gTKP Workshop on Urban Mobility and Environment

Preparing Guidelines/Toolkits for Urban Transport Development in Asian Cities

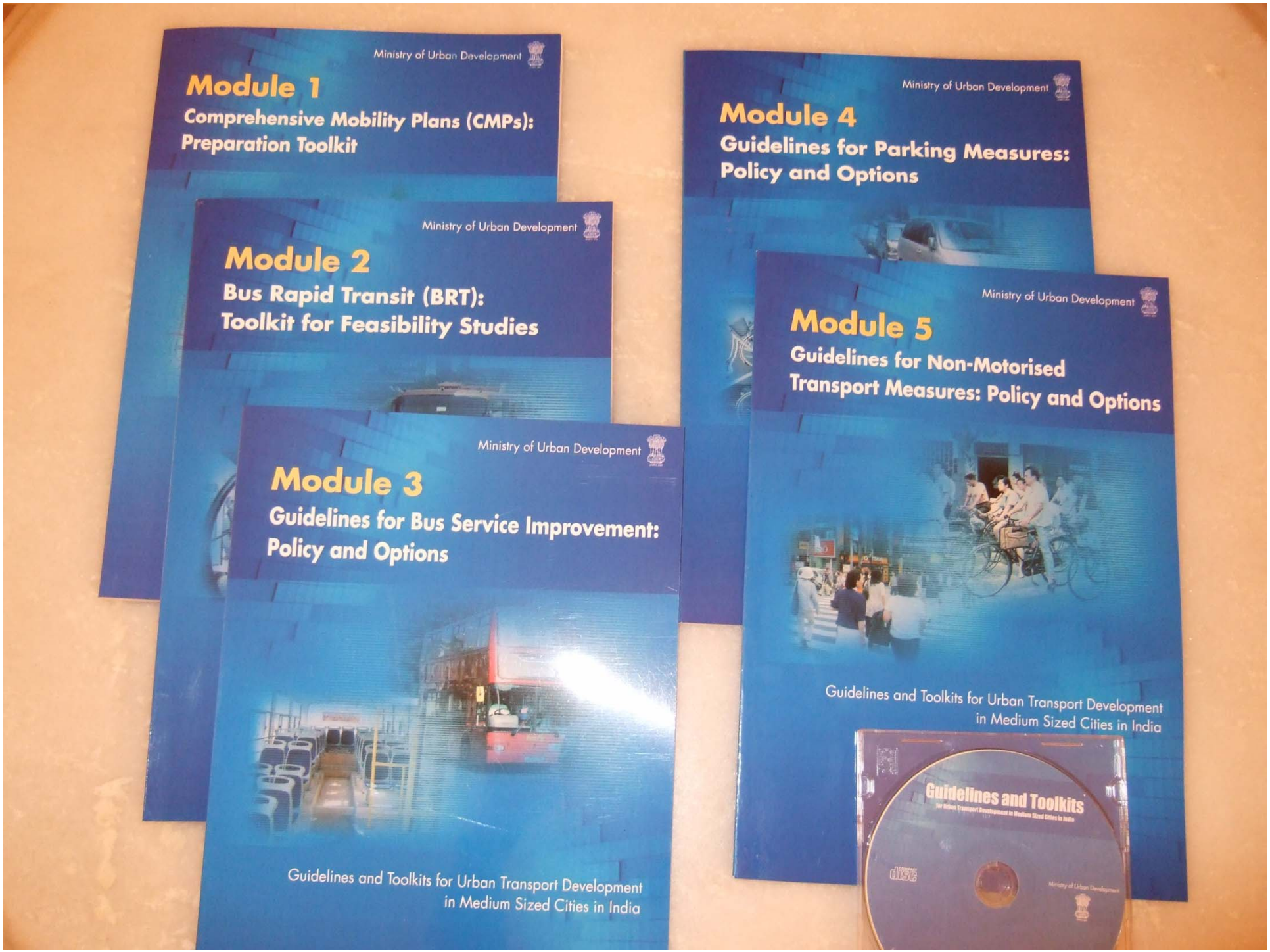
Jinan, 26 October 2010

Chiaki Kuranami

Outlines of Presentation

- Background
- Structure of Guidelines/Toolkits
- Brief Introductions to Each of the Guidelines/Toolkits
- Applicability to Chinese Cities

Background


Ministry of Urban Development
Module 1
Comprehensive Mobility Plans (CMPs):
Preparation Toolkit
Ministry of Urban Development
Module 2
Bus Rapid Transit (BRT):
Toolkit for Feasibility Studies
Ministry of Urban Development
Module 3
Guidelines for Bus Service Improvement:
Policy and Options
Guidelines and Toolkits for Urban Transport Development
in Medium Sized Cities in India
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Guidelines for Parking Measures:
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Module 5
Guidelines for Non-Motorised
Transport Measures: Policy and Options
Guidelines and Toolkits for Urban Transport Development
in Medium Sized Cities in India
Guidelines and Toolkits
Ministry of Urban Development

List of Toolkit/Guidelines Prepared

1. Comprehensive Mobility Plan (CMP): Preparation Toolkit
2. Bus Rapid Transit (BRT): Preparation Toolkit for Feasibility Studies
3. Guideline of Bus Service Improvements: Policy and Options
4. Guideline of Parking Measures: Policy and Options
5. Guideline of Non-motorized Transport (NMT) Measures: Policy and Options

Activities Undertaken the Technical Assistance

- Reviewed international experience
- Reviewed local experience
- Studied existing plans and proposals
- Prepared guidelines/toolkits for planning and studies
- Provided check lists for evaluating investment proposals
- Organized workshops and training programs
- Prepared HTML (web) version of guidelines/toolkits

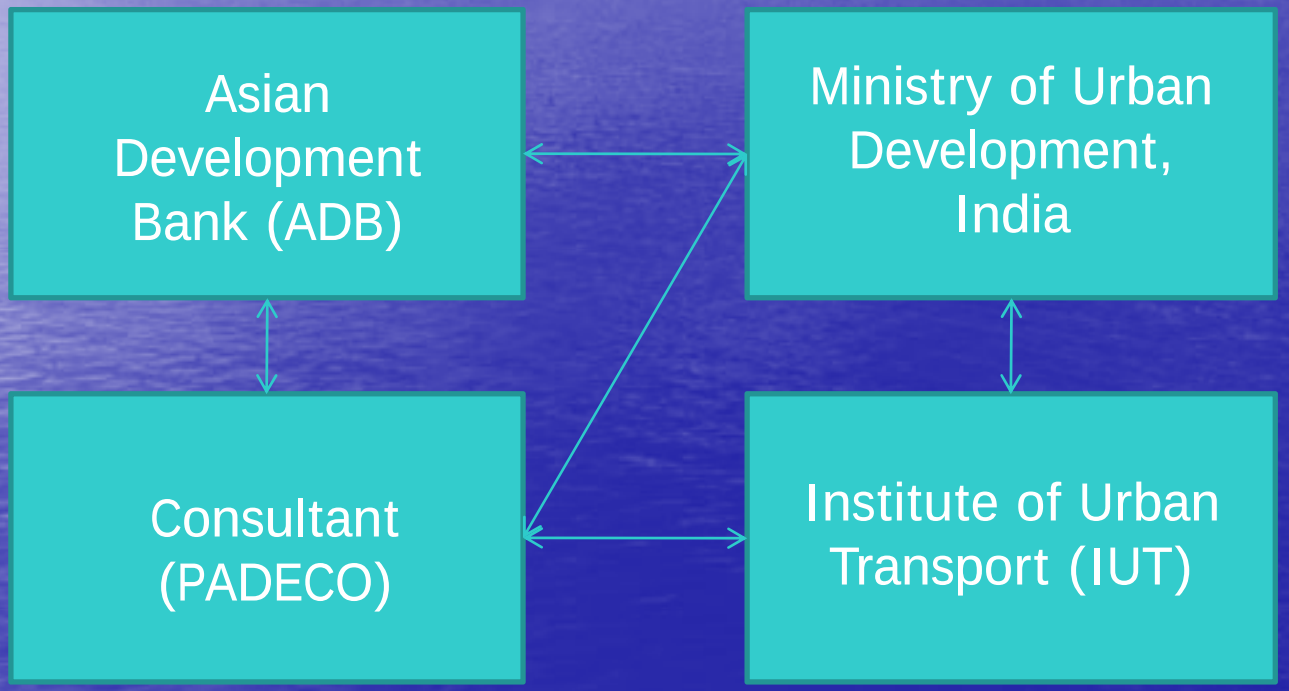
Key Points about the Guidelines/Toolkits

- The Guidelines and Toolkits for Urban Transport Development were prepared by ADB funded Technical Assistance.
- Guidelines and toolkits are prepared to support India's urban transport sector for effectively appraising plans and programmes in accordance with the National Urban Transport Policy.
- Toolkit and guidelines are to be used by states and municipal governments in medium-sized cities in India.
- The central government refer to these documents when appraising projects for funding by the central government.

How they are used?

- These guidelines and toolkits are to be used as reference materials.
- As these materials are developed by reflecting international and domestic best practices, as well as National Urban Transport Policy, it is recommended to follow the procedures and strategies indicated.
- Each city, however, may improve the methodology.

Organization of the Technical Assistance



Structure of the Guidelines and Toolkits

Structure of each Toolkits/Guidelines

- Toolkit (CMP, HCBRT)
  - Introduction
  - Standardized table of contents
  - Elaboration of tasks to be performed
  - Standardized data forms
  - Case studies
  - Check list for evaluating plans and proposals

- Guidelines (Bus Service Development, Parking, NMT)
  - Emphasis on policies and strategic design options
  - Method of selecting policy options
  - Design principles are included but detailed engineering guidelines are not included
  - Diagrams, data forms, and selected drawings and photographs are attached
  - Case studies

Brief Introductions to Each of the Guidelines/Toolkits (CMP, BRT, Bus Service, Parking, NMT)

What is a CMP?

- CMP provides:
  - Long-term vision of desirable mobility patterns for the city; and
  - Strategy and policy measures to achieve this vision.

