í đầu tư hiện tại "	của quyết định 44	80/QĐ-UBND ngà	y 24/9/201	1									

				2017	2018 20	19 2020 2	021 2022	2023 3	2024 202	5 2026	2027 2020	3 202	2030 2031	2032 20	33 2034	2035	2036 2	037 2	2038	2039	2040	2041	2042 20	143 204	14 2045	5 2046	2047	2048	2049
				1	2 3	4 5	6	7	B 9	10	11 12	13	14 15	16 17	18	19	20 21	22	2 2	3 24	2	52	6 27	28	29	30	31	32	33
			Economic growth rate / Tỷ lệ tăng trưởng kinh tê	1.00	1.01 1.0	02 1.03 1.	04 1.05	1.07	1.08 1.10	1.12	1.13 1.15	1.17	1.18 1.20	1.22 1.3	24 1.27	1.29	1.32 1	.34	1.37	1.39	1.42	1.44	1.47 1.	50 1.5	3 1.56	1.59	1.62	1.65	1.68
2. Additional/Renewal (2018-2047)	2. Phục hồi/bổ sung (2018-2047) Original Co / Chi phí gố	c Year / Năm	1 2 3	4 5	6 7	8 9	10	11 1	2 13	14	15 16	17	18 19	20 21	22	23	24 25	26	5 2	7 28	2	9 3	0 31	32	33	34	35	36	37
		For Renew / Ph	nục hồi																										
Rolling Stock	Đầu máy toa xe 201	.6	30			20.6		42.7	32.8					73.8		84.4	1	6.1		12.4							326.1		29.9
E&M	Thiết bị cơ điện 669	.0			-		- 86.0	-		-	216.1 216.1			231.0		-	- 30	4.1 30	04.1	-	-	-	120.4	-		-	399.6	399.6	399.6
E&M (5 yr)	Thiết bị cơ điện (5 năm) 81	.8	5				86.0				92.6			99.8			10	9.6					120.4				132.3		
E&M (10 yr)	Thiết bị cơ điện (10 năm) 227	.9	10								258.084						305.46	526									368.72591		
E&M (15 yr)	Thiết bị cơ điện (15 năm)	-	15						-					-						-							-		
E&M (20 yr)	Thiết bị cơ điện (20 năm) 144	.1	20								81.6						19	3.1									349.6		
E&M (30 yr)	Thiết bị cơ điện (30 năm) 215	.2	30											131.3													348.1		
3. Depreciation	3. Khâu hao																												/
3.1 Original Assets (incl.	3.1 Các tài sản gốc (Bao gồm cả dự	For Dep. /																											
Contingency&Escalation)	phòng và trượt giá)	khấu hao																										_	_
-Civil Work UG	Xây dựng đoạn đi ngầm 461	.0 1	00 23.5%	4.6	4.6 4	.6 4.6 4	4.6 4.6	4.6	4.6 4.6	4.6	4.6 4.6	4.6	4.6 4.6	4.6 4	.6 4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6 4	.6 4.	6 4.6	4.6	4.6	4.6	4.6
-Civil Work EL	Xây dựng đoạn đi cao 626	.8 1	00 32.0% check / Kiếm tra	6.3	6.3 6	.3 6.3 6	6.3	6.3	6.3 6.3	6.3	6.3 6.3	6.3	6.3 6.3	6.3 6	.3 6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3 6	.3 6.	3 6.3	6.3	6.3	6.3	6.3
-E&M	Thiết bị cơ điện 669	.0	34.2% 669.0	53.5	53.5 53	.5 53.5 53	3.5 45.4	37.2	37.2 37.2	37.2	25.8 14.4	14.4	14.4 14.4	14.4 14	.4 14.4	14.4	14.4 1	4.4	7.2	7.2	7.2	7.2	7.2 7	.2 7.	2 7.2	7.2	-	/-	-
E&M (5 yr)	Thiết bị cơ điện (5 năm) 81	.8	5	16.4	16.4 16	.4 16.4 16	5.4 8.2																It shoul	d have he co	unted for 50	vears / Nên	tính khoảng		
E&M (10 yr)	Thiết bị cơ điện (10 năm) 227	.9	10	22.8	22.8 22	.8 22.8 22	2.8 22.8	22.8	22.8 22.8	22.8	11.4												thời gia	n là 50 năm		youro. / Hom	anninanoung		
E&M (15 yr)	Thiết bị cơ điện (15 năm)	-	15	-	-			-		-													thor git						_
E&M (20 yr)	Thiết bị cơ điện (20 năm) 144	.1	20	7.2	7.2 7	.2 7.2	7.2 7.2	7.2	7.2 7.2	7.2	7.2 7.2	7.2	7.2 7.2	7.2 7	.2 7.2	7.2	7.2	7.2											_
E&M (30 yr)	Thiết bị cơ điện (30 năm) 215	.2	30	7.2	7.2 7	.2 7.2	7.2 7.2	7.2	7.2 7.2	7.2	7.2 7.2	7.2	7.2 7.2	7.2 7	.2 7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2 7	.2 7.	2 7.2	7.2			
-Rolling Stock	Đầu máy toa xe 201	.6	30 10.3%	6.7	6.7 6	.7 6.7 6	6.7	6.7	6.7 6.7	6.7	6.7 6.7	6.7	6.7 6.7	6.7 6	.7 6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7 6	.7 6.	7 6.7	6.7			
-Office IT System	Hệ thống IT văn phòng	-	5	-	-																								
Total	Tông 1,958	.4	100.0%	124.7	124.7 124	.7 124.7 124	108.3	91.9	91.9 91.9	91.9	69.1 46.4	46.4	46.4 46.4	46.4 46	.4 46.4	46.4	46.4 4	6.4	31.9	31.9	31.9	31.9	31.9 31	.9 31.	9 31.9	31.9			
3.2 Additional/Renewal Rolling StockFacilities	3.2 Bổ sung/Phục hỗi trang thiết bị đầu máy toa xe																												
Rolling Stock	Đầu máy tọa xe 20	0 20	18			0.7 (07 07	0.7	07 07	0.7	07 07	0.7	07 07	07 0	7 07														
Itoming brook	40	0 20	21					1.4	14 14	14	14 14	1.4	14 14	14 1	4 14	14	14	14											
	29	8 20	23						11	11	11 11	11	11 11	11 1	1 11	11	11	11	11	11									
Intermediate overhaul 1	Trung tu lần 1 73	.8 20	30											2.5 2	.5 2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5 2	.5 2.	5 2.5	2.5			
	59	.4 20	33													2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0 2	.0 2.	0 2.0	2.0	2.0	2.0	2.0
Intermediate overhaul 2	Trung tu lần 2 7	.7 20	33													0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3 0	.3 0.	3 0.3	0.3	0.3	0.3	0.3
Intermediate overhaul 3	Trung tu lần 3 16	.1 20	35															0.5	0.5	0.5	0.5	0.5	0.5 0	.5 0.	5 0.5	0.5	0.5	0.5	0.5
Intermediate overhaul 4	Trung tu lần 4 12	.4 20	37																	0.4	0.4	0.4	0.4 0	.4 0.	4 0.4	0.4	0.4	0.4	0.4
Renewal of 2015 rolling stock	Phục hồi đầu máy tọa xe năm 2015 326	.1 20	45																								10.9	10.9	10.9
Intermediate overhaul 5	Trung tu lần 5 29	.9 20	48																										1.0
	Renewal / Phục hậi	Depreciation/Kh	háu hao																										
E&M (5 vr)	Thiết bị cơ điện (5 năm) 81	.8	5				17.2	17.2	17.2 17.2	17.2	18.5 18.5	18.5	18.5 18.5	20.0 20	.0 20.0	20.0	20.0 2	1.9	21.9	21.9	21.9	21.9	24.1 24	.1 24.	1 24.1	24.1	26.5	26.5	26.5
E&M (10 vr)	Thiết bị cơ điện (10 năm) 227	.9 1	10								25.8 25.8	25.8	25.8 25.8	25.8 25	.8 25.8	25.8	25.8 3	0.5	30.5	30.5	30.5	30.5	30.5 30	.5 30.	5 30.5	30.5	36.9	36.9	36.9
E&M (15 vr)	Thiết bị cơ điện (15 năm)	- 1	15							-				-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
E&M (20 yr)	Thiết bị cơ điện (20 năm) 144	.1 2	20								4.1 4.1	4.1	4.1 4.1	4.1 4	.1 4.1	4.1	4.1 1	3.7	13.7	13.7	13.7	13.7	13.7 13	.7 13.	7 13.7	13.7	27.1	27.1	27.1
E&M (30 yr)	Thift hi an Ele (00 - Ym) 245	2 3	30											44 4	4 44	4.4	4.4	4.4	4.4	4.4	4.4	44	44 4	4 4	4 44	4.4	16.0	16.0	16.0
	I DIELDI CO' DIED (30 DAM) 213																												
Intermediate overhaul	Trung tu 213	1	10											13.1 13	.1 13.1	13.1	13.1 1	3.1	13.1	13.1	13.1	13.1							

