

ベトナム社会主義共和国  
ホーチミン市人民委員会 (HCMC-PC)  
都市鉄道管理局 (MAUR)

ベトナム国  
ホーチミン市都市鉄道  
運営組織設立支援プロジェクト  
業務完了報告書

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## 概 要

本プロジェクトは、ホーチミン市で初めて開業する都市鉄道 1 号線運営開始に間に合うよう、都市鉄道運営会社設立の準備を行うプロジェクトである。本プロジェクトは海外における初めての都市鉄道運営会社設立支援プロジェクトである。本プロジェクトのカウンターパートは、ホーチミン市鉄道局（MAUR: Management Authority of Urban Railways）であり、同局により会社設立準備室（PUC: Preparation Unit for setting up the O&M Company）が設立された。

開業までの 5 年間を、会社設立までの 2 年間と開業までの 3 年間の 2 期に区分し、第 1 期として 2011 年 3 月末から 2013 年 3 月までの 24 か月間、延べ 55 人の専門家を投入して実施した。その実施概要を以下に示す。

### 1. 主な成果

本プロジェクトでは、会社定款、運輸約款、安全・人事・財務部門で必要となる会社の基本的部内ルールをベトナム側スタッフと共同作成することと、日本研修等を通じたメンバーのポテンシャルアップが、チームに課せられた具体的な課題であった。これら会社部内ルールについてはすべて計画通り完成した。また、日本研修については、運転台への添乗や駅での 24 時間業務体験など、都市鉄道を深く知ることができる内容を含む充実した研修を実施することができた。

運営会社設立及び制度面での整備のためには、関係業務機関との協議が必要である。専門家とベトナム側スタッフで共同して作成した資料をもとに関係業務機関との協議を進めた結果、初めての都市鉄道運営会社を設立・運営する環境整備が大きく進んだ。主なものを以下に示す。

#### (1) ホーチミン市都市鉄道運営会社設立計画のホーチミン市による承認の目途が立った

ホーチミン都市鉄道運営組織設立についてはこれまでホーチミン市の正式の意思決定がなかったが、本プロジェクトの実施により、「運営会社設立計画（事業計画）」がホーチミンの承認が得られる見込みとなった。この計画自体は承認手続きの一部をなすものであるが、関係者の合意形成においてはもっとも重要であり、この計画の承認は本プロジェクトが順調に進むことの証左となるものである。

#### (2) 初期設備投資を運賃から回収しない財務スキームに対する合意形成ができた

これまで東南アジアで経営破たんをきたした事例をみると、持続的健全経営を行っていくためには、的確な財務スキームの構築が重要であることが判る。財務の仕組みについては、運賃単価計算を策定するにあたって、初期投資の減価償却費をコストに含めない前提で財務シミュレーションを行った上で、初期投資に関する資金の返済、金利の支払いを運賃に求めないという基本的な財務構造をホーチミン市関係者と再確認することができた。これにより、ホーチミン市関係者と合意した市民が支払いうる運賃水準をもとに、極端なインフレが来たり運賃水準が政治的に抑制されたりしない前提においては、設備の更新、増強を除いて、市からの補助金を受けない仕組みを構築することができた。

しかし、バスの運賃が低い水準に抑制されている現状では、合意できた都市鉄道の運賃水準は市議会で抑制される可能性が高い。赤字対策として市から恒常的に補助金を受けることとなると、鉄道の安全運行を維持しつつ、収支均衡をめざし様々な工夫をする意欲や、市からの補助金を例外的措置として回避しようとする自律的な経営マインドが損なわれる恐れが残っている。

#### (3) 運転免許取得方式の目途が立った

運転士教育の当事者は、運転士教育に関する法令の解釈権限を持つ VNRA（ベトナム鉄道庁）と、実際に運転士を必要とする MAUR である。一方、運転士教育の方法については日越それぞれの事情がある。このため、このプロジェクトの専門家及びホーチミン 1 号線 General Consultant は、日本側の事情を説明する立場としてこの議論に参加した。結果として VNRA と MAUR の会談が、日本側関係者も同席する形でセットされた。この会議を受けて VNRA は、開業時の運転士養成について、ベトナム鉄道法が規定する要件を満たしつつ、日本側の条件もカバーしうる可能性のある特別な案を MAUR に対し、レターとして発した。

日本側は今後、この案について、実際に対応していただく大阪市交通局と協議していく。なお、開業後の運転士育成のことを考えれば、むしろすでにディーゼル機関車の運転士育成コースを持つ鉄道学園講師に対し日本側で電車運転の知識・技能を教えることにより、ベトナム人自身による電車運転士養成コースを開設することがベトナムにとってポジティブな案であると考えられる。このため、今後、鉄道学園のオーナーである VNR（ベトナム鉄道）を含め、関係者に対し、開業要員育成の段階から鉄道学園の講師による運転士育成コースを設けることを働きかけていく考えである。

## 2. 今後の課題

### (1) 実務に即した会社運営の仕組みの構築

鉄道会社に限らず、会社におけるものごとの処理においては、単に正確であるばかりでなく迅速な処理が求められる。しかしながら、会社内部の各部位に対する権限付与について MAUR/PUC と議論した結果、権限とりわけ経費の支出に関する決裁権は副社長までにしか与えられるべきではないとの意見が表明された。与えられていない権限は、その都度委任状を発行し代理権限を与えられるとのことである。他の会社の事例にもあたってみたが、ほぼ MAUR/PUC からの話と同様であった。このため、今期プロジェクトではベトナム人が違和感を覚えることのないレベルに留めた。これでは物事の迅速な処理はできない。

ベトナムの法律では、副社長以下に権限を与えることが禁止されている訳ではない。しかし、一般の会社においても権限の分与が限定的である以上、早急に日本並みの組織権限体系を作ることは難しい。さらに現実的な権限体系を作ることは今後のこのプロジェクトにおける大切な課題である。

### (2) 都市鉄道運営会社設立に対する MAUR の熱意

ホーチミン市都市鉄道建設は、ベトナムにとって、またホーチミン市にとって初めてのことであり、その実現に向けてはさまざまな障害がある。これを一つひとつ乗り越えていくことは MAUR 関係者にとっても大変なことである。

都市鉄道運営組織設立支援プロジェクトについては、MAUR 側からの要請でスタートしたが、MAUR の熱意はそこで尽きた感がある。1 号線プロジェクトが様々な要因で、開業時期が当初予定していたより少なくとも 2 年遅れることが明らかになってきたためである。

PUC メンバーはそれぞれ海外留学経験も優秀な若手である。しかし、長幼の序を重んずるベトナム人社会にあっては PUC メンバーで動くことについては限度がある。こうした状況にあって、このプロジェクトはある意味沈滞の様相を示していたことは否めない。

しかし、昨年 8 月高架区間及び車両基地の土木工事を主体としたパッケージが実際の工事に着手し、今年 1 月には車両・機器関係のパッケージがコントラクターとの契約交渉に入った。こうした状況の中にあって、MAUR の Luong 局長は運営会社をできるだけ早期に設立すべきと言う方針を打ち出すなど、積極的になってきた。トップの方針に忠実であることはベトナムの良き風土であり、運営会社設立につ

いても、ようやくエンジンが掛かる気配である。

### 3. これからの TC

事業計画(現在は「運営会社設立計画」と呼ぶ)が第4回 JCC (Joint Coordination Committee) で審議された。幾つかの問題点は指摘されたものの、指摘の多くは表現上の問題であり、関係者の間で議論の収束が見通せないと言う問題ではない。Luong 局長が早期に会社設立を行う方針を打ち出し、会社設立に関する PUC の役割も明確にした今日、MAUR は早晩「運営会社設立計画」の承認をホーチミン市人民委員会から取り付けることができると考えられる。また運転士養成制度についても VNRA と MAUR との直接協議を行い、具体的な方向が見えてきた。さらに周辺状況として、懸案であった CP3 もようやくコントラクタが決まった。紆余曲折はあったが、ここへ来て運営会社早期設立の機運は急速に盛り上がってきていると言える。「運営会社設立計画」のホーチミン市人民委員会承認は次期プロジェクト開始の前提であるので、MAUR/PUC が 2013 年 3 月末までにこれら懸案を成し遂げることを期待する。

一方、当初予定から工事工程が大幅にずれ込み、開業時期は少なくとも 2 年遅延することとなった。このため、本プロジェクトは第 1 期と第 2 期の間に約 2 年間の空白が生ずる。論理的には当初予定していた第 2 期の 3 年間で会社設立を行うことは可能と考えるが、初めて都市鉄道の経営の仕組みに接するベトナム人にとって、新しい文化に触れることであり、理解できるまでに時間が掛かることも否めない事実である。また、この間はようやく立ち上がった PUC が継続して育成されていく大切な時期である。以上の問題認識に立ち、この 2 年間は新しいことに着手するのではなく、これまで育んできた PUC メンバーの都市鉄道運営会社運営能力をさらに充実するための期間と位置づけ、従来よりも規模を縮小しつつ次期プロジェクトを策定することとした。具体的には、次期活動計画について以下のとおり提言する。

#### 3.1 活動の前提

- (1) MAUR は PUC を、MAUR 内における都市鉄道運営会社設立準備室として、その役割を明確にする(実施済)。
- (2) MAUR/PUC は、ホーチミン市他部局、中央省庁、その他部外組織との会合を積極的に実施する。
- (3) 都市鉄道運営会社は、工事工程に遅延があっても 2013 年内に設立することで準備を進める。
- (4) 都市鉄道運営会社設立準備室に予定された人員(2015 年 3 月までに 19 名)は、計画どおり配置する。

#### 3.2 活動項目

- (1) 運営会社のフレームの立ち上げ
- (2) 都市鉄道運営会社の設立準備作業を通じた管理知識／経験の獲得
- (3) 運営会社を支える枠組み及び制度の構築
- (4) TC 第 2 期の準備

具体的な活動項目は、添付資料 7「PDM for intermediate TC」を参照のこと

## 1. 業務の概要

### 1.1 プロジェクトの背景

716万人(2009年時点)の人口を擁するベトナム最大の都市のホーチミン市は、同国経済の中心として、国際競争力を持つ拠点都市としての機能強化が重要になりつつある一方、経済発展に伴う道路交通量の急激な増大により、交通渋滞の発生、交通の安全性低下、大気汚染等の問題が生じている。ベトナムでは2020年までに公共交通シェアを50%にするという政策目標が出されており、パーソントリップ調査における住民意識調査結果でも、市民は公共交通中心の都市交通を望んでいる。アジアでも有数の人口規模を有するホーチミン市において、軌道系の大量公共交通機関なしに交通問題への対応は困難である。これに対し、既存の公共交通(バス、既存鉄道)の輸送力強化及び道路網の大幅な拡充という対応は、既に開発が進んだ同市では困難であることから、JICAが実施した「ホーチミン都市交通計画調査(HOUTRANS)」(2004年)により新たな都市鉄道網の整備が提案された。フランス、ドイツ、ロシア、中国等、同国の都市鉄道建設事業に関心を寄せる各国に先駆け、提案された路線のうち、1号線については、我が国の本邦技術活用案件(STEP)による円借款事業「ホーチミン市都市鉄道建設事業(ベンタインー スオイティエン間(1号線)(I))」(総延長19.7km。2007年度LA調印)が実施中であり、2016年開業を目指して建設準備が進められている。同事業によって、鉄道施設や車両などのハード整備が行われると共に、列車運転や駅・指令所の業務を担当する職員の訓練、マニュアル整備等が提供されることとなっている。

同事業はベトナムで初めての都市鉄道事業であり、実施機関のMAUR(ホーチミン都市鉄道管理局)は、都市鉄道運営会社設立や運営の経験・ノウハウを有していない。第一段階として会社設立を早急に進める必要があるが、上記円借款事業に係る案件実施支援調査(SAPI、2008年実施)により鉄道運営会社の骨格と立ち上げのスケジュール案については整理されたものの、MAUR単独では具体的な鉄道運営会社設立へ向けての活動が開始できていない。よって、1号線開業後の円滑な運営を実現すべく、鉄道運営会社の設立支援のために本プロジェクトが我が国に対して要請された。

### 1.2 プロジェクトの目的

本プロジェクトでは、ホーチミン市における都市鉄道運営会社設立のため、設けられる設立準備室を支援し、現在建設中の1号線のみならず、ベトナム政府が日本の円借款により建設するホーチミン市の都市鉄道を運営する鉄道会社設立を支援することを目的とする。

### 1.3 プロジェクト対象地域及び関係機関

- (1) 対象地域 : ベトナム国ホーチミン市
- (2) 実施窓口機関 : 都市鉄道管理局(MAUR)

MAURの中に会社設立について専任で準備にあたる会社設立準備室(=Preparation Unit(PU))を設ける。

## 2. 活動内容

### 2.1 業務実施の方法

本プロジェクトでは、MAUR が都市鉄道運営会社を設立登記するにあたり必要となる事業計画、定款及び鉄道会社運営の骨格となる組織規程、就業規則、運輸約款などの作成に対する支援が主な目的となる。

本プロジェクトは、図-2.1 に示す作業活動により構成されている。活動 5 を除いて、各活動は複数個のサブ活動から成り立っている。

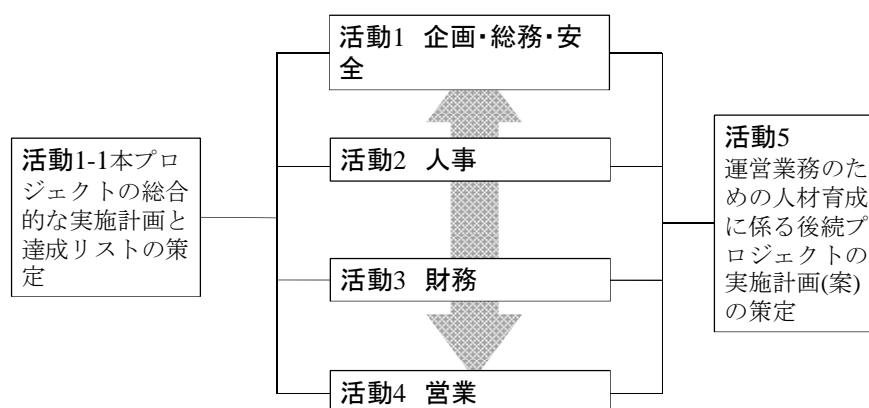


図-2.1 各作業活動の関係

以下、各活動及びサブ活動ごとに、その意義、目的、留意事項、さらにはその具体的方法論とともに記述する。これらの記述はインセプション・レポート段階の記述となっている。さらにその後、破線で囲まれたコラムの中にプロジェクトの実施結果について記述した。

### 2.2 企画、総務、安全（活動 1）

#### （活動 1-1）本プロジェクトの総合的な実施計画と達成リストの策定

この活動は、Technical Cooperation（以降 TC と略す）開始後 3 ヶ月間を、2 年間に渡る TC の土台作りの時間と位置づけ、最終的には本プロジェクトの総合的な実施計画と達成リストの策定を実現する。具体的には、①PU の業務実施体制の整備、②プロジェクトのバックボーンとなる総合的な実施計画及び達成リストの策定、③PU の共通基盤となる情報の整理、④PU スタッフのポテンシャルアップを行う。

##### （1）PU の業務実施体制の整備

このプロジェクトを発足するとともに、すでに運営基本方針で述べた項目を中心として、業務実施上、必要な事項を早急に整備する。主な実施事項は次のとおりである。



- PU スタッフの役割分担の決定
- PU の意思決定方法の確立
- 事務的な処理の仕組みの構築
- ローカルマネジメントコンサルタントの雇用準備

また、PU スタッフの基礎教育を早い段階で実施するため、当初の1ヶ月間で、マネジメントスクールの開設準備、ローカルマネジメントコンサルタントの選定及び日本への研修の準備を終了する。

#### 【実際の活動内容と成果】

- (1) 専門家から Preparation Unit の担当業務の定義を提示したが(下記参照)、MAUR として認知されたものとなっていない。このため、PU は Preparation Unit for setting up the O&M Company とすることでその役割を明確化することを Weekly meeting で提案。以降、PUC と表記することとした。

#### [Preparation Unit の職務]

- To prepare documents required for setup of the O&M Company
- To plan the schedule and actions for setup of the O&M Company
- To discuss and negotiate with other authorities for setting up the O&M Company
- To study various information for setup of the O&M Company
- To formulate the organization, institutions and task systems for the O&M Company
- To expense money from the budget for the above mentioned tasks

- (2) 各 PUC スタッフの役割は以下のとおり決定した。

Mr.Thanh	Team leader, Planning 担当
Ms. Tra	Deputy team leader, Human Resource 担当
Ms. Duc	Administration 及び Safety 担当
Ms. Hai	Finance 担当
Mr. Quan	Business 担当

- (3) PUC の意思決定方法は、現時点毎週開催する Weekly Meeting(全 PUC メンバー及び MAUR 人事教育部長 Ms. Huyen が出席)が TC での意思決定機関となっている。会社としての意思決定方法は、PUC の担当者間で利害が分かれ議論が必要となる段階で構築する。
- (4) Local Management Consultant(以降 LMC と略す)との契約を締結した(当初試行的に3ヶ月契約し、その後プロジェクト終了までを対象として契約した)。
- (5) マネジメントスクール、ローカルマネジメントコンサルタントの選定及び日本への研修については、3.1 及び 3.2 で述べる。

#### 【懸念事項と今後の対応】

- (1) MAUR/PUC の関心は、当初、内容より形式重視のように感じられたが、次第に内容本位になってきたように感じられる。当初は関係者への事前説明が大切と説いても、どうしてそのようなことをするのかと言う発言がみられたが、最終回の JCC に向けては MAUR/PUC は事前説明を積極的に行おうと努力していた。結果としては不首尾であったが、合意形成の過程において、そうしたことが大切と言う常識は MAUR/PUC に定着しつつあると言える。

(2) PUC の会社設立に関する役割が定められていない。本件について Luong 局長は会社設立に関する PUC の役割について 2013 年 1 月 15 日の MAUR の部長会議で明確にした(添付資料 6 参照)。また第 4 回会議で Cuong 副局長は JICA の支援がなくとも、PUC が存続できるよう、ホーチミン市の予算を獲得していきたいと述べた。

(3) PUC の意思決定については幾つかの問題を含んでいる。

- PUC 及びその上司は新しいシステムを構築する経験が浅いため、真にめざす方向を求めるのではなく、単にリスク回避をはかる方向で結論を導きだす傾向がある。
- 迅速な意思決定には、トップの判断を仰ぐべきものを絞ることが重要である。しかし、PUC に限らず、ベトナムではあらゆる問題をトップに上げて行く傾向がある。会社としての迅速かつ効率的な意思決定方法を定めるにはこれら権限分与の問題も併せて整備していく必要がある(活動 1-2 参照)
- 以上から PUC の意思決定の問題はその方法を整備することが課題ではなく、意思決定に必要なポテンシャルアップをはかることが現時点における真の課題と考える。

#### 【アウトプット】

- この項におけるアウトプットと言えるものはない。

#### (2) 総合的な実施計画の策定

TC を総合的に制御するため、TC の開始以降、指令塔の役割を持つ企画部門を PU 内に早急に立ち上げる。これにより、日本人専門家だけでなく、企画部門担当 PUC スタッフがそれぞれの分野が連携して進んでいることを確認しつつ、作業にあたる。SAPI で作成した工程表を修正し、主なイベント時期とそれぞれの作業の関連を明らかにした全体工程表を作成する。さらに各分野ではどのような作業を行っていくか、さらには達成すべき課題は何か、このインセプション・レポートを土台としてイメージ合わせを行う。なお、予め他部門との接点を明らかにすることで、相互の関係に齟齬がないようにする。活動間の相互関係は表-2.1 に示すとおりである。

着手後、3 ヶ月を目途に開催される合同調整委員会(JCC:Joint Coordination Committee)でこれらの結果を紹介する。

表-2.1 中心となる活動と関連する活動

中心となる活動	関連する活動
活動 1-2 各部局の機能と権限に関する規程の策定	活動 1-3 企画、総務、安全業務の組織規程
	活動 2-1 人事関係業務の組織規程
	活動 3-1 財務関係業務の組織規程
	活動 4-1 営業・関連事業関係業務の組織規程
活動 1-4 事業計画	GC 工事工程
	活動 3-5 会社の財務健全性維持方策の調査
活動 1-5 定款	活動 1-2 各部局の機能と権限
	活動 3-2 会計制度
	活動 4-4 対象業務

活動 1-7 オフィス IT システム	活動 1-6 安全推進(事故統計)
	活動 2-3 人材確保計画
	活動 3-2 会計制度
	活動 3-3 予算計画
	活動 3-4 資材購入
活動 2-2 就業規則	活動 2-3 人材確保計画(採用条件)
	活動 2-4 職務分掌及び職制
	活動 2-5 要員配置計画(勤務時間、勤務形態)
活動 2-6 乗務員訓練センター	GC 工事計画
	活動 2-7 運転免許制度
活動 3-2 会計制度	活動 2-3 人材確保計画
活動 4-2 運輸約款	活動 4-3 運賃制度

#### 【実際の活動内容と成果】

- このプロジェクト実施前に配置されていた短期専門家の指導により、このプロジェクト開始前にすでに PUC メンバーが Work Breakdown Structure (以降 WBS と略す) を作成していたが、さらに IC/R を用いて、活動単位ごとの記述内容を充実させるとともに、スケジュールについても見直しを行った。このようにゼロからスタートするプロジェクトにおいては、WBS は活動の原点となるものであり、その後、実際の活動が当初計画とズレがないか点検する際にしばしば活用した。
- WBS は PUC メンバーと専門家との間で意見交換を繰り返し、相当の時間を費やして、完成させた。その際、各「活動」間の関係には十分留意した。
- 完成した WBS は第 1 回 JCC に提出した。(添付資料 2 参照)
- 工期の延伸、心理適性検査の技術移転取り止めに伴い、PDM の改訂をはかった。WBS もこれに伴い、一部見直しを行った。

#### 【懸念事項と今後の対応】

- 特になし。

#### 【アウトプット】

- Work Breakdown Structure (添付資料 2)

### (3) PU の共通基盤となる情報の整理

TC の開始後、3 ヶ月内の活動として、PUC の共通基盤となる情報を整理する。主なテーマは次の通りである。これら活動はこの期間だけではなく、担当を決めて、継続的な活動を行っていく。

- 建設工事の現況を把握し、実施スケジュールを改訂する
- 他路線の進捗状況を把握し、ホーチミン唯一の都市鉄道会社の実現をめざす
- 財務計画の基本となる需要予測数値を最新のデータに基づき改訂する
- 収支計画の再精査を行う

### 【実際の活動内容と成果】

- 建設工事はながらく中断中であったが、2012年8月28日 CP2 の起工式が行われた。適宜1号線 PMU と連絡を取り、情報収集に努めた。
- 他路線の動向については、2号線は詳細設計の実施段階である。5号線はドナーから提供される資金額が縮小されたため、一時中断となっている。なお、2号線のコンサルタントから提出された Operation and Maintenance 関係の提案書について、PUC メンバーがレビューを行った。2号線プロジェクトでは2号線運営会社を設立することで検討を進めていることが判明し、Luong 局長から改めてホーチミン市は一つの都市鉄道運営会社で運営するとの方針が示された。(添付資料6参照)
- 日本の都市鉄道の内部ルールの越語訳は下記のとおり実施した。日越通訳2名で相互チェックを行って品質の高い翻訳となるよう努めた。一部越語訳を英文化することによる点検を行ったが、品質に問題はないことが確認できた。また PUC メンバーからも読みにくいなどの苦情は上がっていない。

分野	越訳した規程の本数
計画	4
総務・安全	4
人事	10
財務	6
営業	12
計	36

- ベトナムの類似会社の内部ルールについては概ね入手できた。  
当初、サイゴンバスは全面的な協力とまではいかなかった。このため TC チームが PUC を同道して、サイゴンバスに乗り込んで協力を求めた。この結果、コンセッションの関係で財務的数値が入った資料については出せないが、それ以外については提供された。
- 需要想定は社会経済指標を見直すとともに、都市鉄道運営会社の財務見通しを立てるにふさわしい控えめな数値を採用することによって、財務収支の見直しの基となる数値を用意した。
- 収支計画の見直しを行った(活動3-5参照)

### 【懸念事項と今後の対応】

- 各路線の進捗状況自体は MAUR 内の会議で情報共有されてきた。さらに PUC が例えば4半期ごとに報告書を作成するようにしていくことを推奨したい。
- ホーチミンの多くの会社は国営会社であり、都市鉄道運営会社と同じタイプの会社である。MAUR にとってはもっとも協力の得やすい会社タイプのはずであるが、普段交流がない会社なので、新たに接触を行うことは MAUR/PUC にとって大変な負担であるように見受けられる。JCC に参加する他部局メンバーの協力を得ることも一案である。MAUR のさらなる奮起を期待したい。
- MAUR 自体が新しい組織であり、他組織との折衝を苦手とするところがある。2012年11月の評価ミッションが HCMC-PC の副委員長との面談ができたことは新しい流れを作るものであった。JICA には今後も機会あるごとに副委員長との面談をお願いしたい。

### 【アウトプット】

- 各路線プロジェクトの進捗状況、最新需要想定、改訂収支計画は Business Plan(現 Establishment Plan。添付資料8)の中に反映した。
- 日本の都市鉄道の部内規程集の越語訳

#### (4) PUC スタッフのポテンシャルアップを行う

ホーチミン市都市鉄道管理局は PUC スタッフとして、大学院を出た英才を準備している。しかし、彼らは鉄道業務スタッフとしては新人である。このため、運営基本方針-2 に示したように、このプロジェクトでは本格的な業務に入る前に、PUC スタッフの基礎力レベルアップを行う。実施時期としてはこの活動の後半、専門家が帰国した後、空白となる 5 月から 6 月中旬を想定する。現時点のスケジュールとしては次の行程を予定する。

表-2.2 PUC スタッフの研修プログラム日程

プログラム	期 日(案)	記 事
VJCC マネジメントコース	5 月 23 日から 6 月 17 日	第 1 年次は 4 週間コースで実施予定。 第 2 年次は 4 週間コースを 2 回に分けて実施予定。
日本研修	2012 年 1 月に実施することで検討中	専門家が同行。第 2 年次も実施。

#### 【実際の活動内容と成果】

- VJCC(Vietnam Japan Communication Center)における経営研修は、専門家が不在となる期間(2011 年 5 月 23 日から 6 月 17 日)に実施した。参加した PUC メンバーからは概ね好評であった。

科目	講師	教育コマ数 (1 コマ半日単位)
税法	Mr. Le Khanh Lam (DTL 監査法人税務担当パートナー)	9 (修了試験込み)
会計法	Mr. Duong Hoai Linh (A.I.Global Sun Partners 社ホーチミン事務所長)	9 (修了試験込み)
労働法	Mr. Le Minh Nhut (Le Minh Nhut 法律事務所長) 及び Ms. Le Thi Phung (FMC 経営コンサルタント会社社長)	9 (修了試験込み)
会社法	Mr. Nguyen Quy Trong (ハノイ法科大学教授)	9 (修了試験込み)
リーダーシップ	Mr. La Kien My (人材育成コンサルタント)	4

- 日本研修は、大震災があったことから当初の予定を延期し、2012 年 1 月 10 日から 1 月 19 日に実施した。ターゲットを都市鉄道の運営に絞るとともに、駅業務の 1 日体験などを盛り込むことによって、内容を充実した。

1 月	午前	午後
10 日	大阪着、JICA オリエンテーション(午後 3 時まで)	交通局講義(本局と現場、危機管理、安全管理)
11 日	交通局講義(会社管理、広報、宣伝、IC カード)	指令室、交通局講義(訓練センター、役務管理担当及び運転管理担当の業務、Q&A)

12 日	朝ラッシュ運転台からの視察、運転区	研修センター（運転免許制度、シミュレータ）、運転台添乗
13 日	駅の 24 時間体験、夜間保守作業	
14 日	土曜	
15 日	休日	
16 日	東京へ移動（新幹線試乗）	JR 東日本本社（会社経営）
17 日	鉄道総研で心理適性検査体験	鉄道総研見学（架線なし路面電車、盛土降雨耐久試験装置）
18 日	みなとみらい見学（開発事業）	成田エクスプレスにて成田空港（空港アクセス鉄道体験） その後ホーチミン市へ帰国

【懸念事項と今後の対応】

- PUC メンバーが増加しなかったため、第二年次の経営研修コース及び日本研修は取り止めた。
- 今後、VJCC における経営研修コースを開設する際には、国営会社の幹部に会社の実際を講義してもらうなどして、PUC メンバーに会社実務のイメージを持たせるとともに、国営会社から情報を得るルートを作るきっかけとしたい。
- 日本研修では JICA でのオリエンテーションが最後になって追加されたため、行程が苦しくなった。次回同様の計画をするときは初めの段階から JICA のオリエンテーションを組み入れた日程としていく。

【アウトプット】

- VJCC からの完了報告書（第一年次報告書添付資料を参照）
- 大阪での研修資料

## （活動 1-2） 各部局の機能と権限に関する規程（案）の策定

組織の立て方については、正解がある訳ではない。会社発足の初期段階ではスタッフが少ないので、組織ばかりが複雑なことは適切ではない。会社運営を行うにつれ、対処すべき様々な課題が発生する。これらに対処するため、新しい組織を付加する。会社で抱える多くの人材を活かしていくためには、組織上の処遇で配慮すべき場合もある。このようなことが積み重なっていくと、組織が複雑化し、職員数が増えすぎてしまう事態が発生する（パーキンソンの法則）。こうした場合には組織の再編が必要となる。各部局の機能と権限に関する規程を策定するにあたっては、以上のような組織の立て方に関する基礎的な勉強を行う。

この活動では会社全般に渡る組織設計を行う。各「活動」ではそれぞれの組織設計を行うので、それら検討結果と整合性を取ることが大切である（活動 1.1 の表-2.1 参照）

具体的検討の道筋は図-2.2 によることとする。

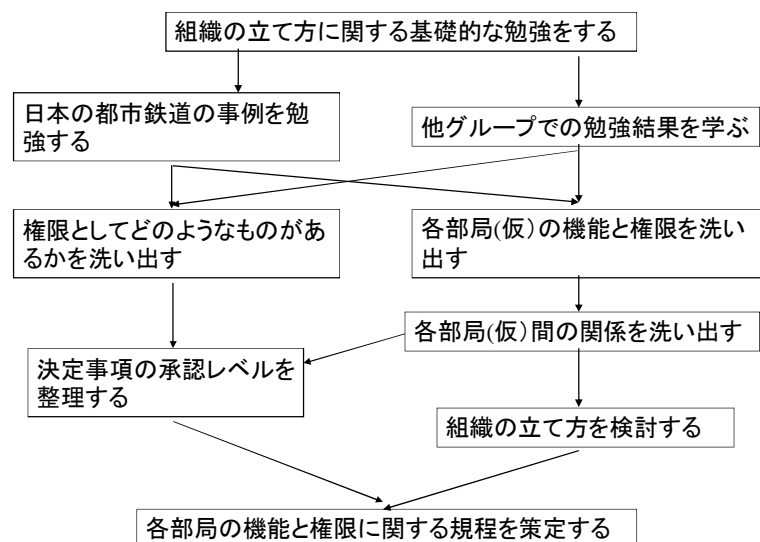


図-2.2 活動 1-2 の具体的な進め方

【実際の活動内容と成果】

(1) 組織についての基礎知識の習得

組織を立てる際の重要な論点について、専門家からプレゼンを行った。

(2) 日本の鉄道会社の機能と権限の検討

日本の鉄道会社の規程(越訳)を検討した。

(3) 他のグループの成果の共有

活動 1-3、2-1、3-1、4-1 での検討結果を「会社各部局の機能と権限」としてまとめた。

(4) 権限の整理

権限については、各部門間に渡る事項の権限と各部門長が持つ権限がある。前者については、PUC も積極的に規程案の中に盛り込んでいる。後者については(8)項参照。

(5) 組織の分掌事項と権限

PUC が作成した規程(案)を専門家チームと検討を行い、内容を精査した。

(6) 各部門間の関係の明確化

各部門間の関係について、専門家から具体的に解説した資料を提示した。とりわけドナーが異なる路線の現場との関係について議論し、成案を得た。

(7) 組織デザインの検討

PUC 案が出来上がり、専門家と検討を行った。当初、「技術安全部」構想については、PUC メンバーはかなりこだわりがあったが、最終的には専門家の意見を理解し、安全部門は業務的に密接な関係がある Operation 部と一体とし、「運輸安全部」とすることとした。

(8) 各部門長の権限

PUC メンバーは本件を未整理としたいと言う意向を持っていたが、専門家との意見交換の結果として、最終的には前述のとおり、ベトナム社会で受け入れられる案として整理し、JCC に提示した。

#### (9) 規程案

「組織の分掌事項と権限」を第2回 JCC に提出した。その後、各組織の定義などを付して「組織の分掌事項と権限」を規程の形に整備し、第3回 JCC に規程案を提出し、承認された。

#### 【懸念事項と今後の対応】

- (1) 第2回及び第3回 JCC で、VNRA から、「運転規程は安全部門で作成するが、事故は運転取扱い規程違反により起こることが一般的である。安全部門と Operation 部門が一緒になった組織では癒着が生ずる可能性がある。よって安全部門は Operation 部門から独立させるべき」とのコメントがあった。専門家からは、組織の設立の考え方は多様であるが、監督官庁が推奨する方法に従った方が良いとの意見を表明したが、PUC は自説を採用する方針を堅持した。安全に関しては中央省庁との折衝が不可避であるが、PUC はまだその意味を理解できていない。
- (2) 都市鉄道運営会社は役所と異なり、効率性を重視しなくてはならない。権限の集中や、今はない国営企業的発想など、PUC はベトナムの社会制度的発想から脱却できないところがある。専門家からは法令に反しない限りにおいて、できるだけ効率的な仕組みを追及することの必要性を PUC に説いた。また、大阪市交通局の決済件数を調べたものを示し、これではトップが堪らないと言うことは PUC の主要メンバーも理解した。  
一方、専門家の方でも他国営会社の例を関係者から聞き取りを行ったところ、経費の支出は副社長までとするなど、ベトナムの会社における決済権限の分与はあまり行われていないことが判明した。このため、第3回 JCC に副社長までの権限付与の形で規程案を提示した。今後さらに検討を深めていかねばならない課題である。

#### 【アウトプット】

- Organization of the Company and its Power & Responsibilities of Each Section

### (活動 1-3) 企画、総務、安全業務の組織規程（案）の策定

企画、総務、安全業務はそれぞれかなり性格が異なる業務である。組織として、それぞれ独立して設けるか、一つの部局とするか否かは今後の検討によることとするが、それぞれ性格がかなり異なる業務であるので、検討自体はそれぞれ独立して検討せざるを得ない。

これら業務は経営の根幹的業務であるので、対象物の具体性に乏しく、イメージが掴みにくいところがある。このため、日本で実際にこれら業務に従事している人などから、どういうことで苦勞したのかなど、その体験談を聞くことを通じて、業務に対する理解を深める。

具体的検討の道筋は図-2.3 によることとする。



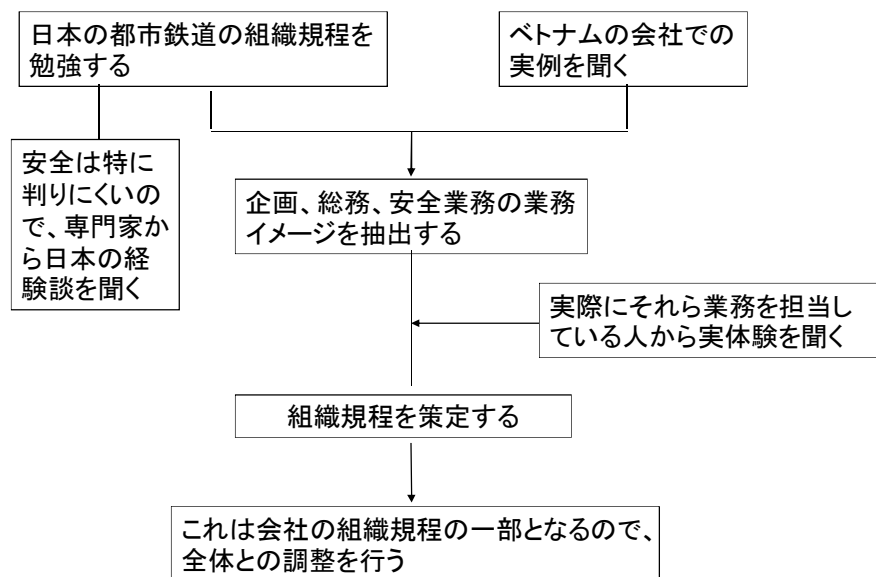


図-2.3 活動 1-3 の具体的な進め方

【実際の活動内容】

- (1) 日本の鉄道事業者の規程の検討  
日本の鉄道会社の規程(越訳)を検討した。
- (2) 専門家の日本での経験の研究(特に安全)  
専門家の経験を説明した。
- (3) ベトナムの交通事業者の規程の検討  
サイゴンバスの規程の概要について入手し、検討を行った。
- (4) 業務イメージの抽出  
特に判りにくい企画業務、安全業務については、専門家から JR 東日本や大阪市交通局の例を取って説明した。
- (5) 実際に従事した人からの経験談の聞き取り  
検討会の中で専門家から適宜実例を紹介した。
- (6) 組織規程の作成  
全体の中で対処した。
- (7) 他との調整  
活動 1-2 の全体案作成の中で対処した。

【懸念事項と今後の対応】

- ・「運輸安全部」構想については、大きな議論があった。「運輸安全部」構想は専門家としては必ずしも賛成できる案ではないが、PUC の出した結論は結論として尊重していくことも重要である。
- ・組織は固定的なものではない。場合によっては組織活性化のために、10 年に一度くらい、組織の大改組を行うことが良いと言う考えも併せて、PUC メンバーに理解させていきたい。

【アウトプット】

- 活動 1-2 の中に含まれる

（活動 1-4） 事業計画（案）の作成

事業計画は会社がどういう展望を持っているかを示す計画である。会社設立の際、関係者に対し、「どのような会社を設立しようとしているのか」を説明する資料として必要となるほか、会社スタッフに対しても、「都市鉄道運営会社がどのような会社になっていくのか」「今後何をしていくのか」を理解してもらう上で必要な資料である。

