

A15.6 DEVELOPMENT OF MODE INTERCHANGE AREA

A15.6.1 General

One of the most important issues to improve the public transport system is to develop a smooth transfer at the mode interchange area, such as bus terminals and railway station. Therefore, it is necessary to discuss the location and the development of an efficient and convenient mode interchange area.

A15.6.2 Type and Location of Mode Interchange Area

Mode interchange areas in Phnom Penh in the future are classified into the following 5 categories:

- a. Bus stop
- b. Bus terminal (intra-city and inter-city)
- c. River ferry jetty
- d. Railway station
- e. Airport

Among the above-mentioned mode interchange areas, bus related facilities such as bus terminals are mainly discussed in this section; railway, river transport and airport are described in section A15.5.

A15.6.3 Planning Directions for the Development of Mode Interchange Areas

Based on the planning directions for the development of mode interchange areas described below, a summary of mode interchange areas including their locations in Phnom Penh Metropolitan Area in the year 2015 are shown in Figure A15.6.1 and Table A15.6.1, respectively.

- a. Mode of intercity land public transport convert from taxi-bus to bus and minibus to cope with the future increase of intercity passenger flow.
- b. Existing taxi-bus will be converted as follows:
 - Van type: not only inter-city public transport but also city public transport for the next few years
 - Sedan type: city taxi for the next few years
 - Pickup type: new feeder system of bus together with motorumok
- c. Existing 3 major taxi-bus terminals, located in the CBD such as Central market, Duam Kor market and Chba Ampav market will be redeveloped into intercity bus terminals.
- d. Minibus will be introduced into the intercity public transport system for neighboring districts, and these bus terminals will not only improve the existing taxi-bus terminals, located in the suburban area such as Preah Leap and Cham Chao Terminals but also develop the new bus terminals up to the year 2015.
- e. Basic consideration of relocation of new bus terminals is to minimize the traffic congestion in the CBD.
- f. Types of mode for using the bus terminal are bus, minibus taxi, motodop, motorumok and private car, and these modes will vary depending on the type of terminal and location.

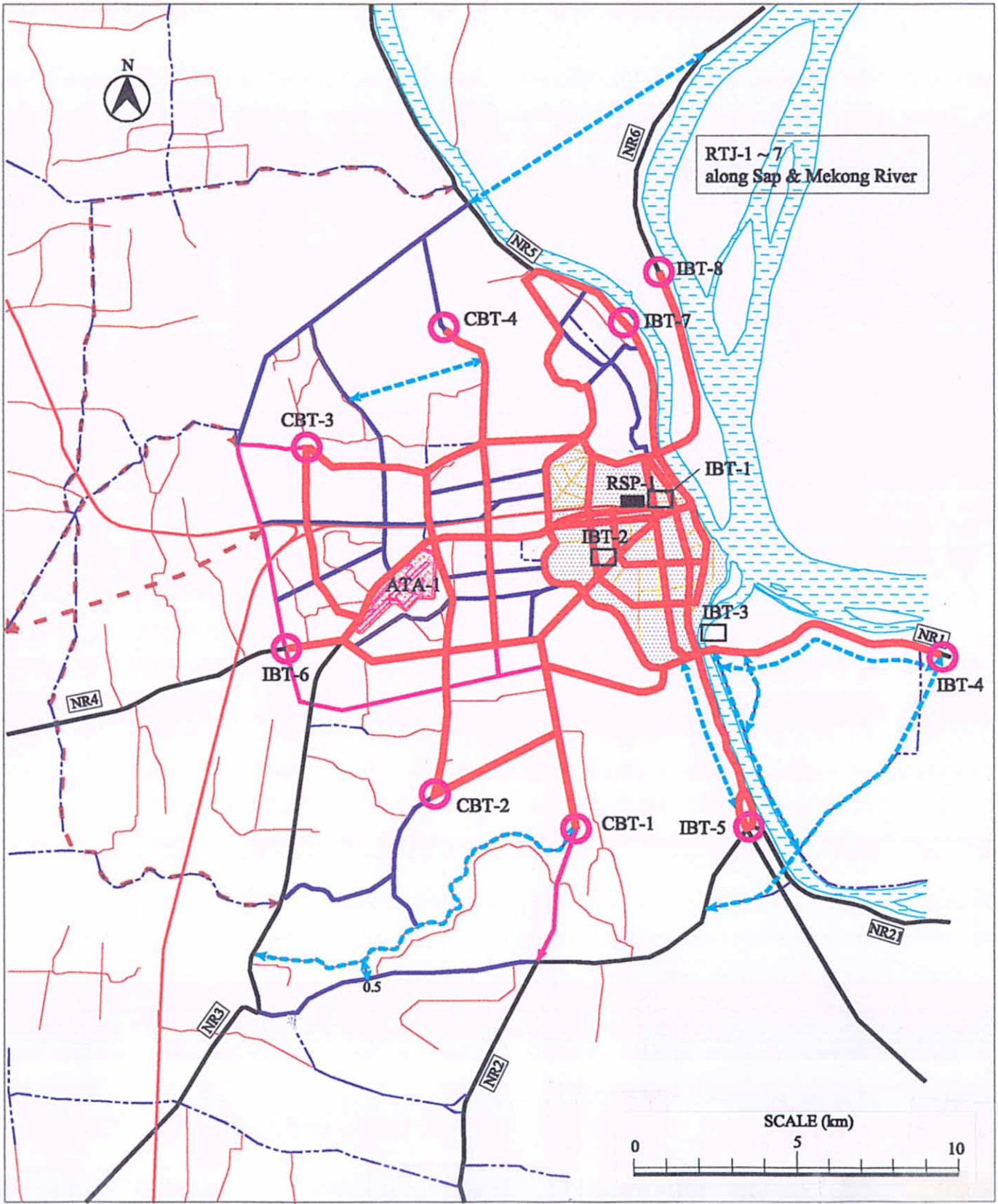


Figure A15.6.1 Location of Mode Interchange Area in Year 2015

Table A15.6.1 Type of Mode Interchange Area

Mode	Type	Name	Symbol	Existing/ New/ Expansion	Area (sq. m.)	Mode Interchange Pattern							Remarks						
						Intercity Bus	Intercity Minibus	City Bus	Taxi	Motodop	Cyclo	Moto - runkok		New Feeder	Railway	Ferry	Airplane		
Bus	Bus Stop (CBD)		BSC	New															
	Bus Stop (Suburban)		BSS	New															
	Intercity Bus Terminal	Central Market		IBT - 1	Existing	4,700													
		Daum Kor		IBT - 2	Existing	3,800													
		Chbar Ampav		IBT - 3	Existing	3,100													
	Intercity Minibus Terminal	NR 1/Outer Ring Road		IBT - 4	New	10,000													
		Takmao (NR 21)		IBT - 5	Existing	3,200													
		NR 4/Outer Ring Road		IBT - 6	Relocation	9,700													
		6 km (NR 5)		IBT - 7	Existing	18,200													
	City Bus Terminal	Preah Leap (NR 6)		IBT - 8	Existing	20,900													
Cheung Aek Bypass/Kring Pongro			CBT - 1	New	10,000													Including Market Development	
Sak Sampov - Baku Road			CBT - 2	New	10,000													Including Market Development	
Prey Sa Road/Trapeang Runnehek Road			CBT - 3	New	10,000													Including Market Development	
Northern New Trunk Road/Trapeang Chrey Road			CBT - 3	New	10,000													Including Market Development	
Khmuoth Road			CBT - 4	New	10,000													Including Market Development	
Central Station			RSP - 1	Existing	6,100														
Kao Sou Kreb - Preak Ta Sek Ferry			RTJ - 1	Expansion	1,000														
River Transport Jetty	Chang Chantres - Preak Ta Kov Ferry		RTJ - 2	Expansion	1,000														
	Phnom Penh - Chrouy Chang Va Ferry		RTJ - 3	Expansion	1,000														
	Phnom Penh - Akreiy Ksair Ferry		RTJ - 4	Expansion	3,000														
	Khlor - Kaoh Daeh Ferry		RTJ - 5	Expansion	500														
	Chrouy Changvar - Svay Chrum Ferry		RTJ - 6	Expansion	2,500														
	Preach Lieb - Kaoh Okha Tei Ferry		RTJ - 7	Expansion	4,000														
	Pochentong International Airport		ATA - 1	Existing															
Air Transport	Curbside of Airport																		

A15.6.4 Preliminary Study for the Space Requirement and Layout Plan of Bus Terminals

Based on the above-mentioned conditions, current traffic characteristics of terminals, future intercity passenger demand and related data, preliminary study for the space requirement of intercity bus terminal is summarized in Table A15.6.2. This is based on the following study procedure, which is clearly depicted in Figure A15.6.2.

