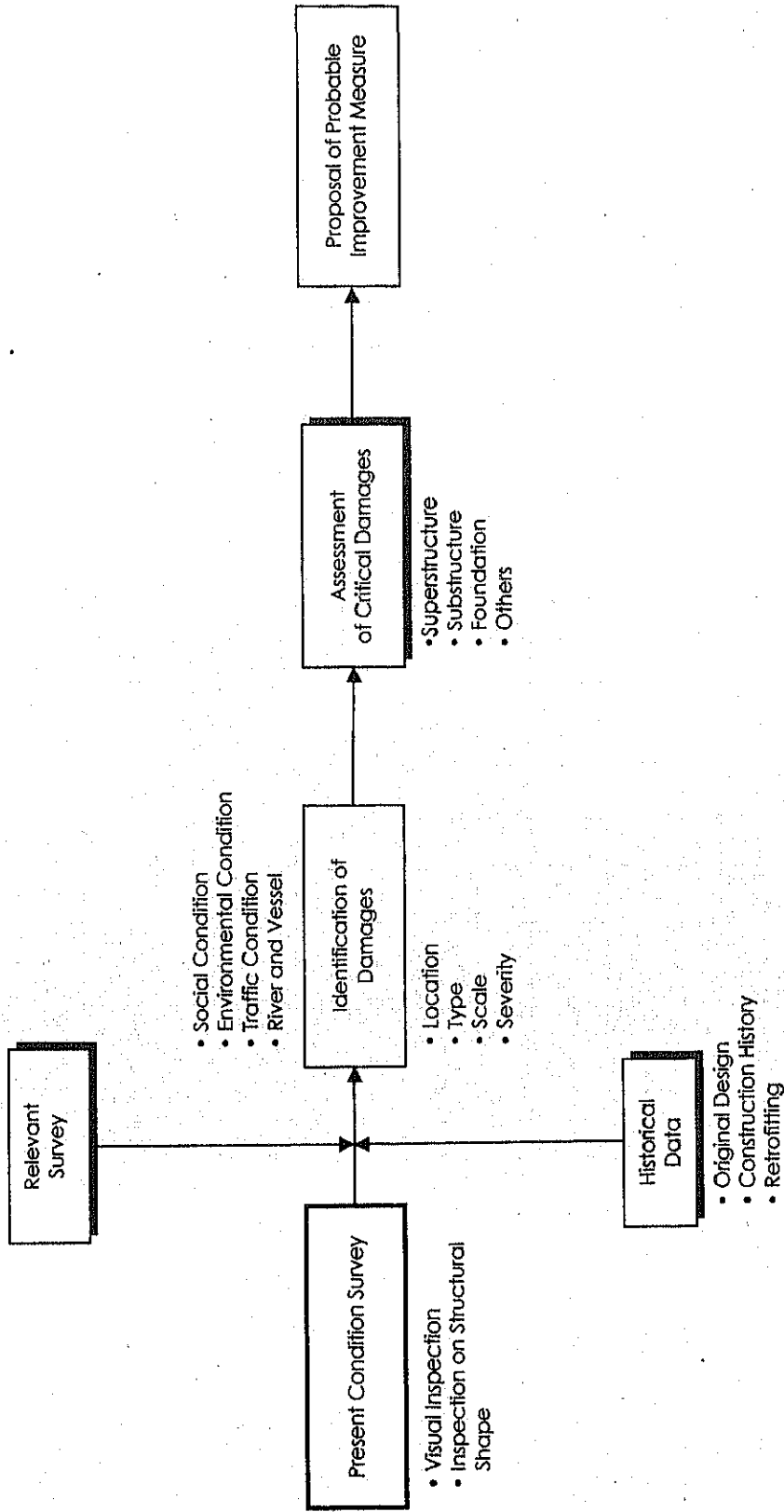


BRIDGE INSPECTION SHEET



SURVEY LEVEL 1

BRIDGE INVENTORY AND INSPECTION FORM - 1

BRIDGE INVENTORY

Reference No. _____
 Inventory Date _____
 Inventory Office _____

Name of Bridge : _____

Bridge Type		Bridge Length		Chainage		Span Length	
Name of Road		Location		Abutment		Pier	
Approach Road	Road Width (m)	No.	Width (m)	Type	Body	Height (m)	Width (m)
	Lane	Type	Width (m)	Foundation	Footing	Length (m)	Width (m)
	Sidewalk	Type	Width (m)	Type	Foundation	Type	Length (m)
	Median	Type	Width (m)	Coping	Body	Height (m)	Width (m)
	Pavement	Type	Thickness (cm)	Body	Footing	Height (m)	size (m)
	Traffic Volume	Both Direction/day		Foundation	Foundation	Length (m)	Width (m)
	Alignment	Skew	Curve	Specification		Type	Length
	Main Girder	Type		Live Load			
		Height		Seismic Coefficient			
		Number		Design Date			
		Space	(m)	Concrete		fc	
	Cross Beam	Type		Reinforcing Bar		fy	
		No.		P.C. Material		fc	
		Type		Steel Material		fy	
	Stringer	No.		Construction Date			
	Pavement	Type	Thickness (cm)	Remarks			
	Slab	Type	Thickness (cm)	() As Built Data			
	Bearing	Type	Reaction (t)	(()) Assumed Data			
	Expansion Joint	Type					
	Railing	Type					

BRIDGE INVENTORY AND INSPECTION FORM - 2

SUMMARY

Date of Inspection _____

Inspector _____

Checker _____

Name of Bridge : _____

Damage No.	Span No.	Name of Member	Type of Damage	Rank of Damage	Description of Damage (Nature, Location/Pattern, Scale, Severity, No. of Damages)	Remarks (A, B, C)	Photo No.
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Remarks : A : require urgent remedial measure
 B : require maintenance work
 C : others

BRIDGE INVENTORY AND INSPECTION FORM - 3
CONDITION OF STRUCTURAL MEMBERS

Date of Inspection _____
 Inspector _____
 Checker _____

Span : 1. 2. 3. 4. 5

Name of Bridge : _____

Superstructure	Type	Bridge Length		Span Length			
		Height	Height	Foundation	Foundation		
River Bank	Type	Bridge Length		Span Length			
		Height	Height	Foundation	Foundation		
Structural Member	Damage / Girder Type	Rank	Damage / Girder		Damage / Girder		
			Type	Rank	Type	Rank	
Superstructure	Deck Slab						
	Upper & Girder						
	Side of Web						
	Bottom of Girder						
	Main Girder						
	Cross Beam						
	Stringer						
	Sway Bracing						
	Lateral Bracing						
	Upper Chord						
	Lower Chord						
	Vertical Member						
	Diagonal Member						
Steel Truss & Arch	Cross Beam						
	Stringer						
	Sway Bracing						
	Lateral Bracing						
Substructure	Abutment						
	Pier						
	Foundation						

**BRIDGE INVENTORY AND INSPECTION FORM - 5
PHOTOGRAPHS OF DAMAGES**

Date of Inspection _____
 Inspector _____
 Checker _____

Name of Bridge : _____

<div data-bbox="459 555 817 1079" style="border: 1px solid black; height: 234px; width: 224px; margin-bottom: 10px;"></div> <div data-bbox="486 392 769 533" style="display: flex; flex-direction: column-reverse; gap: 5px;"> <p>Photo No.</p> <p>Span No.</p> <p>Member</p> <p>Damage Type</p> <p>Damage Rank</p> <p>Description</p> </div>	<div data-bbox="919 555 1276 1079" style="border: 1px solid black; height: 234px; width: 224px; margin-bottom: 10px;"></div> <div data-bbox="946 392 1228 533" style="display: flex; flex-direction: column-reverse; gap: 5px;"> <p>Photo No.</p> <p>Span No.</p> <p>Member</p> <p>Damage Type</p> <p>Damage Rank</p> <p>Description</p> </div>
<div data-bbox="456 1406 812 1930" style="border: 1px solid black; height: 234px; width: 223px; margin-bottom: 10px;"></div> <div data-bbox="483 1249 766 1391" style="display: flex; flex-direction: column-reverse; gap: 5px;"> <p>Photo No.</p> <p>Span No.</p> <p>Member</p> <p>Damage Type</p> <p>Damage Rank</p> <p>Description</p> </div>	<div data-bbox="916 1406 1272 1930" style="border: 1px solid black; height: 234px; width: 223px; margin-bottom: 10px;"></div> <div data-bbox="943 1249 1225 1391" style="display: flex; flex-direction: column-reverse; gap: 5px;"> <p>Photo No.</p> <p>Span No.</p> <p>Member</p> <p>Damage Type</p> <p>Damage Rank</p> <p>Description</p> </div>

TRAFFIC RELATED DATA

Standard Traffic Counting Sheet

Date ()
 Survey Point () Direction ()
 Time (From To) Surveyor ()

Bicycle	1	11	21	31	Mini Bus	1	11	21	31
	2	12	22	32		2	12	22	32
	3	13	23	33		3	13	23	33
	4	14	24	34		4	14	24	34
	5	15	25	35		5	15	25	35
	6	16	26	36		6	16	26	36
	7	17	27	37		7	17	27	37
	8	18	28	38		8	18	28	38
	9	19	29	39		9	19	29	39
	10	20	30	40		10	20	30	40
Animal & Cart	1	11	21	31	Large Bus	1	11	21	31
	2	12	22	32		2	12	22	32
	3	13	23	33		3	13	23	33
	4	14	24	34		4	14	24	34
	5	15	25	35		5	15	25	35
	6	16	26	36		6	16	26	36
	7	17	27	37		7	17	27	37
	8	18	28	38		8	18	28	38
	9	19	29	39		9	19	29	39
	10	20	30	40		10	20	30	40
Motor Cycle	1	11	21	31	Truck 2 Axle	1	11	21	31
	2	12	22	32		2	12	22	32
	3	13	23	33		3	13	23	33
	4	14	24	34		4	14	24	34
	5	15	25	35		5	15	25	35
	6	16	26	36		6	16	26	36
	7	17	27	37		7	17	27	37
	8	18	28	38		8	18	28	38
	9	19	29	39		9	19	29	39
	10	20	30	40		10	20	30	40
Tractor	1	11	21	31	Truck 3 Axle	1	11	21	31
	2	12	22	32		2	12	22	32
	3	13	23	33		3	13	23	33
	4	14	24	34		4	14	24	34
	5	15	25	35		5	15	25	35
	6	16	26	36		6	16	26	36
	7	17	27	37		7	17	27	37
	8	18	28	38		8	18	28	38
	9	19	29	39		9	19	29	39
	10	20	30	40		10	20	30	40
Car	1	11	21	31	Articulated Truck	1	11	21	31
	2	12	22	32		2	12	22	32
	3	13	23	33		3	13	23	33
	4	14	24	34		4	14	24	34
	5	15	25	35		5	15	25	35
	6	16	26	36		6	16	26	36
	7	17	27	37		7	17	27	37
	8	18	28	38		8	18	28	38
	9	19	29	39		9	19	29	39
	10	20	30	40		10	20	30	40
4-Wheel Drive	1	11	21	31	Others	1	11	21	31
	2	12	22	32		2	12	22	32
	3	13	23	33		3	13	23	33
	4	14	24	34		4	14	24	34
	5	15	25	35		5	15	25	35
	6	16	26	36		6	16	26	36
	7	17	27	37		7	17	27	37
	8	18	28	38		8	18	28	38
	9	19	29	39		9	19	29	39
	10	20	30	40		10	20	30	40

RECORDS OF SEMINARS AND WORKSHOPS

SEMINARS

**The Study on the Road Network Development
1st Seminar of the Study Team**

- (1) Date: 5th of September (Monday), 2005, 8:30am – 12:00am
- (2) Venue: MPWT, Conference Room at 1st floor
- (3) Schedule:

8:00-8:30am Registration

8:30-8:35am Welcome remark by Team Leader of Study Team

Session 1: Current Situation of the Road Network and Living Condition

At the session 1, the Study Team makes presentations regarding analysis of current situation of Cambodia from the viewpoint of road-network. (Presentation 20min., QA 10min.)

8:35-9:05am Traffic Survey and Analysis by Mr. Yashiro

9:05-9:35am Existing Road Network Condition by Mr. Santos

9:35-10:05am Socio-Economic Condition by Ms. Matsumura

**Tea break for 15 min*

Session 2: Concept, Strategy and Action Plans

Based on the analysis of current situation, Concept, Strategy and Action Plans were discussed among the Study Team and Counterparts. The direction of Master Plan will be shown at Session 2. (Presentation 20min., QA 10min.)

