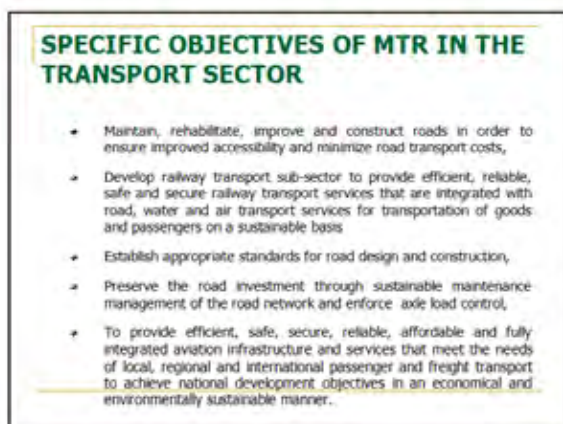
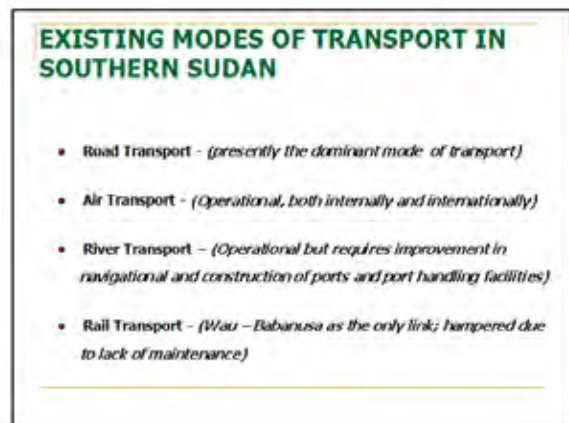
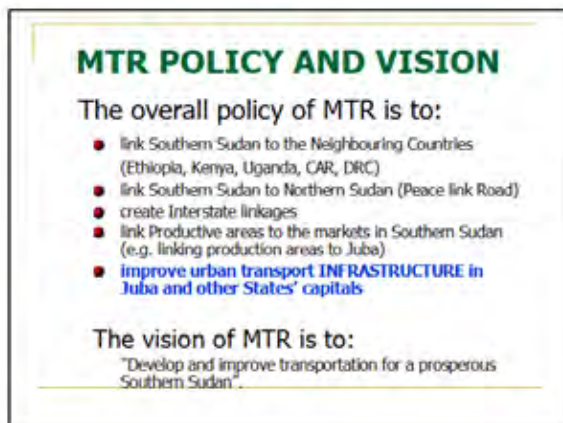
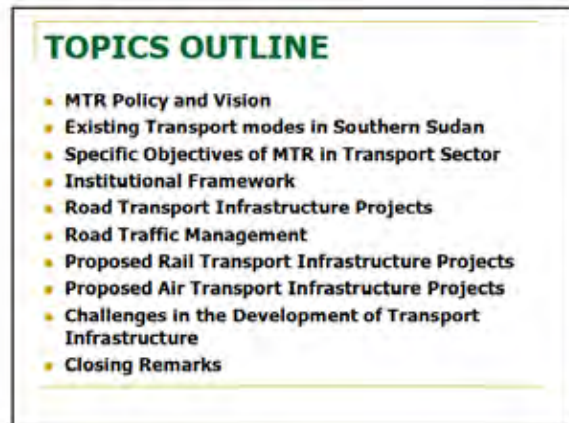


## 4.2 Presentation Materials

(a) Mr. Otim Bong



## INTITUTIONAL FRAMEWORK

Relationship between the Ministry of Transport and Roads-GOSS and the State Ministry of Physical Infrastructure is in the following areas:

- Training of Road Supervisors and local contractors
- Financial Support for Road Maintenance and internal roads within the State capitals
- Sharing of Technical Information
- Establishment of Southern Sudan Road Authority-Provide advice on Road Construction and on contract administration. States may set up their Road Authorities in future.

## ROAD TRANSPORT INFRASTRUCTURE PROJECTS

### Roads under MTR/MTDF/USAID

- Nimule – Juba road. (Contractor on the ground. Initials works of bridge repair and road maintenance have commenced).
- Nadapal – Juba ( to be paved) Consultant hired to carry out the study and design work. Completion, June, 09. Construction starts late 2009
- Kaya – Yei – Juba (to be paved) Consultant hired to carry the study and the design work. Completion, September, 09. Construction starts early 2010.
- 7,000 km Rural Access roads (Consultants hired and work on progress)

## TRANSPORT INFRASTRUCTURE PROJECTS

### President's Projects

- 20 KM Juba Ring Road (to be paved) ongoing
- Rumbek – Yirol – Shambe (to be paved)
- Rumbek – Maper – Bentiu (to be graveled)
- Rumbek Airport (to be paved)
- Rehabilitation of Shambe port

## PROPOSED ROAD PROJECTS UNDER MTR-GoSS 2009/11

- ▢ Juba – Mundri – Mvolo – Rumbek – Tonj – Wau Road (Upgrading to bituminous standard)
- ▢ Rumbek – Mayendit – Bentiu Road (Improve gravel standard)
- ▢ Bor-Mabior-Malakal – Renk – Kosti (upgrading to bituminous standard)
- ▢ Wau – Aweil Road (Upgrading to bituminous standard)
- ▢ Narus – Boma – Raad (Upgrading to bituminous standard)

## ONGOING REHABILITATION AND CONSTRUCTION OF ROADS UNDER MTR - GoSS

The ongoing rehabilitation and construction of roads in Southern Sudan under MTR- GoSS are the following;

- Juba – Terekeka – Awerial – Yirol – Leer Road
- Wau – Deim Zubeir – Raga Road
- Bor – Pibor – Pochalla Road
- Ayod – Waat – Akobo Road
- Mvolo – Akakhuak Road
- Wau – Luomyaker – Liethom Road
- Wau – Warrap Road
- Tonj – Thiet – Luomyaker Road
- Lainya – Jambo Road
- Juba – Lobonok – Moli Road
- Maridi – Yambio – Tombura Road
- Rumbek – Maper – Mayendit Road

## ROAD TRAFFIC MANAGEMENT

- Registration of motor vehicles
  - New number plates
  - New logbooks and stickers
- Licensing of motor vehicles and drivers
  - New road licenses
  - New driving licenses
- Installation of motor vehicle inspection facility in GoSS and States

## PROPOSED RAIL TRANSPORT INFRASTRUCTURE PROJECTS

- Railway link from Juba to Lamu (KENYA/SOUTHERN SUDAN/UGANDA)
- Railway link from Juba to Gulu (SOUTHERN SUDAN/UGANDA) and Juba to Wau where there is existing rail line.
- Juba – Yei – Pakwach (SOUTHERN SUDAN/UGANDA)
- Rehabilitation of railway line between Babanusa and Wau, a distance of about 450km.
- Maintenance of the existing railway stations
- Training of railway staff

## PROPOSED AIR TRANSPORT INFRASTRUCTURE PROJECTS

The Government of Southern Sudan, Ministry of Transport and Roads has full authority to develop, operate and manage airports in Southern Sudan. The major airports amongst other airstrips include:-

- Juba International Airport
- Malakal Airport
- Wau Airport

MTR plans to rehabilitate, install airport facilities and manage the following airstrips

- Aweil
- Yambio
- Torit
- Bor
- Rumbek

## ONGOING IMPROVEMENTS AT THE AIRPORTS

- **Juba International Airport**
  - Construction of a new terminal building
  - Extension of the runway,
  - Fencing of the airport
  - Purchase of new fire fighting equipment
  - Feasibility studies and design of a new hangar
  - Construction of new cargo centre
  - Purchase of security facilities, e.g. scanners
- **Malakal Airport**
  - Training of airport management staff
- **Wau Airport**
  - Ongoing feasibility studies and preliminary design to upgrade it to international standard
  - Fencing of the airport

## PROPOSED RIVER TRANSPORT INFRASTRUCTURE PROJECTS

- Juba port (dredging & rehabilitation)
- Construction of boat building yard in Mongalla
- Dredging of River Nile
- Purchase of five new barges
- Construction of five major ports
  - Bor
  - Port Shambe
  - Adok
  - Malakal
  - Mongalla

## WEIGHBRIDGES AND BARRIERS FOR AXLE LOAD CONTROL

Installation of 8 stationed weighbridges and 2 mobiles at :-

- Kaya
  - Nimule
  - Nadapal
  - Juba
  - Yei
- 

## CHALLENGES IN TRANSPORT INFRASTRUCTURE DEVELOPMENT

- No paved roads in Southern Sudan apart from few kilometers in Juba
- Landmines on roads
- No established funding mechanism for roads, river navigation, air transport infrastructure and railway
- No established road inventory
- Low human capacity to man the operation of road, river, air and railway transport
- No contractor & consultant capacity



## CLOSING REMARKS

The Government of Southern Sudan, Ministry of Transport and Roads support and co-operate with the States, the development partners and stakeholders to provide transport infrastructure and services to make a stronger economy for the people of Southern Sudan.

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Demining in progress  
(Kaya – Yei – Juba Road)



Traffic on  
(Kaya – Yei – Juba Road)



Traffic on  
(Wau – Tonj – Rumbek - Juba Road)



**THANKS FOR YOUR  
ATTENTION**

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(b) Mr. Kunihiko Sawano


**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**GOVERNMENT OF SOUTHERN SUDAN**  
 Ministry of Transport & Roads  
 Ministry of Public Infrastructure, CSS

## Juba Urban Transport Infrastructure and Capacity Development Study

# The Study

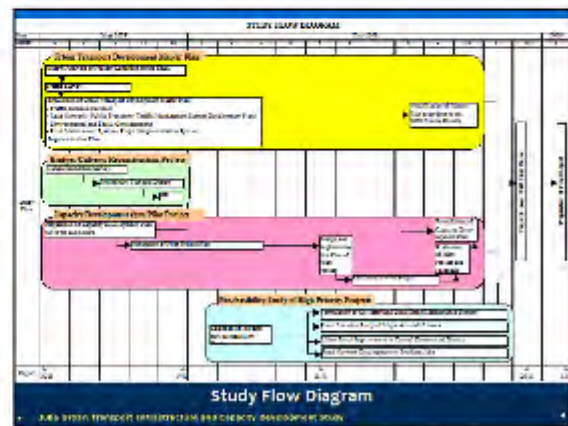
4th Stakeholder's Meeting  
June 02, 2009

### OBJECTIVES OF THE STUDY

1. To formulate an urban transport development master plan with a target year of 2025.
2. To formulate a project for reconstruction of bridges/culverts.
3. To conduct pre feasibility studies of high priority projects.
4. To prepare a capacity development plan for MTR and MOP1 staff.
5. To support in planning and execution of a pilot project as a part of capacity development.

### SCOPE OF THE STUDY

1. Formulation of urban transport development master plan
2. Formulation of bridges/culverts reconstruction project
3. Pre-feasibility studies of high priority projects
4. Capacity development thru pilot project execution



(c) Mr. Kunihiko Sawano

JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) GOVERNMENT OF SOUTHERN SUDAN Ministry of Transport & Roads Ministry of Housing & Urban Development

Juba Urban Transport Infrastructure and Capacity Development Study

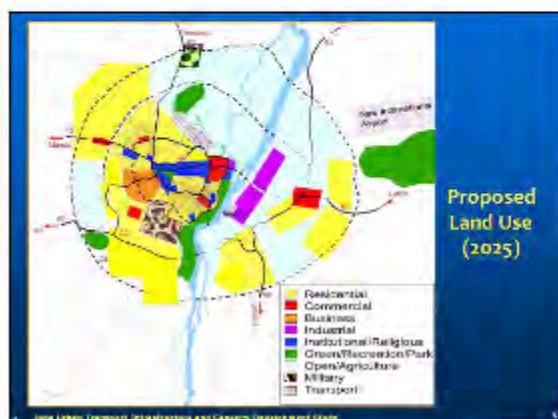
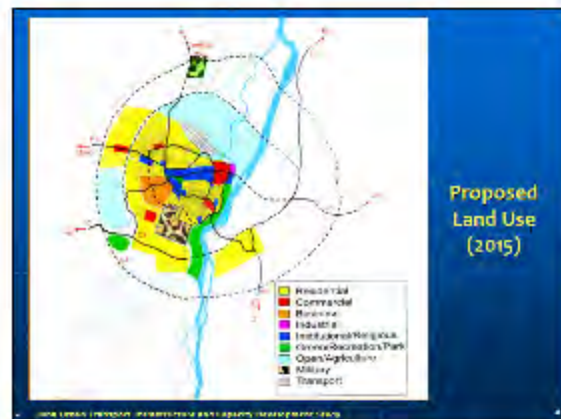
## Population and Land Use