- In line with NUTP, CMP should focus on follows:
  - Pedestrian facilities;
  - Non-motorized transport measures;
  - Buses; and
  - MRT

Focuses of CMP

Comprehensive Mobility Plan focuses on:

- ***Integration of land use and transport systems***
- ***Optimization of the mobility of people/freight***
- ***Improvement of public transport, NMVs, and Pedestrians***
- ***Promotion of strategies of the NUTP***

Strategy and Outcomes in CMP

Statement of Vision and Goals with a Preferred Form of Urban Growth

Strategy

Long-term Strategy

Proposed Projects (Short, Medium, Long)

Priority Projects

Outcomes

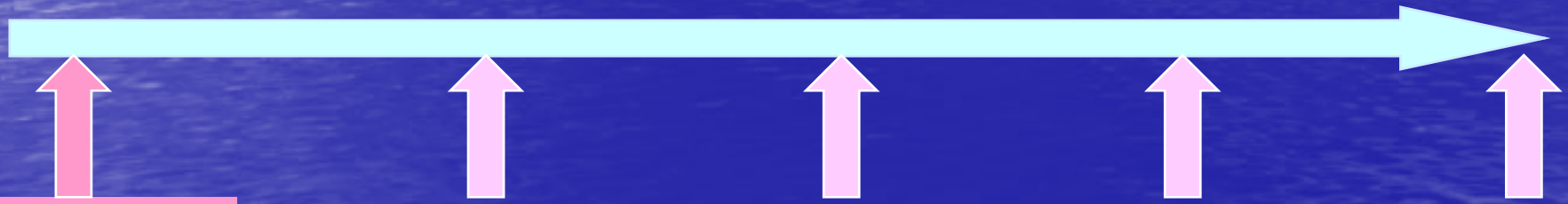
Planning Horizon of CMP

- synchronize with upper level plans

Planning Horizon (Long-term Target)
20 years

Mid-term Target
10 years

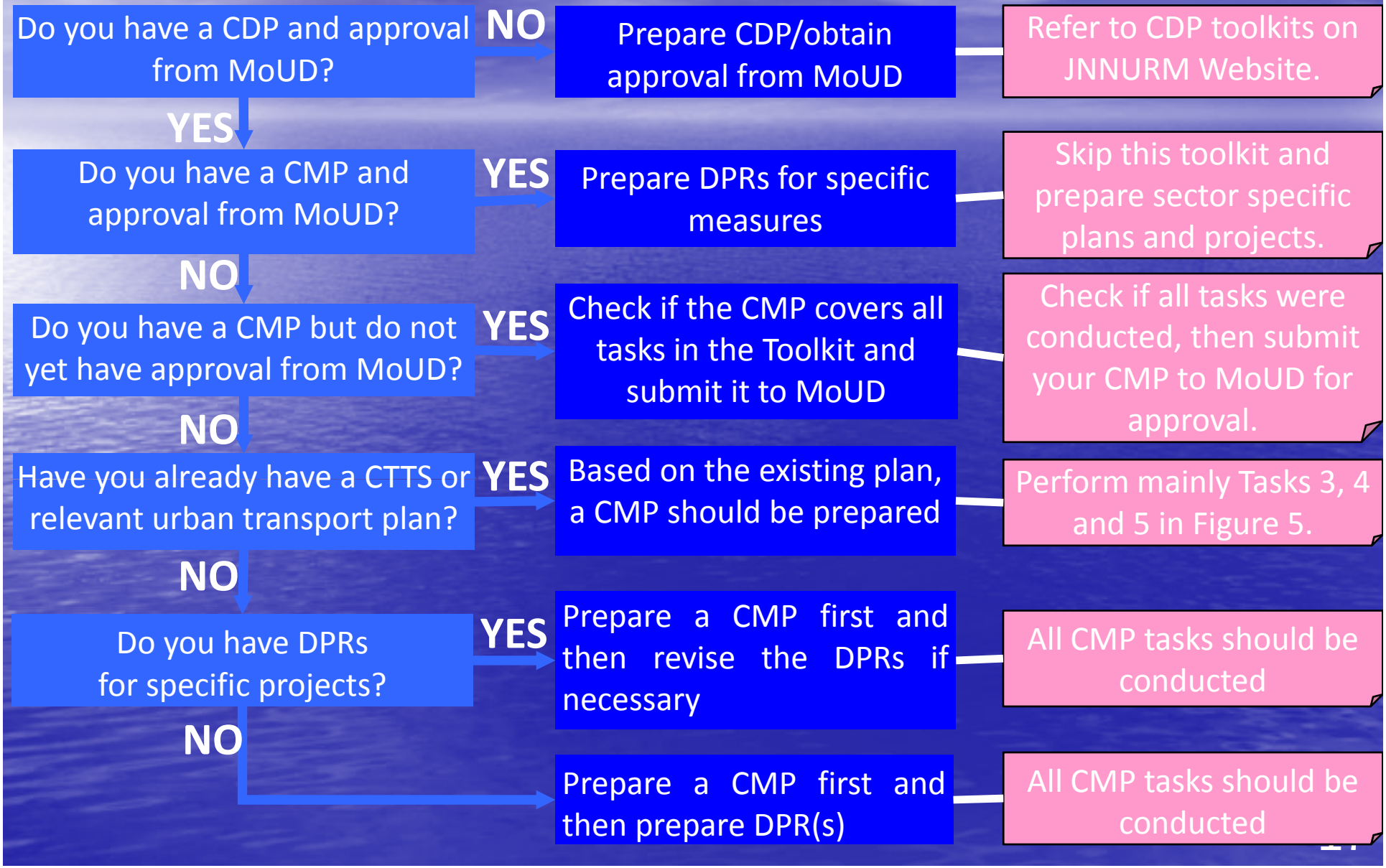
Short-term Target
5 Years



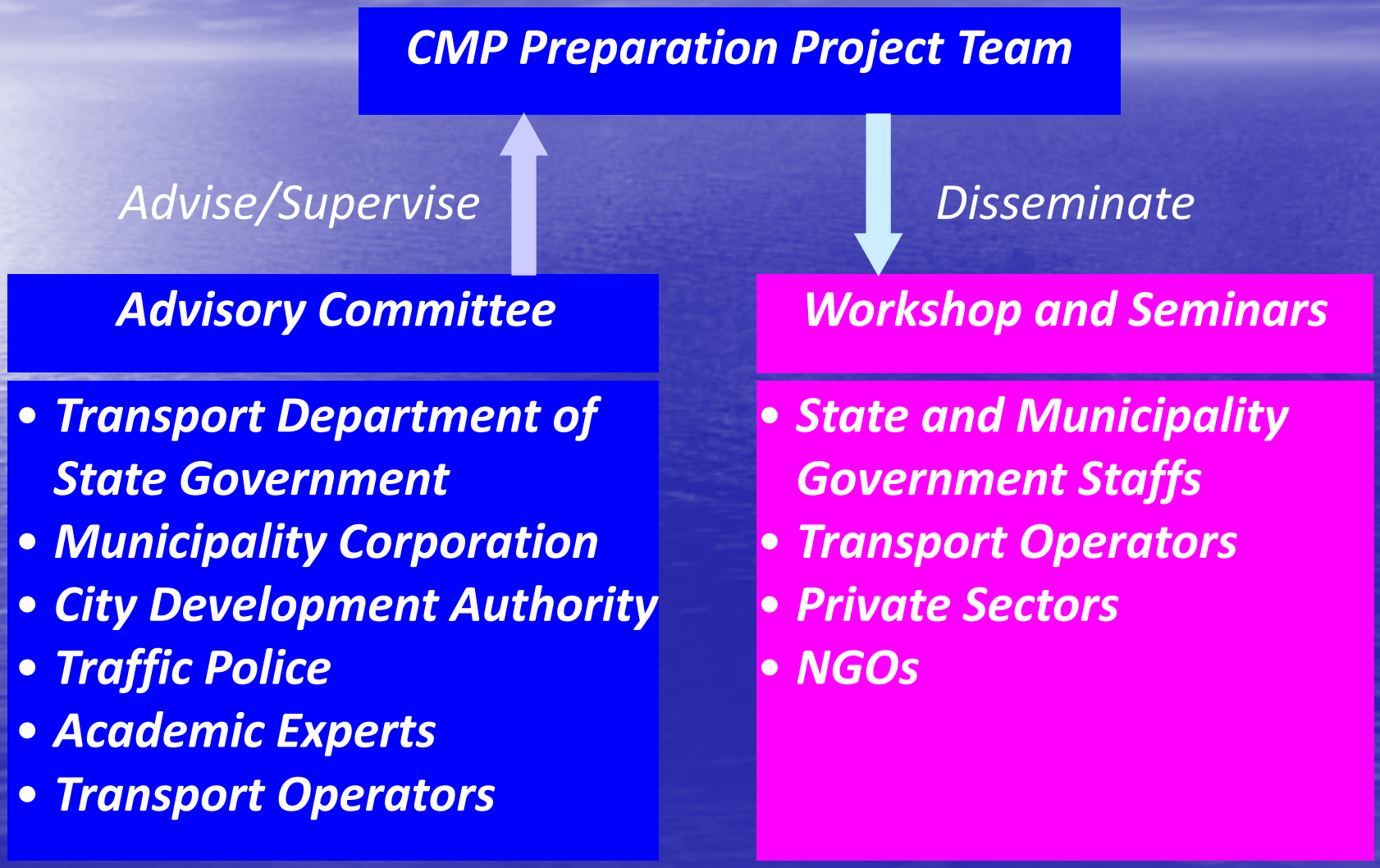
CMP
Preparation

CMP should be revised every 5 years

Preparing for a CMP: Where to Start?