内容的には SAPI で検討した内容が事業計画の素案となると考えられる。工程については、GC からの情報が必要となり、収支計画では財務部門で検討する収支計画を反映することとなる。

事業計画自身は開業後、数年ごとに内容を更新していくことになるが、開業以前の段階では、工事の進捗、会社準備の進捗に合わせ、当初作成する事業計画の内容を更新していく。

具体的検討の道筋は図-2.4 によることとする。

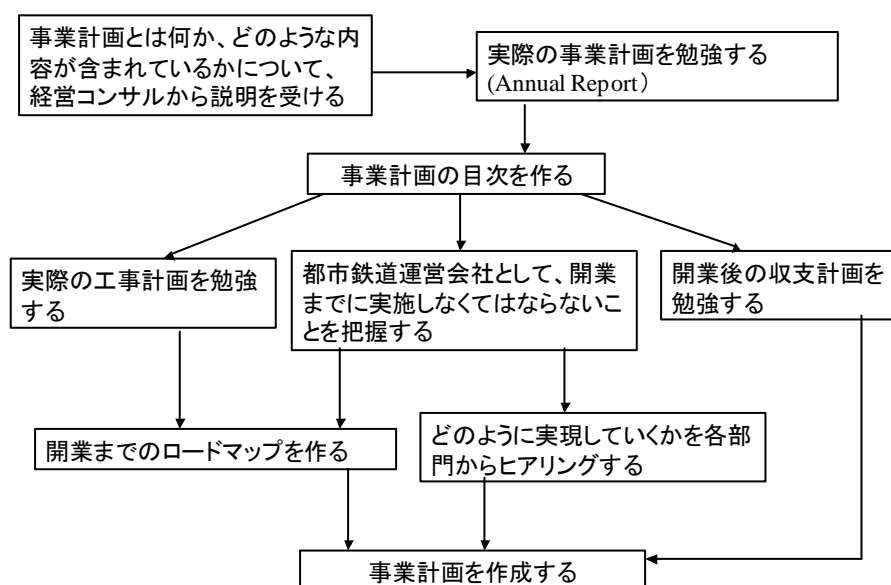


図-2.4 活動 1-4 の具体的進め方

【実際の活動内容】

- (1) Local Management Consultant (LMC) による事業計画 (Business Plan) とは何か、事業計画の内容としてはどのようなものがあるかなど、事業計画の説明を行う。

LMC から小さな会社の事業計画が提供された。小さな会社だけにコンパクトであり、判り易かった。

- (2) 年度報告による鉄道会社の事業計画の学習

専門家から、インターネットで入手できるアジアの主要な都市鉄道の年度報告を PUC に提供した。PUC メンバーはこの内容を分析し、ホーチミン市都市鉄道運営会社の事業計画の骨格を作り上げるまでには至っていない。このため、専門家から素案を提供することで事業計画の具体化を進めた。

(3) 都市鉄道運営会社の事業計画の目次を作成する。

専門家から、目次案を提供した。専門家から提供した目次案に対し、ベトナム側関係者からの理解を得やすいよう、PUC から改定案が提起され、一部修正の上、これを用いることとなった。

(4) 1 号線の建設工事工程を勉強する。

1 号線の起工式は 2012 年 8 月 28 日に行われた。運転免許に関する教育の考え方も VNRA と意見交換できるようになったので、開業までの工程を具体的に検討していくことができるようになった。

(5) 都市鉄道会社の設立までに完成すべきことを認識する。

論議を重ねる中から、都市鉄道会社の設立までに完成すべき主な事項は各種制度及び部内規程の制定のほか、オフィス IT システムの完成と運転士を代表とする運転要員の教育方式の確定であることが明らかとなった。

(6) 開業までのロードマップを作成する

実行版の工事工程ができてきたので、これらから逆引きしたロードマップを作成した。

(7) 他部門とそれぞれの業務遂行について打ち合わせる。

事業計画の作成はこれまでバラバラに行ってきた作業の突き合わせの機会となっており、①運賃問題に関する財務担当 PUC メンバーが利用している運賃計算方法と営業担当 PUC メンバーが検討している運賃改訂方法の差異 ②営業で考える駅要員体制と人事で考える要員査定方法の突き合わせ ③各職名を組織規程で定めるか、人事の規程で定めるか などの点について調整を行った。

(8) 事業計画を作成する

このプロジェクトでは当初会社の設立を目標としていたが、工事の進捗が遅れ、開業時期が延びることが明らかになったので、事業計画を HCMC-PC に提出し、承認を得ることをこのプロジェクトの目標とすることとした。

開業前の事業計画はこれまで検討してきた成果を集大成したものである。またいわば都市鉄道運営会社の事業目論見書的な性格を有している。事業計画によって都市鉄道とはどんな交通機関か、またどんなサービスが得られるかなどが具体化されるので、ホーチミン関係者の都市鉄道への理解が進む材料となることが期待される。

実際には専門家から素案を提示し、PUC とキャッチボールをしながら、内容の充実をはかった。第 3 回 JCC で骨格を示し、第 4 回 JCC で本資料を示した。第 4 回 JCC では各委員から具体的な指摘が多く出された。こうした議論は早期にホーチミン市各部局の合意形成をはかる上で重要であると考え

【懸念事項と今後の対応】

- オフィス IT システム工事計画の立ち上がりが遅いことが気がかりである。GC に働きかけているが、CP3 コントラクトの選定がようやく終わった段階なので、しばらく様子を見るよりほかない。
- MAUR は当初 2015 年の開業に難色を示していたが、昨年 11 月に行われた評価ミッションの前段の打ち合わせの中で、2015 年会社設立に合意した。さらに今年 1 月 Luong 局長から会社設立は早期に実施すべきであり、2013 年内に設立との意向が表明された。MAUR は会社設立に積極的になってきている。
- 第 4 回 JCC における DOF の指摘事項の中に、発言の意図が掴み切れないものが 1 件ある(SAPI

段階での提言どおり、インフラ財産を運営会社に移管せよという主張か、運営会社がインフラを保有すると、減価償却費が大きい（ベトナムでは圧縮記帳制度がない）、長い期間赤字となることを防ぐため、インフラ財産については無償使用に切り換えるという現行の案に沿った意見なのかが判明しない。本件を巡って議論が収束しないことが一番の懸念であるが、この件自体は見かけの問題であり、どちらの案でも運営会社は成り立つ。MAUR 及び JCC 委員は DOF の意見と対立することはないと思われるので、早晩、意見の統一はできると思われる。

- Luong 局長の早期会社設立の方針も出たので、事業計画は 2013 年 3 月に開催される臨時の JCC メンバーの会議を経て、MAUR から HCMC-PC に上申され、年度内に承認を得ることができると考えられる。

#### 【アウトプット】

- Business Plan（現 Establishment Plan、添付資料 8）

### （活動 1-5） 会社定款の作成

会社定款は会社の憲法であり、会社の設立時期までには必ず準備しなくてはならない会社の規則である。定款で定める内容は、国によって異なるほか、事業の特性によって異なる。日本では一般的には会社名、会社の目的、会社の所在地、会社の資本金、出資者の出資額、会社の役員が盛り込まれていることが一般的である。

具体的検討の道筋は図-2.5 によることとする。

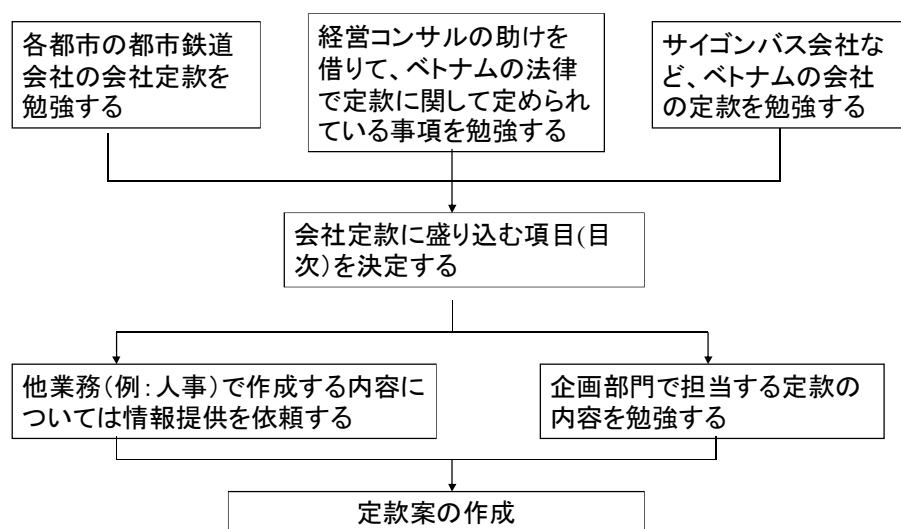


図-2.5 活動 1-5 の具体的進め方

#### 【実際の活動内容と成果】

- (1) 世界の都市鉄道会社の定款  
公表されている定款は見当たらなかった。
- (2) ベトナムの会社の定款についての基礎知識の習得  
定款に記載する項目はベトナムの会社法でかなり具体的に規定されている。Local Management Consultant の支援も得て、定款について学習した。
- (3) 日本の鉄道会社の定款(越訳)の検討  
専門家から提供した日本の鉄道会社の定款を検討した。
- (4) 定款の目次作成  
実施した。
- (5) 各章の記述を作成  
ホーチミン市が作成した One Member Limited Liability Company の定款のひな形があり、これに準拠して作成したので、比較的円滑に作成が進んだ。
- (6) ドラフト版(越語)を作成  
第2回 JCC に提出した。

#### 【懸念事項と今後の対応】

- (1) ホーチミン市のひな形に沿って作成したので、懸念事項は特にない。
- (2) 会社の名称は当初、Saigon Metro Company と言う案が提起されていたが、その後、上層部の意向で One Member Limited Liability Company for HCMC Urban Railways に変更された。

#### 【アウトプット】

- ・ 会社定款(添付資料 8「Establishment Plan」の付属資料として添付)

### (活動 1-6) 安全推進に関する規程(案)の策定

多くの乗客を日々乗せて運ぶ都市鉄道にとって、利用者を安全に輸送することが必須である。都市鉄道は十分な安全性が考慮されているが、「機械は故障し、人間はミスを犯す」ものであるので、事故が起こる可能性は否定できない。このため、安全性の確保については、十分な配慮を払っていくことが必要である。

一方、都市鉄道では事故を最小限抑えることが配慮された施設・列車となっているため、都市鉄道運営会社の経営陣及びスタッフが、安全性確保のため、何をしなくてはならないかを理解することはとても難しい。日本で最近実践されている「失敗に学ぶ」という考え方を採り入れるべく、専門家の講義なども計画する。具体的検討の道筋は図-2.6 によることとする。

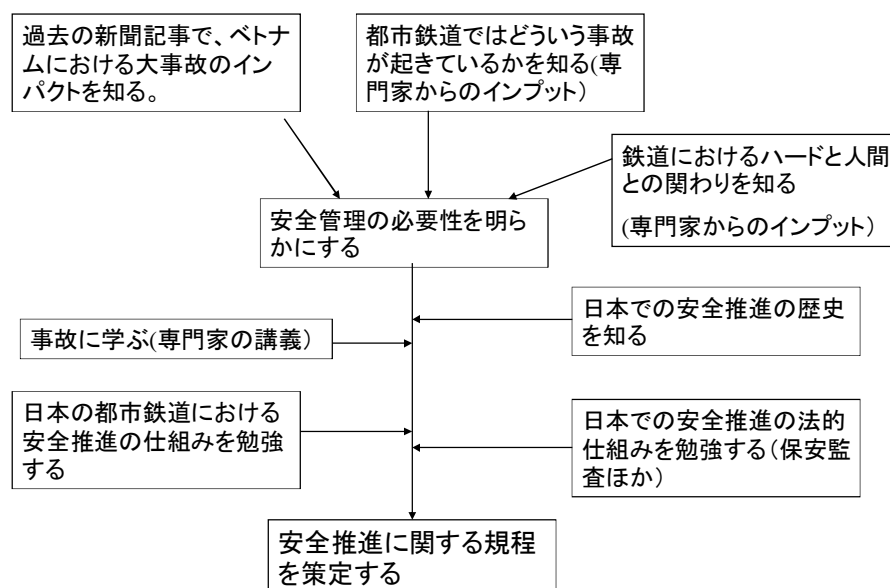


図-2.6 活動 1-6 の具体的進め方

#### 【実際の活動内容と成果】

##### (1) 重大事故のインパクトの理解

重大事故のインパクトを理解するため、PUC が主体となって、主にベトナム国内における事例を過去の新聞記事などから収集した。ベトナム国では都市鉄道が未整備のため、専ら踏切事故の事例となっているが、大量輸送機関である鉄道で重大事故が発生した場合のインパクトについては PUC の理解促進を図ることができた。

##### (2) 都市鉄道の事故の種類の理解

都市鉄道の事故事例とその種類について、大阪市交通局の最新 5 か年の安全報告書から必要な情報を抜粋して、専門家から PUC に対して説明を行った。説明にあたっては、安全設備や技術が一定レベル以上導入されている現代の都市鉄道においては、過去発生していたヒューマン・エラーによる事故の多くが発生し得ないようになっていることを強調した。

##### (3) 鉄道のハードと人間の関係の理解

(2)および(6)の活動と合わせて、現代の都市鉄道の安全確保にあたっては、人間の果たすべき役割が重要であることを PUC に説いた。具体的には、過去の事故の貴重な教訓のうえに成り立っている安全対策が明らかになっても、既存路線への最新の安全設備や技術の導入については、莫大な費用と期間を要するのですぐに実現できるものではない。このため、導入までの間は人間がカバーして安全を確保しなければならないこと、また、最新の安全設備や技術を導入しても、これら機器の故障時など人間に委ねられることはどうしても残るので、人間のミスが原因となって事故は起こり得ること等を説いた。

##### (4) 安全推進の必要性の明確化

鉄道輸送の安全は人と設備がよく調和して初めて実現する。このため、事故防止は安全推進部門だけで取り組むだけでは進まない。会社の社長以下、全組織が参加して、安全管理に取り組む必要が

ある。しかし、この考えはベトナム国ではこれまでに馴染みの薄い概念であるため、(7)および(8)の活動と合わせて、要点と具体的事例を示しながら、繰り返し組織を挙げての安全管理の必要性を PUC に説いた。

(5) 事故に学ぶ

事故防止における人間の役割の重要性を具体的に説明することは難しい。このプロジェクトでは人間の安全に果たす役割について 100 以上の企業講演会で講演した実績を持つ関口雅夫氏(JR 東日本出身)をゲストスピーカーとして招き、PUC を含む MAUR の関係者(計 86 名)を対象とした安全哲学に関するプレゼンテーションを 2012 年 6 月 25 日に実施した。

(6) 日本での安全推進の歴史の勉強

日本における主な過去の鉄道事故と安全対策の歴史について、列車衝突・列車脱線対策、列車火災対策、ホームからの転落事故防止対策などに焦点をあてて、専門家から PUC に対して資料の提供と説明を行った。説明にあたっては、鉄道の安全対策が、過去の事故の貴重な教訓のうえに成り立っていることを強調した。

(7) 大阪市交通局の安全推進の仕組みの勉強

大阪市交通局を事例として日本の都市鉄道における安全推進の仕組みについて、経営トップ主導により、安全統括管理者をキーマンとして、トップから現場まで一丸となった体制が構築されていること、その体制の中で、職階や所属に応じて、いずれのスタッフも一定の責任と権限を有すること等を、専門家から PUC に対して説明を行った。

(8) 日本での安全推進の法的仕組みの勉強

日本での安全推進の法的仕組みについて、国土交通省「運輸安全一括法に規定する安全管理規程に係るガイドラインの手引」に基づき、経営トップの役割、現場とのコミュニケーション、リスクマネジメント、コンプライアンス、教育・訓練、内部監査、見直し・改善など要点を抽出して、専門家から PUC に対して説明を行った。

(9) 「安全推進に関する規程」の策定

(1)～(8)の活動の集大成として、日本の鉄道会社の規程を参照しつつ、PUC の安全担当が「安全推進に関する規程(案)」を策定した。同案は PUC と専門家により見直しが進められ、第 3 回 JCC に提出されて JCC メンバーの賛意を得た。

【懸念事項と今後の対応】

(1) PUC が策定した「規程(案)」については、さらに検討を深める必要がある。具体的には、次のような課題が挙げられる。

- 安全管理のための活動が「安全運行管理部」に過度に集中しており、規程に定めた事項の実現可能性に疑問がある。これは、ベトナムと日本の間の、日本安全管理体制の構築のための方法論の違いによって生じる。PUC 案では、安全に対する責任は主として「安全運行管理部」に存在し、この部署と他の部署との協力が主として定められている。日本の規程では、安全に対する責任は各部署に、その職務と権限に応じて、存在し、それが明確に定められている。
- 安全管理のための各活動の「実施主体」や「記述内容」が必ずしも適切ではない部分がある。

(2) このため専門家は PUC に対し具体的な修正案を示してきたが、この修正案を PUC 案に反映するに

はまだまだ時間を要するようである。これは次のようなことに起因する。

- 安全管理は多くの知識や経験に基づく高度な概念である。都市鉄道や安全管理の経験がない現状において、このような概念はベトナムには直ちに馴染めない。
- 安全管理規程は会社組織全体に関係するものである。このような規程を適切に策定することは、鉄道事業をはじめとする事業経験が無い現状では、容易ではない。

(3) したがって、次期 TC では、鉄道事業の最前線である現場での実習や、都市鉄道運営会社設立準備作業の実務など、机上だけではない実務を通じて、鉄道事業に関する実践的な知識や経験を獲得することがとても重要である。このような実践的な知識や経験の獲得が、都市鉄道における安全管理に対する PUC の深い理解を促進し、将来の安全管理規程の改善につながる。

#### 【アウトプット】

- Safety Management Regulations

### （活動 1-7） オフィス IT システム（財務関係を含む）の要求事項の整理

会社経営において、迅速な経営判断は非常に重要である。その判断材料として収入や支出など、経営上の重要データを経営陣が即座に把握できることが必要であることは言うまでもない。ホーチミン都市鉄道会社においても、これらの数値を提供するシステムとして、またメールサービスなどを提供する情報連絡システムとして、オフィス IT システムを構築する。

これらシステムの発注業務は GC であり、GC ではその入札図書を作成する。PUC は実際にこのシステムを使うユーザとなるので、入札図書作成の段階で GC にユーザとしての注文を行う。またコントラクタが決定した後は、コントラクタが作成するスペック等について、ユーザとしての注文を行う。

図-2.7 にオフィス IT システムの概要を示す。なお、このシステムは線区共通システムとして構築するので、その旨、予め、他路線を建設する建設事務所 (PMU) に申し入れておく必要がある。

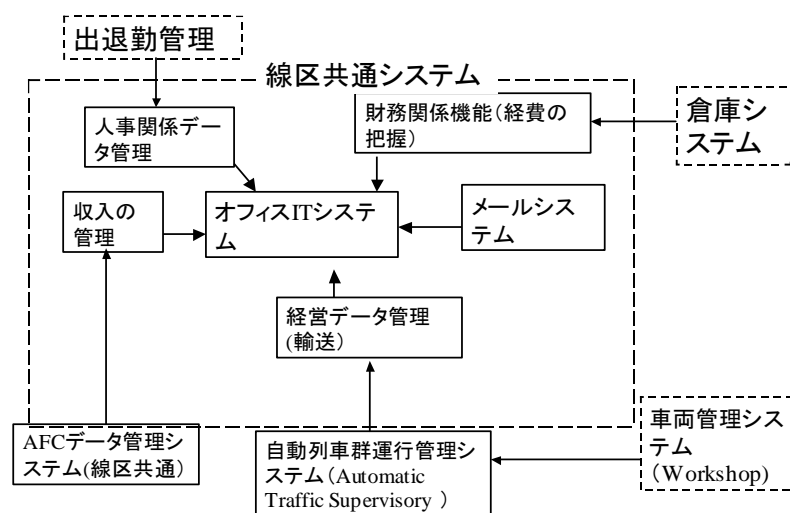


図-2.7 オフィス IT システムの具体的イメージ



### 【実際の活動内容】

- (1) SAP などのベンダーからオフィス IT システムの勉強をする  
専門家からオフィス IT システムについての概要資料を提供した。
- (2) 他会社のオフィス IT システムについて学習する  
日本の鉄道会社のオフィス IT システム(財務関係含む)の構成や開発の過程を勉強した  
日本研修において、大阪市交通局のシステムについて、講義を受けた。  
オフィス IT システムについては大阪市交通局のように大型コンピュータを用いて手作りで作り上げたシステムと、サーバを使い SAP のようなパッケージ型のシステムを利用する方式がある。すでに業務が始まった後でパッケージ型システムを導入すると、人の仕事のやり方を変えねばならず、その調整に多大な労力を費やすことになる。ホーチミンの場合、システム導入と業務開始が同時であるので、パッケージ型システムの導入を前提として進め、建設コスト削減を図る。これらの発想について PUC は理解した。
- (3) オフィス IT システムの概要をまとめ、PMU に提示する  
オフィス IT システムについては GC/PMU が素案を作り、提示することとなっているが、CP3 の工事工程が遅延しており、提示がない。このため、専門家からオフィス IT システムの必要機能の概要等を提示した。  
この結果、PUC はオフィス IT システムの具体的イメージを把握することができた。

### 【懸念事項と今後の対応】

- PUC はシステム構築に二つのやり方があることを理解し、都市鉄道運営会社の場合、システム導入と業務開始が同時であるので、パッケージ型システムの導入を前提として進めることとなった。
- 業務のシステム化対象範囲としては、輸送、保守部門でもオフィス IT システムを利用しているケースは多々あるが、これらは 1 号線 CP3 パッケージで用意するシステムとして位置付け、オフィス IT システムの対象外とすることとした。この場合、データの交換はオフラインで実施することにより、システム構築の容易化と建設コスト削減を図ることとする。
- オフィス IT システムはできれば会社設立段階から使用できることが望ましい。またこのシステムは都市鉄道運営会社の内部ルールと密接に関連するため、PUC と PMU が密接に連携して仕様を決定していく必要がある。しかし、1 号線プロジェクトでは未だ、入札図書の作成も行われていない。CP3 のコントラクタの選定がようやく決まった段階では止むを得ぬとことがあるが、早期工事着工を関係者に働きかけていく必要がある。

### 【アウトプット】

- Outline of Office IT system(添付資料 8「Establishment Plan」の付属資料として添付)

## (活動 1-8) 業務実施マニュアルが必要な業務の選定

第一期で構築する主な規程は組織規程、会社定款、就業規則、運輸約款である。これらを補完するものとして、業務実施マニュアルが必要となる場合がある。これらについては、第一期で主要な規程を構築する作業を通じて、さらにどのようなマニュアルが必要かを選定する。

業務実施マニュアルとは異なるが、オフィス IT システムも入力画面にガイダンス機能を持っており、

いわば業務実施マニュアル的な側面を持ち合わせている。業務実施マニュアルを作りすぎると、職員にとって、マニュアルを覚えることが負担になってしまう。マニュアルが整備されていないと、新人が職場に入ってきたとき、仕事のやり方を適切に伝授できないなどの問題が生ずる。

これらを念頭に置きつつ、第二期に備え、業務実施マニュアルが必要な業務を選定する。また、プロジェクトの活動を通じて、マニュアル作成に役立つ資料等を適宜収集しておく。なお、業務実施マニュアルに漏れがないよう、日本の都市鉄道会社の規程集の目次をベースに、図-2.8 に基づいた検討も行う。

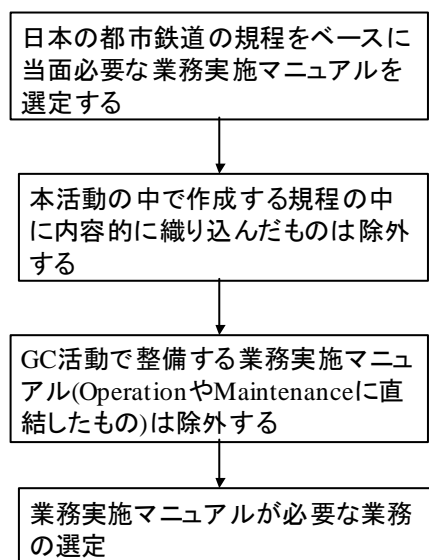


図-2.8 必要な業務実施マニュアルの選定手順

#### 【実際の活動内容】

(1) 本プロジェクト着手前は、業務の具体的な手順を伝える手段としてはマニュアル作成のみを挙げていたが、具体的な対象となる作業をイメージして検討した結果、以下のタイプに分けて考えると判り易いとの結論を得た。

- ① オフィス IT システムで行う業務はシステムのガイドに沿って入力していくことになるので、マニュアルは不要(操作説明書は必要)
- ② マニュアルは文章であるが、文章よりも仕事の流れ図(ワークフロー)を整備することで PUC メンバーによく判ってもらえることができる。
- ③ マニュアルまたは帳票を作る必要のあるものがある(例;定期券申し込み書、運転ルールや事故対策本部設置規程)
- ④ 実際の操作で教えるものがある(列車ダイヤ作成の技術移転)
- ⑤ ユーザの使い方に大きく関わる機器の機能確認が必要なものがある(オフィス IT システム、運転シミュレータ、OCC (Operation Control Center: 指令所))

(2) 日本の鉄道会社の部内規程一覧を次のようなパターンに分類した。

規程類は必ずしも読みやすいものではない。また規程の細目は困ったことが起きて初めて、細則なりマニュアルが作られると言う性格がある。言い換えれば、都市鉄道運営会社は現在日本の鉄道会社

が持っている規程のすべてをはじめから用意する必要はない。このため、日本の鉄道会社の部内規程一覧については次のような分類をした。

- ・ 日本の部内規程／マニュアルをベースに都市鉄道運営会社の規程／マニュアルを整備すべきもの
- ・ 日本の部内規程／マニュアルの越語訳は用意するが、あくまでも参考的位置づけとするもの
- ・ 現時点では越訳版は不要な日本の部内規程／マニュアル

【アウトプット】

- ・ 日本の鉄道会社の内部規程のうち、翻訳が必要な規程の一覧（日本語）

### （活動 1-9） 業務優先度に基づくマニュアル策定計画（案）の作成

すでに指摘したように、マニュアルは多く作りすぎることも、少なく作ることも問題を惹起する。第 2 期の業務量を適切なものとする上でも、業務優先度に基づくマニュアル策定計画を取りまとめることが必要である。この活動では活動 1-8 での検討結果をもとに、業務優先度を勘案し、第 2 期にどの業務実施マニュアルを策定するか、計画を取りまとめる。

【実際の活動内容】

活動 1-8 の検討結果をもとに TC 第 2 期に実施すべき項目を以下のように整理した。なお、この場合の優先順位とは時期的に早期に行うべきものを上位とした。内容的な順位ではない。

（優先順位 1）運転ルールの作成。

運転ルール作成自体は GC の担当業務である。運転士養成に直接関係してくるので、早期に作成することが必要。また 1 号線の機器仕様決定の際、コントラクタに具体的なイメージを提供できるので、早期に用意することは有効と考えられる。GC／コントラクタとの協調が必要であり、時期的な調整が必要。

（優先順位 2）オフィス IT システムの機能確認。

GC／コントラクタで作るオフィス IT システムの機能仕様書と、PUC で検討している実務作業の方法や業務実施部内ルールとの突き合わせを行う作業が主体となる。GC／コントラクタでの機能仕様書作成時期との調整を、PMU1 も交えておこなうことが必要。

（優先順位 3）OCC 機器の機能確認。

GC／コントラクタで作成する OCC 機器の機能仕様書について、実際に指令所で指令員の指導に当たる教官と打ち合わせを行い、指令作業との突き合わせを行う。機能仕様書作成時期との調整が必要。

（優先順位 4）運転シミュレータの機能確認。

運転シミュレータでどのような機能やプログラムを用意するかを決めるには教官との打ち合わせが必要である。

（優先順位 5）指令所マニュアルの作成。

指令所の指導に当たる教官は指令機器の機能を理解した上で、運転ルールを参照しつつ、指令員マニュアルを作成する。多くはケース別手順を示したフローの形となる。

（優先順位 6）業務実施フローの作成。

文章で作成した資料は直観的理解を得にくい。各分野業務実施フローを作成することにより、関係スタッフの理解が進む。すべてを網羅するフローは作成が困難であるが、第 1 期で作成した規程類のうち、重

要な業務を業務実施フロー化することを目標とする。

(優先順位 7) 各種規程・マニュアル類や帳票フォーマットの作成。

活動 1-8 で洗い出した整備すべき規程類やマニュアル、さらには帳票フォーマットの作成を行う。

(優先順位 8) 列車ダイヤ作成の技術移転。

列車ダイヤ作成の技術移転については PUC から強い要望が出ている。これを実施するには運転部門担当者を配置することが必要となる。列車ダイヤ作成は開業前の訓練期間中は頻繁に作成しなくてはならないので、訓練運転の実施前にこの技術移転を行う。

(優先順位 9) 事故対策本部設置規程の作成

この規程は開業時以降、事故が起きたときに必要となる。現場の具体的体制が関係するので、それらが明確にならない早い時期に作っても手直しが必要となる。

#### 【懸念事項と今後の対応】

- (1) ここではマニュアル策定計画を示したが、次期 TC ではマニュアル策定はごく一部である。むしろ、主体は鉄道会社幹部社員として必要な経験を積むことが重要である。またここで言う次期としては「Intermediate TC」「TC Phase 2」の両者が含まれている。
- (2) 1 号線プロジェクトで CP3 コントラクタが選定された。今後 1 年以内に CP3 のコントラクタから機能仕様書が出てくることが想定される。コントラクタは、この仕様を GC/PMU が確認した後に、機器の製作に入る。従ってユーザの使い勝手が重要な機器については、この段階で仕様についてユーザも含めた確認を行っておく必要がある。

#### 【アウトプット】

- 活動 5 に含まれる。

## 2.3 人事（活動 2）

都市鉄道ではかなりの機器操作が機械化されている。しかし、機械に不具合があった場合の処置や、機器の保守などの仕事は人間によらざるを得ない。このため、都市鉄道運営会社では多くのスタッフを抱えることとなり、都市鉄道運営会社のマネジメントとして、スタッフの管理業務は重要である。活動 2 では、人事関係業務について計画を細分化する。

### （活動 2-1） 人事関係業務の組織及び規程（案）の策定

人事関係業務は、それぞれの部署にどれだけのスタッフが必要かを見極める（要員）、今後必要となる要員数を推定し、どれだけの要員数が今後必要かを推定する（需給）、適材であることを見極めた上で人を採用する（採用）、給与や手当等をどれだけ支給すべきかを決定するなど、業務は多岐に渡る。これら人事関係業務を見据えた上で、人事関係業務の組織及び組織規程を策定する。

具体的検討の道筋は図-2.9 によることとする。

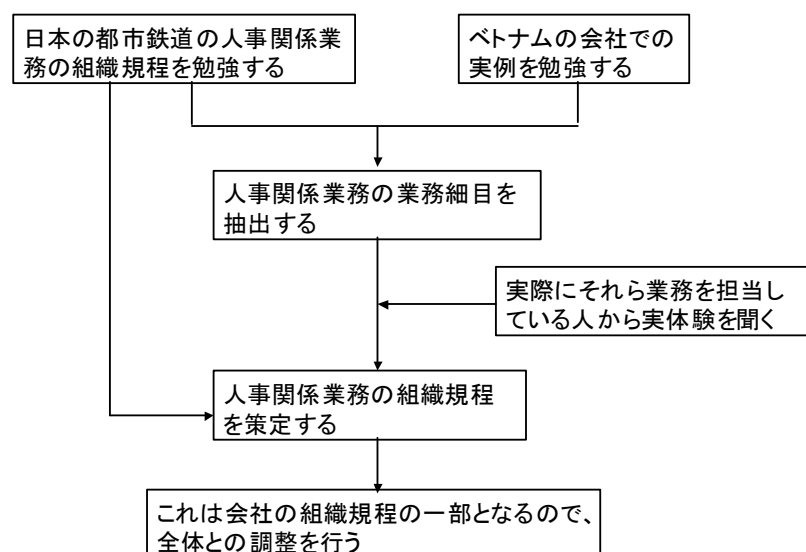


図-2.9 活動 2-1 に関する具体的進め方

【実際の活動内容と成果】

(1) 日本鉄道会社の人事部門の組織の検討

日本の鉄道会社の組織規程で検討した。

(2) ベトナム国内他会社の人事関係組織の検討

サイゴンバスの組織の概要について入手し、検討を行った。

(3) 人事部門の経験者からのヒアリングを実施

大阪市交通局の人事部門担当者が訪越し、要員計画、採用、人事・労務・内部活用、人材育成・人材開発、退職・解雇等、人事業務の実務についてのプレゼンテーション、質疑応答を行った。また、PUC メンバーとの情報及び意見交換を実施し、理解を深めさせた。

実務担当者の体験に基づく情報は、単に規程上のものにとどまらず、その背景、実際の運用や課題など多くの貴重な内容を含み、PUC メンバーに大きなインパクトを与えた。

(4) 人事関係業務の組織、規程案の策定

活動 1-2 の中で実現した。

【懸念事項と今後の対応】

- 人事業務は基本的に MAUR 内でも行われている。実際の運営体制の構築に当たっては、こうした部門から O&M 会社の人を連れてくる必要があると考えられる。
- O&M 会社は、業務の効率性を重視し、要員体制を最低限必要なレベルに絞り込んでいる。他の部門同様、規程上に詳述しきれない境界領域の業務遂行や、各業務の波動（年間を通じた多寡）に対し、各分野が協力し合ってカバーすることが大切であるが、これは現行のベトナムの風土では最も苦手とされることのひとつではないかと思われる。今後の会社設立に向けた作業を通じ、限られた人員でいかに相互協力して目標を達成するかを、実地で学ぶ必要がある。

【アウトプット】

- 組織規程（活動 1-2 に含まれる）

（活動 2-2） 就業規則（案）の策定

就業規則は社員を雇う上での憲法である。日本の場合、①始業及び終業の時刻、休憩時間、休日、休暇、就業時転換に関する事項 ②賃金の決定、計算及び支払の方法、賃金の締切り及び支払の時期並びに昇給に関する事項。③退職に関する事項（解雇事由を含む）などを定めなくてはならないとされている。この活動では、ベトナムの法的定めを調査した上で策定作業に取り組む。賃金のあり方については、単なる年功序列的な賃金体系とすることなく、サイゴンバス等でも一部取り入れられているように、社員の業務に対するインセンティブが働くような制度作りを検討する必要がある。

内容的には活動 2-3 から 2-8 で作成する内容を盛り込むこととなるので、他活動での作業との連携が重要である。

具体的検討の道筋は図-2.10 によることとする。

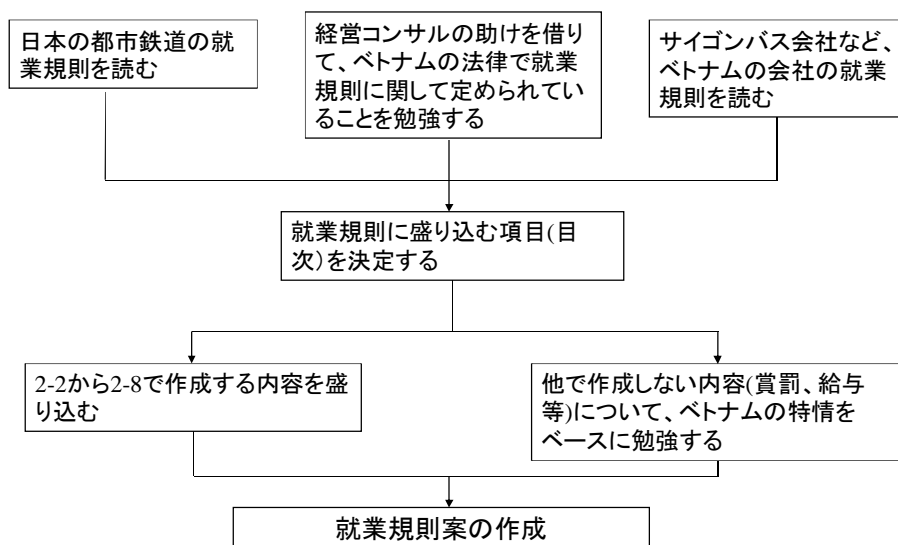


図-2.10 活動 2-2 に関する具体的進め方

【実際の活動内容】

(1) 日本の鉄道会社の就業規則の研究

日本の鉄道会社の規程を勉強し、必要とされている記載内容について理解した。

(2) ベトナム国内他社の雇用に関する規程の研究

バス製造会社等の規程を勉強し、先だって研究していた日本の規程との類似点及び相違点を理解した。また運輸関係の企業の例として、サイゴンバス本社に接触し関係規程を入手した。

- (3) 雇用に関して注意や優先実施が必要な問題についてローカルコンサルタントへの相談  
ベトナム労働法における勤務時間の考え方などを相談した。また、これまでに完成した規程案については、法令上問題がないことを確認してもらった。
- (4) 上記(1)～(3)の結果より都市鉄道運営会社の就業規則に関して必要な規程の抽出  
ベトナムでは日本のように就業規則という形では必ずしも一本化した規程とはなっていない。今回は勤務時間、採用、賞罰、給与について作成することとした。
- (5) 採用と任用に関する規程の研究  
日本の鉄道会社の規程を勉強した。日本においては、採用時点で細かな学歴や資格を規程上では規定しておらず、運用上で行っている場合が多いが、ベトナムではこれらを規程上で定めることが一般的であるとのことだった。このため、採用規程上でも、これらのある程度具体的に記述することとした。
- (6) 賃金施策の研究（俸給、手当）  
日本の制度とベトナムの制度との違いが大きいため、主にベトナムの国有会社の例を参考に検討した。ベトナムは職種により国が統一的に俸給を定めているほか、会社が業績に応じて独自に上乘せする手当を定めている場合があることを確認した。
- (7) 必要により雇用に関する他の重要な事項の研究（ローカルコンサルタントの助言やその時の状況により）  
ローカルコンサルタントとの相談から、労働法や関係法令の定める内容が一般に日本より細かく具体的であるため、これらを遵守することが重要であることが判明した。したがって、(5)でのべた採用をはじめ、日本の抽象的な規程に対し、具体的な記述とすることとした。
- (8) 就業規則案の策定  
必要不可欠な項目である勤務、採用、賃金、賞罰について作成した。