4th Stakeholder's Meeting  
June 02, 2009

### POPULATION AND LAND DEMANDS

Year	Estimated Population	Land Demand
2008	300,000 – 500,000	4,070 ha
2015	600,000 – 800,000	7,700 ha (equivalent to the area surrounded by C-3)
2025	1,100,000 – 1,200,000	14,000 ha (equivalent to the area surrounded by C-4)

- ### BASIC CONSIDERATION ON LAND USE PLANNING
- Sufficiency of urban functions required for modern city as a center of political, social, economic and cultural activities of the Southern Sudan.  
⇒ Review and provision of adequate transport facilities, formation of Central Commercial District (CCD) & Central Business District (CBD), provision of sufficient green/recreation areas etc.
  - Provision of transport facilities as a transport hub of the region.  
→ Efficient interstate/international connection, effective urban road network with radial/circumferential pattern, new international airport & new river port shall be established.
  - Well balanced distribution of various land use.  
→ Residential, commercial, business, industrial and institutional areas shall meet the respective land demands and appropriately distributed.
  - Making Juba a comfortable, pleasant and environment friendly city.  
→ Enough green/recreation areas shall be reserved.
  - Proper direction of urban area expansion.  
⇒ ☉ Southwest & east (downstream), ☉ Southward, ☉ Eastward (east side of Nile River)

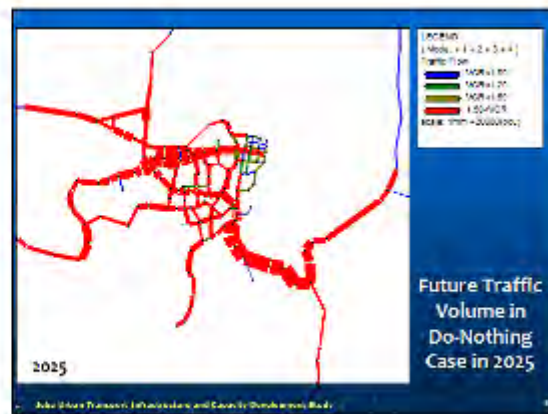
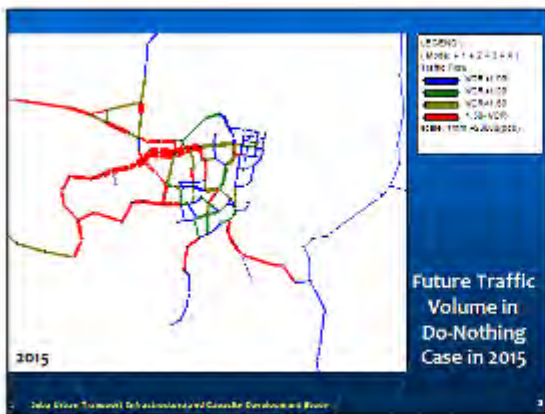
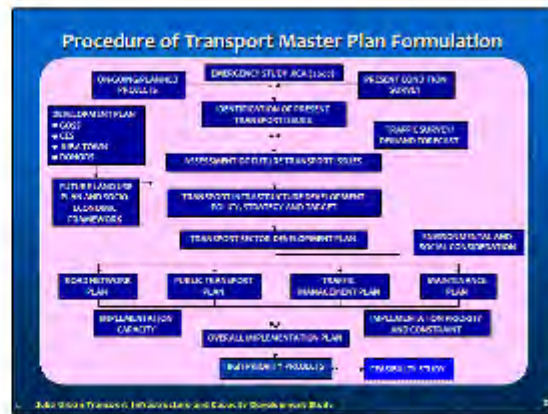


# Thank You



(d) Mr. Kunihiko Sawano

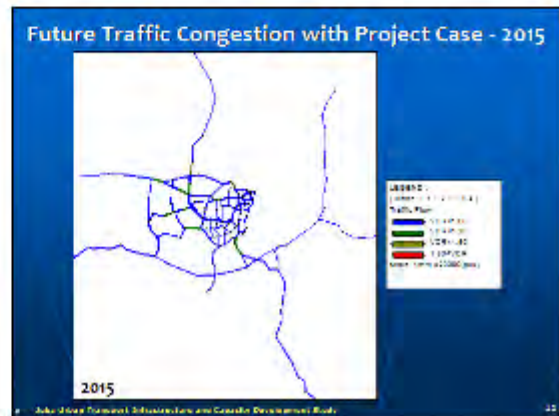
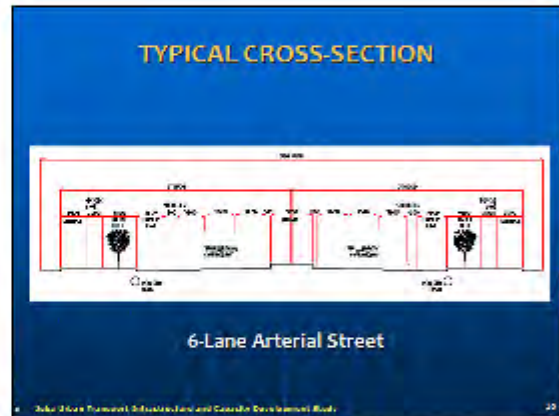
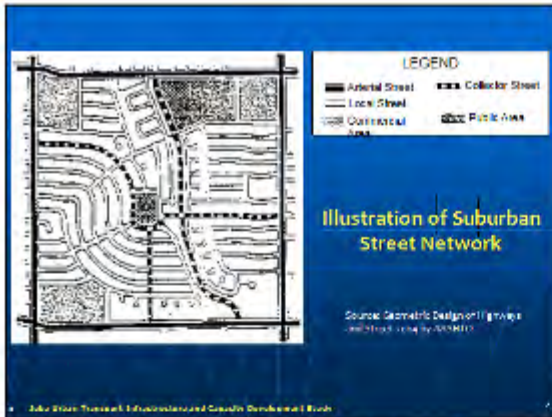

  
**Juba Urban Transport Infrastructure and Capacity Development Study**
  
**Road Network Development Plan**
  
 4th Stakeholder's Meeting
   
 June 02, 2009



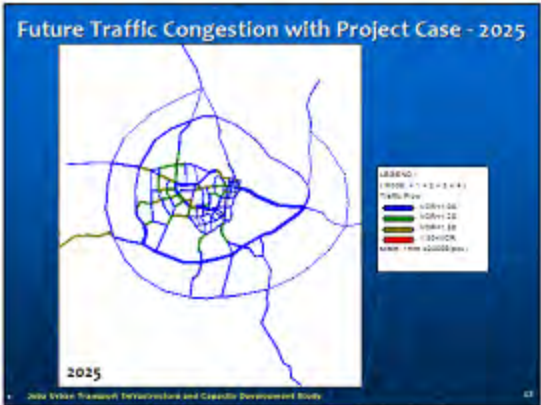
- ### PRINCIPLES IN FORMULATION OF ROAD NETWORK DEVELOPMENT PLAN
- Maximum utilization of existing roads as a part of new arterial/collector streets as far as available.
    - Proper road savings and less social/environmental impact
  - Formation of road network inducing planned urban development.
    - Assistance of land use and spreading development of land
    - Full fitment of land use plan
    - ⇒ Sound and targeted urban development
  - Development of hierarchical road network system based on functional road classification (arterial, collector & local streets)
    - ⇒ Efficient road network
    - Minimizing total traffic costs
  - Formation of radial-circumferential type road network
    - Meeting the mobility and accessibility needs depending on areas
    - Attainment of the expected role of Juba as the transport hub in the region

### FUNCTIONAL ROAD CLASSIFICATION

<b>Arterial</b>	<ul style="list-style-type: none"> <li>- Connects to major urban activity centers.</li> <li>- Located along the high traffic volume corridor.</li> <li>- Integrated with the function of major interstate connection.</li> <li>- Functions as primary distributor.</li> </ul>
<b>Collector</b>	<ul style="list-style-type: none"> <li>- Functions as local distributor within residential neighborhood and commercial and industrial areas.</li> </ul>
<b>Local Street</b>	<ul style="list-style-type: none"> <li>- Provides direct land access with low level of mobility.</li> </ul>







# Thank You

2010 Vision: Transport Infrastructure and Capacity Development Study

(e) Mr. Ryuichi Ueno

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

GOVERNMENT OF SOUTHERN SUDAN  
Ministry of Transport & Roads  
Ministry of Planning and Economic Affairs

**JUTI STUDY**

**JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY**

**Public Transport Development Plan**

**JICA STUDY TEAM**  
**Ryuichi UENO**

JUNE 2, 2009

**Contents**

1. Planning Concept
2. Administrative/Institutional System
3. Estimated Public Transport Demand
4. Proposed Bus System
5. Proposed Taxi System
6. Proposed Cost Estimate

**1. PLANNING CONCEPT**

1.1 Problems in Present Public Transport


City Bus(1/3)

- Minivans are mainly operated as city bus in Juba.
- Although Directorate of Transport in CES has been responsible in controlling public transport within the state, this has not yet been implemented.
- Laws/regulations on license for operation buses are not established yet. Buses are presently operated arbitrarily.

1.1 Problems in Present Public Transport

City Bus(2/3)

- Many minivans waiting for passengers are occupied along the road near market as most minivans wait until its seats become full.



1.1 Problems in Present Public Transport

City Bus(3/3)

- According to bus users interview survey, bus passengers are not satisfied with "Air Quality" and "Noise Level".
- They assessed "Improvement of regularity / punctuality" and "Improvement of accessibility to bus terminal".

Route	Frequency	Vehicle Type	Passenger Capacity	Service Status
1	10	Minivan	15	Operational
2	15	Minivan	15	Operational
3	20	Minivan	15	Operational
4	25	Minivan	15	Operational
5	30	Minivan	15	Operational
6	35	Minivan	15	Operational
7	40	Minivan	15	Operational
8	45	Minivan	15	Operational
9	50	Minivan	15	Operational
10	55	Minivan	15	Operational
11	60	Minivan	15	Operational
12	65	Minivan	15	Operational
13	70	Minivan	15	Operational
14	75	Minivan	15	Operational
15	80	Minivan	15	Operational
16	85	Minivan	15	Operational
17	90	Minivan	15	Operational
18	95	Minivan	15	Operational
19	100	Minivan	15	Operational

Route	Frequency	Vehicle Type	Passenger Capacity	Service Status
1	10	Minivan	15	Operational
2	15	Minivan	15	Operational
3	20	Minivan	15	Operational
4	25	Minivan	15	Operational
5	30	Minivan	15	Operational
6	35	Minivan	15	Operational
7	40	Minivan	15	Operational
8	45	Minivan	15	Operational
9	50	Minivan	15	Operational
10	55	Minivan	15	Operational
11	60	Minivan	15	Operational
12	65	Minivan	15	Operational
13	70	Minivan	15	Operational
14	75	Minivan	15	Operational
15	80	Minivan	15	Operational
16	85	Minivan	15	Operational
17	90	Minivan	15	Operational
18	95	Minivan	15	Operational
19	100	Minivan	15	Operational

1.1 Problems in Present Public Transport

Interstate/International Bus

- Department of transport and safety, MTR has responsibility for interstate/international bus. Currently there is a temporary interstate/international bus terminal near Custom Market, which has no building for waiting passengers and the terminals are not paved.
- If CES will provide the land for interstate/international bus terminal, Department of transport and safety, MTR would like to construct a new bus terminal.



### 1.1 Problems in Present Public Transport

#### Taxi Services (Sedan & Bike)

- No Registration System
- No Responsible Organization in order to control the taxi service.
- Bike's traffic accidents are increasing due to many unlicensed drivers, bad manners and bad surface condition for bike.



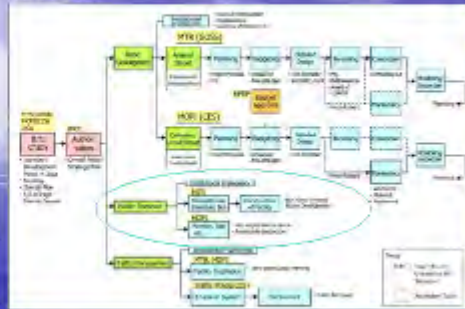
### 1.2 Planning Directions for Public Transport Plan

- Considering the introduction of a registration system and responsible organization in order to control the public transport.
- Considering the urban size and characteristics of existing transport facilities, the minivans shall be adopted as the main public transport mode in Juba. In the future, a new environmentally friendly public transport mode should be introduced as a trunk public transport system.
- Considering the role of the para-transit mode in a transport system, the existing para-transit modes such as bike-taxi should be converted mainly into feeder modes.

