

**REPUBLIC OF UGANDA  
MINISTRY OF WORKS AND TRANSPORT  
(MOWT)**

**THE STUDY ON  
GREATER KAMPALA  
ROAD NETWORK AND  
TRANSPORT IMPROVEMENT  
IN THE REPUBLIC OF UGANDA**

**FINAL REPORT  
VOLUME I MAIN REPORT**

NOVEMBER 2010

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**NIPPON KOEI CO., LTD.  
EIGHT-JAPAN ENGINEERING CONSULTANTS INC.**


## COMPOSITION OF THE REPORT

- EXECUTIVE SUMMARY
- VOLUME I      MAIN REPORT
- VOLUME II      PRELIMINARY DESIGN DRAWINGS
- VOLUME III      ANNEXES
- SUPPLEMENTAL TRAFFIC SIGNAL OPERATION AND MAINTENANCE MANUAL

## CURRENCY EXCHANGE RATE

Following currency exchange rates (Interbank Average Exchange Rates of Bank of Uganda for 30th June 2010) were adopted in this report unless otherwise stipulated.

(1) Ugandan Shillings vs. US Dollar  
USD 1= 2,271.94 Shillings

(2) Japanese Yen vs. US Dollar  
USD 1= JPY 88.44

## **Preface**

In response to the request from the Government of Uganda, the Government of Japan decided to conduct “The Study on Greater Kampala Road Network and Transport Improvement in the Republic of Uganda” (the Study), and entrusted the Study to the Japan International Cooperation Agency (JICA).

JICA dispatched the Study team, headed by Mr. Hiroki SHINKAI of Nippon Koei Co., Ltd. and organized by Nippon Koei Co., Ltd. and Eight-Japan Engineering Consultants Inc., to Uganda three times from November 2009 to August 2010.

The Study Team had a series of discussions with the officials concerned of the Ministry of Works and Transport (MoWT) and other Steering Committee members and carried out field surveys on related studies at the study area. After returning to Japan, the Study team conducted further studies and completed this final report.

I hope that this report will be contributed to the promotion of the project and to the enhancement of friendly relations between two countries.

Finally, I wish to express my sincere appreciation to the officials of the Government of Uganda, especially the counterpart agency of the Ministry of Works and Transport for their close cooperation extended to the Study.

November, 2010

Kiyofumi Konishi  
Director General  
Economic Infrastructure Department  
Japan International Cooperation Agency



## LOCATION MAP OF THE STUDY

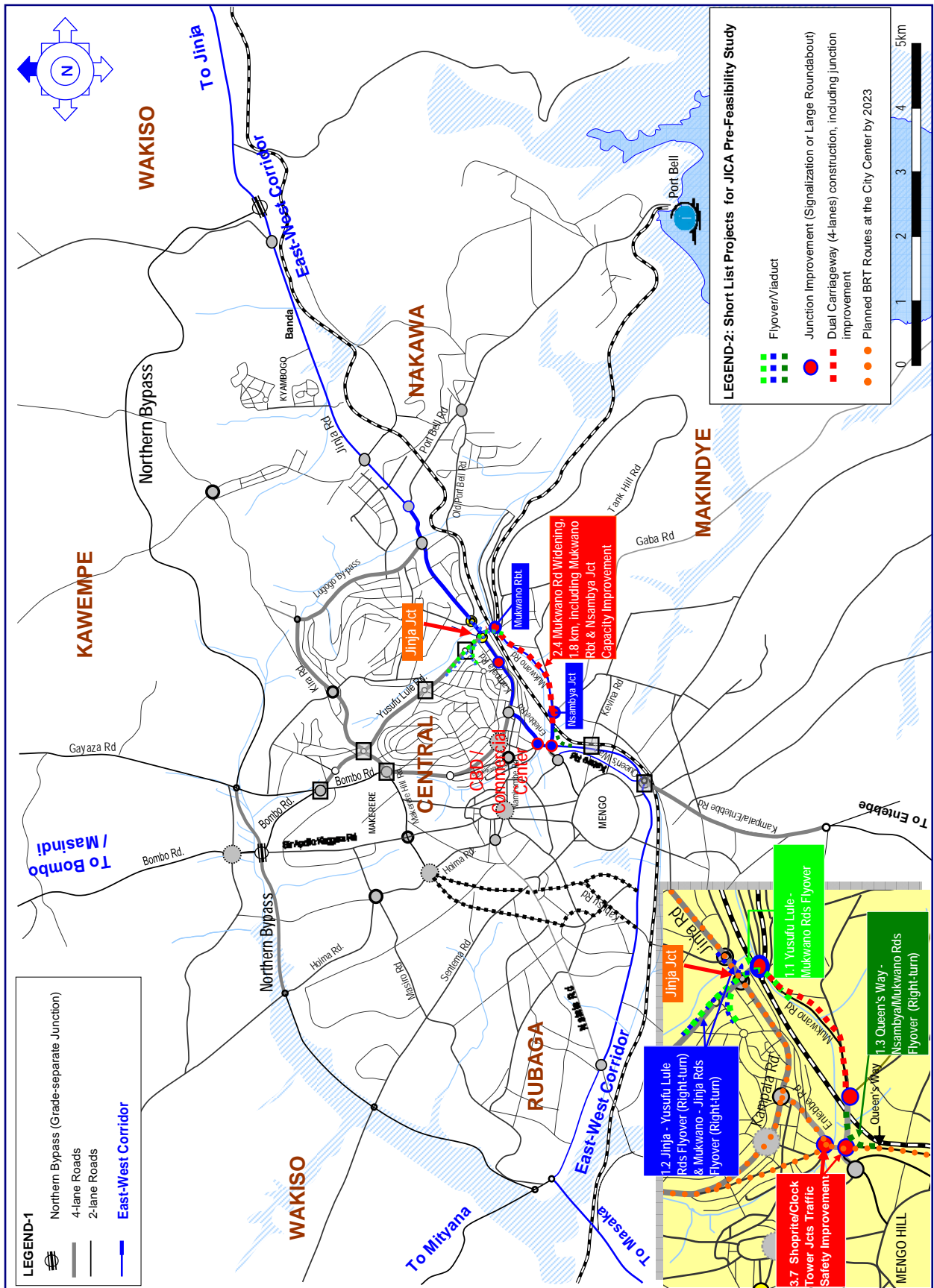


### The Study on Greater Kampala Road Network and Transport Improvement

STUDY AREA (Greater Kampala Metropolitan Area) includes;

- \* Kampala City Council
- \* Entebbe Municipal Council
- \* Mukono Town Council and Part of Mukono District
- \* Wakiso Town Council and Part of Wakiso District
- \* Kira Town Council, and
- \* Nansana Town Council

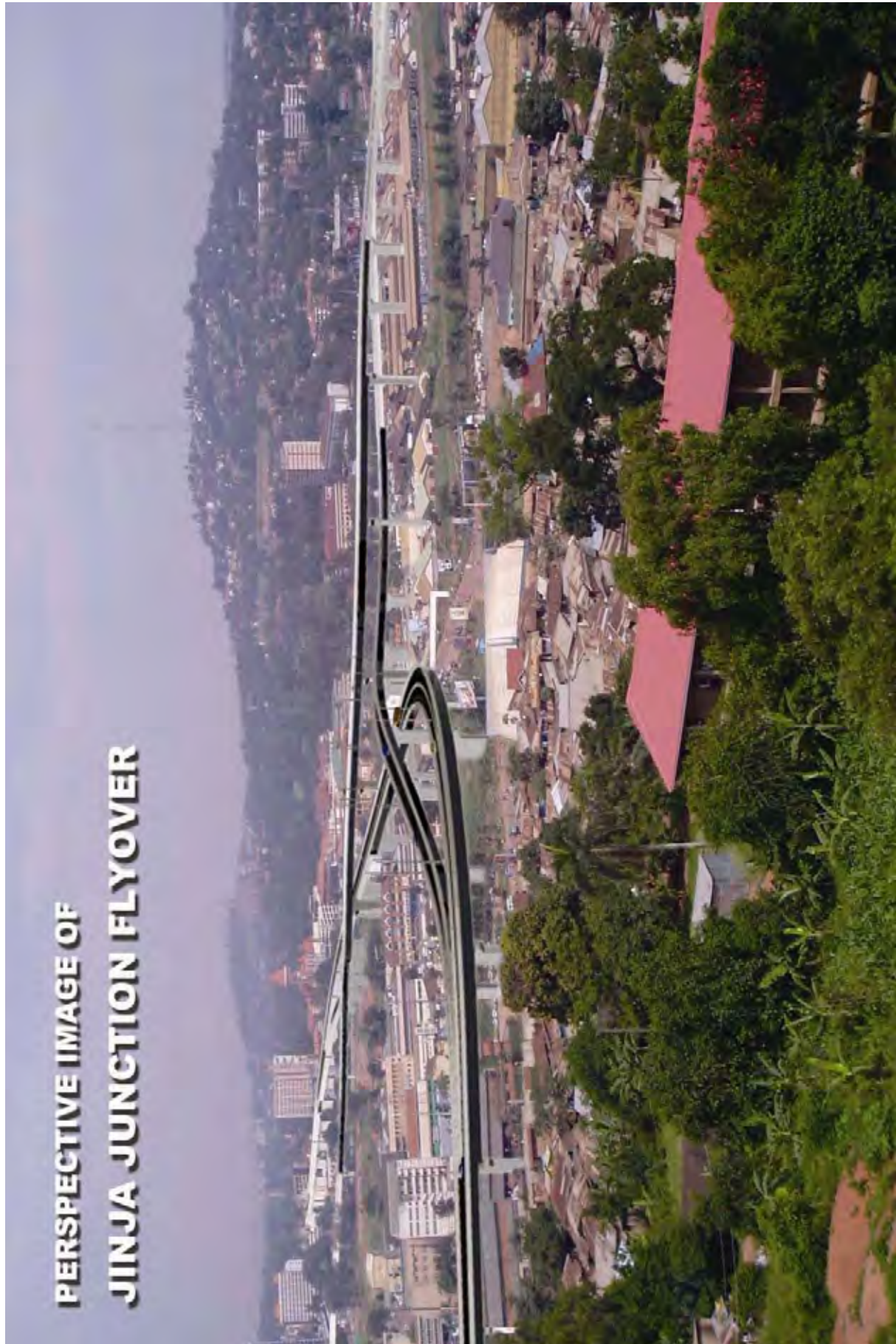




Location Map-2







Perspective Image



# FINAL REPORT

## MAIN REPORT

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## LIST OF ABBREVIATIONS

### A

AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Office
AAU	Automobile Association of Uganda
AC	Asphalt Concrete
ADT	Average Daily Traffic
AfDB, ADB	African Development Bank
AU	African Union

### B

Bill. or Bil.	Billion
B/C	Benefit/Cost Ratio
BD or B/D	Basic Design
BM	Backlog Maintenance
BRT	Bus Rapid Transit

### C

CAA	Civil Aviation Authority
CBR	California Bearing Ratio
CBD	Central Business District
CBO	Community Based Organization
CIF	Cost, Insurance, Freight
COMESA	Common Market for Eastern and Southern Africa
CPI	Consumer Price Index
CPS	Central Police Station
CSR	Corporate Social Responsibility

### D

DANIDA	Danish International Development Agency
DBST	Double Bituminous Surface Treatment
DECs	District Environmental Committees
DFID	Department for International Development, UK
DFR	Draft Final Report (of the Study)
DUCAR	District, Urban and Community Access Roads

### E

EA	Environmental Assessment
EAC	East African Community
EDF	European Development Fund
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EIS	Environmental Impact Statement
EMC	Entebbe Municipal Council
EMP	Environmental Management Plan
EMS	Environmental Management System
ERP	Economic Recovery Plan
EU	European Union

### F

FC	Foreign Component or Foreign Currency
FY	Fiscal Year



## G

GDP	Gross Domestic Product
GIS	Global Information System
GKMA	Greater Kampala Metropolitan Area
GNP	Gross National Product
GOJ	Government of Japan
GOU	Government of Uganda
GRDP	Gross Regional Domestic Product
GRSF	Global Road Safety Facility
GVW	Gross Vehicle Weight

## H

Ha	Hectare
HDM-4	Highway Development and Management Version 4 Program
HIPC	Heavily Indebted Poor Countries
HIV	Human Immune-Deficiency Virus

## I

IBRD	International Bank for Reconstruction and Development
ICB	International Competitive Bidding
ICC-U	Injury Control Center - Uganda
ICD	Institutional Capacity Development
IDA	International Development Association
IEE	Initial Environment Examination
IR	Interim Report
IRR	Internal Rate of Return
IT	Information Technology

## J

JICA	Japan International Cooperation Agency
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## K

KCC	Kampala City Council
KDMP	Kampala Drainage Master Plan
KIBP	Kampala Industrial and Business Park
KIIDP	Kampala Institutional and Infrastructure Development Project
km	kilometer
KUTIP	Kampala Urban Transport and Improvement Plan

## L

LC	Local Component or Local Currency
LDCs	Least Development Countries
LVEMP	Lake Victoria Environmental Management Program
LOG	Local Government

## M

MAAP	Micro Accident Analysis Package
MATA	Metropolitan Area Transport Authority
MBA	Maintenance by Administration (force account)
MBC	Maintenance by Contract
MC	Motor Cycle
MCA	Multi-Criteria Analysis
MDC	Mukono District Council
MDGs	Millennium Development Goals
Mill. or Mil.	Million
MFPEd	Ministry of Finance, Planning and Economic Development
MIS	Management Information System

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MLHUD	Ministry of Lands, Housing and Urban Development
MOE	Ministry of Education
MOFPED	Ministry of Finance Planning and Economic Development
MOH	Ministry of Health
MOIA	Ministry of Internal Affairs
MOLG	Ministry of Local Government
MOWHC	Ministry of Works, Housing and Communications (Presently, MOWT)
MOWT	Ministry of Works and Transport
MTEF	Medium Term Expenditure Framework
MTRA	Multi-sector Transport Regulatory Authority
<b>N</b>	
NAFEBO	National Federation of Boda Boda Operators
NCB	National Competitive Bidding
NCRP	Nakivubo Channel Rehabilitation Project
NEA	National Environmental Act
NEMA	National Environmental Management Agency
NGO	Non-Governmental Organization
NRSA	National Road Safety Authority
NRSC	National Road Safety Council
NPV	Net Present Value
NTMP	National Transport Master Plan
NTMP/GKMA	National Transport Master Plan including A Transport Master Plan for the Greater Kampala Metropolitan Area
NWSC	National Water and Sewerage Corporation
<b>O</b>	
OD	Origin – Destination
ODA	Official Development Assistance
OJT	On-the-Job Training
O & M	Operation and Maintenance
<b>P</b>	
PAP	Persons Affected by Project
PBM	Performance Based Maintenance
P/C	Public Consultations
PCC	Portland Cement Concrete
PCU, pcu	Passenger Car Unit
PEAP	Poverty Eradication Action Plan
PIP	Project Implementation Plan
PPP	Public Private Partnership
Pre-FS	Pre-Feasibility Study
PRSP	Poverty Reduction Strategy Paper
PS	Permanent Secretary
PSV	Public Service Vehicles
<b>Q</b>	
QC	Quality Control
<b>R</b>	
RAFU	Road Agency Formation Unit
RAP	Resettlement Action Plan
RDP	Road Development Program
RDPP-1,-2,-3	Road Development Program, Phases 1, 2 and 3
ROW	Right of Way
RSDP	Road Sector Development Program

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RSIAP	Road Safety Improvement Action Plan
RVR	Rift Valley Railways Uganda Ltd.
RUC	Road User Charge
<b>S</b>	
SADC	Southern African Development Community
SC	Steering Committee (for the Study)
SFR-II	Strategic Framework for Reform - II
SH	Stakeholders
SHODAU	Special Hire Operators and Drivers Association of Uganda
Shs	Ugandan Shillings (UGX)
SOE	State of Environment
<b>T</b>	
TA	Technical Assistance
TICAD	Tokyo International Conference on African Development
TLB	Transport Licensing Board
TMP/GKMA	Transport Master Plan for Greater Kampala Metropolitan Area
TOD	Transit Oriented Development
TOR, TORs	Terms of Reference
TRL	Transport Research Laboratory
TSDP	Transport Sector Development Project
TWG	Technical Working Group (for the Study)
<b>U</b>	
UBOA	Uganda Bus Operator's Association
UBOS	Uganda Bureau of Statistics
UDSIOA	Uganda Driving School Operators and Instructors Association
UGX	Ugandan Shillings (Shs)
UIA	Uganda Investment Authority
UNBS	Uganda National Bureau of Standards
UNP	Uganda National Police
UNRA	Uganda National Roads Authority
UPF	Uganda Police Force
URA	Uganda Revenue Authority
URC	Uganda Railways Corporation
URCS	Uganda Red Cross Society
URF	Uganda Road fund
UTODA	Uganda Taxi Operator and Drivers Association
USD, US\$, \$	United States Dollar
UNDP	United Nations Development Program
UTODA	Uganda Taxi Operators & Drivers Association
<b>V</b>	
VAT	Value Added Tax
VOC	Vehicle Operation Cost
<b>W</b>	
WB	World Bank
WDC	Wakiso District Council
WHO	World Health Organization
WID	Wetlands Inspection Division



## SYNOPSIS

<b>1. Country</b>	The Republic of Uganda
<b>2. Name of Study</b>	The Study on Greater Kampala Road Network and Transport Improvement in the Republic of Uganda
<b>3. Counterpart Agency</b>	Ministry of Works and Transport (MoWT)
<b>4. Objectives of Study</b>	<ol style="list-style-type: none"> <li>1. To conduct a pre-feasibility study of prioritized projects</li> <li>2. To formulate a public transport plan</li> <li>3. To formulate a road safety improvement plan</li> <li>4. To transfer relevant skills and technologies to personnel concerned with the Study</li> </ol>
<b>5. Study Area</b>	The Greater Kampala Metropolitan Area (GKMA)
<b>6. Scope of Study</b>	<ol style="list-style-type: none"> <li>(1) Collection and analysis of existing data (Previous investigation, Socio-economic condition, Natural condition, Related study reports, etc.)</li> <li>(2) Reviewing the final report of National Transport Master Plan including a Transport Master Plan for the Greater Kampala Metropolitan Area (NTMP/GKMA), May 2009</li> <li>(3) Selection of the projects for pre-feasibility study related to the road improvement plan</li> <li>(4) Undertaking pre-feasibility study for the selected projects</li> <li>(5) Formulation of a public transport plan</li> <li>(6) Formulation of the road safety improvement plan</li> </ol>
<b>7. Major Findings and Key Issues</b>	<ol style="list-style-type: none"> <li>(1) Area of GKMA is 970 km<sup>2</sup>. Its population was 2.5 million in 2008 and is projected to reach 4.5 million in 2023.</li> <li>(2) The GOU launched the National Development Plan (NDP) in April 2010, whose theme is “Growth, Employment and Socio-Economic Transformation for Prosperity”. The development of GKMA and implementing the Bus Rapid Transit (BRT) system are among the core projects of NDP.</li> <li>(3) Kampala City Council has a total of 1,030 km of roads of which 330 km (32%) are paved. In addition, approximately 75 km of road network is under the responsibility of either MoWT or Uganda National Road Authority (UNRA). Most of these roads are 2 lane roads.</li> <li>(4) The traffic congestion in GKMA, especially in Kampala City, has further worsened and may endanger sustainable national and regional economic development. Major causes of the traffic congestion are rapid urbanization, national economic growth, high traffic increase, poor road network, urban structure concentrated in one city center, lack of traffic demand management, inappropriate public transport system, etc.</li> <li>(5) According to the interview survey on the worst congested junctions conducted by the Study Team, over 90% replied that the traffic congestion at Shoprite and Clock Tower Junctions is the most serious. Approximately 48,000 pedestrians pass these junctions daily and many traffic accidents involving pedestrians have been recorded.</li> </ol>

- (6) A pre-feasibility study of the BRT had been conducted and its final report was submitted in May 2010. It planned to introduce BRT on eight routes by 2030. A feasibility study and detailed design for the BRT pilot project (14 km) will commence in early 2011.
- (7) The introduction of BRT would drastically change traffic flows in the city center as the Kampala / Entebbe Junction is closed to the general traffic. In addition, its basic concept might be changed through public consultations or based on results of the feasibility study of the BRT pilot project.
- (8) The current public transport in Kampala City mostly relied on minibuses (locally called as “taxi”) and motorcycle taxis (locally called as “boda-boda”). The largest problems of the minibus are the unfixed schedule of operation, uncertain level of fares, and poor services. Two large minibus parks in the city center have also caused serious traffic congestion.
- (9) The road traffic accidents increased rapidly from 1990 to 2007, with a rate of 7.8% per annum. In terms of motorized vehicle fatalities, Uganda’s rate is 65 persons per 10,000 vehicles and ranked as one of the worst African countries.
- (10) Lack of traffic demand management strategy, inappropriate walkways, shortage of parking spaces and inadequate maintenance system for traffic signals are noted in respect of traffic management.