Analyzing the result of the study, most of the existing areas are larger than the space requirements. These terminals are located in strategic points of urban activity in the future. Therefore, the development not only of transport functions but also of urban functions such as market in the mode interchange area are important to vitalize the urban activities in Phnom Penh Metropolitan Area.

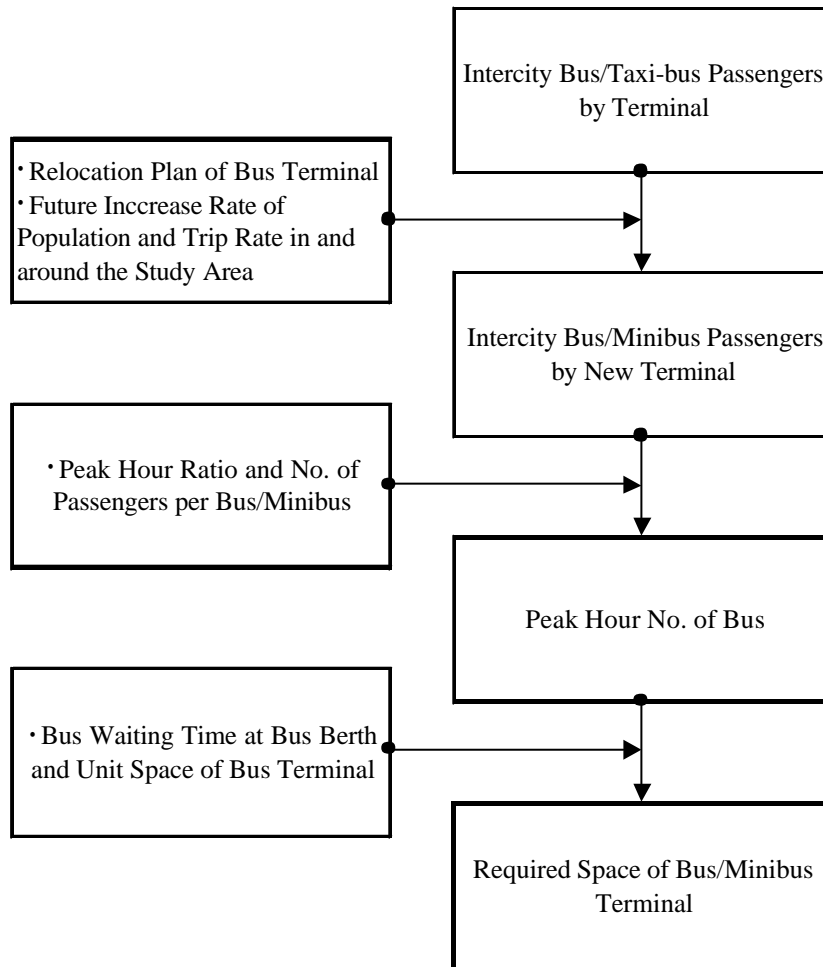


Figure A15.6.2 Procedure for the Space Requirement of Bus Terminal

A15.6.5 Layout Plan of Bus/Minibus Terminals

The bus system will be the trunk public transport system in Phnom Penh for both intra-city and intercity, therefore, the most important mode interchange area in Phnom Penh is the bus/minibus terminal, especially minibus terminal. It is necessary to provide not only the smooth transfer functions but also the urban activity functions, such as market for minibus terminal, because minibus terminal is the strategic point for urban development in the suburban area. In addition, it is necessary to consider the convenient transfer between various feeder modes, which is one of the most typical features in Phnom Penh. The concept of transfer system in the minibus terminal and the preliminary layout plans in 3 suburban minibus terminals are shown in Figure A15.6.3 and Figure A15.6.4, respectively.