#### 【懸念事項と今後の対応】

- ・ 制度上の懸念事項は特にないが、良い人材を確保するために、今後これらルールをどのように運用していくかが重要である。PUC は会社のランクを鉄道と言う特殊な知識・技能を必要とすることから最上級とすることを提案している。これをどのような形で具体化するかは今後の課題である。
- ・ ベトナムの現行の会社の規程研究に際しては、同じホーチミン市傘下の会社であっても情報をなかなか得ることができなかった。このため、今後もできる限り同種の情報収集に努めると共に、策定した規程案を、ベトナムの法体系や労働実態に合わせつつ効率を高めるよう、更に改善に努めていく必要がある。

#### 【アウトプット】

- ・ Regulation of Working Time and Resting Hours
- ・ Regulation of Payment
- ・ Regulation of Recruitment
- ・ Regulation of Reward and Punishment
- ・ Staff Securement for O&M company

### (活動 2-3) 人材確保計画（案）の策定

ホーチミン都市鉄道は年を追うごとに乗客が増加することと、1号線に続いて2号線などの新規路線が開業することから、社員の数は年々増加する。鉄道での仕事は新人を採用した場合、スタッフの教育に相当の時間を要する。このため、スタッフは一旦採用された場合、継続して雇用関係にあることが望ましい。しかし、ベトナムの場合、人材の流動性が高く、転職など減耗に伴う社員の雇用についても検討していかなければならない。

各活動には採用制度を担当することが規定されている活動はない。要員需給計画を策定する際には、採用の方式、制度についても検討しておく必要がある。このため、採用時の資格、資質などの条件については、この活動で検討することとする。

具体的検討の道筋は図-2.11 によることとする。

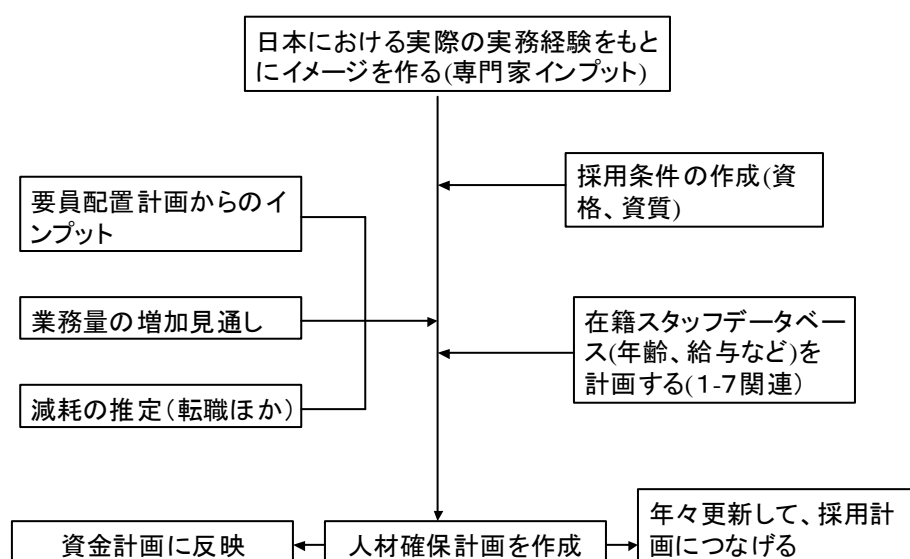


図-2.11 活動 2-3 に関する具体的進め方

#### 【実際の活動内容】

##### (1) 人材確保についての理解

大阪市交通局人事担当者によるプレゼンテーション及び意見交換を実施し、人材確保のためには長期的な視点が必要であることを理解した。

##### (2) ベトナムの労働市場の特徴についての研究

雇用の流動性についてのデータ入手を試みたが、ホーチミン市労働局からはデータを入手することは不可能であった。VNR のデータやマスコミで発表されたデータなども含め、できる限りの情報収集に努めたが、残念ながら十分なデータを収集できたとまでは言えなかった。

##### (3) 社員のデータベースの策定(年齢、資格、給与等)

各部署について、職階ごとの学歴、給与の水準を策定した。

##### (4) 事業の遂行に必要な社員数の予想



各部署について、業務遂行に必要な職階ごとの人員を策定した。

(5) 社員数減耗の予測(社内外の要因による)

(2)に述べた通り、具体的な減耗率の予測に必要な現状のデータを入手することができなかった。このため、例えば毎年 5%の減耗を考慮に入れ、実態に応じて修正していく必要があるとの指摘にとどまらざるを得なかった。

(6) 人材確保計画案の策定

活動 2-5 の結果を踏まえ、開業時に必要な人員を基本として、各部署・年次ごとに必要な人員数を策定した。

【懸念事項と今後の対応】

- 要員の算出方については、本社、運転要員及び保守要員それぞれについて詳細な説明を行ったところである。しかし、こうした数値は実務を経験しないと応用が効かない。今後実際に職員の雇用が始まる段階で再度、実例との突き合わせを通じて、理解を深めることが必要と思われる。
- 業務の効率的運営の面からは、スタッフ数を必要最低限に抑える必要があるが、その反面、ある程度の予期せぬスタッフ数変動等に対しても、業務に支障が発生しないようにしなければならない。このためには、配置された人員でいかにお互いの業務をカバーしていくかと言う、要員査定とはいわば逆の視点を取り入れさせる必要が今後出てくると考えられる。

【アウトプット】

- Estimation of Staff Numbers (HQ&Worksite)
- Staff number for HQ
- Estimation of Maintenance Staff Number

## (活動 2-4) 職務分掌及び職制（案）の策定

鉄道では運転士、駅員、列車指令、保守関係スタッフなど、多くの職種のスタッフが列車運行に従事している。列車は、これらスタッフが集まってミーティングをすることなく、日々決められたとおりの時刻で運転される。これを実現する要素の一つとして、軍隊のように指令官の指揮のもと、各スタッフがそれぞれの任務を果たす指揮命令系統がある。またそれを支える各職種の役割も明確にしておかねばならない。

ベトナム鉄道法では、それぞれの職種の要件を定めている。ホーチミン市の都市鉄道運営会社の職務分掌及び職制を策定するには、これらが求める要件と近代的都市鉄道で必要とする職務分掌との整合をとっていく必要がある。

具体的検討の道筋は図-2.12 によることとする。

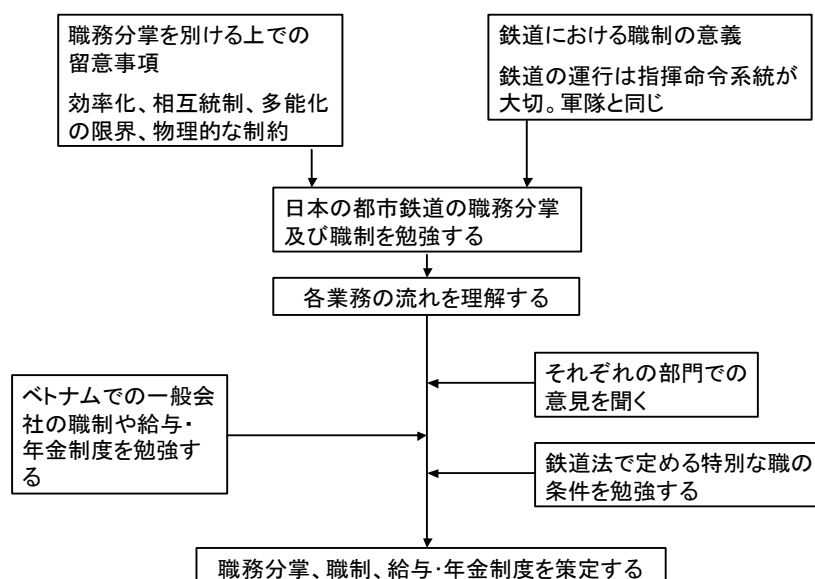


図-2.12 活動 2-4 に関する具体的進め方

#### 【実際の活動内容】

- (1) 職務分掌と職階についての要点の抽出  
日本の規程について勉強した。
- (2) 日本の鉄道会社における職務分掌と職階の研究  
日本の規程について勉強した。  
また、各職階の役割と職階間の関係について専門家より説明を行った。日本の鉄道では、実際の業務運営の規模や現場の実態に応じて、職階ごとの業務分担が柔軟に行われている実態があり、当初ベトナムのマインドからは理解しがたいようであったが、徐々に理解を得た。
- (3) 他の部門から必要事項の入手  
組織規程として入手した。
- (4) 社内各部門の業務の流れについて理解する  
専門家より、代表的業務である列車運転、車両保守の業務、駅業務のそれぞれについて業務の流れを説明した。日本研修での業務体験と合わせて、一連の業務の流れについては一定のイメージを持たせることができた。
- (5) 職務分掌と給与の分配との関係について研究する  
専門家から職位と給与の関係を説明した。また、ベトナムでの給与体系について、国営企業の例を研究し、鉄道業においても職種・職位により給与が国により定められていることを理解した。
- (6) ベトナム鉄道法に定められた特別な職位について、日本の例を参考に研究する。  
日本の安全マネジメントで定める特別な職位について、TC 専門家から紹介した。
- (7) 職務分掌と職階についての案の策定  
日本の規程を参考としながら、当初は比較的小規模なホーチミン市都市鉄道に合わせた簡素な構

成とした職務分掌及び職階を策定した。

【懸念事項と今後の対応】

- 職務分掌についてある程度理解はしているものの、鉄道に関しては実務経験がないのが事実であり、今後も時機をみて継続的に情報提供する必要がある。
- ベトナムでは、業務は文書で指示あるいは明記されるべきであるというのが一般的な理解のようである。実際の業務運営を効率的に行うには、業務の実態に合わせて相互に補完するなど、柔軟に対応する必要があることを、引き続き理解させるよう努める必要がある。

【アウトプット】

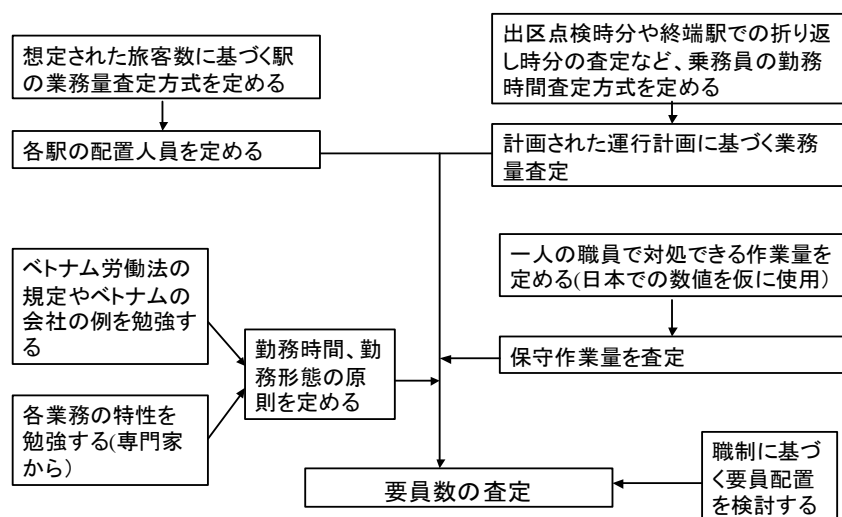
- Job Classification and Job Description

## (活動 2-5) 要員配置計画（案）の策定

それぞれの職場に対する要員配置計画はすでに SAPI で立案されている。しかし、これはあくまでも概算であり、都市鉄道運営会社として職種、職場ごとに必要配置人員を定めねばならない。一方、ベトナム労働法などをもとに、勤務時間、勤務形態の原則を定める。これらをもとに必要な要員数を査定することとなる。これらは開業後の各職場の実態を見て、微修正を加えることが必要となる。

これら作業は職場の実態をよく観察した上での職人芸となる。このため、日本の鉄道で実際にこうした職務に従事している専門家を招いて、実際の作業、実際の数値について、講義を受ける機会を設けることとしたい。

運行関係部門とメンテナンス部門が設立された後は、運転士やメンテナンス要員の数を策定するのは各部門の役割であるが、人事部門としてもクロスチェックするための手順を理解することが必要である。具体的検討の道筋は図-2.13 によることとする。



注:開業後、業務の実態に応じて、数値の修正を行う

図-2.13 活動 2-5 に関する具体的進め方

#### 【実際の活動内容】

- (1) ベトナムにおける勤務時間と勤務形態に関する原則について、鉄道法、労働法及び他社の例を研究する。  
「活動 2-2 就業規則の策定」に関連して、労働法について勉強した。
- (2) 各業務の特性を勉強する。(運転士、保守、駅係員)  
「活動 2-2 就業規則の策定」に関連して説明した。
- (3) 勤務時間、勤務形態の原則を定める。  
「活動 2-2 就業規則の策定」に関連し、勤務規程の形でまとめた。
- (4) 想定された旅客数に基づく駅の業務量査定方式を定める。  
TC から GC における検討結果を示した。また旅客数も考慮して決められた駅の構造(改札口の数)に主に基づく駅構内人員配置についても案を示した。
- (5) (4)の結果に基づき各駅の配置人員を定める。  
専門家より算定の考え方を示し、これに基づいて配置人員を策定した。
- (6) 運転士の基本的な勤務時間査定方式を定める。  
専門家より考え方を示し、勤務に関する規程を定めた。
- (7) 列車運行計画やその他の要素に基づく運転士要員数の査定。  
運転士要員の算定は一見複雑であるが、作業量を時間ベースで表せば、運転士 1 人当たりが一日にこなすことのできる作業時間から必要人員を算定することができることを専門家より説明し、列車運行計画をもとに運転士要員数を策定した。
- (8) 日本の例から一人の係員で対処できる作業量を定める。  
設備・車両保守の各職種について、日本の経験から想定される作業量あるいは通常想定される作業で同時に必要な人員要員数を基に算定する方法を示した。
- (9) (8)の結果に基づき保守要員数を策定する、  
設備・車両保守の各職種について、必要要員数を策定した。

#### 【懸念事項と今後の対応】

- ・ 現在 CP2 はコントラクタが決まり、施工側としての仕様の確認作業を行っている。また CP3 のコントラクタが決まったので、早晚仕様の確認作業が始まる。この過程の中で、仕様の変更により、要員配置の前提条件が変わる懸念がある。
- ・ 本活動は、想定される業務量から必要な人員を量的に算定したものであって、日々の運行の中での勤務指定や要員操配をどのように行うべきかのノウハウとは性格が異なる。それらは今後、設備・車両及び具体的な運行計画(ダイヤ)が決定していく過程で同時に検討されるべきものである。

#### 【アウトプット】

- ・ 活動 2-3 に含まれる。

## (活動 2-6) 運転要員に対する訓練計画及び制度の確立

都市鉄道は電車を用いての運転であり、信号システムもベトナムの在来鉄道とはさまざまな面で相違点がある。ベトナムの鉄道法等の法令はベトナムの在来鉄道をベースに作成されており、都市鉄道のことはあまり配慮されていない。その典型は運転士免許である。

会社の制度、部内ルール等は、法令等の定めと齟齬を含むものであってはならない。このため、都市鉄道に適合しない部分については、事前に運輸省と協議を行い、予め運輸省からの承認を得ておくこととする。

運転免許に関する運輸省との協議及びその準備については、図-2.14 に具体的方法を示す。なお、本件は就業規則(活動 2-2)や人材確保計画(活動 2-3)などと密接な関係がある。運転士免許に関する政府の方針決定が遅れると、これら活動の策定も連動して遅れることとなる。このため、遅くともこのプロジェクト着手後、半年以内に方向性を見出すようにしたい。

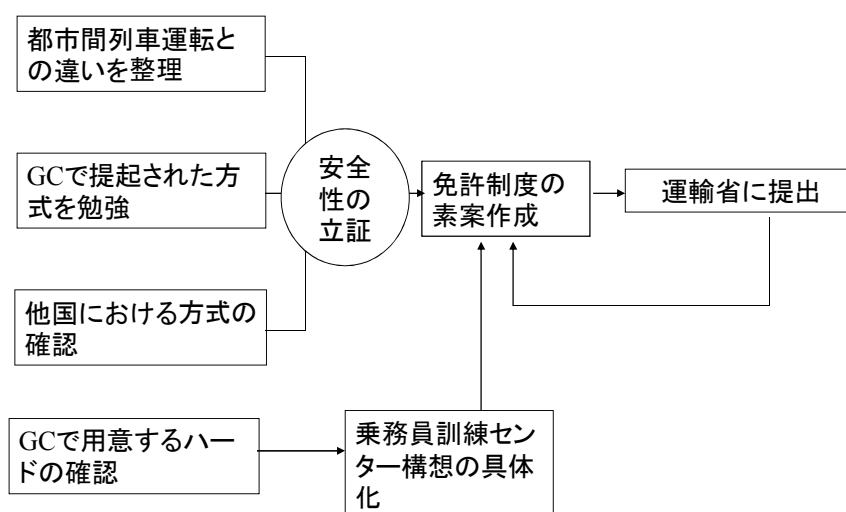


図-2.14 活動 2-6(運転免許関係)に関する具体的進め方

### 【実際の活動内容】

- (1) 都市鉄道のベトナム在来鉄道との差異の明確化  
JICA 専門家より差異を説明した。
- (2) GC で作成した案の研究  
GC 案は JICA 専門家より説明した
- (3) 日本を含む他国事例の研究  
カイロ、シンガポールにおける初めての開業時における運転士養成時間等の情報を JICA 専門家から説明した。  
日本の免許制度についての法令、実施方法の情報を TC より提供し、研究を行った
- (4) 安全性の検証  
GC 案では学科講習は日本と同様であるが、実地講習時間は日本より短くなっている。その根拠となる考え方を JICA 専門家から説明した。しかし、VNRA は日本の国土交通省基準であれば認めると

の方針を示したので、最終的には日本の基準(実地講習 400 時間)で実施することとなった。

	学科	実地講習
日本	400 時間以上	400 時間以上
ホーチミン 1 号線	400 時間	200 時間→400 時間

(5) 訓練センターの必要性を明確化

VNRA は開業要員を育成できる知識技能はないとの見解から、開業要員は外国で育成との方針を取っている。従って、今の段階、MAUR が訓練センターを設立するという構想は受け入れがたいものとなっている。

(6) 運転免許発行方法についての案作成

運転免許試験には VNRA が認定する研修センターが発行した Certificate が必要である。大阪市交通局は海外で実施する訓練については交通局の管理下で実施されるものではないので、交通局は発行することができないとの見解であった。このため、交通局の講師は JIC 所属となって訓練を行うことから、JIC が certificate の発行者となる案を作成した。しかし Certificate 発行者について、ベトナム側は JIC が発行するという案に否定的見解が多かった。

(7) MOT 向け案の作成

TC と VNRA との間での調整を実施し、日本の現行方式(机上講習及び実技訓練)で運転士を養成することについては、ほぼ同意を得た。運転免許試験に必要な Certificate 発行者については JIC が発行する案と鉄道学校が発行する 2 案を併記した案を作成した。

(8) MOT に案を提出

2012 年 12 月に VNRA と MAUR の間で運転士育成に関する初めての会議が開催された。この会議の後、VNRA は以下の見解を MAUR に示した。

	VNRA の見解	記事
1	開業要員については、外国で取得した Certificate は VNRA の承認を得れば、と有効とする	開業要員全員を日本に送って教育を行うという考えである。
2	日本の場合、本線での訓練運転ができないので、1 号線が完成した後、1 号線を使って訓練を行うことで良い。 Certificate は日本で言う座学に対して発行してもらう。	大阪市交通局は日本で行う研修でないと交通局の名前で Certificate は発行できないとしてきた。この条件であれば、交通局との調整余地がある。
3	運転免許試験受験のために、VNRA が認定する研修センターの修了証が必要	VNRA は現に研修センターを保有している鉄道会社が発行する Certificate であれば、認定するとの意向。 鉄道専門学校は現にベトナムにおいて活動する研修センターである。このセンターが電車技術を習得することにより、開業要員の研修にあたることができれば、開業要員全員を日本に送る必要もなくなり、MAUR の負担も軽

		減される。さらに開業後の運転士育成の体制も出来上がる。このため、この方式についても、鉄道学校のオーナーである VNR から VNRA に働きかけていく。
4	24 ヶ月の機関助手経験が必要	VNRA はホーチミン市人民委員会から MOT に宛てて、この制度を改める要請書を出すよう推奨した。
5	VNRA が実施する試験に合格しなくてはならない	
6	開業後の運転士育成についてはベトナム人だけで養成する仕組みを準備すること	今後の検討課題である。

- VNRA は研修センターを持つ鉄道会社からの certificate に固執した結果として、座学だけの certificate で良いとする案を提示してきた。このため、この案に対応することの可能性について大阪市交通局と調整を行うこととした。
- 鉄道学園に電車養成コースを開設する方式はベトナム側にとって経費負担が少ないほか、開業要員のみならず、開業後の要員育成も行うことができる合理的な方法である。この方法については VNRA が日本の提供する技プロで育成された鉄道学園の講師を用いた電車育成コースを認定するか否かがカギとなる。これについては鉄道学園のオーナーである VNR と VNRA との協議を待つこととしたい。

【懸念事項と今後の対応】

- 鉄道学園に電車養成コース開設を日本が支援した場合、他のドナーにより建設されている路線で鉄道学園を活用しないことが懸念される。しかし、2 号線のプロジェクトの当初計画では O&M 要員の育成は含まれていないことが判明した (Maintenance は outsourcing を想定)。
- 鉄道学園は電車運転士養成コースの開設に積極的である。オーナーである VNR にアプローチし、受益者として積極的に VNRA と折衝するよう働きかけていく。

【アウトプット】

- Training system of train operation staffs
- VNRA から MAUR へのレター (1855\_TB-CDSVN VNRA meeting conclusion)

## 2.4 財務（活動 3）

会社経営における重要要素は人、物、金である。このうちの金を扱う財務関係業務では組織を策定するほか、会計制度、予算計画、資材購入に関する仕組みを整える作業を行う。

財務関係業務はとりわけ活動 1-7「オフィス IT システム」と密接な関係があることに留意する必要がある。

### （活動 3-1）財務関係業務に関する組織規程の策定

ここでは財務関係業務の具体的イメージを抽出することを通じて、財務関係業務に関する組織規程を

策定する。これは会社の組織規程の一部となるので、全体との調整を行う必要がある。  
具体的検討の道筋は図-2.15 によることとする。

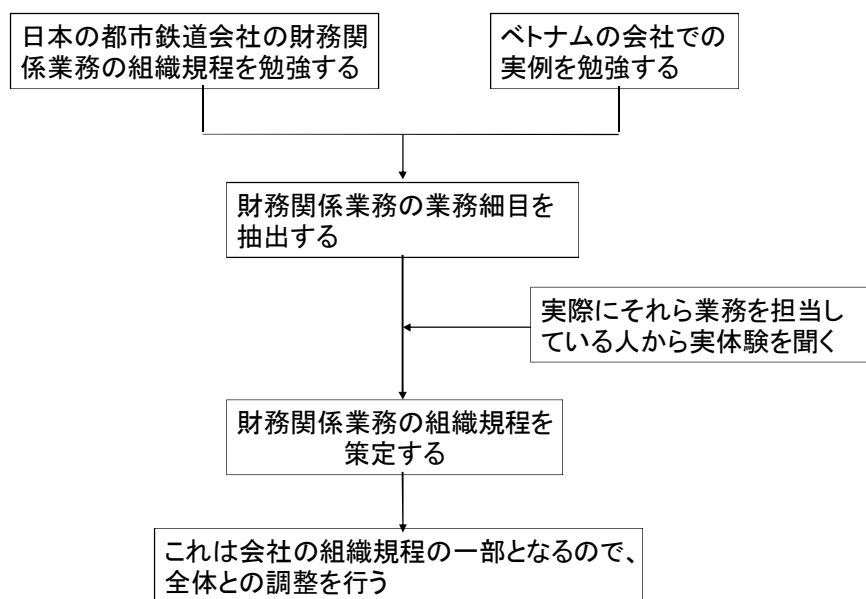


図-2.15 活動 3-1 に関する具体的進め方

【実際の活動内容と成果】

- (1) 日本の鉄道会社の組織規程の検討  
日本の関係規程の越語訳を検討した。
- (2) サイゴンバスなどベトナムの会社の規程の検討  
サイゴンバス又は関係会社の組織規程の概要を入手し、検討を行った。
- (3) 財務関係法令の検討  
ローカルマネジメントコンサルタントの協力を得つつ、検討した。
- (4) 財務部門の業務の抽出  
ローカルマネジメントコンサルタントの協力を得つつ実施した。
- (5) 財務部門での経験の聞き取り  
大阪市交通局からの専門家から聞き取りを実施した
- (6) 財務部門関係組織規程の作成  
実施した。
- (7) 他部門との調整  
実施し、1-2 を作成した。専門家との意見調整を行った

【懸念事項と今後の方向】

- ・ 財務部門と購買部門を切り離す案については、ベトナム文化とのことなので、専門家はこれに同意し



た。なお、フィリピン、カイロ等の都市鉄道ではスペアパーツの購入を購買部門が抑制する傾向にあり、円滑な車両保守に支障が出ている。このため、PUC メンバーには購買部門は購買手続きや在庫管理を的確に行うことを目的とした部門であり、購入の決定は保守部門が行うことを強調した。今後 TC 第 2 次以降の組織の検討に際して、財務関連の仕組みの詳細検討に則して見直して行くことが必要である。

【アウトプット】

- 組織規程(活動 1-2 に含まれる)

### (活動 3-2) 会計制度の策定

ベトナムの会計基準は、ほぼ国際的な会計基準に準拠しているが、例えば減価償却期間等については、日本のものとはかなり異なったものとなっている。この会計基準にもとづいた会計方針のあり方によっては、収支計算が大きく異なったものとなってくる。したがって、ベトナムの会計基準に基づいて、収入、支出基準又は減価償却の方針等の会計方針をまず定める必要がある。

この活動では収入金及び経費の支出を把握する仕組みを整え、四半期、年度毎の決算資料を作成する仕組みを構築する。

経費の支出については、保守関係機材の購入にあたって、仕様や数量を決める技術部門及び実際に資材を購入する資材部門との連携が重要である。また、これらの仕組みは実質的にはオフィス IT システム上で実現することとなるので、オフィス IT システムとの連携が重要である。さらに経費を支出するに当たっての手続きや、現金の取り扱い方法などについても制度を作る。

具体的検討の道筋は図-2.16 によることとする。

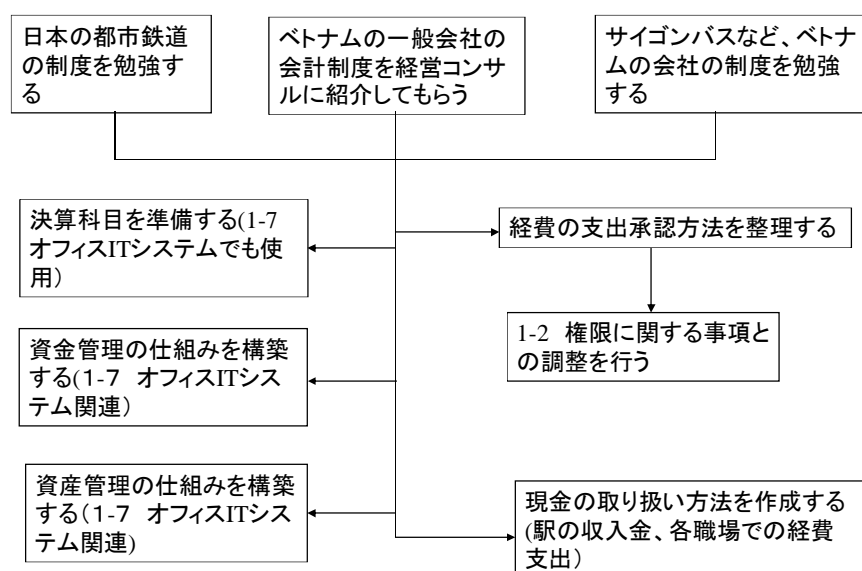


図-2.16 活動 3-2 に関する具体的進め方

### 【実際の活動内容と成果】

#### (1) 日本の会計制度の検討

日本の鉄道会社の会計規則を検討した。会計規則は法律で詳しく規定されているため、法律の勉強を主体とすべきことが判明した。

#### (2) ベトナムの法律等の検討

ベトナムの法律及び会計基準を入手し、ローカルマネジメントコンサルタントの協力を得つつ、作成中の会計規程原案に反映させた。

#### (3) サイゴンバス等ベトナムの会社の会計制度の研究

サイゴンバスの会計制度を入手して検討し、会計規程の原案作成の参考にした。

#### (4) 収支に影響を与える項目の研究(損益分岐点、減価償却ほか)

修正した財務モデルに基づき収支に影響を与える項目を検討した。鉄道はあらかじめ定められた列車ダイヤに基づいて、列車が運行されるため、その経費は乗客数によらず、固定的であることに留意して整理を行った。

#### (5) 購買契約入札の実施をどのように行うかについて、技術部門と購買部門との意見交換

MAUR の入札手続きを検討し、調達管理規程原案作成の参考にした。

#### (6) 負債管理(オフィス IT システムから取得)を含む資金管理計画システムの開発

オフィス IT システムにおける資金管理機能の概要については、専門家より提示した。

#### (7) 資産管理システムの開発(オフィス IT システム関連)

オフィス IT システムにおける資産管理機能の概要については、専門家より提示した。また、その内容を調達管理規程の原案作成の参考にした。

#### (8) 支出承認システムの開発

支出承認システムについて MAUR などの仕組みを参考にその手続き・内容を検討した。その検討を踏まえて、オフィス IT システムにおける支出承認機能の概要については、専門家より提示した。

#### (9) 支出承認システムと職務権限制度との調整

日本の鉄道会社の支出承認システムと職務権限制度との調整の仕組みを検討し、仕組み作りの参考にした。

#### (10) 現金取り扱い制度の開発(駅の収入金、各職場の支出)

日本の鉄道会社の現金取り扱い制度とその手続きを検討し、現金取り扱いに関する内部規程案を作成した。

### 【懸念事項と今後の方向】

- 活動指針に沿って、PDM で要求される会計制度案を作成したが、詳細な業務フローを踏まえた財務会計の仕組みとはなっていないため、今後第 2 次 TC 以降で、業務フローベースの財務会計の仕組み(含む業務マニュアル)を作りこんでいく必要がある。

【アウトプット】

- 会計規程
- 駅務現金取り扱い規程

(活動 3-3) 予算計画（案）の策定

予算計画は会社を設立する際、事業計画の一部として提示することとなるので、会社を設立する以前から準備することが必要である。

営業開始初年度の収益の予測は、不確定要素が多いため難しいものとならざるを得ない。しかし、その後の鉄道事業の収益については、不特定多数の利用者が相手であるが、前年度実績から推定できる。経費面については、鉄道事業では利用者の多寡に関わらず、スタッフを職場に配置し、車両・設備の保守も列車運行本数で決まってくることから、推計は比較的容易である。しかし、会社が利益を上げることができるか否かには、少しずつの経費節約が効いてくるので、予算計画作成ではどこに無駄があるかを的確に見極めることが重要である。

資産の取り換えなどについては、キャッシュフローに大きく効いてくるので、会社の戦略としてきちんと検討することが重要である。この意味で企画部門とよく連携を取る仕組みを用意しておくことが大切である。

具体的検討の道筋は図-2.17 によることとする。

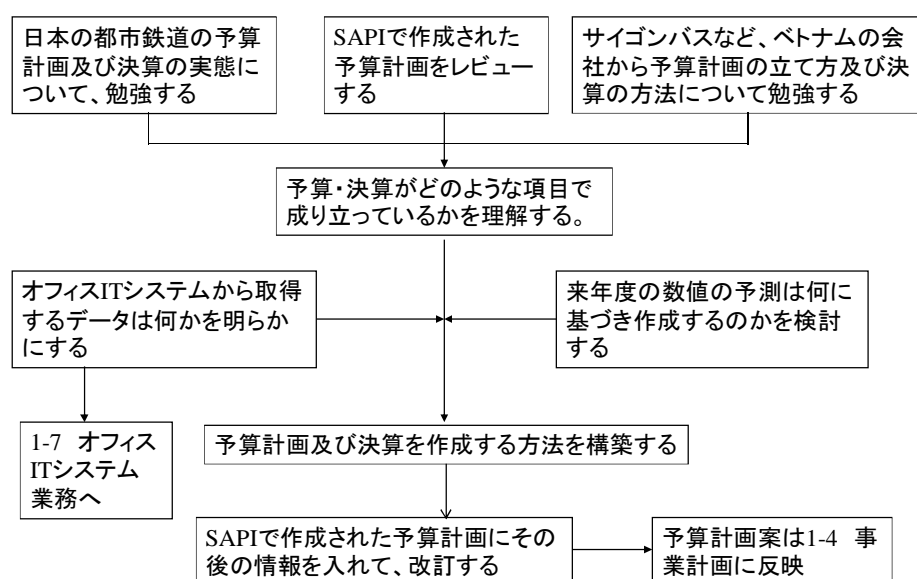


図-2.17 活動 3-3 に関する具体的進め方

【実際の活動内容と成果】

(1) 日本の都市鉄道の予算及び決算案の準備方法の研究

日本の都市鉄道会社の予算及び決算の資料を検討し、予算計画づくりの参考にした。

(2) サイゴンバス等ベトナムの会社の予算及び決算案の準備方法の研究

サイゴンバスの予算及び決算の資料を検討し、予算計画づくりの参考にした。

(3) SAPI で作成された予算案の復習

SAPI で作成された財務モデルに基づき、事業の準備予算も含めた年度ごとの予算計画を検討した。

(4) 予決算案の項目の理解

財務モデルならびに日本の投資鉄道、ベトナムの MAUR やその他の組織を参考にして、予決算案の項目の理解を深めた。

(5) オフィス IT システムから取得する必要があるデータの明確化

オフィス IT システムにおける予算制度の概要については、専門家より提示した。作成した会計規則で規定した手続きなどを踏まえて、どのデータをオフィス IT システムから取得するか検討した。

(6) 次年度予算案を推定する基礎の検討

各作業量の予測×単価の変動が基本である。専門家から基本的考え方を提示した。財務モデルに基づき、次年度予算案を推定する基礎を検討した。

(7) 予決算案の準備方法の策定

日本の都市鉄道の方法、MAUR、HCMC-PC などの例を参考にして、予算計画および予決算案の準備方法を検討し、策定した。

【懸念事項と今後の方向】

- 今後、O&M 会社の会社形態の最終化を踏まえて、PUC 自らが財務モデルの内容に習熟し、このモデルを活用して予算計画案を作成することができるようになることが必要である。

【アウトプット】

- 予算計画案

### (活動 3-4) 資材購入に係る規程（案）の制定

資材は、必要なときにすぐに使えるよう、調達しておく必要がある。なお鉄道部品は特殊な物が多く、調達までに要する期間が長いことにも留意する必要がある。一方、経営の健全化に向けて、適正な数量に在庫量を抑える配慮も必要である。

都市鉄道運営会社はホーチミン市の下部組織であるため、資材購入については透明性が求められる。保守段階における鉄道資材はその性格上、調達先が限られる物品が多い。予め単価契約をしておくなどの工夫により、一般入札による煩雑さを避ける工夫を行う。

ホーチミン市都市鉄道1号線プロジェクトでは、建設工事の一環として、開業後 5 年間における保守上必要な予備品・消耗品を確保することになっている。しかし、開業後 6 年目以降に向けて、受注者との協議が必要となる。

具体的検討の道筋は図-2.18 によることとする。

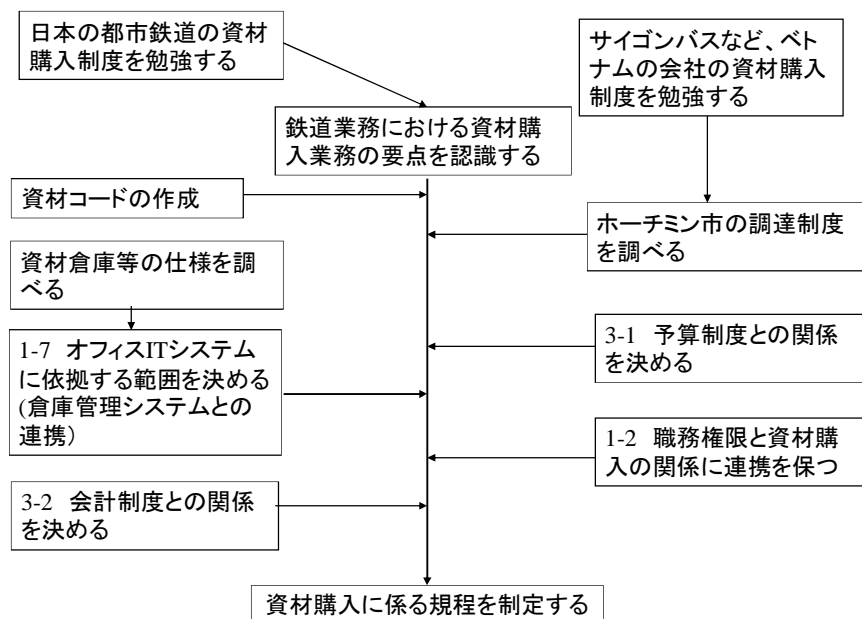


図-2.18 活動 3-4 に関する具体的進め方

【実際の活動内容と成果】

- (1) 日本の都市鉄道における資材購入制度を研究する  
日本の鉄道会社の資材購入制度を検討し、調達管理規程の原案作成の参考にした。
- (2) サイゴンバス等ベトナムの会社の資材購入制度を研究する  
サイゴンバスの内部情報を入手して検討し、調達管理規程の原案作成の参考にした。
- (3) 鉄道事業における資材購入制度の要点を明確化する  
鉄道事業における資材購入制度の要点を専門家が PUC に提示した。
- (4) 資材コードを用意し、倉庫管理システムとの整合性をはかる  
日本の鉄道会社の資産リストを入手し、資産表(案)を作成した。
- (5) 建設計画における倉庫管理システムを調査する  
PMU に車両基地内の倉庫管理システムの要求仕様について問い合わせた。
- (6) 建設契約、サービス契約、資材購入契約の方法を明確化する  
MAUR や HCMC-PC の情報をもとに、調達管理に関する内部規程として、入札タイプ別入札手続きを含む原案を作成した。
- (7) オフィス IT システムの範囲を明確化する(倉庫管理システムとの協調)  
このシステムでは財務会計処理に必要なデータの管理までであり、倉庫内の現品管理などは行わない。倉庫管理システムとこのシステム間でのデータ授受はオフラインで引き渡す。
- (8) 会計制度とオフィス IT システムとの関係を明らかにする  
オフィス IT システムの会計機能の概要については専門家より、提示した。