### 1.2 Planning Directions for Public Transport Plan



### 2. ADMINISTRATIVE / INSTITUTIONAL SYSTEM



### 2. ADMINISTRATIVE / INSTITUTIONAL SYSTEM

#### Establishment of the Directorate of Public Transport, MTR

- Public Transport Policy, Planning and Administration
- Construction of Public Transport Facilities (Bus Stop/Terminal)

#### Strengthening of the Directorate of Communication and Transportation, MOPI

- Bus, Taxi and Bike Taxi Registration/License
- Bus Route Development, Bike Taxi Limited Zone System

### 3. Estimated Public Transport Demand

#### (1) Existing Minivan Demand



#### Present Major Routes

- ① Juba town-Custom
  - ② Juba town-Konyokonyo
  - ③ Juba town-Lologo
  - ④ Juba town-Mabakis
  - ⑤ Juba town-Moniki
  - ⑥ Custom-Gadele
  - ⑦ Custom-Moniki
  - ⑧ Konyokonyo-Makakis
- (Bus user's interview survey)



### 3. Estimated Public Transport Demand

#### (2) Future Minivan Demand

No. of Minivan  
600 (Year 2008)



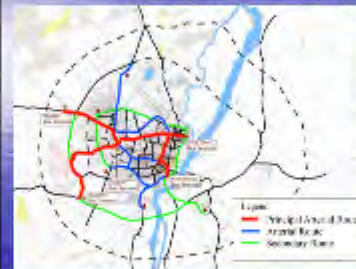
1900 (Year 2015)



Minivan Volume (2015) 19

### 4. Proposed Bus System

#### 4.1 Proposed Future Bus Network Plan



There is a need to introduce a registration system and a designated route for city bus.

Major bus terminals shall be constructed or improved.

In the future, a new environmentally friendly public transport shall be introduced.

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#### 4.2 Proposed Bus/Parking Terminal



##### Four (4) Bus Terminals

- Liba Town
- Custom
- Kariyo-kariyo
- Southern bus terminal (new)

##### Six (6) Bus Parking

- Lolago
- Muniki
- Oudele
- Gumba
- Jabel Market
- Northern bus parking

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### 5. Proposed Taxi System

#### 1. Present Situation

	Motor-taxi	Wagwan	Motorcycle
Income level	Medium income level	On demand use, middle or long trip (30 minutes)	Fare is not fixed; based on the nego. The fare for within city 4000G.
Income level	Low income level	On demand use, short or middle trip (under 150 minutes)	Fare is not fixed; based on the nego. The fare for within city 3 500G.

#### 2. Proposed Taxi System

- Registration System in order to control the taxi service operation.
- Strengthen of the taxi driver's education for traffic safety
- Introduction of a designated zone for motorbike-taxi as a feeder transport mode to minivan. (future)

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### 5. Proposed Taxi System

#### 3. Introduction of a designated zone for motorbike-taxi (concept)



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### 6. Proposed Cost Estimate

Policy and Regulation Operation	-
Vehicle Registration	-
Bus Terminal	34 mil. US\$

- Bus Terminal Infrastructure Cost
  - 4 Locations, Total 24,800 thousands US\$
    - Land Area (100m\*100m)
    - Terminal Building, Terminal Parking
- Bus Parking Infrastructure Cost
  - 6 Locations, Total 5,240 thousands US\$
    - Land Area (30m\*100m)
    - Working Area/Street/Parking Area
- Grand Total 34,040 thousands US\$

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(f) Mr. Ryuichi Ueno

JICA INTERNATIONAL  
CORPORATION

GOVERNMENT OF SOUTH SUMBAWA  
SAMBANG, MATANIKU, LAMBUJA  
KORONA, KUPANG, MALINDANG, MATANIKU

**JUTI STUDY**

**JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY**

**Traffic Management Development Plan**

**JICA STUDY TEAM  
Ryuichi UENO**

June 2, 2009

**Contents**

1. Planning Concept
2. Administrative/Institutional System
3. Traffic Engineering Measures
4. Traffic Safety Education
5. Traffic Enforcement

**1. PLANNING CONCEPT**

1.1 Present Traffic Problems

1. Traffic engineering and technical perspective.
  - Disorderly traffic flow due to the mixed traffic
  - Inefficient traffic processing capacity at roads and junctions
  - Underdeveloped vehicle directional facilities at junction
    - Inadequate geometric configuration
    - Insufficient traffic safety facilities
    - Insufficient pedestrian crossing facilities
  - Inadequate traffic regulations
2. Traffic safety perspective
  - Insufficient traffic safety education
  - Lack of drivers discipline to observe traffic regulation
  - Inconsistent traffic enforcement

**1.2 Basic Direction of Traffic Management Measures**

1. Measures of Traffic Engineering
  1. Improvement of junction and road section
  2. Installation of traffic signal
  3. Setting up traffic accidents data management system
2. Promotion of Traffic Education
3. Strengthening of Traffic Enforcement



**2. Administrative/Institutional System**

2.1 Reorganization of Existing Organization

	Function
The Directorate of Road Transportation and Safety, DTR	<ul style="list-style-type: none"> <li>✓ Road Transport Policy, Planning and Administration</li> <li>✓ Traffic Management Installation of Traffic Safety Facilities</li> </ul>
The Directorate of Communication and Transportation, MOPT	<ul style="list-style-type: none"> <li>✓ Road Safety Planning and Administration</li> <li>✓ Installing the Traffic Safety Facilities</li> </ul>
Traffic Police	<ul style="list-style-type: none"> <li>✓ Establishment of Education System for Traffic Police</li> <li>✓ Traffic Rule Enforcement</li> </ul>



## 2.2 New Institutional Framework

### The Road Traffic Safety Management Unit (RTSMU)

- RTSMU will take charge of the coordination and management of road safety activities in Southern Sudan. RTSMU will also be in charge of the development of traffic policy and standards.
- Install a system for collecting road accident data.
- Programs for combating speeding, alcohol and drugs related offences, as well as overloaded vehicles should receive special attention.
- Promote the role of traffic officers – establish a traffic academy for training of traffic officers, set out career development opportunities and establish favourable conditions of employment for traffic officers.
- Provide training, equipment and materials for the police for collection of data on accidents.

Source: Strategic Plan for Road Sector (MTR) 2006

## 3. Traffic Engineering Measures

### 3.1 Road Improvement and Traffic Operation

- Pavement Marking
- Exclusive left turn lane
- Raised median
- Sidewalk and crosswalk
- Prohibition of Parking in and near junctions



Red line shows the prohibition of stopping and parking near intersection (Tokyo)

## 3.2 Intersection Operation Plan

### Alternative Improvement Type of Intersection

**Present Type**

- Non-Signalized Roundabouts
- Non-Signalized Intersections

**Improvement Type**

- Non-Signalized Roundabouts
- Signalized Roundabouts
- Signalized Intersections

## 3.2 Intersection Operation Plan

### Advantage and Disadvantages of Intersection Improvement Type

Type	Non-Signalized Intersection		Signalized Intersection	
	Roundabout	Intersection	Roundabout	Intersection
Land Use	Moderate (requires available space for roundabout, as well as approaching and departing lanes)	Moderate	Moderate (requires space for exclusive left turn lane along approaching lane)	Moderate or Not Required
Signal Control	Not Required	Required (at least 4-phase control)	Required (at least 2-phase control)	Required (at least 4-phase control)
Volume of Traffic Congestion	Moderate (if volume will permeating capacity) to Moderate (if volume already exceeding capacity)	Moderate (if volume will permeating capacity) to Moderate (if volume already exceeding capacity)	Moderate (if volume will permeating capacity) to Moderate (if volume already exceeding capacity)	Moderate (if volume will permeating capacity) to Moderate (if volume already exceeding capacity)
Volume of Traffic Conflicts	Moderate	Moderate	Moderate	Moderate

## 3.2 Intersection Operation Plan



Phase	No. of Intersections
Phase I (2006-2010)	3 (No. 4, 5, 6)
Phase II (2011-2015)	1 (No. 2, 8, 9)
Phase III (2016-)	4 (No. 1, 3, 7, 11)

## 3.3 Parking Control in Central Commercial District

- Basic policy of parking control**
  - Control at the commercial area along May street shall be prohibited to prevent reduction of traffic capacity and traffic accident.
  - Residential area will be accepted for residents, except in the collector streets to secure road width for public and emergency vehicles.
- Parking Control by Enforcement**
  - Prohibition at intersection
  - Prohibition on the Arterial and Collector streets
- Elimination of On-street Parking**
  - Introduction of on-street parking meter
  - Introduction of multi-storied car parking facility
  - Establishment of new building code



### 3.4 Other Traffic Management Plan

#### 1. Traffic Demand Management

1. Introduction of New Parking Policies and Measures
2. Shifting to Public Transport from Private Vehicles
3. Restriction of the vehicles entering CCD

#### 2. Uniform Traffic Control Devices

1. Preparation of Uniform Traffic Control Device Deployment Guidelines
2. Cooperative Efforts of Traffic Related Agencies



MOBILE 2001, USA

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### 4. Traffic Safety Education

1. Introduction of a System for Traffic Accident Data and Analysis
2. Implementation on Periodical Traffic Safety Campaign
3. Traffic Safety Education for the Schoolchildren

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### 5. Traffic Enforcement

#### 1. Strengthening the Traffic Enforcement by the Traffic Police

- Ignoring traffic rules
- Ignoring controls by traffic police at junctions
- Illegal on-street stopping/parking at/near junctions, especially minivans and bike taxi

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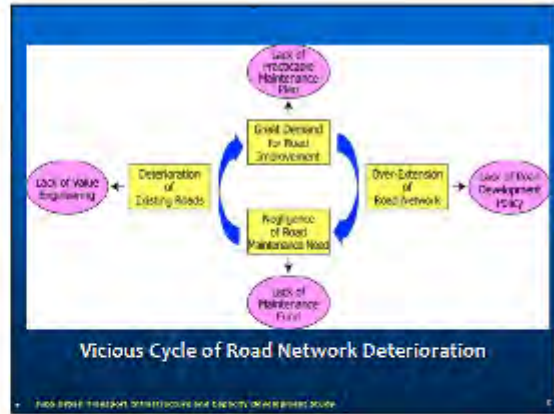
(g) Mr. Tsuneo Bekki

**JICA** JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) **GOVERNMENT OF SOUTHERN SUDAN** Ministry of Transport & Road, Ministry of Physical Infrastructure, etc.

**Juba Urban Transport Infrastructure and Capacity Development Study**

# Proposed Road Maintenance System

4th Stakeholder's Meeting  
June 02, 2009



### Demarcation of Road Improvement Work

	Articled Roads in Juba Urban Area	Other Roads in Juba Urban Area	Major Inter-urban / International Roads	Other Roads outside Juba Urban Area	Remarks
Maintenance	STATE	GOSS And/or STATE	GOSS	GOSS And/or STATE	Contracted to NGO
Rehabilitation	STATE	GOSS And/or STATE	GOSS	GOSS And/or STATE	MTR, NGO Contractor (by contract)
Improvement	STATE	GOSS And/or STATE	GOSS	GOSS And/or STATE	MTR, Donors, NGOs (by contract)
New Construction	STATE	GOSS And/or STATE	GOSS	GOSS And/or STATE	MTR, MDIT, Donors (by contract)

**Administrative Road Classification**

- No. of States in the Southern Sudan: 10
- No. of Counties in the CES: 6
- No. of Districts in Juba County: 05

**Proposed Jurisdiction of Road Improvement Work**

Road Type	Road Construction	Road Maintenance
International/Interstate Road	MTR	MTR
State Road	STATE	STATE
County Road	STATE <sup>1)</sup>	STATE <sup>2)</sup>

Note 1) State responsible for funding performance user. County is responsible to conduct maintenance work under the guidance of the State.