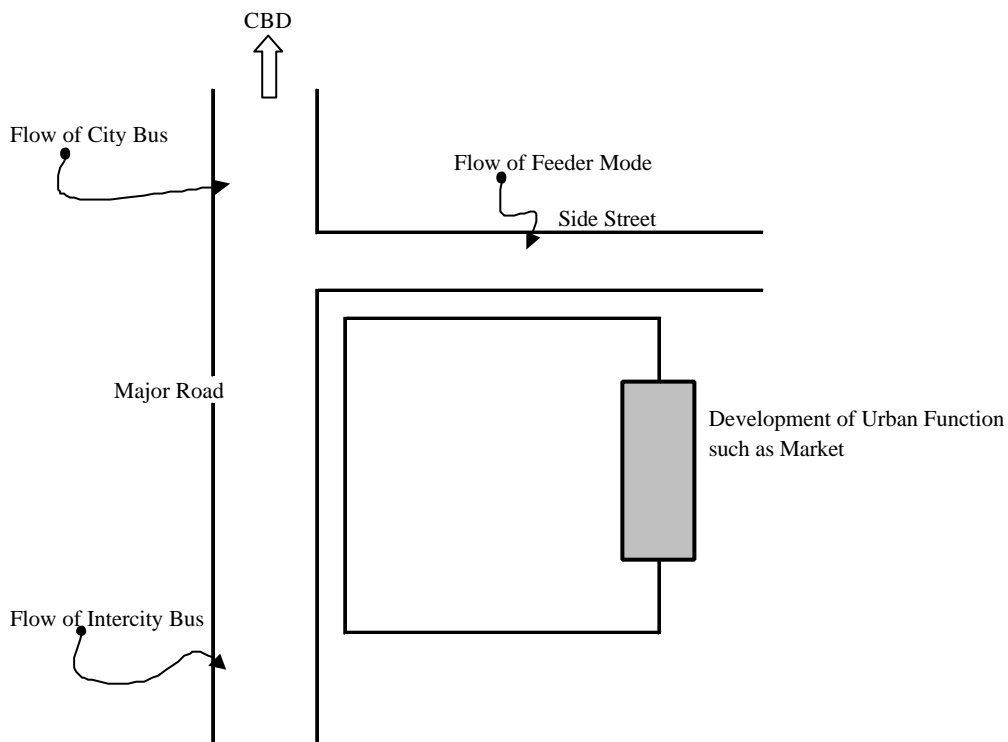


Figure A15.6.3 The Concept of Transfer System in the Minibus Terminal

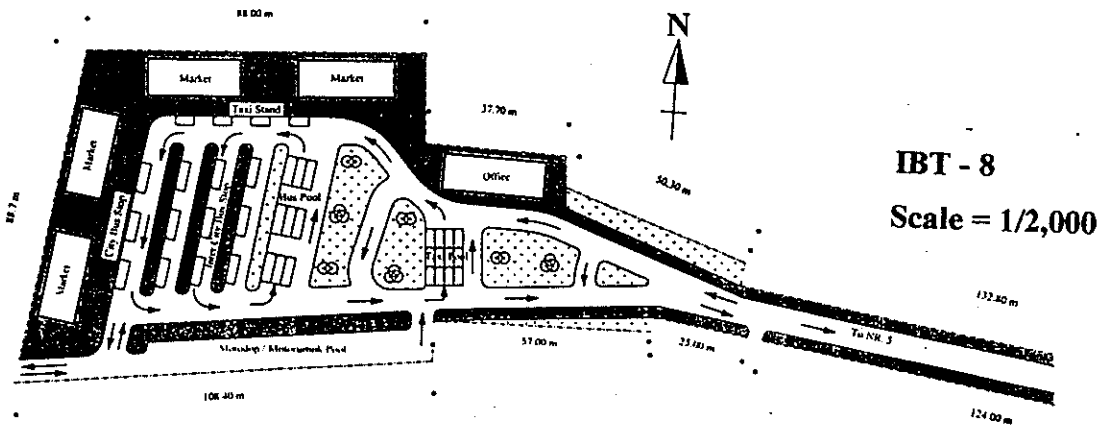
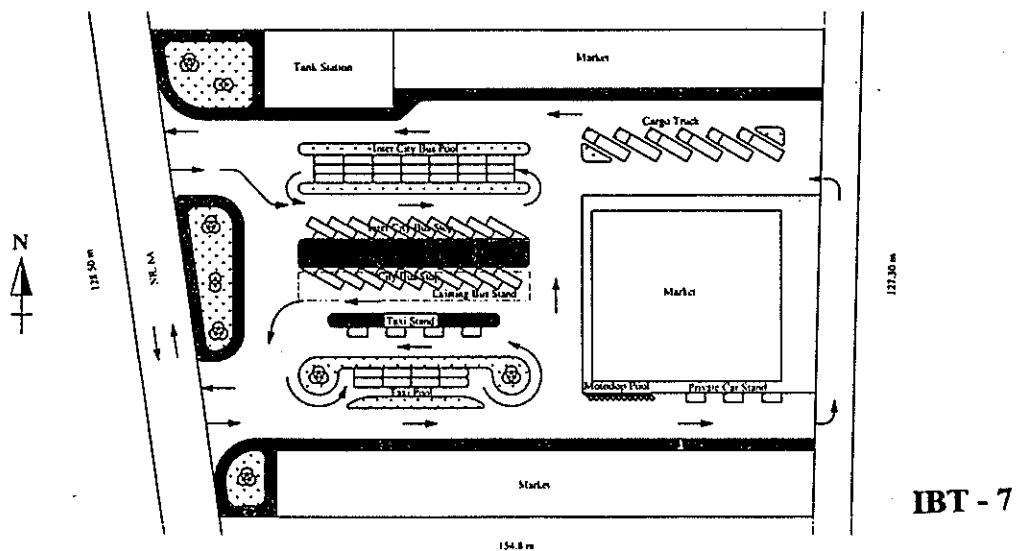
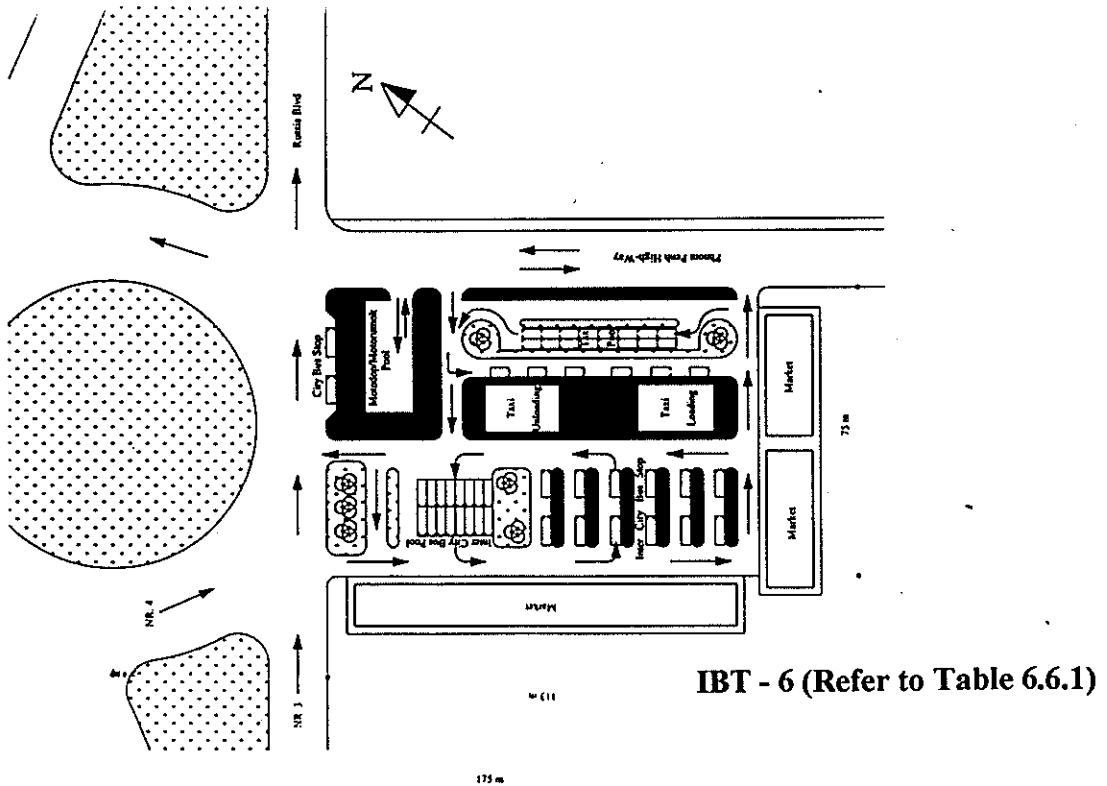


Figure A15.6.4 Preliminary Layout Plan of Mode Interchange Area

A15.7 STAGING PLAN

A15.7.1 Preliminary Cost Estimate

Preliminary total cost estimate of the public transport plan up to the year 2015, details of which are explained in the preceding sections, is shown in Table A15.7.1.

The estimation of preliminary cost is based on the following conditions:

- (1) The year 2000 price is applied for the unit cost.
- (2) The unit cost of bus fleet is the price of air-conditioned minibus using the intercity operation.
- (3) Other unit cost such as bus terminal development is based on the actual cost.
- (4) Improvement costs of other modes which are not controlled by the Municipality of Phnom Penh, like air transport, is not included in Table A15.7.1.

A15.7.2 Staging Plan

To improve the realization of the master plan in 2015, the public transport plan, which is discussed in this section, will introduce a staging plan. Basic considerations of the staging plan are as follows:

- (1) Basically, the master plan (from year 2001 to year 2015) is divided into 3 stages, namely, Short-term (2001 – 2005), Medium-term (2006 – 2010) and Long-term (2011 – 2015).
- (2) City bus route network plan, which is one of the most important factors in the public transport system, is based on the speed of urban development and staging plan of road network development.
- (3) Investment cost in each stage is almost the same. Because the main factor of investment cost estimation is cost of bus fleet, which increase in proportion to growth of bus passenger demand. The implementation plan of the master plan, which takes into account the possible total investment cost and the coordination of other sectors, is discussed in chapter 21.

Considering the above-mentioned factors, the components of public transport by stage and the preliminary cost estimate by stage are shown in Tables A15.7.2 and A15.7.3, respectively.

Table A15.7.1 | Preliminary Cost Estimate

Items		Quantity		Unit	Unit Price (US\$)	Cost (1,000 US\$)	Remarks
1	a	Bus Fleet	1,306	Fleet	40,000	52,240	
	b	Minibus					
	c	New Bus System					This is beyond the year 2015
	d	Bus Terminal Improvement	63,445	sq. m	15	952	
	e	Bus Stop Development	50,000	sq. m	30	1,500	
	f	Bus Stop	740	Unit	250	185	
	g	Bus Shelter	148	Unit	2,800	414	
2		Bus Depot	63700	sq. m	30	1,911	
		No. of Fleet	2,600	Fleet	15,000	39,000	By private sector
3		Introduction of Operational Zone System for Motodop		r.s.		25	Policy measures
4		Introduction of Operational Zone System for Cyclo		r.s.		25	Policy measures
5		Ban of Motorumok Operation along Trunk Roads in the Suburban Area		r.s.		25	Policy measures
6		Convert Pickup Type of Intercity Taxi-bus into New Feeder Mode of Bus in the Suburban Area		r.s.		25	Policy measures
7	a	Boat	13	boat	10,000	130	By private sector
	b	Jetty	9,500	sq. m	15	143	By private sector
8		Railway Improvement					By State Secretariat of Civil Aviation
9		Airport Access Improvement					By Royal Railway of Cambodia
10		Development of Mode Interchange Area	6,100	sq. m	15	92	
		Station Plaza Improvement					
Total						57,394	= 1 + 10

Table A15.7.2 Components of Public Transport for the Master Plan by Stage

Items	Unit		Short-term 2001 - 2005	Medium-term 2006 - 2010	Long-term 2011 - 2015	Remarks
1	a	Bus Fleet	435	414	457	This is beyond the year 2015
	b	Minibus				
	c	New Bus System				
	d	Improvement	63,445			
	e	Development		10,000	40,000	
	f	Bus Stop	355	155	230	
	g	Bus Shelter	71	31	46	
2		Bus Depot	21,182	20,227	22,272	
3		No. of Fleet	840	880	880	By private sector
4		Introduction of Operational Zone System for Motodop	25			Policy measures
		Introduction of Operational Zone System for Cyclo	25			Policy measures
5		Ban of Motorumok Operation along Trunk Roads in the Suburban Area	25			Policy measures
		Convert Pickup Type of Intercity Taxi-bus into New Feeder Mode of Bus in the Suburban Area	25			Policy measures
7	a	Boat	4	5	4	By private sector
	b	Jetty	3,170	3,160	3,170	By private sector
8		Railway Improvement				By Royal Railway of Cambodia
9		Airport Access Improvement				By State Secretariat of Civil Aviation
10		Development of Mode Interchange Area				
		Station Plaza Improvement	6,100			