Stakeholder Consultation



Key CMP Tasks

Task 1	Identification of Scope
Task 2	Data Collection and Analysis of the Existing Urban Transport Environment
Task 3	Preparation and Evaluation of the Urban Transport Development Strategy
Task 4	Development of Urban Mobility Plan
Task 5	Preparation of the Implementation Program

Structure of BRT Toolkit

- Introduction
- Toolkit
  - Strategy and Planning
  - Feasibility Study Work Flow
  - Suggested Table of Contents
  - Description of Feasibility Study Tasks
- Annexes

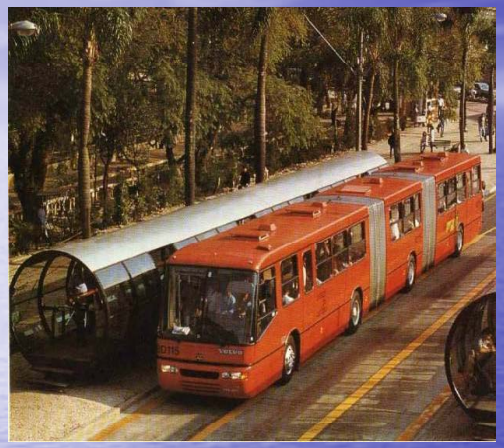
What is a BRT?

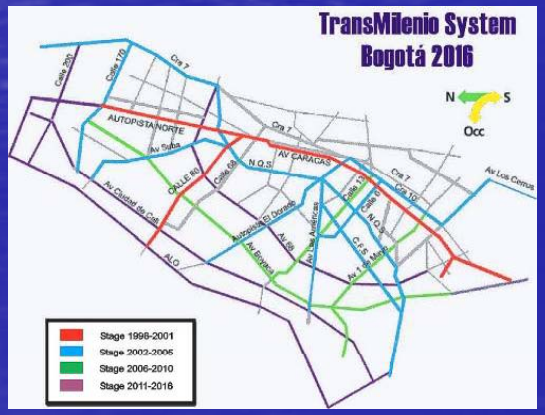
- The term BRT should not be mixed with conventional bus priority measures such as Bus Only Lanes (BOLs)
- There are a number of variations depending on the type of infrastructure provided and the type of buses operating on the busways
- The term High Capacity BRT (HCBRT) is used to depict a BRT with specific characteristics

BOL and BRTs

- Bus Only Lanes, BOL (sectional approach)
- Light BRT (open, multiple operators)
- Medium Capacity BRT (closed, single operator, medium capacity buses)
- High Capacity BRT (closed, single operator, high capacity buses, trunk and feeder network)

International Case Studies



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Lessons learned from International BRT Experience (1)

- Mass transit system with a high frequency service can capture ‘repressed demand.’
- Trunk and feeder systems with terminals are essential elements of a high capacity BRT system.
- Coordination of BRT development with land use planning enables commercial development along the busways.
- The establishment of a company for planning and administration largely owned by the municipality, can significantly contribute to a successful implementation of BRT system.

Lessons learned from International BRT Experience (2)

- The establishment of a single authority in transport planning and management is critical to building a successful integrated system.
- Segregated bus lanes can actually improve to the flow of traffic in the remaining carriageway.
- BRT can be built in relatively short time.
- In terms of capital cost, BRT presents a very strong advantage over other modes.

Key Attributes of HCBRT

- exclusive lanes on the trunk routes;
- pre-boarding payment for the trunk units;
- single system operator for revenues and payments, or multiple bus operators with common ticketing;
- closed system on the trunk route busways and at terminals and stations; and
- high capacity buses (18 meter and above, articulated) on the trunk routes.
- Appropriate traffic management - signal phasing (preferably not more than 4 phases)

Strategic Options for the Use of BRT

- To Build a Mass Transit Corridor and Associated Road Network Structure
- To Complement an Extension of the Metro
- For Transit Orientated Development – TOD
- To Promote Regional Integration

Aim of the Bus Guidelines

- Guidelines are intended for use in medium-sized Indian cities (1–4 million people)
- The level and phase of development of public transport varies across Indian cities. The guidelines try to accommodate this diversity and are applicable both where there is a high degree of informal service and where bus services are already well organized
- They are not intended to provide detailed engineering, or operational recommendations, or design-level advice

Structure of Bus Guidelines

SECTION I INTRODUCTION

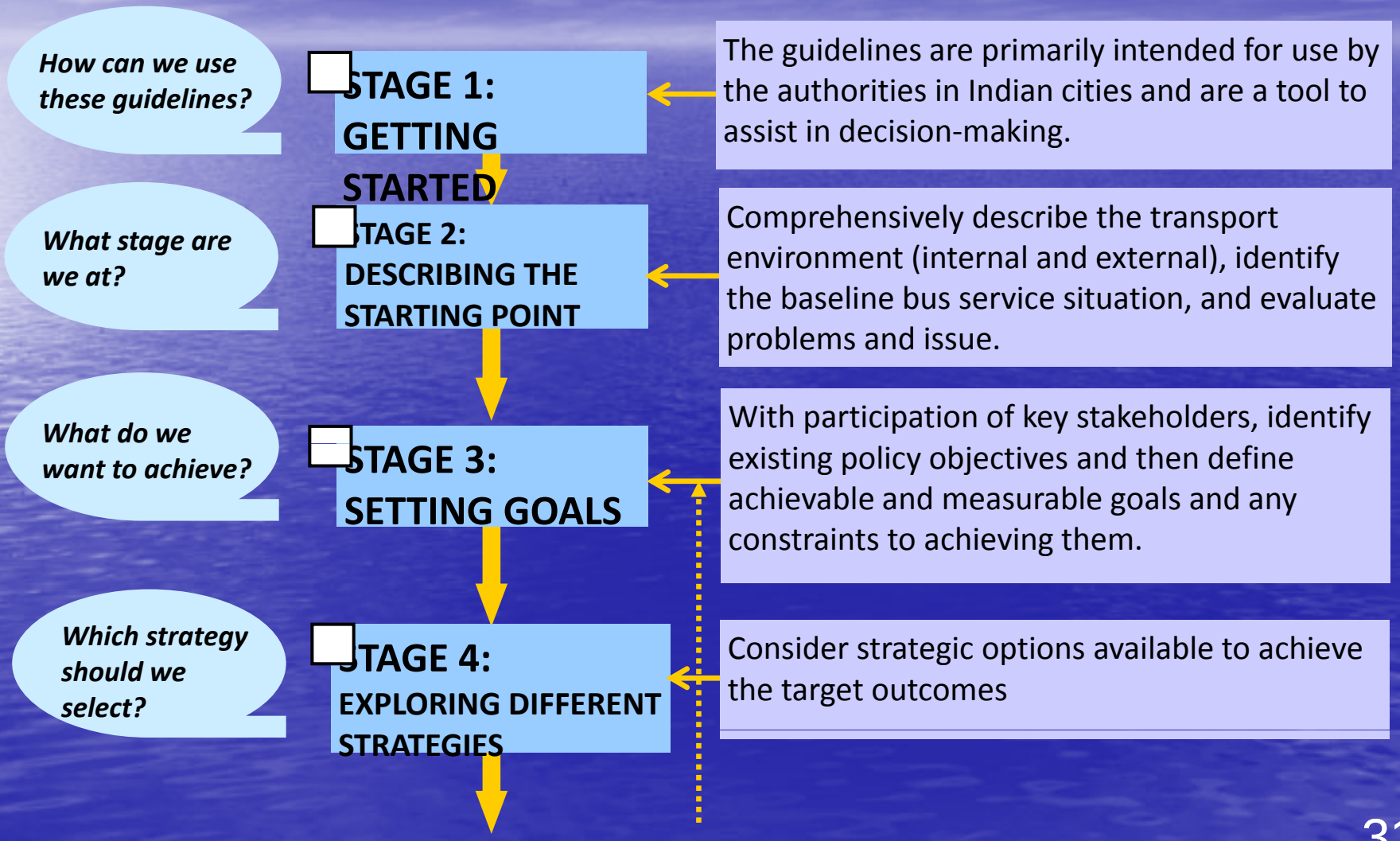
- Introduction
- FAQs on Bus Service Improvement