## **8. Conclusions and Recommendations**

### **8.1 Conclusions**

#### **(1) Road Network Improvement**

- 1) The Study Team has reviewed NTMP/GKMA and suggested that Gaba Road and Kira/Old Kira Roads, as radial roads, and Kampala – Entebbe International Airport Expressway should be added to NTMP/GKMA.
- 2) The Study Team conducted a pre-feasibility study (Pre-FS) and preliminary designs for the following priority projects which is coordinated with or supplements the BRT pilot project.
  - 1.1 & 1.2: Jinja Junction Flyover (Yusufu Lule – Mukwano Roads Flyover, Jinja – Yusufu Lule Roads Flyover and Mukwano – Jinja Roads Flyover), Length 4.0 km in total.
  - 1.3: Clock Tower Flyover, Length 0.6 km in total.
  - 2: Mukwano Road Widening to a Dual Carriageway Highway, Length 1.8 km.
  - 3: Shoprite & Clock Tower Junctions Traffic Safety Improvement.
- 3) The Study Team has planned to implement the Pre-FS projects in two phases. Phase 1 covers the implementation of three projects, namely, Jinja Junction Flyovers, Mukwano Road Widening and Shoprite and Clock Tower Junctions Traffic Safety Improvement in the medium term (by 2018). Phase 2 covers the implementation of Clock Tower Flyover construction in the long term (by 2023).
- 4) The total civil works cost of Phase 1 projects was estimated at US\$ 220.6 billion or US\$ 97.1 million at the year 2010 price (base cost). The cost of Phase 1 projects, including consultancy services, price and physical contingencies, land acquisition and compensation and administration, is estimated at US\$ 353.5 billion or US\$ 155.6 million.
- 5) The Initial Environmental Examination (IEE) was conducted for screening and initial environmental evaluation for Pre-FS projects. The EIA Study/EIA shall be required for the Pre-FS projects subject to the approval of the National Environmental Management Authority (NEMA) of GOU in the FS stage.
- 6) All Pre-FS projects are economically (EIRR>20%) and technically feasible. The projects will also contribute to traffic accidents reduction, promotion of urban/regional/national economic development, strengthening the international corridor, poverty reduction, and global warming (CO<sub>2</sub>) mitigation.

## **(2) Road Traffic Safety**

- 1) The Study Team has established two targets in its Traffic Safety Strategic Plan. One is to reduce the number of fatalities to half by the year 2015 and the other is to strengthen the capacity and function of the organizations involved in road safety and rules /regulations.
- 2) To achieve the two targets, basic planning policies and implementation strategies should be discussed including basic elements, database preparation, appropriate environmental mechanisms and human resources development.
- 3) The Study Team has recommended the Traffic Safety Action Plan composed of action plans and capacity enhancement/development of traffic safety institutions, for 2011 – 2015.

## **(3) Public Transport Improvement**

- 1) As the total number of minibuses accounted for 30% of all type of vehicles, it is inevitable to shift from minibus to larger bus for the alleviation of traffic congestion and provide stable and comfortable public transport services.
- 2) Since the number of passengers of a minibus is small and the transport efficiency is low, the minibus should be replaced gradually by large bus, medium bus and BRT.
- 3) Five routes of large bus are planned for the area where the BRT will not cover and passenger demand is large. Operation of medium bus will be limited to the area where the BRT and large bus can not cover. For the transfer of passengers from medium bus to BRT and large bus, nine (9) terminals should be developed along the BRT and large bus routes.
- 4) Four (4) Inter-urban Bus Terminals (IUBT) are proposed to be constructed outside the Northern Bypass and along radial trunk roads. The required function of the proposed IUBT is not only to serve as passenger transit but also as transportation service to shopping areas and other services.

## **(4) Traffic Management**

The Study Team has advised GOU to take following actions:

- 1) Implement the measures in accordance with “Strategy for the Improvement of Traffic Flow in Kampala in December 2009” recommended by the Task Force, and introduce traffic demand management approach and strategies with cooperation of international development partners.
- 2) Develop and upgrade pedestrian friendly walkways (footpath) in the CBD and other city centers.
- 3) Establish building standards ensuring parking spaces and introduce car park sharing scheme and parking guide information system to maximize utilization of the existing parking spaces.
- 4) Establish the overall signalization plan and programs, including systematic installation and maintenance plans for new traffic signals.

## **8.2 Recommendations**

### **(1) Road Network Improvement**

- 1) Both governments should hold meetings after completion of the Study and discuss on how and when GOJ could assist in the implementation of the Pre-FS projects, including a feasibility study, in order to move forward.
- 2) The Study Team recommends implementation of the Pre-FS projects in two phases, as follows:
  - Phase 1: Jinja Junction Flyovers, Mukwano Road Widening and Shoprite and Clock Tower Junctions Traffic Safety Improvement in the medium-term by 2018, as one package.
  - Phase 2: Clock Tower Flyover Project in the long-term by 2023

The Study Team also recommends that Mukwano Road Widening, and Shoprite and Clock Tower Junctions traffic safety improvement could be implemented prior to the Jinja Junction Flyovers if availability of budget is limited.

- 3) The feasibility study for the BRT B1, Kampala – Kajansi section, should include the Kibuye Junction Flyover plan and Queen’s Way Widening.
- 4) The Study Team recommends conducting follow-up survey to monitor the progress of the FS and DD of BRT, and to discuss technical issues which might affect the implementation of Pre-FS projects.

## **(2) Road Traffic Safety Plan**

The following three development programs should be implemented at the earliest stage:

- Traffic Safety Human Resource Development Project
- Comprehensive Vehicle Management System Development Project
- Project for the Study on Development of Traffic Control Device Integration and Traffic Surveillance System

## **(3) Public Transport Improvement**

- 1) In line with the introduction of BRT and change to large/medium bus services, reinforcement of the government organization and human resources development is required.
- 2) As Uganda does not have much experience in the development of public bus terminals, assistance of development partners are recommended on technical and management aspects.
- 3) In order to grasp the whole movement of people, which is the basic source of traffic plan, person trip survey should be conducted at an earliest stage.
- 4) Introduction of electric bus car should be considered in the BRT project taking carbon dioxide reduction into consideration.

## **(4) Traffic Management Improvement**

The Study Team recommends the following three development programs:

- Introduce development and enhancement programs for both administrative and engineering capacities for effective traffic management, including traffic demand management.
- Systematic and earliest installation of traffic signals on major junctions based on traffic volume, safety and site condition.
- Change from current stand-alone signals to an area and line controlled signalization system corresponding to increase of traffic signals in the future.



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## CHAPTER 1 INTRODUCTION

### 1.1 BACKGROUND

The population of Uganda is 30.7 million and its real GDP is US\$ 19,426 billion at market prices in 2009. Uganda is a landlocked country and its transport system is mostly relied on road since its railways have not functioned well. The road accounts for 96.5% of the freight cargo whereas the railway accounts for only 3.5%. As far as passenger traffic is concerned, road accounts for an average of 95%. Therefore, development of road networks and their sustainability is essential for the development of national and regional economy.

The Government of Uganda (GOU) has given priority on the development and maintenance of road infrastructures after the end of civil war in the late 1980s. The GOU had established the Ten-Year Road Sector Development Plan (RSDP-1) in 1996. To support RSDP-1, the Government of Japan (GOJ) through Japan International Cooperation Agency (JICA) conducted “Feasibility Study (FS) of Improvement of Trunk Road at Kampala Urban Interface Sections” in 1997 while the GOU established Kampala Urban Transport Improvement Program (KUTIP) with the assistance of the World Bank in 2002. The GOJ extended grant aids in 1999-2007 for the implementation of the priority junctions and roads’ improvements recommended in the 1997 JICA FS and KUTIP.

The GOU has revised the Road Sector Development Plan (RSDP-2) in 2001. The Ministry of Works and Transport (MoWT) established the National Transport Master Plan including a Transport Master Plan for the Greater Kampala Metropolitan Area (NTMP/GKMA) in 2005 with the assistance of the World Bank, to support RSDP-2.

The total area of Greater Kampala Metropolitan Area (GKMA) is 970 km<sup>2</sup> and its total population was estimated at 2.5 million in 2008. It is projected to reach 4.5 million in 2023 (9.1% share in the whole country). As a combined result of the rapid urban population increase, the national economy growth and rapid traffic increase, especially in the GKMA, traffic congestion at major junctions and trunk roads has become really serious. Consequently, it is one of the key issues to be addressed for sustainability of both national and regional economy development.

Under these circumstances, the GOU requested the GOJ to extend a technical assistance to conduct the “Study on Greater Kampala Road Network and Transport Improvement” (the “Study”). Accordingly, the JICA has decided to jointly undertake the Study with the concerned authorities of the GOU, in accordance with the scope of works signed by the MoWT and JICA in March 2007.

The MoWT finalized the NTMP/GKMA in May 2009 and submitted it to cabinet in February 2010, and is waiting for approval. Meanwhile in 2007, after the implementation of the third revision of Poverty Eradication Action Plan (PEAP) covering the 2004/05-2007/08 period, the GOU determined that the country should move from PEAP to National Development Plan (NDP), whose theme is “Growth, Employment and Socio-Economic Transformation for Prosperity”. The NDP 2010/11-2014/15 which is the first of six five-year national development plan was launched in April, 2010. The NDP has incorporated the essence of NTMP/GKMA as one of the core projects. Hence, the Study shall be conducted within the framework of NTMP/GKMA to support the NDP and other development goals.

### 1.2 OBJECTIVES OF THE STUDY

The objectives of this Study are as follows:

- 1) To conduct a pre-feasibility study (Pre-FS) of prioritized projects;
- 2) To formulate a public transport plan;
- 3) To formulate a road safety improvement plan; and
- 4) To transfer relevant skills and technologies to personnel concerned with the Study

### **1.3 SCOPE OF THE STUDY AND THE STUDY AREA**

In accordance with the scope of work for the Study agreed by the GOU, MoWT and GOJ in March 1, 2007, the Study is conducted under the principle of the framework of NTMP/GKMA.

Through the site survey conducted, the Study Team realized that the road traffic was not managed appropriately especially in the central area of Kampala city and the traffic management was one of the key issues to solve the traffic problems such as congestion, accidents and so on. Accordingly, the Study Team proposed to the GOU to include the study item of the traffic management into the scope of works in addition to the road network improvement in terms of road facility enhancement, the public transport plan, and the road safety improvement plan. After discussions with GOU, it was concluded that the Study should include the study item of the traffic management and the traffic management plan should be described in an independent chapter (Chapter 10) apart from preliminary design for the Pre-FS projects or traffic safety plan. The result of technical assistance for operation and maintenance of traffic signals in Kampala City was also described in Chapter 10.

#### **1.3.1 SCOPE OF THE STUDY**

The scope of work for the Study is as follows:

- (1) Collection and analysis of existing data (previous investigation, socio-economic condition, natural condition, related study reports, etc.),
- (2) Review of the final report of NTMP/GKMA,
- (3) Selection of projects for Pre-FS related to the road improvement plan,
- (4) Undertaking the Pre-FS for the selected projects,
- (5) Formulation of a public transport plan,
- (6) Formulation of the road safety improvement plan,
- (7) Formulation of the traffic management plan, and
- (8) Technology Transfer.

#### **1.3.2 THE STUDY AREA**

The Study area shall cover the GKMA which is a geographical zone encompassed by a circle of approximately 20 km radius, from the Kampala City Center, and extends to nearly 30 km in the direction of Entebbe as shown in Figure 1.3.1. The GKMA includes territories administrated by the following local government authorities:

- \* Kampala City Council,
- \* Entebbe Municipal Council,
- \* Mukono Town Council and Part of Mukono District,
- \* Wakiso Town Council and Part of Wakiso District,
- \* Kira Town Council, and
- \* Nansana Town Council.



Source: JICA Study Team

Figure 1.3.1 Study Area

## 1.4 OVERALL SCHEDULE AND PROGRESS OF THE STUDY

### 1.4.1 OVERALL SCHEDULE

The entire work period of the Study is approximately 11 months beginning with the preparatory work at the end of October 2009. The submission of the final report will be at the end of September 2010, as shown below.

The Study constitutes the following three components:

- (1) To conduct a Pre-FS for prioritized projects,
- (2) To formulate a public transport plan in the medium and long terms,
- (3) To formulate a road safety improvement plan in the medium and long terms.

### [Prioritized Projects for Pre-FS]

Taking the strong intent of the GOU for earlier commencement of the road improvement project into consideration, the Study Team proposed that the prioritized projects selected for the Pre-FS should be designed with a precision set at Basic Design level instead of an ordinary level of pre-feasibility study with preliminary design, because of the following reason:

*“By this alteration, a process of the Basic Design Study, that has to be performed after completing this study to confirm the project viability under the Japanese Grant Aid, would be omitted and the implementation of the projects can be started earlier by one year than that of normal process”.*

The above proposal was approved and confirmed by the GOU at the 1<sup>st</sup> Steering Committee meeting held on November 20, 2009.

After the initial study on the road network systems in Kampala City and GKMA, five short-listed projects were selected by the Study Team as candidates for the Pre-FS. The Study Team recommended conducting a Pre-FS with preliminary design for one project, Jinja – Kampala Flyover with associated flyovers, and a basic design level pre-feasibility study for the other four projects as candidates for grant aid of the GOJ. The concept for these five short-listed projects and recommendations of the Study Team were presented in Interim Report I and approved at the 2<sup>nd</sup> Steering Committee meeting held on March 4, 2010.

Based on the result of Interim Report I, the GOJ has examined these four short-listed projects whether these are appropriate and mature enough as candidate projects of Japanese grant aid under its Official Development Assistance (ODA) policy and scheme.

Besides, a pre-feasibility study for the Bus Rapid Transit (BRT) has been conducted in parallel with the JICA Study since November 2009. Its draft final report was submitted in April 2010 and approved by MoWT accordingly. The Study Team understands that BRT has a good possibility to substantially improve traffic congestion in the city center at less cost compared with other methods such as the Light Rail Transit (LRT) and the Mass Rail Transit (MRT).

Introduction of BRT was incorporated in the final report of NTMP/GKMA in May 2009. Development of GKMA and implementing the rapid transport system are among the national core projects in the NDP launched on April 19, 2010. The World Bank will financially and technically cooperate for the study and implementation of the BRT project. Hence, introduction of BRT is a given condition for JICA Study (Pre-FS), and it is required to plan the JICA Pre-FS projects well coordinating with the BRT plan.

However, it was learned that the introduction of BRT might drastically change the current traffic flows in the Kampala City center (refer to Chapter 5 as to future traffic flow simulations) since Kampala / Entebbe Road Junction is closed to the general traffic according to the draft final report in the BRT Pre-FS.

In addition, BRT Pre-FS has left several important configurations and implementation schedule of the overall BRT plan, which are required for the basic design level Pre-FS of the JICA short-listed projects, to the feasibility study and detailed design of BRT Pilot Project (**“BRT FS and DD”**) to be commenced in early 2011 for about 12 months period. The basic concepts of the BRT Pre-FS may change during the BRT FS and DD stage based on technical and financial reviews or through public consultations.