Table A15.7.3 Cost Estimate of Public Transport for the Master Plan by Stage

Unit: 1,000 US\$ in year 2000 price

Items	Short-term 2001 - 2005		Medium-term 2006 - 2010	Long-term 2011 - 2015	Remarks	
1	a	Bus Fleet	17,400	16,560	18,280	This is beyond the year 2015
	b	Minitibus				
	c	New Bus System				
	d	Bus Terminal Improvement	952			
	e	Development		300	1,200	
	f	Bus Stop	89	39	58	
	g	Bus Shelter	199	87	129	
		Bus Depot	635	607	668	
2		Taxi Fleet	12,600	13,200	13,200	By private sector
3		Introduction of Operational Zone System for Motodop	25			Policy measures
4		Introduction of Operational Zone System for Cyclo	25			Policy measures
5		Ban of Motorumok Operation along Trunk Roads in the Suburban Area	25			Policy measures
6		Convert Pickup Type of Intercity Taxi-bus into New Feeder Mode of Bus in the Suburban Area	25			Policy measures
7	a	New Feeder Pickup	40	50	40	By private sector
	b	Ferry Jetty Improvement	48	47	48	By private sector
8		Railway Rehabilitation				By Royal Railway of Cambodia
9		Airport Access Improvement				By State Secretariat of Civil Aviation
10		Development of Mode Interchange Area	92			
		Station Plaza Improvement				
Total by Stage			19,466	17,592	20,334	= 1 + 10

APPENDIX 18

INSTITUTION AND CAPACITY DEVELOPMENT PLAN

APPENDIX 18 INSTITUTION AND CAPACITY DEVELOPMENT PLAN

Table of Contents

A18.1 Approach to the Study.....	A18-1
A18.2 Consistency to the National Policy	A18-2
A18.3 Records of Institution and Capacity Development in DPWT.....	A18-4
A18.4 Identified Problem Areas	A18-6
A18.5 Institution and Capacity Development Plan.....	A18-7
A18.6 Human Resources Capacity Development Plan.....	A18-9

A18. INSTITUTION AND CAPACITY DEVELOPMENT PLAN

For formulation of an institution and capacity development plan, various discussions have been attempted from determination of the objectives to applicable methods, and to details of the past studies on this theme, records of the training schemes experienced in the DPWT. This Appendix presents these discussions. Based on these discussions, organizational reform plan for institutional improvement and human resources capacity development plan are formulated, and the details of the plan are also presented.

A18.1 APPROACH TO THE STUDY

A18.1.1 Introduction

The fundamental elements of effective and efficient institutions in either public or private sector lie in the basic principles of implementing “plan-do-check cycle” theory. Good governance by means of improving capacities of government institutions and developing their human resources is critical for Cambodia’s future. Over the last decade, during transition toward liberal democracy and a market economy, Cambodia’s policy-makers, donors and civil society have recognized that strengthening good governance is imperative if Cambodia is to sustain socio-economic development.

The dynamic change of Cambodia’s governance structure has gained further momentum since the formation of a new government in late 1998. The new government has committed itself to major reforms in an effort to revive Cambodia’s economy and reinvigorate its engagement with the donor community.

In this context, capacity building of the government institutions and human resources is set forth as one of the development objectives of the Second Five-Year Socioeconomic Development Plan. Accomplishment of this objective leads to improvement of the efficiency and effectiveness of the public sector through civil service reform and eventually to good governance.

The discussions presented in this chapter examine the governance structure of the existing organizational set-up of the DPWT, MPP and its capacities of the institutions and personnel for identification of the problem and constraint areas. Based on the findings of examination, a proposal for institutional reform and a plan for capacity development of the human resources within the DPWT to cope with the advanced economic and social environments toward the year 2,015 are presented. The proposal for institutional reform and the plan for personnel capacity development are aimed for those units and staff directly related to the implementation of the projects proposed in the on-going JICA Study on the Transport Master Plan of the Phnom Penh Metropolitan Area.

A18.1.2 Definition

The criterion for institutional and capacity development used in this chapter is defined as “the ability of individual or organizational units to perform respective functions effectively, efficiently and sustainably”. The discussions are confined to the capacities of the higher and medium level officials of the organizational units directly concerned in the Transport Master Plan in the DPWT, MPP. Capacities in this sense have two (2) aspects, individual, institutional. It must be distinguished from those of the central government officials or institutions.

Governance is defined in this study as the **manner** in which power is exercised in the management of a country’s economic and social resources for development. The DPWT with good governance exercises its powers through municipal institutions and organizations that are **accountable** and **transparent** to the general public of Phnom Penh. It also exercises powers based on the rule of law, which are therefore **predictable** to the public. Furthermore, the DPWT with good governance is adept at promoting people’s **participation** in the development process and policy-making. Therefore,

accountability, transparency, predictability, and participation are four (4) elements leading to good governance.

Based on above definitions, improvement of capacities in the DPWT institutions and its personnel is discussed and planned.

A18.2 CONSISTENCY TO THE NATIONAL POLICY

In the national development policy matrix as per **Table A18.2-1**, set forth in the 2nd Five-Year Socio-Economic Development Plan, The Royal Government of Cambodia (GOC) is addressing the importance of strengthening capacities of the institutions as well as the civil servants. The key issues on the capacity building of the institutions and human resources are as follows:

A18.2.1 Administrative Reform

Following increases in size of the civil service in recent years, the government's objective is to rationalize and downsize the civil service. The precise number and status of civil servants needs to be ascertained and for this purpose, the government will fully implement the computerized payroll and management system. On this basis, the government will strictly limit the number of new hires and reduce the number of civil servants through elimination of all of irregular cases and through normal attrition aiming to containing the wage bill to within 1.7 % of GDP while upgrading the civil service.

For transparency and a level playing field, the government is reforming the legal and institutional frameworks for the private sector. Cambodia has made steady progress in developing the legal and regulatory framework, but substantial gaps and inconsistencies need to be rectified. For this purpose, a comprehensive Commercial Code is being prepared to strengthen the regulatory framework for business organization, contract, intellectual property rights, and product liability. Measures will also be taken to strengthen the rule of law and transparency, including modernizing the judiciary.

Building on the progress in defining a strategy and a regulatory framework for public enterprise reform, further steps will be taken to establish a more efficient and streamlined public enterprise sector. The government intends to corporatize the 11 state-owned enterprises to remain in the public sector in accordance with the law regulating the public enterprise. Furthermore, restructuring plan for 7 rubber plantations and a privatization schedule will be prepared, aimed at privatizing at least 1 selected plantation by December 2001.

There are five (5) areas which have implications for good governance and sustainable development: 1) public finance reform; 2) public administration reform for the civil service and armed forces; 3) decentralization; 4) legal and judicial reforms; and 5) regional integration.

A18.2.2 Governance Enhancement

For enhancement of good governance, there are two (2) major challenges facing Cambodia, as described below:

Challenge 1: Strengthening Accountability Institutions in the Public Sector

There has been too little attention, respect and resources given to accountability institutions in Cambodia. Accountability institutions need to be strengthened to hold public officials accountable and to operate in a transparent manner.

On-going judicial reforms are critical to developing a more independent and competent Judiciary. Without this, people will not accept the idea that paper (i.e., laws) has real power. Nor will they have confidence in the Rule of Law. The Supreme Council of Magistracy is one crucial focal point for such reforms.

Cambodia's public sector needs to build financial integrity as well. Equipping the National Assembly and Senate to carry out active financial monitoring can enhance accountability and transparency. A neutral National Audit Authority, acting as an independent, external audit agency, can also play a critical role.

Such reforms will replace suspicion of independent accountability institutions with a respect for the value of such institutions. This will narrow the scope of corruption in the public sector and increase confidence in the government's commitment to reform and the Rule of Law. It will also create an environment more conducive to long-term private sector growth as well as conditions within the DPWT organization where higher performance and productivity can be realized in the middle and lower levels personnel.

Challenge 2: Building Government Capacity for Local Governance:

Both public finance and public administrative reforms require the involvement of local (provincial and district) administration as an essential component of their implementation. Public expenditure reform envisages financial devolution to provincial administration. Current plans for demobilization stress the role of to-be-created provincial veterans' offices in the reintegration of demobilized soldiers. The government's efforts towards decentralization through commune elections will establish the first representative bodies at the local level.

The success of these reforms hinges on the managerial capacity of local government. A few key issues need to be addressed. First, greater legal clarity regarding the status and scope of authority of provinces, municipalities, districts and the to-be-created commune councils is needed. Second, use of existing institutions and mechanisms at the local level should be maximized, rather than creating new entities. Demobilization is a case in point. Lastly, building the capacity of local officials for financial management is critical to enhancing the financial integrity of local government.

Capacity building for good governance should include both human resource development and institution building. Building human resources is the most pressing issue in Cambodia and applies to all sectors of reform. Early planning for massive, long-term training is needed to ensure that the development of human resources keeps pace with the implementation of governance reforms. Given the early stage of institutional reforms in Cambodia, the need for institution building is pressing as well. Developing sound management system is critical to improving performance and the specific tasks and functions of public institutions.