10:20-10:50am Development Strategy by Mr. Kojima

10:50-11:20am Concept of Road Development Plan by Mr. Shinkai

11:20-11:50am Improvement Plan of Road Maintenance Mechanism by Mr. Fukuma

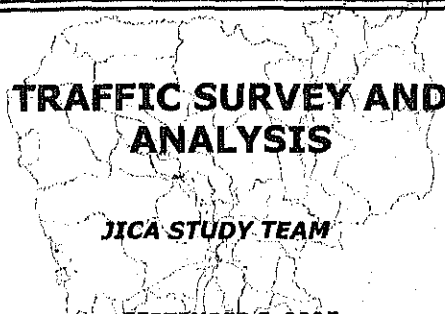
11:50-12:00am Closing Remark by Dr. Hong Sinara

- (4) Contact person:

Ms. Sokleap

Phone: 023-426-099

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA



TRAFFIC SURVEY AND ANALYSIS

JICA STUDY TEAM

SEPTEMBER 5, 2005

TRAFFIC SURVEY AND ANALYSIS 1

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Survey Objectives

- ◆ To collect necessary data and information in order to comprehend the existing traffic condition
- ◆ To identify related issues and planning parameters
- ◆ To estimate the future transport demand required for the formulation of the future road plan

TRAFFIC SURVEY AND ANALYSIS 2

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Traffic Survey

Three types of traffic surveys were conducted;

- ◆ Roadside Traffic Count Survey at 60 stations
- ◆ Origin and Destination (OD) Interview Survey at 41 stations
- ◆ Travel Speed Survey at 21 routes

TRAFFIC SURVEY AND ANALYSIS 3

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Outline of the Traffic Survey

Survey Title	Objectives	Method	Survey Coverage
Roadside Traffic Count Survey	Traffic volume and vehicle type	Traffic count (vehicles)	<ul style="list-style-type: none"> ■ Survey stations (Total 60 stations) ■ Vehicle Classification (Total 8 types)
OD Interview Survey	Trip information of vehicles	Direct interview	<ul style="list-style-type: none"> ■ Survey stations (Total 41 stations) ■ Vehicle Classification (Total 8 types) ■ Interviewed items <ul style="list-style-type: none"> - OD of the travel - Objective of the travel - Commodity and its load - Vehicle registration
Travel Time Survey	Travel speed on major routes	"floating car" method	<ul style="list-style-type: none"> ■ Survey routes (Total 21 routes)

TRAFFIC SURVEY AND ANALYSIS 4

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Traffic Count and OD Interview Surveys

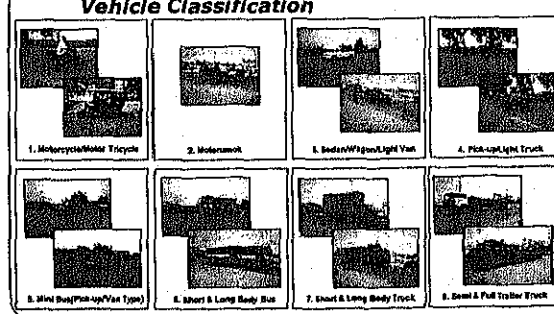
- ◆ Roadside Traffic Count Survey
 - ◆ Survey Method
 - The survey counted for 24/12 hours on both traffic directions and type of each vehicles was manually and separately counted. And then recorded for every 15-minute intervals.
 - ◆ Vehicle Classification

I	Motor Cycles (MC)	1	Motorcycle, M, Tricycle
		2	Motorbunk
II	Light Vehicles (LV)	3	Sedan, Wagon, Light Van
		4	Pick-up, Jeep, Light Truck (>3.5t)
		5	Mini Bus (Van type and Pick-up Type)
III	Heavy Vehicles (HV)	6	Short and Long Body Bus
		7	Short and Long Body Truck (<3.5t)
		8	Semi and Full Trailer Truck

TRAFFIC SURVEY AND ANALYSIS 5

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Vehicle Classification



TRAFFIC SURVEY AND ANALYSIS 6

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Traffic Count and OD Interview Surveys

◆ OD Interview Survey

◆ Survey Method

- The survey counted for 24 / 12 hours each. The entire traffic to be stopped at random, and then drivers were interviewed.

◆ Interviewed Items

(1) Survey Time	(6) Origin & Destination
(2) Vehicle Type	(7) Major Commodity
(3) Seating Capacity	(8) Load Factor
(4) No. of Passengers on Board	(9) Estimated Travel Time
(5) Trip Purpose	(10) Vehicle Registration

TRAFFIC SURVEY AND ANALYSIS 7

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Traffic Count and OD Interview Surveys

◆ Survey Stations.

Survey stations located for the traffic count survey mainly on the one and two digit national roads.

Traffic Count survey

- At 42 stations were selected for 12 hours.
- At 5 stations were selected for 24 hours.
- At 1 station were selected for 24 hours and 7 days.
- At 12 stations of international borders were set while operating border hours.

OD interview survey

- At 41 stations at provincial boundary and international border were selected for OD interview survey. This survey station is same with roadside traffic count survey stations.

TRAFFIC SURVEY AND ANALYSIS 8

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Location of Survey Stations for Traffic count

TRAFFIC SURVEY AND ANALYSIS 9

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Survey Result of Traffic Count

◆ Time Distribution of Traffic Volume on NR 5

TRAFFIC SURVEY AND ANALYSIS 10

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Survey Result of Traffic Count

◆ Traffic Volume Ratio for 12 hours to 24 hours (24 hrs/12 hrs)

Vehicle Type	1 Motor cycle	2 ARC Trailer	3 Sedan, Jeep	4 Pickup, L. truck	5 Mini Bus	6 Bus	7 Truck	8 Trailer
Urban Area	1.2	1.32	1.21	1.34	1.18	1.08	1.28	1.64
Rural Area	1.21	1.03	1.13	1.18	1.18	1.01	1.51	1.83

TRAFFIC SURVEY AND ANALYSIS 11

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

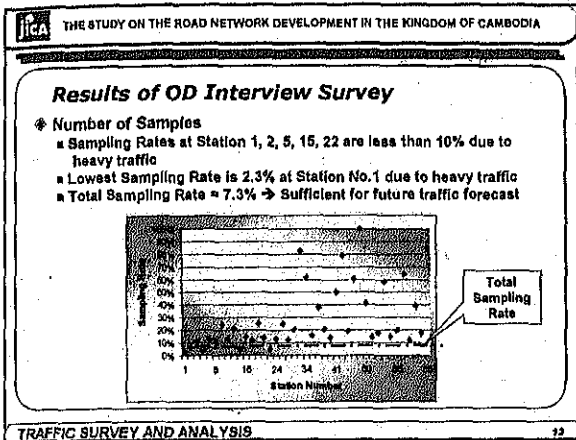
Survey Result of Traffic Count

◆ 24 Hours Traffic Volume on 1-digit Road

Road No.	Urban Area		Rural Area		Border	
	Location (Traffic Survey Station)	Traffic Volume	Location (Traffic Survey Station)	Traffic Volume	Location (Traffic Survey Station)	Traffic Volume
1	P.P. border (Sta. 1)	28,700	P.P. border (Sta. 4)	2,800-8,000	Vihear (Sta. 4)	8,500
2	P.P. border (Sta. 5)	12,100	P.P. border (Sta. 5)	3,800	Vihear (Sta. 7)	2,800
3	P.P. border (Sta. 8)	18,000	P.P. border (Sta. 8)	4,300-6,500	-	-
4	Siem Reap (Sta. 14)	8,100	Siem Reap (Sta. 14)	2,100-2,800	-	-
5	P.P. border (Sta. 15)	13,800	P.P. border (Sta. 15)	3,300-4,400	Thl'leud (Sta. 21)	8,000
6	Battambang (Sta. 18)	18,500	Battambang (Sta. 18)	3,800 (over province)	-	-
6	P.P. border (Sta. 22)	24,200	P.P. border (Sta. 22)	1,800-5,700	-	-
6	Stengreap (Sta. 27,28)	6,900-4,600	Stengreap (Sta. 27,28)	1,800-4,700	-	-
7	Kaemping Cham (Sta. 34)	1,800	Kaemping Cham (Sta. 34)	1,800	Loe (Sta. 34)	100
7	Xvay (Sta. 37)	2,100	Xvay (Sta. 37)	2,100	-	-

Note : Traffic Volume: vehicles per day
P.P. border: Phnom Penh-Kandal

TRAFFIC SURVEY AND ANALYSIS 12



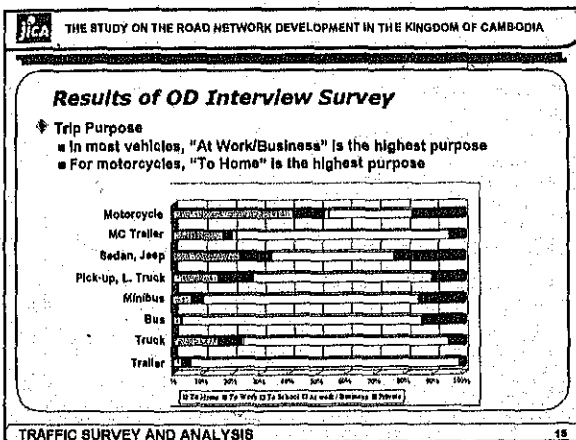
JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Results of OD Interview Survey

- ◆ Average Passenger Occupancy
 - Average capacity of minibus is exceeded due to over loading

Vehicle Type	Total Passengers	Number of Samples	Average Occupancy (passengers / vehicle)	Average Seating Capacity
Motor cycle	13,318	7,185	1.87	2.03
MC Trailer	4,070	478	8.51	8.76
Sedan, Jeep	12,979	3,268	3.97	4.72
Pick-up Truck	504	103	4.89	4.37
Minibus	32,207	2,828	12.74	8.07
Bus	13,383	484	29.48	31.95

TRAFFIC SURVEY AND ANALYSIS 14



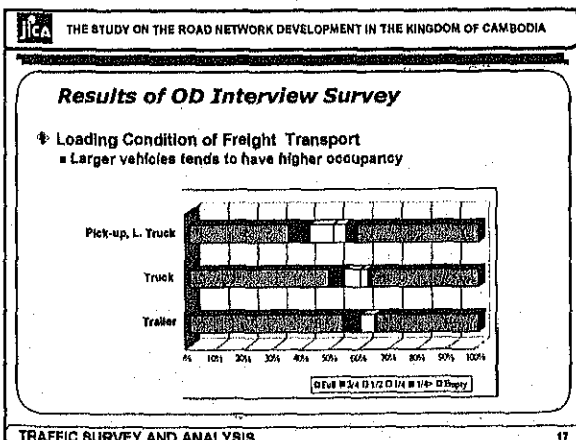
JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Results of OD Interview Survey

- ◆ Commodity Type
 - For Pick-up and Trucks, Construction and Agriculture accounts for major commodity

Major Commodity	%
Construction (Sand, Gravel, Asphalt, Concrete, Re-Bar, Beam, etc)	22.00%
Agriculture (Rice, Vegetable, Fruit, etc)	21.50%
Chemical (Petroleum, Cement, Alcohol, Acid, etc)	7.80%
Forest (Log, Timber, Plywood, etc.)	6.20%
Marine (Fish, Shell, Seaweed, etc.)	3.40%
Miscellaneous Industry (Garment, Shoes, etc)	3.30%
Metal & Machine (Steel, Generator, Car & Bike, etc)	3.00%
Light Industry / Electronics (Machine Parts, IC, Electronic Appliances, etc)	2.90%
Mineral (Coal, Copper, Iron, Salt, etc)	2.60%
Others	27.30%
Total	100.00%