NOTE / GHI CHÚ

Annual Fund Requirement Base Year for Cost Estimate Exchange Rates Price Escalation Forecasted Amount for Risk Physical Contingency for Consultant	Yêu cầu quỹ hằng năm Năm cơ sở để dự tính chi phí Tỉ giá Tỉ lệ trướt giá Dự phông rùi ro Chi phí dự phòng cho tư vắn	Oct. VND = FC:	2009 0.00 2.4 15 10	05 JPY % %	FC & Tot LC LC:	al:	million JPY million VND 10.6%		USD	1.0 = VNI VNI	0 19,000 0 1.0	= JPY = JPY	95 0.00500																										
Item	Hạng mục chi phí	FC	Total LC	Total	FC	2007 LC	Total	FC	2008 LC T	otal FC	2009 LC	Total	FC	2010 LC	Total F	20 C L	11 C Total	FC	2012 LC	Total	FC	2013 LC	Total	FC	2014 LC	Total	20 FC L	15 C Tol	al FO	20 20	16 С Т	rotal	FC	2017 LC	Total	FC	2018 LC	Total	FC
A. ELIGIBLE PORTION I) Procurement/Construction PACKAGE 1: Civil (Underground) PACKAGE 2: Civil (Elevated) PACKAGE 3: E&M, Rolling Stock, Track Work, Maintenance	A. YÓN VAY 1) Chi phi xây lắp, mua sắm GC(1): Xây dụng đạan đi ngằm GC(1): Xây dụng đạan đi cao GC(1): Xây dụng đạan đi cao GC(1): Xi Mua sắm và lắp đặt các thiết bị cơ điện, côn; trình đường sắt, đầu máy toa xe và họp đồng bảo dưởng	81,098 6,521 6,107 50,699	19,015,74 3,041,50 5,840,19 1,891,43	2 176,1 8 21,7 7 35,3 0 60,1	77 - 28 18 57	-	-	-	-		-		- - -	-	- 16, - 2, - 1, - 9,	719 4,529 239 1,044 895 1,812 730 363	9,573 39,367 1,474 7,462 2,475 10,958 3,002 11,545	7,129 1,971 1,755 2,048	4,164,81 919,13 1,678,21 76,42	8 27,954 7 6,566 8 10,146 1 2,431	12,666 2,311 2,457 5,249	6,235,068 1,077,897 2,349,505 195,830	43,841 7,700 14,204 6,228	32,527 3,0 - - 24,786 9	007,228 - - 024,699	47,563	8,514 837 - - 6,325 235	,311 12 - - ,951 7	,701 1 - - ,504 1	391 88 - - ,024 3f	,955 - 3,211	1,835 - 1,215	1,424 - 1,024	98,384 - - 38,211	1,916 - - 1,215	729 - - 512	54,406 - 19,105	1,001 - - 608	
Base cost for JBIC financing Price escalation Forecasted Amount of Risk II) Consulting services Base cost	Chi phí cơ sở cho JBIC giải ngân Tỉ lệ trượt giá Dự phòng rùi ro II) Các dịch vụ tư vấn Chi phí cơ bản	63,327 8,272 9,499 6,223 5,657	10,773,13 6,626,63 1,615,97 288,29 262,09	5 117,11 7 41,41 0 17,5 9 7,60 0 6,90	12 - 16 19 15 - 18	-		- 1,835 1,668	- 90,694 2 82,449 2	 - ,289 662 ,081 602	26,266 23,879	794 721	688 625	- - 36,418 33,108	- 13, - 2, 870 791	865 3,219 775 826 080 482 688 36 625 33	9,951 29,964 3,630 4,908 2,993 4,495 3,418 870 3,108 791	5,774 490 866 688 625	2,673,77 1,089,97 401,06 36,41 33,10	6 19,143 5 5,940 6 2,871 8 870 8 791	10,017 1,146 1,503 745 677	3,623,231 2,068,351 543,485 43,205 39,278	28,133 11,488 4,220 961 874	24,786 9 4,022 1,9 3,718 1 181 165	924,699 943,824 138,705 10,083 9,166	29,410 13,741 4,411 232 210	6,325 235 1,241 565 949 35 147 1 134 1	5,951 7 5,967 4 5,393 1 ,759 599	504 1 ,071 ,126 156 142	024 38 213 45 154 5 147 134	,211 5,012 5,732 1,759 1,599	1,215 438 182 156 142	1,024 246 154 147 134	38,211 54,442 5,732 1,759 1,599	1,215 518 182 156 142	512 140 77 295 268	19,105 32,435 2,866 3,518 3,198	608 302 91 312 284	
Price escalation Physical contingency Total (I+II) B. NON ELIGIBLE PORTION	Tỉ lệ trượt giá Dự phòng phí Tổng (I+II) B. VÔN ĐÔI ỨNG a. Chi phí bồi thường giải phóng mặt	- 566 87,321 -	26,20 19,304,04	- 9 6: 1 183,8 [,] -	- 17 11 -	-	-	167 1,835	8,245 90,694 2	208 60 ,289 662	2,388 26,266	72 794	63 688	3,311 36,418	- 79 870 17, -	63 3 407 4,565	- 3,311 79 5,992 40,236 - -	63 7,817	3,31 4,201,23	- 1 79 6 28,823 -	68 13,411	3,928 6,278,273	87 44,802	16 32,708 3,0	917 017,311	21 47,794	13 8,661 839	160 9,070 12	14 ,857 1	13 ,538 90	160 J,714	14 1,991	13 1,571 ·	160 100,143	- 14 2,072 -	27 1,024	320 57,924	28 1,313	-