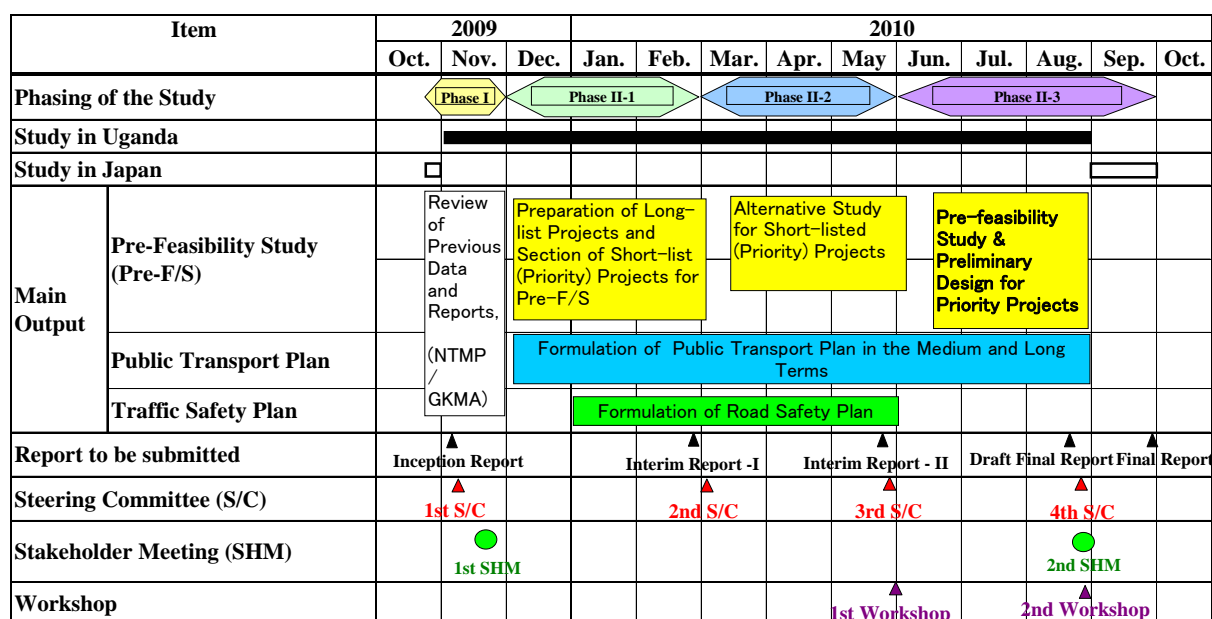
The GOJ well understands the importance and advantages of BRT introduction and will support this new challenge of the GOU. However, it has become clear that the short-listed projects in Interim Report I are either directly or indirectly affected by the BRT introduction since all five short-listed projects are located along the planned BRT routes, especially three projects along the BRT pilot project route. Therefore, the GOJ has decided that it is not appropriate to conduct the basic design level Pre-FS for the short-listed projects until a concrete plan of BRT is established

by the BRT FS and DD.

The GOJ has decided to conduct the Pre-FS with preliminary design for three final short-listed projects namely, Flyover Projects, Mukwano Road Widening and Shoprite / Clock Tower Traffic Safety Improvement, which would rather support the introduction of BRT (refer to Chapter 6 as to details) by addressing the new traffic flow bottlenecks by BRT, in accordance with the original scope of work signed by both governments on 1<sup>st</sup> March 2007. Jinja Road Widening and Lugogo Bypass Junction Improvement will be excluded since these duplicate the BRT FS and DD.

The GOJ and the GOU will discuss on how and when the GOJ could assist in the implementation of the Pre-FS projects based on the Study results and progress of the BRT FS and DD. Both governments will continue the close coordination on realization of the Pre-FS projects and support of the BRT introduction.

The revised work schedule of pre-feasibility study is presented in Figure 1.4.1.

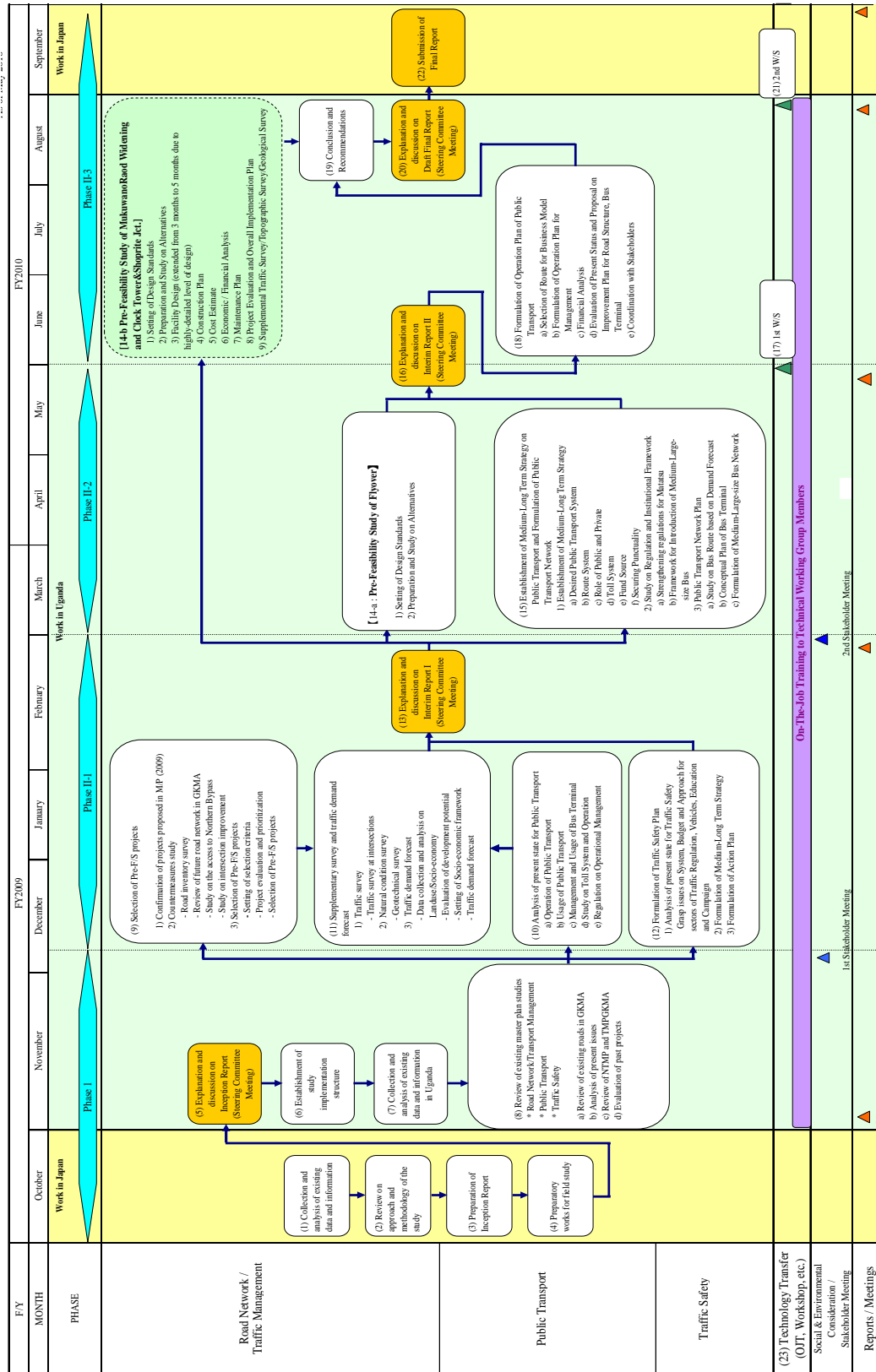


Source: JICA Study Team

Figure 1.4.1 Overall Schedule of the Study

## 1.4.2 WORK FLOW

Detailed work flow of the Study is shown in the Figure 1.4.2 below.



Source: JICA Study Team

Figure 1.4.2 Work Flow of the Study

### 1.4.3 STUDY PROGRESS

The Study Team arrived at Kampala on November 8, 2009 and commenced the initial site survey to observe the present condition of road network and traffic flows in the GKMA.

The first Steering Committee meeting was held at the Central Mechanical Workshop of MoWT in Kampala on November 20, 2009 for a briefing on the Inception Report. The Inception Report was approved by GOU after the exchange of opinions between the Steering Committee member and the Study Team. After that, the 1st Stakeholder meeting was held on December 8, 2009 to explain the result of observation of road network and public transport in the city and exchange opinions regarding the problems and issues on road network, public transport and road safety in the GKMA.

Subsequently, the Study Team initiated the review of existing data and reports including the NTMP/GKMA, preparation of long list projects for improvement, prioritization of projects and selection of short-listed projects for Pre-FS which might be appropriate for ODA of the GOJ. The Study Team conducted a supplementary traffic survey, reviewed public transport system including BRT, road and traffic safety plan, as well as the relevant environmental and social considerations. The collected information and analysis were compiled in the Interim Report I submitted to GOU and discussed at the 2nd Steering Committee meeting held on March 4, 2010.

The Pre-FS on the Flyover project, one of the short-listed projects, commenced with alternative study on route based on engineering study as well as future traffic demand forecasted through data collection and analysis on land use/socio-economy, evaluation of development potential and setting of socio-economic framework.

In addition, proposed traffic safety plan was formulated through the analysis of present condition including issues on system, budget and approach for sectors of traffic regulation, vehicles, education and campaign, and formulation of medium/long-term strategy and action plan.

Furthermore, medium/long-term strategy on public transport including desired public transport system, route system, roles of public and private sectors, toll system, fund source and securing punctuality was established, and public transport network was formulated.

Abovementioned contents were added and all the results of the study until the end of May were compiled in the Interim Report II which was submitted to GOU and discussed at the 3rd Steering Committee meeting held on June 1, 2010.

The Study Team conducted Pre-FS on the priority projects (Flyovers, Mukwano Road Widening and Shoprite and Clock Tower Junctions), including preliminary designs, cost estimation, project evaluation and project implementation planning. The Study Team also studied efficient the public transport system which supplements the BRT or covers the areas not subjected to the BRT services. The Study Team compiled all study results and recommendations in the draft final report submitted, and presented those at the 4<sup>th</sup> (final) Steering Committee meeting held on August 24, 2010.

### 1.4.4 MAJOR MEETINGS AND WORKSHOPS

The following meetings were held since the beginning of the Study (November 2009) until the end of August 2010:

- (1) 1<sup>st</sup> Steering Committee Meeting : Boardroom, Central Mechanical Workshop of MoWT, November 20, 2009 (Explanation of Inception Report)
- (2) 1<sup>st</sup> Stakeholder Meeting : Conference Room, Grand Imperial Hotel,

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- December 8, 2009 (Explanation of Major findings by the Study Team)
- (3) 1<sup>st</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, December 18, 2009 (Explanation of Long and Short List Projects by the Study Team)
- (4) 2<sup>nd</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, January 11, 2010 (Examination of Long and Short List Projects)
- (5) 3<sup>rd</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, February 1, 2010 (Approval of Short-listed Projects to the P. Secretary of MoWT)
- (6) Special Meeting : Boardroom, Central Mechanical Workshop of MoWT, February 5, 2010 (Explanation of Short-listed Projects to the Hon Minister of MoWT)
- (7) 2<sup>nd</sup> Steering Committee Meeting : Boardroom, Central Mechanical Workshop of MoWT, March 4, 2010 (Explanation of Interim Report I)
- (8) 4<sup>th</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, March 12, 2010 (Explanation of Screening Results and Draft TOR for EIA/EIStudy)
- (9) 5<sup>th</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, April 9, 2010 (Explanation of Traffic Safety Plan)
- (10) 6<sup>th</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, April 23, 2010 (Explanation of route alternatives for Flyover project)
- (11) 7<sup>th</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, May 18, 2010 (Selection of optimum route for Flyover project)
- (12) 8<sup>th</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, May 28, 2010 (Traffic demand forecasts)
- (13) 1<sup>st</sup> Workshop : Conference Room, Grand Imperial Hotel, June 2, 2010 (Explanation on The Study on Greater Kampala Road Network and Transport Improvement)
- (14) 3<sup>rd</sup> Steering Committee Meeting : Boardroom, Central Mechanical Workshop of MoWT, June 8, 2010 (Explanation of Interim Report II)
- (15) 9<sup>th</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, July 16, 2010 (Alternatives for the structure of flyover and alternatives for the improvement measure of Shoprite / Clock Tower Junction)
- (16) Sector Working Group Meeting : Boardroom, Central Mechanical Workshop of MoWT, July 21, 2010 (Outline of the Study on Greater Kampala Road Network and Transport Improvement)
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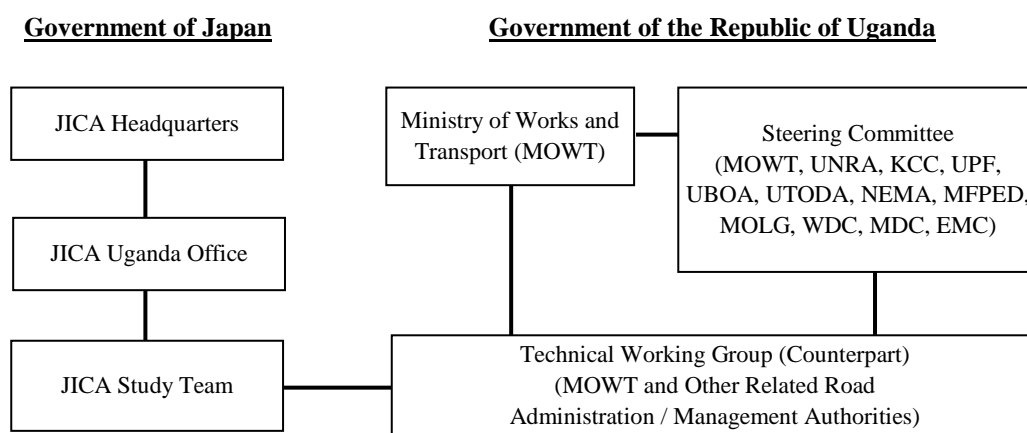


- (17) 10<sup>th</sup> Key Stakeholder Meeting : Boardroom, Central Mechanical Workshop of MoWT, July 27, 2010 (Bus operation plan, best improvement plan for Clock Tower and Shoprite junction, best alternatives for type and structure of the flyover)
- (18) 4<sup>th</sup> Steering Committee Meeting : Boardroom, Central Mechanical Workshop of MoWT, August 24, 2010 (Explanation on Draft Final Report)
- (19) 2<sup>nd</sup> Stakeholder Meeting /  
2<sup>nd</sup> Workshop : Conference Room, Grand Imperial Hotel, August 26, 2010 (Explanation on Draft Final Report of The Study on Greater Kampala Road Network and Transport Improvement in Republic of Uganda)

## 1.5 ORGANIZATION OF THE STUDY TEAM AND THE STEERING COMMITTEE

### 1.5.1 ORGANIZATION OF THE STUDY

The Study is carried out through close coordination between the Study Team and MoWT counterparts. The Steering Committee, chaired by the representative of MoWT, and the technical working group consisting of designated representatives from MoWT and other related road administration and management authorities, are organized for the Study. The organizational set-up is shown in Figure 1.5.1 below.



Source: JICA Study Team

Figure 1.5.1 Organization of the Study

### 1.5.2 STUDY TEAM

The Study Team is composed of the following members:

- |    |                    |  |
|----|--------------------|--|
| 1) | Mr. Hiroki SHINKAI | Team Leader / Road Maintenance Plan            |
| 2) | Mr. Shigeru KONDA  | Deputy Team Leader / Road Planning I           |
| 3) | Mr. Yasushi OHWAKI | Public Transport Planning                      |
| 4) | Mr. Hisashi MUTO   | Public Transport Operation Planning            |
| 5) | Mr. Satoshi MIZUNO | Road Planning II / Traffic Management Planning |

6)	Mr. Ippei IWAMOTO	Road Design
7)	Mr. Takayasu NAGAI	Traffic Safety Planning
8)	Mr. Masuyuki OURA	Traffic Survey
9)	Mr. Shoichi UEMURA	Traffic Demand Forecast
10)	Mr. Isao INUZUKA	Preliminary Cost Estimate / Implementation Planning
11)	Mr. Masahito HOMMA	Economic Analysis
12)	Mr. Koji TAKAHASHI	Natural Conditions Survey
13)	Ms. Minako SATO	Environmental and Social Considerations
14)	Mr. Akihiro SANPEI	Traffic Signal Operation and Maintenance Plan

### 1.5.3 THE STEERING COMMITTEE AND COUNTERPART AGENCIES

The Steering Committee consists of the following ministries and agencies under the chairmanship of MoWT:

- 1) MoWT
- 2) Uganda National Roads Authority (UNRA)
- 3) Kampala City Council (KCC)
- 4) Uganda Police Force (UPF)
- 5) Wakiso District Council (WDC)
- 6) Mukono District Council (MDC)
- 7) Entebbe Municipal Council (EMC)
- 8) Uganda Taxi Operation and Drivers Association (UTODA)
- 9) Uganda Bus Operation Association (UBOA)
- 10) National Environment Management Authority (NEMA)
- 11) Ministry of Finance, Planning and Economic Development (MFPED)
- 12) Ministry of Local Government (MoLG)

MoWT is the primary counterpart agency for the Study and has the authority for signing the minutes of meeting which will be prepared during the Study between GOU and the Study Team. UNRA, KCC and UPF are also appointed as the key stakeholders together with MoWT, since these are agencies related to main objectives of the Study.

### 1.5.4 TECHNICAL WORKING GROUP (TWG)

The Study Team proposed a TWG as counterpart personnel for the Study for:

- Close collaboration between the Ugandan side and the Japanese side (the Study Team) for efficient and effective implementation of the Study, and
- Transfer of skills and technology to the counterpart personnel through On-the-Job Training during the Study.

The TWG comprises MoWT, UNRA, KCC, UPF, WDC, MDC, EMC, NEMA and other related government agencies agreed by both GOU and the Study Team.

However, since the TWG was not much active, the Study Team proposed to organize a Key Stakeholder Meeting with designated members from MoWT, UNRA, KCC, UPF and the Study

Team, to discuss important issues of the Study. Ten meetings were held in total and their discussion results were incorporated into the Study reports.

## 1.6 TECHNOLOGY TRANSFER

The Study Team conducted the following technology transfer during the study period.

- (1) The Study Team held the key stakeholder meeting frequently every once a month and exchanged the opinions related to the Study with the members consisting of senior officers of MoWT, KCC, UNRA and UPF who are responsible for the development of road network and public transport in GKMA.
- (2) In addition, the Study Team held the workshops and stakeholder meetings (twice each) and explained the findings of the Study to the participants in the transportation problems of GKMA. The technology transfer was conducted focusing on the following subjects;
  - 1) Traffic survey and analysis including future traffic demand forecast,
  - 2) Evaluation method on prioritized projects applying Multi Criteria Analysis (MCA),
  - 3) Design method of intersections including flyover,
  - 4) Public transport demand forecast including bus operation planning,
  - 5) Study method of Environmental Impact Assessment (EIA), and
  - 6) Planning method of road traffic safety and traffic management and control measures.
- (3) On-the-Job-Training was conducted to the persons in charge of traffic control and management of Kampala City Council using the operation manual on traffic control system which has been prepared by the Study Team in this Study.
- (4) The senior officials of UPF were invited to Japan from 23<sup>rd</sup> to 31<sup>st</sup> October, 2010 under the JICA training program. The training was made focusing on the following program; 1) Exchange of skills and expertise, 2) Traffic management and control measures, 3) Accidents investigations, 4) Acquisition and training in the use of modern traffic equipment, 5) Highway patrol system. The detailed program is presented in the ANNEX.