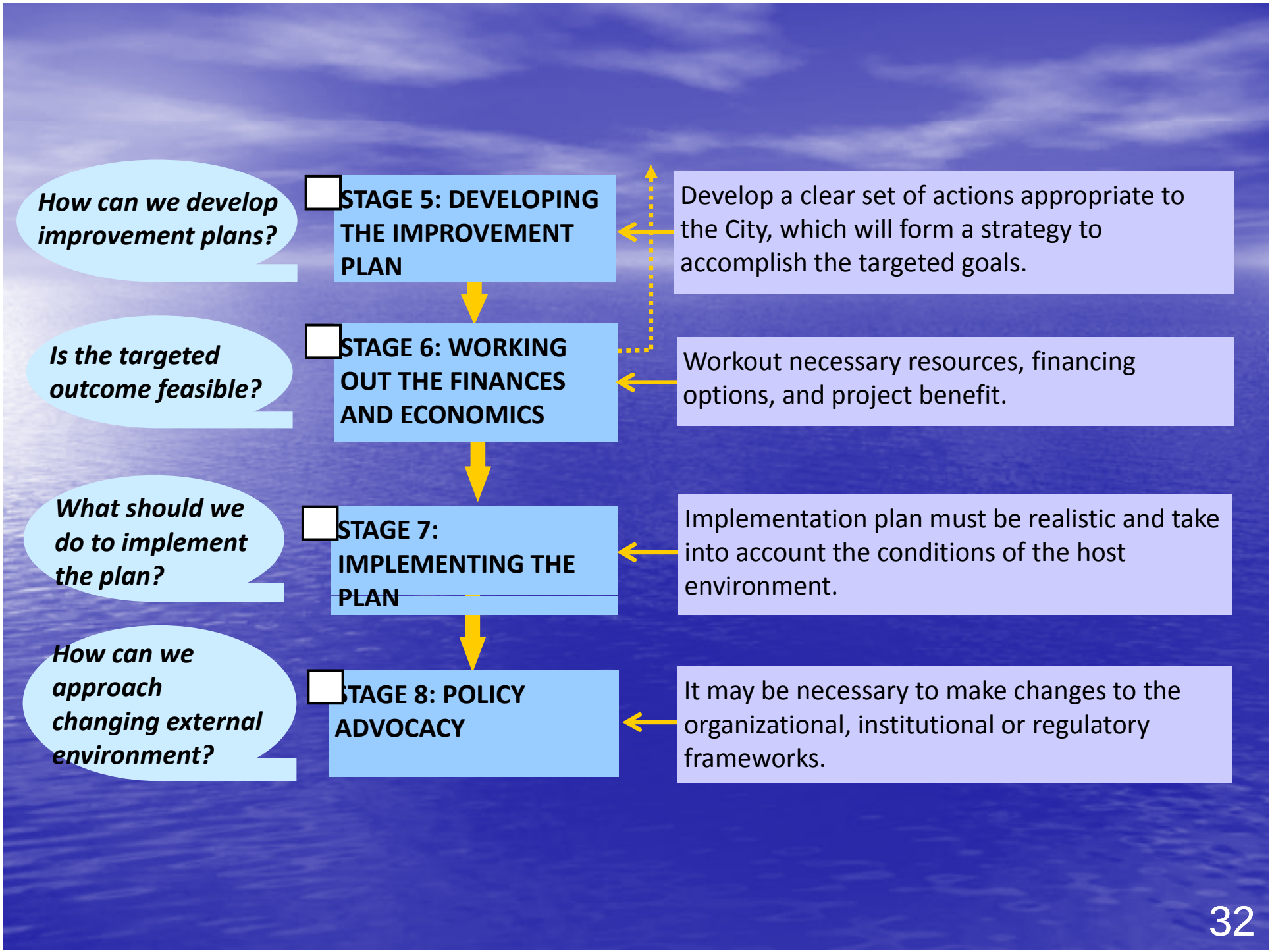
SECTION II GUIDELINES

- Stage 1 Getting Started: Guidelines Structure
- Stage 2 Describing the Starting Point
- Stage 3 Setting Goals
- Stage 4 Exploring Improvement Strategies
- Stage 5 Developing the Improvement Plan
- Stage 6 Finance and Economics
- Stage 7 Implementing the Plan
- Stage 8 Policy Advocacy

SECTION III ANNEXES

Eight Stages in Bus Service Improvement

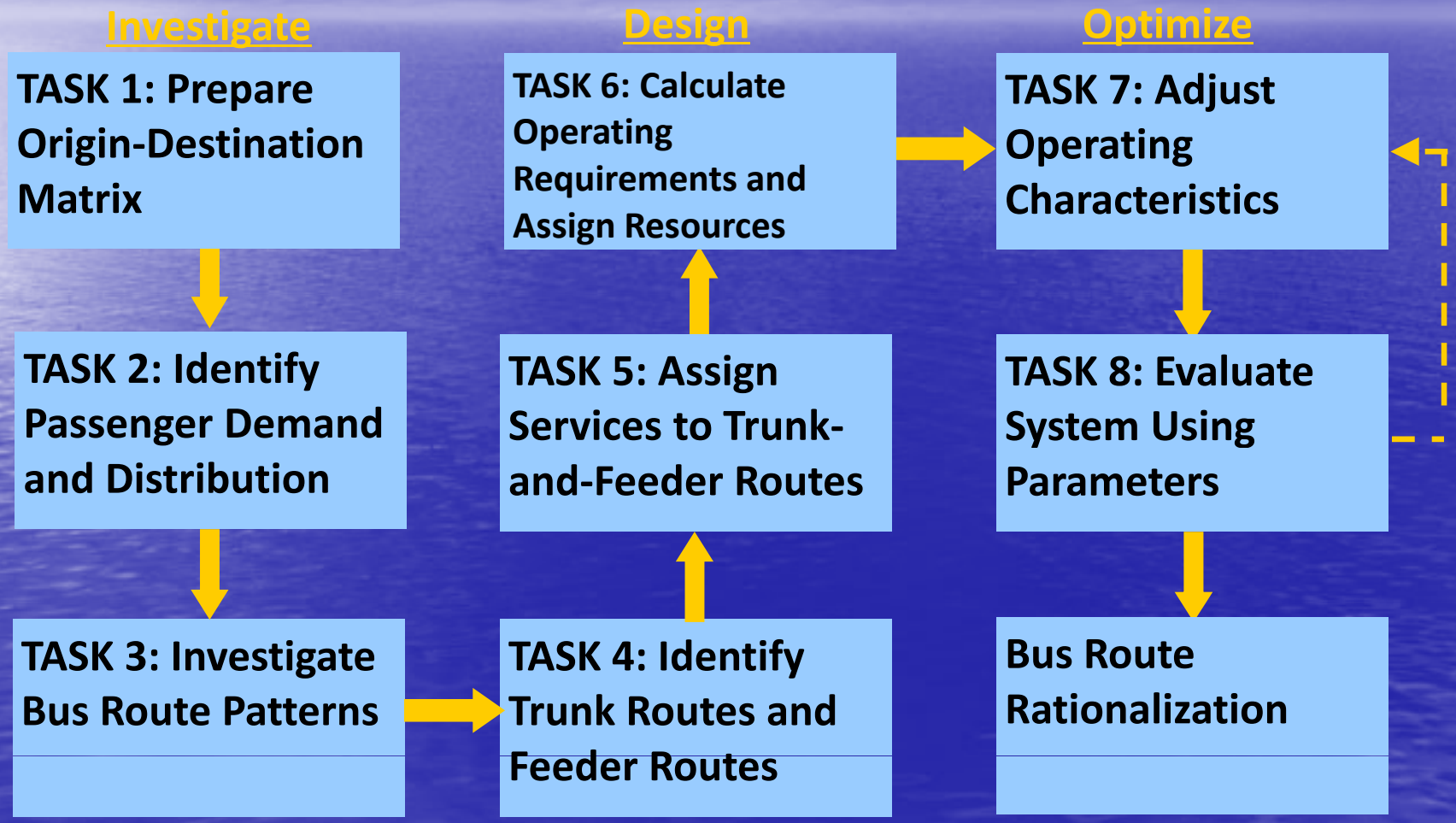



How can we develop improvement plans?
STAGE 5: DEVELOPING THE IMPROVEMENT PLAN
Develop a clear set of actions appropriate to the City, which will form a strategy to accomplish the targeted goals.
Is the targeted outcome feasible?
STAGE 6: WORKING OUT THE FINANCES AND ECONOMICS
Workout necessary resources, financing options, and project benefit.
What should we do to implement the plan?
STAGE 7: IMPLEMENTING THE PLAN
Implementation plan must be realistic and take into account the conditions of the host environment.
How can we approach changing external environment?
STAGE 8: POLICY ADVOCACY
It may be necessary to make changes to the organizational, institutional or regulatory frameworks.

Bus Operating Plan

- Route Plan
- Capacity Augmentation
- Operations Management
- Ticketing and Revenue Management
- Customer Orientation
- Human Resource Development
- Operator’s Efficiency

Route Rationalization Plan

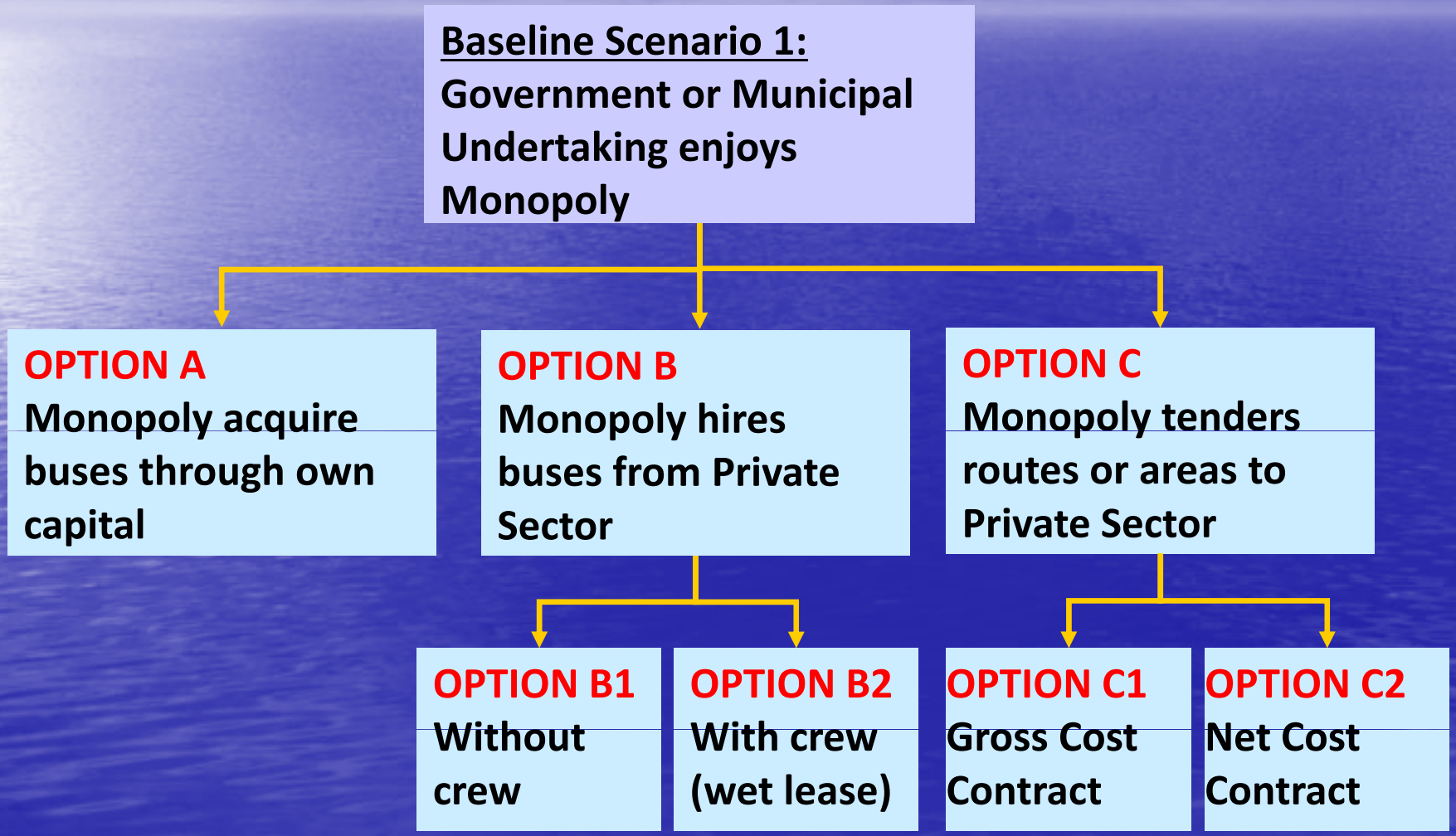


Modal Integration Plan

- Routes and services
- Network
- Physical infrastructure (e.g. terminals)
- Tariffs and ticketing
- Information and marketing
- Customer support

Park and Bus Ride Facilities

Structural Options: Government or Municipal Undertaking enjoys Monopoly



Structural Options: Government Bus Company does not exist or does not enjoy a Monopoly

Baseline Scenario 2:
Government bus company does not exist or does not enjoy a monopoly

OPTION D
Unregulated Entry

OPTION E
Regulatory Authority issues Permits

OPTION F
Special Purpose Vehicle engages Private Sector

OPTION F1
SPV tenders routes to Private Operators

OPTION F2
SPV works in partnership with Private Operators

FAQs in Parking

Why do we need to control parking?