(9) 予算制度とオフィス IT システムとの関係を明らかにする

オフィス IT システムにおける予算制度の概要については専門家より、提示した。

(10) オフィス IT システムと職階別権限制度とを協調させる

職階別権限制度との協調は職階別権限を整理したのち、オフィス IT システム側ではそれに対応したテーブルを持つことにより、対応する。職階別権限自体は当面シンプルなものとする。

(11) 物品購入に関する制度を作成する

物品購入に関する機能の概要については専門家より提示した。物品購入制度はベトナムの既存の制度をベースに作成し、オフィス IT システムとの関係を整理した。それを踏まえ、物品購入を含む調達管理規程の原案を作成した。

【懸念事項と今後の方向】

- 資材購入は財務的知識だけでなく、鉄道事業における資材業務の実態、プロジェクトで計画している日本の倉庫システムの実際を組み合わせた総合計画である。オフィス IT システムに関する入札準備が整わないため、まだ詳細が決定できず、今後この進展も踏まえて、調達システムを決定して行く必要がある。その際関連各分野の専門家及び GC と連携して詳細な仕組みを構築して行く必要がある

【アウトプット】

- 物品・資材調達規程
- 入札手続き規程
- Draft of Name and Code of Fixed Assets

### (活動 3-5) 会社の財務健全性維持のための方策検討

ホーチミン都市鉄道運営会社が赤字となった場合、ホーチミン市はその赤字を補てんすることとなっている。しかし、サイゴンバス等の実情調査結果からすれば、ホーチミン市からの補助金は必ずしも円滑に拠出されていない様子が判る。

以上の問題認識から、ホーチミン都市鉄道運営会社ができるだけ、独自で財務健全性を維持することができる方策について検討する。

具体的検討項目としては以下の項目を想定している。(3)(4)は活動 4-4 と関連が大きいので、担当専門家間で連携を密にして、検討を進める。

- (1) 都市鉄道運営会社の財務見通しを精査する
- (2) 政府保証借入金制度及び補助金制度等を勉強する
- (3) 沿線不動産の開発と都市鉄道運営会社への利益還元の可能性について調査する
- (4) 不動産開発による会社の財務健全維持をはかる上での制度として充実すべき事項について調査する。

### 【実際の実施内容と成果】

#### (1) O&M Company の詳細財務予測の実施

SAPI 作成の財務モデルを、現状の数値(需要予測、インフレ率、給与水準など)に基づき修正し、将来の事業の PL とキャッシュフロー計算書を作成した。さらに減価償却の違い(初期投資の減価償却費の有無)を反映させた料金計算方法が将来キャッシュフローにどのような影響を与えるかを分析した。

#### (2) 運営会社の借入金及びホーチミン市からの補助金制度の検討

(1)で作成した計算書をもとに、借入金およびホーチミン市からの補助金についての案を作成した。これについて HCMC- PC Department of Finance との協議を行った。

#### (3) 沿線開発利益についての検討

都市鉄道の建設によって、受益を受ける範囲について検討した。

#### (4) 財務の健全性を高めるための沿線開発利益還元制度についての検討

沿線の土地に都市計画税を掛ける構想を検討した。

### 【懸念事項と今後の方向】

#### (1) DOF はこの会社が補助金を受けることについては賛意を示している。

(2) 会社の財務健全性維持のための方策としては行政の政策実施がある。オートバイ等から都市鉄道への転換を図るためには、こうした行政レベルでの取り組み課題は非常に重要である。今後都市鉄道の各路線を成功に導くためには必要不可欠のものあり、その内容については **Business Plan**(現 **Establsihment Plan**)に記載した。具体的には、①自動車保有税の導入 ②公共交通利用促進策(通勤費の費用化、都心部への自動車乗り入れ抑制策) ③歩道駐車の禁止などを挙げている。②の例として、専門家から「都市鉄道利用促進のための具体的方策 – オートバイから都市鉄道へのモーダルシフトの誘導策 –」について、プレゼンを行った。

(3) 特に上記(2)の政策的対応は、初期の利用者確保のために重要であるため、今後次期 TC 以降も、今回の検討結果に基づき、PUC、MAUR と HCMC-PC および関連機関への働き掛けや政策的対応の促進のための活動を継続して行くことが必要である。

### 【アウトプット】

- ・ 財務モデル
- ・ 都市鉄道沿線資産価値向上に伴う鉄道事業者への開発利益還元
- ・ 都市鉄道利用促進のための具体的方策 – オートバイから都市鉄道へのモーダルシフトの誘導策

## 2.5 営業 (活動 4)

列車運行に伴う技術的教育は GC で担当する。車両・設備保守に関してはコントラクタが保守業務を請け負う形で技術的教育を行うこととなっている。これら業務の経営・管理業務については、基本的に技術的教育の延長線上にあるが、不足している点については第二期の課題として対処する。

鉄道の現場実務としては、その他に営業業務がある。これらは鉄道部門を「営業」、非鉄道部門を「関連事業」または「非鉄道営業」と呼ばれることが多い。これらについては、このプロジェクトの第一期業務の対象とする。

#### （活動 4-1） 営業・関連事業関係業務に関する組織規程（案）の策定

ここでは営業・関連事業関係業務の具体的なイメージを抽出することを通じて、これら業務に関する組織規程を策定する。これは会社の組織規程の一部となるので、全体との調整を行う必要がある。

鉄道営業と非鉄道営業で組織を分けることも考えられるが、ホーチミン都市鉄道運営会社の場合、当初は業務量も少ないので、一つの組織を前提に検討を進める。

具体的検討の道筋は図-2.19 によることとする。

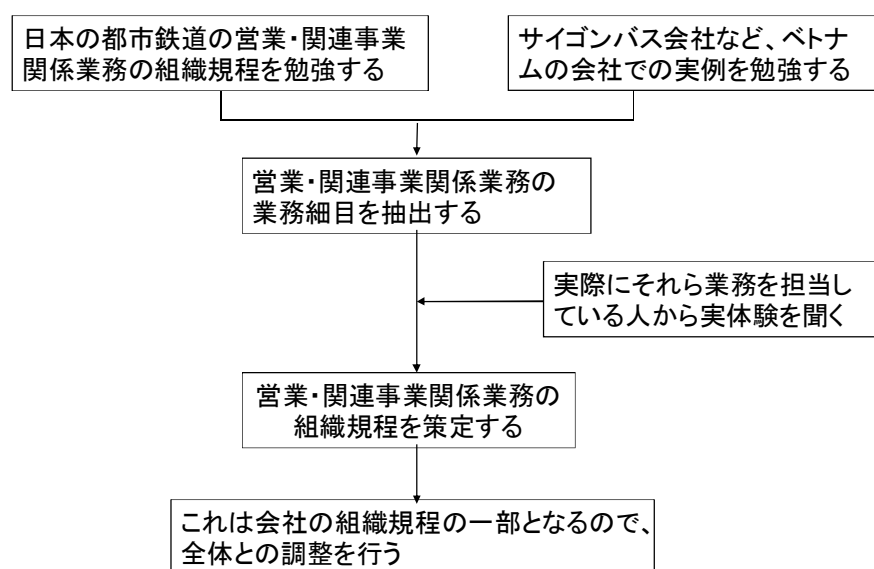


図-2.19 活動 4-1 に関する具体的進め方

##### 【実際の活動内容と成果】

- (1) 日本の都市鉄道会社の営業分野における組織規程の検討  
日本の関係規程の越語訳を検討した。
- (2) サイゴンバスなどベトナムの営業規程の検討  
サイゴンバスの規程の概要を入手し、検討を行った。
- (3) 営業分野における業務の抽出  
(1)(2)を参考として、営業分野における業務の抽出を行った。
- (4) 営業分野の経験の聞き取り  
専門家から「駅の日」について、プレゼンを行った。  
日本研修で駅の 24 時間を体験した。  
専門家から「駅の業務(①接客、②現金取扱、③旅客の安全確保)及び要員体制」について、プレゼン



ンを行った。

(5) 営業分野の組織規程案の作成

営業分野の組織規程案の作成を行った

(6) 組織規程関連規程の検討及び整備

駅の現金取扱に関連して、財務部門が策定した「現金取扱に関する規程」の検討を行った。また、組織規程と関連する「駅係員執務基準規程」の整備を行った。

(7) 全体案との調整

活動 1-2 を作成する過程において、全体案との調整を行った。

【懸念事項と今後の方向】

- 日本の駅における体験研修及び専門家から駅の業務(1. 接客、2. 現金取り扱い、3. 旅客の安全確保)等のプレゼンを行ったが、まだ具体的なイメージを掴めていない部分がある。TC 第 2 期以降においては、さらに規程の勉強の深度化及び必要なマニュアルの検討等を行って、開業に備えることが必要である。

【アウトプット】

- 組織規程(活動 1-2 に含まれる)
- 駅係員執務基準規程

## (活動 4-2) 運輸約款の策定

運輸約款は鉄道会社と利用者の間での契約である。内容的には運賃に関すること、乗車券の払い戻しに関すること、列車が運転を中断したり遅れた場合の取扱い、旅客がしてはならない行為、乗客の携帯品などを定める。

具体的検討の道筋は図-2.20 によることとする。

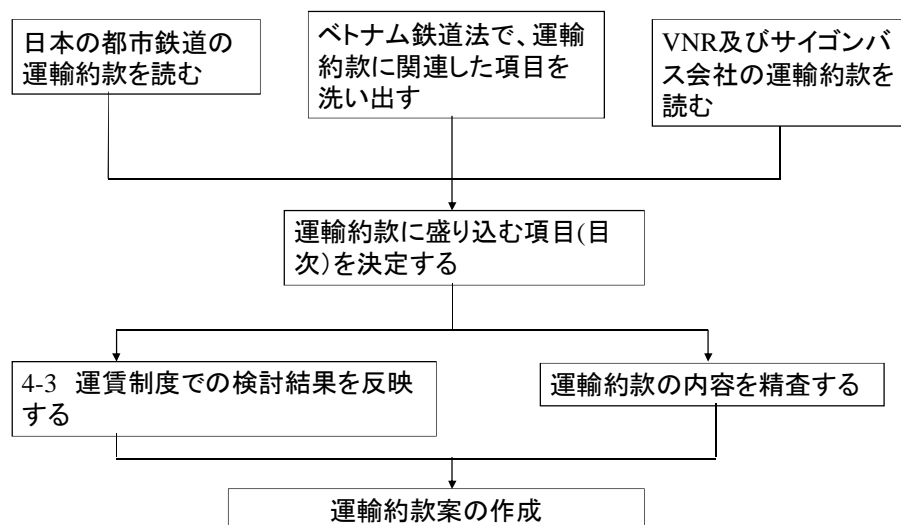


図-2.20 活動 4-2 に関する具体的進め方

#### 【実際の実施内容】

- (1) 日本の都市鉄道における運輸約款の検討  
日本の運輸約款(越語訳)を検討した。
- (2) 運輸約款に関するベトナム鉄道法の規程の検討  
ベトナム鉄道法に記載されている事柄のうち、運輸約款と関係する条項について研究した。
- (3) VNR とサイゴンバスの運輸約款の検討  
VNR の規程は専門家が入手した。しかしサイゴンバスには運輸約款はなく、ホーチミン市が出している Decision によることが判明した。Decision 自体は入手済
- (4) 約款の目次を作成する。  
専門家との議論の結果として、PUC が、約款の目次を作成した。
- (5) この約款の目次を検討し、運輸約款を作成する。  
大阪市交通局の約款をベースとし、JR 東日本の IC カード取扱基準規程を付加して、運輸約款の素案を作成した。
- (6) 運輸約款関連規程の整備  
運輸約款関連規程として「証明書を必要とする各種運賃割引の取扱規程」及び「遺失物取扱規程」の整備をおこなった。

#### 【懸念事項と今後の方向】

- (1) 運輸約款は形を整えることも大切であるが、その中身として、割引運賃項目及び割引率などを具体化することが重要である。第 4 回 JCC では経営に悪影響を及ぼさないことも考慮して、具体的な運賃割引率を提案したが、特に指摘はなかった。今後、割引率について議論がなされる場合は、その多寡によっては、経営収支に影響を与える場合があるので、慎重に検討を進める必要がある。
- (2) IC カードについては、MOT が策定中の基準及び AFC の仕様等を含めて、引き続き検討を進めて行く必要がある。なお、ホーチミン市は既に C タイプでの入札図書を作成している。

#### 【アウトプット】

- 運輸約款
- 遺失物取扱規程
- 証明書を必要とする各種運賃割引の取扱規程

### （活動 4-3） 運賃制度および運賃改定手続（案）の構築

ベトナム国は発展途上にあり、インフレーションが著しい。運賃を適宜適切に上げていかないと、都市鉄道運営会社は経営がなりたたなくなる。運賃水準については、すでに SAPI でも検討済みの事項であるが、このプロジェクトでは具体的な制度の準備を行う。

ホーチミンでは今後複数路線が建設される。鉄道利用を促進していくためには、他路線を乗り継いだ場合でも、同じ路線を乗っているのと同様の運賃であることが望ましい。また小児や老人など、所得のない利用者に対する負担軽減についても検討しておく必要がある。このように運賃制度そのものにも、様々な制度を用意する必要がある。これら運賃制度および運賃水準は AFC の仕様決定を左右するので、遅くとも 2012 年中にはホーチミン市の決定を得なくてはならない。

なお、運賃制度を構築する上で、自動改札機は各線区共通であることを前提とする。このことは他線区担当 PMU に予め、周知しておくこととする。具体的検討の道筋は図-2.21 によることとする。

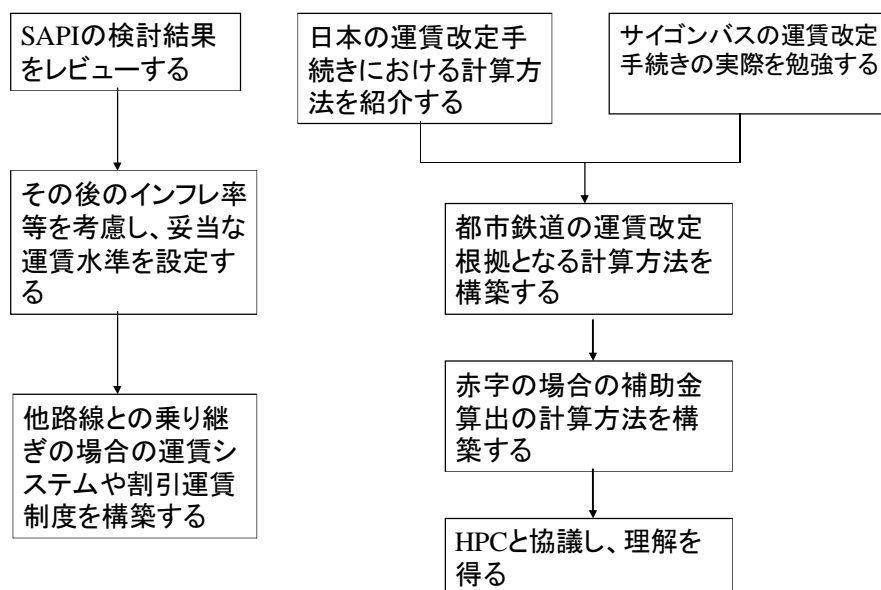


図-2.21 活動 4-3 に関する具体的進め方

【実際の活動内容】

- (1) 日本の都市鉄道の運賃制度についての検討  
専門家から「日本の運賃制度及び運賃改定手続」のプレゼンを行った。また、これまでの SAPROF、SAPI における運賃の検討内容をトレースした。
- (2) 外国の運賃制度についての検討  
専門家からロンドンのゾーン制、パリの単一料金制などについて紹介した。
- (3) サイゴンバスの運賃制度の検討  
サイゴンバスの運賃制度はホーチミン市の条例で決まっており、サイゴンバス独自のものはなかった。市の条例は取得済。
- (4) 切符の販売、改札方法についての検討  
大阪市交通局の事例をもとに検討した。1 号線では切符の手売りは行わず、自動券売機で行う。切符はすべて IC カードとし、紙の切符は扱わないこととなっている。
- (5) SAPI 及び SAPROF での運賃水準の検討  
専門家から SAPI 及び SAPROF の運賃水準設定の経過を説明した。
- (6) 適切な運賃水準の見極め  
SAPI の検討結果をベースに開業年度 2017 年度の運賃水準を算出した。  
開業 1 年前に具体的に決定される。
- (7) 割引切符及び他線区への乗り継ぎ運賃

大阪市交通局やサイゴンバスの事例をもとに研究した。割引運賃については、Stored Fare Card の利用者は 1 割引以下、小児は 7 歳まで無料。学生は SF カード利用の場合、18 歳までは 5 割引、18 歳以上は 4 割引の案で関係者の合意形成を求めた。

The O&M Company の路線内で他路線に乗り継ぐ場合は乗り継ぎ運賃は収受しない。

(8) 日本における運賃改定制度

専門家によるプレゼン「日本の運賃制度」でヤードスティック方式を学んだ。

(9) VNR 及びサイゴンバスの運賃改定制度

VNR は都市間鉄道であり、賃率は参考にならない。運賃改訂制度については資料の入手ができていない。サイゴンバスからは基本的な方程式の説明はあったが、具体的データなどの提供がないので、PUC は十分理解しきれていない。

(10) 運賃改定の際の計算方式の策定

専門家が、シンガポールの例等を参考にした基本的な仕組みについてプレゼンを行った。

HOUTRAN でヒアリングから算出した運賃水準がある。これをもとにインフレーションにより補正を行い、開業時の運賃を算出する。開業後は経費、乗車人員とも実際のデータが取得できるので、これを元に運賃を算出し、その後の改訂の元資料とする。

(11) 赤字が生じた場合の補助金の算出方

この会社は初期投資の資金返済負担を O&M 会社に背負わせない、初期の通常赤字が出る段階でも Cash short が起きないよう現金の資本金を積むなどの工夫により、適正な運賃水準が維持できれば、赤字が出ない構造となっている。一方、想定以上に大きなインフレとか想定以上に少ない需要など想定外のことが発生した場合、赤字に転落せざるを得ない。こうした場合に限り、HCMC-PC からの赤字補てんを得る仕組みを構築した。

一方、現実には申請どおりの運賃認可が得られないであろうことも容易に想像できる。その場合に対処するため、なぜ O&M 会社がホーチミン市から補助金を受けられることができるかについて、法的根拠を明確にする必要がある。この法的根拠としては「Decree 31/2005/ND-CP」に基づく「Public company」と鉄道法で定める補助金の 2 つがあるが、本件の場合、後者で行くこととした。

(12) 運賃制度についての HCMC-PC との議論

第 2 回 JCC において、PUC から、開業時の運賃水準等について報告がなされ、JCC は基本的にそれに同意した。

【懸念事項と今後の方向】

(1) 運賃制度を早期に具体化する

運賃制度の検討結果については、第 2 回 JCC に、PUC から 2017 年開業時の運賃水準について報告がなされ、JCC は基本的にそれに同意した。さらに、「事業計画」および「運輸約款」の中では、具体的な運賃改訂方式及び運賃割引率を盛り込んだ。今後は、開業 1 年前に行う実際の運賃決定において、これまで検討してきた考え方を反映していくよう注力していく必要がある。

(2) pupil 及び student の公共的な使命を持つ部分の割引について、ホーチミン市による全体の赤字負担とは別に、個別にホーチミン市の負担を提案したが、JCC での賛同を得られなかった。財務体質を良くしていくためには、今後とも粘り強くホーチミン市に要請していく必要がある。

(3) 日本のデータの取得より、ベトナム国内のデータ取得の方が困難である。第2期TCの具体化にあたっては、ホーチミン市の MAUR に対するバックアップ体制の強化を要請していく必要がある。

【アウトプット】

- 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
- 運賃改定方式 (Fare revision system)

**(活動 4-4) 関連事業に関する対象業務、仕組み及び管理手法の情報収集、分析**

非鉄道事業は鉄道利用者にとって便利かつ付加的なサービスを提供するとともに、鉄道運営会社に鉄道以外の収益を提供する。

日本の鉄道会社には非鉄道事業からの収益を上げている会社も多くあるが、ホーチミン市では都市鉄道事業は初めてであり、初めから手広く非鉄道事業を展開することにはリスクがある。このため、非鉄道事業の対象は、鉄道を運営している強みを活かすことができ、かつリスクが少ない事業に絞って展開することとする。

都市鉄道の健全経営のためには、政府または市が補助金を出すほかに、都市鉄道運営会社に非鉄道事業の資産を保有させ、その財政基盤を堅固にするという方策がある。現在1号線の終端駅、ベントイン駅の地下街開発の検討が進められている。都市鉄道運営会社の健全経営のため、この地下街空間をこの会社に保有させることで、非鉄道事業収益を確保することが考えられる。このプランはリスクが少なく、かつかなりの収益を得ることができる可能性がある。

こうしたプランも含め、具体的検討の道筋は図-2.22 によることとする。

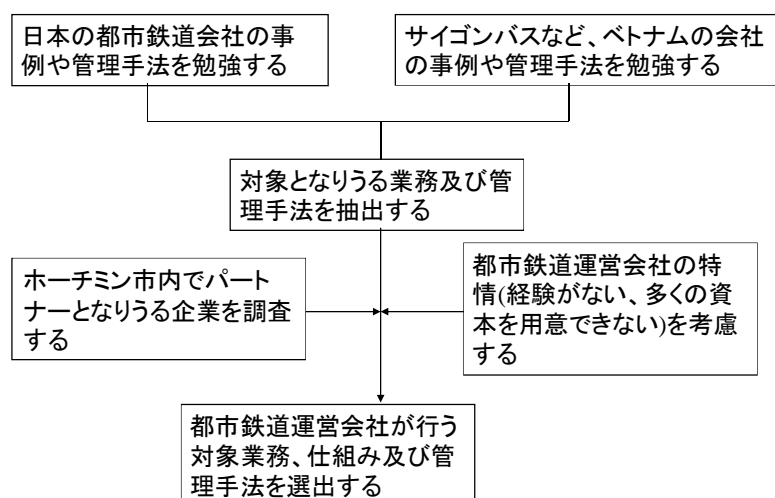


図-2.22 活動 4-4 に関する具体的進め方

【実際の実施事項】

- (1) 日本の都市鉄道における関連事業とその経営手法についてのケーススタディー  
専門家から、JR 東日本の関連事業についてのプレゼンを行った。
- (2) サイゴンバスを含めたベトナム関連会社の関連事業とその経営手法についてのケーススタディー  
サイゴンバスの場合、バスの車両駐車場用地を利用したガソリンスタンドの経営、バス運転士育成のための教習所を活用した自動車学校などを経営している。その経営実績や手法については部外秘とのことで、情報取得できていない。
- (3) 高架及び地下の駅、電車内における関連事業  
専門家からのプレゼンを行った。また、PUC 関連事業担当が、日本の JR 東日本及び大阪市交通局における関連事業のデータを基に、O&M会社における関連事業のついでの最初の素案を作成した。
- (4) 協力パートナー会社候補の調査  
駅構内における店舗及び車両・駅構内における広告事業を行う場合のホーチミン市協力パートナー会社の調査の前提として、そのリストアップを行った。広告関係では日本で初めて鉄道関係広告会社がベトナムの地への進出の意向を示している。ローカル広告会社のタイアップした形ではあるが、協力パートナーの有力候補になりうると思われる。
- (5) 関連事業関連規程の整備  
関連事業関連規程として、「不動産貸付規程」、「建物リース契約」及び「鉄道広告取扱規程」の整備を行った。

【懸念事項と今後の方向】

- (1) 補助金を受ける赤字会社が、関連事業を行うことはできるのかという議論があった。「Public company」と言う特殊会社との混乱であったと思われる。最終的には、ホーチミン市の負担を出来るだけ軽減するため、関連事業を行うことができる方向付けとした。
- (2) なお、1号線の場合、関連事業に活用できる用地は基本的にない。このため関連事業に過度の期待を抱かせることは出来ない。当面の関連事業としては、旅客サービスにも資することとなる駅構内における店舗、車両及び駅構内における広告事業及び駐車場等の事業であろう。
- (3) ベンタイン駅の地下街開発については、地下街の建設基準並びに地下及び地上空間を含めた権利関係の整理等、まだ今後検討されなければならない課題が多く残っている。

【アウトプット】

- 不動産貸付規程
- 鉄道広告取扱規程

## 2.6 運營業務のための人材育成に係る後続プロジェクトの実施計画（案の策定（活動 5）

第 2 期は会社設立以降、会社発足時までが予定されている。現時点で想定される主な内容としては次の事項が挙げられる。

- (1) 業務実施マニュアルの整備
- (2) 管理運営部門における技術部門の構築(技術的事項を除く)

1 号線プロジェクトでは、運転士等の運行要員は GC によって、メンテナンス要員はコントラクタによって訓練が行われると計画しているが、本社の運行部門およびメンテナンス部門担当者への教育は全く検討されていない。

列車ダイヤと運転ルールについては列車運行に不可欠であるので、本来は本社運行部門で準備すべきところ、GC が提供することで計画されている。しかしながら、その作成方法を教えることについては、GC の業務に含まれていない。メンテナンス部門においても、定例のメンテナンスの他に様々な業務が行われることになる。故障防止対策や設備・車両の取り替え計画などは、本社メンテナンス部門が行うべき業務の典型的な例である。これらの訓練をコントラクタに要請することは、利益相反に伴う問題を引き起こす可能性があり、適切ではない。

TC 第 2 期の枠組みについては、上記の課題を勘案して検討されることになる。

### 【実際の活動内容】

当初、TC は第 1 期(2 年間)、第 2 期(3 年間)を継続して実施する計画であったが、工事遅延のため 1 号線開業が 2 年間遅れることとなった。このため、第 1 期と第 2 期の間に空白の期間が生まれる。MAUR からはこの期間も TC の継続を強く望まれている。このため、この期間については Intermediate TC (仮称)として実施することで検討が進められている。

第一期 TC がほぼ終了した時点で、後続プロジェクトでの実施事項は次のとおりと考える。

- (1) 運営会社の立ち上げ
  - 運営会社の登記(2013 年内を想定)
  - 運営会社における管理システムの準備(要員の配置、会計システムの準備など)
  - 技術部門組織の立ち上げ
  - 2 号線との情報共有
- (2) 運営会社の準備作業を通じた管理知識/経験の獲得
  - 大阪市交通局における OJT の実施
  - ハノイ市との情報共有
  - PMU 1 との情報共有・協議(オフィス IT システム、AFC システム、列車シミュレータ、OCC システム及び列車運行ルールなど)
- (3) 運営制度の枠組み作り
  - VNRA との協議による運転職員の訓練制度等の完成
  - Regulator 機能の準備
- (4) Phase 2 の準備

- PDM、PO 及び WBS の作成など

【懸念事項と今後の方向】

- (1) 運営会社の登記に中央省庁との協議は必要ないが、会社設立計画書については関係箇所との協議事項も多いので、運営会社登記作業は早期に着手する必要がある。
- 会社設立計画書を作成(現在 HCMC-PC の承認を得ようとしている資料は会社設立構想との位置づけ)
- HCMC-PC への提出(事前に関係部局と協議)
- 関係部局の意見聴取
- HCMC-PC 議長の正式決定
- 登記書類の提出
- DPI による都市鉄道運営会社登記
- (2) PUC の増員計画に基づく職員の追加配置については、単に数だけでなく、職務に必要な経験を備えていることが必要である。
- 増員される PUC メンバーとしては、実務経験を積んだメンバーの参加が望まれる。
- PMU メンバーのうち、O&M 会社本社の保守関係部局に転出する者は PMU において、車両・設備の知識を十分に蓄えて育っていることが重要な前提となる。これらメンバーは、PMU において GC の監督的役割に満足するのではなく、自ら判断できる実力を身に付けておくことが期待される。
- (3) O&M 会社が開業後、十分機能するためには、単に規程やマニュアルの準備をするだけでなく、開業の準備作業を通じた管理知識／経験の獲得が大切である。
- 迅速な判断を要する会社運営には先の見通しを持つことが重要である。都市鉄道の運営経験を持たないベトナムの場合、開業準備作業を通じてしか、こうした経験を蓄積することができない。初めてのことを行うには、通常よりも時間を要する。このため、会社設立はできるだけ早期に行うことが望ましい。
- MAUR は日本の鉄道会社本社での実習を望んでいるが、本社業務は豊富な鉄道の知識が必要であり、その多くは部外秘である。このため、ベトナム人が本社で実習することは現実として実施困難である。これに代わるものとして「2 ケ月間の現場実習」及び「鉄道会社における豊富な本社経験を持つ専門家による本社業務 OJT」(その対象物が【実際の活動内容】(2) に示した各種作業である。これらを実施することによって、実質的に鉄道会社の本社での業務体験をしていることになる)を実施する。
- (4) 運転免許取得のための教育については、「開業要員については大阪市交通局で座学を実施し、交通局で certificate を与える」「日本の技術協力により鉄道学園で電車コースを開設し、鉄道学園で certificate を与える」と言う 2 つの方式を検討していく。いずれも新しい仕組みを作る話であるだけに、慎重かつ迅速に関係者と相談を行っていく必要がある。
- (5) Regulator については、MAUR はまだその必要性を理解していない。MAUR がその必要性を理解した時点でメニューに加えれば良いと考える。

【アウトプット】

- PDM of Intermediate TC および PO of TC Intermediate TC(添付資料 7)



### 3. プロジェクト実施運営上の課題・工夫・教訓

#### 3.1 PUC メンバーの基礎力レベルアップ

ベトナム側は、PUC メンバーとして MBA 修了者など相当な資質を持つ人材を揃えているが、鉄道に対する知識やベトナムの法律や会計処理など、経営分野の実務的知識を身につけてはいない。このため、PUC メンバーの基礎力レベルアップをめざし、日本およびベトナムで、表-3.1 に示す研修を実施する。なお、2 年度目にも新人が追加投入される計画なので、この研修は 2 年度目についても実施する予定である。

ベトナムでの研修は日本人専門家の滞在がない時期に実施することで、専門家不在時の PUC スタッフの業務に対する意欲の継続的充実をめざす。この研修はできるだけ早期に実施することが望ましいが、契約準備等もあるので、TC 発足後 2 ヶ月経過時点以降を目処に実施する。実施にあたっては、計画立案能力向上のため、PUC メンバーにも、計画の作成や事務手続きなど各種準備作業に参加してもらうこととする。なお、この研修は現地再委託により実施する。

表-3.1 PUC メンバーの基礎力レベルアップ研修

	対象とする知識	方法	記事
1	鉄道に対する知識	日本研修の実施	東京・大阪で都市鉄道乗車体験と鉄道会社及び関連会社の職場訪問・見学を行う(9 日間コースを実施予定。1 回の参加人員 10 名程度)。
2	経営に対する知識	VJCC での特別コース	ベトナムの会社法、税法、会計規則、労働法及び迅速な意思決定法などについて、実例による事例研究を交え、学習する(全 4 週間コース。1 回の参加人員 10 名程度)。

注: VJCC (Vietnam-Japan Human Resources Cooperation Center): JICA の無償資金協力で設立されたベトナム日本人材協力センターであり、活動の一環として、「QC」や「カイゼン」に代表される日本の技術教育などを実施している。

#### 【実際の活動実績】

- 活動 1-1(4) 参照

#### 【実際の経験から得られた課題、工夫、教訓】

##### (1) 日本研修

- ベトナム側からできるだけ日本に滞在する期間を長くしてほしいと言う要望があり、当初の 8 日間コースを 10 日間とした。さらに JCC で内容の充実をはかるようとの意見があり、駅の 24 時間体験を組み込むこととした。
- ベトナム側からは JCC の意見を受け、単なる見学を避けることの希望が強く出された。しかし、このコースは PUC スタッフが鉄道に対する知識、経験が乏しいため実物体験を中心に企画されたコースであり、講義を中心としたコースは一定以上の鉄道知識を必要とするので、研修プログラムの設定に苦慮した。

##### (2) VJCC における特別コース

- VJCC は JICA が設立した NPO であり、計画の具体化にあたっては親身の相談をすることができた。また貿易大学の付属機関であることから、ホーチミン市内に幅広いネットワークを持っている。このため、VJCC は短期間のうちに専門家チームの要請に応え、ホーチミン市内の大学、銀行、コンサルタント、法律事務所等から適切な講師を集め、特別コースを設立した。
- PUC メンバーからの報告によれば、講義は豊富な事例と Q&A タイムを十分確保しており、概ね好評であった。なお一部、法律の細かいところを網羅的に説明する講師も居たようである。次回は、こうした講師は外すとともに、次回実施する場合は、各講師には法が求めるところの基本概念を明確にすることを主眼とすることを指導するよう、VJCC に要請することとしたい。
- 設立される会社は 1 人有限責任会社であり、政府等から 100% 出資される特殊会社である。これら知識はこれら会社に勤務する人が講師を勤めることがもっともふさわしいと考えられる。今後、こうした初任者教育のためのコースを設定する際にはこれらアイデアについても、VJCC と相談し、できるだけ、PUC メンバーに効果の上がるコースとしていく。

#### 【懸念事項と今後の方向】

- 次期 TC で計画している研修コースはこの研修の経験、PUC メンバーの業務知識レベルを勘案しつつ、日本の鉄道会社で実施している社員育成コースをベースに PUC メンバーを鉄道専門家として育成する第一歩の研修として設定する。
- VJCC における経営研修コースについても、第一回の経験を踏まえ、PUC メンバーが増員される機会に合わせて、実施したい。

## 3.2 ローカルマネジメントコンサルタントの活用

本プロジェクトでは、専門家の現地アサインメントは常駐専門家 1 名を除いて(大阪市交通局からの出向社員)、比較的に短期にならざるを得ない。専門家不在の間を補完するため、ローカルマネジメントコンサルタントを活用する。ローカルマネジメントコンサルタントは単に専門家不在時の対応だけではなく、ベトナム現地事情に明るい経営の専門家として、日本とベトナム制度の融合に大きな役割を果たすことを期待する。ローカルマネジメントコンサルタントの具体的な役割としては表-3.2 の項目を想定する。

表-3.2 ローカルマネジメントコンサルタントの活用

項番	期待される役割
1	ベトナム現地事情に明るい経営専門家として、また日本人専門家と PUC スタッフの間に立つ通訳者的存在として、専門家からの指摘や情報に関して、PUC スタッフの迅速な理解を支援する
2	日本人専門家が不在の間、PUC スタッフのよき相談相手となる。
3	必要により、ベトナムの制度、仕組み(会社法、労働法、会計規則、税法等)について、PUC スタッフに基礎的知識を与える
4	出来上がった部内規程等がベトナムの法律に抵触していないことの確認及び表現の適切性の確認。
5	迅速な意思決定の方法を指導する
6	その他、専門家が指示する事項

#### 【実際の活動実績】

- ローカルマネジメントコンサルタントとして公認会計士及び弁護士を各 1 名雇った(週に 1 度の面談と電話、メールでの問い合わせ対応)。
- PUC メンバーからはローカルマネジメントコンサルタントは良き相談相手として好評であった。

#### 【実際の経験から得られた課題、工夫、教訓】

- 設立される会社は 1 人有限責任会社であり、政府等から 100% 出資される特殊会社である。これは特殊な会社であり、ローカルマネジメントコンサルタントが普段扱っていないタイプの業務であるようである。率直に言って、専門家が期待する答えを十分 PUC メンバーに提供できていないところがある。ローカルマネジメントコンサルタントに対し、PUC メンバーのレベルを考慮し、聞かれたことに答えるだけでなく、PUC メンバーのレベルを引き上げるための有益な情報を用意するほか、広い見地に立ってアドバイスを行うよう善処を申し入れた。
- PUC メンバーは実務経験がはばないに等しいので、専門家からの情報、アドバイスを咀嚼して実現する力が乏しい。その意味でローカルマネジメントコンサルタントに対する TOR の第一項「日本人専門家と PUC の間に立つての通訳的存在」が大切である。なお、公認会計士及び弁護士の資格を持ったコンサルタントであったため、専門的な判断を下すと言う意味での後ろだてとしてはよかった。

#### 【懸念事項と今後の方向】

- 次期 TC では、ローカルコンサルタントは専門家からのアドバイスを咀嚼して、PUC に伝える役割に力点を置いて雇っていくことが妥当と考える。  
公認会計士とか弁護士のような公的な資格は持たなくとも、相手の発言の意味を正確に把握できる能力を持つローカルコンサルタントを常雇いすることが必要と思われる。

### 3.3 迅速な意思決定システムの整備

ホーチミン市では責任を取ることを回避するあまり、関係者の合意形成に時間が掛かるという悪弊がある。ホーチミン市の一部局である都市鉄道管理局(MAUR)の内部組織となる PUC はそうした DNA を引き継ぐ可能性がある。

企業において、慎重な検討結果に基づく迅速な意思決定ができることは企業の力を高める上で重要な要素である。

このため、以下の方策を徹底し、このプロジェクトの円滑な実施をはかるばかりでなく、開業後も迅速な意思決定ができる風土作りをめざす。

- (1) 社内意思決定機関(役員会など)をベースとした意思決定システムを PUC 段階から整備し、迅速な意思決定システムを実現する
- (2) 会議の意味は「知恵出しの場」と「合意確認の場」であることを明確化する。関係者の内容の理解については、個別的な事前説明の場を活用する。
- (3) 最終的なゴールからスケジュールを逆引きするなど、スケジュール管理の方法を明確にする。