### Proposed Development Scenario of Road Maintenance System

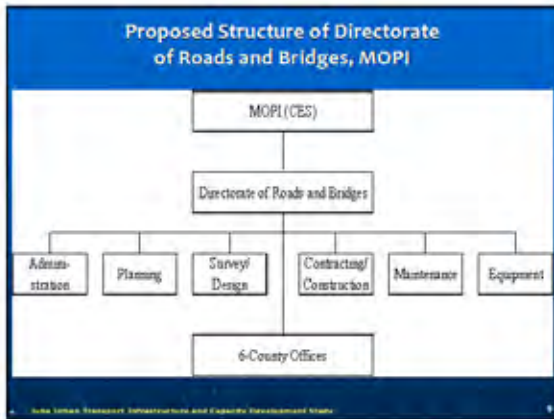
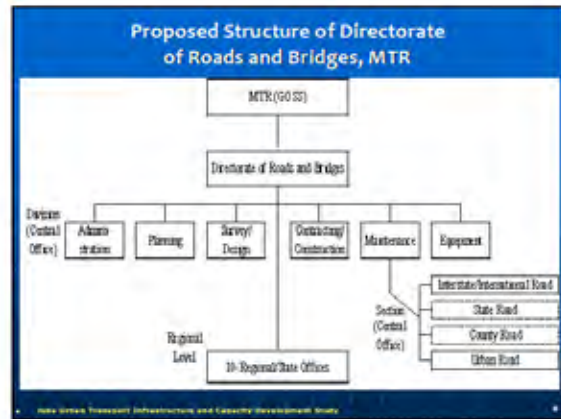
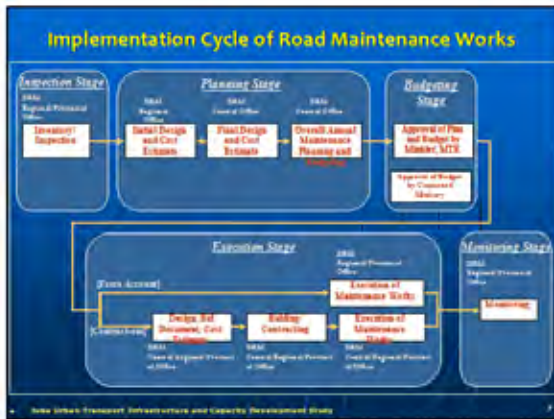
Name	Responsible Agency	Short Term										Medium Term										Long Term										
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Policy & Strategy	Establishment of Maintenance Policy	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
	Reorganization of MTR	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
	Reorganization of RC	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
National Roads (International/Interstate Roads)	Routine	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
	Periodic	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
	Emergency	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
	Major Road, (Interstate/Intercountry Road)	Routine	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																													
		Periodic	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																													
		Emergency	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																													
Country Roads (Intercountry/Village Roads)	Routine	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
	Periodic	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														
	Emergency	[Gantt chart showing implementation from Q1 2010 to Q4 2010]																														

**Note:**  
 - R Type: Road owned by the Government  
 - C Type (1): Contracted for full or individual type-based contract  
 - C Type (2): Contracted based on Performance based Contract

### Typical Maintenance Works

Road Type	Maintenance Work	Major Maintenance Works			
		Estimated Frequency	Estimated Cost		
Gravel Road	Routine Maintenance	Cleaning	once/month	100 \$/km	
		Cleaning of Drain	1 time/year	100 \$/km	
		Regravel/Regrade/Deepen Drains	1 time/year	400 \$/km	
	Asphalt Road	Routine Maintenance	Re-graveling	1 time/year	300 \$/km (Asphalt)
			Cleaning	once/month	20 \$/km
			Cleaning of Drain	1 time/year	100 \$/km
Asphalt Road	Routine Maintenance	Filling of Ratchets	1 work/1 year	40 \$/work	
		Crack Sealing	---	---	
		Painting	2 work/1 year	100 \$/work	
	Periodic Maintenance	Partial Overlay	once/10 years	300,000 \$/km (Asphalt)	
		Partial Rehabilitation	10 to 15 years	100 \$/km	
		Full Depth Rehabilitation	once/20 years	500,000 \$/km	





(h) Mr. Tsuneo Bekki

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) GOVERNMENT OF SOUTHERN SUDAN Ministry of Physical Infrastructure, CID

Juba Urban Transport Infrastructure and Capacity Development Study

## Overall Implementation Plan

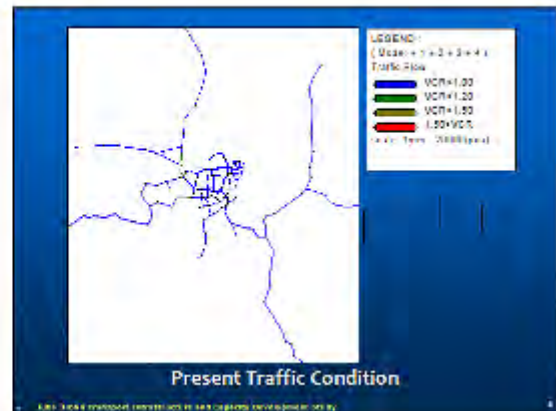
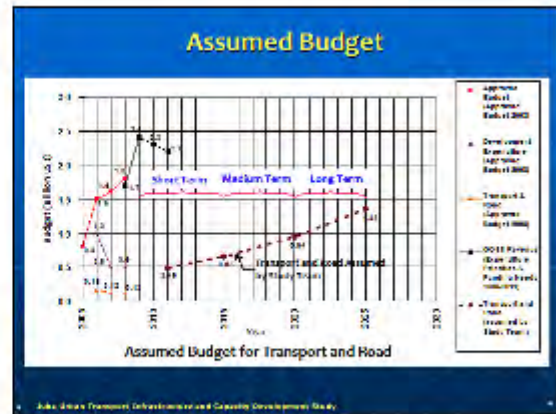
4th Stakeholder's Meeting  
June 02, 2009

### Time Framework

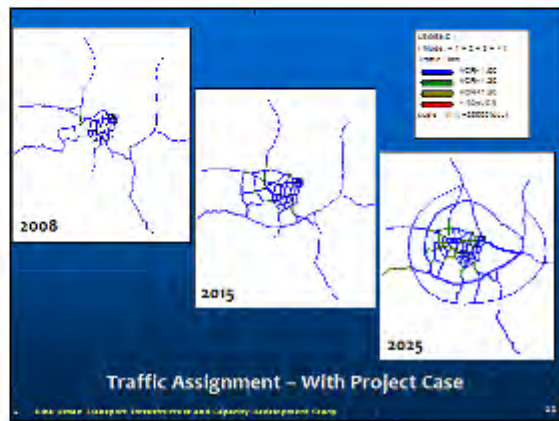
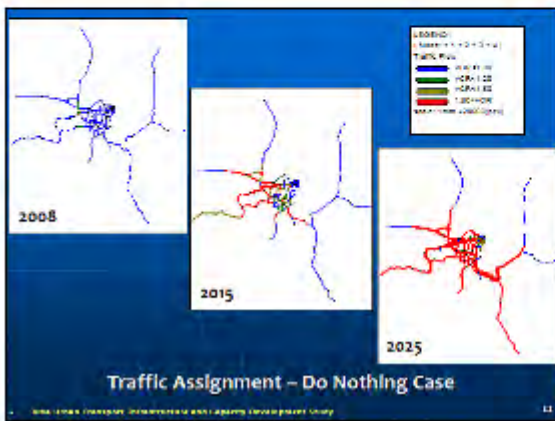
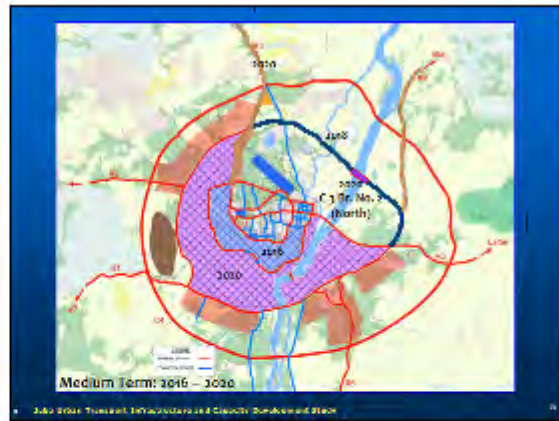
- MTR Transport Sector Policy
  - Recovery Phase : 2007 - 2008
  - Development Phase : 2009 - 2011
- JUTI Study Development Phases
  - Short Term : 2009 ~ 2015 (7 years)
  - Medium Term : 2016 ~ 2020 (5 years)
  - Long Term : 2021 ~ 2025 (5 years)
  - Beyond Plan : 2026 ~

### Critical Priorities in Implementation

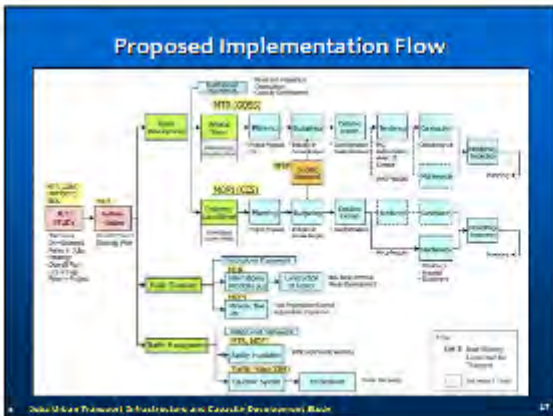
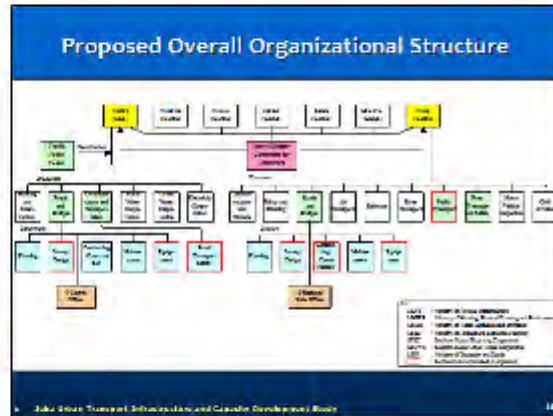
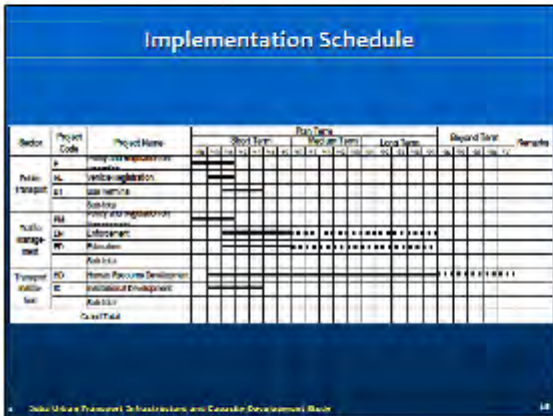
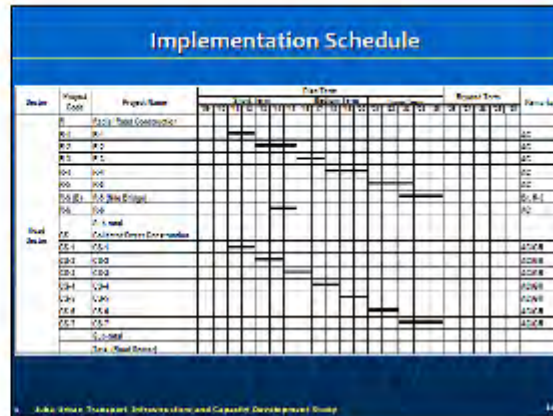
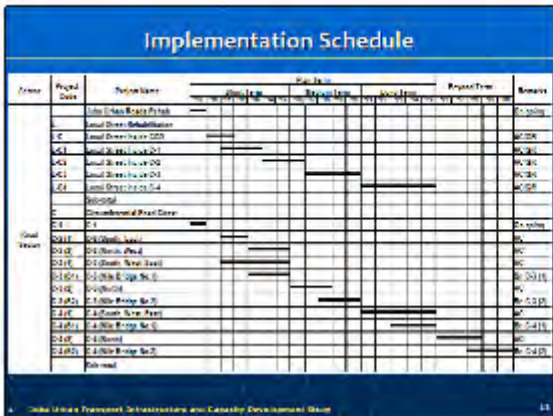
<b>Road Sector</b> <ul style="list-style-type: none"> <li>Local Street Rehabilitation</li> <li>Collector Street Construction</li> <li>Circumferential Road Construction</li> <li>Radial Road Construction</li> <li>Nile River Bridge Construction</li> </ul>	<b>Public Transport</b> <ul style="list-style-type: none"> <li>Policy and Regulation on Operation</li> <li>Bus Promotion</li> <li>Vehicle Registration</li> <li>Bus Terminal</li> </ul>
<b>Traffic Management</b> <ul style="list-style-type: none"> <li>Policy and Regulations</li> <li>Enforcement</li> <li>Education</li> </ul>	<b>Transport Institution</b> <ul style="list-style-type: none"> <li>Human Resources Dev't</li> <li>Institutional Development</li> </ul>











(i) Mr. Ysuiro Yamauchi

JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) GOVERNMENT OF SOUTHERN SUDAN Ministry of Transport & Roads Ministry of Physical Infrastructure, CES

**JUTI STUDY**

# Pilot Project Plan

4<sup>th</sup> Stakeholder's Meeting  
June 2, 2009

1

## Session Contents

- Capacity Development and Pilot Project
- Organization Structure
- Outline of Pilot Project
- Implementation

2

## Capacity Development and Pilot Project

**Objectives:**

- General Support for establishment of decision making system for road development which consists of project finding and evaluation by themselves
- Reinforcement of General Capacity for Road Maintenance and Management

**C/D for Road Sector In Southern Sudan:**

- MTR (USAID)

**Main Target Organization:**

- Road and Bridge Department, Ministry of Physical Infrastructure, CES

3

## Capacity Development and Pilot Project

**Problems:**

- Short Budget
- Few Key Person (miss match of personnel)
- Poor Equipment (machines, office, etc)
- Unimproved Road Condition
- Stagnation of Technical Progress & Technical Transfer