TRAFFIC SURVEY AND ANALYSIS 16

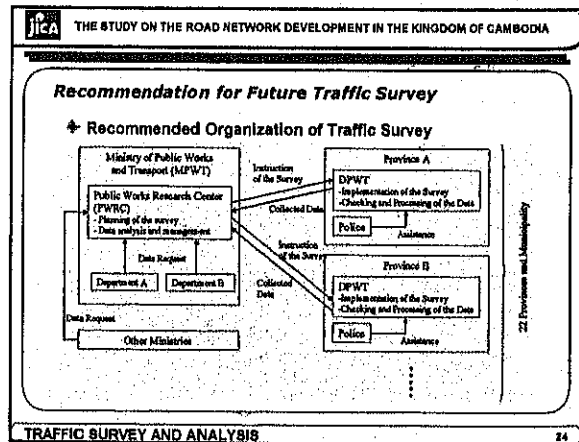
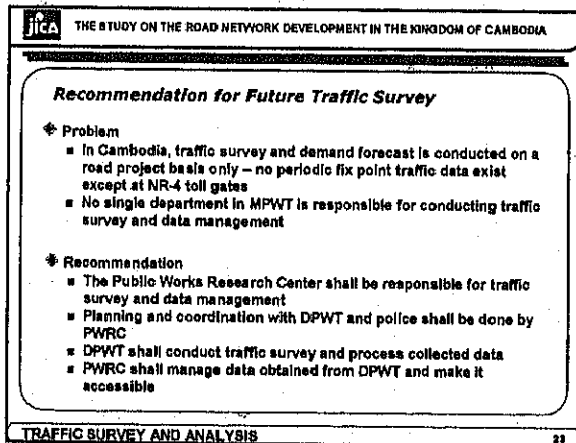
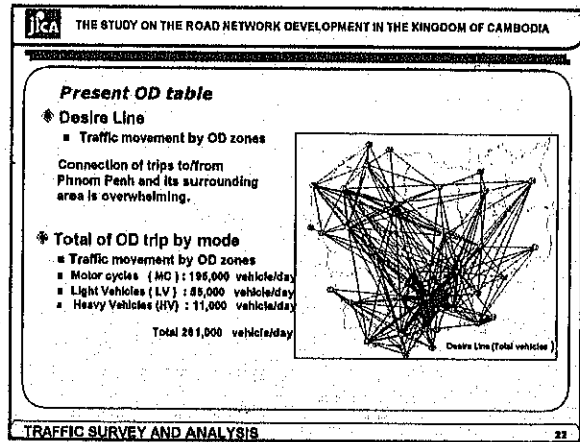
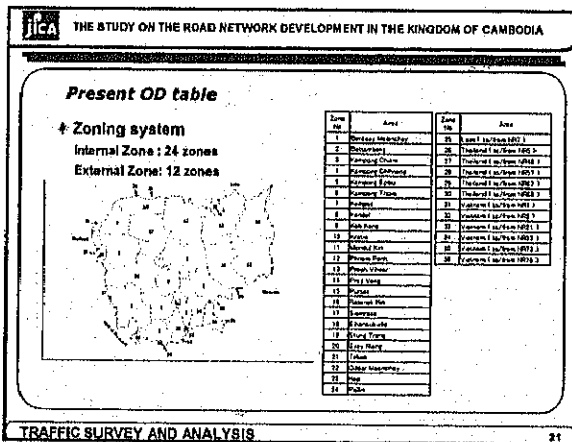
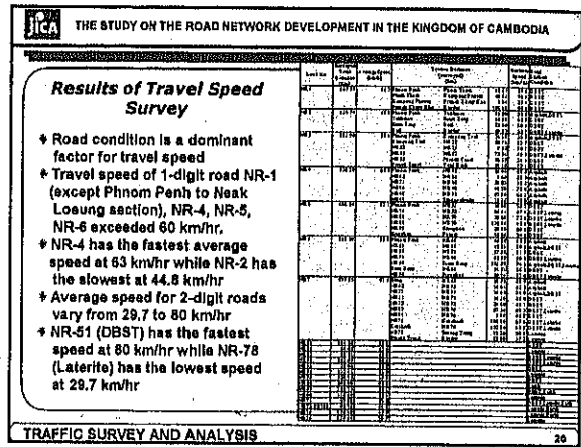
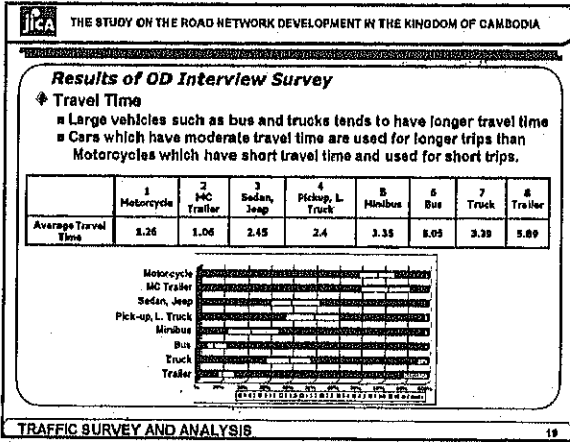


JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Travel Speed Survey

- ◆ Survey Method
 - The survey carried out by the floating car method.
 - 1 round trip obtained in weekdays between April and May, 2008.
- ◆ Survey Station
 - The survey counted at 21 routes of 1 and 2 digit national roads.

TRAFFIC SURVEY AND ANALYSIS 18



THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Recommendation for Future Traffic Survey

◆ Issues on Traffic Survey

SURVEY ITEMS	ISSUES	RECOMMENDATION
General	Lack of Public Notification of Survey	Advance notification through mass communication to get peoples cooperation
OD Interview Survey	Lack of Field Training	Field training for survey items should be included in survey schedule. Consider qualified surveyor.
Traffic Count Survey OD Interview Survey	Difficulty in Identifying Survey Site	Use GPS device to locate survey site. Supply photos and landmark of survey.
Traffic Count Survey OD Interview Survey	Starting Time of Survey	Starting time should be 8:00am. 12 hrs survey from 8:00 to 17:00 – recommend to extend to 18 hrs.
Travel Speed Survey	Lack of Distance Data	Use odometer reading at checkpoints to get accurate travel speed data.
Travel Speed Survey	Insufficient Sample Number	Use several vehicles to improve data accuracy. Urban Area: 5 round trips at peak and off peak. Suburban Area: 3 round trips

TRAFFIC SURVEY AND ANALYSIS 28

THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

THE END

TRAFFIC SURVEY AND ANALYSIS 29

THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

EXISTING ROAD NETWORK CONDITION

Jovito Santos
JICA Study Team
September 5, 2005

Existing Road Network Condition 1

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

SESSION CONTENTS

1. Characteristics of Cambodian Road Network
2. Major Road Rehabilitation/Maintenance Projects
3. Existing Road Condition Based on Inventory
4. Review of Past Flood and Damages
5. Road Network Bottlenecks and Countermeasures

Existing Road Network Condition 2

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

1. Characteristics of Cambodian Road Network

Existing Road Network Condition 3

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

CAMBODIA ROAD NETWORK

1-Digit Roads
2-Digit Roads

NATIONAL ROAD IS THE BACKBONE OF INTER-PROVINCIAL NATIONAL NETWORK AND LINKS UP PROVINCIAL CAPITALS AND MAJOR POINTS OF ENTRY/EXIT TO COUNTRY

Existing Road Network Condition 4

JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

CAMBODIA ROAD NETWORK

PROVINCIAL ROAD FORMS THE BASIC NETWORK WITHIN THE PROVINCE AND LINKS PROVINCIAL CAPITALS TO DISTRICT CENTERS

Existing Road Network Condition 5

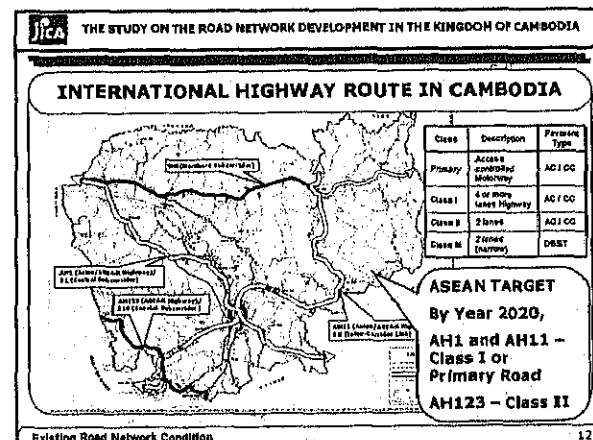
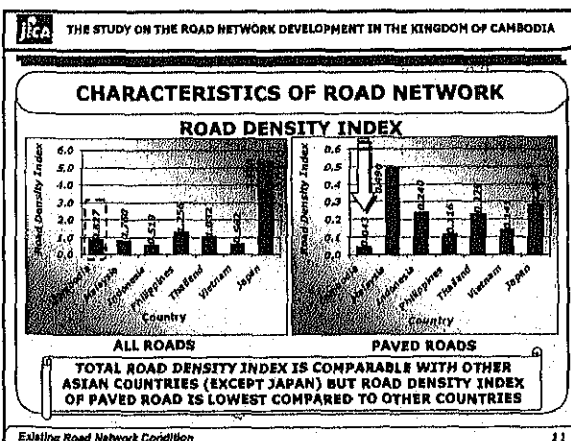
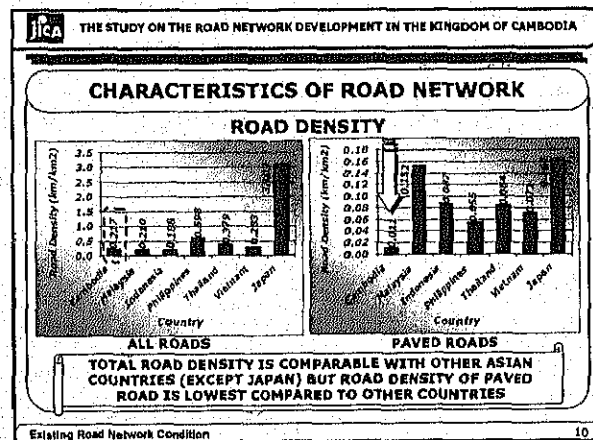
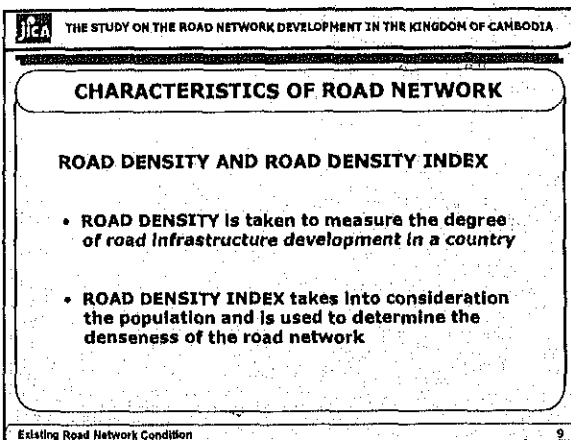
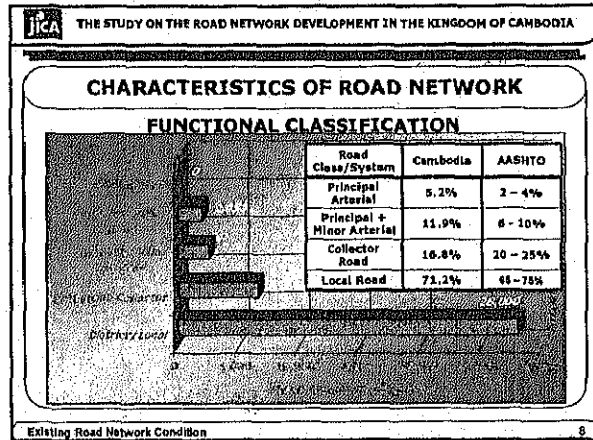
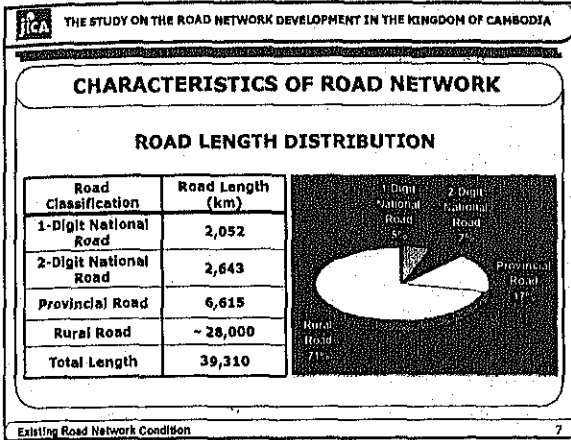
JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

CAMBODIA ROAD NETWORK

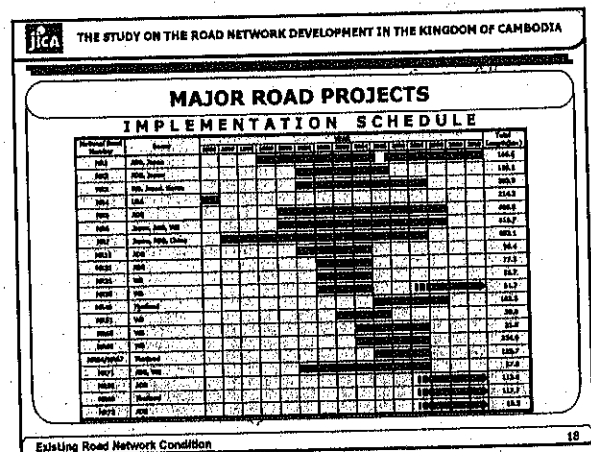
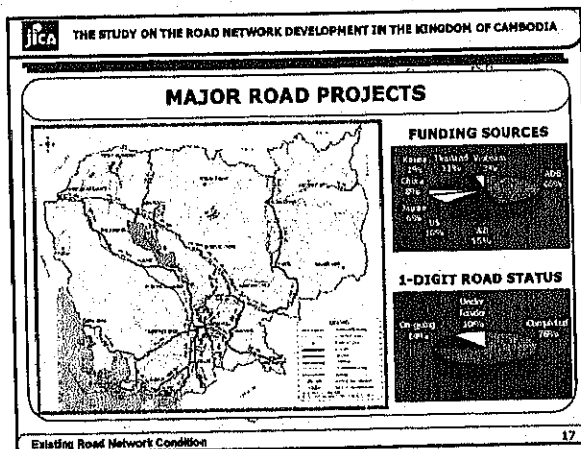
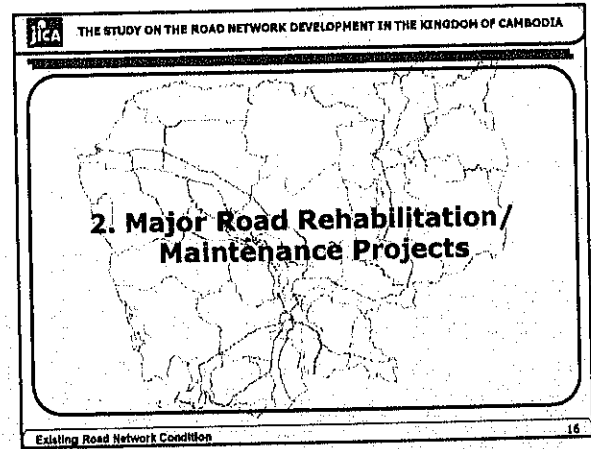
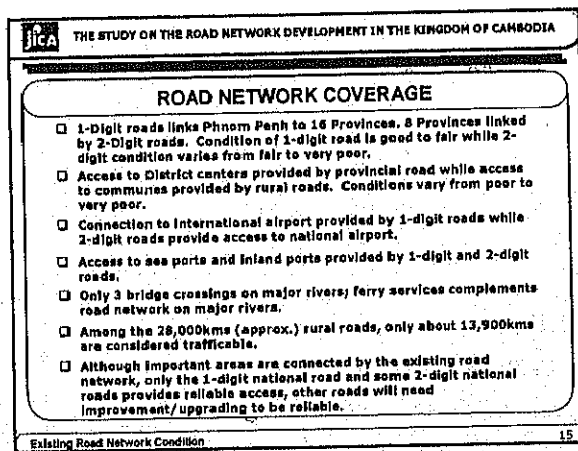
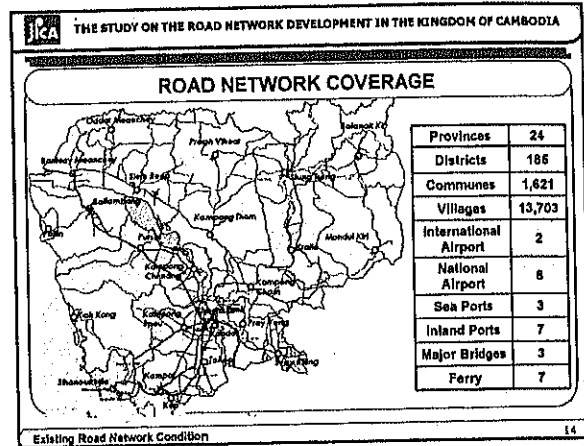
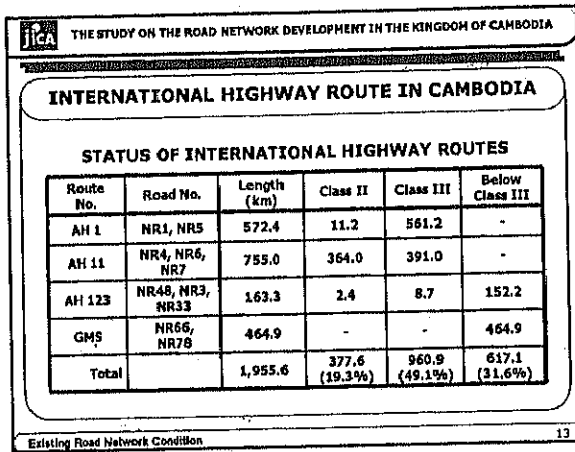
RURAL ROAD FORMS THE BASIC NETWORK WITHIN THE RURAL AREA AND SERVE MAINLY LOCAL TRIPS