【実際の活動から得られた成果】

- なぜベトナム側は専門家が期待するような対応を取ることができないかが明確となった。
- スケジュールの逆引き管理が得意でないことが判明した。

【実際の経験から得られた課題、工夫、教訓】

- MAUR は他業務機関との協議は上部から指示されたもの以外、行う習性がないようである。専門家からの指摘では動かない。
- 他プロジェクトにおけるベトナム側カウンターパートは専門家以上に物事の組み立てが早い。これはカウンターパートが幾つものODA案件に従事しており、新しいことをどう進めていくかが判っているためと思われる。
- PUCはゴール達成までに何をしなくてはならないかについてはWBSで学習しているはずである。期限内に物事を処理する観点からは見ていなかったと思われる。

【懸念事項と今後の方向】

- MAUR が専門家の指摘で動く仕組みを構築する。Luong 局長からの指示が必要のように思われる。
- 今後はゴールを達成するためには何をいつまでにしなくてはならないかを明示することによって、PUCメンバーに逆引きの重要性を指導していく。
- ホーチミン市でも、ODAプロジェクトを完成まで経験した人材は居ると思われる。こうした人材をPUCに参加させることが必要と考えられる。MAUR には、今後は経験が豊富な人材の確保するよう、申し入れた。
- TC では部内ルールなどを整備することが主要なアウトプットとして捉えられているが、迅速なことがらの処理を重んずる発想を PUC メンバーに植え付けることこそ、健全な会社を作っていく上でもっとも重要なことと考える。
- これら根本的発想を PUC/MAUR が理解していくには時間が掛かる。また実務をこなす中で初めて理解できることである。このため、会社を早期に立ち上げ、Trial Operation を行っていくことが必要と考える。

### 3.4 的確な越語資料の作成

本プロジェクトでは最終的には数多くの部内規程が出力される。これらはいずれも会社の主要な規程となるので、その文章については的確を期さねばならない。一方、日本の方式を示した資料のほとんどは日本語である。これらの資料は規程類がほとんどであり、万全を期すため、硬い日本語が多く、翻訳者泣かせである。

さらにこれらのアウトプットは他ドナーへの情報提供などの観点から、英文で残す必要がある。

これらについて、本プロジェクトでは図-3.1 に示す手順で臨むこととしたい。

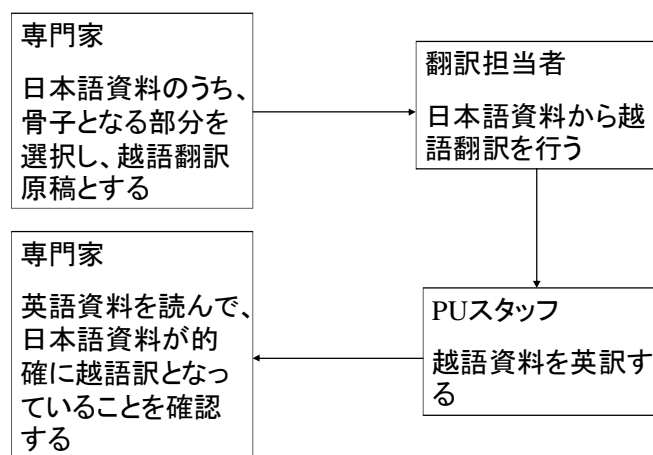


図-3.1 的確な越語資料を作成する手順

【実際の活動内容】

- 実際の活動内容については活動 1-1 (2)参照

【実際の経験から得られた課題、工夫、教訓】

- 長い文章の場合、越語訳作業を外注とし、直営の日越通訳はできた翻訳をチェックする体制を敷いた。短い文章を直営で翻訳する場合は、2 人の日越通訳のうち、一方がチェック担当に回った。
- 出来上がった越語の文章の一部については、さらに英語に訳させて専門家が英文を点検した。日本語と英語を突き合わせてみた結果、おかしい英文のほとんどは英越通訳のケアレスミスであった。一、二越文がおかしい箇所が見つかったが、その日本語をみると、日本人でも直ちに理解できないような難解な文章であった。
- 出来上がった越文は PUC メンバーが読む。もし越文がおかしければ、PUC メンバーからクレームがでるはずである。しかし、今のところ、そうした苦情は聞かない。出来上がった越文の品質がかなり高いことを示していると考ええる。

【さらに品質を高めるための工夫】

- 鉄道のことはやはり鉄道関係者がよく理解している。鉄道学園とのタイアップを模索する中から、日本の鉄道の参考資料の翻訳において、日越翻訳者と鉄道学園の講師との直接連携による翻訳が、精度高くかつ迅速に翻訳ができる方法であることが判明した。次期 TC においてはこの方法も適宜使用していく。

### 3.5 HCMC 及び政府関係機関との情報交換及び連携（JCC）

PUC は 1 号線建設事務所(PMU 1)と密接な関係を持つほか、ホーチミン市各部局と業務的に関係する。これら機関と密接な情報交換及び連携をしていくことが円滑な業務推進の上で重要である。このため、合同調整委員会(Joint Coordination Committee)を年 2 回開催し、プロジェクト全体の進め方について関係者の間での情報を共有し、プロジェクトの円滑な実施を実現していく。

表-3.3 JCC の開催時期

22	23 年度												24 年度											
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
			△						△								△				△			

また、中央政府関係では主として MOT 及びその配下の VNRA と、動力車操縦免許を初めとする鉄道法に定める各種技術的規程関連で密接な連携を保っていくことが大切である。これらは PUC スタッフの任務ではあるが、日本人専門家は PUC スタッフの行動を見守り、PUC スタッフが迅速な業務遂行ができない場合、どこに問題があるのかを PUC スタッフとともに解析し、適宜適切なアドバイスを行っていく。

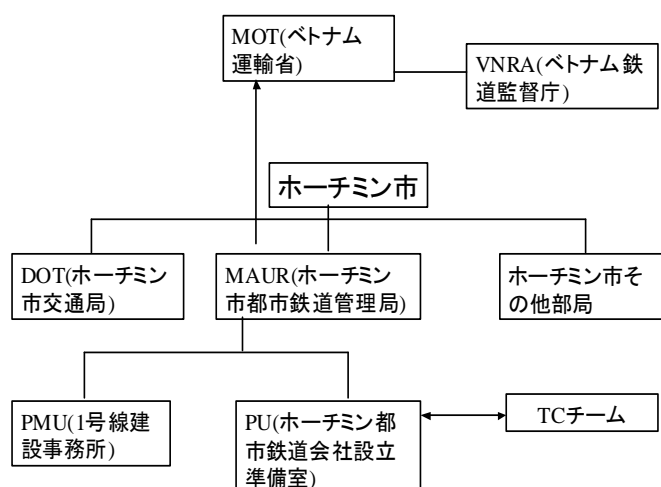


図-3.2 PUC とホーチミン市及び政府各組織との関連

## 1. 第1回 JCC

### 【議事概要】

2011 年 6 月 23 日 MAUR にて開催。議事等は以下のとおり

- (1) JICA 勝田専門家による講演「ホーチミン市都市鉄道運営組織設立支援プロジェクトの開始」
  - (2) Working Regulations; Working program in 2011 of JCC の審議
  - (3) Inception Report (ICR)、Work Breakdown Structure (WBS) の審議
- 議事録は付属資料 4 として添付した。

### 【実際の経験から得られた課題、工夫、教訓】

- JCC メンバーからの意見は、例えば「日本研修は単に見物してくるだけではないように」と言うようなある意味で当たり前の注文や、TC のフレームをよく理解していない中でのコメントであった。席上、MAUR/PUC からの答弁は TC のフレームを大きく変えるようなものではなかった。
- 第 1 回 JCC ミーティングは、MAUR の指導で熱心なりハーサルが行われた。その後の議事録作成の段階でも徹底した検討が行われた。また JCC メンバーからのコメントを過大に受け止めての反応が見られた。このために費やしたエネルギーと時間は膨大であった。

- PUC メンバーが各部局の専門家との面談を行うハードルがとて高い。PUC メンバーが若いためであるが、ホーチミン市が抱えるその道の専門家の知識を十分活かすことはとても重要である。各部局の専門家と対等に渡り合える人材を MAUR に配置すべきである。

## 2. 第 2 回 JCC

### 【議事概要】

2011 年 12 月 8 日 MAUR にて開催。議事等は以下のとおり

- (1) Organization structure functions, duties, power of Departments of the Operation & Maintenance Company of urban railway in HCMC
- (2) Charter of the Operation & Maintenance Company of Urban railway in HCMC
- (3) Study report on Driver training and issuance of Driver license
- (4) Study report on the financial mechanism
- (5) Study report on General report for ticket system and Fare Price of O&M Company in 2011

議事録は付属資料 4 として添付した。

### 【実際の経験から得られた課題、工夫、教訓】

- 今回の発表のうち、(1)(2)は成果品の提示であり、(3)(4)は検討の中間報告、(5)は財務シミュレーション結果の具体的紹介であった。具体的成果物の紹介が主たる内容であっただけに JCC メンバーからの意見も成果品をよりよくしていくためのコメントがほとんどであった。
- 第 2 回 JCC に向けてのリハーサルの熱心さは相変わらずであった。質疑とその後の対応については、JCC メンバーも第 1 回での力みが取れたこともあり、前回と比べると格段の進歩がみられた。

## 3. 第 3 回 JCC

### 【議事概要】

2012 年 11 月 22 日 MAUR にて開催。議事等は以下のとおり。

- (1) The modification of MOU, PDM, PO
- (2) The study result of PUC including the outline of Business Plan
- (3) The project terminal evaluation result

議事録は付属資料 4 として添付した。

### 【実際の経験から得られた課題、工夫、教訓】

- 第 2 回 JCC での JCC メンバーからの意見が、幾つか再び繰り返された。委員が何を言わんとしているのか、きちんと押さえていないためと思われる。会議後のフォローアップが重要である。
- Business Plan の概要については、席上、幾つかのコメントがあったが、最終的には了承された。また終了時評価結果についても了承された。今回の TC プロジェクト終了時までには実施しなくてはならないこととして、Business Plan(現 Establishment Plan)のホーチミン市人民委員会の承認を得ること、及び運転士養成制度について VNRA と一定の合意を得ることがある。この段階では両者とも予定通りの進捗を遂げていることとなる。

#### 4. 第4回 JCC

##### 【議事概要】

2013 年 1 月 24 日 MAUR にて開催

(1) Business Plan (Establishment Plan of O&M Company と改称)

(2) 次期プロジェクトの概要

議事録は付属資料 4 として添付した。

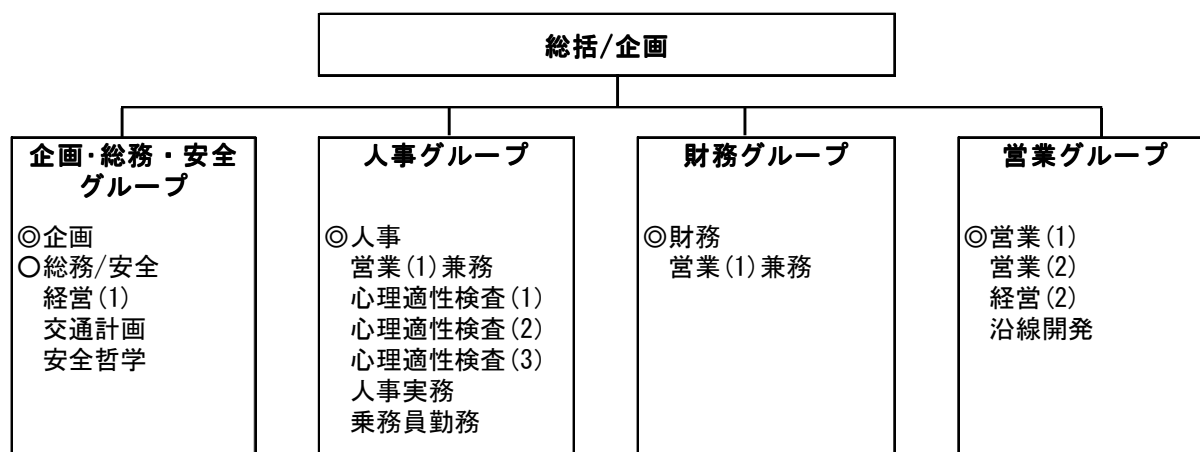
##### 【実際の経験から得られた課題、工夫、教訓】

- かねてから課題であった資料の事前説明については、今回、MAUR は JCC メンバーに対して積極的に働きかけた。結果として DOF は多忙を理由に事前折衝を断ってきたが、MAUR も事前折衝が大切と言うことは判ってきた。
- DOF の指摘はある程度財務関係のバックグラウンドがないと判りにくい。MAUR/PUC は DOF の意見に対し、過剰反応的に対応する面がある。第 4 回 JCC は専門家と相談せず JCC 資料を作ったため、やや混乱が見られた。
- Establishment Plan についてホーチミン市の早期に承認を得るため、JCC 終了後、各委員のコメントについて、専門家と PUC との間に繰り返し議論を行った。DOF からの意見について一部主旨不明な点があった。DOF は事前折衝を避けているので、3 月に開催される確認会議の場で確認するほかないが、問題点は絞り込まれているので、さほど大きな問題とはならない見込みである。
- 次期 TC 構想について紹介があったが、特に異論はなかった。
- 運転士養成制度については、VNRA が示した見解に基づき、大阪市交通局と折衝を行うことと、鉄道学園を利用する方式について、さらに関係箇所と折衝していくこととなった。現時点では 2 つの方式のいずれで行くかは絞り込まれていないが、いずれにしても 1 号線の運転士養成は日本側の手で実現できる方向が見えてきたと言える。



### 3.6 業務実施体制

本プロジェクトの実施体制を図-3.3 に示す。このプロジェクトでは、ほぼ常駐に近い専門家を一人配置する計画である。この専門家は、総括不在の際には、総括に代わってチーム運営の指揮を執る。



◎はグループリーダー、○はサブリーダー

図 3.3 実施体制図

#### 【実際の活動】

- ・ 大阪市交通局から JIC への出向社員が、常駐する形でホーチミンに滞在した。
- ・ 専門家のうち心理適性検査技術移転関係の専門家は、技術移転が行われなかったため、実施体制には参加しなかった。その他の専門家の派遣は計画どおりである(添付資料 3「最新の専門家派遣実績」を参照のこと)。

#### 【懸念事項と今後の対応】

- ・ 当初は、PUC メンバーが自力で活動することを前提に、不足する鉄道関係の知識、経験をインプットすることを想定していた。実際には、PUC スタッフは自ら案をまとめ、人を説得する業務についての経験がほとんどないため、当初想定していた以上に手数が掛かった。
- ・ PUC は TC のカウンターパートとしてのみ位置づけられていることが、従来問題であった。本件については、すでに Luong 局長が会社設立に関する PUC の任務を明らかにしたことで問題は解消されている。

## 4. プロジェクト目標の達成度

JICA は2012年11月この技術協力プロジェクトに対し、終了時評価チームを派遣した。評価の結果は以下に示すとおりである。

### 4.1 評価の概要

調査結果は表-4.1 に示すとおりである。

表-4.1 調査結果の総括表

項 目	レベル	評価できる点	記事
出力、活動、入力の実際の結果	A	総じて入力、出力とも良い。プロジェクトの実施プロセスも良い。	プロジェクトの成果達成の見通しは立っていると考えられる。
関連性	A	このプロジェクトはベトナム及び日本の政策に合致している。	ベトナム側は1号線開業の延期に伴い、本プロジェクトの第2期の実施について心配している。
効果	B	企画／総務／安全、人事、財務及び営業業務の準備状況は評価できる。	プロジェクトの置かれた環境は1号線の開業が2年延びたことで変わってきている。
効率性	B	日本での訓練は大変良いと評価できる。	他のプロジェクトとの連携は良い。これは重要なことである。
インパクト	C	運営会社設立の遅延以外、リスクはない。	開業は2018年ころまで伸びた。ここ3年以内に開業される見込みはない。
持続性	B	ホーチミン市における会社設立の必要性に変わりはない。	予算面での制約はありうる。

結論としてこのプロジェクトはB+と言える。

### 4.2 推奨事項

評価結果に基づき、評価チームは達成した結果を確実なものとするため、プロジェクトチームに対し、以下の推奨事項を薦めた。

#### 4.2.1 一般的な推奨事項

##### (1) カウンターパートのさらなる自発性

成功する技術協力プロジェクトの一つのポイントは、カウンターパートが如何に自発性を発揮するかである。このプロジェクトでは、カウンターパートはある程度まで自発性を発揮し、プロジェクトに参加してきているが、一部の日本の専門家は、今後の技術協力プロジェクトではさらなる自発性が必要と指摘している。

##### (2) 他の都市鉄道路線及び関係機関と情報共有や連携を高めること

ホーチミン市の都市鉄道会社は、単に1号線のための会社ではない。この会社は他の路線もカバーする(現時点では2号線も所管する)。他の都市鉄道路線や関係機関(他プロジェクトの関係者やハ

ノイの MRB やサイゴンバスなどの組織を含む)と情報共有や連携を高めることは、計画や建設の初期段階では欠かすことができないものである。

#### 4.2.2 2013 年 3 月までのプロジェクト期間中に実施すべき事項

(1) 残っている業務を洗い出し、一つひとつ片づける。

(2) 「事業計画」をホーチミン市に提出し、承認を受ける。

「事業計画」がホーチミン市に承認されるまでの、一つひとつの手続きを明らかにすることが必要である。

(3) 技術協力第 2 期の仮の PDM や PO を作成すること

第 2 期の活動計画案はこのプロジェクトの活動 5 で計画されている。同時に運営会社が登記されるときに第 2 期が始まるという前提で第 2 期の PDM や PO を作成すべきである。

(4) 第 1 期の終了時から第 2 期が始まるまでの間の活動計画を作成すること。

運営会社設立のためのプロジェクトが技術協力第 2 期として再開されるまでの間、MAUR と PUC は次のプロジェクトの準備をしなくてはならない。

(5) 運転免許発行及び訓練資格についての問題を明らかにし、承認を取ることが必要である。

MOT 及び VNRA との協議を通して、運転免許がどのようにして発行されるか、どのような訓練が必要なのかを明らかにし、書面での承認を得ることが必要である。

開業時の運転士及び駅員等の養成については General Consultant が実施することになっているが、これに関する方法を明確化し、VNRA の承認を取らねばならない。また開業以降の運転育成については運営会社で訓練するのか、VNRA の認証を受けた訓練機関で行うのかを、はっきりさせなくてはならない。

#### 4.2.3 本プロジェクト終了後 2013 年 3 月以降に実施すべき事項

(1) 会社登記の手続きを開始すること。

SAPI 調査では、運営会社は鉄道の開業 3 年前には設立されなくてはならないとされている。現時点では、1 号線は 2017 年から 2018 年の間で開業するとされているので、運営会社は 2014 年から 2015 年の間に準備作業を開始しなくてはならない。運営会社の登記に 1 年掛かるとすれば、MAUR 及び PUC は 2013 年のうちに会社登記手続きに着手しなくてはならない。

(2) 安全に関する部内規程やルールを完成させるにあたり、運輸省を巻き込むこと。

安全管理に関する会社の部内規程等を監督することは、政府レベルでは必要なことである。MOT や VNRA と緊密な協議を行った上で、必要な素案を作成しなくてはならない。この作業についてはハノイの MRB との緊密な連携が必要である。

(3) 1 号線の建設の進捗状況をモニターすること。

1 号線の建設状況を観察して、必要により、活動計画を改定することとなる。運営会社は開業の 3 年前には設立しなくてはならないので、技術協力第 2 期としてプロジェクトが再開するための前提条件は、運営会社がすでに登記されているか、登記が目前に来ていることである。

## 4.3 本プロジェクトの教訓

(1) 工事プロジェクトの遅延の可能性をよく考えておく必要がある。

工事プロジェクトと緊密な関係にある技術協力プロジェクトにとって、工事の遅延は直接的に技術協力プロジェクトの活動、出力、プロジェクトの目的、達成度に影響する。技術協力を計画していく際は、遅延の可能性についてはよく検討しておく必要がある。

このプロジェクトは遅延を調整するため、第1期と第2期に分けられているが、PDMは必ずしも遅延を吸収するように考えられてない。

(2) カウンターパートメンバーとして、中間年齢層のスタッフを投入すべきである。

このプロジェクトのカウンターパートメンバーは若い。情熱とやる気は認めるが、運営会社のような大きな組織においては、彼らは相対的に若い。年齢が高いということだけが意味のあることではないが、会社が設立された後、よりスムーズに運営されていくためには、カウンターパートにもっと中間年齢層のスタッフを投入すべきである。

(3) 監督官庁(MOT)との情報交換や連携が重要である。

都市鉄道は初めてベトナムに投入される。むろん鉄道運営会社の設立も初めてであり、新しいプロジェクトである。都市鉄道に関する法令や制度的なものはまだできていないので、こうした新しいプロジェクトを推進していく際には、さらに監督官庁(MOT)と緊密な連携をしていくことが極めて重要である。

## 5. 次期活動計画

Business Plan(現在は Establishment Plan of the O&M Company と呼ぶ)が第4回 JCC で審議された。幾つかの問題点は指摘されたものの、指摘の多くは表現上の問題であり、関係者の間で議論の収束が見通せないと言う問題ではない。Luong 局長も早期に会社設立を行う方針を打ち出し、会社設立に関する PUC の役割も明確にした今日、MAUR は早晩 Establishment Plan の承認をホーチミン市人民委員会から取り付けることができると考えられる。また運転士養成制度についても VNRA と MAUR との直接協議を行い、具体的な方向が見えてきた。さらに周辺状況として、懸案であった CP3 もようやくコントラクタが決まった。紆余曲折はあったが、ここへ来て、O&M 会社早期設立の機運は急速に盛り上がってきていると言える。Establishment Plan のホーチミン市人民委員会承認は次期 TC 開始の前提であるので、MAUR/PUC が 2013 年 3 月末までにこれら懸案を成し遂げることを期待する。

これらが成し遂げられることを前提に、次期活動計画について以下のとおり、提言する。

### 1. 活動の前提

- (1) MAUR は PUC を、MAUR 内における都市鉄道運営会社設立準備室として、その役割を明確にする(実施済)。
- (2) MAUR/PUC は、ホーチミン市他部局、中央省庁、その他部外組織との会合を積極的に実施する。
- (3) 都市鉄道運営会社は、工事工程に遅延があっても 2013 年内に設立することで準備を進める。
- (4) 都市鉄道運営会社設立準備室に予定された人員(2015 年 3 月までに 19 名)は、計画どおり配置する。

### 2. 活動項目

- (1) 運営会社のフレームの立ち上げ
- (2) 都市鉄道運営会社の設立準備作業を通じた管理知識／経験の獲得
- (3) 運営会社を支える枠組み及び制度の構築
- (4) TC 第 2 期の準備

具体的な活動項目は、添付資料 7「次期 TC の PDM 及び PO」を参照のこと。

## 6. 添付資料

添付資料 1 最新の PDM(変更後)

添付資料 2 詳細活動計画(WBS。変更案を含む)

添付資料 3 最新の専門家派遣実績

添付資料 4 合同調整委員会(JCC)議事録

添付資料 5 供与機材・携行機材実績

添付資料 6 Luong 局長の方針(81/TB-BQLDSDT)

添付資料 7 次期 TC の PDM 及び PO

添付資料 8 Establishment Plan of the O&M Company

技術協力成果品／技術協力成果資料については CD に収めた。

添付資料 1

最新の PDM(変更後)

## Project on Support on Set up of Operation &amp; 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&amp;M Company (PUC) under Management Authority for Urban Railways (MAUR)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<b>Overall Goal</b> The O&M company for urban railways in HCMC provides the safe and reliable UMRT operation.	1. Safety and reliability level (such as there is no fatal and injury accident of passengers, the average delay of operation is within 1 (one) minute) of UMRT operation is secured at the initial stage just after its opening.	1. Annual Report of the Company ( <u>After commencement</u> )	- Power supply is stable.
<b>Project Purpose</b> The <u>business plan of</u> operation and maintenance company of urban railways in HCMC is <del>registered</del> <u>formulated and approved by HCM PC..</u>	1. <del>O&amp;M company is registered.</del> <u>The Business Plan of the O&amp;M company is drafted, submitted to HCMC-PC. Publicizing such Business Plan will be decided by HCMC-PC</u> 2. All necessary documents are prepared.	1. <del>Approved documents for registration.</del> <u>The Business Plan.</u> 2. Company regulations, working instructions and other necessary documents.	- The formalities of company establishment are smooth at the competent authorities' level.
<b>Output</b>			
1. Preparation work of Planning, Administration and Safety (PAS) task is completed.	1-1 PAS task has functioned to smooth implementation of TC. 1-2 Each Department has regulations of function and duty. 1-3 Organization for PAS task is prepared. 1-4 <del>Operation</del> Business plan is made. 1-5 <del>Whole</del> <u>Charter of</u> O&M company <del>regulations is</del> formulated. 1-6 Necessary arrangement for safety management of UMRT is prepared. 1-7 <u>Necessity</u> of IT system of O&M company is defined.  Necessary job manual making process is decided. 1-8	1-1 Comprehensive plan of TC and achievement list 1-2 Regulations of functions and duty of each Department 1-3 Organization and regulations of PAS Department 1-4 <del>Operation</del> Business plan 1-5 <u>Charter of O&amp;M Company</u> <del>Articles of Incorporation</del> 1-6 Draft regulations for safety management system. 1-7 <del>Requirement</del> <u>Necessity</u> of IT system of O&M <u>Company</u> including financial activity. List of business activities which need job manuals 1-8 Schedule of manual making by job activity - priority	- Necessary cooperation is granted by the related authority concerning O&M company setup, especially, MOT and VNRA.  - Necessary cooperation is granted from project donor(s) of other lines other than line No.1.  - The legal situation is stable for establishment of O&M company
2. Preparation work of Human Resources task is completed.	2-1 Organization for Human Resources task is prepared. 2-2 Staff working regulations is prepared. 2-3 Human resources plan of whole O&M company is prepared. 2-4 Job allocation and job grading system are formulated. 2-5 Staff allocation plan is formulated. 2-6 <del>Necessary condition to manage the training center for drivers is secured.</del> (Also for 2-7 and 2-8) <u>Training plan/system for operation staffs is developed</u>	2-1 Organization and regulations of Human Resources Department 2-2 Working regulations 2-3 Human resources plan  2-4 Job allocation and job grading system  2-5 Staff allocation plan 2-6 <del>Approval from MOT on Training Center, including training methods and contents, Standards to select trainers and driver examiners</del> <u>Training plan for operation staffs is established; Agreement of VNRA (MOT) about training system for drivers..</u>  2-7 <del>Approval from MOT regarding driver's license and other railway-related laws and regulations</del> <del>Training record of psychological test evaluator</del> 2-8 <del>Trading record of psychological test evaluator</del>	
3. Preparation work of Financial task is completed.	3-1 Organization for Financial task is prepared.. 3-2 Accounting system is formulated.  3-3 Budget management plan is prepared. 3-4 Procurement system is formulated. 3-5 Measures to preserve the financial soundness of the company are defined.	3-1 Organization and regulations of Financial Department 3-2 Accounting system including managing capital, cash, revenue and income allocation. Budget management plan 3-3 Regulations of procurement for outsourcing, material and equipment 3-4 3-5 Paper for financial soundness preservation measures	
4. Preparation work of Business task is completed.	4-1 Organization of Business task is prepared. 4-2 <u>General Contract of</u> Transport <del>business statute</del> is formulated. 4-3 Fare pricing and adjustment system is established. 4-4 Possibility for non-fare business is defined.	4-1 Organization and regulations of Business Department 4-2 <u>General Contract of</u> Transport <del>Business statute</del> 4-3 Fare pricing and adjustment system 4-4 Study report of non-fare business	
5. Draft activity plan for 2 <sup>nd</sup> phase is prepared.	5-1 Necessary activities are defined for 2 <sup>nd</sup> phase of TC so as to start UMRT operation.	5-1 Draft activity plan for 2 <sup>nd</sup> phase	



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

添付資料 2

詳細活動計画(WBS。変更案を含む)

## Work Breakdown Structure (WBS)

Items		Fiscal Year		2011			2012																	PU STAFF					JICA experts	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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1. Planning, Admin and Safety																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
1-1	Establishment of the General Project Implementation Plan and its Target List																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

Fiscal Year			2011															2012															PU STAFF					JICA experts	Remarks																						
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1. Planning, Admin and Safety																																																													
1-5 Draft the Articles <del>Charter</del> of the Ineorporation <del>Company</del>																																																													
Activities		Result of expecting																																																											
1.5.1	Study the <del>articles of incorporation for urban railway companies</del> <del>the charter of the company</del> in the world	Concept, basic knowledge of the <del>articles of incorporation</del> <del>the charter of the company</del> for urban railway																																																						support Mr. AIKAWA					
1.5.2	Study the issues stipulated in the Vietnamese regulations on the <del>articles of charter incorporation</del> (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 <del>articles of charter incorporation</del> of the Saigon Bus Company	List or summary of articles of <del>charter incorporation</del> in Vietnam																																																											
1.5.4	Develop the contents for <del>the articles of incorporation</del> <del>the charter of the Company</del>	Draft the content of <del>incorporation</del> of O&M <del>company</del> <del>the charter of the Company</del>																																																						Lecture Mr. Shintani 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		
1.5.7	Draft <del>the articles of incorporation</del> <del>the charter of the Company</del>	Draft of <del>the articles of incorporation</del> <del>the charter of the Company</del>																																																							support Mr. AIKAWA				
1-6 Draft the Rules for the Safety Enhancement																																																													
Activities		Result of expecting																																																											
1.6.1	Understand the impacts/ consequence of the serious accidents in Vietnam and other countries	List of impacts of serious accidents																																																									support Mr. Miyanaga		
1.6.2	Understand what types of accidents occuring in urban railways (Input from Japanese experts)	List of types of accidents occurring in urban railway																																																									support Mr. Miyanaga and Mr. Aikawa		
1.6.3	Understand the relationships between equipment and staff in the railways (Input from Japanese experts)	List of relationships between equipment and staff in the railways																																																									support Mr. Miyanaga		
1.6.4	Clarify the needs for safety management	List of the necessity of safety management																																																									support Mr. 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 Japan	Summary of history of safety management in Japan (in general)																																																									support Mr. Miyanaga		
1.6.7	Study the institution for safety management in Osaka Metro	Summary of institution for safety management in Osaka Metro																																																									support Mr. Miyanaga		
1.6.8	Study the legal institution on the safety management (safety audit and so on)	Summary the requirement of legal institution 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		
1-7 Arrange Requirements on <del>Study</del> function of the Office IT System including Financial Business																																																													
Activities		Result of expecting																																																											
1.7.1	Learn basic office IT system from venders (such as SAP, ..), JICA expets (through material and presentation)	Understanding about the necessity of the Office IT system																																																										support Mr. Miyanaga	
1.7.2	PU refer IT system of other O&M companies (Osakametro, SMRT,...); collect information from PMUs of MAUR;	Technical parameters for the office IT system are defined basically The outline of the office IT system is studied																																																									support Mr. Miyanaga	Focus on Office IT system on the study tour in Japan	
1.7.3	Define the necessity for the office IT system, then announce the concept to PMUs	Necessity for the office IT system is clarified																																																										support Mr. Miyanaga	
1.7.4	<del>Make comments of the specification which prepared by GC prepare in the tender document for Office IT system</del>	<del>PU participate in preparing of tender document</del>																																																									support Mr. Miyanaga	Depend on the schedule of the package of office IT system, however, it can not defined at this time	
1.7.5	<del>PU suggest the outline of the office IT system</del>	<del>Outline of the office IT system</del>																																																									support Mr. Miyanaga		
1-8 Selection of the Businesses which Need Implementation Manuals																																																													
Activities		Result of expecting																																																											
1.8.1	Select the implementation manuals required for daily operation based on those for urban railways in Japan	List of implementation manuals required for daily operation																																																										Mr. Aikawa in charge	
1.8.2	Exclude the implementation manuals: - Their contents are including the project of line 1 and other lines - Prepared by GC of line 1 & other consultants; - Can be prepared by working saff of O&M company.	Final list of implementation manuals																																																										Mr. Aikawa in charge	
1.8.3	Define the business which need preparation of implementation manuals	List of business which need implementation manuals																																																										Mr. Aikawa in charge	
1-9 Draft the Preparation Plan for the Implementation Manuals Based on the Priority for the Businesses																																																													
Activities		Result of expecting																																																											
1.9.1	Gather documents which can be used as reference for drafting the job manuals (in phrase 2 of TC project)	Collection of these documents																																																											Mr. Aikawa in charge
1.9.2	List out the manual in order of business priority	The list of manuals																																																											Mr. Aikawa in charge

In HCMC

Adjustment

Main

Member

[illegible]



Fiscal Year		2011															2012															PU STAFF					JICA experts	Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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3. Financial tasks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
3-1 To formulate the organization and regulations of Financial task																																	●			○																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Activities	Result of expecting			Iwasaki		8/4	8/22	10/8	10/15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
1. Study the organization rule for this business of Japanese urban railways	Summary the organization and regulation rule for this financial business																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

Fiscal Year Items		2011												2012												PU STAFF					JICA experts	Remarks		
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3. Financial tasks																																		
3-4 To formulate the regulations for procurement																																		
Activities	Result of expecting																																	
1. Study the material procurement system in Japanese urban railways	Summary the material procurement system in Japanese urban railways																																Provision of information (Mr Iwasaki)	
2. Study the material procurement system in the Vietnamese companies such as Saigon Bus Co.	Summary the material procurement system in the Vietnamese companies such as Saigon Bus Co.																																support	
3. Clarify the essential points on the material procurement in railway business	The essential points on the material procurement in railway business is formulated.																																support	
4. Develop-the material code and coordinate with storage management system	Set up the material code for O&M Co.																																support	
5. Study the storage management systems in the construction plan	The storage systems in the construction plan is identified																																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																																support	
7. Clarify the territory of Office IT System (Coordination with storage management system)	The territory of Office IT System is decided																																support	Office IT system
8. Clarify the relationship of this system with accounting system	The relationship of this system with accounting system																																support	
9. Clarify the relationship of this system with budget system	Impact on the cash flow																																support	
10. Coordinate of this system with Power classification system	The material procurement system and the accounting system were combined																																support	
11. Draft the rules on the material procurement	Draft of the rules on the material procurement																																support	
3-5 To study for securing financial soundness of the company																																		
Activities	Result of expecting																																	
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																																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																																Related with HCMC	
3. Study the benefits of asset development along the line	The recommendation of the useful policy is considered																																support	
4. Study the instituion to be developed for asset development to ensure financial soundness																																	support	
Joint Coordination Committee																																		

In HCMC

- Main
- Member

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)



Fiscal Year		2011												2012												PU STAFF					JICA Experts	Remarks																								
		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	Đức	Hải	Quân	Thành			Trà																							
Items	4. Business																																																							
4-1	Draft the Organization Rules and regulations on business tasks																																																							
	Activities																																																							
	Result of expecting																																																							
	4.1.1. Study the organization rules on these businesses in Japanese urban railway																																																							
	4.1.2. Study the organization rules on these businesses in Vietnam companies such as SaigonBus																																																							
	4.1.3. Extract the detail business categories in these businesses																																																							
4.1.4. Acquiring the experience of the personnel in charge of such businesses																																																								
4.1.5. Draft the Organization Rules on these Businesses																																																								
4.1.6. Adjustment works with total plan will be needed																																																								
4-2	To formulate-transport business statute the General Transport Contract																																																							
	Activities																																																							
	Result of expecting																																																							
	4.2.1. Study this contract in Japanese urban railways																																																							
	4.2.2. Clarify the articles of Vietnamese railway law related to this contract																																																							
	4.2.3. Study this contract of VNR and SaigonBus Co.																																																							
	4.2.4. Develop the contents of this contract																																																							
4.2.5. Reflect the result of the study in 4.3 tariff system																																																								
4.2.6.Study the contents of this contract																																																								
4.2.7. Draft the Genaral Transport Contract																																																								
4-3	To establish the fare pricing and adjustment system																																																							
	Activities																																																							
	Result of expecting																																																							
	4.3.1. Study the fare system (fare on the distance, flat fare) in Japan urban railways																																																							
	4.3.2. Study the fare system in foreign urban railway																																																							
	4.3.3.Study the fare system in Saigon bus company																																																							
	4.3.4. Study ticket sale and ticket AFC system (ticket vending machine and AFC)																																																							
	4.3.5. Review the Result of SAPI and SAPROF study																																																							
	4.3.6. Find the proper fare level in considering of the inflation ratio since then																																																							
	4.3.7. Develop the fare system for various discount and transfer to other lines																																																							
	4.3.8. Study the procedures for revision of fare levels in Japan																																																							
	4.3.9. Study the real case in the revision of fare levels in VNR and SaigonBus Co.																																																							
	4.3.10. Develop its calculation way for the revision of fare level in urban railways																																																							
	4.3.11. Develop the calculation way of the subsidies in case of deficit																																																							
4.3.12. Discuss with PC' HCMC on this issue in order to acquire their understandings																																																								
4-4	To study business terms, mechanizm and methods for Non-rail business																																																							
	Activities																																																							
	Result of expecting																																																							
	4.4.1. Implement the case study in Japanese urban railways and know their management ways																																																							
	4.4.2. Implement the case study of Vietnamese Comapanies such as SaigonBus Co. and know their management ways																																																							
	4.4.3. Study Non-fail business at station for both elevated structure, underground facilities and in train																																																							
	4.4.4 Find the companies in HCMC to be a good partner for the target business																																																							
4.4.5. Extract the business categories of this company, business system and magement ways. Considering the feature of the urban railway company that it has no experience and little fund for the non-rail business																																																								
4.4.6. Study Non.rail business of Asset development along the line																																																								
5. Draft the Implementation Plan of the Succeeding Project for Developing the Staffe Capability for the Railway Business																																																								
Joint Coordination Committee																																																								

●

Main

○

Member

JICA Task leader




Member

添付資料 3

最新の専門家派遣実績

# 専門家派遣実績（平成23年度）

	担当業務	氏名	所属先	22	平成23年度												23 年度	
				3	4	5	6	7	8	9	10	11	12	1	2	3	現地	国内
現 地 業 務	総括/企画	合川 徹郎	(社)海外鉄道技術協力協会	4/1	5/15	6/19	7/18		10/1	10/30	12/1	12/15	2/10	(3/10)			5.00	
	総務/安全	宮永 英幸	(社)海外鉄道技術協力協会	4/1	5/30	6/19	8/2	9/6	10/17	11/29	12/23	2/1	2/7	(3/17)			8.00	
	人事	渡辺 政博	(社)海外鉄道技術協力協会		6/19	8/2	10/1	11/29	12/23	2/1	2/7	(3/17)					5.00	
	財務	岩崎 正義	㈱日本プロジェクトファイナンス		6/19	8/4	8/22	10/26	11/16	12/7	12/23	2/1	2/13				2.37	
	営業(1)	長井 忠昌	(社)海外鉄道技術協力協会	4/1	5/15	7/18	10/4	10/18	12/14								4.00	
	営業(2)	福田 由裕	交通サービス(株)			8/1	8/30	9/29	11/15	11/29							1.50	
	経営(1)	西口 進	大阪市交通局						10/24	10/28							0.17	
	経営(2)	塩見 正幸	多摩ドライビングスクール			6/28	7/3										0.20	
	交通計画	細見 昭	(社)海外鉄道技術協力協会		5/16	5/22	6/27	7/20	7/3	7/8	8/15	8/21	12/11	12/25			1.50	
	安全哲学	関口 雅夫	JR東日本パーソネルサービス															
	人事実務	薄波 篤司	大阪市交通局															
	乗務員勤務	中川 弘	大阪市交通局											2/20	2/25		0.20	
	沿線開発	岡 秀敏	京阪電鉄(株)							10/11	11/9	11/10					1.00	
																	28.93	
国 内 作 業	総括/企画	合川 徹郎	(社)海外鉄道技術協力協会	3/29	3/31								(1/25)	(1/30)			0.20	
																	0.20	
	報告書	提出時期 (△と報告書名により表示)				JCC 6/23						△プロジェクト業務進捗報告書 JCC 12/8			△プロジェクト中間報告書			

凡例  現地業務  自社負担  
 国内作業

専門家派遣実績（平成24年度）

				平成24年度												24年度	
担当業務		氏名	所属先	4	5	6	7	8	9	10	11	12	1	2	3	現地	国内
現 地 業 務	総括/企画	合川 徹郎	日本コンサルタンツ(株)	4/12	5/11	6/18	7/14				11/8		1/20	2/4		3.00	
	総務/安全	中野 唯史	日本コンサルタンツ(株)	4/13			8/6	8/18		10/8		11/24	12/9	1/10	2/6	8.00	
	人事	渡辺 政博	日本コンサルタンツ(株)		5/7	6/1	7/2	8/4				11/11	12/9	12/17		3.00	
	財務計画	岩崎 正義	(株)日本プロジェクトファイナンス		5/9	6/21	6/22	7/21	8/8	9/10	9/30			1/6	2/4	3.63	
	営業(1)	長井 忠昌	日本コンサルタンツ(株)			6/17	7/16			10/1		10/31	12/10	1/20	2/7	3.43	
	営業(2)	福田 由裕	交通サービス(株)		6/5		7/4					11/18				1.00	
	経営(1)	西口 進	大阪市交通局														
	経営(2)	塩見 正幸	多摩ドライビングスクール			7/1	7/6									0.20	
	交通計画	細見 昭	日本コンサルタンツ(株)			6/23	7/7			9/28	10/12	12/2	12/16			1.50	
	安全哲学	関口 雅夫	(株)JR東日本パーソネルサービス			6/21	6/26									0.20	
	人事実務	薄波 篤司	大阪市交通局			7/9	7/14									0.20	
	乗務員勤務	中川 弘	大阪市交通局														
	沿線開発	岡 秀敏	京阪電気鉄道(株)														
																	24.16
国 内 作 業	総括/企画	合川 徹郎	日本コンサルタンツ(株)											2/6	2/10		0.17
																	0.17
	報告書	提出時期 (△と報告書名により表示)								△ プロジェクト業務 進捗報告書						△ プロジェクト業務 完了報告書	
合計				△ JCC(11/22) △ JCC(1/24)												24.16	0.17
																24.33	

凡例
 

現地業務

国内作業

自社負担

添付資料 4

合同調整委員会(JCC)議事録

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**

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**SOCIALIST REPUBLIC OF VIETNAM**  
**Independence – Freedom – Happiness**

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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 co-ordination 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<sup>st</sup> method is to reckon depreciation for repayment and to record all transactions of the operation cost while the 2<sup>nd</sup> 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**

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**SOCIALIST REPUBLIC OF VIETNAM**  
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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 be 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 Dang 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:  $8000 \text{ VND} + 800 \text{ VND (per km)} \times \text{Number of km travelled}$  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.