## 1.7 COMPOSITION OF THE REPORT

The Final Report is composed of the following:

Executive Summary

Volume I: Main Report

Volume II: Preliminary Design Drawings

Volume III: Annexes

Supplemental: Traffic Signal Operation and Maintenance Manual

The Main Report consists of the following chapters:

Chapter 1 : Introduction

Chapter 2: Development Plan and Present Condition of the Study Area

Chapter 3: Current Situation of the Transport Sector

Chapter 4: Review of Transport Master Plans

Chapter 5: Traffic Survey and Traffic Demand Forecast

Chapter 6: Long List and Short List of Projects for Pre-Feasibility Study

Chapter 7: Preliminary Design for the Pre-Feasibility Study Projects

Chapter 8: Road Traffic Safety Plan

Chapter 9:	Public Transport Plan
Chapter 10:	Traffic Management Plan
Chapter 11:	Environmental and Social Considerations
Chapter 12:	Cost Estimate, Implementation Plan and Project Evaluation
Chapter 13:	Conclusions and Recommendations

## CHAPTER 2 DEVELOPMENT PLAN AND PRESENT CONDITION OF THE STUDY AREA

### 2.1 DEVELOPMENT PLANS

As stated in the minutes of meeting on the scope of work for the Study, both GOU and GOJ have agreed that the Study is conducted under the principle of the framework of NTMP/GKMA. The Study should support national policy, strategy and development goals set out in the National Development Plan (NDP), Poverty Eradication Action Plans (PEAP), the Millennium Development Goals (MDG), Visions 2025/2035, KCC Strategic Framework for Reform II (SFR II), and East African Community.

#### 2.1.1 POVERTY ERADICATION ACTION PLAN (PEAP) AND THE NATIONAL DEVELOPMENT PLAN (NDP)

Since 1997, GOU has pursued the poverty eradication agenda through the implementation of the PEAP. The PEAP had been Uganda's national progressive policy development framework and medium-term planning tool. These were revised in 2000, 2004 and 2007 on a three-year cycle to match the medium-expenditure framework. The Ugandan economy attained favorable growth during the PEAP period, with an average GDP growth rate of 7.2% between 1997/98 and 2000/01, 6.8% between 2000/01 and 2003/04, and 8% over the period of 2004/05 - 2007/08.

In 2007, after the implementation of the third revision of PEAP covering the 2004/05-2007/08 period, the GOU determined that the country should move from PEAP to the NDP. The NDP 2010/11-2014/15 which is the first of the six five-year NDP was launched in April, 2010. The NDP, whose theme is "Growth, Employment and Socio-Economic Transformation for Prosperity", aims to transform the country from a peasantry society into a modernized and prosperous society over the next 30 years. The development approach of the NDP intertwines economic growth and poverty eradication. The private sector remains the engine of growth and development.

GDP growth rate over the NDP period is projected at an average of 7.2% per annum. At this GDP growth rate, nominal per capita income is envisaged to increase from US\$ 506 in 2008/09 to US\$ 850 by 2014/15. The proportion of people living below the poverty line is expected to decline from 31% in 2005/06 to 24.5% in 2014/15, which is well above the MDG target of 28%.

Annual GDP growth rate and GDP in market price set out in the NDP are shown in the following table.

**Table 2.1.1 Selected Macroeconomic and Financial Indicators in NDP, 2009/10-2014/15**

Macro Economic Indicators	PEAP2	PEAP3	NDP						
	2000/01 - 2003/04	2004/05 - 2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Annual GDP Growth rates (factor cost)	6.80%	8.00%	6.20%	6.40%	6.60%	7.00%	7.20%	7.40%	7.50%
GDP (mkt), US\$ (Bill)			29,972	36,339	41,397	46,934	53,904	62,227	72,094

Source: NDP, April 2010

The specific objectives of the NDP are as follows:

- i) To increase household incomes and promoting equity

- ii) To enhance the availability of gainful employment
- iii) To enhance human capital development
- iv) To improve stock and quality of economic infrastructure
- v) To increase access to quality social services
- vi) To promote Science, Technology and Innovation (STI) and Information Communication Technology (ICT) to enhance competitiveness
- vii) To strengthen good governance, defense and security
- viii) To promote a sustainable population and use of environment and natural resources.

In order to achieve above objectives, the following strategies were set out in the NDP:

- **Increasing the Stock and Improving the Quality of Physical Infrastructure:**  
Energy infrastructure, transport network, oil and gas infrastructure, ICT infrastructure and tourism, trade and agriculture infrastructure are to be strengthened.
- **Improving the Quantity and Strengthening the Quality of Human Resources:**  
Health, education, water and sanitation are focused areas for human resource development and skills development, which are considered to be the key priorities.
- **Promoting Science, Technology and Innovation:**  
Construction of regional science parks and technology incubation centers, the acquisition and adaptation of technology, promotion of research and development in the public and private sector institutions are included.
- **Facilitating Availability and Access to Critical Production Inputs:**  
Inputs to agricultural production, access to water for production, meteorological services and inputs to the manufacturing sector will be enhanced.

Under these strategies, the following core projects will be implemented:

- i) National Skills Program
- ii) Constructing the Standard Rail Gauge
- iii) Rehabilitating the existing railway lines
- iv) **Development of GKMA and implementing the rapid transport system**
- v) Improve water transport on Lake Victoria
- vi) Construction of Karuma HEP, Isimba HEP and Ayago HEP, and their infrastructures
- vii) Development of oil and gas refinery
- viii) Construction of oil and gas pipelines
- ix) Development of ICT business parks
- x) Construction and development of four regional science parks and incubation centers
- xi) Construction and development of five large scale irrigation systems
- xii) Construction and development of phosphate industry in Tororo
- xiii) Development and production of iron ore and ingots.

The total investment cost planned for the NDP period is US\$ 54,000 billion (US\$ 27,000 million). The total investment allocated for the above core projects is US\$ 17,153 billion (US\$ 8,580 million) and US\$ 429 billion (US\$ 215 million) for the development of GKMA and implementing the rapid transport system, respectively.

## 2.1.2 MILLENNIUM DEVELOPMENT GOALS (MDGs)

MDGs were defined by the United Nations General Assembly in 2000. MDGs commit the international community to an expanded vision of development, one it vigorously promotes human development as the key to sustaining social and economic progress in all countries, and recognizes the importance of creating a global partnership for development. Many of the targets of the MDGs were set out in international conferences and summits held in the 1990s as follows, which were later compiled and became known as the International Development Goals.

**Table 2.1.2 MDGs, Uganda Country Profile**

Goal/Indicator		Progress			Target
		2000	2003	2005/06	2015
1	Goal 1: Eradicate extreme poverty and hunger; Poverty head count (P0)	33.8	37.7	31.1	28.0
2	Poverty gap – (P1)	10.0	11.3	8.7	
3	Underweight moderate and severe	22.8		20.4	12.5
4	Goal 2: Achieve universal primary education; Net enrolment ratio in primary education	84.0	90.0	84.0	100.0
5	Literacy rate of 15-24 year-olds	78.8	80.0	84.0	
6	Goal 3: Promote Gender equality and empower women; Ratio of girls to boys in primary education	0.99	0.99	0.96	1.0
7	Ratio of girls to boys in secondary education	0.79	0.82		1.0
8	Ratio of girls to boys in tertiary education		0.55		1.0
9	Ratio of literate women to men 15-24 years	0.84	0.90	0.92	1.0
10	Proportion of seats held by women in parliament	19.0	25.0		50.0
11	Share of women in wage employment in the non-agricultural sector		39.2	28.2	50.0
12	Goal 4: Reduce child mortality; Under-five mortality (per 100,000 live births)	152		137	56
13	Infant mortality rate	88.4		76.0	31.0
14	Proportion of 1 year old children immunized against measles	56.8		68.1	90.0
15	Goal 5: Improve maternal health; Maternal mortality ratio (per 100,000 live births)	505		435	131
16	Proportion of births attended by skilled health personnel	39.0		41.1	90.0
17	Goal 6: Combat HIV/Aids, malaria and other disasters; HIV/AIDS orphans (thousands)	884.0			
18	HIV/AIDS prevalence among 15-24 year pregnant women		4.9		
19	Condom use at last higher-risk sex among 15-24 year olds	49.8	55.1	52.9	
	• Male			65.3	
	• Female			27.1	
20	Contraceptive prevalence rate among women 15-49 years	23.0	64.5	23.6	
21	Proportion of 15-24 year olds who have comprehensive knowledge of HIV/AIDS	28.0		32.1	
22	Goal 7: Ensure environmental sustainability; Proportion of land area covered by forest	21.3		18.3	
23	Proportion of population with access to improved water source (urban)	87.0	84.0		100.0
24	Proportion of population with access to improved water source (rural)	57.0	53.5	58.5	62.0
25	Proportion of population with access to improved sanitation	82.0	87.0		
26	Goal 8: Develop a global partnership for development Unemployment rate of 15-24 year olds		6.3	3.4	
27	Debt relief committed under the HIPC initiative	\$69.7M	\$86.6M		
28	Debt service as a percentage of exports of goods and services	20.4		15.8	

Source: Indicator; 1,2,4,6,7,8,9,11,23,24,25,26-UNHS, Uganda Bureau of Statistics  
3,5,12,13,14,15,16,18,19,20-UDHS, Uganda Bureau of Statistics  
27,28-Ministry of Finance, Planning and Economic Development  
10-Ministry of Gender, Labour and Social Development  
22-Uganda Forestry Authority  
19-2006 UDHS, Uganda Bureau of Statistics

Uganda supports and subscribes to the United Nation's MDGs. Many of these goals related to impacts in the areas of health, education, poverty eradication and public services provision became the target and performance indicators related to Uganda's NDP and KCC SFR II as well.

### 2.1.3 VISION 2025 AND VISION 2035

Vision 2025 is a National Long-term Perspective Study, designed to set a long-term perspective for Uganda's economic and social development up to the year 2025. The working draft was produced in February 1999.

Vision 2025 pointed out many weaknesses in basic infrastructure, of which the most prominent relating to transport included:

- Poor services and inadequate infrastructure facilities;
- Lack of maintenance culture, leading to poor services and heavy losses;
- Insufficient funding for maintenance and new construction;
- High tariffs for services and utilities; and
- Water hyacinth affecting vessel movements and navigation.

Vision 2025 was followed in 2005 by the working draft issue for the subsequent document Vision 2035, with an updated 30-year perspective. Currently, 31% of the population is below poverty line. The goal of the Vision 2035 is to eliminate poverty by 2035. Under said vision, Uganda is heading towards a prosperous destiny. This draft emphasized the key role of the transport sector, which states that: "The transport sector will play a critical role in the development of the country in general, and in the economic integration of the country in the region, in particular".

It is also noted that: "The provision of public transport infrastructure, especially in urban areas, will focus on the need to have a more integrated, efficient and comfortable transport network".

### 2.1.4 KCC STRATEGIC FRAMEWORK FOR REFORM II AND THE KAMPALA VISION 2015

In 1997, KCC developed a set of reforms which were designed to bring about a change in KCC's approach to service delivery in the city. These reforms were first documented in the 1997 SFR document.

In 2004, KCC carried out a review of the progress and achievements of its SFR and the results of the review were included in a report of the SFR Analytic Review, which was developed as the SFR II.

The SFR II aims at consolidating KCC's achievements by establishing a vision and objectives for Kampala for the next ten years (2005 -2015). It sets out strategies, actions, performance indicators and an implementation plan to ensure that this vision and objectives for the future are achieved.

- (1) The Kampala Vision 2015: The shared vision is to have a secure, economically vibrant, well managed, sustainable and environmentally pleasant city that anyone will enjoy visiting and living in.
- (2) Mission: To provide and facilitate the delivery of quality, sustainable and customer oriented services efficiently and effectively
- (3) Objectives:
  - Good urban management (financially sound, well-managed, efficient and effective, motivated and qualified staff and self-reliance, facilitation and customer



satisfaction); and

- Good urban governance (people oriented, partnerships and responsible residents/people)
- (4) Links of the objective of Uganda's PEAP: KCC has a responsibility to integrate its own policies and strategies with the PEAP and ensure that targets set support those of the PEAP.
- (5) Links to MDGs: The SFR II includes those indicators that are used to measure Kampala's performance in achieving the MDG's in areas where KCC has a responsibility for service delivery.
- (6) SFR II Strategies

KCC will continue to pursue and consolidate its policy on alternative service delivery. Focus will be put to further strengthen capacity in managing integrated set of infrastructure and service development in roads, urban transport, drainage, solid waste management, and urban planning; ensuring that transferring service delivery functions to private sector is fully realized.

- (7) Priority Activities of the SFR II and their financing

KCC has identified priority activities for implementation under the SFR II and their corresponding financial requirements. The activities to implement SFR II strategies have been grouped into four categories: Institutional development, city-wide infrastructure and service improvement, civil participation and management, and monitoring and evaluation.

KCC is committed to implementing a city-wide infrastructure and service programs, which include: (a) Drainage system, (b) Traffic and road maintenance management, (c) Solid waste management, and (d) Urban market infrastructure. The table below indicates the expected budget outlay and the proposed funding from the World Bank (IDA) for support of the SFR-II. The World Bank has committed to finance it under the "Kampala Institutional and Infrastructure Development Project (KIIDP).

**Table 2.1.3 Expected Budget and Proposed Funding from IDA for SFR II Program**

Investment Items	Total Budget (US\$ Million)	Proposed Funding from IDA (US\$ Million)
I. Institutional Development Support	8.55	8.55
II. City-wide Infrastructure and Service Improvement		
1 Drainage Works	73.40	31.00
2 Urban Traffic Improvement	79.00	44.00
3 Solid Waste Management	8.80	8.80
4 Markets Infrastructure Works	3.60	3.60
III. Project Management, Monitoring and Evaluation	2.50	2.50
Total	175.85	95.95
Less Conclil's Contribution		9.85
Funding expected from International Development Agencies (IDA)		<b>86.10</b>

Source: KCC SFR II Report

### 2.1.5 EAST AFRICAN COMMUNITY (EAC)

EAC is the regional intergovernmental organization of the Republics of Kenya, Uganda, the United Republic of Tanzania, Republic of Rwanda and Republic of Burundi with its headquarters in Arusha, Tanzania.

It aims at widening and deepening co-operation among the partner states in, among others, political, economic and social fields for their mutual benefits. To this extent, the EAC countries established a Custom Union in 2005 and are working towards the establishment of a Common Market by 2010, subsequently a Monetary Union by 2012 and ultimately a Political Federation of the East African States.

A large regional economic bloc encompassing Burundi, Kenya, Rwanda, Uganda and Tanzania with a combined population of more than 135 million people, land area of 1.82 million km<sup>2</sup> and combined GDP of \$71 billion (2008), bears great strategic and geopolitical significant and prospects of a renewed and reinvigorated community. Table 2.1.4 shows the outline of the member countries of EAC.

**Table 2.1.4 Outline of the Member Countries of EAC**

Country	Area (1,000km <sup>2</sup> )	Population (Million)	Population Density (Person/km <sup>2</sup> )	GDP (US\$ Billion)	Per-Capita GDP (US\$)
Uganda	236 (water 15.4%)	32.7	112	14.5	443
Tanzania	945 (water 6.2%)	43.7	39	20.7	474
Kenya	583 (water 2.3%)	39.8	55	30.2	759
Rwanda	26 (water 5.3%)	10.0	302	4.4	440
Burundi	28	8.3	224	1.0	120
Total/Average	1,818	134.5	74	70.8	526

Note: Data of 2008

Source: IMF (2009)

The EAC Road's Development Partners Consultative Meeting was held in April, 2003 in Arusha, Tanzania. The meeting deliberated on the EAC Road Network Project and it agreed upon strategies to hasten the pace of implementation of the project including support towards the implementation of additional priority road links proposed by the partner states. The EAC summarized the total funding requirements for the EAC Road Network as of 2003, as shown below:

**Table 2.1.5 Summary of Total Funding Requirements for EAC Road Network Project as of 2003**

Country	Outstanding Requirements on Agreed Road Links in 1998		Proposed Additional Links in 2003		Policy Review and Capacity Building US\$ Million	Total	
	km	US\$ Million	km	US\$ Million		km	US\$ Million
1. Kenya	2,052	963	1,960	634	7	4,012	1,604
2. Uganda	746	177	1,115	434	111	1,861	722
3. Tanzania	2,853	918	2,027	537	5	4,880	1,460
Total	5,651	2,058	5,102	1,605	123	10,753	3,786

Source: Report of the EAC Road's Development Partners' Consultative Meeting, 2003

Under the High Level Standing Committee on the East African Road Network, the EAC has facilitated sector reforms which include the formation of road boards/agencies, participation of private sector, harmonization of regional policies and axle loads control in the road sub-sector.

The EAC has identified five main transport corridors within the community (a total length of about 12,000 km), which constitute a strategic priority and require rehabilitation and upgrading to complete road network in the Community as shown below:

### Five Transport Corridors of EAC

- 1) The Northern Corridor (1,700 km long) connects Mombasa Port– Malaba – Kampala and Katuna; serves Kenya, Uganda, Rwanda, Burundi and Eastern Democratic Republic of Congo (DRC). This corridor is part of the Trans-African Highway from Mombasa to Lagos.
- 2) The Central Corridor (1,300 km long) begins at the Dar es Salaam Port and serves Tanzania, Rwanda, Burundi and Eastern DRC, passing through Dodoma – Isaka – Mulukula up to Masaka.
- 3) Biharamulo – Sirari – Lodwar – Lokichogio
- 4) Nyakanazi – Kasulu – Tunduma with a branch to Bujumbura
- 5) Tunduma – Dodoma – Namanga – Isolo – Moyale (Part of the Trans-African Highway from Capetown to Cairo)

The Northern Corridor is running towards the east – west direction in Uganda and pass through Kampala as shown in Figure 2.1.1. This corridor has experienced a continuous increase in traffic volume owing to the rapid economic growth of Uganda over the years.

The condition of the road section between Mombassa and Kampala is relatively better than other sections, except for the section undergoing rehabilitation and reconstruction with assistance from the WB and the EU. The following table shows the recent assistance of development partners for the Northern Corridor.