**C/D Policy:**

- Road Maintenance System by themselves
- Replicable and Sustainable System
- Direct Management Capacity

4

## Capacity Development and Pilot Project

**Project Cycle:**

- Based on basic Procedure

```

graph LR
    A[Inventory Monitoring] --> B[Judge]
    B --> C[Maintenance Plan]
    C --> D[Project Implementation]
    D --> E[Evaluation]
  
```

- Road Inventory Survey
- Data Base Preparing
- Annual Road Maintenance Plan
- Pilot Project
- Evaluation of P/P

Munuki Area as a Model Case

5

## Capacity Development and Pilot Project

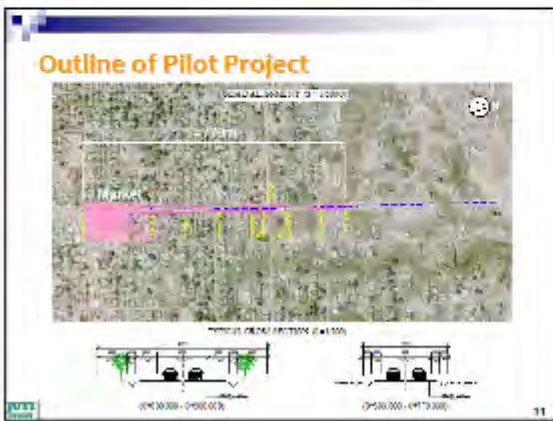
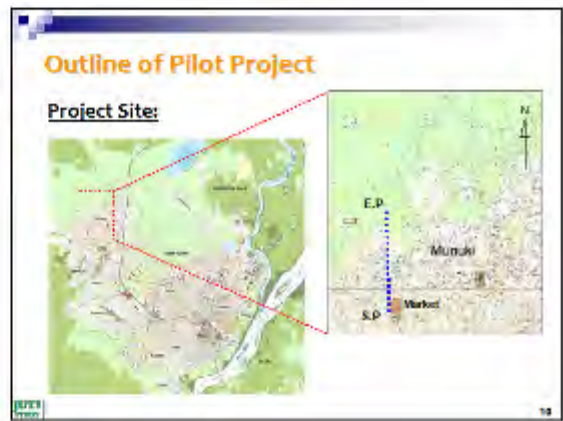
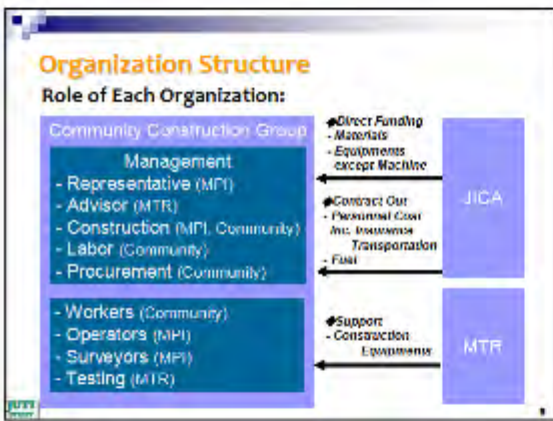
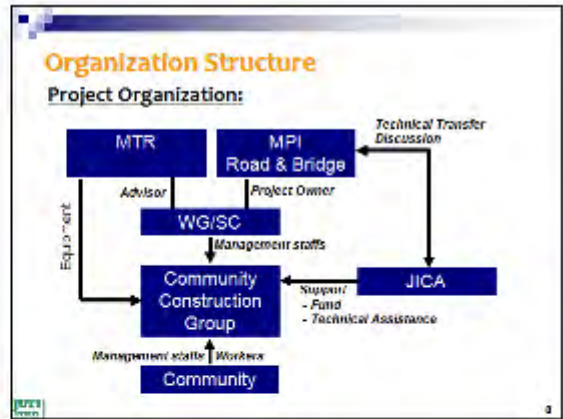
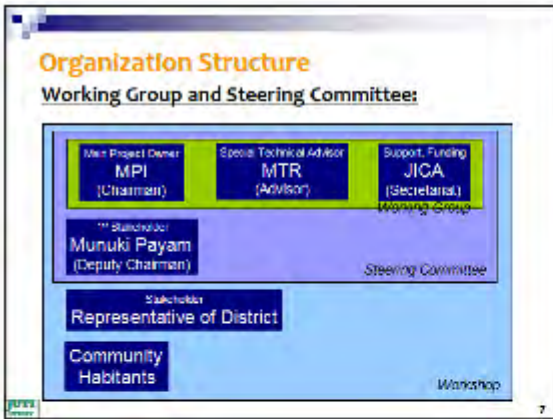
**Pilot Project Work:**

- Routine maintenance of local street
- Improvement for 'Section' and 'Spot'
- Provision of sub-base material and compact
- Stabilizing of existing sidewalk
- Provision of side ditch

**Characteristics:**

- Direct management by MPI (through CCG, JICA support)
- W/G, S/C oriented
- Community participation
- Labor-Intensive construction

6





### Outline of Pilot Project

Around Ending Point

13

### Outline of Pilot Project

Spot Improvement

14

### Implementation

**On the Job Training (through the P/P):**

- Quality Management
- Schedule Management
- Output Management

**Meeting:**

- Weekly Meeting
- Workshop for Community
- Training Discussion on site

**Evaluation:**

- Evaluation Report from Construction Group

15

### Implementation

**Schedule:**

Items	5	6	7	8	9	10
Preparation	■					
Contract		■				
Construction		■	■	■	■	
OJI		■	■	■	■	
Evaluation					■	■

**Issues:**

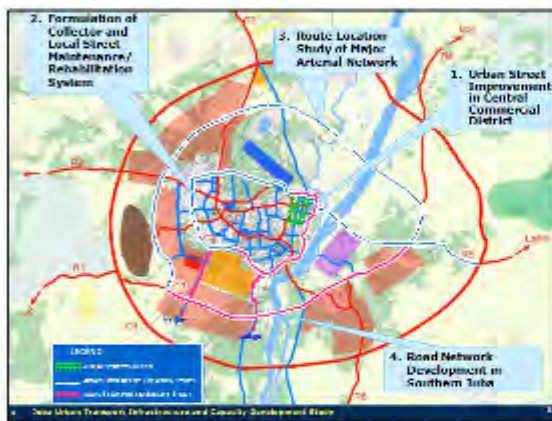
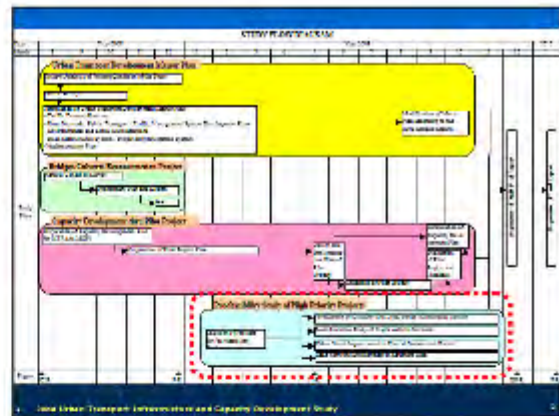
- Construction works in Rainy Season
- Equipment Arrangement

16

# Thank you

17

(j) Dr. Jovito Santos



**1. Urban Street Improvement In Central Commercial District (CCD)**

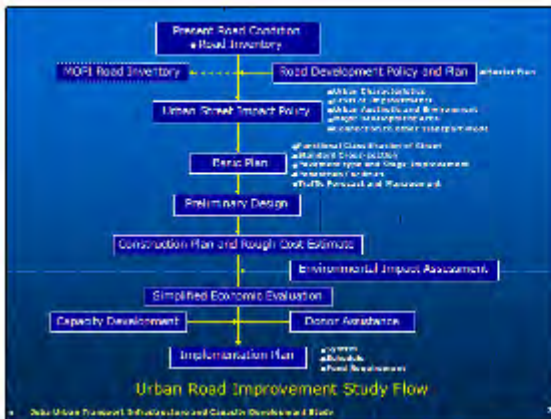
- Urgent need of CCD local streets rehabilitation/improvement :
  - CCD as a **historical block** functions as the center of commercial, business and institutional activities.
  - The area suffers from **heavy traffic congestion and severe environment** due to high traffic volume, improper layout of intersections, inefficient traffic management, absence of sidewalk and drainage, disposal of wastes on roads, etc.
- The rehabilitation/improvement of local streets in CCD, located in the center of Juba, is **expected to trigger the commercial, social, institutional activities** of Juba as a whole.
- The project is expected to be used as a **model case applicable to other areas**.



**Activities**

- Basic Plan of local streets in CCD, including :
  - Rehabilitation/improvement of roads
  - Provision of sidewalks, drainage, etc.
  - Improvement of intersections
  - Traffic management plan
  - Landscaping plan
- Preliminary design
- Construction plan
- Rough cost estimate
- Pre-environmental impact assessment
- Simplified economic evaluation
- Preparation of implementation plan





2. Formulation of collector and local street Maintenance/Rehabilitation System

- The **Urban Road Rehabilitation Project** is presently being undertaken by local authorities. The project is **delayed** now withstanding its **importance**.
- The maintenance/rehabilitation of local streets deals with numbers of roads to support of daily life with their growth and safety (small business, such as the **workshops** etc) for essential for daily life (e.g. **practical**) and the **State Government** executes by itself the maintenance/rehabilitation of local streets at lower cost meeting the **people's demand** promptly.
- However, the capacity of the State for the above works is quite **inadequate** due to unclear duties/responsibilities, weak organization, insufficient technical skills, inadequate equipment, lack of fund, etc.
- In the future, it is urgently needed to propose, establish and operate a **local street maintenance/rehabilitation system** which is realizable coping with various problems.

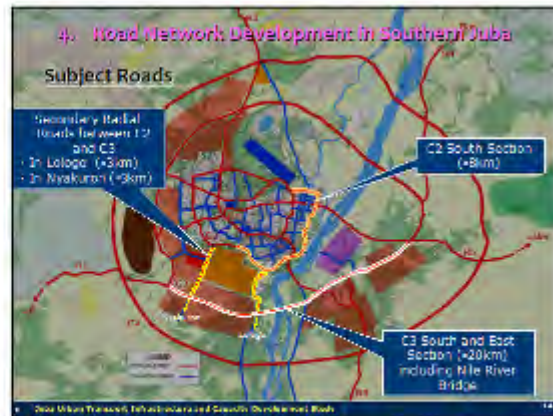
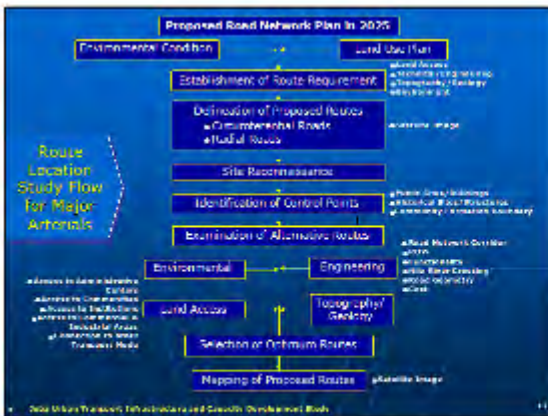
- Activities**
1. Study on institution and organization for maintenance/rehabilitation system
  2. Equipment and materials procurement plan for maintenance/rehabilitation
  3. Preparation of annual maintenance plan
  4. Proposal for capacity development plan
  5. Preparation of rehabilitation project implementation plan including donor assistance



- There is **no road network plan** in Juba as yet, except for the road network plan prepared in the previous study: "Emergency Study on the Planning and Support for Basic Physical and Social Infrastructure in Juba Town and the Surrounding Areas" in 2007. Presently, a **road network development master plan** is being **formulated** under our Study. However, these plans are just conceptual plans, not at levels showing the definite routes of component roads and giving the basis of actual construction work as is.
- It is **essential** to **define the routes and secure the right-of-ways for arterial roads** not only for the future hierarchical orderly urban area but also for minimizing social and environmental problems and reducing the project costs.
- Therefore, it is **urgently needed** to **define the routes of the circumferential and radial roads** proposed in our Study, except for the roads with existing routes and C-4 which is considered to be constructed in the distant future.

- Activities**
1. Establishment of schemes for route alignment including alternatives
  2. Comparative analysis of schemes and selection of the best scheme
  3. Preparation of plan showing the selected route alignment on Satellite Images





- Juba is expanding rapidly with its rising population due to its refugees' return and migrating from rural areas - making it an urgent matter for expansion of **urbanized and serviced areas**. **Provision of roads, water and electricity is vital** for the expanded areas. The expansion is going on mainly in the east and southward, and especially in the south, disordered development is in progress.
- The east area of the Nile River is also expected to be developed with the plans of construction of new International airport, industrial area and residential areas.
- To promote the above development, **arterial roads traversing the areas are necessary** to be constructed at first, followed by provision of water and electricity and construction of local roads in support of daily life.
- Thus, it is desirable to urgently formulate the project for **construction of the arterial roads serving the areas in the south of Juba and in the east of the River Nile**, so as to timely implement the project.