➤ *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:*

- 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 money will be required.

➤ *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 programme 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”**

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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 2<sup>nd</sup> 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 2<sup>nd</sup> 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 2<sup>nd</sup> JCC meeting agreed to increase the fare once per 2 years, corresponding financial analysis was not shown in this 3<sup>rd</sup> 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 4<sup>th</sup> 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 4<sup>th</sup> 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 4<sup>th</sup> 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 2<sup>nd</sup> 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 3<sup>rd</sup> 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”**

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**SOCIALIST REPUBLIC OF VIETNAM**  
**Independence – Freedom – Happiness**

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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 2<sup>nd</sup> 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**

添付資料 5

供与機材・携行機材実績

# CERTIFICATE OF HAND-OVER

JICA Vietnam Office  
16th floor, Daeha Business Center, 360 Kim Ma Str.,  
Ba Dinh Dist, Hanoi, Vietnam

PHÒNG TỔ CHỨC VÀ ĐÀO TẠO
VĂN BẢN ĐẾN, Ngày: 23/03/2013
Ý kiến chỉ đạo của lãnh đạo phòng
Quản theo dõi 2 khu vực Jica
.....
.....
.....

Attention: Representative, JICA Vietnam Office

Project title: The Project for support on set up of Operation and Maintenance Company of Urban Railways in Ho Chi Minh City

This is to certify that the equipment in the list below of JICA has been handed over properly as of on 19 Mar 2013 to MAUR.

	The name of item	The name of manufacture	Quantity
1	PC (Desktop)	ASUS P5G41T-ML	4
2	Photocopy machine	CANON IR 2525	1
3	Laser printer	CANON LBP 9100 CDN	1
4	Projector	CANON LV-7380	1

合川 敬郎

Mr. Tetsuro Aikawa

Team Leader

JICA PROJECT TEAM



Mr. Nguyen Do Luong

Chairman

The Management Authority for Urban Railways (MAUR)

Luong 局長の方針(81/TB-BQLDSDT)

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

SOCIALIST REPUBLIC OF VIETNAM  
Independence – Freedom – Happiness

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No. 81/TB –BQLĐSDT

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*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 <sup>S</sup>cope 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**

添付資料 7

次期 TC の PDM 及び PO

Intermediate TC の主要活動（PDM）

14. Feb. 2013

全体的な目的	客観的に検証可能な指標	確認手段	重要な前提
ホーチミン市の都市鉄道運営会社が安全で信頼できる都市大量高速輸送機関を運営する。	都市大量高速輸送機関としての安全性と信頼性が開業直後の初期段階において確保される。 (乗客の死傷事故がないこと、運行の平均遅延時間が1分以内であること)	HMC の年次報告書の点検による。	• 他路線の建設が予定どおりであること。
プロジェクトの目的	客観的に検証可能な指標	確認手段	重要な前提
技術支援の第2期の準備	都市鉄道運営会社が設立される。	運営会社の開設準備が完成したことの確認による。	• 関係当局が協力的である。
出力	客観的に検証可能な指標	確認手段	重要な前提
1. 運営会社のフレームワークの立ち上げ	1-1 都市鉄道運営会社の登記	1-1 都市鉄道運営会社の登記書類の点検による。	• 関係当局が協力的である。 • 法律の枠組みが不変である。
	1-2 要員の準備状況及び会計システムの準備	1-2 要員の準備状況や会計システムの準備状況の確認による。	• MAUR の関係部局が協力である。
	1-3 技術部門担当者の配置	1-3 技術部門担当者の配置確認による。	
	1-4 2号線における会社共通設備等、会社としての一貫性確保に関するPMUとの議論における主要な話題	1-4 2号線計画における会社共通設備等に対する一貫性の点検による。	• 2号線プロジェクトがこのチームに協力的である。
2. 都市鉄道運営会社設立準備作業を通じた都市鉄道管理知識/経験の獲得	2-1 大阪市交通局における体験学習の報告	2-1 大阪市交通局へ派遣された研修生の回答の点検による。	
	2-2 ハノイ市との交流会の実施(年2回目標)	2-2 ハノイ市との交流会開催の実績及び討議結果の確認による。	• ハノイ市 MRB が協力的である。
	2-3 (1) PMU1 やサプライヤーとの議論における主要な話題 (2) オフィス IT システム、AFC システム、列車シミュレーター、OCC システム、列車運転ルール及び駅構内配置計画などの修正計画(もしあれば)	2-3 オフィス IT システム、AFC システム、列車シミュレーター、OCC システム、列車運転ルール、駅構内レイアウトなどに関するPMU1 やサプライヤーとの議論結果の点検による。	• 1号線プロジェクトが協力的である。
3. 運営会社を支える枠組み及び制度の構築	3-1 VNRA との議論における主要な話題	3-1 運転職員に対する訓練制度等に関する VNRA との議論結果の点検による。	• VNRA がPUCに協力的である。
	3-2 Regulator の役割、意義に関するMAUR の理解	3-2 Regulator の必要性に関するMAUR の関係者の理解度の点検による。	
4. TC Phase 2 の準備	4-1 TC Phase 2 の PDM、PO の作成	4-1 TC Phase 向け PDM 及び PO の点検による。	

活動	入力（日本側）	（ベトナム側）	前提条件
1. 運営会社の枠組みの準備	1. 日本人専門家の派遣 専門家の分野 ・専門家 1: ・専門家 2:  2. 日本におけるカウンターパートの訓練 2 か月/訓練 * 2 人/訓練 * 3 訓練/年  3. 設備 第 1 期 T/C で調達された事務所設備は MAUR に移転され、この T/C で利用される。  4. 経費 ・特別管理訓練コースのための費用 ・地元コンサルタント雇用のための費用 ・その他、調査、出張、訓練のための経費 ・T/C チームの補助: 通訳: 2 名	1. カウンターパートのアサイン PU の要員 ・役員:3 名 ・計画、総務、安全:4 名 ・人事:2 名 ・財務/調達:2 名 ・営業管理:2 名 ・運転:2 名 ・技術(車両):2 名 ・技術(設備):2 名 当初 5 名、最終 19 名  2. プロジェクト実施のための施設の提供 ・プロジェクト事務所 ・作業設備  3. 経費 ・要員の地元費用 ・事務所賃貸料と設備の費用 ・その他の経費: 調査、出張、訓練、他活動	
1-1 都市鉄道運営会社の登記			
1-2 都市鉄道運営会社における管理体制の準備			
1-3 技術部門の立ち上げ			
1-4 2 号線との情報共有			
2. HMC の準備作業を通じた管理知識/経験の獲得			
2-1 大阪市交通局における OJT の実施			
2-2 ハノイ市との情報共有			
2-3 PMU1 との情報共有・協議(オフィス IT システム、AFC システム、列車シミュレーター、OCC システム及び列車運行ルールなど)			
3. 運営制度の枠組み作り			
3-1 2-4 VNRA との協議による運転職員の訓練制度等の完成			
3-2 Regulator 機能の準備			
4. Phase 2 の準備			
PDM、PO の作成など			

		2013										2014												2015		
		Apr.	May	Jun	Jul	Aug	Sep	Oct	Nov	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																									
2	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																									
	2.3 Information sharing and discussion with PMU1 (the Office IT system, AFC, Train																									
3	Development of the institutional framework around the O&M Company																									
	3.1 Completion of the training system for operating staffs through negotiation with																									
	3.2 Preparation of Regulator functions																									
4	Preparation of TC Phase 2																									
	4.1 Development of PDM and PO																									

Regarding the OJT in Osaka, there is another plan two parties (two trainees per party) are dispatched at one time

添付資料 8

Establishment Plan of 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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## **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/QĐ-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)

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

Line		Length	Terminal stations
Line-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
Line-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
Line-6		6.0 km	Ba Queo – Phu Lam Roundabout
Tramway	Line1	12.5 km	Saigon – Western Bus Terminal
Monorail	Line2	14.0 km	Nguyen Van Linh – District 2
	Line3	8.5 km	Go Vap Roundabout – Quang Trung Software Park

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/QĐ-UBND dated 06 April 2007, 4870/QĐ-UBND dated October 25 2007, 2721/QĐ-UBND dated June 26 2008 and 4480/QĐ-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/QĐ-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 2;
- (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 policies and the major instances incorporated in the organization design of the O&M Company

**Table2-1 Concrete Policies built in the organization design of the Company**

	<b>Basic policy</b>	<b>Concrete policy</b>	<b>Major instance</b>
1	To establish the proper organization structure for sound management	To promote rapid decision making	-2-tier 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

			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

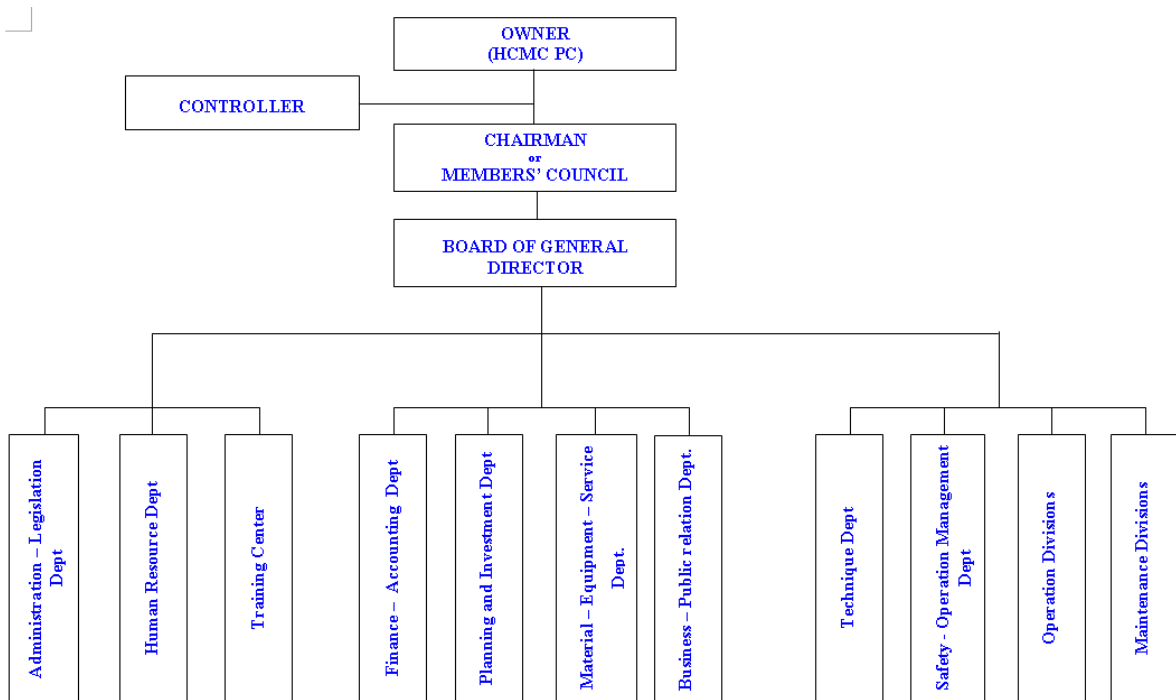
### I. Company Management Principles

- (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.

**Table4-1 Comparison VNR and HCMC line 1**

	<b>Titles of railway employees in direct service of train operation (38/2010/TT-BGTVT)</b>	<b>Actual condition of HCMC line 1</b>
1-1	Train operating controller in main line (“Nhân viên điều độ chạy tàu tuyến” in Vietnamese)	<p>Train dispatchers in OCC control and manage all over the line including train route and signal in the depot</p> <p>All signal control at station are consolidated in the OCC</p> <p>Note:</p> <p>In real operation, though there is no direct operation at the station, some staffs who has knowledge in signal operation are allocated at every station where turnout is installed in order to carry out some operational tasks requested from OCC.</p> <p>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</p>
1-2	Train operating controller at stations (“Nhân viên điều độ chạy tàu ga” in Vietnamese)	
2	Traffic management at station (“Trục ban chạy tàu ga” in Vietnamese)	



		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 đồn" 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.

**Table4-2 The Staff Number Required  
for the Commencement of Commercial Operation**

Category	Department or Section	Number of staff
Headquarters	Members council / Board of directors / Supervisor	10
	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
Grand Total		394

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.

## **Part Five: Demand Forecast**

### **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.

**Table 5-1 Assumed Socio-Economic Status in 2050**

<b>Items</b>	<b>2020</b>	<b>2050</b>
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

### **2. Result of Demand Forecasting**

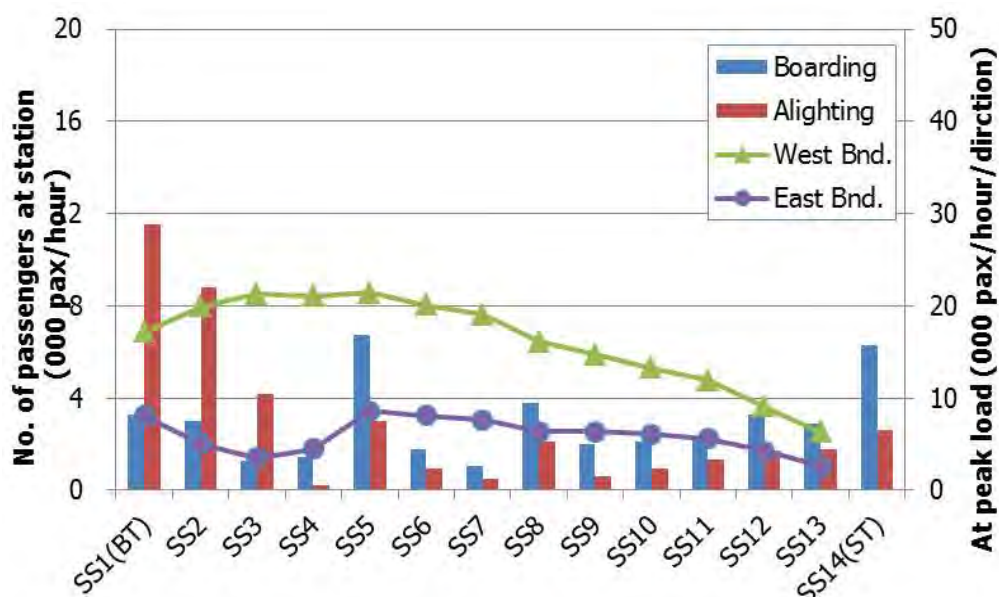
#### **2.1 Result of Demand Forecasting**

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, option-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.

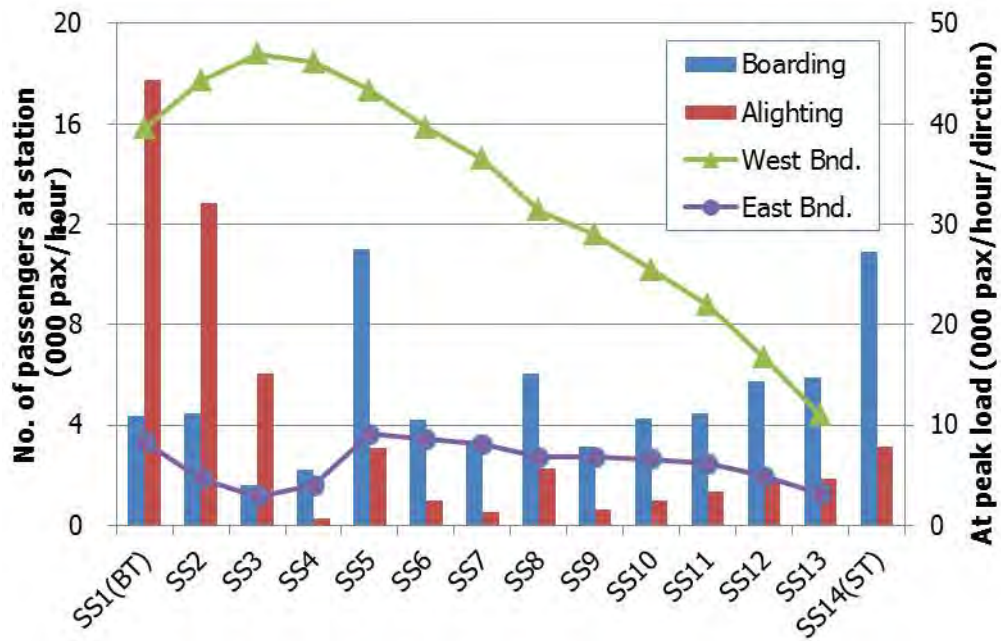
**Table 5.2 Result of Demand Forecasting on Line-1 (pax/day)**

	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

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.

## **Part Six: Finance**

### **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.

**Table 6-1 Type of the asset ownership**

<b>Option</b>	<b>Type of ownership</b>	<b>Its features</b>
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.
B	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

		<p>large and the multiple operator system cannot be introduced.</p> <p>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.</p> <p>An authority for the asset owned by the government is required. In case of type A, this authority is not required.</p>
C	All assets are owned by the government.	<p>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.</p> <p>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.</p> <p>An authority for the asset owned by the government is required. In case of type A, this authority is not required.</p>

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**

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

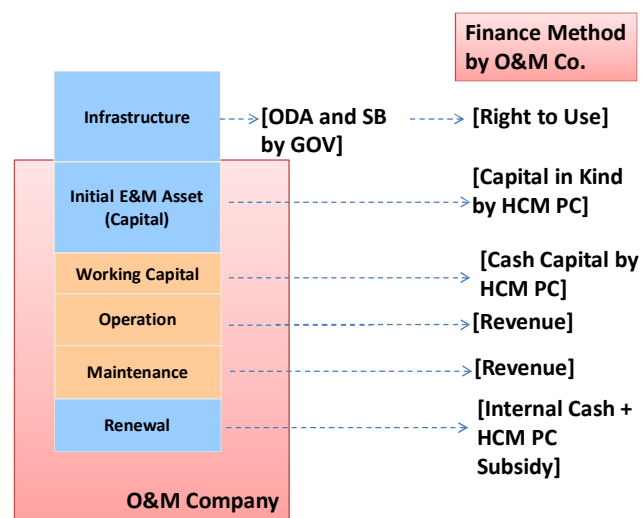
(\*) data is obtained from the APPENDIX “Result of Financial Estimation”

### 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)
- (iii) 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/ND-CP, relevant regulations with annual inflation ratio of 7%.

**Table 6.3 Monthly Staff Cost**

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

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.

**Table 6.4 Power Tariff Table**

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

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

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.

### 1.3. Cleaning costs

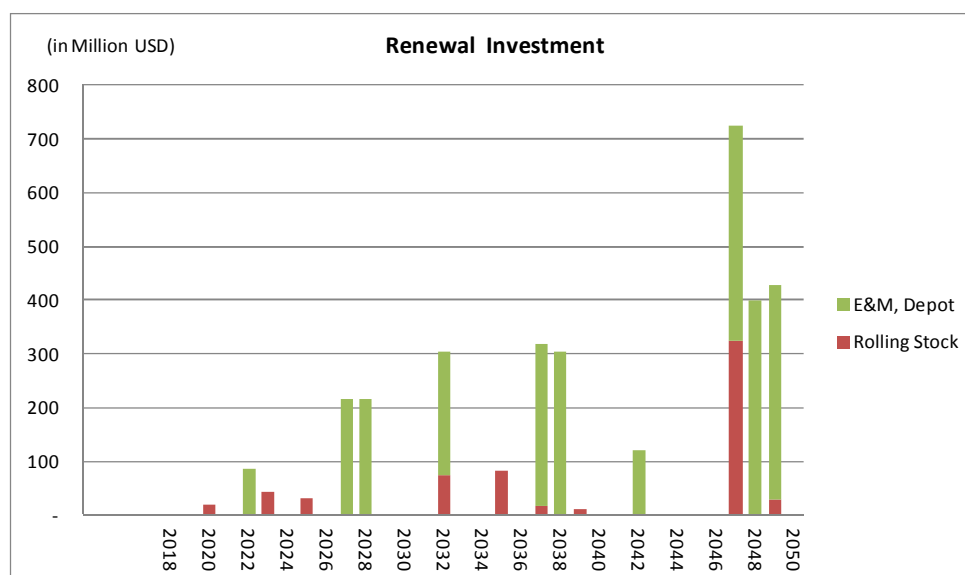
Cleaning costs of stations and trains are calculated on the basis of labor cost and consumables estimated for each station and train.

### 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.

**Table 6.5 Demarcation of the budget provision**

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

### 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**

<b>Assets</b>	<b>Amount</b>	<b>Liability/Equity</b>	<b>Amount</b>
<b>A. Current Assets and Short-term Investment</b>	201.178	<b>A. Liabilities</b>	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>B. Fixed Assets and Long-term Investment</b>			
I. Fixed Assets	569.356		
- Original rate	870.61	<b>B. Owner's equity</b>	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
<b>Total</b>	<b>770.53</b>	<b>Total</b>	<b>770.53</b>



## 2. Profit and Loss statement

**Table 6.7 Profit and Loss Statement for initial five years**

	1	2	3	4	5
(in US\$ Million)	2018	2019	2020	2021	2022
<b>1. Revenue</b>	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
<b>2. Operation &amp; Maintenance Costs</b>	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. Spares 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
<b>3. Depreciation</b>	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
<b>4. Loan Interest</b>	0.0	0.0	0.0	0.0	0.0
<b>5. Net Income before Tax</b>	-43.4	-42.2	-30.2	1.2	13.1
<b>6. Income Tax</b>	0.0	0.0	0.0	0.0	0.0
<b>7. Net Income after Tax</b>	-43.4	-42.2	-30.2	1.2	13.1

## 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
<b>1. Operating Cash Flow</b>	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
<b>2. Investment Cash Flow</b>	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
<b>3. Financial Cash Flow</b>	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
<b>4. VAT payment</b>	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
<b>5. Net Cash Flow</b>	16.8	18.1	30.0	41.5	74.1
<b>6. Cumulative Cash Flow Before Short Term Borrowing</b>	16.8	34.9	65.0	106.5	180.6
<b>7. Short Term Borrowing</b>	0.0	0.0	0.0	0.0	0.0
<b>8. Cumulative Cash Flow After Short Term Borrowing</b>	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.

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

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	Before 1995	1995	1999

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
(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)

**Table 7.4 Staff Number by time**

Year	2014	2015	2016	2017
HQ	23	46	78	102
Work site	0	67	151	292
Total	23	113	229	394

## 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.

**Table 7-5 Staff Recruiting Plan**

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 including safety department in HQ	Head of Division	Graduate university(railway)	1
3		Station staffs for business	Graduate High school who can speak English	141
4		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/ Power supply engineers at work site	Graduate university (Electric)	22

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.

**Table7-6 Drivers' training for the opening**

	<b>Conditions</b>	<b>Description</b>
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 should be those approved by VNRA	Basically textbooks, curriculums and instructors used for this training is those approved by MLIT  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	

## 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.



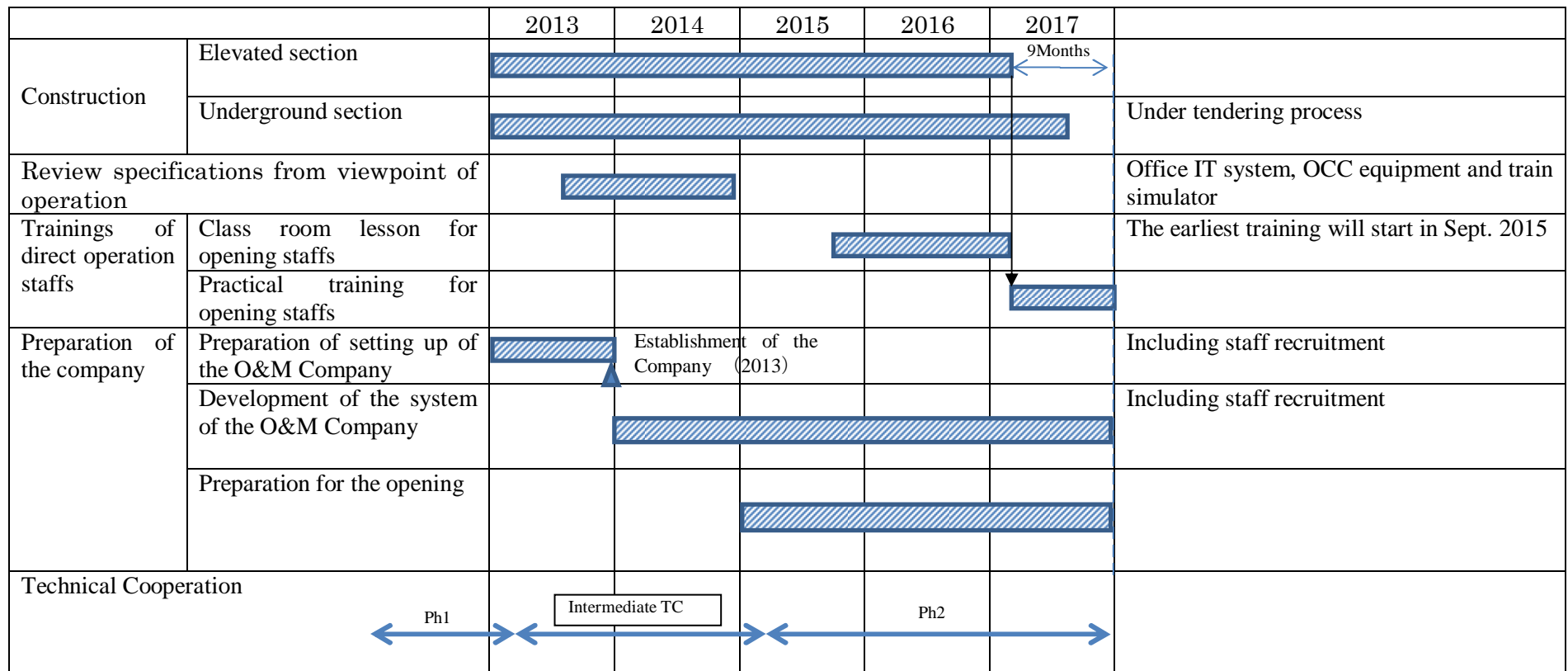
**Table 7-7 Training plan for the operation staffs except drivers for the opening**

	Conditions	Category 1 (Dispatchers)	Category 2 (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 their class room lesson.
2	Curriculum for theory	Same with those for drivers' training (Totally 400 hours)	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.	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 Japanese instructors/ Vietnamese core staffs will train Vietnamese staffs at OCC.	During commissioning test period, Vietnamese core staffs will receive 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

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.



## **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.



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.

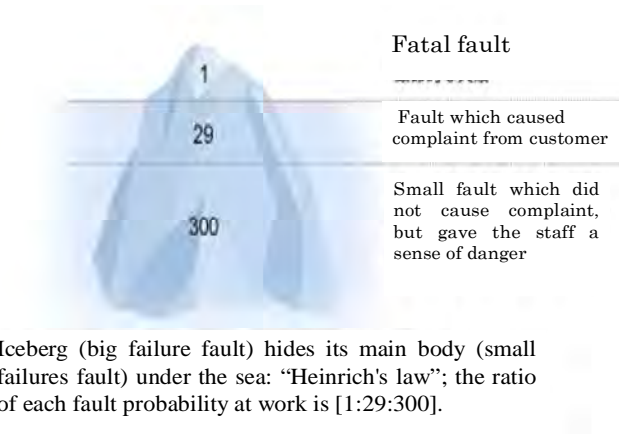
#### **3.3 Utilize the experience of failures/ incidents**

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



#### 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.

**Table 9.1 Travel time from Benh Thanh station to the Major stations**

<b>Origin</b>	<b>Destination</b>	<b>Travel time</b>	<b>Remarks</b>
Ben Thanh	City Opera	1M30S	
	Tan Cang	9M00S	Interchange station with Line5
	An Phu Metro	13M00S	
	Thu Duc	21M00S	
	Suoin Tien	29M00S	

#### **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**

<b>O'clock</b>	<b>Number of trains</b>	<b>Headway</b>	<b>Remarks</b>
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.

**Table9.2 Various Discount Fares**

<b>Type</b>	<b>Concrete discounting (Planned)</b>	<b>Notes</b>
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

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.

**Table9.3 Fare level after opening**

<b>Revenue after opening</b>	<b>Meanings</b>	<b>Actions</b>
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

(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:

- (1) 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)

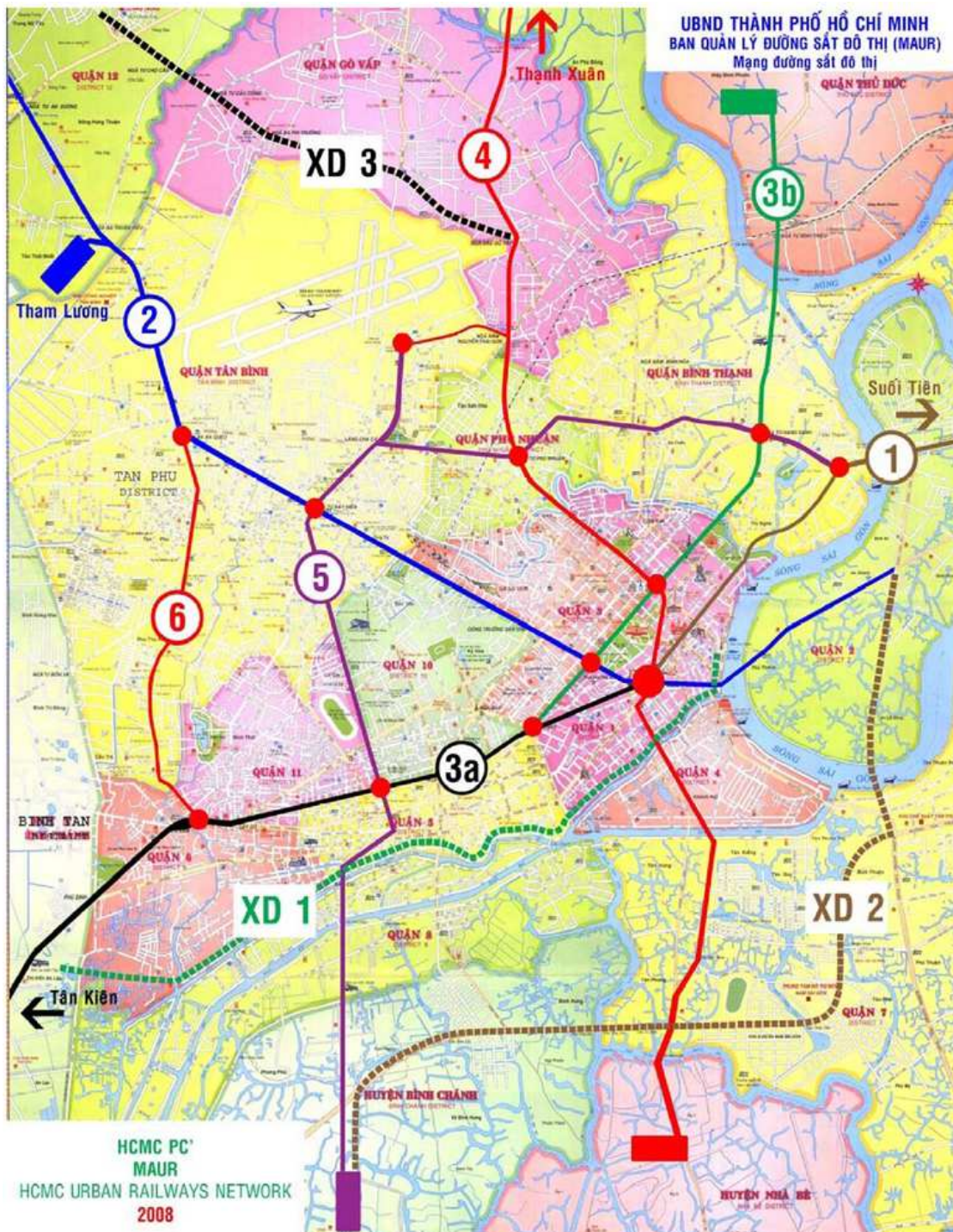
The concrete plan of non-fare business will be studied in the coming period.

## **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



## 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.

**Table 1 Metros in the World**

Area	City	Name of Operating Entities	Owner of the Company	Number of route
Asia	Beijing	Beijing Mass Transit Railway 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	Seoul Metro	Public sector	4
		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
North America	Montreal	Société de Transport de Montréal (STM)	Not identified	4
	Toronto	Toronto Transit Commission (TTC)	Public sector	4
	Chicago	Chicago Transit Authority (CTA)	Public sector	8
	New York	MTA New York City Transit (NYCT)	Public sector	27
	Washington DC	Washington Metropolitan Area Transit Authority (WMATA)	Public sector	5



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
South & Middle America	Mexico City	Sistema de Transporte Colectivo (STC Metro)	Not identified	11
	Buenos Aires	Metrovías SA	Not identified	6
	Santiago	Empresa de Transporte Suburbano de Pasajeros Metro S.A. (Metro de Santiago)	Not identified	5
	Sao Paulo	Companhia do Metropolitano de São Paulo-Metrô	Not identified	4
Europe	Moscow	Moskovski Metropoliten	Public sector	12
	St. Petersburg	St. Petersburg Metropoliten	Public sector	5
	Athens	Athens-Piraeus Electric Railways S.A (ISAP)	Not identified	1
		Attiko Metro Operation Company S.A (AMEL)	Not identified	2
	Budapest	Budapest Transport Closely Held Corporation (BKV Zrt)	Public sector	3
	Stockholm	Storstockholms Lokaltrafik (SL) (Stockholm Public Transport)	Not identified	3
	Berlin	Berliner Verkehrsbetriebe (BVG)	Public sector	9
	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/QĐ-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/QĐ-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.)