Backen Acquisition Base cost Price escalation Physical contingency b.Administration cost c. VAT	bằng Chi phí cơ bản Tỉ lệ trượt giá Dự phóng phí b. Chi phí quản lý dự án c. Thuế giá trí gia tăng	-	1,404,00 1,404,06 1,304,13 2,751,08	5 7,0 5 7,0 - 8 6,5 6 13,7	20 - 21 35		-		351,016 1 351,016 1 30,492 41,611	,755 - 152 208	422,733 14,428	1,755 2,114 72		351,016 351,016 330,715 15,816	1,755 1,654 79	- 33 351 133 615	I,016 1,755 - - 3,235 666 5,102 3,076		67,40 398,66	 - 8 337 8 1,993		67,574 580,131	338 2,901	1	197,901 309,995	- - 990 4,050	- 13 203	I,449 I,220 1	67 ,016	17 2	3,449 7,144	- - - - - - - - - - - - - - - - - - -		13,449 27,144	- - - 67 136		13,733 17,829	- - 69 89	
d. Import tax Total (a+b+c+d) Total (A+B) C. Bank interest during construction GRAND TOTAL (A+B+C)	d. Thuế nhập khẩu Tổng (a+b+c+d) Tổng (A+B) C. Lãi Ngân hàng trong thời gian xây dựng TÔNG CONG (a+b+c)	- 87,321 4,948 92,270	5,459,28 24,763,33 24,763,33	- 27,2 0 211,1 - 4,9 0 216,0	 16 - 18 - 18 16 -	-		1,835 9 1,844	423,119 2 513,813 4 513,813 4	,116 ,404 662 9 13 ,413 675	788,177 814,443 814,443	3,941 4,734 13 4,748	688 17 705	697,547 733,965 - 733,965	3,488 4,358 17, 17 4,374 17,	- 1,099 407 5,665 179 586 5,665	9,353 5,497 5,345 45,733 - 179 5,345 45,912	7,817 297 8,114	466,07 4,667,31 4,667,31	6 2,330 2 31,154 - 297 2 31,451	13,411 478 13,889	647,705 6,925,978 - 6,925,978	3,239 48,040 478 48,519	- 1,0 32,708 4,0 725 33,432 4,0	007,895 025,206 - 025,206	5,039 52,834 725 53,558	- 216 8,661 1,055 791 9,453 1,055	6,669 1 6,739 13 - 6,739 14	.083 .940 1 791 .731 2	- 40 ,538 131 802 ,340 13	1,593 1,307 1,307	203 2,194 802 2,997	1,571 814 2,385	40,593 140,736 140,736	203 2,275 814 3,089	1,024 822 1,846	31,562 89,486 89,486	158 1,471 822 2,294	-
Aministration cost and others = VAT = Import Tax = Financing Ratio for JBIC Portion =	Chi phí quản lý dự án và các chi phí khác = Thuế giả trị gia tăng = Thuế nhập khẩu = Tĩ lệ tài chính =	5% 10% 0% 87.37%	of the construc of the expendit of the expendit	tion portion (Admi ure in foreign and ure in foreign curre	nistration cos ocal currency ncy of the eli	t is 4% of th y of civil wor igible portion	e constructio ks / Chi tiêu t ı / Chi tiêu bằ	n cost and " bằng ngoại l ằng ngoại tệ	others" include ệ và nội tệ của của vốn vay	e insurance an a các công trìr	d fee for monit h dân dụng	toring, F/S n	eport) / phầ	n xây dựng (chi phí hành o	chính là 4%	trong số chi ph	xây dựng v	và "các chi ph	í khác" bao	gồm bảo hiển	m và chi phí th	eo dõi, báo c	táo F/S)															

Depot equipment is included in E&M / Thiết bị Depot bao gồm trong Mua sắm và lắp đặt các thiệt bị cơ điện

Breakdown for PACKAGE 4 (For the details: See "10. New Cost") Dự tính chi phí cho GOI THAU SÓ 4 (Xem chi tiết tại *10. Chi phí mới")

Item	Hạng mục chi phí	FC (JPY)	LC (VND)	Total (JPY)	Total (US\$ Mil)		Renewal					
E&M	1. Thiết bị cơ điện	35,214,243,000	1,620,050,730,000	43,314,496,650	455.9	100.0%	30	20	15	10	5	
Track Works	Công trình đường sắt	4,834,229,000	436,121,525,000	7,014,836,625	73.8	16.2%	73.8					
Signalling System	Hệ thống tín hiệu trên chính tuyến	5,740,961,000	258,153,000	5,742,251,765	60.4	13.3%		60.4				
Telecommunication System	Hệ thống viễn thông		541,083,360,000	2,705,416,800	28.5	6.2%				28.5		
Power Supply & SCADA, PDS	Tram điện & SACADA, PDS	10,271,560,000	181,516,732,000	11,179,143,660	117.7	25.8%				117.7		
Traction Power Supply (OCS)	Hệ thống cung cấp nguồn điện sức kéo (OCS)	2,110,226,000	136,886,704,000	2,794,659,520	29.4	6.5%	29.4					
AFC	Hệ thống thu phí	4,805,461,000	98,104,908,000	5,295,985,540	55.7	12.2%					55.7	
Platform Screen Door	Cửa chấn ke ga	3,071,228,000	102,707,036,000	3,584,763,180	37.7	8.3%		37.7				
Facility SCADA	Tiên ích SCADA	272,654,000	5,419,144,000	299,749,720	3.2	0.7%				3.2		
Signage	Biển chỉ dẫn	537,684,000	10,753,672,000	591,452,360	6.2	1.4%	6.2					
Training Facility	Tiện ích cho công tác đào tạo và huấn luyện	520,136,000	10,631,800,000	573,295,000	6.0	1.3%				6.0		
Depot and Workshop Equipment	Thiết bị nhà xưởng và depot	3,050,104,000	96,567,696,000	3,532,942,480	37.2	8.2%	37.2					
				-		100.0%	146.7	98.2	-	155.3	55.7	455.9
				-								