Existing Road Network Condition 6

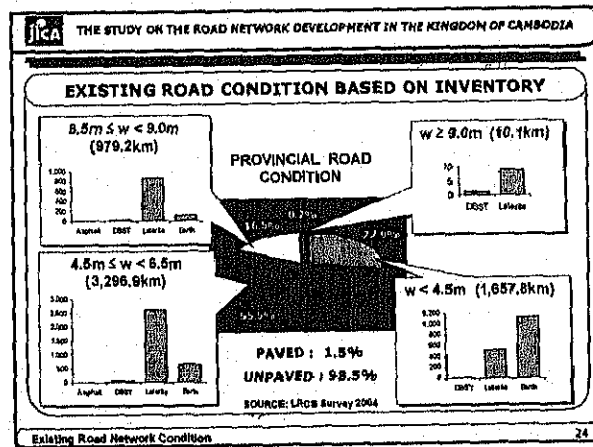
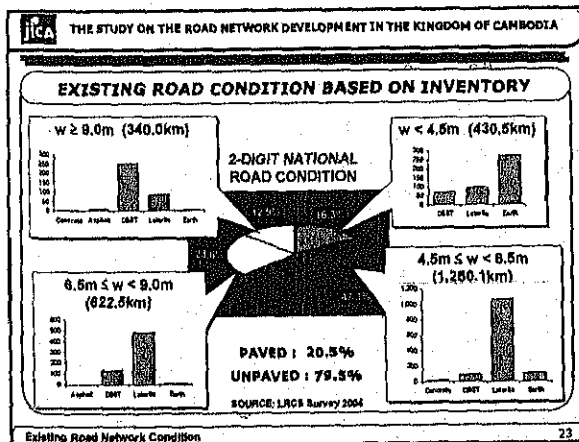
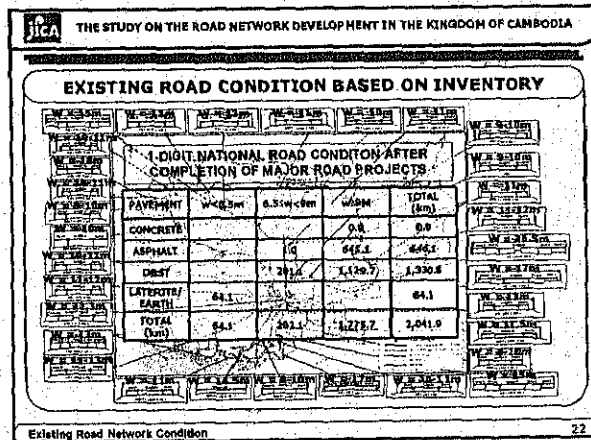
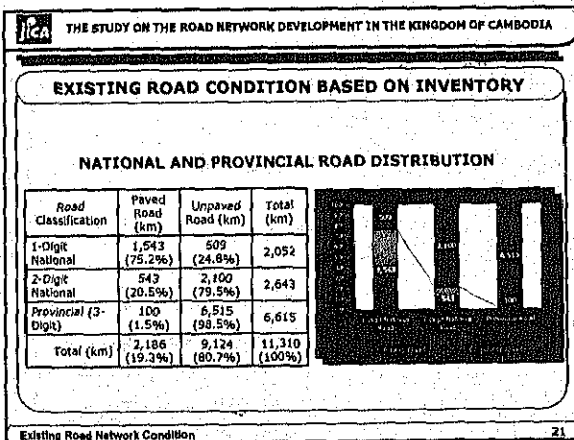
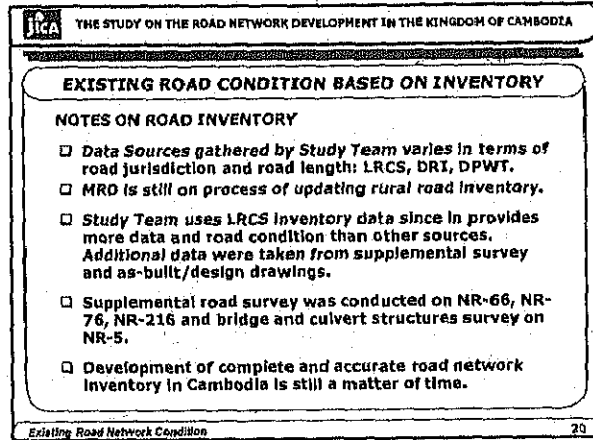
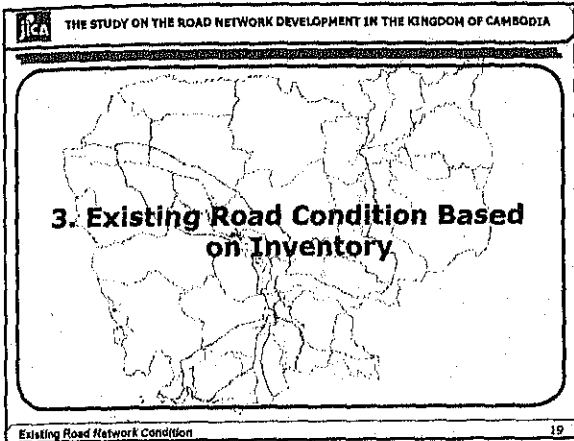
THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA



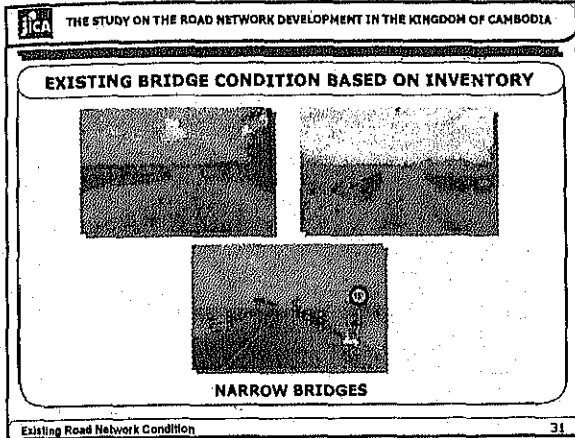
THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA



THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA



THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA



THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

EXISTING BRIDGE CONDITION BASED ON INVENTORY

BRIDGE INVENTORY DISTRIBUTION

Road Class	Permanent		Temporary	No Bridge	Total
	w>7m	w<7m			
1-Digit	518 (88.8%)	35 (6.0%)	30 (5.2%)	-	583
2-Digit	110 (16.6%)	140 (21.1%)	319 (48.0%)	95 (14.3%)	664
Provincial	5 (0.6%)	375 (41.5%)	521 (57.6%)	3 (0.3%)	904
Total	633 (29.4%)	550 (25.6%)	870 (40.4%)	98 (4.6%)	2,151

Existing Road Network Condition 32

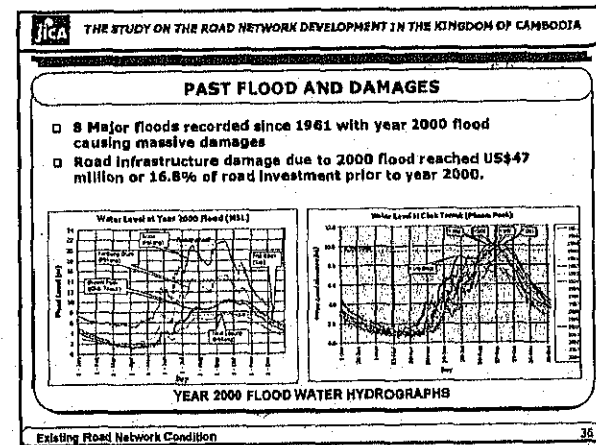
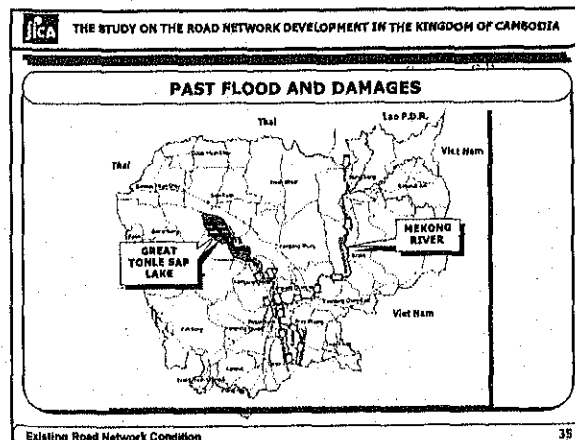
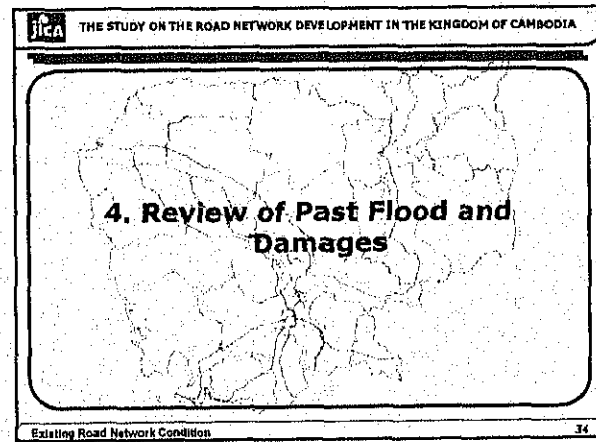
THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