- ### Activities
1. Preliminary design of road including alignment, intersections, structures, pavement, drainage, ancillary facilities
  2. Selection of location of Nile Bridge on C-3 and preliminary study on type of the bridge
  3. Construction plan
  4. Rough cost estimate
  5. Pre-environmental impact assessment
  6. Simplified economic evaluation
  7. Preparation of Implementation plan



(k) Mr. Tsuneo Bekki and Dr. Jovito Santos

JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) GOVERNMENT OF SOUTHERN SUDAN Ministry of Transport & Roads Ministry of Physical Infrastructure, CES

Juba Urban Transport Infrastructure and Capacity Development Study

## Urban Streets Development Options

4th Stakeholder's Meeting  
June 02, 2009

### Typical Existing Arterial Streets in Juba

C1 (Urban Road - AC with side ditch)  
C2 (Urban Road - Gravel/Asphalt)  
R1 (Urban Road - Earth/Asphalt)  
R2 (Urban Road - Earth/Asphalt)

### Typical Existing Collector Streets in Juba

### Typical Existing Local Streets in Juba

Major Local Street (Earth/Asphalt)  
Major Local Street (Gravel/Asphalt)  
Minor Local Street (Earth/Asphalt)  
Minor Local Street (Gravel/Asphalt)

### Urban Streets Development Options

Options	Improvement Stage	Standard Application
Option I (AC)	LC → AC	<ul style="list-style-type: none"> <li>▲ All Urban Arterial Street</li> <li>▲ Major/Heavy Traffic Collector Street</li> <li>▲ Major/Heavy Traffic Local Streets in Densely Developed Areas</li> </ul>
Option II (Gr)	FC → Gr → AC	<ul style="list-style-type: none"> <li>▲ Minor/Light Traffic Collector Street</li> <li>▲ Major/Heavy Traffic Local Streets in Residential Areas</li> </ul>
Option III (RS)	III-1 LC → RS → AC	<ul style="list-style-type: none"> <li>▲ Collector Street in Fast Developing Remote Areas</li> <li>▲ Local Streets in Fast Developing Remote Areas</li> </ul>
	III-2 LC → RS → Gr → AC	<ul style="list-style-type: none"> <li>▲ Minor/Light Traffic Collector Street in Remote Areas</li> <li>▲ Minor/Light Traffic Local Streets in Remote Areas</li> </ul>

EC - Existing Condition AC - Asphalt Pavement Gr - Gravel Pavement  
RS - Re-purposing

### Characteristics of Street Improvement Options

Improvement Type	Description	Advantages	Drawbacks
Re-purposing Existing Road	Re-shaping, re-grading and re-aligning existing street	<ul style="list-style-type: none"> <li>• Cheapest and easiest to implement among 3 options</li> <li>• Measure to alleviate unemployment</li> </ul>	<ul style="list-style-type: none"> <li>• Poor condition may condition - Link vehicle operating cost</li> <li>• Low reliability</li> </ul>
Gravel Surfaces	Re-shaping, re-grading, provision of sub-base and gravel surface	<ul style="list-style-type: none"> <li>• Moderate initial capital cost</li> <li>• Lower road surface than re-purposing</li> <li>• Vehicle operating cost lower than re-purposing</li> </ul>	<ul style="list-style-type: none"> <li>• Freely and good quality maintenance is necessary</li> <li>• Open condition may not be attractive as AC pavement</li> <li>• Reliability lower than option 1</li> </ul>
Asphalt (AC) Pavement	Reconstruction of existing street to asphalt concrete structure	<ul style="list-style-type: none"> <li>• Improvement of urban environment</li> <li>• Better road condition attracts more investment opportunities</li> <li>• Lower vehicle operating cost among 3 options</li> <li>• Better reliability</li> </ul>	<ul style="list-style-type: none"> <li>• Highest initial capital cost</li> <li>• Equipment-based gives less employment opportunity</li> </ul>



### Preliminary Life Cycle Cost Analysis of Local Street Improvement Works

UNIT: x \$1,000

Improvement Type	Initial Improv.	Cost			Total Cost Required for 20 Years	Life Cycle Cost
		Maintenance		Rehabilita- tion/ Reconstruc- tion		
		Routine	Periodic			
Existing Condition						
Re-surfacing	\$100/km	\$40/km x 2 (twice/yr)		\$1,000/km		
Gravel Pavement	\$300/km	\$30/km x 2 (twice/yr)		\$1,500/km		
Asphalt Pavement	\$800/km	\$5/km (once/yr)	\$500/km (once/10 yrs)	\$100/km (once/20 yrs)	\$1,400/km	

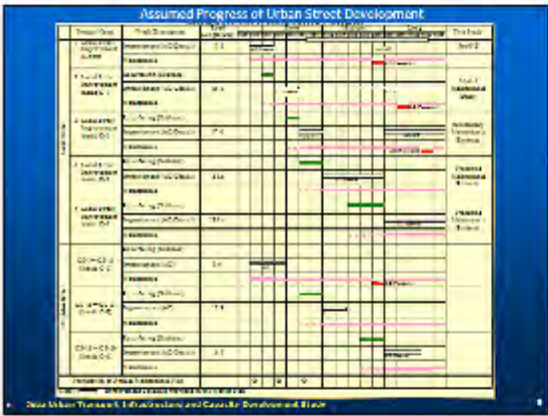
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### Proposed Application of Improvement Works for Urban Streets

Prop. Rank	Dist. Road No. & Name	L.S. Date Code	L.S. Conditions				Dist. Analysis		App. and Appl. Periods		
			Subst.	Curb D.A.	Int. Strip	Side. Strip	Trunk	Trunk	Collector (C)	Local (L)	
Prop. Rank 01	11, 11th St		NS	NS	NS	Gr				Ap - 10 yrs (C)	Ap - 10 yrs (L)
Prop. Rank 02	12, 12th St		Ac - No. 10000	NR	NR	As		Ap - 10 yrs (C)	Ap - 10 yrs (L)	Ap - 10 yrs (C)	Ap - 10 yrs (L)
Prop. Rank 03	13, 13th St		F - 1000	Ac - 1000	Ac - 1000	As		Ap - 10 yrs (C)	Ap - 10 yrs (L)	Ap - 10 yrs (C)	Ap - 10 yrs (L)
Prop. Rank 04	14, 14th St		R - 1000	R	R	P		Ap - 10 yrs (C)	Ap - 10 yrs (L)	Ap - 10 yrs (C)	Ap - 10 yrs (L)

R - Recommended, P - Possible, NR - Not Recommended, Ap - Applicable, RC - Not Applicable

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### Maintenance Works Required for MOPI

Existing Condition	Improvement Work	Maintenance Type & Works		Maintenance DV
		Type	Work Scope	
Existing Condition	Re-surfacing	Routine	<ul style="list-style-type: none"> <li>Clearing</li> <li>Grading</li> <li>Reshaping</li> <li>Reinforcing</li> </ul>	<ul style="list-style-type: none"> <li>Labor-based</li> <li>Labor-based</li> <li>Eqpt.-based</li> <li>Eqpt.-based</li> </ul>
			Gravel Road	
Asphalt Road	Reconstruction/Rehabilitation	Routine		<ul style="list-style-type: none"> <li>Clearing</li> <li>Grading</li> <li>Filling Potholes</li> <li>Reinforcing</li> </ul>
		Periodic	<ul style="list-style-type: none"> <li>Reinforcing</li> <li>Partial Rehab.</li> </ul>	<ul style="list-style-type: none"> <li>Eqpt.-based</li> <li>Eqpt.-based</li> </ul>
		Rehabilitation/Reconstruction	<ul style="list-style-type: none"> <li>Structural Overlay</li> <li>Full Depth Rehab.</li> </ul>	

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## 4.3 Minutes of Discussion



# JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

Ministry of Transport and Roads, Yei Road Jebel Kujur, Juba  
Government of South Sudan



## MINUTES OF MEETING 4<sup>th</sup> Stakeholder's Meeting JUTI Interim Report Presentation

Purpose : **Presentation of Interim Report and Study Consultation**  
Date and Time : **June 02, 2009 (10:00am)**  
Venue : **2<sup>nd</sup> Floor, Conference Room, Home and Away**


### Minutes of Discussion:

1. The meeting was called to order by Mr. Alam of the MTR with Opening Remarks given by MTR Dir. Gen. Jacob Marial Maker and Mr. Tamari of JICA.
2. Mr. Otim, after presenting MTR's policy and vision together with the different infrastructure projects for road, air and river transport, identified the challenges in transport infrastructure development to include: landmines, lack of road inventory, no capacity of contractor and consultant, no paved road in South Sudan (only a few km in Juba) and lack of funding mechanism for infrastructure development.
3. The Major Outputs of the Master Plan is then presented by the Study Team which include: (a) Road Network Development Plan including Population and Land Use, (b) Public Transport Development Plan, (c) Traffic Management System Development Plan, (d) Proposed Road Maintenance System, (e) Overall Implementation Plan, (f) Pilot Project Plan, (g) Proposed Projects for Feasibility Study, and (h) Urban Streets Development Options.
4. A series of comments and discussions proceeded after the presentations with the following highlights:
  - 4.1. Road Corridor and Right-of-Way (ROW). Concerns about the acquisition of road reserves based on the road network master plan and compensation for affected persons/families and properties were raised with past experience on Uganda road having problems due to compensation issues. Ms. Patricia from MTR responded that the social impact is considered in the route selection. However, the Land Bill in South Sudan has not yet been approved and no Compensation Schedule has been established. It is expected, on the other hand, that the Environmental policy will be out by August of this year. With regards to the Study, reference will be made to the JICA Environmental Guidelines as well as the USAid and the MDTF Guidelines on environment.
  - 4.2. Provisions of Corridor for Service Utilities. Concerns regarding allocation of areas for service utilities (water, power, telecommunications, sewerage, etc.) within the road corridor were raised. The participants indicated the need for a coordinating body/agency that will be responsible for utilities project planning and

- implementation within the road right-of-way. MOPI responded that there a State Physical Planning Board which exists within the CES that coordinates communities and utilities project within the State.
- 4.3. Road Drainage and Sewerage. The question of road drainage and discharges were raised with stagnant water and soil accumulating at the road ditches during rain. The participants suggested the need to develop a road drainage and sewerage system to properly discharge storm water. MOPI responded that this will be a priority of the State.
  - 4.4. Recovering Road Investment/Capital. An issue on how to recover capital investment for roads was raised – will there be charges to roads users, e.g. toll? The Study team responded that the money that will be spent for the roads basically comes from the tax payers and that benefit derived from road improvement goes directly to the road users in form of: travel time savings, lower vehicle operating costs, better environment, better riding surface, etc.
  - 4.5. Study Coordination with Government Agencies and Other Foreign Assisted Projects/Study. The participants inquired about the degree of Study coordination with government agencies and other studies, especially the standard for road classification. The Study is being undertaken in close coordination with MTR and CES MOPI, as such, the Study outputs have been discussed with these agencies. Necessary data for the Study are always coordinated with other agencies. Further, the Study respects the Standards being used by South Sudan including road administrative classification – the Study discusses only the road functional classification for the master plan. MOPI further responded that the Study is being undertaken in close coordination with MOPI and guidance is always given by MOPI to the Study Team.
  - 4.6. Involvement of Road Users in Public Transport. A question was raised if the roads users were consulted in the Study. The Study Team responded that in addition to traffic count survey, a road user survey was conducted (e.g. O-D survey, public bus users’ survey, etc.)
  - 4.7. Consideration for Parking. The participants suggested that the team consider parking issues since it is causing congestion problems in some areas of Juba. The Study team responded that during the Study for Improvement of the Central Commercial District (CCD), parking alternatives/areas (street parking, open area parking, parking buildings, etc.) will be considered and designated. The CCD development will be a model case and can be applied to other areas in Juba.
  - 4.8. Traffic Management. The use of media is suggested for traffic education and information campaign to road users. Involvement of traffic police in traffic enforcement plan is also recommended.
  - 4.9. Railway Station at East of Nile River. It was asked if the railway station at the east side of Nile river was considered during in the road network. MOPI responded that there is no definite plan yet for such railway stations.
5. The Closing Remarks were given by MOPI 1<sup>st</sup> Dir. Gen Luis Gore George who commended the Study Team for the output of the Study.