 Boiling Stock
 Dau máy toa xe
 12,986,491,000
 13,051,363,000
 137,4

9. Investment&Depreciation

ANNUAL BUDGET SCHE	DULE																																						
<basic conditions=""></basic>																																							
Base year for cost	Năm cơ sở	Oct.	2009			Forecasted Amount for Ri	isk 15%	Currenc	y & Unit:																														
Exchange Rates	Ti giá	Yen/VN	D: 0.00500			Physical Contingency for Consul	tent 10%		FC & Total: N	Ail. Yen																													
Price Escalation:	Ti lệ trượt giá					Administration Cost	5%		LC: Mil. Dong	3																													
	FC: LC:	2.4%	per Year / một năm per Year/ một năm			VAT	10%																																
	Items / Hạng mục chi phí		Total / Tổng FC LC	Equivalent FC	nt / Tổng quy đối LC	2007 FC LC	Total	200 FC LC	8 Total	FC	2009 LC Tota	FC	2010 LC	Total	FC	2011 LC	Total	FC L	2012 C Tota	P	2013 C LC	3 Total	FC	2014 LC	Total	2015 FC LC	Total FC	2016 LC	Total	FC	2017 LC	Total	2018 FC LC	Total	FC	2019 LC Tot	I FC	2020 LC	Total
A. ELIGIBLE PORTION /	VÓN VAY																												1		7								
I) Procurement / Const	ruction Chi phí xây lấp, mua s	âm (1) =(5)+(6)+(7) 86,137 21,408	,589 193,18	180 38,636,06	2									16,719	4,529,573	39,367	7,129 4,1	78,608	28,022	12,666 6,235,8	841 43,8	35,97	4,911,880	60,529	9,355 1,247,579	15,593	1,391 88,95	55 1,835	1,424	98,384	1,916	729 54	406 1,00	1 373	30,087	524 3	J82 33,276	549
PACKAGE 1 · Civil ((oderamund) GÓI 1: Xáy dựng đọan	di (2)	8 957 4 177	895 29.84	46 5 969 26	5	This sheet	is used for "Calcul	ating the amou	nt of Asset"	only.				2 239	1 044 474	7 462	1 971 9	19 137	6 566	2 311 1 077 8	997 7.7	1 7.30	8 810 512	5 790	699 325 876	2 328	0	0 0	0	0	0	0	0	0	0	0	0 0	
	ngâm GÔI 2: Xêx dựng doạn	(-) (i.cao			-		It does not	depend on time so	chedule. / Bån r	này chỉ được	sử	-					.,	.,									-,			-							_		
PACKAGE 2 : Civil (elevated and depot) và Depot	(3)	7,019 6,712,	.870 40,58	83 8,116,67	6	dụng đẽ "T	inh toán số lượng	tái sán" Không	g phụ thuộc v	/ão				1,895	1,812,475	10,958	1,755 1,6	78,218	10,146	2,457 2,349,5	505 14,21	880	0 841,794	5,089	32 30,879	187	0	0 0	0	0	0	0	0 0	0 0	0	0	0 0	0
PACKAGE 3 · FAM	GÓI 3: Mua sắm và lắp track works rolling ic thiết bị cơ điện công	đặt cá trịnh đ	-	-																																			
stock, maintenance	ường sắt, đầu máy toa	xe va (4)	51,212 1,910,	,536 60,76	64 12,152,85	8									9,730	363,002	11,545	2,048	76,421	2,431	5,249 195,8	830 6,2	28 24,780	6 924,699	29,410	6,325 235,951	7,504	1,024 38,21	1 1,215	1,024	38,211	1,215	512 19,	.05 608	8 256	9,553	304 2	36 9,553	304
BACKAGE 4: OM OB	hop dong bao duong				-							-												-													-		
Gói thầu số 4: Hệ thối	ig CNTT văn phóng có	(5)	376 16,	.577 45	59 91,84	8												0	11,991	60	0 6	673	3 370	6 3,913	396														
ng ty OM																																							
Base cost for JBIC fir	ancing Chi phí cơ sở cho JBK	C giái (5) =(2)+(3)+6	4) 67,564 12,817	,879 131,65	353 26,330,64	7									13,865	3,219,951	29,964	5,774 2,6	85,767	19,203	10,017 3,623,9	904 28,1	136 27,78	2,580,918	40,685	7,056 592,706	10,019	1,024 38,21	1,215	1,024	38,211	1,215	512 19	105 60	8 256	9,553	304 2	.56 9,553	304
Forecasted Amount t	or Risk Dự phòng rúi ro	(6)	10,135 1,922	,682 19,74	48 3,949,59	17									2,080	482,993	4,495	866 4	02,865	2,880	1,503 543,5	586 4,2	4,16	387,138	6,103	1,058 88,906	1,503	154 5,73	182 182	154	5,732	182	77 2	866 9	1 38	1,433	46	38 1,433	46
Price ascalation	Ti là truct cià	(7) for	8 439 6 668	028 41.7	70 8 355 81										775	826 630	4 909	490 1.0	80.075	5.940	1 146 2 088 3	351 11.4	188 4.02	1 943 824	13 741	1 241 565 961	4.071	213 45.01	2 43	246	64.442	519	140 32	435 30	2 79	19 101	174	88 22 200	100
Frice escalaboli	ine uoviga	(5)+(6)	0,439 0,000	41,71	0,330,61	•	_					_	_		775	820,030	4,000	450 1,0	69,975	0,940	1,140 2,000,3	301 11,4	+00 4,02	1,043,024	13,741	1,241 000,007	4,071	213 40,01	430	240	04,442	010	140 32,	.30 .302	2 /9	15,101	174	30 22,290	199
II) Consulting services (fix price) Dịch vụ tư vấn (giá cố	dinh) (8)=(9)+(1	0) 7,178 440	,056 9,37	1,875,65	7		1,843 9	0,570 2,29	6 817	39,419 1	,014 6	91 37,84	5 880	838	71,017	1,193	877	64,798	1,201	908 71,2	200 1,2	264 34	10 36,650	524	275 21,515	382	147 1,75	59 156	5 147	1,759	156	295 3,	318 317	2 0	0	0	0 0	
Base cost	Chi phí cơ bản	(9)	5,657 262	,090 6,90	968 1,393,58	8		1,668 8	12,449 2,08	1 602	23,879	721 63	25 33,10	3 791	625	33,108	791	625	33,108	791	677 39,2	278 8	374 16	85 9,166	210	134 1,599	142	134 1,59	9 142	2 134	1,599	142	268 3	198 284	4 0	0	0	0 0	. °
Addition and Deducti Chi phí cộng vào và	on rừ đi	(11)	868 137	,961 1,55	558 311,55	6		7	-113	7 141	11,957	201	3 1,29	8 6	136	31,453	293	172	25,800	301	148 25,4	450 2	275 14	15 24,152	266	116 17,964	206		0			0		(0		0		0
Physical contingency	Dự phòng phí	(10)	653 40	.005 85	353 170,51	4		168	8,234 20	9 74	3,584	92	63 3,44	1 80	76	6,456	108	80	5,891	109	83 6,4	473 1	115 3	3,332	48	25 1,956	35	13 16	50 14	13	160	14	27	320 2	8 0	0	0	0 0	0