**Table 2.1.6 Development Partner Assistance for the Northern Corridor in Recent Years**

Country	Section	Length (km)	Donor	Start	Completion
Kenya	Mtito Andei-Sultan Hamud	131	EU	2003	2006
Kenya	Sultan Hamud-Machakos Off-JKIA	84	IDA	2004	2009
Kenya	JKIA-Uhuru Highway	12	China	-	2009
Kenya	Maai Mahiu-Naivasha-Lanet	97	EU	2005	2007
Kenya	Lanet-Mau Summt-Timboroa	83	IDA	2004	2009
Kenya	Timboroa-Eldoret-Malaba	193	EU	2009 -	
Kenya	Mau Summt-Kisumu	145	IDA	Negotiation Stage	
Kenya	Kisumu-Busia	139	IDA		
Uganda	Bugiri-Jinja	73	EU	2006	2008
Uganda	Kampala Northern Bypass	21	EU	2006	2009
Uganda	Masaka-Mbarara	155	EU	2008	2010
Uganda	Mbarara . Ntungamo . Katuna	164	EU	2010	2013

Source: A Passage Across Borders, JICA

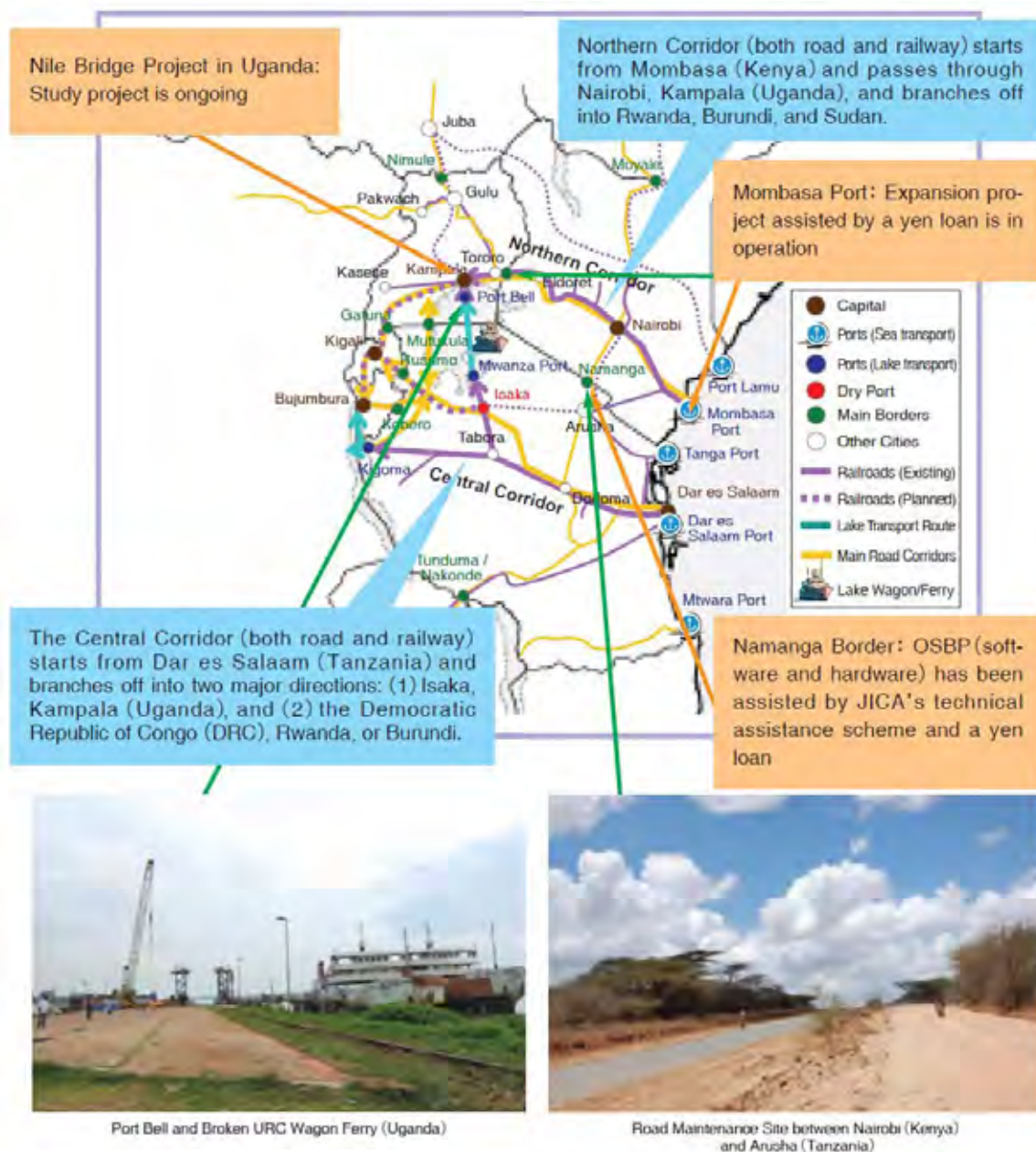
Development of Cross-Border Transport Infrastructure (CBTI) is essential for facilitating the industrial development, trade, economic revitalization, and poverty reduction in Sub-Saharan Africa. CBTI development is expected to contribute to pro-poor growth through sustainable economic growth and achievement of the MDGs.



Source: The EAC Road Network Project, 2009

**Figure 2.1.1 Five Transport Corridors in EAC and Location Map of Trans-African Highway**

The Government of Japan (GOJ) has implemented several projects for transport sector in the EAC area as shown in Figure 2.1.2 for their development cooperation. The GOJ through JICA conducted a feasibility study for the New Nile Bridge Project in 2008-2009. The GOJ and GOU have recently agreed to extend a Yen-loan for implementation of the New Nile Bridge Project.



Source: A Passage Across Borders, JICA

**Figure 2.1.2 Japanese ODA Projects in the EAC Area**

## 2.2 NATURAL CONDITION

### 2.2.1 METEOROLOGY

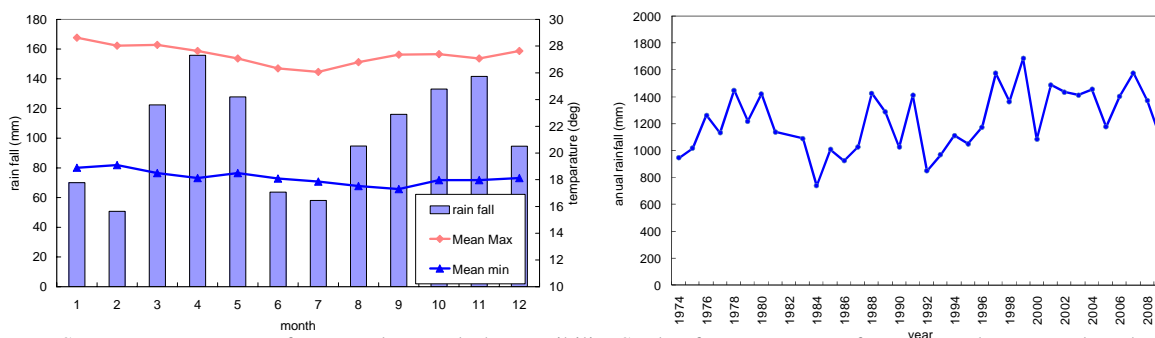
#### (1) Climate-Rainfall and Temperature

According to the Koppen-Geiger Climate Classification, this area belongs to the savanna climate which is characterized by dry winter and with relatively small annual change of temperature. The average rainfall (1974-2009) and temperature (2006-2008) are shown in Figure 2.2.1(left) and the annual rainfall change (1974-2009) in Figure 2.2.1(right). Kampala has an average maximum temperature of 27.3°C and average minimum of 18.1°C. And average annual rainfall from 1974 to 2009 is 1,228 mm/year.

**Table 2.2.1 Average Rainfall (1974-2009) and Temperature (2006-2008)**

month	Jan	Feb	Mar	Apr	May	Jun
Rain fall(mm)	71.4	51.4	120.1	153.9	127.2	62.7
Temperature Mean Max.	28.6	28.0	28.1	27.6	27.1	26.3
Temperature Mean Min.	18.9	19.1	18.5	18.1	18.5	18.1
month	Jul	Aug	Sep	Oct	Nov	Dec
Rain fall(mm)	57.0	95.1	116.3	132.7	142.8	94.0
Temperature Mean Max.	26.1	26.8	27.4	27.4	27.1	27.1
Temperature Mean Min.	17.9	17.5	17.3	18.0	18.0	18.1

Source: Department of meteorology and ,  
The feasibility study of improvement of trunk road at Kampala Urban interface sections

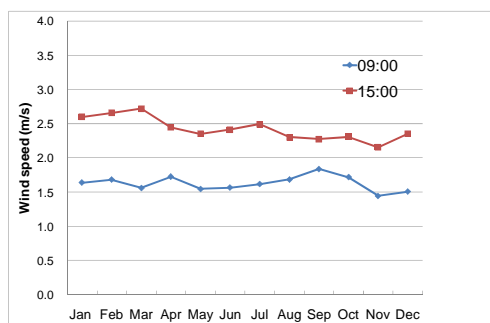


Source: Department of Meteorology and The Feasibility Study of Improvement of Trunk Road at Kampala Urban Interface Sections

**Figure 2.2.1 Rainfall and Temperature (Left) and Changes of Annual Rainfall (Right)**

#### (2) Wind

The wind speed and the dominant wind direction are shown in Figure 2.2.2. The trend shows that the wind speed during afternoon time is stronger than that of morning time. In terms of wind direction, two dominant directions are experienced during morning time in a year. From January to May, the wind mainly blows from South to North and, on the other hand, from June to October, it blows from South to North. Dominant wind direction during afternoon appears to be always from South to North all year round.



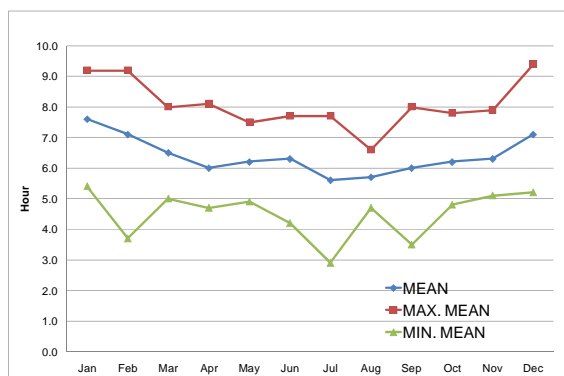
	Jan	Feb	Mar	Apr	May	Jun
09:00	S	S	S	S	S	N
15:00	S	S	S	S	S	S
	Jul	Aug	Sep	Oct	Nov	Dec
09:00	N	N	N	N	N&S	N&S&W
15:00	S	S	S	S	S	S

Note: N means that wind blows from North to South  
 Source: Department of Meteorology

Figure 2.2.2 Wind Speed (m/s) (2000-2009) (Left) and Dominant Wind Direction (1965-1970) (Right)

### (3) Sunshine

The sunshine hours in Kampala City is shown in Figure 2.2.3. The sun shines appears to be more than five hours per day all year round.



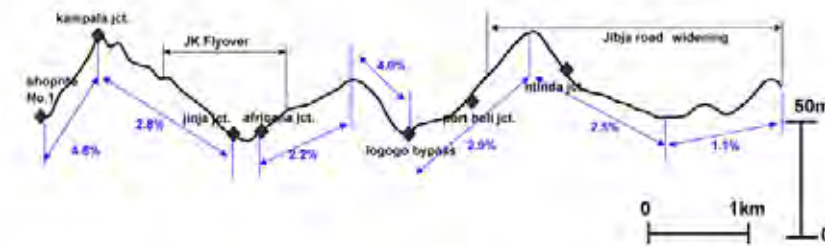
Source: Department of Meteorology

Figure 2.2.3 Sunshine Hour in Kampala City

## 2.2.2 TOPOGRAPHY AND HYDROLOGY

### (1) Topography

Uganda, a landlocked country, is located at the eastern part of the African continent. Its area is 235,040 km<sup>2</sup>. Lake Victoria, which is located at the southern part of Uganda, is the biggest lake in Africa. Kampala City is located on the southern part of Uganda with an elevation of approximately 1200 m. The location of the city is equatorial and its latitude is 00° 19' while its longitude is 32° 34'. The center of the city is hilly area and when rain falls, water collected at the bottom of the valley and forms swamps. Topographic section and gradient of the road around Kampala City are shown in Figure 2.2.4. The gradient ranges approximately from 1.1-4.8%.

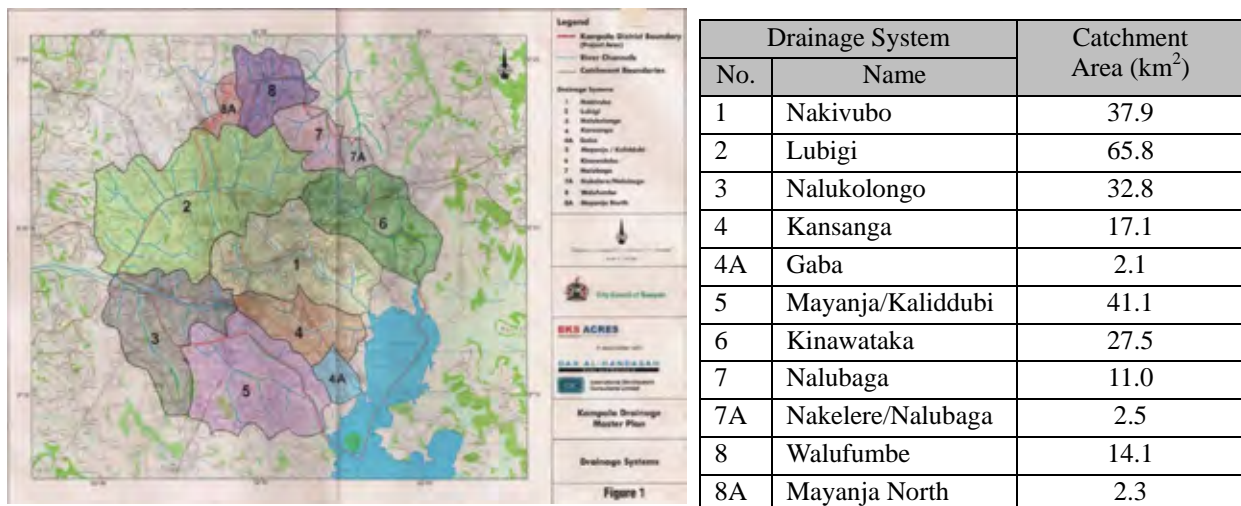


Source: JICA Study Team

**Figure 2.2.4 Topographic Section and Gradient in Kampala City**

## (2) Hydrology

According to the Kampala Drainage Master Plan report, there are eight main drainage systems in Kampala District. Each catchment area of the drainage system is shown in Figure 2.2.5. Moreover, each drainage system has one primary channel and several secondary channels. The water from all these channels finally flow to Lake Victoria.



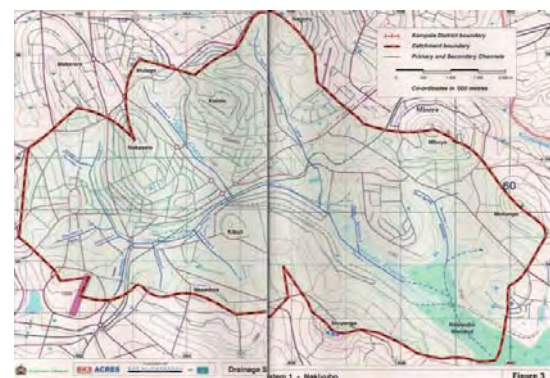
Source: Nakivubo Channel Rehabilitation Project (NCRP)

**Figure 2.2.5 Eight Main Drainage Systems in Kampala City**

The related drainage systems for the Pre-FS candidate projects are found in two areas. One is Nakivubo drainage system (Area No.1) and other is KINAWATAKA drainage system (Area No.6). Characteristics of each of the drainage system are as follows;

- Nakivubo Drainage System

The primary channel of this drainage system is located at the center of Kampala City. Primary channel crosses the road between Clock Tower junction and Shoppers junction. Furthermore, several secondary channels cross near the Clock Tower junction, Mukwano Road, Jinja Road near the Jinja Junction, and Lugogo Junction.



Source: Nakivubo Channel Rehabilitation Project (NCRP)

**Figure 2.2.6 Nakivubo Drainage System**



- KINAWATAKA Drainage System

This drainage system is located at the eastern part of the Nakivubo Drainage system and drains to the middle-western portion of Nakawa. The lower portion of the primary channel also forms the Kampala District boundary. Several secondary channels cross the Jinja Road near the Kyambogo area.



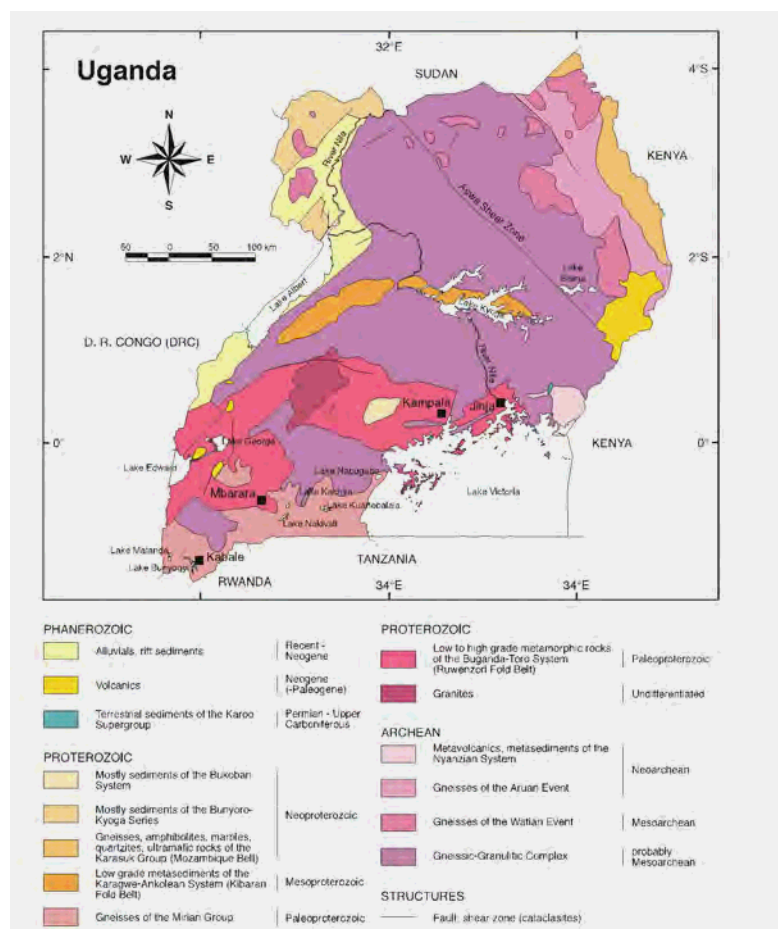
Source: Nakivubo Channel Rehabilitation Project (NCRP)

**Figure 2.2.7 Kinawata Drainage System**

## 2.2.3 GEOLOGY

### (1) General

Most part of Uganda is consisted by a basement complex of Precambrian age. Only at the southern part of the country where metamorphic rocks called Buganda Toro system are found. Near the eastern and western boundaries of the country, quaternary alluvial deposits and tertiary volcano are seen. Figure 2.2.8 shows the geological map of Uganda.