- Parking controls can maximize the efficiency of road space
- Reducing kerbside obstacles which can reduce traffic congestion

Do we always need to provide parking space to meet demand?

- No.
- Parking can be used as a demand management tool
  - Parking controls can provide an effective tool for restricting excessive use of private cars

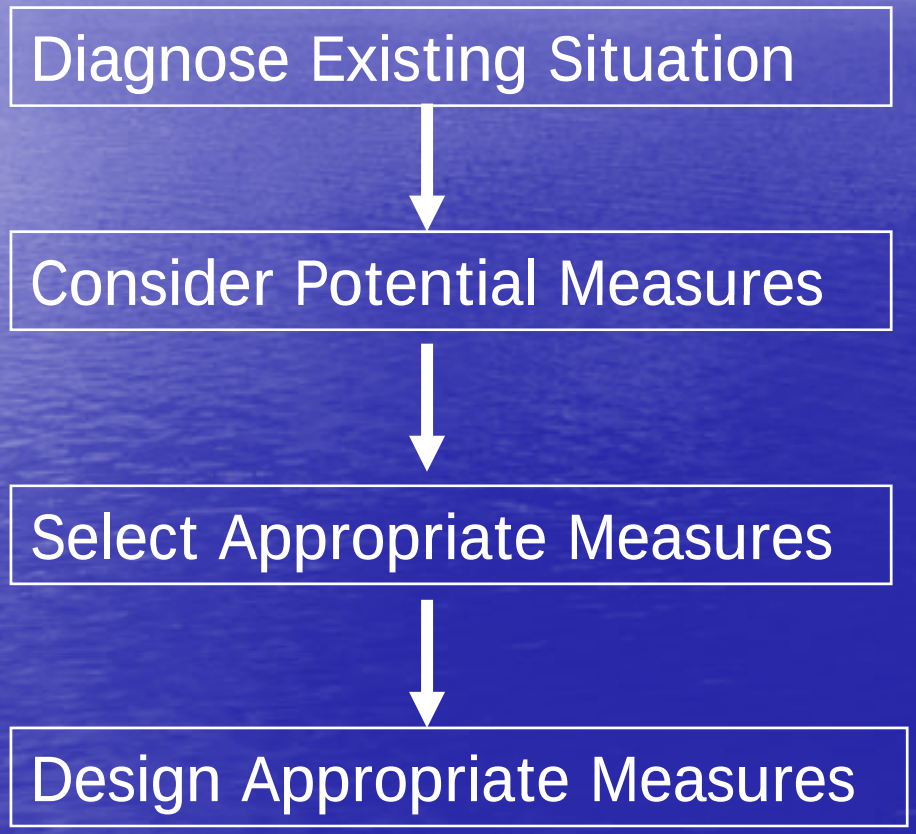
What types of parking control measures are available?

- On-street Parking Measures: such as no stopping, no parking schemes in busy streets, resident permit schemes, and parking tickets or parking meters for time limitations, which can be implemented on a street or zone basis; and

- Off-street Parking Measures: such as ground level parking, multi-story car parks, underground car parks provided by public, private, or PPP initiatives.

An efficient means of enforcement is required to ensure parking measures are effective.

Process of Designing Parking Scheme



On-Street Parking Measure Options

- Level of Acceptance
  - No Stopping, No Parking, Hourly Regulated, All time accepted
- Method of Fee-Collection
  - Manual, Parking Meter, Pay and Display Machines

On-Street Parking: Signs and Bays

Example Street Designs for Regulating On-Street Parking

NMTs are Required in almost all Travels in Cities

- A high percentage of trips up to 5 kilometers in urban areas are performed solely by walking or NMVs.
- Mechanized trips also involve walking as feeder or transfer
- NMT facilities need to be improved for mobility improvement

Types of NMT Facilities

- Pedestrian Related
  - Sidewalks
  - Pedestrian crossings
  - Pedestrian signals,
  - Pedestrian overbridges, sky walks, or subways
  - Pedestrian malls
- NMV Related
  - NMV lanes
  - NMV parking and stands
  - NMV signals
  - Relevant signs and marking

Guiding Principles for NMT Facilities

- ***Safety:*** Maximise the safety of users in relation to other road users as they have a high degree of vulnerability
- ***Coherence:*** Form a coherent and continuous network linking all origin and destination points for users, and not ad hoc facilities that end abruptly
- ***Directness:*** Form a direct route from origin to destination without significant detour that will cause the users to ignore the facility
- ***Attractiveness:*** Plan and implement NMT facilities to make NMT travel attractive both by day and night
- ***Comfort:*** Ensure a smooth, quick and comfortable flow of NMT traffic without excessive gradients or uneven surfacing

Options to Better Manage NMVs and MVs

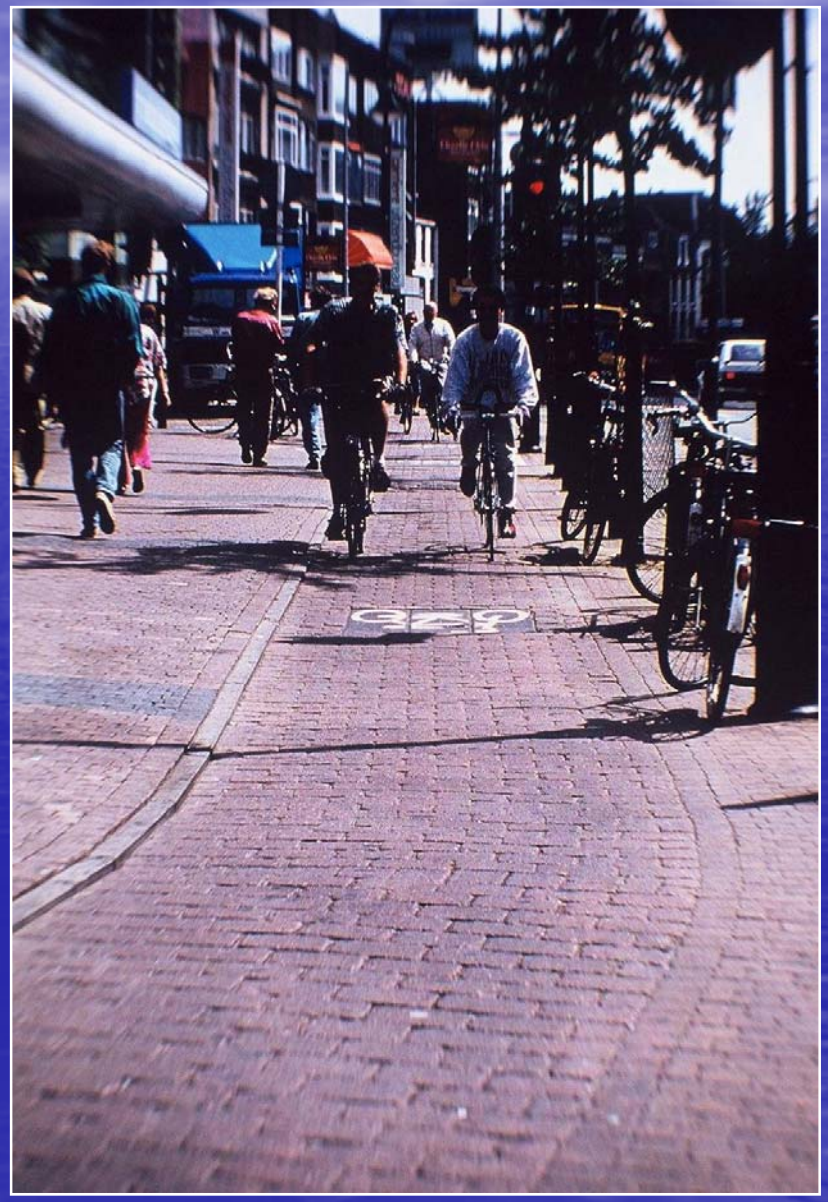
Option 1:

- Segregate NMVs and MVs as far as possible

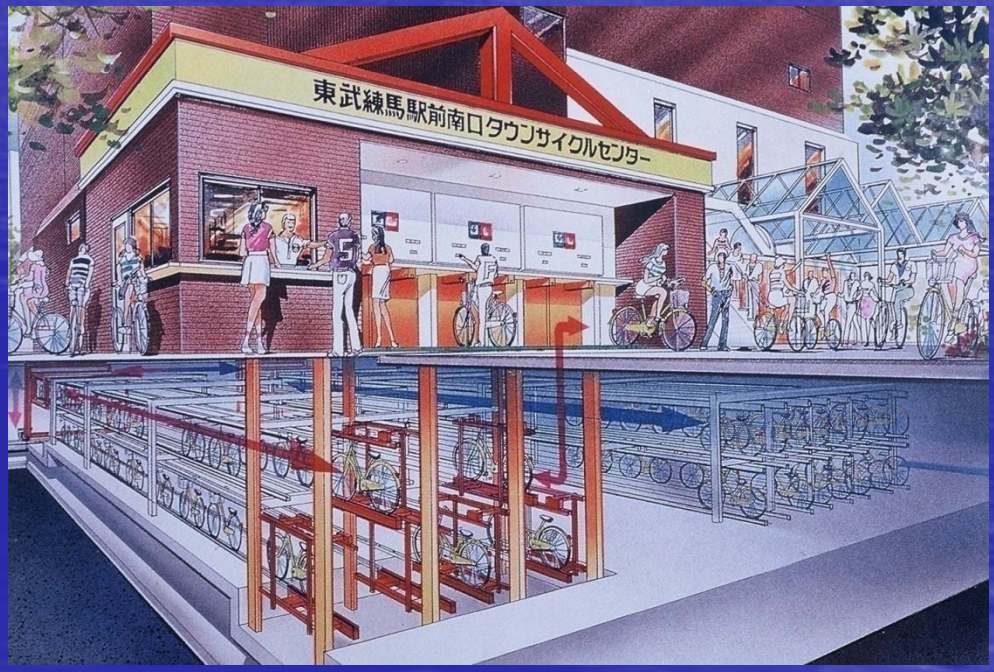
Option 2:

- Reduce MV speeds, and allow NMVs to mix with MVs

Exclusive NMV Lanes



Cycle Parking



Shared Bicycles

An advanced share-ride system in Paris called Velib uses IT and GPS

Pedestrian Crossings with Signals

Elevated Pedestrian Walkways

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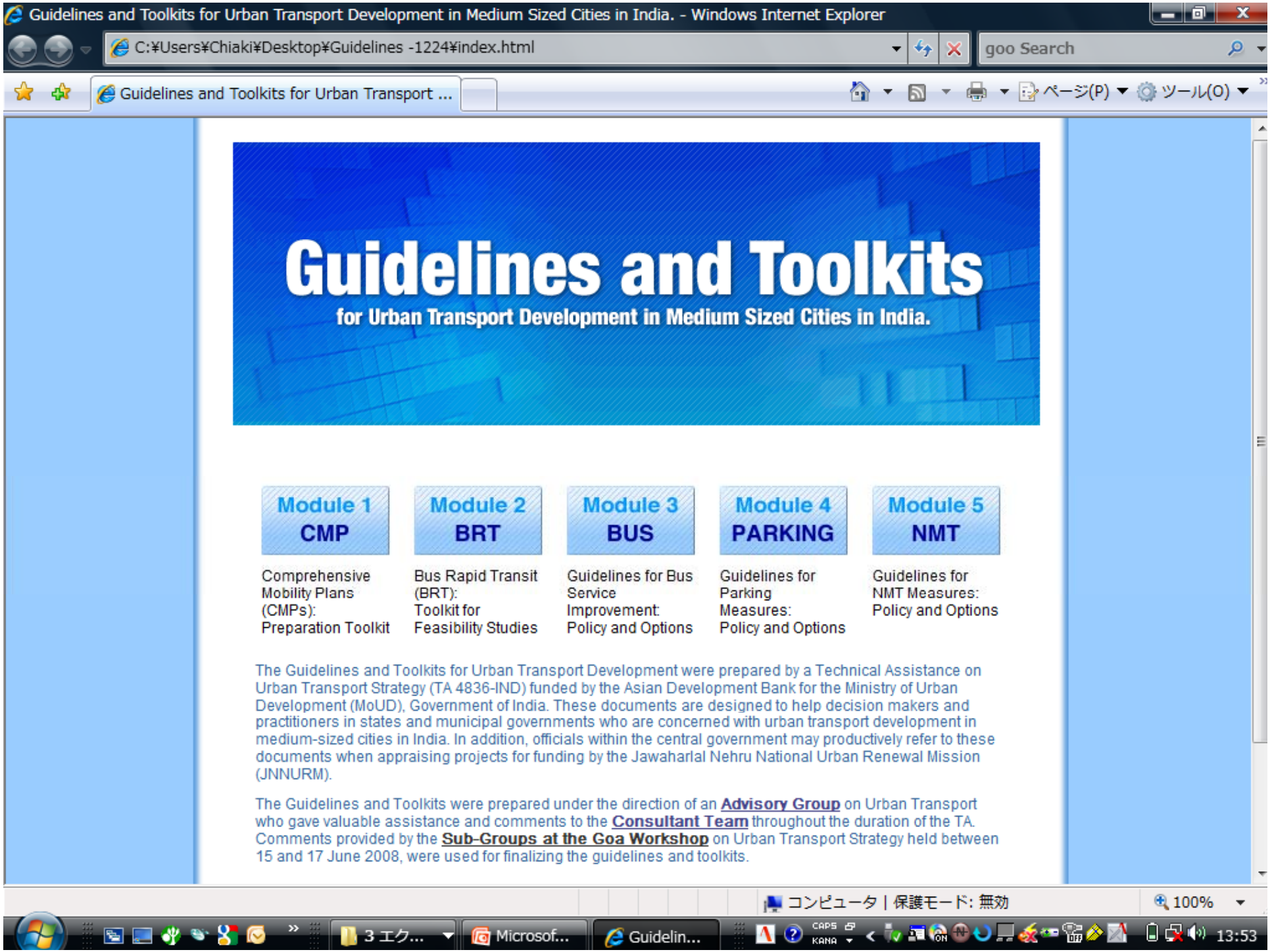
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Module 5
NMT
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The Guidelines and Toolkits for Urban Transport Development were prepared by a Technical Assistance on Urban Transport Strategy (TA 4836-IND) funded by the Asian Development Bank for the Ministry of Urban Development (MoUD), Government of India. These documents are designed to help decision makers and practitioners in states and municipal governments who are concerned with urban transport development in medium-sized cities in India. In addition, officials within the central government may productively refer to these documents when appraising projects for funding by the Jawaharlal Nehru National Urban Renewal Mission (JNNURM).
The Guidelines and Toolkits were prepared under the direction of an Advisory Group on Urban Transport who gave valuable assistance and comments to the Consultant Team throughout the duration of the TA. Comments provided by the Sub-Groups at the Goa Workshop on Urban Transport Strategy held between 15 and 17 June 2008, were used for finalizing the guidelines and toolkits.
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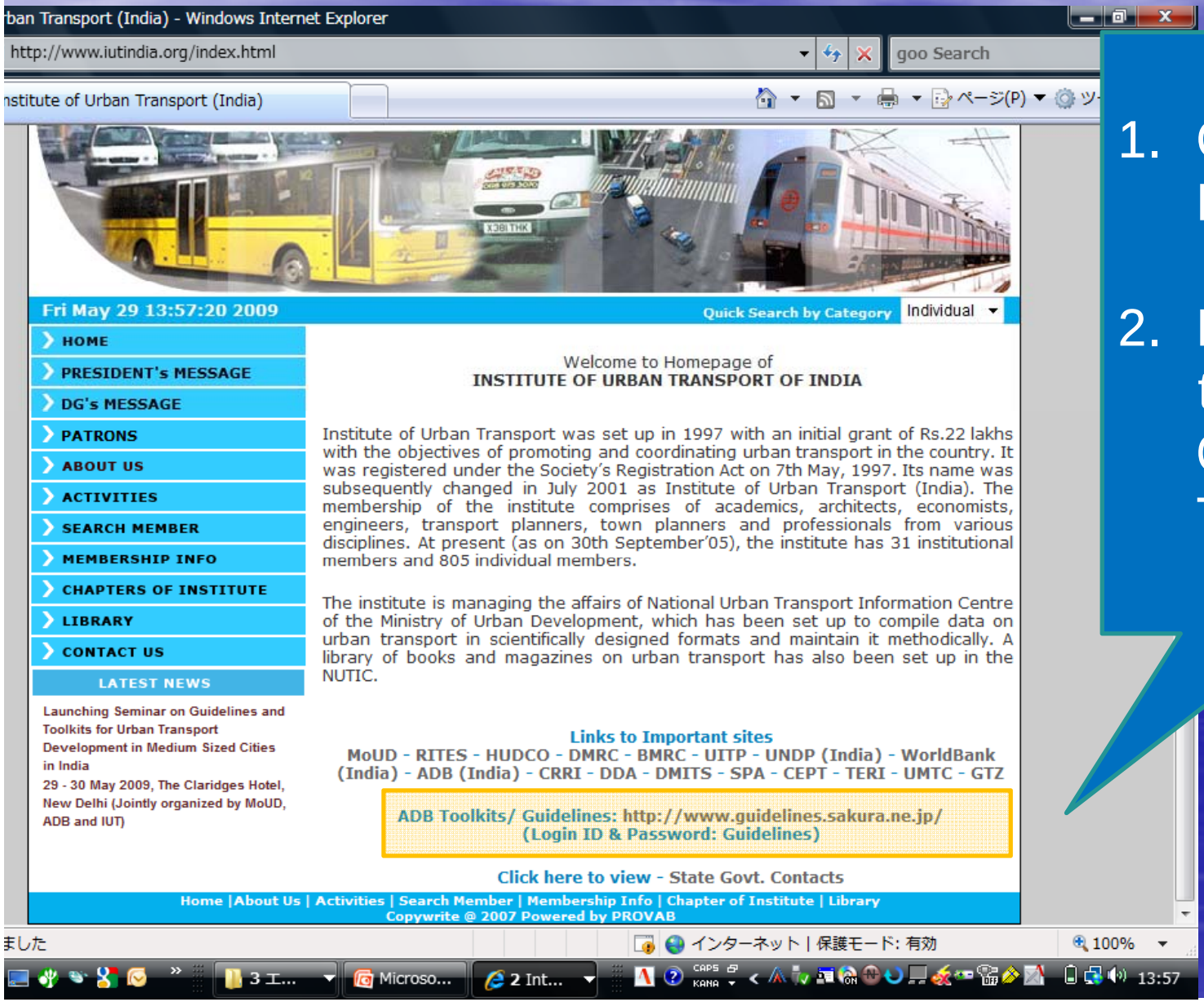