Total A: (I +II)	Tống A: (1 +11)		93,315 21,848	,644 202,5	40,511,71	9		1,843	10,570 2,29	6 817	39,419 1	,014 6	91 37,84	5 880	17,556	4,600,591	40,559	8,007 4,2	43,406	29,224	13,573 6,307,0	041 45,1	108 36,31	4,948,530	61,053	9,629 1,269,098	15,975	1,538 90,71	1,991	1,571	100,143	2,072	1,024 57	924 1,31	3 373	30,087	524 3	J82 33,276	549
B. NON ELIGIBLE PORTI	ON / VÓN ĐÓI ỨNG																																						-
a Land Acquisition	Chi phí bồi thường giả mặt bằng	i phóng (11)	1,404	,065 7,03	1,404,06	15	a	38	1,016 1,75	5	351,016 1	,755	351,01	5 1,755		351,016	1,755			0			0		0		0					0			0		0		0
b Administration and o	hers cost chi phí quản lý dự án chi phi khác	và các (12) =(13)+(14	1,330	,468 6,61	552 1,330,46	8 0 13,	165 66	0 3	10,492 15	2 0	422,733 2	,114	0 330,71	5 1,654	0	133,235	666	0	67,408	337	0 67,5	574 3	338	0 197,901	990	0 13,445	67	0 13,44	19 67	r 0	13,449	67	0 13	733 6	9 0	13,165	66	0 0	0
Administration Cos	t Chi phí quản lý dụ	án (13) =5% of (5	1,316	,532 6,58	583 1,316,53	12 0 13,	165 66	0 2	26,331 13	2 0	421,290 2	,106	0 329,13	3 1,646	0	131,653	658	0	65,827	329	0 65,8	827 3	329	0 197,480	987	0 13,165	66	0 13,16	5 66	5 0	13,165	66	0 13	.165 0	6 0	13,165	66	0 0	0
Contingency rema Service	in of Consulting Phi dự phòng còn lại c	úa dịch (14)	13	,936 1	70 13,93	6 0	o 0	0	4,161 2	1 0	1,443	7	0 1,58	2 8	0	1,582	8	0	1,582	8	0 1,7	747	9 (0 421	2	0 284	1	0 28	14 1	0	284	1	0	568	3 0	0	0	0 0	0
c VAT	Thuế giá trị gia tă	ng (15)	2,757	,162 13,78	2,757,16	2	G	0 4	1,611 20	8 0	14,428	72	0 15,81	5 75	0	615,102	3,076	0 3	98,668	1,993	0 580,1	131 2,9	901	0 809,995	4,050	0 203,220	1,016	0 27,14	136	5 0	27,144	136	0 17	,829 8	9 0	6,076	30	0 0	
			0 5,491	,696 27,4	58 5,491,69	6 0 13, [.]	165 66	0 43	3,119 2,11	6 0	788,177 3	,941	0 697,54	7 3,488	0	1,099,353	5,497	0 4	66,076	2,330	0 647,7	705 3,2	239	0 1,007,895	5,039	0 216,665	1,083	0 40,59	13 203	. 0	40,593	203	0 31	.562 15	8 0	19,242	96	0 0	
Total B: (a+b+c)	[Tong B: (a+b+c)		02.245	240 220.0	40 000 44			4.943 84	12 690 4 44		827 505	0.55	735.30	4.20	47.880	E 000 044	40.000		20.492		43.573 6.054.3	7.40	26.24	0 E 056 426	ee 000	0.000 4.495 703	17.058	4 530 434 30	2 40	4.574	440 726	2.076	1.024	100 4.45		40.228	620 1		
Total: (A+B)	Tóng: (A+B)		53,315 27,340	,340 230,0	46,003,41	5 0 13,	105 00	1,043 01	4,41	1 817	627,096	,900 00	51 730,35	4,300	17,000	0,000,044	40,000	0,007 4,7	05,462	51,004	13,073 0,004,7	140 40,0	30,31	0,500,420	66,052	5,025 1,400,707	17,000	1,030 131,30	2,15	1,071	140,736	2,210	1,024 05,	1,471	1 3/3	49,320	620 3	32 33,276	040
C. Bank interest during o	onstruction C. Läi ngån hàng tron	g thời gian xây dựr	1g 6,609	0 6,60	509 1,321,89	0 0	0 0	9	0	9 13	0	13	17 (17	179	0	179	297	0	297	478	0 4	478 72	25 0	725	791 0	791	802	0 802	814	0	814	822	0 822	2 828	0	828 8	33 0	833
Grand Total : (A+B+C)	Tống cộng: (A+B+C)		99,925 27,340	,340 236,62	47,325,30	15 0 13, ⁻	165 66	1,852 51	3,689 4,42	1 830	827,596 4	,968 71	08 735,39	3 4,385	17,736	5,699,944	46,235	8,304 4,7	09,482	31,851	14,051 6,954,7	746 48,8	325 37,03	5,956,426	66,817	10,421 1,485,767	17,849	2,340 131,30	2,997	2,385	140,736	3,089	1,846 89	486 2,294	4 1,201	49,328	1,448 1,2	.16 33,276	1,382
	Administration Cost = Chi phí quản lý VAT= Thuế giả trị gia	durán = a táng =	5% of the Cor 10% of the exp	nstruction portion enditure in foreig	n / Phần xây dựr gn currency and	ig local currency of civil works	and installation /	Chi tiêu bằng ngoại tệ v	à nội tệ của các côn	g trình và xây lấp	o dân dụng																												
Price Escalation	Ti lê trượt giá	-		0.12967	76																																		
Price Escale	Tí lệ trượt giá Tí lệ trượt giá					1.000 1.0	000	1	1	1.024	1.076	1.0485	76 1.15777	5	1.073741824 1.	245766976		1.099511628 1.3404	445266	1.125	899907 1.4423191	106	1.15292150	6 1.551935358		1.180591621 1.669882446	1.208	92582 1.79679351	2	1.237940039 1.	933349818	1.2	2676506 2.080284	405	1.298074215 2.3	.38386019			
u Filice Escal	II le truot gia				4119457	3	v	U	v	0.024	0.076	0.0485	0.15///	,	0.073741824 0.	240700376		0.099011028 0.3404	++0200	0.125	099907 0.4423191	100	0.10292100	0.001935358		0.100091021 0.009882440	0.208	92002 0.79079351	2	0.231940039 0.	133340018	0.2	.070000 1.080284	<u>/00</u>	0.2500/4210 1.	30300019			
Loan interest during const	Lãi vay trong thời gian	xây dựng			-274277	5																																	
Financing rate Interest rate for YEN	Tĩ lệ tài chính Ioan Tĩ lệ lãi đối với khoản v	ay bằng YEN	100.0% 0.4%																																				
Temporaly alocation Debt at the end of term	Phân bố tạm thời Nư tại thời đảm cuối k	· · ·				0	C	2,425	2,42	5 833 3.267		833 50,44 53,64	01 82	50,401	71,025		71,025	59,312 184,733		59,312	19,579	19,5	579 1,968 207 834	15 16	1,965	1,938	1,938	1,081	1,081	1,114	-	1,114	1,308	1,30	8 0		0	0	0
Interest during const	Lãi trong thời gian xây	, dựng				ŏ		10		13		2	15		500			739			820		83	51		842	21	850		858		^	867		0			0	