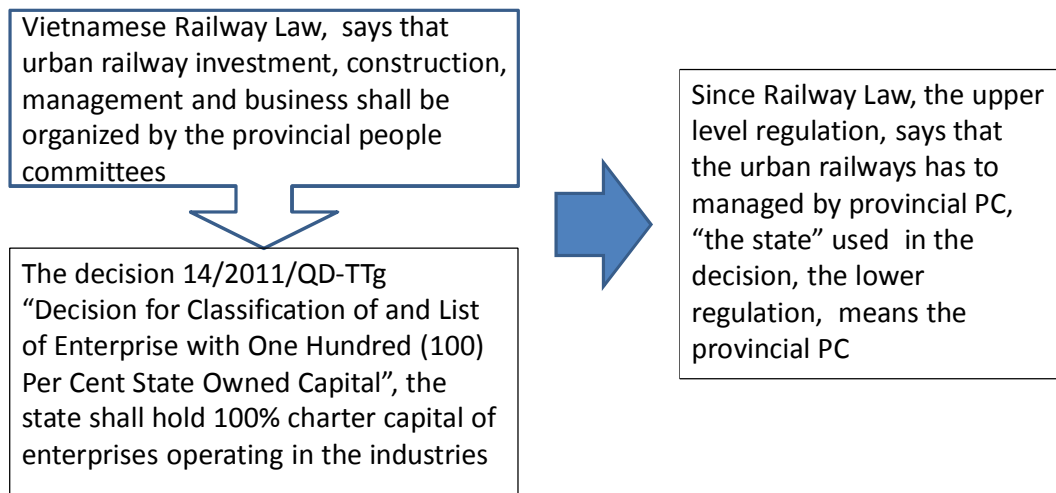


Figure 1 Responsibility for urban railway

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
Organization	Easiness of retaining staff in the O&M Organization	Difficult	Easy
	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

## Organization and staff number at the initial stage

Department	Unit	Responsibility	Title	Staff Allocation Plan	
				Head Office	
				Special requirement	total
Members' Council including chairman	*NA	Acting on behalf of the company owner in exercising his/her rights and obligations.	*NA		5
Board of Directors	*NA	Running the day-to-day business operation.	General Director		1
			Dputy General Director - Operation		1
			Dputy General Director - Facilities&Rolling stocks		1
			Dputy General Director - Administration		1
Board of Supervisors	*NA	Inspecting lawfulness, fiduciary and diligence of chairman of the company and director or general director.	Supervisor		1
Subtotal /Cộng					10
Administration-Legislation	Director				1
	General Services	- General affairs (such as managing official documents and seals). - Arrangement of official meeting such as Boad meeting, staleholder's meeting. - Reorganization of company - Safeguarding security and protecting official secrets - Discovering, investigating and dealing with corruption and other illegal actions by staff.	Deputy director		1
			Staff	Administration needs manpower	2
	Legal work	- Legal advice to other units. - Preventing illegal actions by company staff	Deputy director	It should be noted that secretary itself is not count	1
			Staff	Most of difficult works are consigned to Lawyer. Staffs may not need at the beginning stage	-
	Subtotal				
Human Resources	Managing Director				1
	Human resources	- Personnel/labor-management, planning of human resource development incl. training. - Recruitment, Wages, Training - Health welfare program - Praise and Blame	Deputy director		1
			Staff		1
	Subtotal /Cộng				
Finance-Accounting	Director		Deputy director		1
	Revenue & Expense	- Accounting management. - Tax management - Asset management	Staff(Accounting)	Accounting management needs manpower	2
			Staff (Asset)		1
			Finance	- Financial plan and insurance management - Cash Management - Budget control	Deputy director
			Staff		1
	Subtotal				
Planning-Investment	Director				1
	Business planning	Managing business strategies and plan.	Deputy director		1
			Staff	This work does not need daily	-
	Environment management	Planning, monitoring and investigating of environment issues	Manager		1
			Staff	The relocation issue is finished by the opening and environment issue such as noise may not happen	-
	Commercial Thương mại	- Planning of fare rate / - Establishment and revision of tariff structure / - Promotion Release /	Deputy director		1
			Staff		1
	IT Management	- Plannig and maiteining of Office IT system. - Supporting the company staff on IT issues	Deputy director		1
			Staff		1
Subtotal					7
Material-Equipment	Director				1
	Procurement	- Procuring materials and out-source services - Supplies management	Deputy director		1
			Staff		1
Subtotal					3
Business-Public Relation	Director				1
	Station business	Handling day-to-day station business. > Pasenger services (Lost & founds, guidance) > Ticketing > etc	Deputy director		1
			Staff		1
	Advertisement	Managing advertisement services.	Deputy director		1
			Staff	There are a lot of spaces for advertizement	2
	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
	Public relations	Planning, coordinating and implementing of corporate public relations	Deputy director		1
Staff				1	
Subtotal					

Technical	Director				1
	Rolling stocks	Handling Rolling Stock > Inspection > Repair > Cleaning / > Management of workign staff numbers and spare parts	Deputy director		1
			Staff(trucks and traction)		1
			Staffs(exterior and interior)		1
			Staffs(planning budget)		1
			Staff(failure investigation)		1
	Track	Handling Track > Maintenance > Inspection > Repair > Spare parts and consumables management > management of construction and renewal works	Deputy director		1
			Staffs(technology)		1
			Staff(planning and budget)		1
			Staff(failure investigation)		1
	Structure	Handling Structure > Maintenance > Inspection > Repair > Spare parts and consumables management	Deputy director		1
			Staff	Outsourced and works for outsourcing is done at HQ*	3
	Architecture	Handling Architecture > Maintenance > Inspection > Repair	Deputy director		1
			Staff	Outsourced and works for outsourcing is done at HQ*	3
	Electrical	Handling Signal/ Telecomm/ Power/AFC > Maintenance > Inspection > Repair > Spare parts and consumables management > management of replacement and renewal works	Deputy director		1
			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
			Mechanical	Maintaining Mechanical / Station E&M	Deputy director
	Staff(Escalators and so on)	Outsourced and works for outsourcing is done at HQ*			3
	Subtotal				29
Safety-Operation Management	Director				1
	Safety plan	- Developing quality assurance policies (including train operation rules) - Training and supervising safety programs - Statistics and analysis of accidents&incidents - Management of operational risks	Deputy director		1
			Staff		1
	Traffic planning	- Developing train time table - Ridership statistics	Deputy director		1
			Staff		1
	Driver's operation/training	-Developing drivers operation plan -Managing and training drivers.	Deputy director		1
			Staff		1
	OCC	- Controlling railway traffic and power - Monitoring and supporting station operation	Deputy director		4
			Dispatcher	Please see the APPENDIX	15
Subtotal				26	
Total				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

\*: 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 Business plan	Outline	19p
	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
2-2 Working regulations	Payment regulation	7p
	Recruitment regulation	3p
	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 managing capital, cash, revenue and income allocation.	Accounting rule	22p
	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
4-3 Fare pricing and adjustment system	Rules for the sales of discounting tickets	10P
	Fare revision system	24p
	Handling rule for ticket revenue	4p
	Business manner of staff for passenger	10p
	Handling rule on the lost and found	13p
4-4 Study report of non-fare business	Rule for Non Fare Business	4p
	Contract standard for lending of the buildings	5p

**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: ..... đ

(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 ½ (half) of attending members. The following cases must be accepted by at least 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 Company'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, bidding method, bidding 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 titles 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 article 158 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 .....

## **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. As 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**

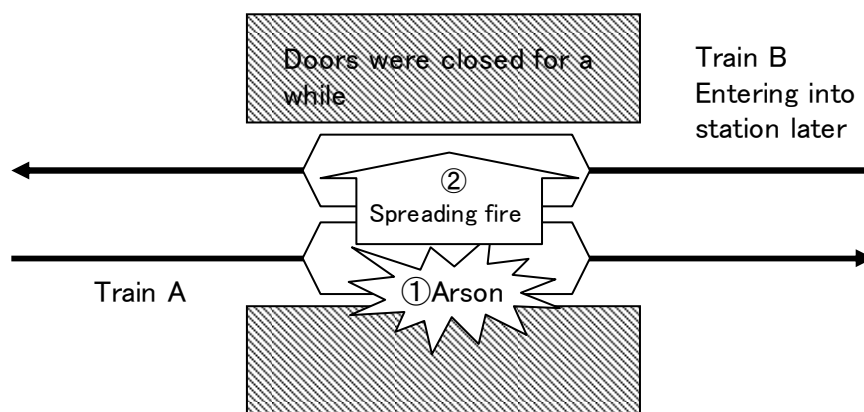
In Feb 2003, a man who wanted to suicide scattered petrol inside a coach of the Metro and set it on fire. This train had just arrived at the central station of the subway in Daegu City in South Korea (This train is referred to as train A).

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.

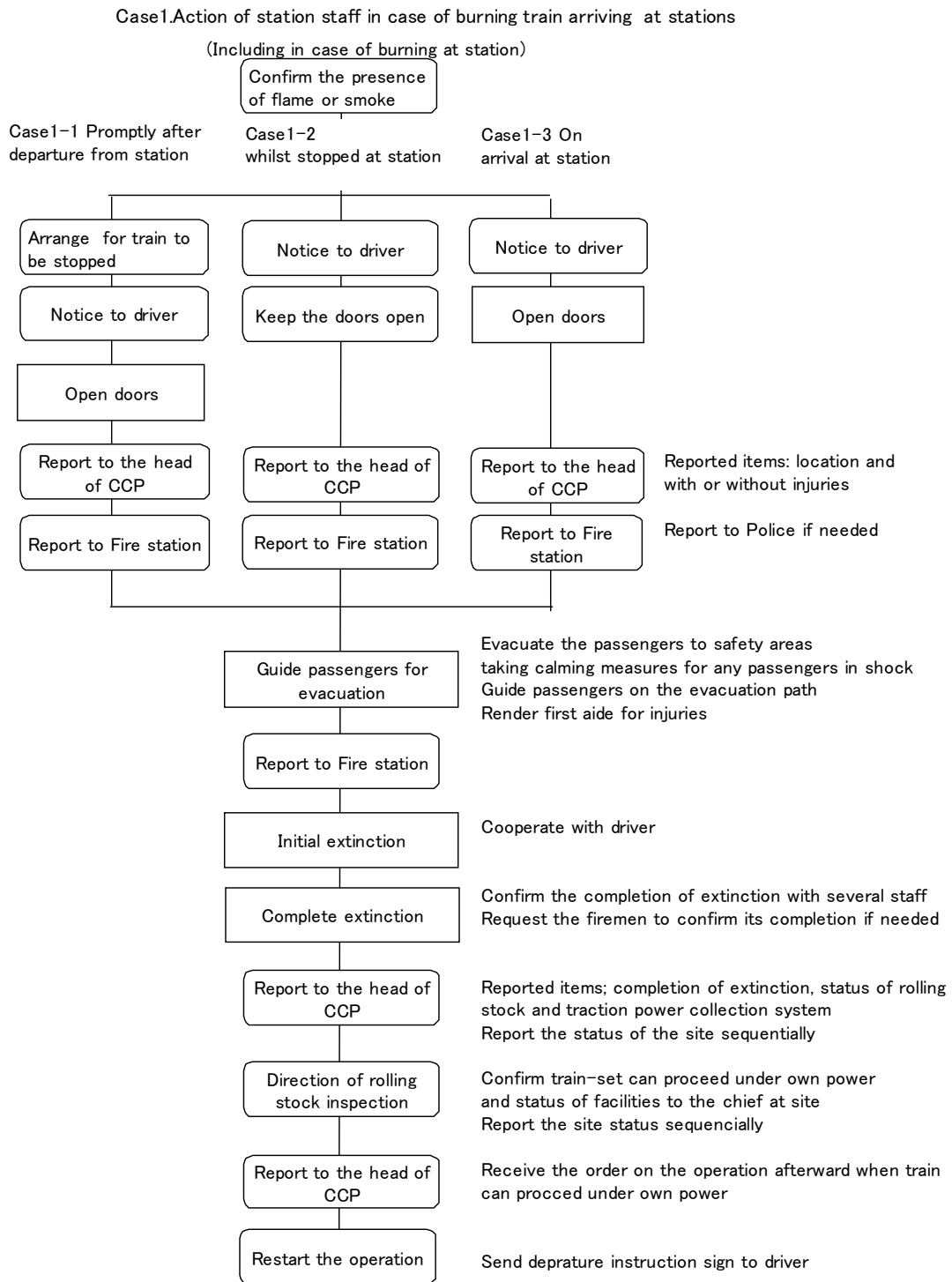
In case that a burning train stops at a station or a station is burning, generally controllers will stop the arriving train in front of the station.

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.



**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

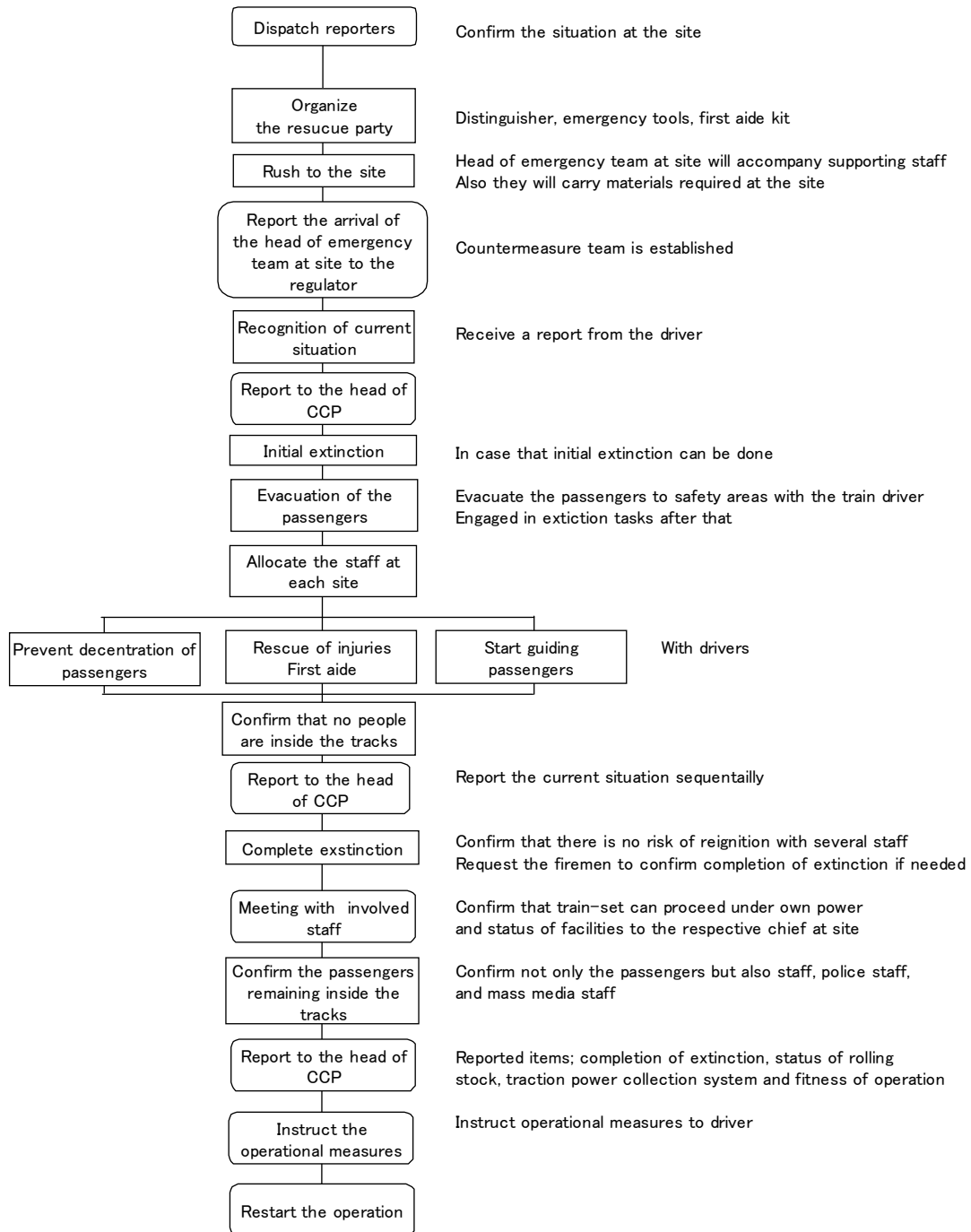
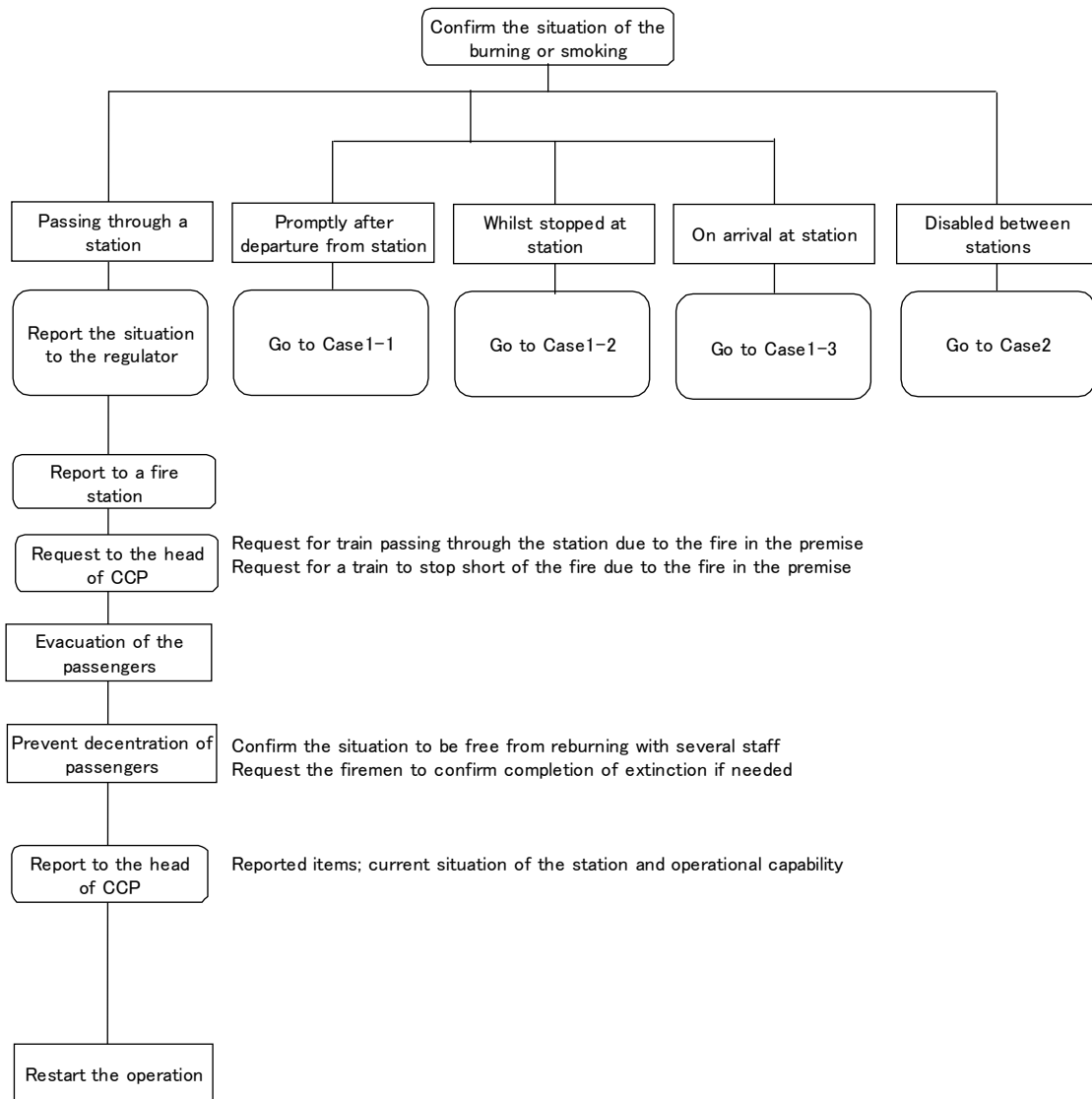


Figure 4 Action of station staff in case of burning train stopping between stations

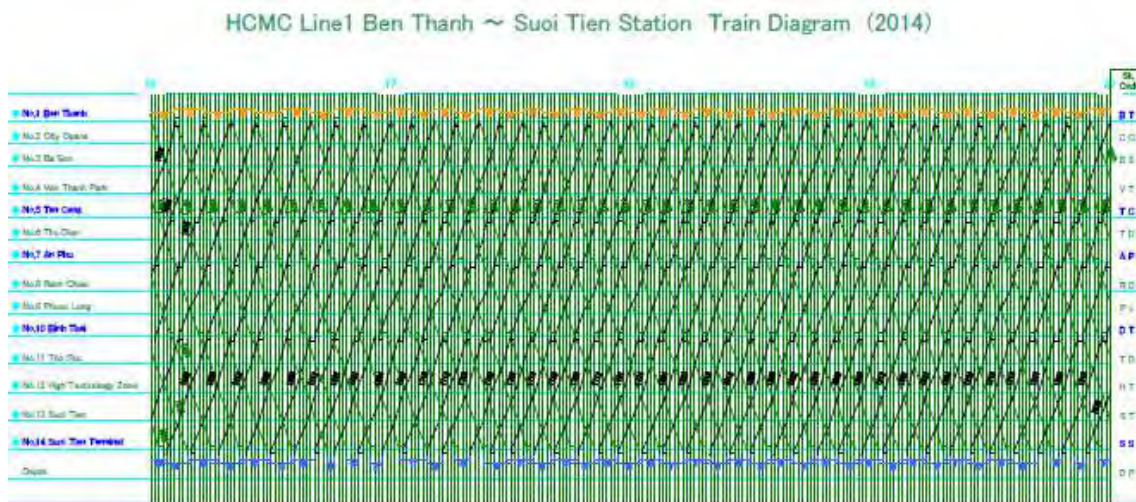
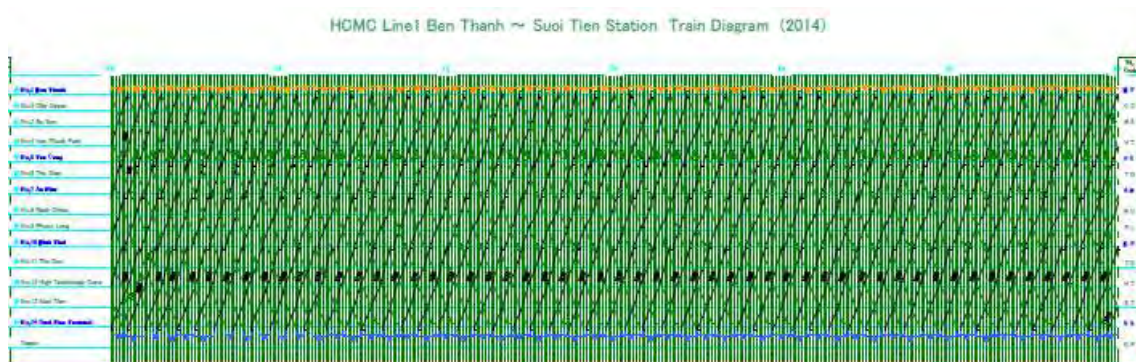
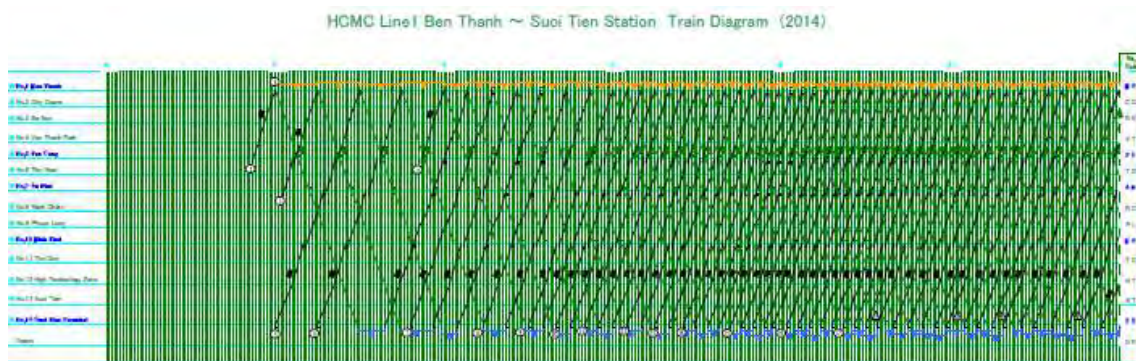
Case3 Action of station staff in case of fire in the station premise



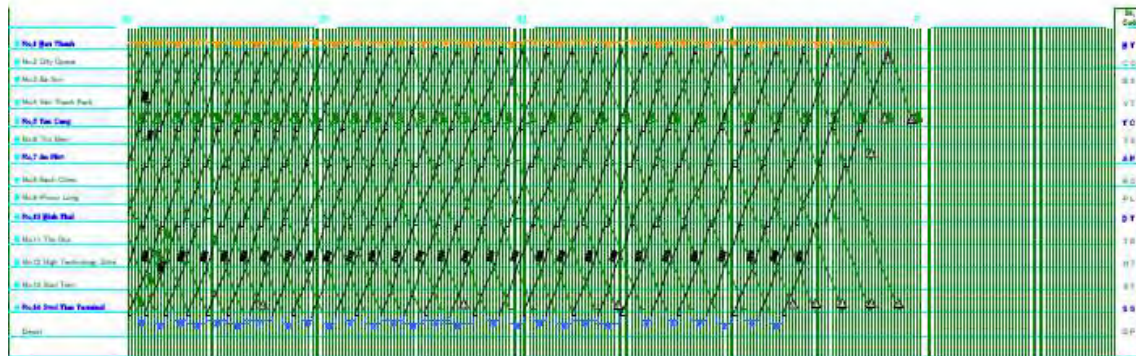
**Figure 5 Action of station staff in case of fire in the station premises**



## Train diagram at the opening (GC)



HCMC Line1 Ben Thanh ~ Suoi Tien Station Train Diagram (2014)

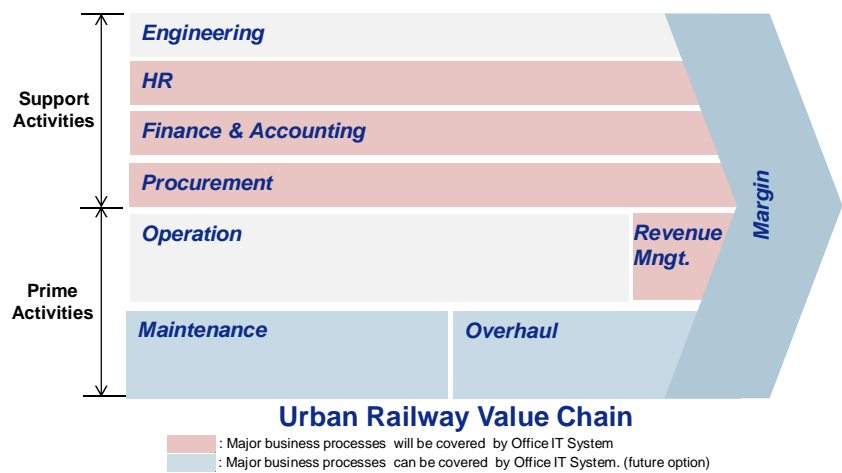


# Outline of Office IT system

## 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.

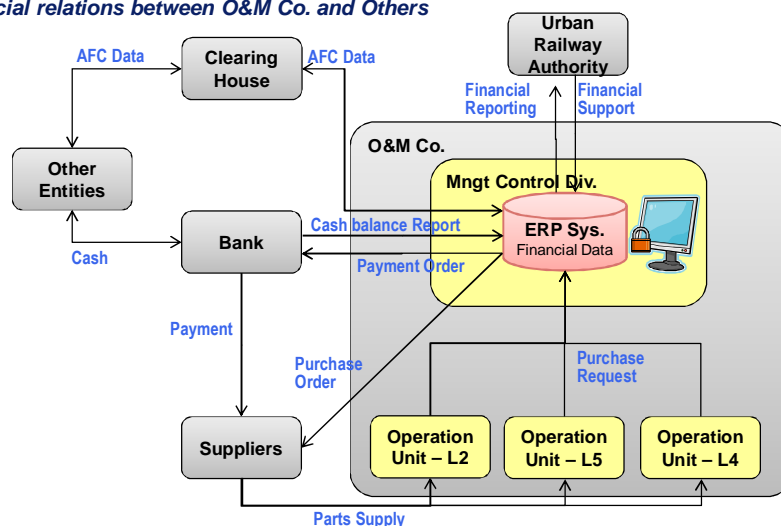


## 1. Introduction

### 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



Note: Business process map is described in Appendix A-1

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)

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## 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.

\*1 : This is only for financial reporting, not for physical inventory management.

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## 2. Function

### 2.2. Budgeting &Controlling

#### Objective

- Securing company's cash resources through budget control
- To achieve sustainable operation, IT system provides financial report to management board for their long-mid term planning, investment decision and monitoring financial condition in a timely and effective manner.

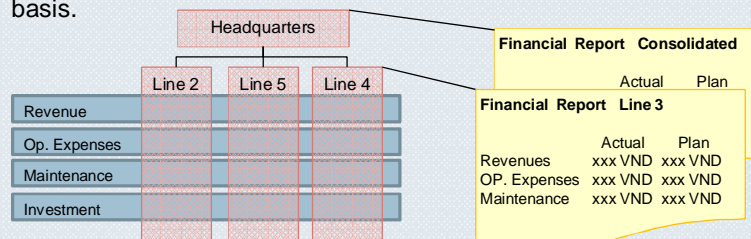
#### Required Function

- Providing Budget WBS (Work Breakdown Structures) Code to enable management to monitor financial condition properly.

Ex.

Project # Investment Type Line # Dept. # Budget # Account #

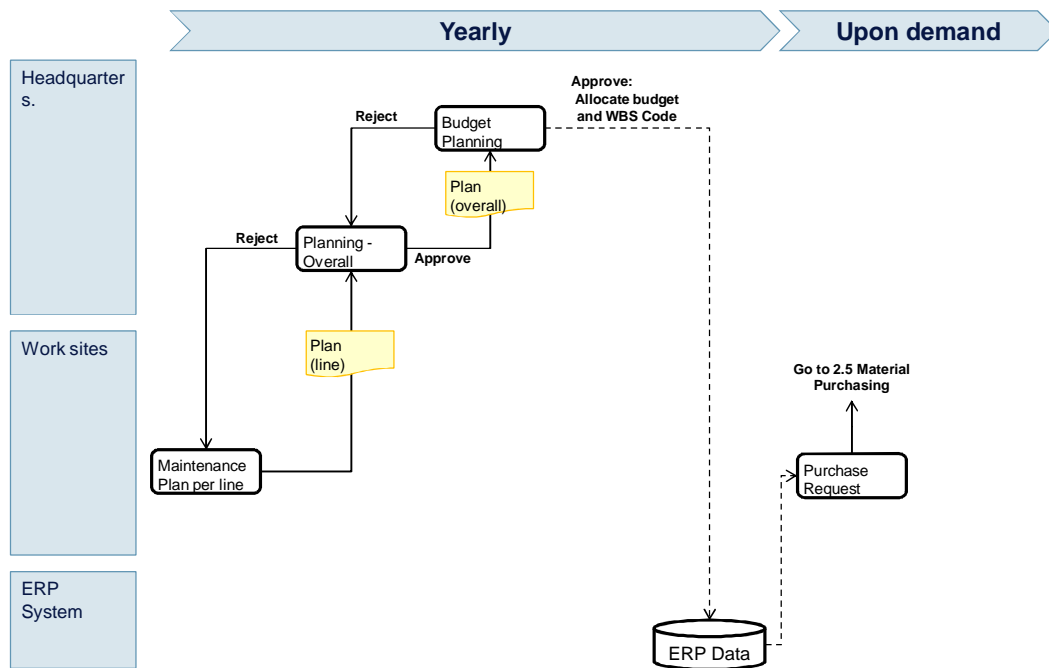
- Providing financial report based on segment accounting per monthly basis.



7

## 2. Function

### 2.2. Budgeting &Controlling



8

## 2. Function

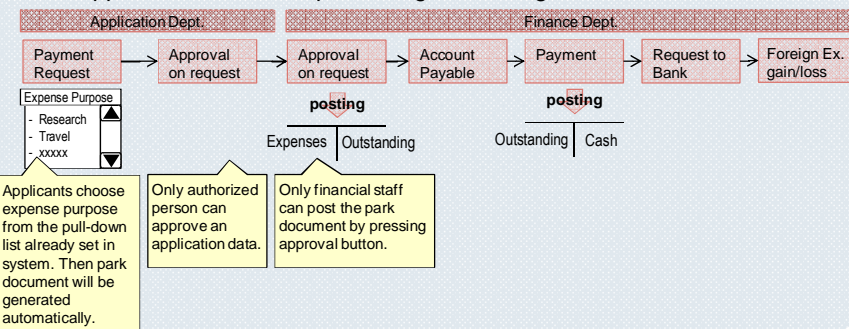
### 2.3. AR,AP Management and Payment

#### Objective

- Securing company's financial data to prevent unauthorized cash-out and/or incorrect data posting.
- Providing transparency on payment process.

#### Required Function

- Providing Work Flow function with access control. Only authorized person can approve the data and post it to general ledger.



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## 2. Function

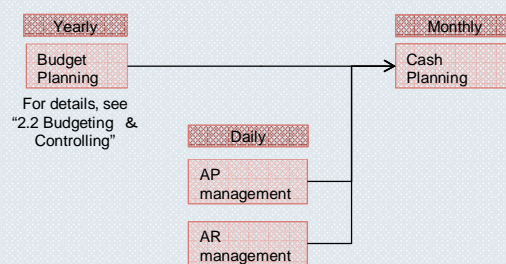
### 2.4. Treasury

#### Objective

- Securing company's cash resources to prevent cash shortage.

#### Required Function

- Cash management based on AP/AR data and budget plan.



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## 2. Function

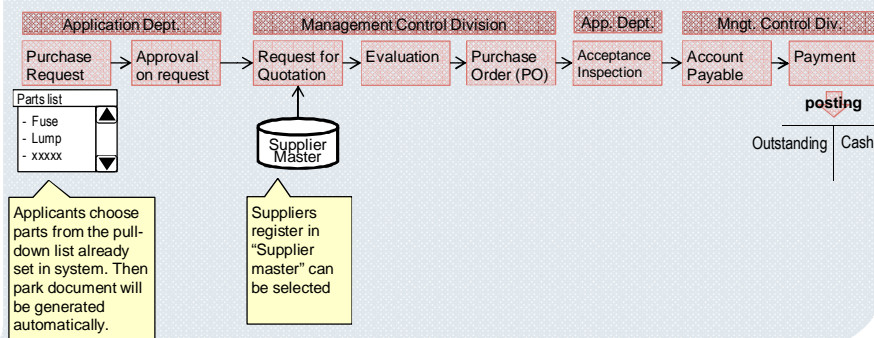
### 2.5. Material Purchasing

#### Objective

- Securing company's cash and asset resources.
- Providing transparency on procurement process.

#### Required Function

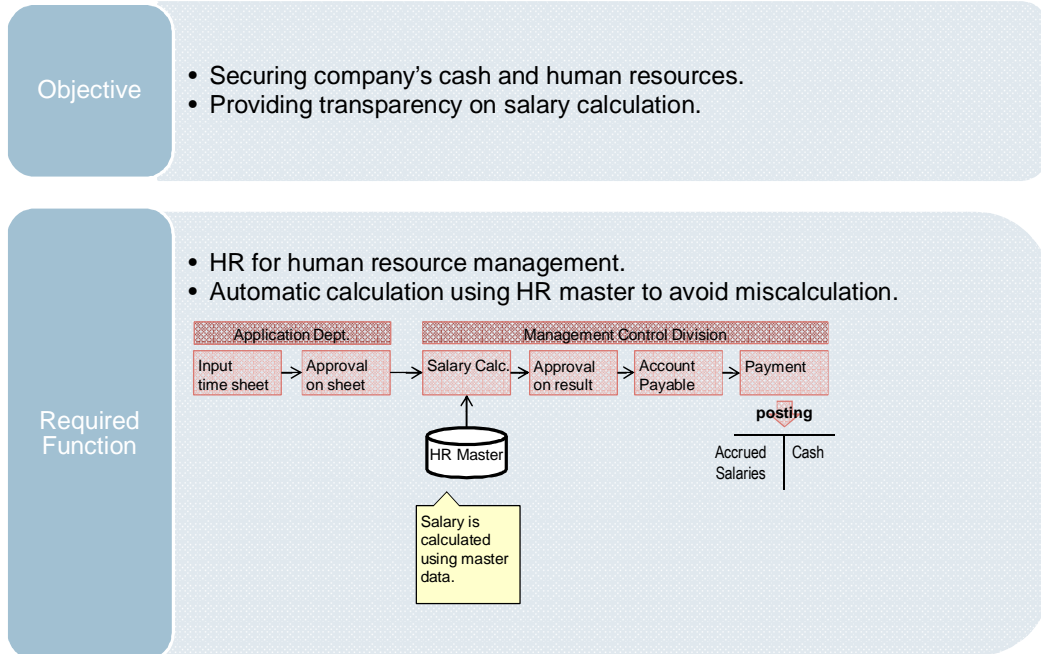
- Parts master for pull-down menu to prevent incorrect data input.
- Supplier master to avoid dealing with unauthorized supplier.