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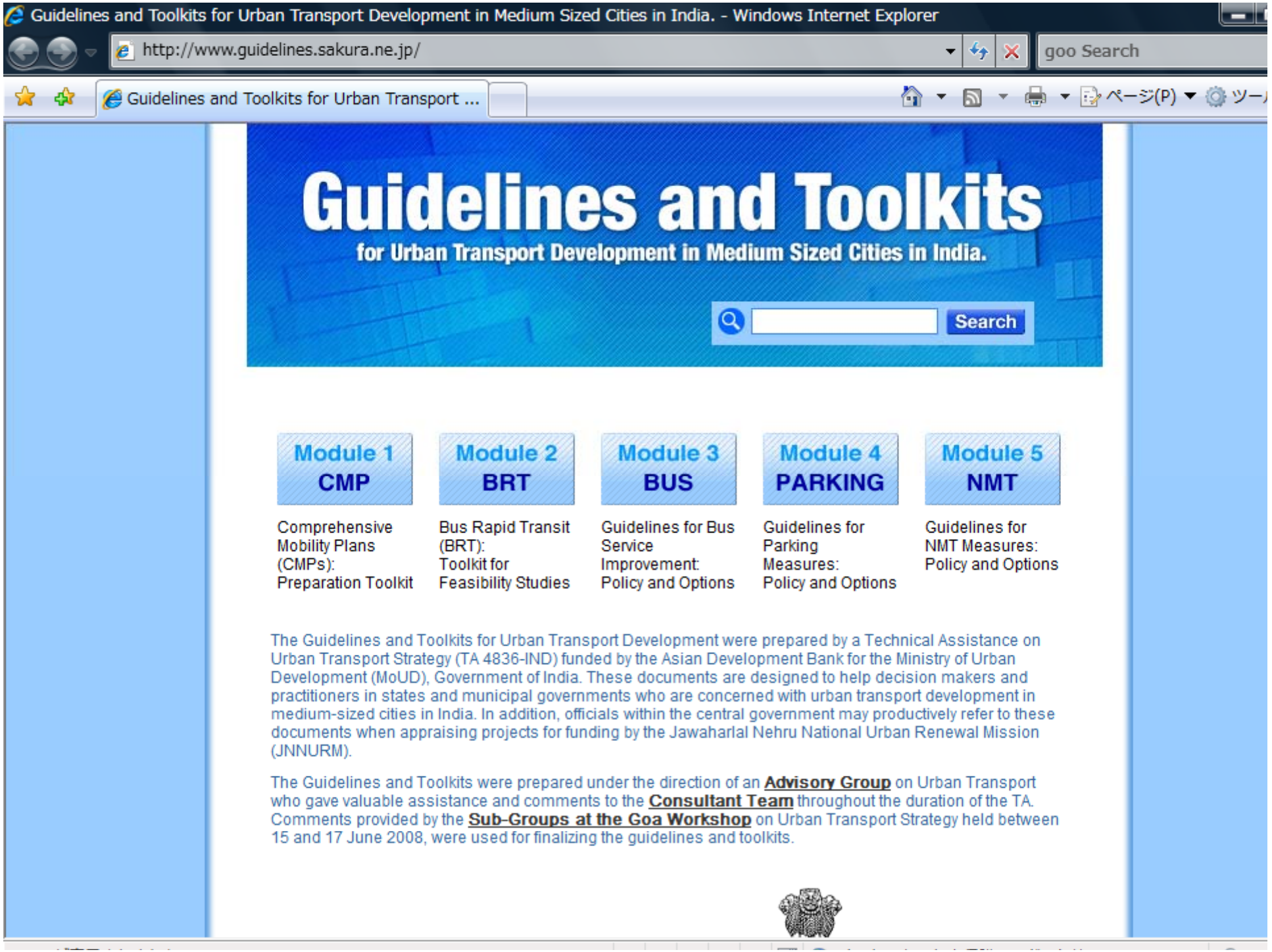
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Bus Rapid Transit (BRT): Toolkit for Feasibility Studies

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Module 2:
Bus Rapid Transit (BRT): Toolkit for Feasibility Studies

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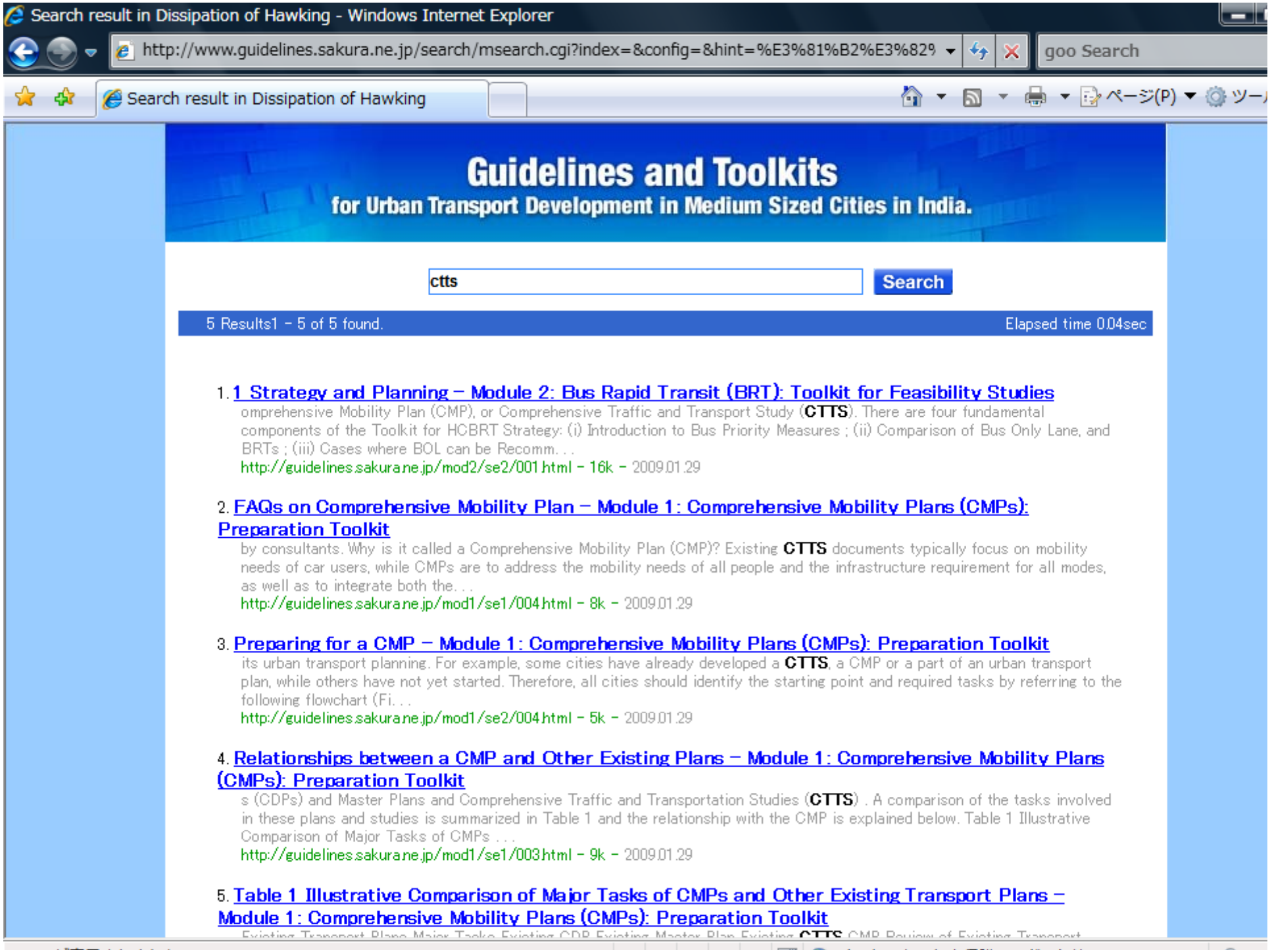
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1. 1 Strategy and Planning – Module 2: Bus Rapid Transit (BRT): Toolkit for Feasibility Studies
omprehensive Mobility Plan (CMP), or Comprehensive Traffic and Transport Study (CTTS). There are four fundamental components of the Toolkit for HCBRT Strategy: (i) Introduction to Bus Priority Measures ; (ii) Comparison of Bus Only Lane, and BRTs ; (iii) Cases where BOL can be Recomm. . .
http://guidelines.sakura.ne.jp/mod2/se2/001.html - 16k - 2009.01.29
2. FAQs on Comprehensive Mobility Plan – Module 1: Comprehensive Mobility Plans (CMPs): Preparation Toolkit
by consultants. Why is it called a Comprehensive Mobility Plan (CMP)? Existing CTTS documents typically focus on mobility needs of car users, while CMPs are to address the mobility needs of all people and the infrastructure requirement for all modes, as well as to integrate both the. . .
http://guidelines.sakura.ne.jp/mod1/se1/004.html - 8k - 2009.01.29
3. Preparing for a CMP – Module 1: Comprehensive Mobility Plans (CMPs): Preparation Toolkit
its urban transport planning. For example, some cities have already developed a CTTS, a CMP or a part of an urban transport plan, while others have not yet started. Therefore, all cities should identify the starting point and required tasks by referring to the following flowchart (Fi. . .
http://guidelines.sakura.ne.jp/mod1/se2/004.html - 5k - 2009.01.29
4. Relationships between a CMP and Other Existing Plans – Module 1: Comprehensive Mobility Plans (CMPs): Preparation Toolkit
s (CDPs) and Master Plans and Comprehensive Traffic and Transportation Studies (CTTS) . A comparison of the tasks involved in these plans and studies is summarized in Table 1 and the relationship with the CMP is explained below. Table 1 Illustrative Comparison of Major Tasks of CMPs . . .
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5. Table 1 Illustrative Comparison of Major Tasks of CMPs and Other Existing Transport Plans – Module 1: Comprehensive Mobility Plans (CMPs): Preparation Toolkit