Reforms for good governance would be most effective when the government demonstrates commitment to reform through concrete actions and donors respond with financial and technical support. This dynamic ensures that the government is driving the process by setting its own priorities for governance reforms, building political support for policies and demonstrating political will by taking initial, tangible steps for reforms.

The effectiveness of governance reforms depends also on the extent to which the participation of all concerned institutions are ensured from the outset of the program. It is essential that both the policy-making of the government and the programming of assistance by donors be undertaken in a multi-institutional setting. In addition to major reforms that require long-term efforts and substantial resources, the government is recommended to vigorously pursue specific, low-cost reforms that can have a tangible impact on good governance.

For instance, Cambodia's leaders have occasionally issued declarations to halt the non-transparent, illegal sale and leasing of public property. Actions by the government such as the publication of a list of state assets and the requirement of an open tendering system for sale/lease of state property could reduce such practices. The absence of advance notice prior to enactment of new legislation was stressed as a key issue by the private sector. The government could require, by law, an official notice-and-comment period prior to approval of draft laws or regulations by the Council of Ministers or ministries. This will have a tangible positive impact on private sector development.

International institutions donors might consider the following areas and institutions as possible entry points to promote good governance in Cambodia. The design of a specific program of support for each area or institution above will require a more detailed evaluation of needs and current capacity.

On reviewing the policies and strategies of the 2nd 5-Year Socio-economic Development Plan and related plans, a proposal for improvement of capacities of the DPWT institutions and its personnel shall be consistent to these policies and strategies. Therefore, the discussions in this chapter take them into considerations

A18.3 RECORDS OF INSTITUTION & CAPACITY DEVELOPMENT IN DPWT

A18.3.1 Institutional Capacity Building by NORAD

Capacity building, especially for basic knowledge for DPWT staff is presently conducted through “Institutional Capacity Building Component and the Neighborhood Improvement Program” as a part of Phnom Penh Water Supply and Drainage Project Part B. After the creation of a division for flood protection, capacity building in the river engineering field is being disseminated. The training commenced in July 1997 and terminated in June 2000 for the 1st and 2nd phases, but the 3rd phase will be continued shortly. The outline of the capacity building in 1st and 2nd phases is as follows:

Objectives:

- Improve the English proficiency of the professional staff in DPWT,
- Improve the technical skills of the professional staff in DPWT,
- Develop skills in the use of CAD and other relevant computer software among the professional staff in DPWT; and
- Enhance the overall management capacity of DPWT

Project Organization:

A joint Project Steering Committee consisting of members of authorities concerned is coordinating the activities for both the water supply and the drainage part. DPWT/MPP is the target group for the consultant services. However, in order to facilitate the Objectives and the Scope of Work priority has also been given to the Drainage and Sewerage Section (DSS) within the Department.

Manpower Input by the Consultant:

The Consultant has provided 9 qualified experts to work in an advisory capacity towards the PMU/DPWT. The total input will be about 85 person-months during the project period from July 1997 till June 2000.

Training Program:

The training programs consists of English Trainings, Computer Training, AutoCAD Training, Sanitary Engineering, Management Information and Operational Systems, Human Resource Development – Institutional Development, Financial Accounting and Management Services, Management Information System (MIS), and related topics.

A18.3.2 Transfer of Technology by JICA: The Study on the Transport Master Plan of the Phnom Penh Metropolitan Area (the Study)

The Study is first to formulate an Urban Transport Master Plan of the Municipality of Phnom Penh to the year 2015, in order to solve various transport problems and to support sustainable urban development, second to conduct Feasibility Study for priority projects identified under the Master Plan, and third to carry out technology transfer to the Cambodian counterparts personnel through the implementation of the Study.

The JICA Study Team is scheduled to conduct technology transfer for a period of 15 months during its

stay in Cambodia from April 2000 to October 2001. For the purpose of implementation of the optimum technology transfer, in addition to the specified training programs for the selected counterpart personnel, basic on-the-job training is mainly being carried out in the process of the survey and plan formulations to the assigned counterpart personnel on the following fields:

- Top Management, and Institution and Organization Planning,
- Linguistic Skills,
- Urban Planning including Relocation Plan;
- Road Planning;
- Public Transport Planning;
- Transport Economy,
- Traffic Management;
- Traffic Surveys and Analysis;
- Natural and Social Environments.
- Computer (CAD) Operation, and
- Tender Documentation and Evaluation.

A18.3.3 CDRI Researches on Institution and Capacity Development

According to an extensive research on the Capacity Development in Cambodia done by the Cambodia Development Resource Institute in August 2000, the donor agency heads and the Cambodian government officials state the main purpose of the technical assistance as the capacity development. Its main target is for the individual followed by the institution as shown in [Tables A18.3-1 and A18.3-2](#) respectively. Also, the most successful method of technical transfer recorded by the project chief of the donor agencies is noted to be “On-the-job” training as shown in [Table A18.3-3](#).

Table A18.3-1: Purposes of TA by Agency Heads and Government Officials

		(Unit: %)					
No.	Purpose	Multilateral donors	Bilateral donors	NGOs	All donors	Gov't officials	Total
	Number of respondents (persons)	9	8	15	32	11	43
	% who mentioned:						
1	Capacity development	100	100	100	100	100	100
2	Direct impact on incomes	33	50	13	28	27	28
3	Facilitation of resource flows			7	3		2
4	Monitoring of resource flows		13	7	6	9	7
5	Source of finance					9	2

Sources: CDRI Working Paper 15, August 2000.
Note: TA stands for technical assistance

Table A18.3-2: Dimensions of Capacity Development Emphasized by Agency Heads & Government Officials

		(Unit: %)					
No.	Purpose	Multilateral donors	Bilateral donors	NGOs	All donors	Gov't officials	Total
	Number of respondents (persons)	9	8	15	32	11	43
	% who mentioned						
1	Individual	100	100	80	91	100	93
2	Institutional	89	75	87	84	100	88
3	Financial	33	50	33	38	36	37
4	At community level	22	13	67	41	27	37

Sources: CDRI Working Paper 15, August 2000.

Table A18.3-3: The skill development method that works best, by type of project, as reported by CTAs

No.	% of projects	Unit	Multilateral	Bilateral	NGO	Total
1	Classroom teaching, in-house	%	12	0	11	9
2	Classroom teaching, in-country	%	6	0	6	4
3	Classroom teaching, abroad	%	6	0	6	4
4	Study tours	%	6	0	0	2
5	On-the-job training	%	59	50	72	62

Source: Interviews with CTAs and counterparts from 50 TA projects. PHN, September 1998 to November 1999
Note: CTA stands for the Chief of the Technical Assistance Project

Regarding the modes of skill acquisition by type of donor agency reported by the counterparts are shown in [Table A18.3-4](#). This table indicates that the modes of “On-the-job” trainings, either by foreign advisors, colleagues or self-teaching prove to be most effective in comparison to other modes like classroom teachings and formal training or tour abroad. Also, [Table A18.3-5](#) indicates the results of the skills acquired by type of assistance institution reported by the counterparts, which show that the ranking of the acquired skills is topped by management, followed by professional/technical skills, and computer and foreign language. However, with upgrading of the personnel skills and change of

administrative and social needs, the required skills may change accordingly, together with advancement of technology.

Table A18.3-4: Mode of skill acquisition, by type of project, as reported by counterparts

No.	% of counterparts	Unit	Multilateral	Bilateral	NGO	Total
1	Classroom teaching, in-hosue	%	77	90	83	82
2	Classroom teaching, in-country	%	71	60	50	60
3	Formal training or tour aborad	%	71	90	56	69
4	On-the-job, from foreign advisors	%	88	90	94	91
5	On-the-job, from colleagues	%	65	100	61	71
6	On-the-job, self-teaching	%	88	100	94	93

Source: Interviews with CTAs and counterparts from 50 TA projects. PHN, September 1998 to November 1999

Table A18.3-5: Types of new skills acquired, by type of project, as reported by counterparts

No.	% of counterparts	Unit	Multilateral	Bilateral	NGO	Total
1	Foreign language	%	77	50	61	64
2	Computer	%	71	50	67	64
3	Communication	%	65	40	67	60
4	Professional/technical	%	71	70	89	78
5	Management	%	82	90	83	84
6	Other	%	6	0	17	9

Source: Interviews with CTAs and counterparts from 50 TA projects. PHN, September 1998 to November 1999

The capacity development plan for improvement of institutional efficiency of the organizational units in the DPWT and for development of its personnel is formulated in line with and on the basis of the preceding sections, which are mainly by in-house class room teaching for the basic skills and by on-the-job training in the form of workshops type case studies.