EXISTING BRIDGE CONDITION BASED ON INVENTORY

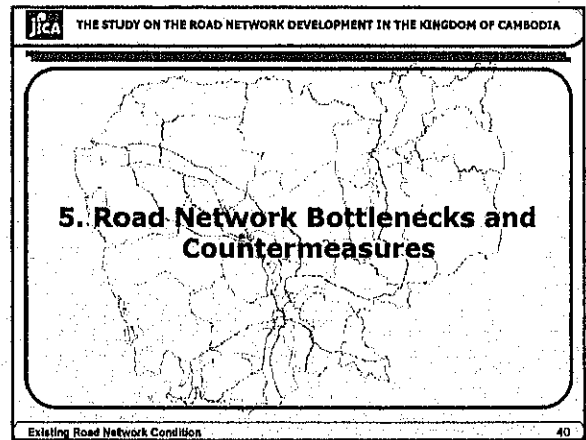
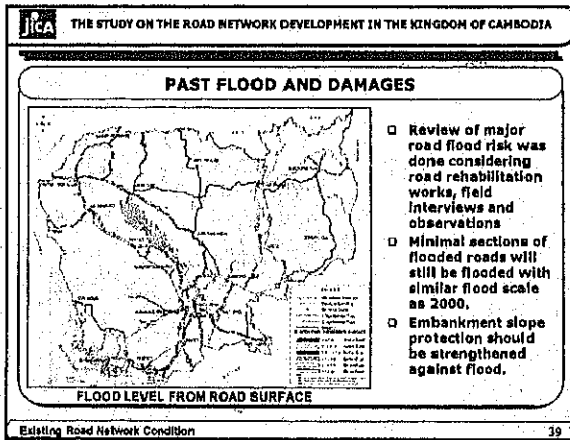
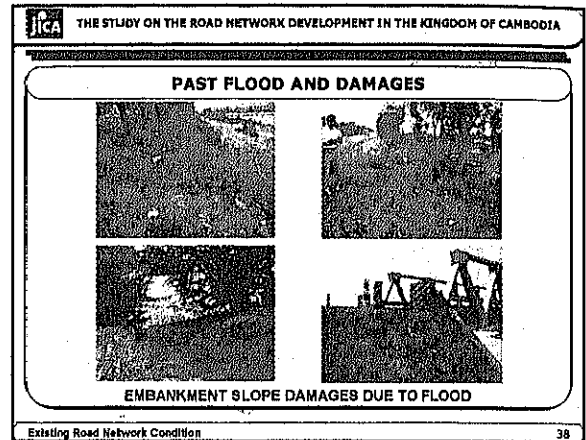
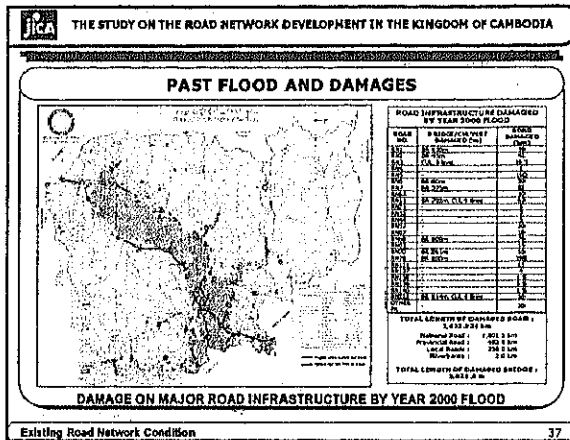
PERMANENT BRIDGE CONDITION DISTRIBUTION

Road Class	Bridge Condition - No. (Length, m)		
	Good	Fair	Poor
1-Digit National Road	479 (15,516.2)	24 (1,335.8)	-
2-Digit National Road	109 (5,529.4)	65 (1,223.7)	76 (1,016.2)
Provincial Road	355 (5,127.1)	19 (252.4)	6 (150.5)
Total	943 (26,172.7)	158 (2,811.9)	82 (1,166.7)
	79.7%	13.4%	6.9%

Existing Road Network Condition 33



THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA



JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

ROAD NETWORK BOTTLENECKS AND MEASURES

ROAD CONDITION PROBLEMS	MEASURES
• Poor Pavement Condition	• Improve road pavement condition. Only 19% of national and provincial roads paved.
• Narrow Roads	• Some 1-Digit roads need motorbike lanes; 2-Digit and provincial roads need widening for 2-lanes
• Insufficient Geometric Level	• Some 2 and 3-digit roads have low geometric level that should be improved to enhance capacity and safety
• Non-conforming to International Highway	• NR-1, 4, 5, 6, 7 need to be upgraded to Asian/ASEAN Class; NR-3, 33, 48, 56, 78 need to be upgraded to ASEAN/GMS Class
• Insufficient Slope Protection	• Roads along flood plain should be provided with sufficient slope protection
• Temporary and Narrow Bridges	• Temporary bridges will be replaced by permanent bridges; Narrow bridges will be provided; Additional bridges will be constructed where none exist

Existing Road Network Condition 41


JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

ROAD NETWORK BOTTLENECKS AND MEASURES

ROAD NETWORK PROBLEMS	MEASURES
• Insufficient Bridge on Rivers	• Additional bridge links on major and small rivers
• Low Pavement Ratio/ Insufficient Paved Road	• Increase pavement ratio for 2-Digit and Provincial Roads
• Traffic Congestion on Major Cities/Areas	• Provide bypass for through traffic on built-up/congested areas
• Untrafficable Road Sections (Rural Roads)	• Increase trafficable road sections for rural roads
• Vulnerability to Flood	• Improve embankment slope protection and road section stability against flood

Existing Road Network Condition 42

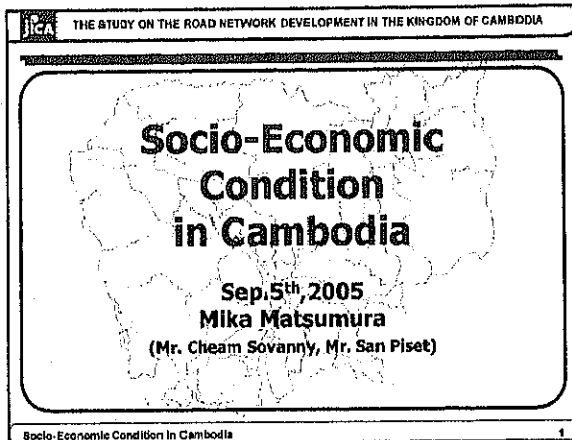
THE STUDY ON THE ROAD
NETWORK DEVELOPMENT IN THE
KINGDOM OF CAMBODIA

 THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

END OF SESSION

THANK YOU

Existing Road Network Condition 43

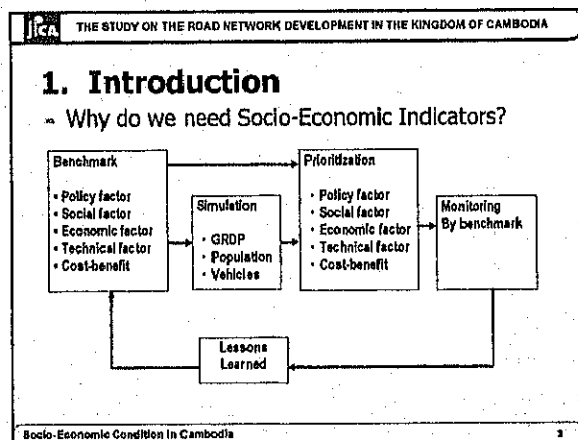


THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Contents

1. Introduction
2. Cambodia and Surrounding Countries
3. Recent Economic Trends in Cambodia
 - Agriculture, Industry, Service
4. Social Condition
 - Education, Poverty level, Electricity etc.
 - Prioritization method of comprehensive approach
5. Projection until 2020
 - Population, GRDP (Gross Regional Domestic Product), Number of Vehicles
6. Conclusion

Socio-Economic Condition In Cambodia 2



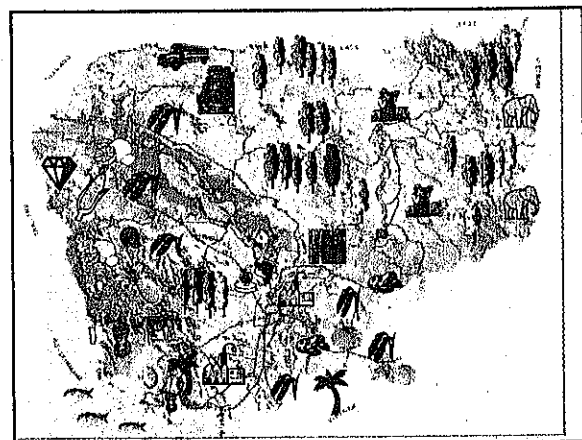
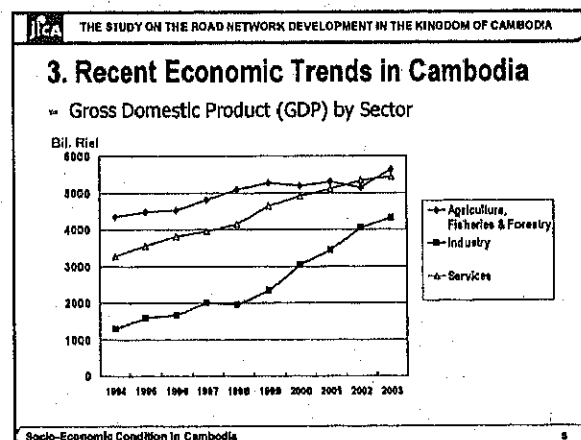
THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

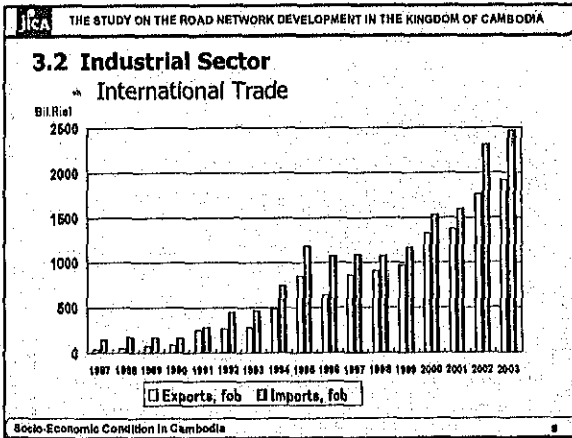
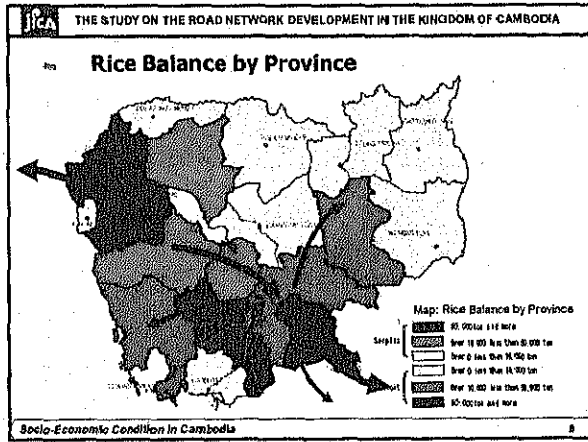
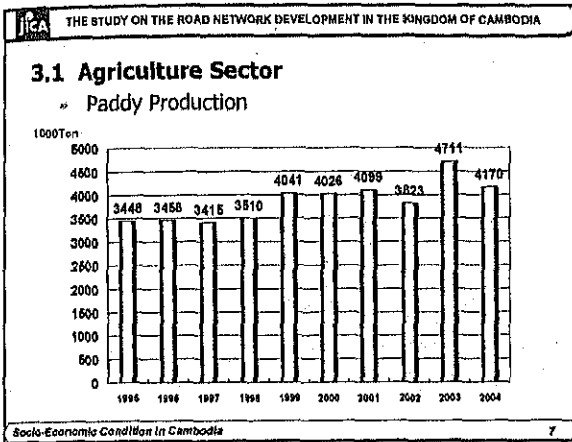
2. Cambodia and Surrounding Countries

Socio-Economic Indicators (ADB)

Indicator	Cambodia	Thailand	Vietnam	Laos
POPULATION				
Total population (millions)	13.3	63.96	80.90	5.68
EDUCATION (2000)				
Literacy rate, adult female (% of those 15 and above)	57%	94%	91%	53%
Literacy rate, adult male (% of those 15 and above)	80%	97%	94%	75%
HEALTH AND NUTRITION				
Daily per capita calorie supply (calories)	2011	2459	2498	2303
Child malnutrition (% of children under 5)	46%	10%	33%	40%
Population with access to safe water (Urban)	54%	95%	95%	61%
Population with access to safe water (Rural)	26%	81%	72%	29%
LAND				
Surface area (1000 sq. km)	181	513	332	237
NATIONAL ACCOUNTS				
GDP (Current Price in Billions US Dollar)	3.96	150.01	38.71	2.13
Exports, fob	1.92	84.23	20.18	0.37
Imports, fob	2.47	79.26	25.23	0.50

Socio-Economic Condition In Cambodia 4





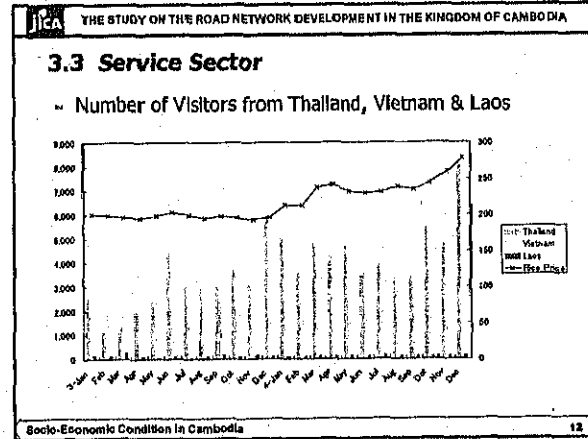
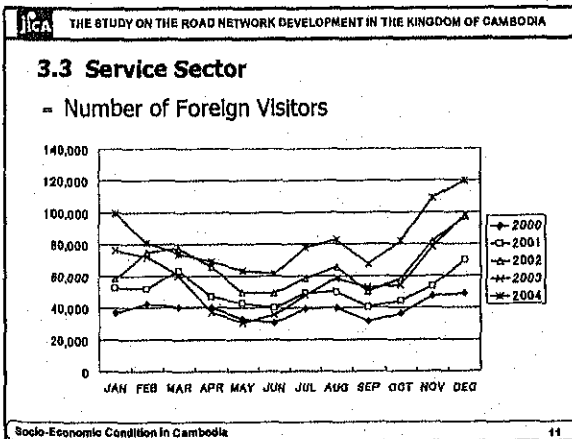
THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