						This sheet does not d / Bản này Không phụ	is used for ' epend on tir chỉ được sử	'Calculating ne schedule dụng để "T kế hoạch	the amount e. 'ính toán số	of Asset" Iượng tài s	only. It ån"																																				
Estimate cost for Package Năm gốc tính toán Tỷ giá Tỷ lẻ trượt giá	3/ Dự toán gói thâu sô 3 Base year for cost Exchange Rates Ye PriceEscaration: F 2.	Oct. 2009 n/VND: 0.00500 C: LC: 4% 10.6%	FC & Total: Mil. LC: Mil. Dong	Yen FC & T LC trie	cảng: trieãu Yeân ău ňoàng																																										
Tý lê dự phòng VAT	Physical Contingency VAT	15% 10%																																													
Items	Hang mục chi phí	Tota FC	I/Tông	Equivalent	C FC	2008	Total	FC	2008	Total	FC	2009	Total	FC	2010	Total	FC	<u> </u>	2011	Total	FC	2012	Total	ÉC	2013	Total	FC	2014	Total	EC	2015	Total	. FC	2016	Total	FC	201	7 	ntal	EC	2018	Total	FC 2	019	Total	201 FC 1	C Total
L ELIGIBLE PORTION	VON VAY																																														
1 Procurement / Construction Polling Stock	Chi phí xây lâp, mua săm Dâu máy toa xe	12.00	6 12.974	13.051 2.6	10.273																								-	_	_					-											
Track Works	Công trình đường sắt	4,83	4 436,122	7,015 1,4	02,967																									-					_	_										_	
Signalling System	Hệ thống tin hiệu trên chính	5,74	1 258	5,742 1,1	48,450																																										
Telecommunication System	Hệ thông viên thông		0 541,083	2,705 5	41,083																									-						-											
Power Supply & SACADA, PDS	Tram diên & SACADA, PDS	10,27	2 181,517	11,179 2,2	35,829																																										
Traction Power Supply (OCS)	Hệ thông cung cập nguồn đ iên sức kéo (OCS)	2,11	0 136,887	2,795 5	58,932																																										
AFC	Hệ thống thu phí	4,80	6 98,105	5,296 1,0	59,197																																										
Platform Screen Door	Cửa chặn kẹ ga	3,07	1 102,707	3,585 7	16,953																												-														
Signage	Biến chỉ dân	53	8 10.754	591 1	18.290																																										
Training Facility	Tiện ích cho công tác đào tạo	52	0 10,632	573 1	14,659																																										
Depot and Workshop Equipment	Thiết bị nhà xuống và denot	3.05	96 568	3 533 7	06 588																																										
Maintenance fee	Chi phi báo dưỡng	3,01	1 277,511	4,398 8	79,686																																										
Base cost for JBIC financing	Chi phi cơ sở cho JBIC giải	51,21	2 1,910,536	60,764 12,1	52,858 0	0	0	0	0	0	0	0	0	9,730	363,002	1	1,545	2,048	76,421	2,431	5,249	195,830	6,228	24,786	924,699	29,410	6,325	235,95	1 7,50	1,0	24 38,2	11 1,2	15 1,0	24 38,	11 1,	215	512 1	9,105	608	256	9,553	304	0	0	0	0	0
2 Physical contingency	Dự phòng phí	7,64	3 285,147	9,069 1,8	13,814 0	0	0	ó	0	0	0	0	0	1,460	54,450		1,732	307	11,463	365	787	29,374	934	3,718	138,705	4,411	949	35,39	3 1,12	26 1	54 5,7	32 1	52 1	54 5,	32	182	77	2,866	91	38	1,433	46	0		0	0	0
3 Price escalation	Dự phòng trượt giá	8,26	4 1,679,164	16,660 3,3	31,917 0	0	0	0	0	0	0	0	0	825	147,318		1,562	234	43,618	453	760	147,490	1,497	4,359	882,983	8,774	1,314	4 277,95	1 2,70	3 2	46 54,4	42 E	18 2	80 64,	570	305	158 3	8,202	349	88	22,290	199	0	0	0	0	0
Sub total	VON FOLLING	67,11	9 3,874,847	86,493 17,2	98,588 0	0			0	0	.0	·····•	°	12,015	564,770	1	4,839	2,590 1	131,502	3,248	6,797	372,694	8,660	32,863	1,946,387	42,595	8,587	549,29	5 11,33	33 1,4	24 98,3	84 1,9	16 1,4	58 108,	13 Z,	102	747 6	0,173	1,047	382	33,276	549					'
Value add tax	Thuê giá trị gia tăng		0 1,215,286	6,076 1,2	15,286 0	0	0	Ó	0	0	0	0	0	0	230,904		1,155	0	48,611	243	0	124,567	623	0	588,198	2,941	(150,08	8 75	50	0 24,3	06 1	22	0 24,	106	122	0 1	2,153	61	0	6,076	30	0	0	0	0	0
Total: (I +II)	Tong: (I+II)	66,86	3 5,074,504	92,235 18,4	47,033 0	0	0	0	0	0	0	0	0	12,015	795,675	1	15,993	2,590 1	180,114	3,491	6,797	497,261	9,283	32,863	2,534,585	45,536	8,587	699,38	3 12,08	34 1,4	24 122,6	90 2,0	37 1,4	58 133,	118 2,	124	747 7	2,326	1,108	382	39,352	579	0	0	0	0	0
Grand Total : (HIHHII)	Tong cong: (I+II+III)	1,86	8 0	94 103 18 8	73,600 0	0			0	0	.0	····· 0		12.074	795.675	1	59	2 663 1	0	3 563	6 904	497 261	9 390	33 142	2 534 585	278	32	5 699.38	3 12 40	25 3	34 58 122.F	90 22	34 3	43	18 2	167 1	349	2 326	1 4 57	382	39.352	579					
		1		-388,864,881		-	-1	-	-1		-	-1	-1							-11	-,,		-																.,				-1				
Price Escalation	Dự phòng trượt giá				1			1.024	1.108		1.049576	1 222228		1 079741994	1 252000016		1 0005	11020 1 100	2002242		125900007	1 054014701		1.152021505	020226747		1 100501022	0.00496199	7	4 209026	02 2 2200224	70	4 2270400	20 2 476260	22	4 10 70	EOP 2 72974	2024	1.2	0074246 2.0	20040662		00074245 2.22	10:20:00.10			
d Price Escal	Dự phòng trượt giá				ó			0.024	0.106		0.048576	0.223236		0.073741824	0.352899016		0.0995	11628 0.496	3306312	ů.	125899907 (0.654914781		0.152921505	.830335747		0.180591621	1 1.02435133	7	0.208925	82 1.2389325	78	0.2379400	39 1.476259	132	0.2676	506 1.73874	2931	0.25	8074215 2.0	29049682	0.2	298074215 1.23	3386019			
Loan interest during const. Financing rate Interest rate for YEN loan	Lãi vay trong thời gian xây dựng Tĩ lệ tài chính Lãi vay đối với khoản vay bằng YEN	100.0 [°] 0.4 [°]	No No																																												
Temporaly allocation	Phân bố tạm thời			86,493	0		0	0		0	0		0	14,839		1	4,839	3,248		3,248	8,660		8,660	42,595		42,595	11,333	3	11,33	33 1,9	16	1,9	16 2,0	02	2,	002 1,	047		1,047	549		549	0	-	0		
Debt at the end of term Interest during const	Nơ tại thời điệm cuối kỳ Tiền lời trong thời gian xâu dựng				0			0			0			14,839			1	73			26,878			69,581 278			81,193	5		83,4	33 34		85,7	69 43		87,	160 349			88,057 352			81,882				
<source/> / <nguòn> - " Preliminary Financial analysis for HCMC</nguòn>	UMRT Line No.1" prepared by NJPT / "Pt	nân tích tài chính bar	i đầu cho Dư án X	Câv dựng tuyến đườn	a sắt đó thị TPHCM Tu	uvến 1° của NJ	РТ	Ū			Ū			00							100			210			U.	-																			