In line with the context and as a part of the Study, following capacity improvement and development plan for institutional efficiency of the DPWT and higher performance of its personnel is worked out.

A18.4 IDENTIFIED PROBLEM AREAS

Extensive interviews are carried out to the senior officials and counterparts team members of the organizational units and personnel related to the Study in the DPWT, and to the selected private sector executives. Also, intensive discussions with the senior officials, counterpart team members are conducted to identify the problems and constraints on the capacity of the institutions and human resources, which are to be incorporated in the institutional reforms and individual resources improvements. Both the DPWT senior officials and the counterpart team staff came up with more or less similar problems or constraints, which are listed below:

- Insufficient budget allocations for improvement and maintenance of the transport infrastructure facilities;
- Unclear goals & unclear responsibilities of the middle management and engineering (engineer and technical) levels;
- Inadequate legislation for decentralization to improve revenues, including land law;
- Improper organizational structures to match the changing economic and social environment;
- Inadequate wages and their payroll system to motivate willingness of personnel;
- Insufficient technical skills on each specific field at the engineering level;
- Poor physical working conditions of the personnel at lower levels;
- Low motivation and morale of the personnel at lower levels, and;
- Insufficient dissemination of the information on the DPWT activities to the citizens.

Regarding the aforesaid problems and constraints, three (3) items would not be improved in the DPWT because they are not in the jurisdictions of this Department, but directly related to those at the national levels requiring the approval of National Assembly. They are 1) insufficient budget allocations, 2) inadequate legislation for decentralization and 3) inadequate wages and their payroll system. Therefore, the proposals for improvement in this development plan aim at the rest of 6 items.

A18.5 INSTITUTION AND CAPACITY DEVELOPMENT PLAN

A18.5.1 DPWT Organizational Units Related to the Study

The Executing Agency of the Metropolitan Area Transport Master Plan (the Study) is the Municipality of Phnom Penh (MPP). The MPP will hold the final responsibility for overall management, operation, maintenance and monitoring/evaluation involved in implementation of the projects proposed in the Study, with necessary reference to the central government authorities concerned.

Within the MPP, the Department of Public Works and Transport (DPWT) is the implementing agency in charge of the projects proposed in the Study. Under the Director of the DPWT, there are four (4) Deputy Directors, as the line functions, responsible for respective development, improvement and maintenance of the infrastructure facilities related to the Study, such as roads and bridges, drainages and sewerages, streets lighting, etc. within the administrative boundary of the Phnom Penh metropolitan area. With regard to the public transport services in the city, Traffic Office assumes the responsibility through an autonomous body, the Transport Authority of Phnom Penh (TAPP). Also, there are organizational units having staff functions, such as Finance and Planning Office, Personnel and Resources Office, etc. There is also a special task force unit, Project Management Unit (PMU), responsible for management of the projects related to official development assistance of the multilateral and bilateral aid institutions.

As of January 2001 the total number of the DPWT staffing is 1,293, of which full-time staff stands for 556 persons and the rest of 735 persons is part-time employees. The organization structure of the DPWT and the detail of the staffing are presented in Chapter 8.

A18.5.2 Organizational Reform Plan for Institutional Improvement

In order to rectify and solve the identified problem areas on institutional efficiency, the following organizational reform plans are recommended:

(1) Establishment of a Budget Formulation Unit in the existing Finance and Planning Office of the DPWT which shall be under the direct supervision of the Director.

The Budget Formulation Unit shall formulate not only the fiscal administrative expenses, but also those required budgets for new construction, improvement and repair-maintenance of all the infrastructure facilities, in addition to the budget for Research and Development purposes. Also, the budgetary system of the MPP shall preferably be revised so that annual budgets of all the departments in MPP including those of the DPWT shall be summarized and reviewed at the Department of Finance, and then forwarded to the higher authorities so that these budgets can gradually be secured in the future.

The Unit in the DPWT shall be formed with the staffing of about 7 members, comprising a manager (chief of division), and 2 accountants 1 engineer and 3 clerks, and is responsible for formulation of the administrative expenses and capital investment costs required for development, improvement, rehabilitation and maintenance of all the infrastructure facilities and operations in the DPWT. Also the Unit is to monitor the project-base disbursement for proper implementation. Of course, a close coordination with the similar organs at the Ministry of Public Works and Transport is required, but it is recommended that the budget formulation and disbursement of the DPWT shall be independent at the municipal level to follow the decentralization policy of the central government.

(2) Establishment of a Public Transport Management Unit in the Transport Office under the supervision of the Deputy Director responsible for Transport Office:

With introduction of the public transport system, in particular by comprehensive bus passenger transport services in the metropolitan area as proposed in the Study, it is necessary to set up a specialized organizational unit responsible for planning, monitoring and administration of all modes of

public transport system in Phnom Penh. The Study is proposing a fleet of about 1,150 buses to cater for about 8.5 % of the overall trips of the passenger transport in the year 2,015.

The Unit shall be formed with the staffing of about 20 - 25 members, comprising a Manager and, approximately 3 public transport planners, 5 traffic engineers, 3 transport economists, 5 surveyors and their assistants.

The Unit is responsible for the periodical surveys on passenger and cargo transport demands by modes of transport, planning of the optimum public transport system and sub-system of each mode for all the routes and zones of the metropolis with application of transport economy, traffic engineering including traffic management. The Unit is to investigate the existing public transport system in comparison to the planned optimum system, and to administer and improve the existing system. It is also responsible for projection of the future transport demands and to formulate the revised public transport plan alternatives for actual implementation by the various public transporters.

(3) Establishment of a Laboratory under the direct supervision of the Director.

The functions of the Laboratory is to test the construction materials to be used for various infrastructure facilities such as roads and bridges, public lighting including traffic signals and markings, drainages and sewerages and others, along with the specifications of the vehicles used for public transport services.

The Laboratory is responsible for preparation and up-dating of various specifications on construction materials and equipments to be used for the transport infrastructure facilities of the metropolis, and also formulation of the guidelines for the implementation supervisors of the DPWT on various types of construction by the contractors.

There would be a need for securing a new location having a suitable space and building with required testing apparatuses and tools which shall be further studied on a project basis. Similarly, the staffing of the Laboratory shall be determined based on the study.

(4) Establishment of a Data Base Formulation Unit in the Public Works Office

The functions of the Unit is to design the various formats for computerized data-bases on the infrastructure facilities, in particular, the roads and bridges inventory logs. Then, it will formulate these databases, along with their up-datings upon rehabilitations or improvements of such facilities. These inventory logs stored in the databases shall be forwarded to respective organizational units within the DPWT for full utilization in planning of improvement and maintenance of the infrastructure facilities.

The proper size and staffing together with the required computer system of the Unit shall be determined in details, after completion of the institutional reform and implementation of the human resources capacity development plan proposed herein.

(5) Establishment of an Urban Transport Research Center:

Apart from above organizational reform plan for institutional improvement, it is advisable for the DPWT to have an organization, possibly in the form of an urban transport research center. This center is to have a suitable number of staff with professional skills and expertise, and an adequate number of testing and training equipment and tools, and to assume the following functions:

- To monitor all the performance of the works done each division or office of the DPWT,
- To carry out comprehensive studies on transport sector in the metropolitan areas, covering infrastructure facilities, public transportation system and traffic management,
- To regularly disseminate the results of above studies to the relevant divisions or offices of the DPWT

- To plan and execute regular training courses on management and engineering aspects to the DPWT personnel, to the contractors of transport facilities, and transport operators,
- To plan and hold traffic rules and safety programs to the citizens, including school pupils.

However, it seems that there might be a plan for the Ministry of Public Works and Transport (MPWT) to newly establish an autonomous body (Transport Management Authority) with the similar functions. In such case, it would be better for the DPWT to use this body.

A18.6 HUMAN RESOURCES CAPACITY DEVELOPMENT PLAN

A18.6.1 Targets, Strategies, Objectives and Methods

The candidates of the target organizational units and the hierarchical levels of the DPWT for the capacity development of institutions and human resources shall be as follows:

Organizational Units:

- Department Secretariat including Deputy Directors
- Line Organizations
 - Road and Bridge Division
 - Transport Office
 - Public Lighting Division
 - Public Works Office, including PMU
- Staff Organization
 - Finance and Planning Office
 - Administration, Personnel and Resources Office
 - Autonomous Bodies, such as TAPP, MRAP

Hierarchical Levels:

- Executive Level: Director and Deputy Directors
- Middle Management Level: Chief Division and Vice Chief Division
- Engineering Level: Engineer and Technician

Table A18.6-1 shows the total numbers of candidates by organizational units and hierarchical levels for the capacity development, which account for 123 persons in total with 5 officials at the executive level, 27 officers at middle management level and 91 engineers and technicians at engineering level. In order to accomplish an effective result of the training for capacity building, it is recommended that the numbers of the target personnel at the middle management and the engineering levels shall be carefully selected to form a group of approximately 15 or 20 persons at each level.