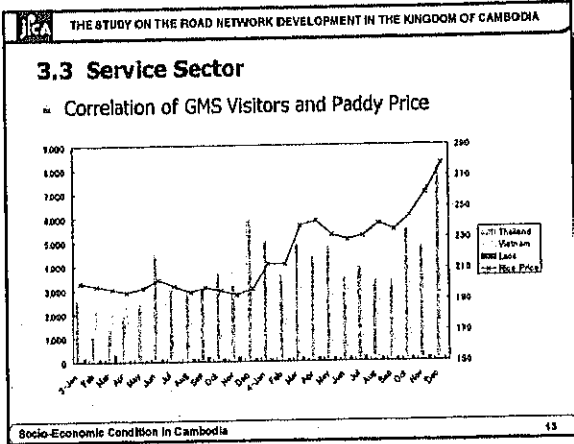
3.3 Service Sector

» Number of Foreign Visitors

	1998	1999	2000	2001	2002	2003	2004
Phnom Penh Flight	175,916	234,382	264,649	274,889	320,187	269,874	315,748
Siem Reap Direct Flight	10,423	28,523	87,812	133,688	202,791	186,298	349,373
By Land & Boat	180,191	184,838	114,704	196,542	263,546	243,042	426,081
Grand Total	286,524	347,743	466,365	604,919	786,324	701,814	1,035,202

Socio-Economic Condition in Cambodia 10





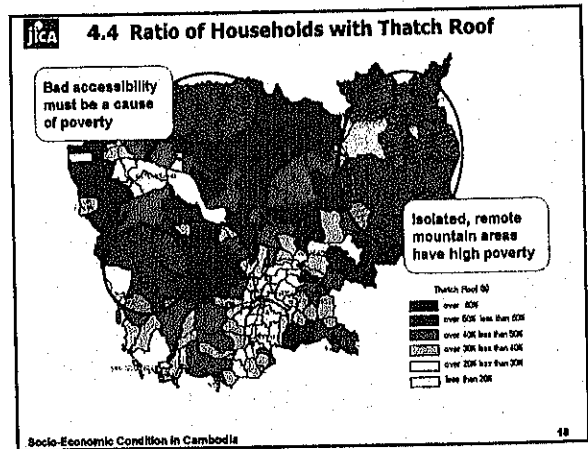
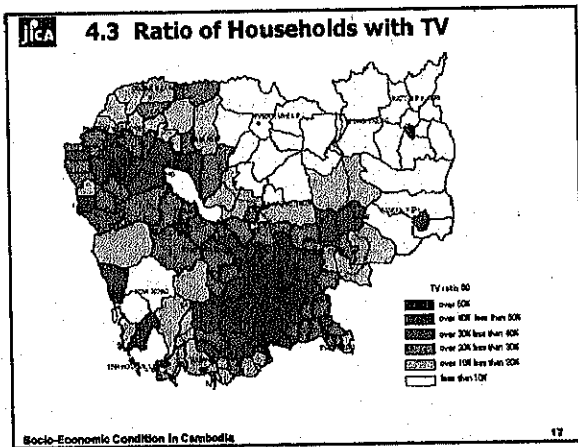
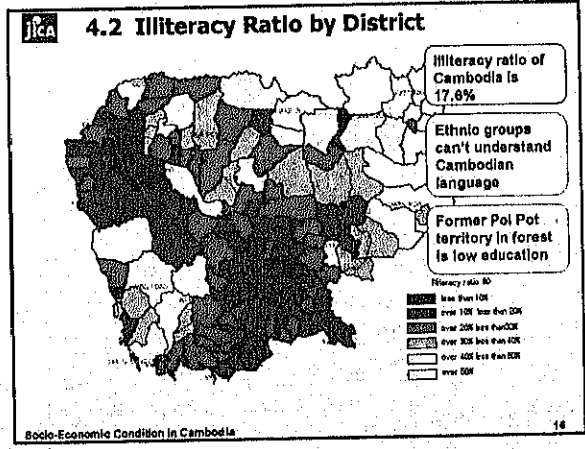
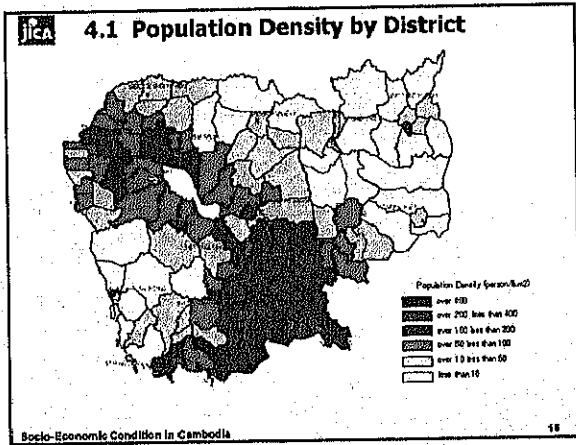
JICA THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

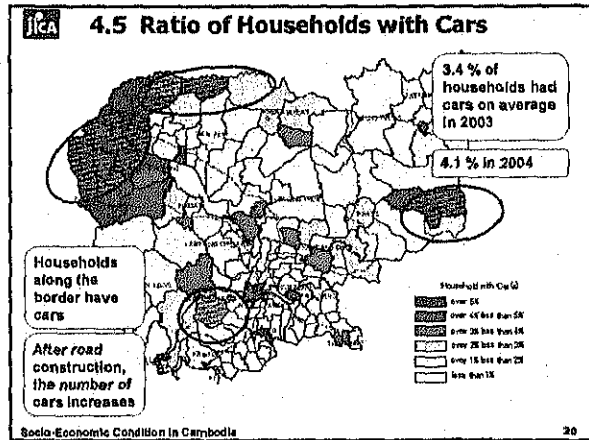
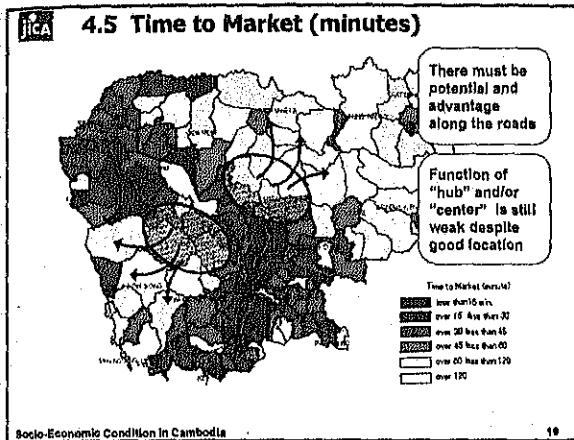
4. Social Condition

- To grasp the characteristics of the areas:
 - Which areas have high population density?
 - Are education levels the same?
 - Which areas have high poverty?
 - Where are mature areas to develop business?
 - Where are potential areas for road projects?

What types of areas should be developed first in terms of the Road Project?

Socio-Economic Condition in Cambodia 44





THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

4.6 Findings from the Viewpoint of Social Condition

- Remote mountain areas have high poverty /low population density (northeast area)
- Potential "Hub" areas are not developed despite the advantage (on NR5, NR6)
- International borders encourage people to engage in Trading Business (borders)
- New roads have been activating people's movement (along new roads)

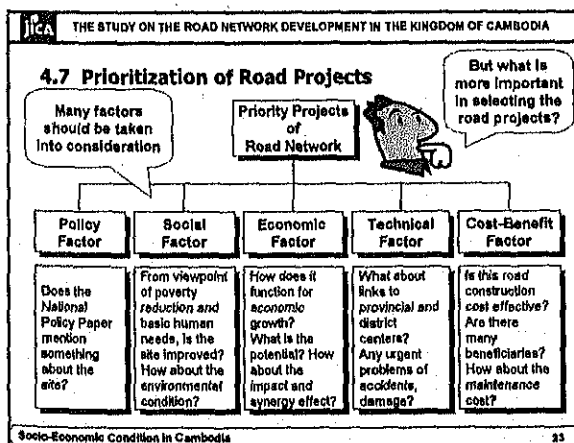
Socio-Economic Condition in Cambodia 21

THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

4.7 Prioritization of Road Projects

- What should be strategy of prioritization from the viewpoint of socio-economic development?
- Road Projects should be something contributing to society and economy of Cambodia, "effectively".
- Not only socio-economic factor but the other factors such as policy, technical and cost-benefit factors should be considered.

Socio-Economic Condition in Cambodia 22



THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

4.7 Prioritization of Road Projects

We shall use collected information for discussion!

- Weighting of factors should be discussed.
- Weighting of factors is one of the indicators of strategy of road network projects.
- Selection criteria is, in other words, "road for what purpose?", "how should the road be?"


Socio-Economic Condition in Cambodia 24

4.7 Prioritization of Road Projects

Points of Dispute!!

- The National Road Network should be functioning as integration of Cambodia.
- Economic growth is an urgent issue for Cambodia.
- Road project should follow or harmonize with National Policy.
- Poverty reduction cannot be ignored, but it is not the highest priority in the case of the National Road.
- Budget is limited.

National Road Network Policy becomes more clear by using the criteria and their "weights"



Socio-Economic Condition In Cambodia 25

4.7 Prioritization of Road Projects

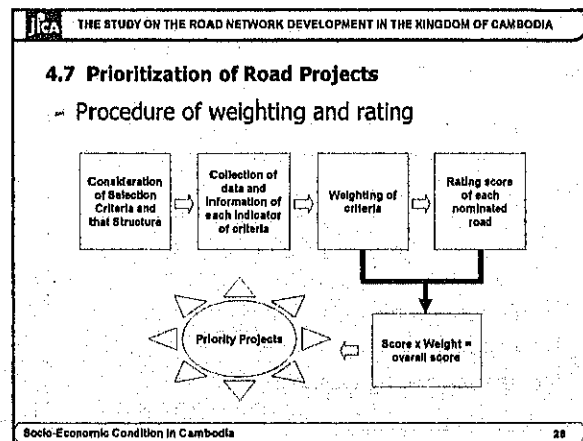
- Target roads
 - There are 39 roads of 2-digit NR in Cambodia.
 - There are 276 roads of 3,4-digit Provincial road in Cambodia.
- Method of "rating scale" and "weighting"
 - Assess existing 2-digit roads by rating scale method according to indicators.
 - After assessment of individual roads, multiply the rate (score) by each weight of factors.

Socio-Economic Condition In Cambodia 26

4.7 Prioritization of Road Projects

Level 1	Indicator	Score		
		High Points	Average	Low Points
Political Factor	SEDP	Strong Support	Average	No mention
	NPRS	Strong Support	Average	No mention
Social Factor	Poverty level (Income)	Very poor	Average	Rich Enough
	Education	Low literacy rate	Average	High literacy rate
	Health	Poor access	Average	Easy access
	Environment	Not destroyed	Average	Destroyed
	Inhabitant transfer	No problem	Average	Many inhabitants
Economic Factor	Scale of economy	Large GDP	Average	Small GDP
	Support for economy	High potential	Average	Less potential
	Number of Vehicles	Many	Average	Not so many
	International Trade	High potential	Average	Less potential
Technical Factor	Road Damage	Bad condition	Average	Good condition
	Road Standard	Bad condition	Average	Good condition
	Incomplete link to center and hub	To province (city/port/urban)	To district	No specific center
	Accidents	Bad condition	Average	Good condition
	Traffic	High traffic	Average	Little traffic
Cost-Effective Factor	Population density	Large	Average	Small
	Construction cost	Small	Average	Large
	Maintenance cost	Small	Average	Large

Socio-Economic Condition In Cambodia 27



5. Projection until 2020

5.1 Projected Population based on NIS

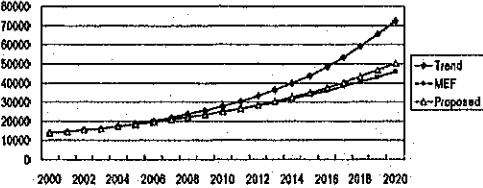
- Annual growth rate of population is about 2%
- Border areas, industrial areas and new frontiers will have high growth ratios
- Farming areas will have low growth ratios

Year	Actual	Projection			
	2003 ^a	2005	2010	2015	2020
Population	12,503,401	13,087,694	14,430,920	15,983,559	17,676,734

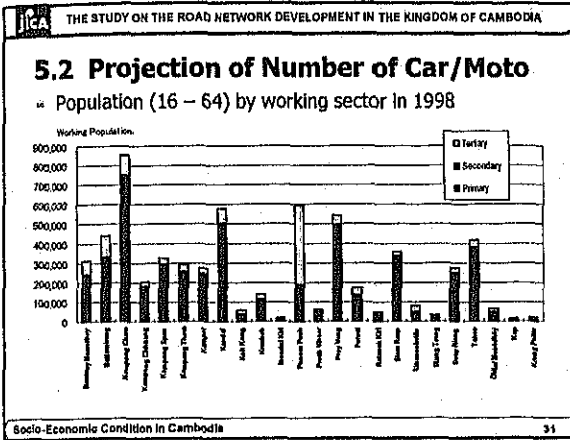
Socio-Economic Condition In Cambodia 29

5.2 Projection of GDP

- Based on the trend, the growth rate is high
- According to MEF, the growth rate is moderate
- The Study Team forecast is in between