#### 4.4 List of Attendees



# JUTI STUDY

**JUBA URBAN TRANSPORT INFRASTRUCTURE  
AND CAPACITY DEVELOPMENT STUDY**

Ministry of Transport and Roads, Yellow Road, Jebel Fija, Juba  
Government of South Sudan



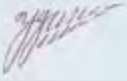
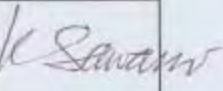

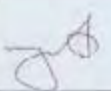


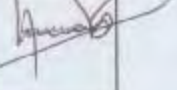
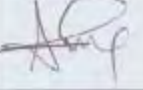
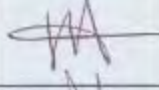


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June 02, 2009

**4<sup>TH</sup> STAKEHOLDER'S MEETING "JUTI INTERIM REPORT PRESENTATION"**

Conference Room (2<sup>nd</sup> Floor), Home and Away Restaurant

**ATTENDANCE SHEET**

NAME	AGENCY/ COMPANY	POSITION	CONTACT NO./E-MAIL	SIGNATURE
1. KAZI YUGUSUK T.	DIRECTOR/ SOUTHERN Z. CORP.	AREA MANAGER	0126629573	
2. Tsuneo BEKKI	JICA Study Team	Team Leader		
3. Kunihiko SAWANO	- do -	Deputy Team Leader		
4. Ryuichi UENO	- do -	Highway Eng.		
5. Jovito Santos	- do -	Study member - Br. Eng. -		
6. Yasuhiro YAMAUCHI	- do -	Plant Project Management.		
7. Mamoru Shibata	- do -	Environmental Specialist		
8. CHAMANGEU ANOW ADOGTOK	Local Government BOARD (Goss)	DIRECTOR GENERAL	0918285310	
9. ABDU SILYE	D/Gs. River Transport M.T.R Goss	Director General M.T.R-Gos	0126823434	
10. Michael Wani	Southern Sudan Reconstruction Agency	Manager	0477106854	
11. William Lokot	UNC, CES	DD/Adm	—	
12. Bulles Pitya Abraham	MOPJ	DIRECTOR IN R&B	0126332438	

NAME	AGENCY/ COMPANY	POSITION	CONTACT NO./E-MAIL	SIGNATURE
13. Eng. L. Nihal Baf	M.T.R.	D/General Railways	0477151512	
14. DR SAMSON PAUL BABA	M.O. W GOSS	DIRECTOR GENERAL FOR TECHNICAL ASSISTANCE	0677125777	
15. Patricia Gribul Ali	MTR	Environmental Officer	047794528 0128124534	
16. Lamin Sanyang	LBCFAST MTR	FMS - LBCFAST	0477137851	
17. Ed Flint	LBG	Task order & Manager	0477296668	
18. S. KARANDA	LBA	EXECUTIVE OFFICER	047785700	
19. George Wagwa	USAID	Infrastructure Engineer	0477127356	
20. Boutros Magaya	USAID	Infrastructure Engineer	0477127383	
21. Maurice Rehan	MTR	D/General Road Transport	047711803 0477110834	
22. Kiyotaka TAMARI	JICA	Project Formulation Advisor	0477-175460	
23. LEWIS GORE	PHYSICAL INFR. CES.	1st D/G	0477112364	
24. OTIM BONG	MTR		042712080	
25. K. ADENTW ANQUAH	TAST/MTR		0957026369	
26. James Mann	MTR		0477112070	
27. Eng. Ludo Fombé				



NAME	AGENCY/ COMPANY	POSITION	CONTACT NO./E-MAIL	SIGNATURE
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PMI/CSI

ADMIN

0477110940

Jacob M. Maf

MTR

D/G

Jacob Maf

## APPENDIX 5 FIFTH STAKEHOLDER'S MEETING (ROUTE LOCATION ALTERNATIVES FOR MAJOR ARTERIALS)

### 5.1 Agenda



**JUTI  
STUDY**

**JUBA URBAN TRANSPORT INFRASTRUCTURE  
AND CAPACITY DEVELOPMENT STUDY**

Ministry of Transport and Roads, Yei Road, Jebel Kujur, Juba  
Government of South Sudan



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### **5<sup>TH</sup> STAKEHOLDER'S MEETING** **Route Location Alternatives for Major Arterials** Conference Room, Ministry of Transport and Roads July 01, 2009

#### **PROGRAM**

	Attendance/Registration		9:45 –10:00
1.	Proposed Road Network for Juba and Surrounding Areas	Mr. Kunihiko Sawano Deputy Team Leader/JICA JUTI Study	10:00 –10:15
2.	Alternative Routes for Major Arterials (C2, C3 and R5)	Dr. Jovito Santos JICA JUTI Study	10:15 –10:30
3.	Comments and Discussion		10:30 - 11:30

**Facilitator:** Mr. Otim Bong  
Ministry of Transport and Roads



## 5.2 Presentation Material

(a) Mr. Kunihiko Sawano

JICA JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) GOVERNMENT OF SOUTHERN SUDAN Ministry of Transport & Roads Ministry of Physical Infrastructure, CES

# Route Location Alternatives of Major Arterials C2, C3 & R5

5<sup>th</sup> Stakeholders' Meeting June 26, 2009

Juba Urban Transport Infrastructure and Capacity Development Study

# Agenda

- Proposed Road Network for Juba and Surrounding Areas (Year 2025)
- Alternative Routes for Major Arterials (C2, C3 & R5)
- Comments/Discussion

JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

# Proposed Road Network (Year 2025)

# Proposed Land Use

Legend:

- Residential
- Commercial
- Business
- Industrial
- Institutional/Religious
- Green/Recreational/Park
- Open/Agriculture
- Military
- Transport

JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

# Functional Urban Street Classification

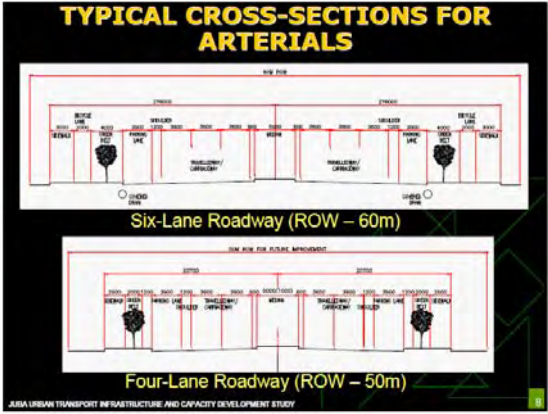
- Arterial Street (Principal & Minor)
- Collector Street
- Local Street

\*Geometric Design of Highways and Street (AASHTO, American Association of State Highway and Transportation Officials)

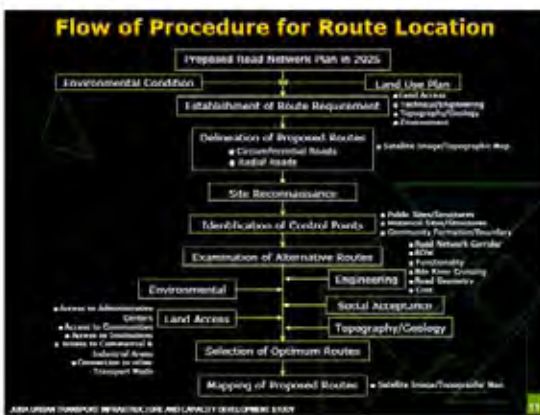
# Functional Urban Street Classification

↑ ALTIMBOW ↓ ACCESSIBILITY	Principal Arterial	Service to the major centers of activity of urbanized areas, the highest volume corridors and the longest trip. The principal arterial should be integrated both internally and between major rural road connections.
	Minor Arterial Street	Trips of moderate length at a somewhat lower level of travel mobility than principal arterial
	Collector Street	Land access service and traffic circulation within residential neighborhood and commercial and industrial areas.
	Local Street	The lowest level of mobility and usually contains no bus routes. Service to though traffic movement usually is deliberately discouraged.

JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY



## Route Location Alternatives for C2, C3 & R5



- ### Basic Policy for Route Location
- Assure Mobility by Maintaining Design Speed and Functionality
    - Proper Road Geometry (Design Speed: 50-80 km/hr)
    - Proper Intersection Layout and Access Control
  - Minimum Right-of-Way Take
    - Utilize Existing Road Reserves
  - Minimum Adverse Social Impact
    - Minimize Affected Persons and Structures
    - Avoid Dividing Community Formation
    - Avoid Public Sites
  - Preservation of the Environment
    - Nile River Crossing
    - Jebel Kujur Mountain
    - Large Pond North of Juba International Airport


### Engineering Requirements

Classification	Arterial Road/Street	
Function	Circumferential - Primary/District Distributor (C2 and C3)	
	Radial - Interstate/Intercity Trunk Road (R5)	
Access Control	Possibly uninterrupted except at intersections; Limited access to next lower class (Collector)	
Design Traffic (ADT)	10,000 - 12,000	
Design Speed	50 - 60 km/hr	
Design Radius	Minimum	150 m (AASHTO)
	Desirable	C2: 250 m C3 & R5: 500 m
Grade	0.5% - 8%	
Minimum Length of Horizontal Curve	150 m	
ROW/Should Reserve Requirement	4 - Lanes Arterial	50 m
	6 - Lanes Arterial	60 m

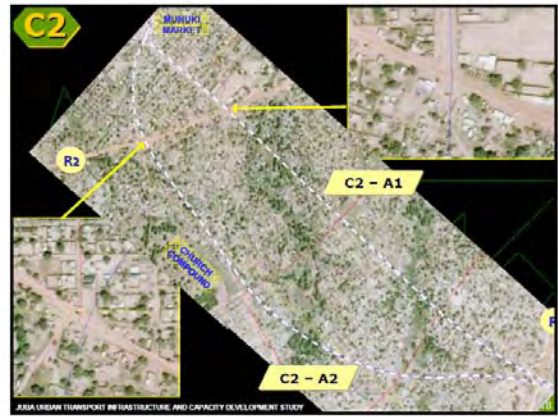




# Circumferential Street C2



JABA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY





### Issues:

- ◆ Existing Road Corridor
  - Proposed 4-Lanes (ROW = 50m)
  - Existing Corridor Width: 15 – 20m
  - Original ROW? Additional Acquisition?
  - Compensation on Affected Structures
  - Social/Environmental Issues
- ◆ New Road
  - ROW Acquisition
  - Compensation on Affected Structures
  - Social/Environmental Issues
- ◆ Improvement to Standard Arterial Road Section
  - Muruki Area
  - Section Near Juba Airport
  - Central Commercial District Area
  - Section Near Nile River





# Circumferential Street C3



JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

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JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

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JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

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JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

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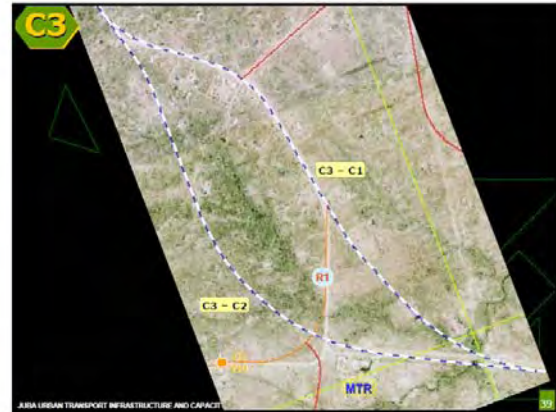
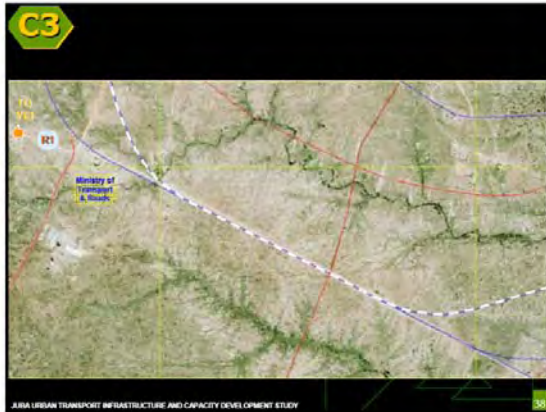


JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

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### Issues:

- Existing Road Corridor
  - 3km Earth road exists in the south area (next to MTR)
  - Part of the YeI Road is proposed to be used as C3
  - Intersection with R2 at Gudele
  - ROW take for road widening
  - Social/Environmental Issues
- New Road (Standard Arterial)
  - Proposed 4-lanes (ROW: 50-60m)
  - ROW Acquisition necessary
  - Compensation on Affected Structures
  - New Bridges crossing Nile River
  - Social/Environmental Issues



### Radial Street R5







## Issues:

- ◆ Existing Road Corridor
  - 3km Paved road from GoSS compound to C1 (basically 2-lanes)
  - Available ROW varies → 25-30m
  - 1km road from C2 to C3 – bituminous with bad condition
  - Road widening → Additional ROW
  - Compensation on structures
  - Social/Environmental Issues
- ◆ New Road (Standard Arterial)
  - Bridge crossing Nile River (Length ≈ 900m)
  - ROW Acquisition necessary
  - Compensation on Affected Structures
  - Social/Environmental Issues