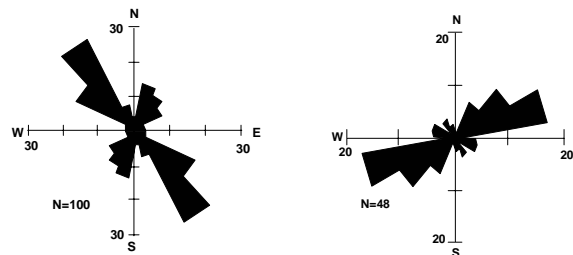


Source: Geological Atlas of Africa

**Figure 2.2.8 Geological Map of Uganda**

## (2) Geology in Kampala City

Kampala City is located at the edge of the Congo craton. However this area is also affected by organic belt in the Precambrian age named Kibaran orogeny and by the processes of formation of the Rift Valley. These metamorphisms form structures such as fault and foliation in the rock. Rose diagram of the fault and foliation (left) and Quartzite (right) around Kampala city is shown in Figure 2.2.9. The dominant trend of the fault and foliation shows northwest – southeast, on the other hand, the dominant trend of Quartzite shows northeast-southwest.



Source: JICA Study Team

**Figure 2.2.9 Rose Diagram of the Fault and Foliation (Left) and Quartzite (Right)**

Geological map around Kampala City is shown in Figure 2.2.10, and its legends are defined in in Table 2.2.2. Characteristic features of the geology around Kampala City are described as follows:

### **Archean**

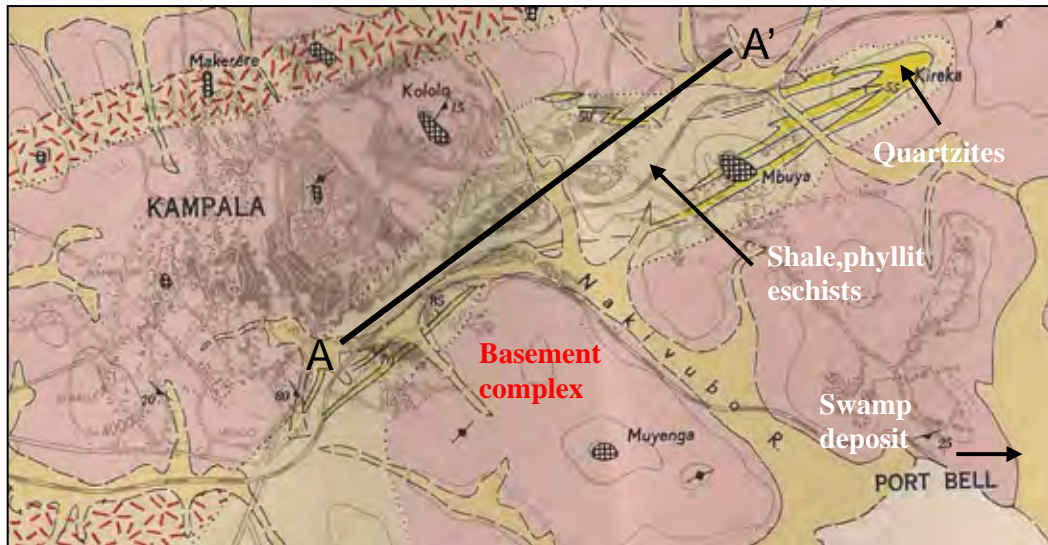
Basement complex (granitoid gneiss) is a dominant rock not only around Kampala City but even in whole of Uganda. This rock is interpreted as being predominantly of sedimentary origin.

### **Proterozoic**

Shale, phyllite, and schist, which are known as Buganda Toro Series are also distributed at the lower valley in Kampala City, along the railway line. These are classified as metamorphic rocks with low to high metamorphic grade. Buganda Toro system is located at a wide zone of southern Uganda as a belt named Ruwenzori fold belt with east- west direction. Quartzite is partly seen in this area which has strike of southwest to northeast. In this area, Quartzite remains as hill type topographic feature due to its hardness against erosion.

### **Cenozoic**

Laterite which was formed in tertiary is mainly seen on the top of the hills. Lateratic gravels at the top of the hills are generally 1 m to 2 m thick. Recent quaternary swamp, alluvium and lacustrine deposits partly exist near the valley, river, and Lake Victoria.



Source: Geological map (1/100,000) North A36/U-IV Kampala

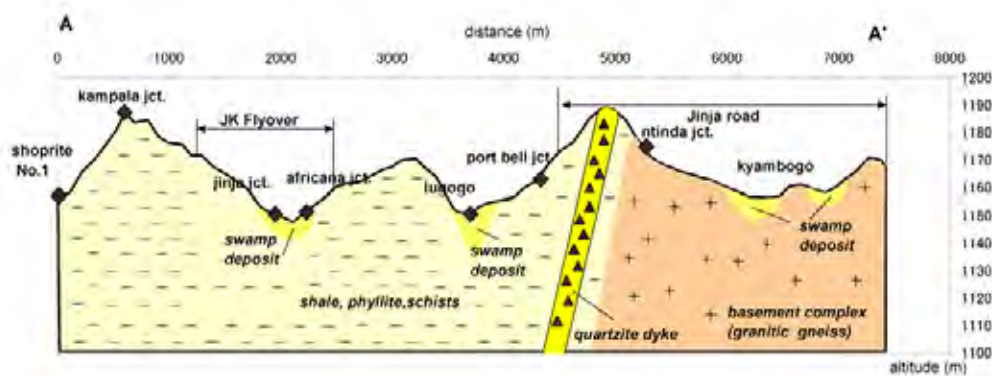
**Figure 2.2.10 Geological Map around Center of the Kampala City**

**Table 2.2.2 Legend for the Geological Map**

Legend	Geological age		Geology	
	Cenozoic (Quaternary)		Swamp deposit	
	Precambrian	Proterozoic	Shale, phyllite, schists	BUGANDA series (Toro system)
			Quartzites	
		Archean	Basement complex (granitoid gneiss)	

Source: Geological map (1/100,000) North A36/U-IV Kampala

The expected geological profile of Kampala City is shown in Figure 2.2.11. From the existing Standard Penetration Test (SPT) information which was done under another project in Kampala City, thickness of recent swamp deposits, alluvium and lacustrine deposits and weathered zone of the basement rock is relatively as shallow as 5-10 m. According to the geological map, swamp deposits are expected to appear in the following three locations in Kampala City. 1) Between Jinja junction and Africana junction, 2) Lugogo junction from Nakivubo channel, 3) Kyambogo from Kinawataka channel.



Source: JICA Study Team

**Figure 2.2.11 Expected Geological A-A' Profile in Figure 2.2.10**

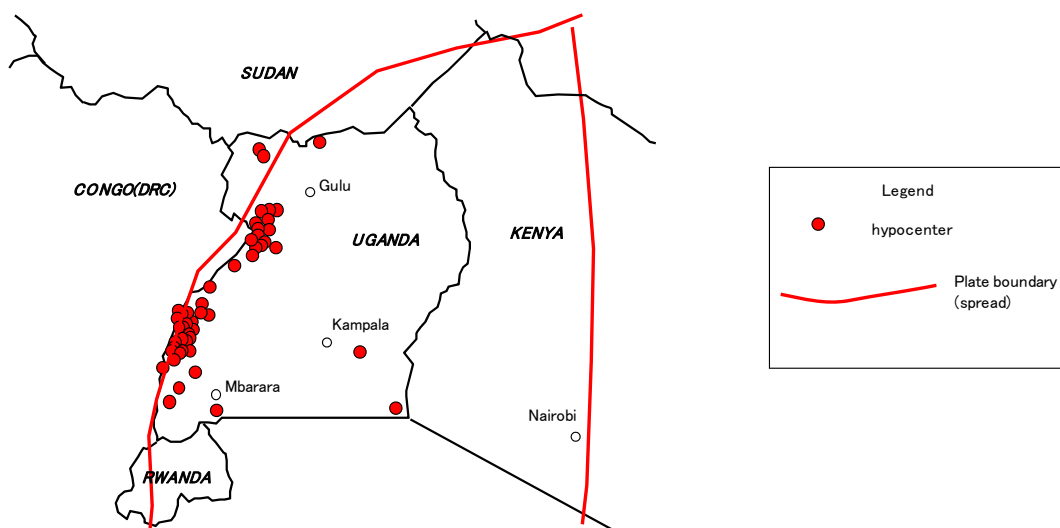
## 2.2.4 EARTHQUAKES

### (1) General

Uganda is located between two spreading plate boundaries. Earthquake occurrences are sometimes related to the plate boundaries. Most of the location of earthquakes in Uganda concentrates to the surrounding area of the tectonics plate boundary. In general, the magnitude of earthquake around the convergent plate boundary is bigger than that of the spreading plate boundaries.

### (2) Hypocenter and Intensity of Earthquakes at Kampala City

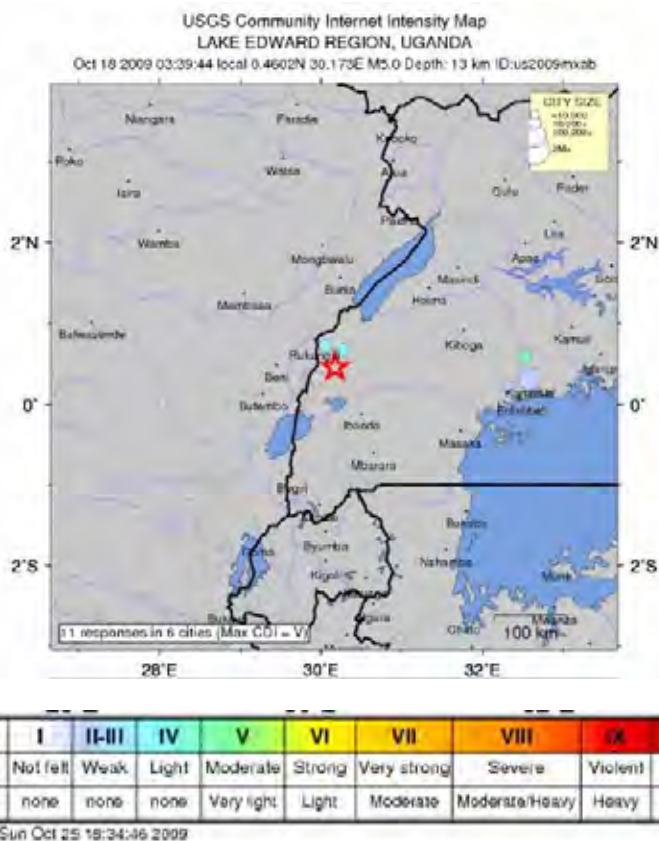
The hypocenter of the earthquake which occurred in Uganda between 1966-2009 is shown in Figure 2.2.12. The hypocenter of the earthquake is highly concentrated along the western plate boundary. The maximum value of the magnitude is 6.0 (in 1969 and 1994). The depth of hypocenter varies between 4 to 38 km. The average depth of the hypocenter is 21 km. There was no hypocenter of earthquake in Kampala City during the above mentioned period.



Source: JICA Study Team based on USGS data

**Figure 2.2.12 Distribution of Earthquakes in Uganda (1966-2009)**

Although there is not enough information regarding the intensity or damage in Kampala City, Figure 2.2.13 shows an example of the relation between the earthquake in other areas and its intensity (Modified Mercalli intensity scale) in Kampala City. According to this figure, earthquake of magnitude 5 near the western boundary with Congo (DRC) corresponds to intensity grade II (weak and no damage). Table 2.2.3 shows the various earthquake intensities at Kampala City with. This shows that the earthquake with magnitude of 5-7 at various locations resulted in intensity II-III, which corresponds to the “None” damage in Kampala City. According to the Material Report of the tender dossier for the construction of the Kampala Northern By-pass, Kampala City has experienced a maximum intensity of grade V (very light damage).



Source: USGS

Figure 2.2.13 Intensity in Kampala with Magnitude 5 Earthquake in the Western Area

Table 2.2.3 Various Earthquake Intensities at Kampala City

date	Earthquake		distance from epicenter (km)	intensity at Kampala city
	magnitude	depth(km)		
12-May-05	6.8	20	789.5	3.1
15-Jun-07	5.8	24	255.7	3.5
17-Jul-07	5.9	8	542.5	2.6
03-Feb-09	4.9	10	526	2
18-Oct-09	5	13	268	2

Source: USGS

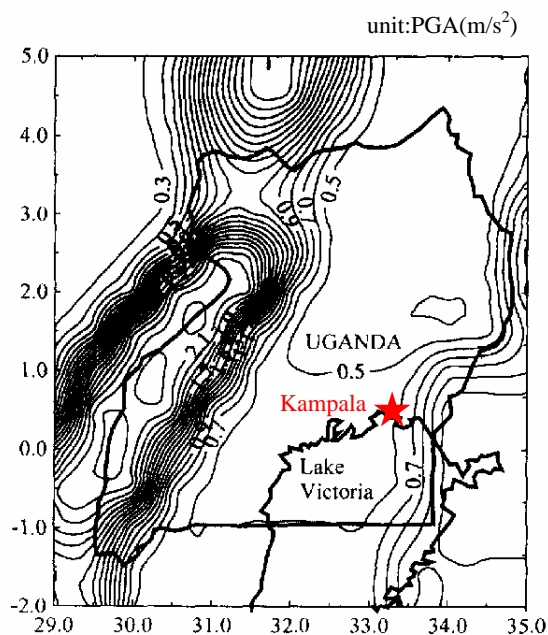
In terms of frequency of certain intensity of the earthquake, Figure 2.2.14 shows the mean peak ground acceleration (PGA) to be exceeded on average once every 50 years. The approximate relationship between PGA and intensity grade is shown in the following table.

Table 2.2.4 Approximate Relationship Between PGA and Intensity Grade

PGA(m/s <sup>2</sup> )	0.5	0.6	1.0	2.0
Intensity	V(Very light)	VI(Light)	VII(Moderate)	VIII(Moderate/heavy)

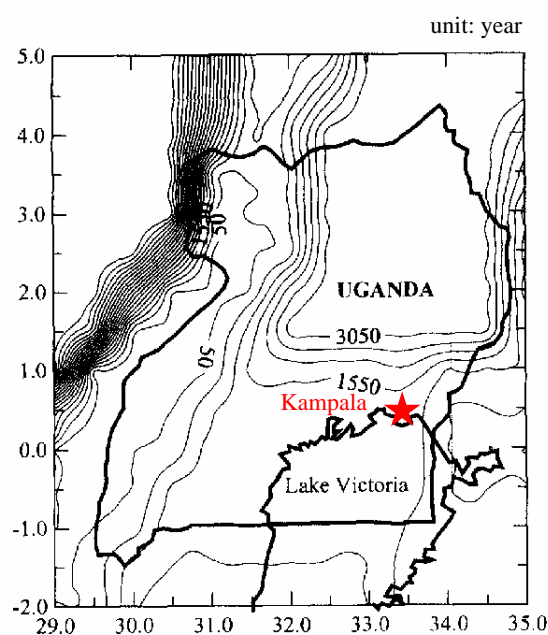
Source: USGS

Figure 2.2.15 is a map showing the frequency in years indicating that various parts of the country can expect a PGA=2.0 m/s<sup>2</sup> earthquake.



Source: Seismic hazards in Uganda

**Figure 2.2.14 Mean PGA( $m/s^2$ ) to be Exceeded on Average Once Every 50 Years**



**Figure 2.2.15 Frequency in Years with which Various Parts of the Country can Expect a PGA= $2.0 (m/s^2)$**

From these maps, the characteristics of the earthquakes in Kampala are summarized as follows:

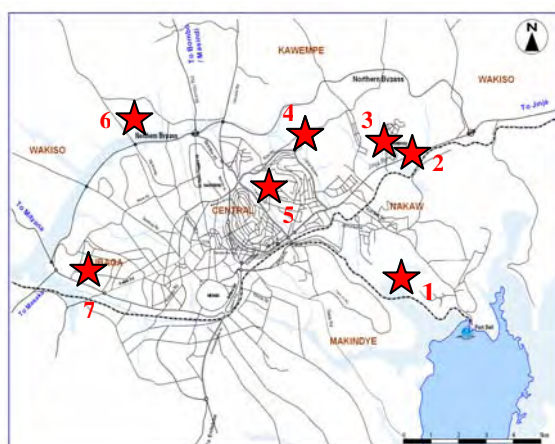
- Kampala City will be subjected to “very light” to “light” damage earthquakes every 50 years.
- Kampala City will be subjected to “Moderate/Heavy” damage earthquake at a 1050-1550 year interval.

Consequently, quite a few earthquakes have been observed in and around Kampala City within approximately 50 years. The earthquake which has occurred near the plate boundary in western Uganda also did not cause severe damage in Kampala City during 50 years.

## 2.2.5 WATER QUALITY

### (1) Water Monitoring Stations for Waste Water

Since 2001, the water quality of waste water at various channels in Kampala City, which has about ten monitoring stations, has been collected and tested by the Water Quality Management Department. As of 2010, seven monitoring stations are still in operation although some monitoring stations have stopped measuring due to the new construction of private houses near the channel and some other reasons. Figure 2.2.16 shows the location map and coordination of water monitoring points in operation. Basically, water was sampled three times per year for quality tests at laboratory.



Source: Water Quality Management Department

**Figure 2.2.16 Location Map of Seven Water Quality Monitoring Stations**

Station Name	Catchment area	N	E
1.Luzira	NAKIVUBO	00 <sup>0</sup> 17.899'	32 <sup>0</sup> 37.894'
2.Kinawataka	KINAWATAKA	00 <sup>0</sup> 20.134'	32 <sup>0</sup> 38.058'
3.Kyambogo	KINAWATAKA	00 <sup>0</sup> 20.297'	32 <sup>0</sup> 37.539'
4.Kira /Lugogo by-pass	NAKIVUBO	00 <sup>0</sup> 20.456'	32 <sup>0</sup> 35.874'
5.Golf course	NAKIVUBO	00 <sup>0</sup> 19.538'	32 <sup>0</sup> 35.228'
6.Lubigi	LUBIGI	00 <sup>0</sup> 20.808'	32 <sup>0</sup> 32.479'
7.Natete	NALUKOLONGO	00 <sup>0</sup> 17.900'	32 <sup>0</sup> 31.791'

The following items are tested through water quality analysis of waste water. However, some of these items are measured for only few frequencies.