Socio-Economic Condition In Cambodia 30

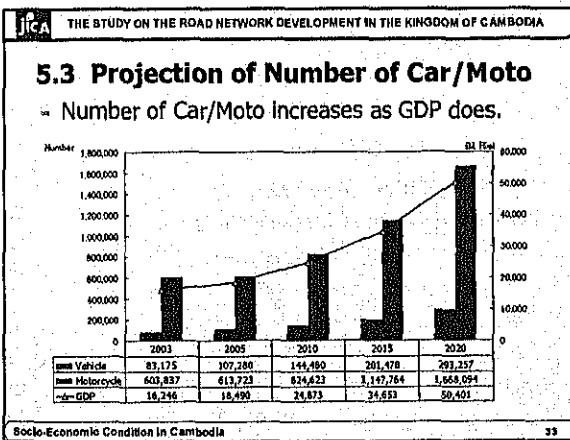


THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Estimation of GRDP in 2003 (mil Riel)

	Primary	Secondary	Tertiary	GRDP	Proportion
Banteay Meanchey	295,547	123,848	231,724	751,119	4.69%
Battambang	296,153	251,837	343,593	1,191,583	7.23%
Kampong Cham	619,431	331,610	497,090	1,748,130	10.78%
Kampong Chhnang	222,914	48,669	130,341	401,924	2.47%
Kampong Speu	370,756	50,127	192,296	593,179	3.53%
Kampong Thum	330,747	73,607	171,405	575,760	3.48%
Kampot	303,170	64,816	145,110	513,096	3.10%
Kandal	676,648	137,083	367,079	1,180,799	6.96%
Koh Kong	46,432	61,868	137,160	345,460	2.13%
Krechak	138,164	91,576	120,828	350,568	2.16%
Mondul Kiri	19,195	13,227	18,363	49,785	0.31%
Phnom Penh	24,438	1,825,953	1,997,396	3,947,787	24.65%
Prey Vihear	86,184	2,698	47,338	136,220	0.75%
Prey Veng	432,828	90,913	226,360	750,101	4.70%
Pursat	186,112	268,591	176,360	531,063	3.31%
Ratanak Kiri	53,804	8,377	25,016	87,197	0.54%
Siem Reap	348,448	852,538	109,893	1,310,879	8.08%
Sihanoukville	81,327	125,203	148,514	355,044	2.21%
Stung Treng	24,882	13,530	31,101	69,513	0.43%
Srey Rieng	312,593	36,377	117,360	466,330	2.93%
Tbeng Meanchey	474,471	98,479	148,943	721,893	4.57%
Oddar Meanchey	43,799	9,772	63,883	117,454	0.74%
Takeo	17,170	6,888	12,750	36,808	0.23%
Krong Palla	18,988	28,006	31,452	78,446	0.49%
Cambodia	5,848,594	4,352,818	5,741,609	16,143,020	100%

Socio-Economic Condition in Cambodia 32



THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

6. Conclusion

- Goal of road network is not completion of construction but contribution to the socio-economy in Cambodia.
- Comprehensive point of view is necessary while thinking about development of the Road network.
- Quantitative data and systematic method are useful in considering logically the realization of the projects.

Socio-Economic Condition in Cambodia 34

THE STUDY ON THE ROAD NETWORK DEVELOPMENT IN THE KINGDOM OF CAMBODIA

Thank You

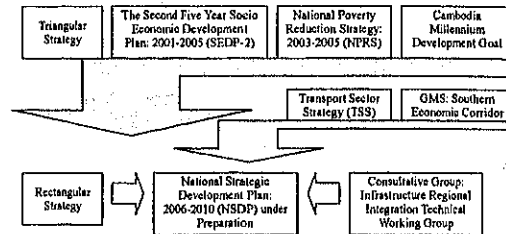
Socio-Economic Condition in Cambodia 35

**CHAPTER A-7
DEVELOPMENT STRATEGY**

**JICA STUDY TEAM
SEPTEMBER 5, 2005**

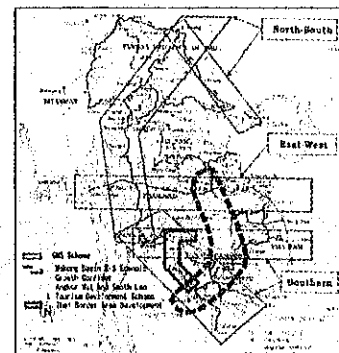
- 7.1 Review of Current Development Plans
- 7.2 Identification of Potential Development Area
- 7.3 Establishment of Development Strategy

7.1 Review of Current Development Plans



1) Wider Regional Development Frame

- (1) Greater Mekong Sub-Region (GMS) Economic Corridors
- (2) New Emerging Development Schemes
 - I) Mekong Basin North-South Economic Growth Corridor
 - II) Angkor Wat and Southern Lao Tourism Development Scheme
 - III) Thai Border Area Development



GMS Economic Corridor Scheme and Other Schemes

2) Nation-wide Development Frame

- (1) Triangular Strategy and Rectangular Strategy

Focus:

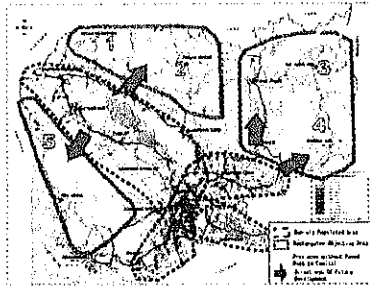
- I) Economic growth, and
- II) Rural development with high potentiality

Rectangular Strategy

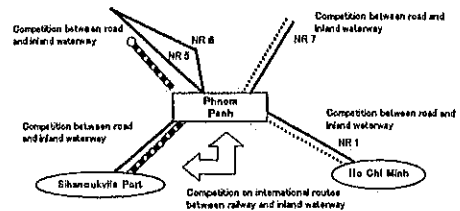
- Tourism Zone :**
Triangle of Siem Reap, Preah Vihea and Kompong Thom
- Industrial Zone :**
Coastal area
- Agriculture Zone :**
Eastern basin of the Mekong River
(including Ratanak Kiri and Mondul Kiri)



**Directions of Future Development
(related with (1) –(5))**



(6) To Transform Modal Competition Into More Complementary Relationship



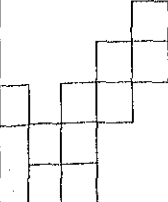
7.3.2 Strategy for Development

- (1) To Exercise Development Potentiality to the Full Extent (densely populated area, rural)
- (2) Industrial Development Policy cum Infrastructure Development (ex. Sihanouville growth corridor)
- (3) To Secure Easy Access to the Neighboring Economic Zone regardless to National Boundary (activate boundary areas in northern-west and east of Cambodia)

**(4) To Support Tourism Development
(Siemreap area, coastal area, east area)**

**(5) Policy Measures for Forest Reservation
along Road Development (against de-forest for speculative purpose)**

**(6) National Security Scheme to Assure
Durable International Traffic Routes**



**THE STUDY ON
THE ROAD NETWORK
DEVELOPMENT IN
THE KINGDOM OF CAMBODIA**

September 1, 2005

1

**CONCEPT OF ROAD NETWORK
DEVELOPMENT**

2

**Overall View on the Existing Road
Network System**

■ Based on the analysis on road condition survey and traffic survey, the Study Team has conducted an overall review on the existing road network system from the view point of functional, administrative and engineering requirements for each class road as follows;

3

**(1) 1 Digit National Road
(8 Nos. of 1-Digit roads; 2,052 km)**

1) Pavement conditions: 97% of 1-digit road will be paved road after improvement works are completed, but permanent asphalt concrete is 28% only and rest is mostly by DBST. It is further noted that, out of the section covered by DBST, 40% is still in bad or very poor conditions.

2) Bridge structures: 30 bridges are still temporary with 1 bridge still having one lane.

4

**(1) 1 Digit National Road
(8 Nos. of 1-Digit roads; 2,052 km)**

■ Findings:

The Study Team, therefore, considers that 1 digit road should be upgraded in the long term by the year 2020 to meet the requirement of increase traffic and be strengthened to be resistant against natural disaster in order to cut a cycle of economic disruption caused by flood.

5

(2) 2-Digit National Road (2,643 km)

1) Pavement conditions: Pavement ratio is only 31 % or 543 km out of 2,643 km of 2-digit road.

2) Bridge structures; There are 95 waterways where no bridge exist and 319 temporary bridges. Moreover, 45 bridges are still one lane bridge

6

(2) 2-Digit National Road (2,643 km)

■ Findings:

The Study Team considers that strengthening of 2-digit road network is essential for enhancement of an economic development as well as administrative activities in the country and, therefore, priority should be given to the improvement or upgrading of 2-digit road network in the long term.

Replacement of old and temporary bridge to permanent structure should be included as a major component of improvement or upgrading program.

(3) Provincial/3-Digit Road (6,615 km)

- 1) Pavement conditions: Out of 6,615 km of 3-digit road, 96% or 6,515 km is unpaved or gravel/earth road.
- 2) Bridge structures: There are 3 waterway crossings without bridges and 521 bridges which are temporary. Moreover, 255 bridges have only one lane carriageway.

(3) Provincial/3-Digit Road (6,615 km)

■ Findings:

The Study Team considers that these roads should, as much as possible, be upgraded to a paved road with DBST in order to provide the people with the basic transportation services, as well as to maintain social and economic activities in the rural areas.

The improvement program should include a component of provision of bridge with an appropriate standard to maintain the function of the 3-digit road in all weather.

(4) Rural Road (28,000 km, approx.)

- 1) Pavement conditions: Paved road with laterite or earth is 665 km or 2.3% of the rural roads under jurisdiction of MRD. No DBST or gravel road is existed in rural road. Most of roads are not trafficable during a rainy season.
- 2) Bridge structures: Majority of waterway crossings has no bridge and most existing bridges are very old and repair is necessary.

(4) Rural Road (28,000 km, approx.)

■ Findings:

The Study team recognizes the necessity on improvement of rural road network from the view point of poverty reduction and therefore considers that the rural road should be improved or upgraded to be a trafficable condition in all weather condition.

It is recommended however to improve a rural road with a minimum standard until a financial situation be improved.

Road Development Plan and Technical Level

- (1) Since Cambodia is part of the Greater Mekong Sub-region (GMS) and supports the Asian/ASEAN Highway Network, the single-digit national road serves as the most important road class in Cambodia.

Therefore the single-digit (1 digit Road) national road class should maintain both geometric, structure and safety level consistent with the International standard required for the Asian/ASEAN/GMS road network.

Road Development Plan and Technical Level

(2) On the other hand, 2-digit or secondary national roads will play an important role in the economic and social development of the provinces. This road network will catalyze sectoral development including industrial, agricultural and tourism in the provinces through sufficient links and interactions with other provinces.

(3) However, 3-digit/provincial and rural roads are expected to enhance the economic and social activities in the local areas.

Concept of Road Network Development and Technical Level

Road Classification	Road Development Plan	Technical Level
1-Digit National Roads	Road network with sufficient capacity for international traffic Road safe against traffic accidents Disaster-free road, flood-resistant roads	Geometric and road structure level consistent with international standard Sufficient traffic safety facilities should be in place Road structure level designed with strong resistance to 50-year flood
2-Digit National Roads	Road network density sufficient to facilitate economic development Road capacity sufficient for national demand Road safe against traffic accidents All-weather road	Geometric and road structure level consistent with Cambodian standard Sufficient traffic safety facilities should be in place Road structure level designed properly against annual flood
3-Digit Provincial Roads	Road density and capacity sufficient to serve provincial economic and social activities	Geometric and road structure level consistent with Cambodian standard
Rural Roads	Road density and capacity sufficient to serve basic human needs in rural areas	Geometric and road structure level that meets minimum requirements

Target of 1-Digit Road in the Long Term Plan;

- 1) to complete road network with sufficient capacity for international traffic so as to encourage international trade and investment from the GMS member countries
- 2) to improve a road structure to be disaster free (flood-resistant road) in order to cut off a cycle of economic disruption caused by flood
- 3) to improve a road safe facility against traffic accidents
- 4) to provide a bypass to prevent a traffic congestion in a large city

Target of 2-Digit Road in the Long Term Plan;

- 1) to improve a road network density sufficient to facilitate economic development in line with an economic development strategy for industrial, tourism and agricultural sectors in the country
- 2) to upgrade a road capacity sufficient for national demand
- 3) to improve a road safe facility against traffic accidents
- 4) to improve a road to be all weather condition

Target of 3-Digit Road in the Long Term Plan;

- 1) to improve, as much as possible, a road network density and capacity of 3 digit road network sufficient to serve provincial economic and social activities

Target of Rural Road in the Long Term Plan;

- 1) to improve, as much as possible, road density and capacity of rural road sufficient to serve basic human needs in rural areas

Concept for Road Development Plan

Year	Goal	Key Performance Indicators (KPIs)	Target	Measure	Responsible Agency	Remarks
2010	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2011	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2012	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2013	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2014	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2015	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2016	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2017	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2018	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2019	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved
2020	100% of the road network is paved	100% of the road network is paved	100%	100%	Ministry of Transport	100% of the road network is paved