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1. Annex 4 Parking Measures by PPP – Module 4: Guidelines for Parking Measures: Policy and Options
Annex 4 Parking Measures by PPP - Module 4: Guidelines for Parking Measures: Policy and Options Annex 4 Parking Measures by PPP Introduction Private sector involvement in parking is an attractive option to address parking problems in a city where a large investment is required an. . .
http://guidelines.sakura.ne.jp/mod4/se5/004.html - 6k - 2009.01.29
2. Annex 6 Sample TOR for CMP Preparation – Module 1: Comprehensive Mobility Plans (CMPs): Preparation Toolkit
roposed projects; and Changes necessary to promote Public-Private Partnerships (PPPs). Task 4-6 Fiscal Measures Fiscal measures should also be considered to achieve balanced modal split, and to secure the budget necessary to implement urban transport projects. The following aspects . . .
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3. Build-Operate-Transfer (BOT) – Annex 4 Parking Measures by PPP – Module 4: Guidelines for Parking Measures: Policy and Options
Build-Operate-Transfer (BOT) - Annex 4 Parking Measures by PPP - Module 4: Guidelines for Parking Measures: Policy and Options Annex 4 Parking Measures by PPP Build-Operate-Transfer (BOT) Apart from the stated possibilities for attracting private investors, other options exist fo. . .
http://guidelines.sakura.ne.jp/mod4/se5/004_3.html - 6k - 2009.01.29
4. Chapter 9 -Financial and Economic Analyses – 4 Description of Feasibility Study Tasks – Module 2: Bus Rapid Transit (BRT): Toolkit for Feasibility Studies
stem would thus be carried out by either the bidders or the concession holder.) PPP Potential: Although of mixed outcome for HCBRT, high volumes at terminals are of possible commercial interest. Certainly, the sites close to such terminals are highly valued. This may permit a PPP ap. . .
http://guidelines.sakura.ne.jp/mod2/se2/004_10.html - 8k - 2009.01.29
5. Concession Types – Annex 4 Parking Measures by PPP – Module 4: Guidelines for Parking

Applicability to Chinese Cities

Characteristics of Cities in China

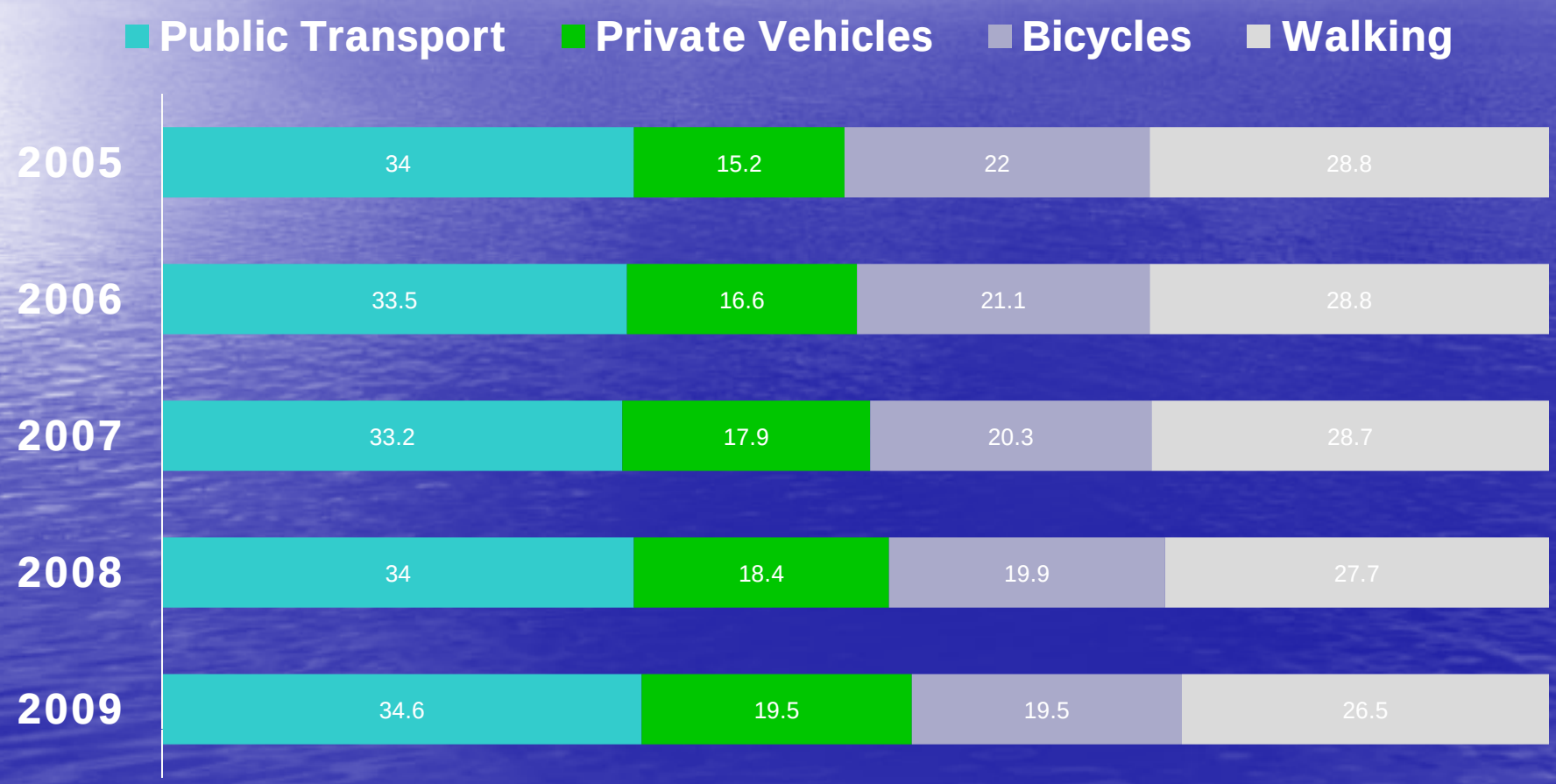
- Rate of urbanization: 45.7% (2008)
- Number of Cities with more than 10 million population: 6 (Chongqing, Shanghai, Beijing, Baoding, Chengdu, Tianjin - 2005)
- Number of Cities with more than 5 million population: 39 (2005)
- Number of Cities with more than 1 million population: 118 (2008)

Urban Transport Systems in Chinese Cities

Transport Systems	In Operation	Under Construction
Underground Rail	Beijing, Tianjin, Hong Kong, Shanghai, Guangzhou, Shenzhen, Qingdao, Nanjing, Shenyang, Chengdu	Hangzhou, Harbin, Xian, Suzhou, Chongqing, Dongwan, Ningbo, Wuxi, Changsha, Zengzhou, Fuzhou, Kunming, Nangchan, Qungdao, Hefei, Wuhan, Changchun, Dalian
LRT	Shanghai, Beijing, Wuhan, Tianjin, Suzhou, Changchun, Dalian, Chongqing	Naning, Guiyang
BRT	Guangzhou, Changzhou, Xiamen, Beijing, Chongqing, Dalian, Hangzhou, Hefei, Jinan, Kunming, Yancheng, Zaozhuang, Zhengzhou (ITDP)	(information not available)
Buses	Almost all cities	

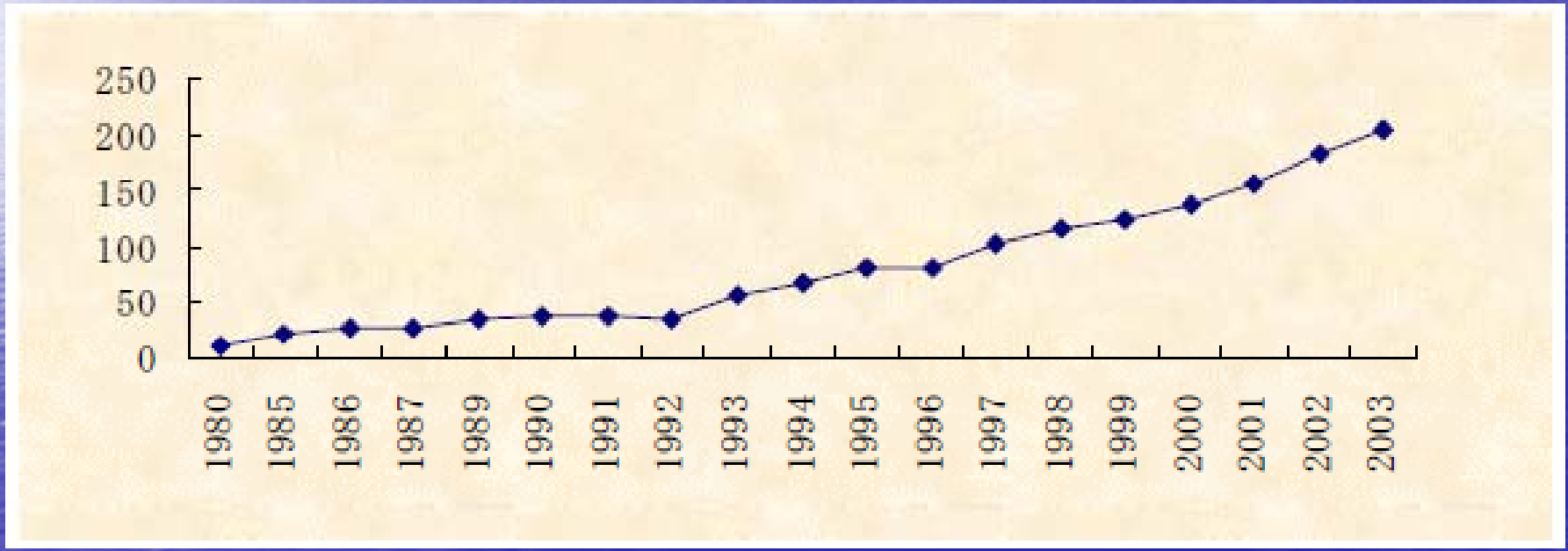
Source: Development Committee, and others

Modal Split in Shanghai (2005 - 2009)



Source: 上海市都市総合計画研究所

Registered Number of Vehicles in Beijing (1980 - 2003)



Unit: 0,000

Source: 自治体国際化協会、Clair Report Number 268, July 2005

Urban Transport Problems in China

- Expansion of Urban Areas and Increasing Commuting Distance
- Increasing Car ownership
- Traffic Congestions
- Illegal Parking
- Reduced NMT Use and Facilities
- Delayed MRT Construction
- Increasing E-Powered Bicycles
- Problems with privately operated buses
- Shortage of funds
- Absence of Guidelines/Toolkits

Areas where Guidelines/Toolkits may be required for Cities in China

- Comprehensive Transport Studies
- Underground Rail (LRT) Development
- BRT Development
- Bus Service Improvement
- Non Motorized Transport
- TDM Measures
- Intersection Improvements
- Traffic Safety Measures