Basic Strategies:

In connection with the TMP, MPP has the overall administrative responsibility for the development, improvement and maintenance of the roads, bridges and public transport system within the municipality. The DPWT within the MPP is the implementing authority for various projects proposed in the Study.

The ultimate goal of the institution and human resources development plan for the DPWT in relation to the Study is to promote broad-based, sustainable transport sector of the Phnom Penh metropolitan area, which would contribute to the economic and social growth in the area. The strategies of the capacity development plan are to:

- Clarify the responsibilities and functions of the DPWT and its each organizational units, which shall be pursued in every day,
- Improve the efficiency and effective of the organizational performance of the DPWT to better serve to the citizens of the Municipality on the development, improvement and maintenance of the infrastructure facilities and public transport services,

- Improve the professional skills of the staff of the DPWT

Objectives:

The objectives for the capacity building for institutions and human resources of the DPWT, MPP related to the Study, in particular, for implementation of the projects proposed in the Study are to:

- Enhance the overall management capacity and civil services of the DPWT, mainly targeted to the executive level,
- Improve the engineering knowledge and skills of the professional staff of the DPWT, in particular, in such fields as urban planning, traffic surveys, road planning, public transport planning, traffic management and natural and social environments, and their related fields, for middle management and engineering levels,
- Develop skills in the use of relevant computer software for planning and design of various infrastructure facilities including CAD among the professional staff in DPWT, particular, at the middle management and engineering levels, and
- Improve the English proficiency of the professional staff, in particular, at the engineering level, in DPWT

It is to be emphasized that for improvement of institutional efficiency and also for enhancement and development of the human resources of the DPWT, it might be necessary at the first stage for the DPWT to require technical assistance by the expatriate consultants, but in the second stage, vigorous utilization of the local consultants and the selected DPWT officials as the instructors for institutional reformation and capacity development training.

It is also recommended that in the final stage, each item of the aforesaid objectives shall be accomplished within the DPWT organizations by the consultants and instructors appointed by the Depot's own personnel as true meaning of institutional sustainability. For realization of the final stage, the best way is to start actual implementation of the small available projects directly by the DPWT staff, and such implementation shall be continued for a period of at least 3 years in a respective stage.

In this chapter, improvement of the institutional efficiency and capacity development plan is formulated for the first stage where the expatriate consultants are mainly used for the purpose of transfer of technology, for that the DPWT can be in the position to gradually realize self sustainability on this issue.

In line with the proposal for organizational reforms as presented above, the most important factor for improvement of the efficiency and effectiveness of the institutions lies in the development of the capacity of human resources of all the staff in the institutions. Therefore, a human resources capacity development plan for the selected staff of the DPWT is proposed hereunder.

Methods:

There are many methods to acquire the professional skills; management and supervision skills at the executive level, leadership and engineering skills at the middle management level, and engineering, computer and language skills at the engineering level, etc. The typical methods widely prevailed and proved to be effective are the following:

- In-house class room teaching;
- In-country class room teaching;
- Formal training, or tour abroad;
- On-the-job training from foreign advisors;
- On-the-job training from colleagues; and,
- On-the-job self-teaching.

Judging from the researches by CDRI, among those stipulated above, 1) in-house class room teaching and 2) on-the-job training from expatriate advisors have been proved as the most effective.

Organization for Training Implementation:

A group of expatriate consultant shall be assigned to provide the technical and managerial assistance for the improvement of the capacity building of the related organizational units and their personnel of the DPWT. The expatriate consultants will coordinate with the local consultants, such as the Cambodia Development Resource Institute (CDRI), for the language improvement-training plan.

The MPP is the Executive Agency for this plan and the DPWT is its implementing Agency. A secretariat office of the plan shall be set in the Administration, Personnel & Resources Office of the DPWT, which will coordinate all the plan activities among the target units, in consultation with the consultant group.

A joint Project Steering Committee consisting of members of authorities concerned in the MPP shall be organized to direct the plan implementation and evaluate the result by periodical monitoring of the implementation activities.

Consultants Requirements and Training Period:

At least 8 qualified expatriate consultants shall work in advisory capacity to the DPWT, MPP to provide consulting services for implementation of the plan. The following specific expertise of the consultants shall be required for the plan, as indicated earlier, such as urban planning, traffic surveys, road planning, public transport planning, traffic management and natural and social environments, together with those specialists as the top management and leadership, computer usage expert who is well versed in the CAD system. Regarding the language proficiency training, local consultants will fulfill the mission. The total input will be about 40 man-months, 27 man-months for the expatriate and 13 man-months for the local consultants, as shown in [Table 18.7.3](#) in the main text.

The training with the assistance of the consultants is to be divided into 2 phases, namely, the first on the basic course on each field of expertise as mentioned above, and the second for the advance course of the first phase with the case studies to be selected from those for the transport infrastructure facilities and for public transport system. On each course, top management course for the executive level and the computer course for the middle management and engineering levels are to be conducted. The last or the third phase shall be the case studies of the project implementations for those proposed in the Study.

A18.6.2 Training Programs**(1) Training Program Details**

All fields of training programs have 2 phases, one for dissemination of the basic knowledge and required level of skills in the form of in-house training, and other for accomplishment of advanced knowledge, know-how and planning and implementation of the improvement measures, mainly through case studies and discussions among the attendants with guidance by the consultants. The case studies shall be practiced on the subjects to be exemplified for those projects proposed in the Transport Master Plan to be implemented in the very near future. The results of the case studies shall be evaluated by the consultants with recommendations for institutional and human resources improvements in the DPWT.

Top Management for Institution and Organization Improvement, for Executive and Middle Management Levels:

The training on the institution and organization aims at the executive and middle management levels for improvement of performance and efficiency of the existing organization of the DPWT as a whole, along with those of each organizational unit forming the department. This course shall be done separately for executive level and middle management level, respectively.

For this purpose, the first step of training shall be the clarification of the responsibilities and functions

of the DPWT, together with those of each organizational unit, which shall be written down by the officials of executive and middle management levels. Then, stipulation of the job descriptions of various job categories within the organizational units shall be clarified by the unit chiefs, which shall be crosschecked with those presented by each personnel of the units. The next step is to identify the gap of job descriptions between those specified by the chiefs and those by individuals, so that the gap will be filled in or revised by the discussions between the chiefs and the individuals to clearly grasp what should be done by each personnel of the DPWT.

In the second phase of the training, various measures for improvement of leadership, delegation of authorities to the subordinates, improvement of morale and motivation shall be disseminated by the consultants, and the actual measures are to be formulated by the attendants on these subjects at the executive level.

At the same time, the executive level shall set forth a set of institutional performance indicators in coordination with the consultants, and shall evaluate the performance factors of either divisions or offices, and then those of the entire DPWT. The discrepancies of the performance factors shall then be identified and the measures to rectify and improve the performance and eventually efficiency and effectiveness of the DPWT.

Linguistic Skills for All Levels:

For improvement of linguistic skills, English language in terms of reading, writing, speaking and hearing improvement trainings shall be conducted. The training can be conducted by specialists of the local institutions, such as the Cambodia Development and Resource Institute.

The first phase of the training shall be on the Basic English course, which is to be participated by the selected staff from all levels after the interviews of the language specialists with duration of 6 months period. At the latter part of the course, English conversation and composition on a certain subject shall be attempted among the attendants with guidance by the consultants.

The second phase for the advanced English language in reading, writing, speaking and hearing including technical terms shall be conducted on each lesson with certain engineering themes on either planning, design or implementation stage of the projects shall be discussed among the attendants.

With completion of the 2 phases, it would be necessary for some of the attendants to continue additional language lessons in a more extensive scale, which shall be encouraged to these attendants on self-training with the guidance of the consultants evaluating the level of skills.

Urban Planning for Middle and Engineering Levels:

In the first phase, basics and outlines of the methodologies for identification of the existing conditions of urban infrastructure and its characteristics, demographic surveys, land use patterns, together with socio-economic development trends shall be disseminated to the attendants at middle management and engineering levels by the consultants. After accomplishment of the learning of these basics and outlines, the attendants are encourage to select some of the areas in the metropolitan areas and to carry out the identification of selected fields of urban planning data, such as demographic characteristics and regional socio-economic development patters.