Improvement Plan of Road Maintenance Mechanism

September 5, 2005

Road Management Team



1. OBJECTIVE:

- * Formulation of Effect & Efficiency
for Road Maintenance Mechanism *



2. Focal Tasks:

- 1) Establish Division which Fulfill Whole Responsibility on Maintenance
- 2) Capacity Development on Central and Provincial Staffs
- 3) Establish Sustainable Budget Flow System



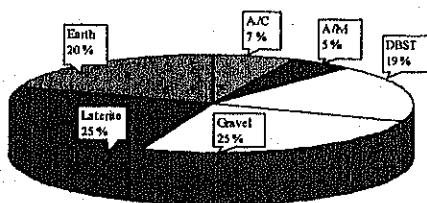
3. CURRENT CONDITIONS:

- 1) Road Surface
- 2) Disbursement Procedure
- 3) Budget Source
- 4) Problems Identification



Percentage by Surface (MPWT)

Total Length: 11,310 km

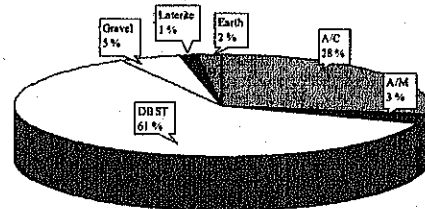


Source: LRCS & Study Team 2005

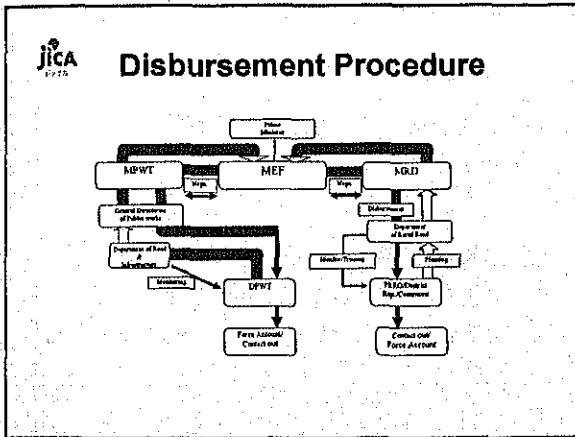
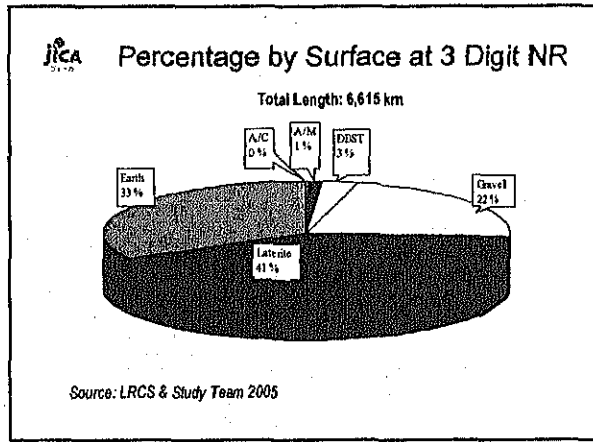
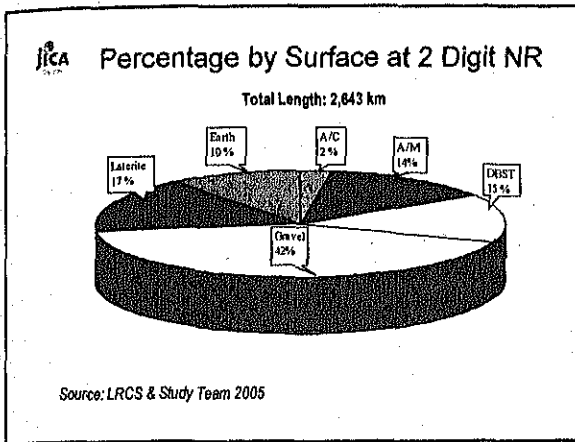


Percentage by Surface at 1 Digit NR

Total Length: 2,052 km



Source: LRCS & Study Team 2005



JICA Budget Source

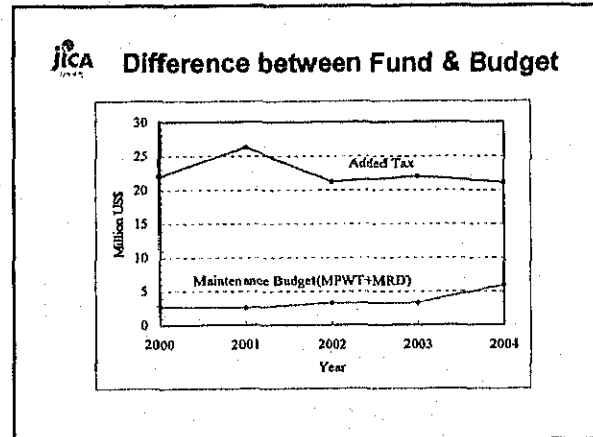
Added Tax:	2 cent for gasoline and 4 cent for diesel oil imposed on importers Working
Special Tax:	33.33% Imposed on imported price of gasoline
Purchase Tax:	60% of purchased present price
Road User Tax:	100,000 Riel per year
Traffic Offense Fine:	

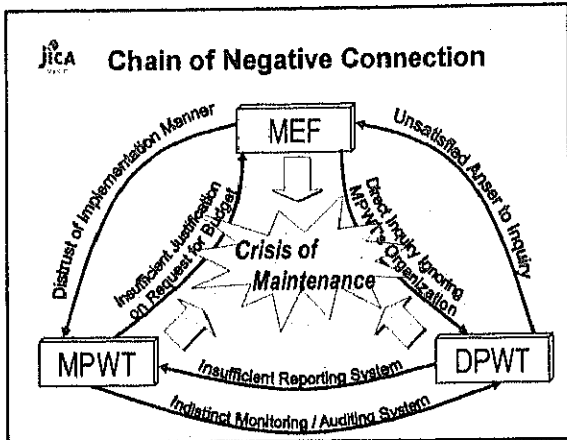
JICA Road Maintenance Budget in previous five Years

Unit in million Riel

	2000	2001	2002	2003	2004
MPWT	10,185	7,863	7,703	7,989	18,428
MRD	199	2,191	5,000	5,100	5,217
Total	10,384	10,054	12,703	13,089	23,645

Source: MPWT and MRD





JICA 4. Concept of Maintenance Mechanism:

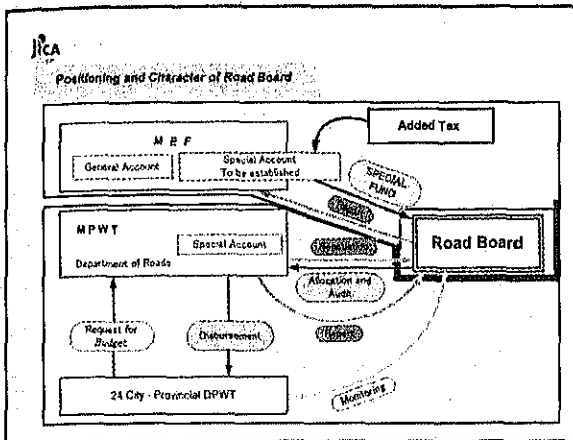
Term	Implementation Unit	Budget Resource
Short Term (~2010)	Force Account/ Contract out to Local Contractor	International/ National Budget
Medium Term (2010~2015)	Contract out to Local Contractor/ Force Account	National Budget
Long Term (2015~2020)	Contract out to Local Contractor	National Budget

- JICA 1) Reorganization of Executing Agency**
- Department of Roads**
- Responsible for planning on road and bridge improvement and maintenance
 - Function to receive and review the request for budget prepared by City-Provincial DPWT & PRRO
 - Function to request and negotiate the budget with Road Board
 - Function to receive the maintenance budget from Road Board and disburse to City-Provincial DPWT & PRRO

- JICA Classification of Jurisdiction**
- **Responsibility of DPWT**
Responsible for 1-, 2-, 3-Digit National Roads Maintenance
 - **Responsibility of PRRO**
Responsible for Rural Roads Maintenance other than National Roads

- JICA 2) CAPACITY DEVELOPMENT PROGRAM**
- Road Inventory
 - Condition Assessment
 - Treatment Selection
 - Prioritization
 - Budget Planning
 - Management of Maint. Works
 - Road Performance Monitoring

- JICA 3) Securing Transparency of Road Maintenance Fund**
- Establishment of Road Board



JICA **WHY BOARD?**

- **Timely Budget Disbursement & Simplification of Procedures**
 ⇒ Assessment at Planning Stage
- **Equitable & Transparency of Maint. Works**
 ⇒ Assessment at Implementation Stage
- **Quality Assurance**
 ⇒ Assessment at Completion Stage

JICA **BOARD FUNCTIONS**

1. To determine allocation of the road maint. budget
2. To coordinate, examine & review program
3. To apportion, disburse & monitor use of fund
4. To provide sound & timely accounts & reports
5. To conduct financial & technical audits

JICA **BOARD MEMBERS**

INDEPENDENT BOARD

- **Public Sector:**
 Representative of MPWT, MRD, MWRM,
 MEF, City-Provincial Government & Donors
- **Private Sector:**
 Public Accountant, ISO Qualified Auditor,
 & Representative of Road User

THE STUDY ON THE ROAD NETWORK DEVELOPMENT

ATTENDANTS LIST OF 1st Seminar in Cambodia

On 05th September 2005

No.	Name	Position
1	MR. KY VYRIN	Vice director BBPWT
2	MR. LIM SAMBO	DPWT Kompot
3	MR. CHINH KOURNG	Vice director PSPNT
4	MR. KIM SOVANN	Vice director of Ban.Chey
5	MR. KAO KOSAL	Vice director of K. Chhang
6	MR. NOUN CHAM RONG	Vice director of Prey veng
7	MR. MAK SUM	Vice director of K. Kep
8	MR. SOK SRUN	Vice director of K. cham
9	MR. BOUR CHANNA	Chief office of PW
10	MR. KOY HUY	Chief office of PW
11	MR. KHEAV PRASOV	Chief office of Admin
12	MR. ON RAKSMEY	Vice director of PW
13	MR. OUM TITH	Director department
14	MR. HOK RITHY	Vice director of PWT
15	MR. TAN THIRA	Counterpart
16	MR. SAN PISET	Counterpart
17	MR. MAO PHANARITH	MPWT
18	MR. LEANG MENGLEAP	MOE
19	MR. YIM CHAMNAN	MOE
20	MR. NOP KILARITH	MPWT
21	MR. CHREA THARAVUTH	DPWT
22	MR. HUY HENG	Vice Director
23	MR. YIN BORIN	Counterpart
24	MR. MEAS NARA	Official of Planning Dept.
25	MR. ING VANNA	MRD
26	MR. HOUR VANNY	DAC Air Port
27	MR. KANG PHIRITH	HEC MPWT
28	MR. TAKASHI SHIMIZU	Jica Study Team
29	MR. KAZUO YUMITA	Jica Study Team
30	MR. AKINISA KOJIMA	Jica Study Team
31	MR. H SHINKAI	Jica Study Team
32	MR. HANG CHOEUN	Waterway Department
33	MR. IPPEI IWAMOTO	Jica Study Team
34	MR. HONG SINARA	Dept Gen. Director
35	MR. KOUN BUNTHOEON	Head office/ PWRC
36	MR. KEO SAVIN	Deputy of Land Trans. Dept.
37	MR. KHUN JULINE	Deputy of DIC/MEF
38	MS. MIKA MATSUMURA	Jica Study Team
39	MR. SHUICMI YASHIRO	Jica Study Team
40	MR. JOVITO SANTOS	Jica Study Team
41	MR. TAKAO FUKUMA	Jica Study Team
42	MR. Y. UBUKATA	Jica Study Team
43	MR. SIM SOKHA	Jica Study Team
44	MR. CHEAM SOVANNY	Counterpart
45	MR. NEY SONA	Deputy Director
46	MR. TOMOHIRO ONO	JICA

The Study on the Road Network Development in the Kingdom of Cambodia

2nd Seminar

Date: 13th of March (Monday), 2006, 8:30 am - 12:35 am
Venue: MPWT, Big Conference Room at 1st floor

Schedule:

8:30-8:35am Welcome and Opening Speech Mr. Shimizu
(DTL)

1st Session

8:40- 9:00 am Development Strategy (20 min.) Mr. Kojima
9:00-9:30 am Road Network Development Plan (30 min.) Mr. Shimizu
9:30-10:00 am Road Improvement Measures (30 min.) Mr. Santos
10:00-10:30 am Question & Answer (30 minutes)

Tea break (30 minutes)

2nd Session

11:00-11:20 am Financial Issues (20 min.) Mr. Matsuda
11:20-11:40 am Implementation Program (20 min.) Mr. Shimizu
11:40-12:00 am Road Maintenance System (20 min.) Mr. Yumita

12:00-12:30 pm Question & Answer (30 minutes)

12:30-12:35am Closing Speech Mr. Kojima
(DTL)

Thank for your cooperation.

JICA Study Team Office:

4th Flr. of MPWT
Corner Norodom Blvd. and Street #106
Phnom Penh

Tel : 023-426-099
Fax: 023-426-098