Opening Expenses of O&M Compnay / Chi phí k ý đầu của Công ty O&M

[M USD / Bằng Triệu USD]

Item / Hạng mục tính phí	Total / Tổng	2014	2015	2016	2017	2018	Description / Mô tả
D Opening Expenses / Các chi phí đầu kỳ	7.582	0.356	1.218	2.031	3.977	0.000	
D.1 Office Space	0.047	0.006	0.018	0.023	-	-	To be rent until completion HQ building in end of 2016. 20 staff until March, 2015 and 75 staff until the end of 2016. Space requirement is 10m2/staff.
D.2 Office Furniture and equipment for staff / Thiết bị và đồ dùng văn phòng cho nhân viên	0.545	0.123	0.422	-	-	-	See "12 Open_Break" / Xem "12 Open_Break"
D.3 Work PC	0.066	0.012	0.022	0.021	0.012		For HQ Staff and Work Site Staff at 500 USD/PC
D.4 Advertisement cost / Chi phí quảng cáo	0.572	-	-	-	0.572		See "12 Open_Break" / Xem "12 Open_Break"
D.5 Staff cost / Chi phí nhân viên	5.973	0.180	0.686	1.869	3.238		See "6.Staff Costs" / Xem "6. Staff Costs"
D.6 Utility cost for head office / Chi phí tiện ích cho trụ sở	0.379	0.035	0.070	0.119	0.155		Such as Electricity, Water, Security, Cleaning and High-Speed Internet. / Ví dụ như điện, nước, bảo vệ, vệ sinh và Internet tốc độ cao. See "12.Opening_Break" / Xem "12.Opening_Break"

Item 1.1	Mục 1.1	@PMU1 / Tại văn phòn [VND]	Office g PMU1 *1 [USD]	Unit Rate / đơn giá USD/m2	USD
		[a]	[b] = [a]*[C]/[D]	[c] = [b]/[A]	[d] = [c]*[B]
Office Furniture and equipment	Trang thiết bị và đồ đạc trong văn phòng	4,330,000,000	206,862	178.33	544,976
NOTE	GHI CHÚ:			Total/ Tổng	544,976
the Astrophysical action post in DMU Office			-		

*1: Actual initial set-up cost in PMU Office

		Unit Rate	Times	Yearly	y Rate
Item 1.2 Advertisement cost	Muc 1 2 Chi phí guảng cáo	/ Đơn gia *1	*2	/ I I Iệ Na	ang nam
		[M VND]	_	[M VND]	[M USD]
		[a]	[b]	[c] = [a] x [b]	[d] = [c]*[C]/[D]
Jan to June in 2017	Tháng1 đến tháng 6 năm 2017	-	-	-	0.31
Channel HTV7 (15") : 12:00-12:05 weekday	Kênh HTV7 (15"): 12:00-12:05 mỗi ngày	18	132	2,376	0.11
Channel HTV7 (15") : after 19:45-20:00 weekday	Kênh HTV7 (15") : sau 19:45-20:00 mỗi ngày	24	132	3,168	0.15
Pamphlets for Distribution (20% of above TV advertisement fee)	Phát tờ rơi (20% chi phí quảng cáo trên TV ở trên)	-	-	-	0.05
July to Sept in 2017	Tháng 7 đến tháng 9 năm 2017	-	-	-	0.17
Channel HTV7 (15") : 12:00-12:05 weekday	Kênh HTV7 (15"): 12:00-12:05 mỗi ngày	18	66	1,188	0.06
Channel HTV7 (15") : after 19:45-20:00 weekday	Kênh HTV7 (15") : sau 19:45-20:00 mỗi ngày	24	66	1,584	0.08
Pamphlets for Distribution (20% of above TV advertisement fee)	Phát tờ rơi (20% chi phí quảng cáo trên TV ở trên)	-	-	-	0.03
Oct to Dec in 2017	Tháng 10 đến tháng 12 năm 2017	-	-	-	0.26
Channel HTV7 (30") : 12:00-12:05 weekday	Kênh HTV7 (15"): 12:00-12:05 mỗi ngày	30	66	1,980	0.09
Channel HTV7 (30") : after 19:45-20:00 weekday	Kênh HTV7 (15") : sau 19:45-20:00 mỗi ngày	40	66	2,640	0.13
Pamphlets for Distribution (20% of above TV advertisement fee)	Phát tờ rơi (20% chi phí quảng cáo trên TV ở trên)	-	-	-	0.04
NOTE:	GHI CHÚ:			Total / Tổng	0.57
*1: From HTV7 homepage	*1: trang chủ HTV7				
*2: Monday to Friday per week	*2: Thứ 2 đến thứ 6 mỗi tuần				