In the second phase, the attendants are divided into several groups and each group is encouraged to carry out the same case studies on the selected subjects such as projections of population, GRDP with industrial classification and planning of the land use patterns of the selected areas. The duration of these case studies shall be approximately 2 months, and the outcomes of each group are presented to other groups for evaluation with the guidance of the consultants. It would be preferable for the experts of the B.E.U. to be invited at time of the presentation for exchange of opinions and comments.

Road Planning for Middle Management and Engineering Levels:

The first phase of the training, the attendants at the middle management and engineering levels are

disseminated the basic designs of the formats required for the existing road inventory, including those structures as bridges and culverts, clarification of the road design standards by category and function of the roads and streets. Then, the attendants are to conduct the field surveys for identification of the urban street and suburban road networks of the metropolis, and to draw the existing network plans. These data shall be incorporated to the preparation of the computer-based road inventory.

Other fields of training are focused on the basic design formula on routing, horizontal and vertical alignments, typical cross sections by road type, structural designs for bridges and culverts by type and by function.

In the second phase of the training, the attendants are to carry out to determine the level of services by road classification and function. Then, they are to conduct the case studies on typical road sections to meet such level of services, where widening of the road, improvements of intersections, rehabilitation of road structures are required. Just like the training on urban planning, grouping of the attendants is encouraged to perform the case studies for competitions and evaluations of the outcomes among the groups with comments by the consultants.

Public Transport Planning for Middle Management and Engineering Levels:

This training is to be followed from the study on the traffic surveys. At the first phase of the training, the attendants are disseminated the basic flow of the public transport plan. At the same time, typical planning methods at each level of planning stage shall be given by the consultants, such as passenger and cargo demands projections, modal splits by each mode of transport such as bus, passenger car, motodop, motorumok and inland waterway, etc. for the passenger transport, and truck, inland waterway, ship, etc. for general and bulk cargoes. Then, with data acquired as the results of the traffic surveys, determination of the level of services of the public transport for passenger and cargo shall be made with the guidance of the consultants.

In the second phase of the training, the attendants are driven to carry out the case studies on the actual passenger public transport mode. These case studies are to identify the existing conditions of the passenger public transport and to grasp the problems in the conditions. Then, they are to project the details of the passenger trip demands in the selected areas of the metropolis, setting up of the target rates of each transport means, etc. It is desirable for the consultants to lead the case studies with special attentions given to the methods to be applied in the transport planning. This includes introduction of the analytical methods in terms of transport economy and traffic engineering. The results of the studies are to be discussed among the attendants for further improvement of the plan.

Transport Economy for Middle Management and Engineering Levels:

In the first phase of the training, basic concept and principle of the transport economy shall be given to the attendants by the consultants. This includes presentation of the case studies applied in the urban transport system in some of the developing countries in Asia. The concept of total transport cost, its cost components and its relation to the national economy shall be clearly disseminated by the consultants. The attendants are to be given the typical examples for calculation of each components of transport cost, such as the components of vehicle operating costs, time values and their conversion factors, etc.

In the second phase, calculation methods and usages of these costs are presented to the attendants in the standpoints of transport economy. Then, the attendants are divided into several groups and each group is to engage in the case studies of some of the experience suited for evaluation in terms of the transport economic viewpoints in the neighboring countries. The results of the case studies are presented among the groups for opinions and comments. Furthermore, it is recommended that the case studies shall be made in the cases in the metropolitan areas.

Traffic Management for Engineering Level:

In the first phase of the training, the attendants are to be given the details of the traffic rules, basic concepts of the traffic management and control systems and the usage of various control devices

required for the medium level developing countries. Then, the attendants are to carry out the inventory survey of these devices in the selected areas of the metropolis, followed by the comparison of quantity and quality and level of usage of Phnom Penh to those of the aforesaid countries. These studies are preferably given assistance by the traffic police of the MPP. The comparison is also extended to the relationship between the case with effective application of the traffic management and operation and the case without, in terms of traffic congestion and traffic accidents.

In the second phase, analysis of the behaviors of the drivers and pedestrians shall be conducted with the guidance of the consultants and cooperation by the traffic police. Then, the attendants are divided into several groups and the case studies on traffic management and operation plans shall be formulated by each group. The plans worked out shall be presented among the divided groups and exchange of opinions and comments shall be given to each group by the guidance of the consultants. If possible, some of the selected plan shall be applied on the certain road sections or at intersections in the metropolis with the cooperation by the traffic police.

Traffic Surveys for Engineering Level:

Since there are many dimensions and means of traffic survey, it is recommended that the attendants shall be given the basic concepts and usage of this study. Then, they are disseminated the methods and characteristics of each traffic survey, such as zoning, vehicle classification, vehicle capacity conversion, and the objectives and methods of person trip survey, cordon line survey, screen line survey, traffic volume count survey, intersection traffic movement and volume count survey, traffic speed survey, commodity movement survey, origin/destination interview survey, etc. Some of the selected surveys shall be actually conducted with cooperation of the private sector at the selected roads in the metropolis, where the attendants are encouraged to plan the survey formats and to supervise the survey.

In the second phase of the training, the attendants are to given the analytical methods of the data obtained from the traffic surveys conducted in the first phase, and to perform the analyses of such data. The consultants are required to present the methods for incorporation or aggregation of the results of urban planning to the results of traffic surveys. With these survey results and the aggregation methods, the attendants are to perform the case studies on projection of the traffic demands either on passengers or cargoes in a certain time span. The result of the projections shall be discussed among the attendants, with advisory comments by the consultants on the process of projection.

Natural and Social Environments for Engineering Level:

The study on the natural and social environment is to be done by hiring the local or regional environmental consultants. In the first phase of the training, criteria and frameworks shall be given by the consultants to the attendants on the effects of projects implementation proposed by the Transport Master Plan to the natural and social environments. Then, the existing laws and regulations, together with the environmental standards on water, air and noise shall be disseminated. Also, each component of the anticipated effects of urban development to the social environment shall be given, in particular, on those areas as traffic safety, accessibility to the public facilities, change in employment conditions, etc.

In the second phase, case studies by groups of attendants shall be carried out on the identification of the existing environmental conditions and their projections, followed by the analysis and evaluation of these projected conditions by application of the required environmental standards. The results shall be presented among the groups, with assessment and comments by the consultants for possible improvement of supervising the contract-out environmental studies.

Computer Training for Engineering Level:

The basic computer training shall be based on the operating system of either Windows 98, Windows 2,000 or the system the DPWT is uniformly using at many of the organizational units of the department. The attendants shall practice the typical usages of the application software programs of word processing by Word 2,000, spreadsheet utilization by Excel 2,000 with coaching and guidance by

the computer specialists. In line with the exercises of computer utilization, the specialists are required to diagnose the processes of planning, design and implementation of the projects proposed in the Transport Master Plan, and to select those manual processes which can be converted to computer transactions. The training can be made at the DPWT Training Center, with more than 25 sets of hardware linked in a network, a plotter and a computerized projector.

In the second phase, those processes in planning, design and project implementation that can be computerized, shall be adopted in the computer training by application of the computer systems to the projects proposed in the Transport Master Plan. For this purpose, grouping of the attendants is employed and each group will practice the computerized systems on the projects for higher quality and better performance. The results will be evaluated by the specialists for further improvement of system usages, including CAD applications on the design of roads, bridges, culverts, intersections and all applicable structures.

Tender Documents Formulation & Evaluation for Engineering Level:

The study shall focus on the standard formats and documentations required for the international tender, in particular the bidding for the various types of construction projects to be dealt with the DPWT.

The first phase shall consist of composition of the bidding documents, their specific contents with special emphasis on the special provisions and specifications. Then, the study shall proceed on to the clear understanding of the drawings as a component of the bidding documents.

In the second phase, as the case study by groups of attendants, formulation of the special provisions and specifications for appraisal among the case study groups. Then, the study proceeds on to the evaluation of the bidding documents by cross checking with the proposed biddings in both technical and financial aspects.

(2) Follow-up Evaluation:

After completion of each phase, the DPWT and the organizational units directly related to implementation of the projects proposed in the Transport Master Plan shall be carefully guided by the consultants through each field of training themes to receive the insight and recommendations on the following:

- Evaluation on the performance of each organizational unit, and the entire department;
- Problem/constraint areas on the existing organization and management;
- Possible and practical measures to overcome the problems and constraints;
- Suggestions for development of the capacity of human resources and improvement of personnel performance, and;
- Recommendations on the improvement of institutional capacity and efficiency for good governance.

It is to be emphasized that the training aimed at development and improvement of the capacities of institutions and human resources or personnel performance shall be continued in about 3-year cycle to cater for the other staff of the DPWT to cope with rapidly changing socio-economic environment in the Royal Kingdom of Cambodia.

(End of the appendix)