AJAA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY 50



## 5.3 Minutes of Discussion



# JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY

Ministry of Transport and Roads, Yei Road Jebel Kujur, Juba  
Government of South Sudan



## MINUTES OF DISCUSSION 5<sup>th</sup> Stakeholder's Meeting Route Location Alternatives for Major Arterials

Purpose : **Presentation of Proposed Routes for C2, C3 and R5 and Stakeholders' Comments**  
Date and Time : **July 01, 2009 (10:00am)**  
Venue : **Conference Room, Ministry of Transport and Roads, Jebel Kujur**

### Minutes of Discussion:

1. The proposed "Route Alternatives for Major Arterials – C2, C3 and R5" was presented and explained by the Study Team to the Stakeholders (see attendance list).
2. A series of comments and discussions proceeded after the presentation of the proposed route locations with the following highlights:
  - 2.1. Road Reserve/Corridor, Right-of-Way (ROW) and Road Improvement
    - MTR's Mr. Bong mentioned that the standard road right-of-way/reserves are: (a) 60m for major roads within the city and (b) 120m for highways. However, the present conditions indicate existing roads to have narrower available width.
    - The Study team noted that based on site inspections, existing roads proposed for major arterials in the urban area have available width from 13m – 30m. It is proposed, however, that circumferential and radial roads should have 50m-60m available (ROW) to accommodate the standard road section for the arterial road class.
    - The Land Commission however, mentioned that the original roads in Juba are only two-lane roads since Juba urban area started and it may not be possible to attain the required ROW within the built up areas due to issues on affecting existing structures.
    - The Director for Bari Payam also mentioned that existing road widening will be difficult and will create problems on existing structures. Instead, it is better to concentrate improvement of new areas.
    - Eng. Maganda (LBG), commented that on the contrary, it will be best to improve the roads following the standard sections at this time and proceed with removal of structures within the proposed road section. Improving the road sections will not only increase capacity and mobility but will also improve traffic safety – especially separating slow-moving with fast-moving vehicles.
  - 2.2. Demarcating Proposed Route Locations.
    - The Director of Bari Payam suggested that the identified route alignment should be demarcated and marked as soon as possible to prohibit encroachment on the road reserve and eliminate problems in the removal of structures.

- Dir. Makur (MTR) mentioned that once the route alignment is finalized, a copy will be given to MOPI Survey Department to locate the route and mark the ROW requirements.
- H.E. Makana (MTR Minister) suggested that to keep the road reserve, roads shall be built first on the sides of the proposed alignment to delineate the ROW at the middle if project implementation will be done later.

### 2.3. Implementation Priority.

- Dir. Makur suggested to prioritize the road improvements in the master plan and identify which projects should come first. He recommended to give emphasis on C1 and C2 and the bridge crossing the Nile river.
- However, the Land Commission recommended that C3 be given priority since urbanization has not gone yet to this area and road development will be easier to implement.
- The Minister H.E. Makana (MTR) suggested a two-step road improvement implementation:
  - a. Focus on immediate decongestion of Juba (emergency improvement) by implementing C1 and C2 roads, and
  - b. Implementing C3 and other roads including development of the eastern side of the Nile river.

### 2.4. Improvement of Road Cross-Section.

- The Land Commission recommended that road sections be improved considering the road drainage which has become a major problem in Sudan.
- A participant suggested that the proposed standard sections for the road class be adopted in the road development to improve road safety and provide corridor for non-motorist transport.

### 2.5. Task Force for Road Development.

- The Chairman of the Land Commission recommended that a Task Force be created to oversee the road development in Juba.
- H.E. Makana seconded the importance of having a Task Force for road network development.






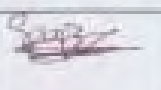


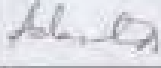
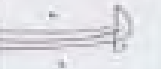

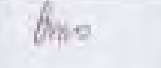



### 2.6. Detailed Involvement of Different Stakeholders.

- The participants suggested that all stakeholders be involved and consulted regarding the proposed routes – especially the people that will be directly affected by the road projects.
- Ms. Patricia (MTR) mentioned that there will be another Stakeholders' meeting on August relating to social and environmental issues of the road network. Furthermore, the Study Team has been coordinating with different agencies regarding the different alternatives and the impact of the proposed road network – including the Land Commission, Ministry of Forestry, Urban Electricity, etc.
- Dir. E. Wani (MOPI) mentioned that the JICA Team has presented and coordinated with the State Town Planning Board (CES) regarding the proposed alignment and they are still considering their comments on the proposed route locations.

3. The Closing Remarks were given by H.E. Makana, Minister of MTR emphasizing the need to decongest Juba urban area thru development of the road network.



5.4 List of Attendees

  <b>JUBA URBAN TRANSPORT INFRASTRUCTURE AND CAPACITY DEVELOPMENT STUDY</b> <small>Ministry of Transport and Roads, Federal Road Directorate, Addis Ababa</small> <small>Government of South Sudan</small> 				
<b>5<sup>TH</sup> STAKEHOLDER'S MEETING -Route Location Alternatives for Major Arterials*</b>				
Conference Room, Ministry of Transport and Roads July 01, 2009 (10:00am)				
<b>ATTENDANCE SHEET</b>				
NAME	AGENCY/ COMPANY	POSITION	CONTACT NO./E-MAIL	SIGNATURE
1. Robert Lodu	Land Commission	Chairperson	0989092159 Robert.lodu@jica.go.jp	
2. Patricia Gbriel	MTR/Pa?	Environmental Officer	09177194528	
3. Suzanne Peter	Adm/Inmunuti Payam	Adm Officer	0911710811	
4. Tamari Kiyotaka	JICA	Project Formulation Advisor	0817-175460 081-4626201	
5. Sawano Kuniko	JUTI Study Team	Deputy Team Leader		
6. KWEKH ADENTW-ANGUAA	MTR/TAST	MATERIALS ENGINEER	0955026369 kwekh@tast.gov.ss	
7. MARTIN SIMON WANI	Northon Bani Payam	Director	0912544185	
8. OSIRI LUKE	HNPE/TAST	Procurement Specialist	0955017382	
9. David Maganda	LBA	Senior Engineer		
10. Gabriel Makar Amun	MTR	Director of Roads & Bridges	0472112052 0121775211	
11. Sarah Karanja	LBA	Executive Officer	0472185700	
12. Mutsa AIBANA	Jica Study Team			

NAME	AGENCY/ COMPANY	POSITION	CONTACT NO./E-MAIL	SIGNATURE
13. David Seaton	DIRD, INC	COP SPED	David Seaton DIRD, INC 800-455-3333	
14. Francis Boranzo	Muniki Pagan	Site Collector	0121609355	
15. Emanuel Matings	CEES HOUSING	IS	0477113234	
16. Erg/Samuel Tabin Laki	CEES Roads & Bridges	Director General Consultant	0477107809 0126253223	
17. Luz Lado T. Tamba	MTR	Director R. Safety	0477154448	
18. GIBSON D. ARONA	M.T.R	Private Secy Office of the Min	0477201600	
19. Gabriel Makini	~	D/Dir	0477112052	
20. OTIM BONG	M.T.R	D/Dir	0477112050	
21. NARY LATHAW	PMI	ASST	0926459925	
22. DR. DANIEL WARD	UNDER SECRETARY MTR			
23. MG. MARIANA	MINISTER DATA			
24. Jovito Sontar	JICA Study		Jovito Sontar jovito.com	
25.				
26.				
27.				

## APPENDIX 6 SIXTH STAKEHOLDER'S MEETING (ENVIRONMENTAL AND SOCIAL CONSIDERATION)

### 6.1 Agenda



**JUTI  
STUDY**

**JUBA URBAN TRANSPORT INFRASTRUCTURE  
AND CAPACITY DEVELOPMENT STUDY**

Ministry of Transport and Roads, Yei Road, Jebel Kujur, Juba  
Government of South Sudan



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### **6<sup>TH</sup> STAKEHOLDER'S MEETING** **Environmental and Social Consideration** **Conference Room, Home and Away** **August 18, 2009**

#### **PROGRAM**

<b>1. Opening Remarks</b>	Dr. Wani Daniel Director General, for Roads and Bridges Ministry of Transport and Roads, GOSS	9:30 –9:35
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<b>2. Necessity of Urban Transport Development</b>	Mr. Gabriel Makur Director for Roads and Bridges Ministry of Transport and Roads, GOSS	9:35 –9:40
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#### **Environmental and Social Consideration Reports**

<b>3. The Study(Concept of M/P)</b>	Miss. Patricia Gibril Ministry of Transport and Roads, GOSS Environmental officer	9:45 –9:55
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<b>4. Street Network of CCD</b>	Mr. Mamoru Shibata JICA JUTI Study	10:00 –10:30
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#### **COFEE BREAK**

<b>5. South Arterial Road</b>	Mr. Mamoru Shibata JICA JUTI Study	11:00 –11:30
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<b>6. Discussion</b>	Miss Patricia Ministry of Transport and Roads, GOSS Environmental officer	11:30 –12:00
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<b>7. Closing Remarks</b>	Mr. Lewis Gore Director General Ministry of Physical Infrastructure, CES	12:00 –12:05
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## 6.2 Presentation Materials

Presentation Materials prepared concept of ITR as 6.3 belows.

## 6.3 Minutes of Discussion

The Director General of Roads and Bridges gave his remarks during the course of the presentation and stressed the importance of the early/initial involvement of all the stakeholders in discussing the environmental and social issues within their jurisdictions as far as the Urban Transport Infrastructure Development Plans concerned. Eng. Jacob Marial further noted that the Road network and development should concentrate on the following; improvement and construction of roads network especially in the outside the existing roads network areas adjacent to Juba city to enable to connect central Juba to the suburbs of Juba city as Ring roads and collector streets .

(1) Mr. Gabriel Makur -Director of Roads and Bridges gave a brief speech on the necessity of The Urban Transport Development in which he pointed out the importance;

- a) to classify the roads to enable the effective land -use planning
- b) to establish general support for decision making system for road development
- c) Improving traffic flow of efficiency and involving the government especially the human

(2) M/s Patricia gave presentation on the general concept of the Juba Transport Infrastructure Development highlighting the Priority Project components in relation to the Ministry of Transport and Roads-MTR like Road network development; Land use Planning; construction and rehabilitation of Culverts and Bridges .

(3) On the behalf of the JICA Study Team gave a presentation on the Environmental and Social Issues identified during the screening process carried out focused on the Arterial Street-C2, C3 and Collector Street A and B (CSA&CSB). In his presentation he embraced issues like;

- a. Compensation costs in which he questioned the roles and responsibilities of the stakeholders/ partners involved like the local Administrators; Land commission and Ministry of Housing Lands and Public Utilities –Directorate of lands and Construction Central Equatoria State-CES.
- b. Land use Activities sited along the Arterial and collector Streets roads reserves. Land use along the roads like the Arterial Roads at the centre of Juba –May Street; water supply facility along Unity Avenue with commercial stores; educational facilities like the Juba University and hand stone Crushing activities along Yei Road are likely to be impacted on negatively.
- c. The proposed bridge designs for construction encroach on private property like ; farm lands, trees(fruit trees)fence and government owned facilities like Lologo Prisons Training School; areas adjacent to the proposed new bridge site is likely to impact negatively on source of livelihood of the community that is fishing.
- d. The proposed bridge Construction across the River Nile connecting the c2,c3 and collector Streets A&B(CSA& CSB).The Proposed bridge construction site alternatives are all associated with negative impacts on settlements in terms of land acquisition for the activities; destruction of vegetation and change in source of livelihood hence require Involuntary Resettlement Plan .

(4) A series of reactions and discussions proceeded after the presentations with the following highlights;

- i. Considerations should be put on the already existing water pipe line network as well as the electric poles are to be reallocated to widen the carriage. The study team advised to use the water pipe line network map to act as guidance. In case of compensation; the Southern Sudan Water Corporation shares the cost of reallocation based on 50% i.e the labor costs and the pipe and other fittings are taken by the partner/contractor.
- ii. The costs of reallocation of facilities like housing depends on the various class of land for example; residential (high and low); recreational and business and Government area. Compensation will be done after carrying out the assessment on the land and cost of property on the land both movable and immovable.
- iii. Drainage facilities for the roads to ensure that problems like flooding are minimized as compared to the present design of surface drain.
- iv. Land Act and land Policy: the policy has been approved but the land Act is yet to be approved. The Compensation schedule which will bear the standard fixed rates /costs of property subject to compensation is being prepared and presented after the Land Act has been passed as a law.
- v. Roads Classification: the streets network of Urban Juba and other part of Juba town; roads functional and classification should be based on access roads rather than local roads to give clear distinctive functionality of the smaller ;inner roads into the residential and connecting to other land classification.