- EC ( $\mu\text{S}/\text{cm}$ )
- PH
- Turbidity (NTU)
- TDS (mg/L)
- Total Iron (mg/L)
- Fluoride (F) (mg/L)
- Potassium (K) (mg/L)
- Sodium (Na) (mg/L)
- Phosphoric acid ( $\text{PO}_4$ ) (mg/L)
- Sulfuric acid ( $\text{SO}_4$ ) (mg/L)
- Chlorine (mg/L)
- Nitrate ( $\text{NO}_3$ ) (mg/L)
- Nitrite ( $\text{NO}_2$ ) (mg/L)
- BOD (mg/L)
- COD (mg/L)

## (2) Tendency of the Water Quality in Kampala City

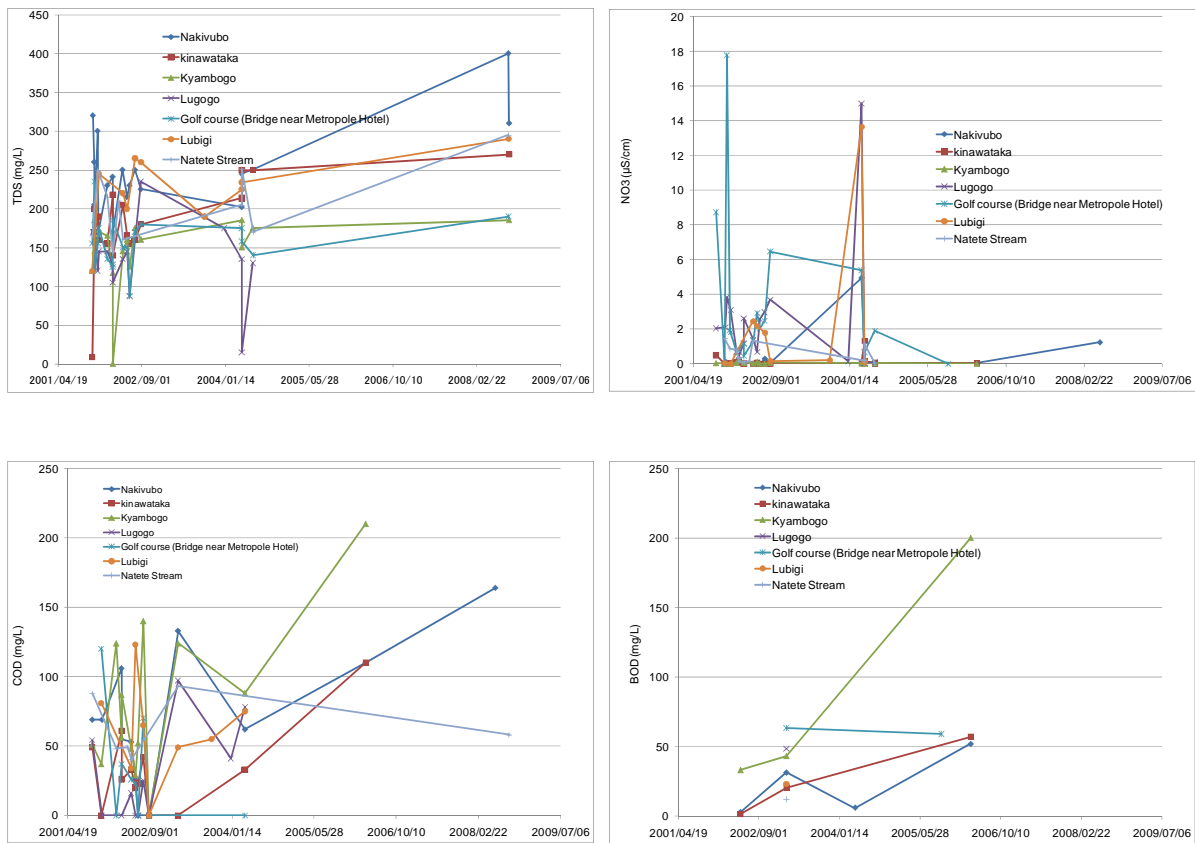
Table 2.2.5 shows the average value during 2001-2008 of the water quality test results. In Uganda, the standard for waste water quality is called the “Standard for discharge of Effluent into Water or on Land”. Most of the values are within the standard limits, except for BOD and COD values which are relatively high compared to the standard. Figure 2.2.17 shows the changes of water quality in terms of Total Dissolved Solid (TDS),  $\text{NO}_3$ , COD and BOD. TDS and  $\text{NO}_3$  do not seem to exhibit significant changes in value. On the other hand, COD and BOD indicate increasing tendency in general.

**Table 2.2.5 Average Value of the Water Quality Test (2001-2008)**

	Luzira(Nakivubo)	Kinawataka	Kyambogo	Kira/Lugogo by-pass	Golf course	Lubigi	Natete	standard
EC( $\mu\text{S}/\text{cm}$ )	480	297	245	206	252	381	355	-
pH	7.0	6.8	6.7	6.9	6.9	7.2	7.2	6.0-8.0
Turb(NTU)	67.9	16.3	67.8	124.4	128.2	353.2	132.2	300
TDS(mg/l)	248.5	181.8	148.9	139.2	157.9	207.3	206.4	1200
TIron(mg/l)	4.7	5.0	3.2	3.1	2.7	6.2	4.4	10
F(mg/l)	0.27	0.23	0.17	0.16	0.18	0.22	0.19	-
K(mg/l)	21.2	9.9	11.2	8.7	9.6	22.3	20.0	-
Na(mg/l)	48.2	32.8	32.5	19.6	21.2	44.0	29.3	-
$\text{PO}_4$ (mg/l)	3.38	0.38	0.23	0.23	0.44	0.46	0.55	-
$\text{SO}_4$ (mg/l)	15.3	16.8	11.8	13.6	13.0	16.4	16.5	-
Cl(Lab)	36.6	24.5	24.6	13.5	16.8	29.2	27.9	500
$\text{NO}_2$ (mg/l)	0.03	0.01	0.01	0.08	0.19	0.26	0.07	2
$\text{NO}_3$ (mg/l)	0.39	0.12	0.04	2.49	2.97	1.71	0.61	20
$\text{NH}_4$ (mg/l)	5.84	0.51	0.55	0.76	2.83	1.64		10
BOD(mg/l)	23.0	26.2	92.0	48.5	61.2	23.0	12.0	50
COD(mg/l)	70.6	33.1	80.5	28.3	30.7	65.5	62.7	100

Note: Values with red color shows out of standard value.

Source: Water Quality Management Department



Source: Water Quality Management Department

**Figure 2.2.17 Changes of Water Quality (TDS, NO3, COD and BOD)**



## 2.3 SOCIO-ECONOMIC CONDITIONS

### 2.3.1 ADMINISTRATIVE REGIONS OF GKMA

The definition of the GKMA is the same as that adopted in the National Transport Master Plan Study (NTMP) which consists of Kampala City and surrounding districts, municipalities and town councils with a 970 km<sup>2</sup> total area. The GKMA covers the seven local governments as described in Chapter 1 listed below:

- KCC
- Entebbe Municipal Council
- Mukono Town Council and Part of Mukono District
- Wakiso Town Council and Part of Wakiso District
- Kira Town Council, and
- Nansana Town Council

It should be noted that the statistical data of Gross Regional Domestic Product (GRDP) by district level and GKMA are not available.

### 2.3.2 POPULATION

#### (1) Population Growth of Uganda

The estimated population of Uganda in 2009 mid-year is 30.7 million. An average annual growth rate between two census years (1991 and 2002) was 3.3% per annum. Until 2009, the annual rate was at 3.5%, and is still continuously maintaining at a higher growth rate. The urbanization in the whole country has proceeded rapidly with a 5.2% growth rate of urban population from 1992 to 2002, and 6.1% from 2002 to 2009. About 15% of the total population live in the urban area in 2009.

**Table 2.3.1 Mid-Year Population Estimates and Projections for Uganda 1992-2009 ('000 persons)**

Year	Urban	Rural	Total	Rate of Urbanization	Annual Growth Rate		
					Urban	Rural	Total
1992	1,801	15,672	17,473	10.3%			
1993	1,892	16,150	18,042	10.5%	5.1%	3.1%	3.3%
1994	1,987	16,642	18,629	10.7%	5.0%	3.0%	3.3%
1995	2,087	17,148	19,235	10.9%	5.0%	3.0%	3.3%
1996	2,192	17,669	19,861	11.0%	5.0%	3.0%	3.3%
1997	2,303	18,205	20,508	11.2%	5.1%	3.0%	3.3%
1998	2,418	18,756	21,174	11.4%	5.0%	3.0%	3.2%
1999	2,540	19,324	21,864	11.6%	5.0%	3.0%	3.3%
2000	2,668	19,907	22,575	11.8%	5.0%	3.0%	3.3%
2001	2,802	20,508	23,310	12.0%	5.0%	3.0%	3.3%
<b>2002</b>	<b>2,982</b>	<b>21,242</b>	<b>24,224</b>	12.3%	6.4%	3.6%	3.9%
2003	3,091	21,759	24,850	12.4%	3.7%	2.4%	2.6%
2004	3,247	22,413	25,660	12.7%	5.0%	3.0%	3.3%
2005	3,411	23,084	26,495	12.9%	5.1%	3.0%	3.3%
2006	3,582	23,775	27,357	13.1%	5.0%	3.0%	3.3%
2007	3,763	24,485	28,248	13.3%	5.1%	3.0%	3.3%
2008	4,372	25,221	29,593	14.8%	16.2%	3.0%	4.8%
2009	4,525	26,137	30,662	14.8%	3.5%	3.6%	3.6%
Growth Rate							
1992-2002	5.2%	3.1%	3.3%				
2002-2009	6.1%	3.0%	3.4%				

Source: "Statistical Abstract 2009", Uganda Bureau of Statistics

## (2) Distribution of Regional Population

Uganda is composed of four regions, central, eastern, northern and western regions. The estimations/projections of population distribution among the four regions were carried out in the past by various studies and surveys which are put together in Table 2.3.2.

According to the projections in said table, population share of the central region in 2009 is 8 million (26% of Uganda), 10 million in 2017 (24.7%) and 11.7 million (23.8%) in 2023, reducing its population share with lower growth rates than those of the whole country, and the eastern and northern regions. The western region is along the same pattern, resulting in the increase of shares of eastern and northern regions.

**Table 2.3.2 Regional Population Estimates and Projections from 1991 to 2023**

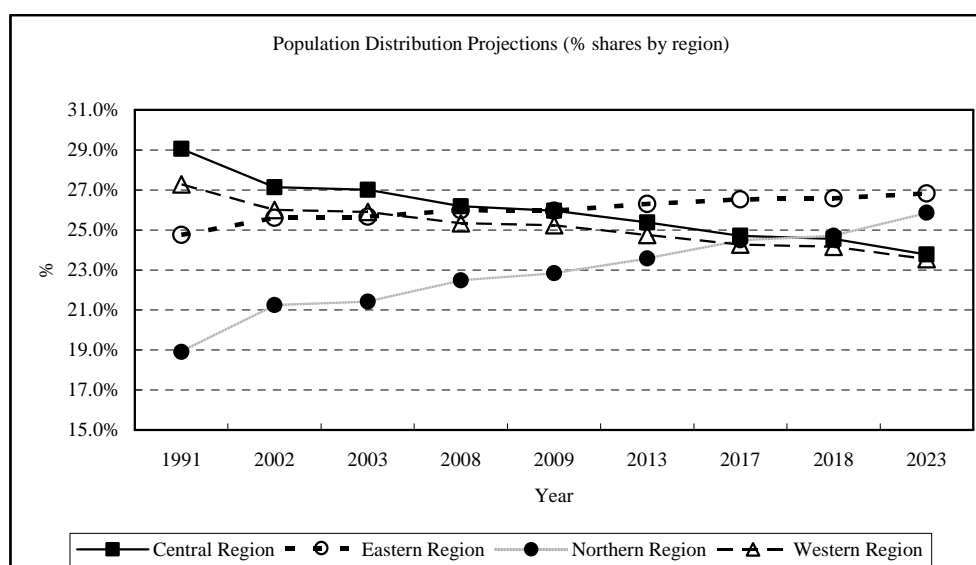
No.	Region	Census Year		2003 (**)	2008 (**)	2009 (***)	2013 (**)	2017 (**)	2018 (****)	2023 (****)	Average Annual Growth (%)		
		1991 (*)	2002 (*)								2002-2009	2009-2018	2018-2023
1	Central Region	4,844	6,575	6,776	7,751	7,959	8,971	10,030	10,303	11,718	2.8%	2.9%	2.6%
2	Eastern Region	4,128	6,205	6,440	7,692	7,961	9,299	10,764	11,154	13,228	3.6%	3.8%	3.5%
3	Northern Region	3,152	5,149	5,374	6,653	7,003	8,337	9,934	10,368	12,749	4.5%	4.5%	4.2%
4	Western Region	4,548	6,298	6,500	7,497	7,739	8,751	9,851	10,136	11,609	3.0%	3.0%	2.8%
	Total Uganda	16,672	24,227	25,090	29,593	30,662	35,358	40,579	41,961	49,304	3.4%	3.5%	3.3%

Source: (\*) : Census data

(\*\*) : Original source: Projections of Demographic Trends in Uganda, 2007-17, UBOS, 2007

(\*\*\*) : Mid-Year Projected Population 2009, "Statistical Abstract 2009" UBOS

(\*\*\*\*) : Projections by NTMP



Source: As shown in Table 2.3.2

**Figure 2.3.1 Projection of Population Distribution (% share by Region)**

## (3) Population of GKMA

The census in 2002 reported that the total population of GKMA was 1.96 million with an 8.1% share in the whole country of Uganda. In 2008, the population of GKMA is estimated at 2.50 million and projected to reach 4.5 million in 2023. This is about 1.8 times of that in 2008 with an additional 2 million population (9.1% share in the whole country).

**Table 2.3.3 Population Estimates and Projections for GKMA (1991-2023)**

No.	District	1991	2002	2003	2008	2009	2013	2018	2023	Average Annual Growth (%)		
		(*)	(*)	(**)	(**)	(***)	(**)	(****)	(****)	2002-08	2008-18	2018-23
1	Kampala	774.2	1,189.1	1,235.2	1,480.2	1,533.6	1,788.6	2,137.4	2,521.4	3.7%	3.7%	3.4%
2	Mukono (GKMA)	51.1	88.8	93.5	119.3		152.3	189.8	233.1	5.0%	4.8%	4.2%
3	Wakiso (GKMA)	386.2	685.3	718.6	904.1		1,142.9	1,424.3	1,749.6	4.7%	4.6%	4.2%
<b>4</b>	<b>GKMA Total</b>	<b>1,211.5</b>	<b>1,963.2</b>	<b>2,047.3</b>	<b>2,503.6</b>		<b>3,083.8</b>	<b>3,751.5</b>	<b>4,504.1</b>	<b>4.1%</b>	<b>4.1%</b>	<b>3.7%</b>
5	Mukono (outside GKMA)	537.3	706.5	725.3	809.9		911.3	1,014.2	1,119.8	2.3%	2.3%	2.0%
6	Wakiso (outside GKMA)	176.7	222.7	227.7	254.1		286.6	320.6	357.5	2.2%	2.4%	2.2%
7	Total Mukono District	588.4	795.3	818.8	929.2	952.3	1,063.6	1,204.0	1,352.9	2.6%	2.6%	2.4%
8	Total Wakiso District	562.9	908.0	946.3	1,158.2	1,205.1	1,429.5	1,744.9	2,107.1	4.1%	4.2%	3.8%
9	Uganda Total	16,671.7	24,224.2	24,850.0	29,593.0	30,662.0	35,358.0	41,961.0	49,304.0			
10	% Share of GKMA	7.3%	8.1%	8.2%	8.5%		8.7%	8.9%	9.1%			

Source: (\*) Census data, UBOS and NTMP allocations of Mukono & Wakiso Districts to GKMA

(\*\*): UBOS Projections and NTMP

(\*\*\*): Mid-Year Projected Population 2009, "Statistical Abstract 2009, UBOS

(\*\*\*\*): Projections by NTMP

## 2.3.3 NATIONAL AND REGIONAL ECONOMY

### (1) Gross Domestic Product (GDP)

#### 1) Current GDP and Past Trend of GDP Growth

In the fiscal year 2008/09, the real GDP of Uganda at market prices increased by 7.1% compared to 8.7% growth in the previous fiscal year 2007/08. This high growth was realized mainly due to the good performance in the service sector. The average annual growth rate of GDP for the last seven years (from FY2001/02 to FY 2008/09) was also recorded to be of a relatively high rate of 7.8% per annum. During the past seven years, FY 2004/05 indicated the highest growth rate of 10.8% per annum induced by the high growth of industry and service sectors.