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## 2. Function

### 2.6. HR



12

## 2. Function

### 2.7. Revenue & AR Management

Objective	<ul style="list-style-type: none"> <li>• Manage revenue and cash data accurately.</li> </ul>
Required Function	<ul style="list-style-type: none"> <li>• Revenue recognition based on contract information</li> <li>• &lt;After introducing interoperable AFC system&gt;               <ul style="list-style-type: none"> <li>- Interface with AFC system (Central Server) monthly basis to record revenue data and AR(AP) data.</li> <li>- AR recording and balance management.</li> </ul> </li> </ul>
Required Report	<ul style="list-style-type: none"> <li>• Revenue data monthly basis.</li> </ul>

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## **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 LỖ VÀ LÃI & BẢNG KÊ DÒNG NGÂN LƯU

**BÁO CÁO LỖ VÀ LÃI**

**1). Doanh thu**

- a. Doanh thu từ hoạt động kinh doanh
- b. Doanh thu khác

**2). Chi phí bảo dưỡng và vận hành**

- a. Các chi phí nhân viên
- b. Chi phí điện năng
- c. Chi phí vệ sinh (nhân công và tiêu dùng)
- d. Các chi phí phụ tùng
- e. Các chi phí phục hồi
- f. Chi phí KD ngoài bán vé
- g. Các chi phí khác

**3). Khấu hao**

- a. Xây dựng đoạn đi ngầm
- b. Xây dựng đoạn đi cao
- c. Mua sắm và lắp đặt các thiết bị cơ điện
- d. Depot (bao gồm trong phần mua sắm và lắp đặt các thiết bị cơ điện)
- e. Đầu máy toa xe
- f. Phần bổ sung/Phục hồi (Đầu máy toa xe/mua sắm và lắp đặt các thiết bị cơ điện)

**4). Thu nhập thuần chưa thuế**

**5). Thuế thu nhập**

**6). Thu nhập thuần sau khi tính thuế**

**Mô tả**

Công thức a+b

Xem "Yêu cầu SAPROF"

Doanh thu từ việc vận hành X 1/9

Công thức a+b+d+e+f+g

Xem "Tổng các chi phí của Công ty O&M"

như trên

như trên

như trên

như trên

như trên

như trên

Công thức a+b+d+e+f

Xem "Đầu tư và Khấu hao"

như trên

như trên

như trên

như trên

như trên

như trên

Công thức 1-2-3

Công thức 4 x tỉ lệ thuế

Công thức 4-5

**BÁO CÁO BẢNG KÊ DÒNG NGÂN LƯU**

**1. Dòng ngân lưu trong hoạt động kinh doanh**

- a. Thu nhập thuần sau thuế
- b. Khấu hao

**2. Dòng ngân lưu trong đầu tư**

- a. Đầu tư ban đầu
- b. Đầu tư vào việc phục hồi/bổ sung (đầu máy toa xe)
- c. Phục hồi (Mua sắm & lắp đặt các thiết bị cơ điện bao gồm Depot)

**3. Dòng ngân lưu trong Tài chính**

**4. Dòng ngân lưu thuần**

Công thức a+b

P/L 6) Thu nhập thuần sau thuế

P/L 3) Khấu hao

Công thức a+b+c

Không áp dụng

Xem "Đầu tư và Khấu hao"

Xem "Đầu tư và Khấu hao"

Trợ cấp từ TPHCM

Công thức 1-2+3

Description of PROFIT AND LOSS STATEMENT & CASH FLOW STATEMENT

2. PL&CFS

PROFIT AND LOSS STATEMENT	Description
1). Revenue	Formula a+b
a. Operating Revenue	See "DemandsSAPROF"
b. Other Revenue	Operation Revenue X 1/9
2). Operation & Maintenance Costs	Formula a+b+c+d+e+f+g
a. Staff costs	See "Total O&M Costs"
b. Power costs	ditto
c. Cleaning (Labor & Consumables) cost	ditto
d. Spares cost	ditto
e. Renewals	ditto
f. Cost of non-fare business	ditto
g. Other Costs	ditto
3). Depreciation	Formula a+b+c+d+e+f
a. Civil Work UG	See "Invest ment & Depreciation"
b. Civil Work EL	ditto
c. E&M	ditto
d. Depot(included in M&E)	ditto
e. Rolling Stock	ditto
f. Addition/Renewal (Rolling Stock/E&M)	ditto
4). Net Income before Tax	Formula 1-2-3
5). Income Tax	Formula 4 x tax rate
6). Net Income after Tax	Formula 4-5

CASH FLOW STATEMENT	Description
1. Operating Cash Flow	Formula a+b
a. Net Income after Tax	P/L 6) Net Income after tax
b. Depreciation	P/L 3) Depreciaton
2. Investment Cash Flow	Formula a+b+c
a. Initial Investment	Not applicable
b. Addition/Renewal (Rolling Stock)	See "Invest ment & Depreciation"
c. Renewal (E&M including Depot)	See "Invest ment & Depreciation"
3. Financial Cash Flow	Subsidy from HCMC
4. Net Cash Flow	Formula 1 - 2 + 3

For consideration of subsidy  
/Xem xét trợ cấp

3. CFS for Subsidy

4.DemandsSAPORF  
Yêu cầu SAPORF

6.Staff Costs  
Các chi phí nhân viên

7.Traction Power  
Điện năng sức kéo

8.Noc-Traction Power  
Điện năng không sức kéo

5.TotalO&M cost  
Tổng chi phí của công ty O&M

For consideration of capital  
/ Xem xét vốn

9.Investment & Depreciation  
Đầu tư & Khấu hao

1. Investment 2008-2019  
Đầu tư 2008 - 2019

A. ELIGIBLEPORTION  
/ VỐN VAY

B. NON ELIGIBLE  
PORTION / VỐN ĐÓI  
ỨNG

C. Interest during  
Construction / Lãi vay  
trong thời gian xây dựng

D. Opening Expenses  
/ Chi phí đầu kỳ

E. Investment for Office  
IT and Non-fare business  
/ Đầu tư hệ thống CNTT  
văn phòng và kinh doanh  
ngoài vé

F.Making up cash  
shotage in 2017  
/ Bù đắp sự thiếu hụt về  
tiền mặt trong năm 2017

2. Additiona/Renewal  
Bổ sung / Phục hồi

3. Depreciation  
Khấu hao

10.New Cost  
Chi phí mới

11. Opening

12.  
Open\_Break

13. IT

<Assumption>	<Dự tính>	<=If you change this yellow cell, you can simulate / Nếu thay đổi ô màu vàng này thì có thể mô phỏng được					
[0] Revenue	(0) Tỷ lệ lạm phát						
- percentage of ticket price exemption and reduction for social-policy beneficiaries	- Phần trăm giá vé miễn giảm dành cho những người được hưởng chính sách phúc lợi xã hội						
- Discount rate for SF card	- Tỷ lệ chiết khấu dành cho thẻ SF						
- Avarage trip	- Trung bình chuyến đi						
[1] Staff costs	[1] Các chi phí nhân viên						
(a) Monthly direct salary based on Decree No.103/2012/ND-CP and other relevant regulations	(a) Lương trực tiếp hàng tháng dựa trên Nghị định 103/2012/ND-CP và một số quy định có liên quan						
(b) Social & Benefits cost markup rate	(b) Tỷ lệ chi phí phúc lợi & xã hội						
(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))						
[2] Power costs	[2] Chi phí điện năng						
Tariff in 2012 (No.38/2012/TT-BCT on 22/12/2012)	Bảng giá năm 2012 (TT số 38/2012/TT-BTC )						
[3] Spares cost	[3] Chi phí phụ tùng						
- Spares cost ratio against to Construction cost	- Tỷ lệ chi phí phụ tùng dựa vào chi phí Xây dựng						
- Construction cost total ( Base cost for JBIC financing)	- Tổng chi phí xây dựng (Chi phí cơ sở cho JBIC giải ngân)						
- Total Trains incl Spare & Maintenance	- Tổng số tàu bao gồm chi phí Bảo dưỡng và Phụ tùng						
[4] Cost of non-fare business	[4] Chi phí KD ngoài bán vé						
* Costs of non-fare business include staff cost and cost of goods purchased. / Chi phí kinh doanh ngoài vé bao gồm chi phí nhân viên và chi phí mua hàng hóa							
[5] Other Costs Ratio	[5] Tỷ lệ các chi phí khác						
* "Other costs" includes insurance cost, utility cost (such as electric power and water for office), outsourcing fee (such as security, cleaning and secretary services). / "Các chi phí khác" bao gồm chi phí bảo hiểm, chi phí công trình tiện ích (ví dụ như cung cấp điện và nước) và các chi phí thuê mướn ngoài (như bảo vệ, các dịch vụ vệ sinh và thư ký).							
[6] Additional/Renewal Investments	[6]						
- Intermediate overhaul of rolling stock	- Trung tu đầu máy toa xe						
- Intermediate overhaul of E&M	- Trung tu các thiết bị điện cơ						
[7] Dividend	[7] Cổ tức						
[8] Foreign Currency Rate	[8] Tỷ lệ ngoại hối						
[9] Inflation Rates	(9) Tỷ lệ lạm phát						
- Inflation rate per year - Vietnam	- Tỷ lệ lạm phát mỗi năm						
- Inflation rate from 2012 to 2018 = (1+ (a))^(2018-2012)	- Tỷ lệ lạm phát từ 2012 đến 2018 = (1+ (a))^(2018-2012)						
- Escalation rate - staff cost: Inflation rate x 70%	- Tỷ lệ trượt - Các chi phí nhân viên						
- Inflation rate per year - Japan	- Tỷ lệ lạm phát mỗi năm- Nhật bản						
- Escalation rate - staff cost before opening	- Tỷ lệ trượt - Các chi phí nhân viên						
* For long term estimation, the inflation rate is considered as a major factor affecting costs. The rate of infalltion in Japan is applied to renewal and additional purchasing of E&M and rolling stocks, because they will be imported from Japan. The rate in Vietnam is applied for other items. To consider the fluctuation of exchange rate between Vietnam and Japan, the average annual change in exchange rate,in last 5 years, 1%, is added to Japanese inflation rates. / Theo đánh giá dài hạn, sự tăng trưởng kinh tế được xem là yếu tố chính ảnh hưởng chi phí. Tỷ lệ tăng trưởng kinh tế ở Nhật Bản được tính cho các chi phí thay thế và mua thêm các thiết bị cơ điện và c ác đầu máy toa xe, vì những thiết bị này được nhập khẩu từ Nhật. Tỷ lệ tăng trưởng kinh tế ở Việt Nam sẽ được áp dụng cho những khoản chi phí khác. Do sự dao động giữa đồng Việt Nam và đồng yên Nhật, sự thay đổi trong tỉ giá hối đoái trung bình (1%) trong 5 năm vừa qua được thêm vào tỷ lệ tăng trưởng kinh tế Nhật Bản							
[10] Additional Conditions							
- Start of Operation in 2018							
- Opening of 3A in 2020							
- CIT: Special Project Treatment:							
First 4 years from generation of taxable income							
Next 9 years							
Next 2 years							
Afterwards							
- Land Use Fee:							
- Non Fare Revenue							
- VAT							

	5.6%	Free under 7 years old (0-6)		0-4:7.90%, 5-9: 8.30%, 10-14: 8.44%, Statistical Office in HCMC, Adjustment ratio based on Osaka Metro		50%	
	10%						
	9km						
	2,350,000	VND					
	300,000	58,000					
	5.65	5.58	2.34	4.45	2.99	1.55	1.78
Chairman, General Manager, Dupty General Manager and Supervisors	Dept Head, Deputy Dept Head	Engineer /Staff /dispatcher	Driver, Dept Manager	Station Manager	Station Staff Nhân viên văn phòng/ Công nhân phổ thông	Maintenance Staff	
/ Chủ tịch, Lương Tổng GD, Phó Tổng GD và các Giám sát	/ Quản lý	/Công nhân lành nghề/ Kỹ sư	/ Phó TP	/ Công nhân bậc 4/7		/ Nhân viên văn phòng	
	637	629	264	502	337	175	201
	38.0%						
	896	882	378	707	479	255	291
Tariff / Bảng giá	VND/kw	Assumed period / Thời gian dự tính					
Peak rate / Cao điểm	2,177	06:00-19:00					
Off-peak rate / Giờ bình thường	1,217	19:00-24:00					
Midnight rate / Thấp điểm	754	00:01-06:00					
2018	2023	2033					
0.225%	0.450%	0.675%					
1,385,823,514	-	-					
12	12	24	* For the details: See "9.Investment&Depreciation"				
			^ Xem chi tiết tại: "9.Đầu tư và chiết khấu"				
	60%	of revenue / của Doanh thu					
	30%						

PROFIT AND LOSS STATEMENT		BẢNG KẾ CẢO LỖ VÀ LÃI																																	
(in US\$ Million)		(Bảng Triệu USD)																																	
		1 2018	2 2019	3 2020	4 2021	5 2022	6 2023	7 2024	8 2025	9 2026	10 2027	11 2028	12 2029	13 2030	14 2031	15 2032	16 2033	17 2034	18 2035	19 2036	20 2037	21 2038	22 2039	23 2040	24 2041	25 2042	26 2043	27 2044	28 2045	29 2046	30 2047	31 2048	32 2049	33 2050	34 2051
1. Revenue *1	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	a. Doanh thu từ hoạt động kinh doanh	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	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	302.2	335.4	371.3	389.8	420.3	453.7	525.3	529.3	571.8
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	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) 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	1.4	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
d. Spares cost *2	d. Các chi phí phụ tùng *2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
- Major maintenance 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	167.6	183.3	200.5	219.4	240.1	262.8	287.8	315.1	345.1
- 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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Major maintenance costs (every 6 years)	- Chi phí bảo dưỡng - lớn (06 năm/lần)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
f. Cost of non-fare business (60% of b. "other revenue")	f. Chi phí KD ngoài bán vé (60% của doanh thu khác)	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
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	32.7	36.6	38.6	40.7	43.0	45.4	47.9	50.6	53.4
h. VAT as expense due to exemption	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	26.3	29.0	32.2	33.8	36.5	39.5	45.9	46.2	50.0
3. Depreciation	3. Khấu hao	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	95.6	95.6	112.5	103.9	104.3	103.2	103.2	92.3	92.3	92.3	92.3	92.3	92.3	120.5	120.5	121.5	119.3
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	
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	
c. E&M	c. Mua sắm và lắp đặt các thiết bị cơ điện	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	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	
d. Depot (bao gồm trong phần mua sắm và lắp đặt các thiết bị cơ điện)	d. Depot (bao gồm trong phần mua sắm và lắp đặt các thiết bị cơ điện)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
e. Rolling Stock	e. Đầu máy tạo xe	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	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 tạo xe/mua sắm và lắp đặt các thiết bị cơ điện)	1	1	1	1	1	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	78.4	78.4	78.4	78.4	78.4	78.4	120.5	120.5	119.3
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	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	78.6	95.0	63.2	108.7	80.1	67.3	-2.2	71.3	
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	19.6	23.7	15.8	27.2	20.0	16.8	0.0	17.8	
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	58.9	71.2	47.4	81.5	60.1	50.5	-2.2	53.5	
																									</										

[illegible][illegible]

No. of Passengers per day [000 persons]	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
No. of Passengers per year [000,000 persons]	156	172	190	314	335	339	344	349	354	369	401	414	451	460	473	487	500	513	524	533	541	546	551	556	558	563	568	572	574	576	578	580	580	580
Revenue assumption	53.504	58.749	64.882	107.64	114.6	116.11	117.87	119.43	121.15	126.2	137.25	141.83	154.36	157.47	162.08	166.76	171.28	175.63	179.31	182.56	185.34	187.02	188.71	190.41831	191.03472	192.7944	194.34053	195.89906	196.53606	197.17832	197.82586	198.47875	198.479	198.478752
(USD)	0.73	0.73	0.91	0.91	1.00	1.00	1.09	1.09	1.28	1.28	1.37	1.37	1.55	1.55	1.73	1.73	1.91	1.91	2.10	2.10	2.37	2.37	2.55	2.55	2.82	2.82	3.10	3.10	3.46	3.46	3.74	3.74	4.19	4.19
Option : Base Case with Higher Starting Fare (incl. Cost and Full Dep.)	15,200	15,200	19,000	19,000	20,900	20,900	22,800	22,800	26,800	26,800	28,500	32,300	32,300	36,100	36,100	39,900	39,900	43,700	43,700	49,400	49,400	53,200	53,200	58,900	58,900	64,600	64,600	72,200	72,200	77,900	77,900	87,400	87,400	
Inflation Sensitivity Case	1.01	1.01	1.01	1.01	1.01	1.47	1.47	1.47	1.47	1.47	1.94	1.94	1.94	1.94	2.58	2.58	2.58	2.58	2.58	3.32	3.32	3.32	3.32	3.32	3.32	4.24	4.24	4.24	4.24	4.24	5.34	5.34	5.34	5.34

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Deferred Tax Calculation (Loss carryforward)		Tinh toán số thuế được trả chậm Khoản lỗ mang sang																																	
		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	27	28	29	30	31	32	33	34
		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
Net Income before Tax	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	78.6	95.0	63.2	108.7	80.1	67.3	-2.2	71.3	31.1
-5	-5	0.0	0.0	0.0	0.0	0.0	29.1	42.2	30.2	0.0	0.0	1.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-4	-4	0.0	0.0	0.0	0.0	29.1	42.2	30.2	0.0	0.0	1.8	1.7	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
-3	-3	0.0	0.0	0.0	42.2	42.2	30.2	0.0	0.0	4.8	1.7	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
-2	-2	0.0	0.0	43.4	42.2	30.2	0.0	0.0	4.8	1.7	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
-1	-1	0.0	43.4	42.2	30.2	0.0	0.0	4.8	1.7	10.1	0.0	0.0	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
Subject Year	Năm tính	43.4	42.2	30.2	0.0	0.0	4.8	1.7	10.1	0.0	0.0	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	2.2	0.0	0.0	
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	19.9	24.4	46.4	7.2	36.0	31.4	51.7	37.7	61.2	57.3	72.8	37.0	85.2	78.6	95.0	63.2	108.7	80.1	67.3	0.0	69.2	31.1
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	0.3	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	19.6	23.7	15.8	27.2	20.0	16.8	0.0	17.8	7.8
Income Tax rate	Tỉ lệ thuế 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%	12.5%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
*Pursuant to the Circular 130/2008/TT-BTC *Theo thông tư Số 130/2008/TT-BTC																																			

**<Source> / <Nguồn>**

All information is from " Preliminary Financial analysis for HCMC UMRT Line No.1"by NJPT  
/ Tất cả thông tin trên được lấy từ "Phân tích tài chính ban đầu cho dự án Xây dựng tuyến ĐSĐT TPHCM (Tuyến 1) của NJPT

CASH FLOW STATEMENT		BẢNG KẾ DÒNG NGÂN LƯU																																			
		(in US\$ Million)	(Bảng 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 <sup>*1, *2</sup>	a. Doanh thu từ hoạt động kinh doanh <sup>*1, *2</sup>	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 <sup>*3</sup>	2. Chi phí bảo dưỡng và vận hành <sup>*3</sup>	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 <sup>*4</sup>	a. Các chi phí nhân viên <sup>*4</sup>	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 maintenance 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) <sup>*4</sup>	e. Chi phí bảo dưỡng - trung bình (04 năm/lần) <sup>*4</sup>	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) <sup>*5</sup>	g. Phần bổ sung/Phục hồi (Đầu máy toa xe/ thiết bị cơ điện cho Depot) <sup>*5</sup>	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	0.0	120.4	0.0	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) <b>60%</b>	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 <sup>*7</sup>	i. Các chi phí khác <sup>*7</sup>	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) <sup>*8</sup>	3. Dòng ngân lưu thuần chưa thuế (1-2) <sup>*8</sup>	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		

\*1: Revenue increase mainly comes from ridership increase. Fare increase with economic growth is planned every 2 years. / Việc gia tăng doanh thu chủ yếu được dự tính là từ việc gia tăng lượng khách đi tàu. Doanh thu tăng được dự đoán chủ yếu do việc tăng lượng hành khách. Vé tăng theo tăng trưởng kinh tế chỉ được lên kế hoạch 2 năm/ lần.

\*2: Operation & Maintenance cost other than Staff costs are calculated with economic growth rate. / Chi phí Vận hành & Bảo dưỡng ngoài chi phí Nhân viên được tính theo tỷ lệ tăng trưởng kinh tế.

\*3: Staff costs are calculated with increasing rate 2.0% per year / Chi phí nhân viên được tính theo tỉ lệ tăng 2,0%/ năm

\*4: Maintenance costs (yearly) will increse year by year, beacuse the maintenance activities will grow as operating assets get aged and increas in numbers./ Chi phí bảo dưỡng (hàng năm) sẽ tăng hàng năm, do các công tác bảo dưỡng sẽ tăng do các tài sản đã được sử dụng trong nhiều năm và cần tăng thêm số lượng.

\*5: The figures and timing of "Additional/Renewal" are based on GC's plan. If actual ridership is lower than the estimate in the plan, the timing of purchasing additional rolling stocks should be revised accordingly. /Số liệu và thời hạn "Bổ sung/thay mới" dựa trên kế hoạch của TVC. Nếu số lượng hành khách đi tàu thấp hơn dự toán trong bản kế hoạch, thời hạn mua sắm đầu máy toa xe bổ sung sẽ được điều chỉnh tương ứng.

\*6: Costs of non-fare business include staff cost and cost of goods purchased./ Chi phí kinh doanh ngoài vé bao gồm chi phí nhân viên và chi phí mua hàng hóa

\*7: "Other costs" includes insurance cost, utility cost (such as electric power and water for office), outsourcing fee (such as security, cleaning and secretary services). / "Các chi phí khác" bao gồm chi phí bảo hiểm, chi phí công trình tiện ích (ví dụ như cung cấp điện và nước) và các chi phí thuê mượn ngoài (như bảo vệ, các dịch vụ vệ sinh và thư ký).

\*8: In each year when net cash flow is negative, HCMC should look into if the subsidy is required for UMRTr operation. / Trong mỗi năm dòng ngân lưu thuần bị âm, TPHCM cần xem xét nếu có yêu cầu về khoản trợ cấp trong việc vận hành

\*9: Interest of JICA loan to be refunded by HCMC. / Lãi suất vốn vayJICA được UBND TP. HCM thanh toán, không phải công ty VH&BD.

\*10: Contractor will take care of maintenance for first 5 years. / Nhà thầu sẽ phụ trách công tác bảo dưỡng trong 5 năm đầu



Operation Revenue Caluculation with demands in SAPROF / Tính doanh thu từ hoạt động kinh doanh theo yêu cầu trong SAPROF

<Assumption> / <Dự tính>

(a)	7.0%	Inflation Rate (2012-2023) / Tỷ lệ lạm phát (2012-2023)	Business day	Holiday
	6.0%	Inflation Rate (2024-2033) / Tỷ lệ lạm phát (2024-2033)	252	113
	5.0%	Inflation Rate (2034-2043) / Tỷ lệ lạm phát (2034-2043)	Full year adjustn	342.34
	5.0%	Inflation Rate (2044-) / Tỷ lệ lạm phát (2044-)		
(b)	20,850	VND=1US\$ Foreign Currency rate / Tỷ ngoại hối		
(c)	5.6%	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 miễn giảm dành cho những người được hưởng chính sách phúc lợi xã hội (giả định Miễn phí.) "Điều 21 - 109/2006/ND-CP"	Rate of ridership increase per year	
(d)	10%	Discount rate for SF card / Tỷ lệ chiết khấu dành cho thẻ SF	Year / Năm	Rate / Tỷ lệ
(e)	9	km Avarage trip / Trung bình chuyến đi	2020-2030	3.7%
(f)	100%	Ridership factor for sensitivity Anal	2031-2043	1.1%
	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]	
#	year / Năm	Rate in 2018 Base / Tỷ lệ năm 2018		Inflation Rate / Tỷ lệ lạm phát	BaseRate after Escalation every 2 years(*1) / Tỷ lệ cơ bản sau khi tính toán trượt giá mỗi 2 năm (*1)		Finalized Base Rate Fare		Number of passengers / Số hành khách			Average Trip / Trung bình chuyến đi	average fare per person / Phí trung bình	Operation Revenue / Doanh thu vận hành	Ratio for SF Card User / Tỷ lệ dành cho người sử dụng thẻ SF	Discout Rate for SF Card User / Tỷ lệ chiết khấu dành cho người sử dụng thẻ SF	Student Ratio	Discount Rate for Student	Pupil Ratio	Discount Rate for Pupil
		VND	VND	(%)	VND	VND	VND	VND	000persons / day / 000người / ngày			km	US\$	Mil.US\$	(%)	(%)	(%)	(%)	(%)	
		Base Rate / Tỷ lệ cơ bản	Km Rate / Tỷ 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 [6]**1 - (c))		{[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	58.17	10%	12%	0%	7%	0%
4	2022	8,000	800	7.0%	10,486	1,049	11,000	1,100	335	335	316	9.0	1.00	101.9	60.58	10%	12%	0%	7%	0%
5	2023	8,000	800	7.0%	10,486	1,049	11,000	1,100	339	339	320	9.0	1.00	103.0	62.86	10%	12%	0%	7%	0%
6	2024	8,000	800	6.0%	11,782	1,178	12,000	1,200	344	344	325	9.0	1.09	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%	16,714	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	473	473	447	9.0	1.73	244.0	78.79	10%	12%	0%	7%	0%
15	2033	8,000	800	6.0%	18,779	1,878	19,000	1,900	487	487	460	9.0	1.73	250.7	80.08	10%	12%	0%	7%	0%
16	2034	8,000	800	5.0%	20,704	2,070	21,000	2,100	500	500	472	9.0	1.91	284.2	81.29	10%	12%	0%	7%	0%
17	2035	8,000	800	5.0%	20,704	2,070	21,000	2,100	513	513	484	9.0	1.91	291.1	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	3,373	34,000	3,400	568	568	536	9.0	3.10	517.2	90.00	10%	12%	0%	7%	0%
27	2045	8,000	800	5.0%	33,725	3,373	34,000	3,400	572	572	540	9.0	3.10	521.3	90.00	10%	12%	0%	7%	0%
28	2046	8,000	800	5.0%	37,182	3,718	38,000	3,800	574	574	542	9.0	3.46	584.6	90.00	10%	12%	0%	7%	0%
29	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 /

\*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)





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 Required(kw) x Electricity Price ([ 1 ] x [ 7 ] + [ 2 ] x [ 8 ] + [ 3 ] x [ 9 ] )
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 ] )

Hour commencing / Giờ bắt đầu	2018		2023		2033		2043	
	(*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 tàu	(*2) Electricity Required (kw) / Lượng điện yêu cầu	(*1) Trains Operating / Vận hành tàu	(*2) Electricity Required (kw) / Lượng điện yêu cầu
No. of cars / train	3		6		6		6	
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	1,771	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/ Cộng 06:00-19:00	123.2	29,076.3	166.0	78,386.7	199.2	94,064.0	240.7	113,661
[ 2 ]	Sub total/ Cộng 19:00-24:00	37.7	8,889.3	52.0	24,554.9	62.4	29,465.8	75.4	35,605
[ 3 ]	Sub total/ Cộng 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 hàng ngày = [1] + [2] + [3]	168.3		228.0		273.6		330.6	
[ 5 ]	Route Length/ Chiều dài tuyến đường (km)	19.7							
[ 6 ]	Track Length / Chiều dài đường sắt(km) = [5] x 2	39.4		39.4		39.4		39.4	

	Tariff in 2012 / Bảng giá năm 2012	VND/kw	Assumed period / Thời gian dự tính
[ 7 ]	Peak rate/ Cao điểm	2,177	06:00-19:00
[ 8 ]	Off-peak rate / Giờ bình thường	1,217	19:00-24:00
[ 9 ]	Midnight rate / Thấp điểm	754	00:01-06:00

<Source> / <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

< Traction power consumption > / <Lượng tiêu thụ điện năng sức kéo>												
		Base kw/car km (kw cơ bản/ km toa xe)	Car type (load factor) / Loại toa (Tổng số tải trọng)	Motor Factor / Yếu tố động cơ	Speed factor /Yếu tố tốc độ	Station Start-Stop factor / Thông số khởi hành - kết thúc tại ga	3rd Rail Factor / Thông số đường ray thứ 3	Train Configuratio n Factor / Thông số cấu hình của tàu	Tunnel Factor / Thông số đường hầm	Total Correction Factor / Thông số sửa chữa tổng	Traction Power Consumption for Project System (kw/car.km)  / Lượng tiêu thụ điện năng sức kéo cho hệ thống dự án (kw/toa.km)	
Old MTR		2.46	0	0	0	0	0	0	0	0	2.46	
PB System Estimate		2.35	+Ve	+Ve	+Ve	+Ve	0	+Ve	+Ve	0.85	2.00 (*3)	

+Ve = beneficial (reduces power consumption) / = Lợi nhuận (Trừ lượng tiêu thụ 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 / Tỷ 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

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 Electricity x Weighted average electricity price ([ 3 ] x [ 4 ])
in USD / Bằng USD	4,816,539	4,816,539	4,816,539	

Lượng điện được yêu cầu (kw) x Giá điện ([ 1 ] x [ 7 ] + [ 2 ] x [ 8 ] + [ 3 ] x [ 9 ])

Station No. / Số ga	Tên ga	Station Name	Type / Loại	[ 1 ]	[ 2 ] = [ 1 ] X 25%	[ 3 ] = [ 1 ] - [ 2 ]
				Electricity / Lượng điện (MWh/year)	From Regenerative Braking / Từ sự phanh hãm nhiệt	Purchased Electricity / Lượng điện 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
	<b>Tổng cộng</b>	<b>Total</b>		<b>66,870</b>		<b>52,279</b>

[ 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

<Source> / <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

The details: See "Current Investment Cost as of 4480/QB-UBND" / Xem chi tiết tại "Chi phí đầu tư hiện tại" của quyết định 4480/QB-UBND ngày 24/9/2011																																						
		2017	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				
		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	27	28	29	30	31	32	33	34			
		Economic growth rate / Tỷ lệ tăng trưởng kinh tế :																																				
		1.00	1.01	1.02	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	1.24	1.27	1.29	1.32	1.34	1.37	1.39	1.42	1.44	1.47	1.50	1.53	1.56	1.59	1.62	1.65	1.68				
2. Additional/Renewal (2018-2047)	2. Phức hồi/bổ sung (2018-2047)	Original Cost / Chi phí gốc	Year / Năm																																			
	For Renewal / Phức hồi																																					
Rolling Stock	Đầu máy toa xe	201.6	30																																			
E&M	Thiết bị cơ điện	669.0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
E&M (5 yr)	Thiết bị cơ điện (5 năm)	81.8	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
E&M (10 yr)	Thiết bị cơ điện (10 năm)	227.9	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
E&M (15 yr)	Thiết bị cơ điện (15 năm)	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
E&M (20 yr)	Thiết bị cơ điện (20 năm)	144.1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
E&M (30 yr)	Thiết bị cơ điện (30 năm)	215.2	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
3. Depreciation	3. Khấu hao	215.2	30																																			
3.1 Original Assets (incl. Contingency&Escalation)	3.1 Các tài sản gốc (Bao gồm cả dự phòng và trượt giá)		For Dep. / Khấu hao																																			
-Civil Work EL	Xây dựng đoạn đi ngầm	461.0	100	23.5%	check / Kiểm tra	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 CL	Xây dựng đoạn đi cao	628.8	100	32.0%	check / Kiểm tra	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	5	34.2%	669.0	53.5	53.5	53.5	53.5	53.5	44.8	44.8	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	14.4	14.4	14.4	14.4	14.4	14.4					
E&M (5 yr)	Thiết bị cơ điện (5 năm)	81.8	10			22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	15.4																					
E&M (10 yr)	Thiết bị cơ điện (10 năm)	227.9	15			22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.8	15.4																					
E&M (15 yr)	Thiết bị cơ điện (15 năm)	-	15			-	-	-	-	-	-	-	-	-	-	-	-																					
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	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					
-Rolling Stock	Đầu máy toa xe	201.6	30			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	6.7	6.7	6.7					
-Office IT System	Hệ thống IT văn phòng	-	5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Total	Tổng	1,958.4				124.7	124.7	124.7	124.7	124.7	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	46.4	46.4	46.4	46.4	46.4	46.4	46.4	46.4					
3.2 Additional/Renewal Rolling Stock/Facilities	3.2 Bổ sung/Phức hồi trang thiết bị đầu máy toa xe																																					
Rolling Stock	Đầu máy toa xe	20.0	2018																																			
		40.0	2021																																			
		29.8	2023																																			
Intermediate overhaul 1	Trung tu lần 1	73.8	2030																																			
		59.4	2033																																			
Intermediate overhaul 2	Trung tu lần 2	7.7	2033																																			
Intermediate overhaul 3	Trung tu lần 3	16.1	2035																																			
Intermediate overhaul 4	Trung tu lần 4	12.4	2037																																			
Renewal of 2015 rolling stock	Phức hồi đầu máy toa xe năm 2015	326.1	2045																																			
Intermediate overhaul 5	Trung tu lần 5	29.9	2048																																			
	Renewal / Phức hồi		Depreciation/Khấu hao																																			
E&M (5 yr)	Thiết bị cơ điện (5 năm)	81.8	5																																			
E&M (10 yr)	Thiết bị cơ điện (10 năm)	227.9	10																																			
E&M (15 yr)	Thiết bị cơ điện (15 năm)	-	15																																			
E&M (20 yr)	Thiết bị cơ điện (20 năm)	144.1	20																																			
E&M (30 yr)	Thiết bị cơ điện (30 năm)	215.2	30																																			
Intermediate overhaul	Trung tu	10	10																																			
Total	Tổng	669.0		-	-	-	0.7	0.7	17.9	19.3	19.3	20.4	20.4	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6	51.6					

Depot equipment is included in E&M / Th (t b) Depot bao gồm trong Mua sắm và lắp đặt các thiết bị; cơ điện											
Breakdown for PACKAGE 4 (For the details: See "10. New Cost")											
Dự tính chi phí cho Gói THẦU SỐ 4 (Xem chi tiết "10. Chi phí mới")											
Item	Hạng mục chi phí	FC (JPY)	LC (VND)	Total (JPY)	Total (US\$ Mil)	Renewal	30	20	15	10	5
1. E&M	1. Thiết bị cơ điện	35,214,243,000	1,620,050,730,000	43,314,496,650	455.9	100.0%					
Track Works	Công trình đường sắt	4,834,229,000	436,121,525,000	7,014,836,625	73.8	16.2%	73.8				
Signaling System	Hệ thống tín hiệu liên lạc chính tuyến	5,740,961,000	258,193,000	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	Trạm điện & SCADADA, PDS	10,271,560,000	181,516,732,000	117,173,143,660	117.7	25.8%					
Traction Power Supply (OCS)	Hệ thống cung cấp nguồn điện sức kéo (OCS)	2,110,228,000	38,886,704,000	2,794,659,520	29.4	6.5%		29.4			
APC	Hệ thống cung cấp	4,805,461,000	98,104,908,000	5,295,995,540	55.7	12.2%					55.7
Platform Screen Door	Cửa chắn tại ga	3,071,228,000	102,707,036,000	3,586,763,180	37.7	8.3%		37.7			
Facility SCADA	Trên lịch SCADA	272,654,000	5,416,144,000	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	Thiết bị cho công tác đào tạo và huấn luyện	520,136,000	10,631,800,000	573,296,000	6.0	1.3%					6.0
Depot and Workshop Equipment	Thiết bị nhà xưởng và depot	3,060,104,000	96,967,696,000	3,532,042,480	37.2	8.2%		37.2			
					100.0%		146.7	96.2	-	155.3	455.9
Rolling Stock	Bầu máy toa xe	12,986,491,000	12,974,400,000	13,051,363,000	137.4						

## 9. Investment&Depreciation



[illegible]

\* 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

**Opening Expenses of O&M Compnay / Chi phí k ỳ đầu của Công ty O&M**

[M USD / Bảng 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 Office / Tại văn phòng PMU1 *1		Unit Rate / đơn giá USD/m2	USD
		[VND]	[ 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

\*1: Actual initial set-up cost in PMU Office

Item 1.2 Advertisement cost	Mục 1.2 Chi phí quảng cáo	Unit Rate / Đơn giá *1 [M VND]	Times *2	Yearly Rate / Tỷ lệ hàng năm	
				[M VND]	[M USD]
		[a]	[b]	[c] = [a] x [b]	[d] = [c]*[C]/[D]
Jan to June in 2017	Tháng 1 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  
\*2: Monday to Friday per week

\*1: trang chủ HTV7  
\*2: Thứ 2 đến thứ 6 mỗi tuần

Item 1.5 Utility cost for head office	Mục 1.5 Chi phí tiện ích cho trụ sở	@PMU1 Office *1 / Tại văn phòng PMU1		Unit Rate / đơn giá USD/m2	USD
		[VND]	[ USD]		
		[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 kiện

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 gian làm việc của Văn phòng của Công ty O&M (trụ sở)	[B]	3,056m2		
Exchange Rate	Tỷ giá	[C]	92.10Yen/USD	[D]	0.0044Yen/VND

**Cost Estimation for Office IT system/ Dự toán chi phí Hệ thống CNTT văn phòng**

[USD]

Description/ Mô tả	Unit/ Đơn vị	Quantity/ Số lượng	Unit Price / đơn giá	Amount / Tổng	2013	2014	Note/ Ghi chú
<b>1 Hardware / Phần cứng</b>				<b>1,945,000</b>	<b>33,000</b>	<b>1,912,000</b>	
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 Configuration fee (Servers , 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	
<b>2 Software / Phần mềm</b>				<b>1,973,000</b>	<b>0</b>	<b>1,973,000</b>	
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	
<b>3 Annual maintenance fee for S/W and H/W / Phí bảo dưỡng hằng năm cho phần cứng và phần mềm</b>				<b>783,600</b>	<b>0</b>	<b>783,600</b>	(1. Hardware + 2. Software) * 20% (1. Phần cứng + 2. Phần mềm) * 20%
	<b>Total / Tổng</b>			<b>4,701,600</b>	<b>33,000</b>	<b>4,668,600</b>	<b>= (1+2+3)</b>

Above estimation is based on SAPI's experiences of similar office IT system implementation projects

/ Dự toán ở trên được dựa trên kinh nghiệm của SAPI về các dự án thực hiện hệ thống CNTT văn phòng tương tự

Hardware configuration, 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 vendors to provide detailed cost estimation of Office IT systems.

/ Vì thể 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 nêu 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