Hom 4 5 1 With cost for bood office		@PMU1 (/ Tại văn phả	Office *1 òng PMU1	Unit Rate / đơn giá	USD
item 1.5 Othing cost for head office	Mục 1.5 Chi phí tiện ích cho trụ sở	[VND]	[USD]	USD/m2	
		[a]	[b] = [a]*[C]/[D]	[c] = [b]/[A]	[d] = [c]*[B]
Monthly Expenses (Electricity, Water)	Các chi phí hàng tháng (Điện, nước)	37,000,000	1,768	2.00	6112.00
Monthly Expenses (Security and Ceaning)	Các chi phí hàng tháng (Bảo vệ và vệ sinh)	46,000,000	2,198	1.89	5776.00
Monthly Expenses (High-Speed Internet)	Các chi phí hàng tháng (Internet tốc độ cao)	29,000,000	1,385	1.19	3637.00
NOTE	GHI CHÚ:			Total / Tổng	15,525
*1: Monthly average in Year 2008.	*1: Trung bình mỗi tháng trong năm 2008				
Conditions	Các điều kiên				

- Conditions					
Floor Space of PMU1 Office Building	Không gian làm việc của Tòa nhà văn phòng PMU1	[A]		1,160m2	
Floor Space of O&M Company's Office (Head office)	Không gain làm việc của Văn phòng của Công ty O&M (trụ sở)	[B]		3,056m2	
Exchange Rate	Tỉ giá	[C]	92.10Yen/USD	[D]	0.0044Yen/VND

Cost Estimation for Office IT system/ Dự toán chi phí Hệ thống CNTT văn phòng

	Description/ Mô tà	Unit/ Đơn vị	Quantity/ Số lượng	Unit Price / đơn giá	Amount / Tổng	2013	2014	Note/ Ghi chú
1	Hardware / Phần cứng				1,945,000	33,000	1,912,000	
	1.1 ERP servers/ Máy chủ ERP	Set/ Bộ	1	600,000	600,000		600,000	(Quad core 2.66GHz 2CPU, 24GBMemory) X 3 (Quad core 2.66GHz 2CPU, 18GBMemory) X 3 (Quad core 2.66GHz 2CPU, 8GBMemory) X 2 (Quad core 2.66GHz 2CPU, 4GBMemory) X 2 Including first year's maintenance fee / Bao gồm chi phí sửa chữa của năm đầu tiên
	1.2 Other servers + Disc Storage / Máy chủ khác và lưu trữ bằng đĩa	Set/ Bộ	1	400,000	400,000		400,000	Other Servers (Quad core 2.66GHz 2CPU, 4GBMemory) X 3 Storage Rack X 1, 8TB Disc , SAN Switch X 2 Including first year's maintenance fee / Bao gồm chi phí sửa chữa của năm đầu tiên
	1.3 ERP server related network devices / Máy chủ ERP liên quan đến các thiết bị mạng	Set/ Bộ	1	20,000	20,000		20,000	
	1.4 Configration fee (Severs , OS and ERP set up) / Giá cấu hình (Các máy chủ và thiết lập OS, ERP)	man-month	35	20,000	700,000		700,000	
	1.5 PC + MS office/ Máy tính và MS Office	Unit/ Đơn vị	120	1,500	180,000	30,000	150,000	Celeron 1.66GHz CPU, 2GB Memory, 250GB HDD
	1.6 Printer&Copy machine/ Máy in & máy photo	Unit/ Đơn vị	30	1,500	45,000	3,000	42,000	
2	Software / Phần mềm				1,973,000	0	1,973,000	
	2.1 ERP Software/ Phần mềm ERP							
	2.1.1 For Development user/ Cho người sử dụng cấp độ triển khai phần mềm	Unit/ Đơn vị	10	7,500	75,000		75,000	
	2.1.2 For Professional End user/ Cho người sử dụng chuyên nghiệp	Unit/ Đơn vị	376	4,250	1,598,000		1,598,000	
	2.2 System management tools/ Công cụ quản lý hệ thống	Set/ Bộ	1	300,000	300,000		300,000	
3	Annual maintenance fee for S/W and H/W / Phí bảo dưỡng hằng năm cho phần đ	cứng và phần m	iềm		783,600	0	783,600	(1. Hardware + 2. Software) * 20% (1. Phần cứng + 2. Phần mềm) * 20%
		Total / Tổng			4,701,600	33,000	4,668,600	= (1+2+3)

Above estimation is based on SAPI's experienses of similar office IT system implementation projects

/ Dự toán ở trên dược dựa trên kinh nghiệm của SAPI về các dự án thực hiện hệ thống CNTT văn phòng tương tự

Hardware configration, contents of software and each cost will be different, since it depends on company's situation and negotiation with vendors.

/ Cấu hình phần cứng, danh mục phần mềm và chi phí từng phần sẽ khác nhau, dựa trên tình hình công ty và việc thương lượng với nhà cung cấp

Preparation unit should define its detail business requirement and request venders to provide detailed cost estimation of Office IT systems.

/ Vì thế đơn vị chuẩn bị cần xác định yêu cầu kinh doanh chi tiết để yêu cầu các nhà cung cấp đạt được mức dự toán chính xác các khoản chi phí thực hiện hệ thống CNTT văn phòng

Besides above costs, O&M company should consider developing (Business process Design, System Design, Configuration and Commissioning) and training cost for Office IT system. / Ngoài các chi phí nên trên, Công ty VH&BD cần xem xét chi phí phát triển (Thiết kế quy trình kinh doanh, Thiết kế hệ thống, Cấu hình và đưa vào sử dụng) và huấn luyện cho Hệ thống CNTT văn phòng [USD]