**Table 2.3.4 Gross Domestic Product by Economic Activity at Constant Market Prices (Billion US\$.)**

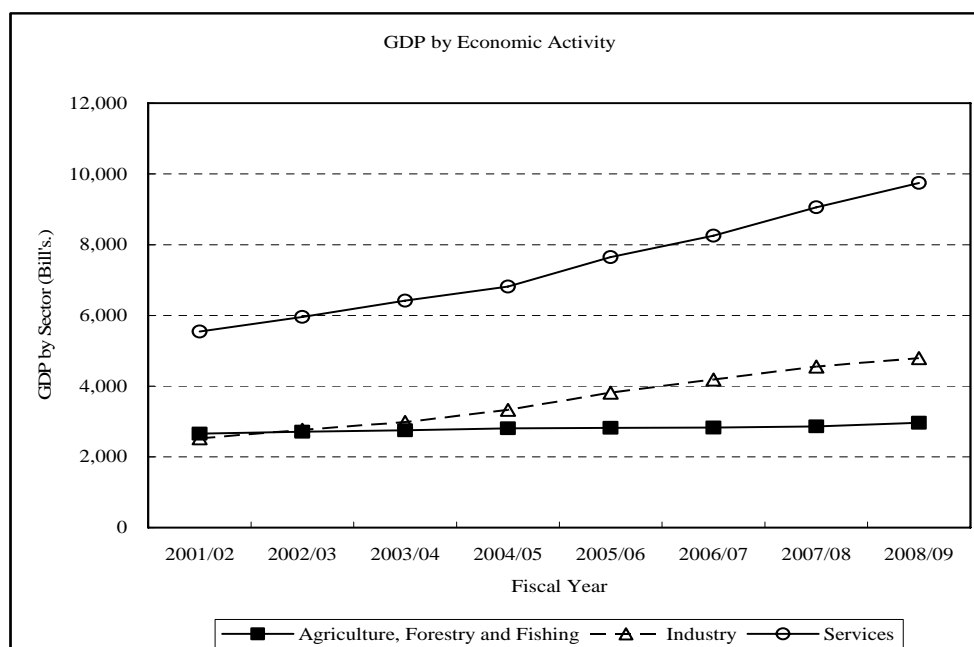
Economic Activity	Fiscal Year								Average Growth % p.a (2001-2008)
	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	
<i>Agriculture, Forestry and Fishing</i>	2,652	2,709	2,752	2,808	2,821	2,824	2,862	2,961	1.6%
<i>Industry</i>	2,524	2,763	2,984	3,329	3,820	4,186	4,555	4,790	9.6%
Mining & Quarrying	32	36	37	46	49	59	61	64	10.4%
Manufacturing	818	855	909	994	1,067	1,127	1,209	1,317	7.0%
Electricity Supply	157	163	175	179	167	161	169	172	1.3%
Water Supply	270	281	293	304	311	322	335	354	3.9%
Construction	1,246	1,428	1,571	1,805	2,225	2,517	2,782	2,884	12.7%
<i>Services</i>	5,544	5,952	6,419	6,815	7,644	8,253	9,057	9,743	8.4%
Wholesale & Retail Trade	1,472	1,547	1,645	1,762	1,978	2,183	2,504	2,738	9.3%
Hotels & Restaurants	492	532	582	620	675	751	831	930	9.5%
Transport/Communication	525	604	700	768	900	1,059	1,285	1,636	17.6%
Other Business Services	1,331	1,425	1,493	1,601	1,780	1,821	1,974	2,131	7.0%
Public Administration & Defence	503	521	561	531	615	577	646	511	0.2%
Education	826	886	966	1,009	1,104	1,220	1,141	1,157	4.9%
Health	198	225	227	240	271	278	264	278	5.0%
Other Personal & Community Services	195	211	245	282	322	365	412	462	13.1%
<i>Adjustment</i>	757	814	915	946	1,112	1,422	1,670	1,932	
<b>Total GDP at Market Prices</b>	<b>11,477</b>	<b>12,238</b>	<b>13,070</b>	<b>13,898</b>	<b>15,397</b>	<b>16,685</b>	<b>18,144</b>	<b>19,426</b>	<b>7.8%</b>
Per Capita GDP (Shs.)	477,499	492,412	509,354	524,538	562,792	590,661	613,118	633,553	4.1%

Source: "Annual Report 2008/2009", Bank of Uganda, Original Source: Uganda Bureau of Statistics. Modified based on "75th Issues UBOS.

	Annual Growth Rate by Sector						
	FS2001-02	FS2002-03	FS2003-04	FS2004-05	FS2005-06	FS2006-07	FS2007-08
<b>Yearly Growth Rate of Total GDP</b>	<b>6.6%</b>	<b>6.8%</b>	<b>6.3%</b>	<b>10.8%</b>	<b>8.4%</b>	<b>8.7%</b>	<b>7.1%</b>
Agriculture, Forestry & Fishing	2.1%	1.6%	2.0%	0.5%	0.1%	1.3%	3.5%
Industry	9.5%	8.0%	11.6%	14.7%	9.6%	8.8%	5.2%
Services	7.4%	7.8%	6.2%	12.2%	8.0%	9.7%	7.6%
Per Capita GDP	3.1%	3.4%	3.0%	7.3%	5.0%	3.8%	3.3%

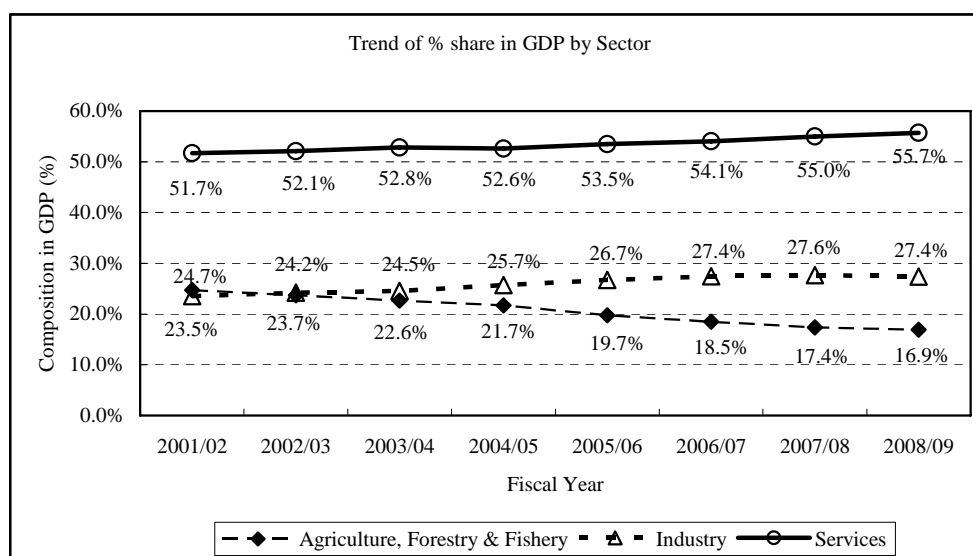
## 2) Composition of GDP

Figure 2.3.2 shows the GDP trends by sector from FY 2001/02 to FY 2008/09. Although the agriculture sector is still an important sector in economy of Uganda, more than 55% of GDP is borne by the service sector and 27% by the industry sector. On the other hand, agriculture sector has been gradually reducing its share in GDP from 24.7% in 2001/02 to 16.9% in 2008/09.



Source: As shown in Table 2.3.4

**Figure 2.3.2 GDP by Economic Activity**



Source: As shown in Table 2.3.4

**Figure 2.3.3 Trend of % Share in GDP by Sector**

## (2) External Trade (Imports and Exports)

### 1) Trade Balance of Uganda

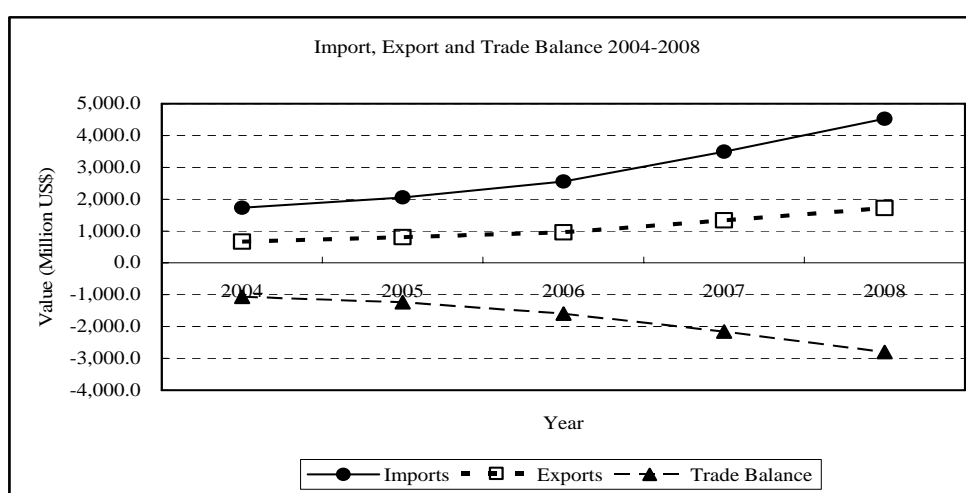
Although increases in the export value with a 26.9% average annual rate from 2004 to 2008,

Uganda showed continuous excess imports with a 2.8 billion deficit in 2008. This is almost 2.6 times of the deficit in 2004. This is partly due to the reflection of Uganda's economic structure, exporting lower price products/commodities (agricultural products, etc.) and importing higher price products.

**Table 2.3.5 Trade Balance (2004-2008), Million US\$**

Trade Flows	2004	2005	2006	2007	2008	Growth p.a.
Imports	1,726.2	2,054.1	2,557.3	3,495.4	4,525.9	27.2%
Exports	665.1	812.9	962.2	1,336.7	1,724.3	26.9%
Trade Balance	-1,061.1	-1,241.2	-1,595.1	-2,158.7	-2,801.6	
% Change (Imports)	25.5%	19.0%	24.5%	36.7%	29.5%	
% Change (Exports)	24.5%	22.2%	18.4%	38.9%	29.0%	

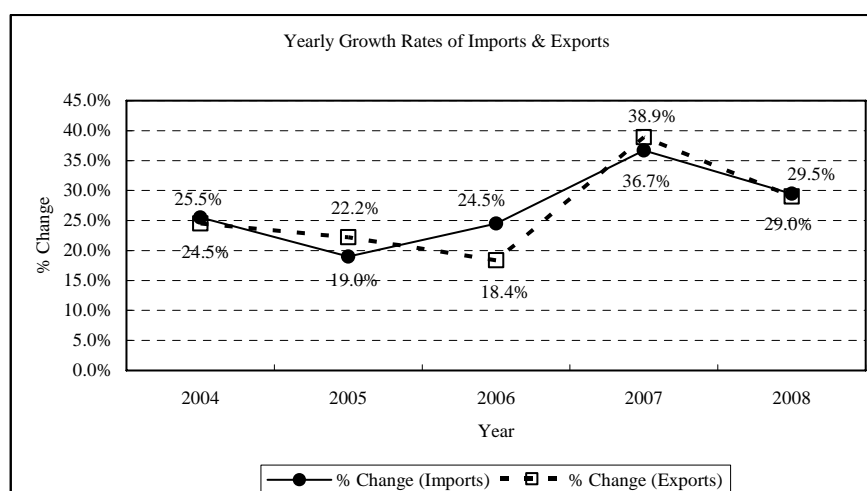
Source: "2009 Statistical Abstract" Uganda Bureau of Statistics



Source: As shown in Table 2.3.5

**Figure 2.3.4 Imports, Exports and Trade Balance 2004-2008**

As shown in the figure below, annual growth rates of imports and exports are synchronized with each other, i.e., increase in exports will result in increase in imports. Thus, in order to expand the exports, increasing imports is necessary.



Source: As shown in Table 2.3.5

**Figure 2.3.5 Yearly Growth Rates of Imports and Exports**

## 2) Import Value by Commodity Type

Main imported products/commodities to Uganda in terms of value (in US\$) are ①Petroleum products, ②Chemical and related products, ③Machinery equipment, ④Electrical machinery, and ⑤Road vehicles and other transport equipment. About 50% to 60% of imported values were spent on imports of these five items in each year from 2004 to 2008.

**Table 2.3.6 Imports by Value and by Commodity Type ('000 US\$), 2004-2008**

	Imported Commodity	2004	2005	2006	2007	2008
1	Animal & Animal Products	137,871	145,638	161,415	166,861	182,278
2	Vegetable Products, Animal, Beverages, Fats & Oil	41,914	52,634	58,570	96,684	97,963
3	Prepared Foodstuff, Beverages & Tobacco	22,716	24,512	31,090	42,634	73,997
4	Mineral Products (excl. Petroleum products)	49,563	56,888	56,772	62,128	85,181
5	Petroleum Products	217,762	343,156	526,581	645,587	837,091
6	Chemical & Related Products	230,717	251,365	338,937	448,357	700,557
7	Plastics, Rubber & Related Products	95,961	122,394	137,361	177,405	239,156
8	Wood & Wood Products	51,400	53,122	64,914	73,330	103,768
9	Textile & Textile Products	40,028	42,703	53,372	73,979	73,378
10	Non-Metallic Mineral Manufactures	57,269	68,576	77,815	117,535	146,703
11	Iron and Steel	96,020	118,823	141,632	173,423	309,514
12	Metals and their Products	50,040	50,620	59,113	97,054	128,155
13	Machinery Equipment	174,852	179,753	227,234	301,060	468,357
14	Electrical Machinery	144,735	157,253	213,902	461,764	430,669
15	Road Vehicles and Other Transport Equipment	154,142	200,293	221,651	301,039	350,917
16	Prefabricated buildings, Furniture and mattresses, etc	18,314	16,559	19,995	37,322	27,966
17	Travel goods, Articles of Apparel and Accessories	48,265	53,334	63,734	92,865	109,755
18	Professional, Scientific Controlling Instruments	26,565	34,788	35,002	51,881	53,545
19	Miscellaneous Manufactured Articles	68,104	81,726	68,215	74,480	106,909
	<b>Total Imports</b>	<b>1,726,238</b>	<b>2,054,137</b>	<b>2,557,305</b>	<b>3,495,388</b>	<b>4,525,859</b>

Source: Uganda Bureau of Statistic (UBOS), URA

## 3) Imports by Region and Country of Origin

The Asian region is one of the main sources for Uganda's imports with about 35% of total imports in 2008. The imports from Asia in 2008 increased more than three times compared to that in 2001. Particularly, the main countries are India, China, Japan and Malaysia. Regarding Common Market for Eastern and Southern Africa (COMESA), Kenya's share of imports is 86% compared to the other member countries.

**Table 2.3.7 Imports by Region and Country of Origin ('000 US\$), 2004-2008**

Region/ Country	2004	2005	2006	2007	2008	Average Annual Growth
<b>COMESA (*)</b>	<b>434,177</b>	<b>565,011</b>	<b>450,419</b>	<b>560,321</b>	<b>596,451</b>	<b>8.3%</b>
Kenya	399,198	520,686	400,965	495,687	511,334	6.4%
Other COMESA	34,979	44,325	49,454	64,634	85,117	24.9%
<b>Other Africa</b>	<b>160,147</b>	<b>177,881</b>	<b>188,853</b>	<b>242,712</b>	<b>375,101</b>	<b>23.7%</b>
<b>Asia</b>	<b>501,100</b>	<b>540,808</b>	<b>749,982</b>	<b>1,174,968</b>	<b>1,573,959</b>	<b>33.1%</b>
China	103,090	109,217	138,260	274,268	365,783	37.2%
India	121,773	131,813	208,987	341,394	470,490	40.2%
Japan	121,984	146,552	174,470	229,920	268,728	21.8%
Malaysia	67,430	47,214	48,871	63,215	145,951	21.3%
Other Asia	86,823	106,012	179,394	266,171	323,007	38.9%
<b>European Union (EU)</b>	<b>314,033</b>	<b>387,158</b>	<b>481,209</b>	<b>717,642</b>	<b>877,988</b>	<b>29.3%</b>
United Kingdom	84,422	99,405	124,021	117,897	137,642	13.0%
Other EU	229,611	287,753	357,188	599,745	740,346	34.0%
<b>Other Europe</b>	<b>15,485</b>	<b>21,703</b>	<b>69,894</b>	<b>66,049</b>	<b>152,685</b>	<b>77.2%</b>
<b>Middle East</b>	<b>118,129</b>	<b>206,879</b>	<b>489,218</b>	<b>566,592</b>	<b>740,652</b>	<b>58.2%</b>
United Arab Emirates	84,881	136,702	325,253	412,356	515,527	57.0%
Other Middle East	33,248	70,177	163,965	154,236	225,125	61.3%
<b>North America</b>	<b>122,984</b>	<b>105,723</b>	<b>98,615</b>	<b>128,779</b>	<b>144,896</b>	<b>4.2%</b>
<b>South America</b>	<b>26,116</b>	<b>31,550</b>	<b>11,557</b>	<b>32,407</b>	<b>53,730</b>	<b>19.8%</b>
<b>Rest of the World</b>	<b>34,067</b>	<b>17,424</b>	<b>17,561</b>	<b>5,921</b>	<b>10,398</b>	<b>-25.7%</b>
<b>Total Imports</b>	<b>1,726,238</b>	<b>2,054,137</b>	<b>2,557,308</b>	<b>3,495,391</b>	<b>4,525,860</b>	<b>27.2%</b>

Note: (\*) COMESA: Common Market for Eastern and Southern Africa

Original Source: UBOS, URA

#### 4) Export Value by Commodity Type

The main export commodities from Uganda are coffee, cotton, tea and tobacco which are categorized as traditional exports. However, the export of cotton decreased continuously from 2004 to 2008. A leading export commodity other than traditional exports is fish and fish products.

The share of traditional exports decreased to 32.9% in 2005 from 36.8% in 2004. Consequently, it is keeping a stable share of around 30% from the year 2006.

**Table 2.3.8 Exports by Value and by Commodity Type ('000 US\$), 2004-2008**

Commodity		2004	2005	2006	2007	2008	Growth Rate % p.a.
<b>Traditional Export</b>							
1	Coffee	124,237	172,942	189,830	265,853	403,179	34.2%
2	Cotton	42,758	28,821	20,474	19,571	13,214	-25.4%
3	Tea	37,258	34,274	50,873	47,629	47,222	6.1%
4	Tobacco	40,702	31,485	26,964	66,301	66,448	13.0%
<b>Non-Traditional Exports</b>							
5	Maize	17,896	21,261	24,114	23,816	18,250	0.5%
6	Beans and other Legumes	8,968	8,693	8,162	10,099	17,630	18.4%
7	Fish and Fish products	103,309	142,691	145,837	124,711	124,436	4.8%
8	Cattle hides	5,409	7,064	8,032	18,114	12,518	23.3%
9	Sesame seeds	2,788	4,779	4,547	5,447	15,884	54.5%
10	Soya beans	118	126	609	1,331	1,536	89.9%
11	Soap	7,708	7,194	5,530	14,324	17,003	21.9%
12	Electric Current	12,075	4,465	4,855	8,696	10,870	-2.6%
13	Cocoa beans	6,801	9,638	10,016	15,936	22,834	35.4%
14	Cobalt	11,548	14,320	18,063	17,325	20,033	14.8%
15	Hoes and hand tools	348	1,159	518	1,117	649	16.9%
16	Pepper	368	594	189	256	580	12.0%
17	Vanilla	6,120	6,135	4,808	6,262	3,039	-16.1%
18	Live animals	130	29	28	1,551	1,822	93.5%
19	Fruits	917	1,158	1,167	1,976	5,332	55.3%
20	Groundnuts	1	23	8	148	28	130.0%
21	Bananas	850	806	127	430	211	-29.4%
22	Roses and Cut flowers	26,424	24,128	20,987	22,782	28,790	2.2%
23	Ginger		78	12	9	24	
24	Gold and gold compounds	61,233	73,072	122,579	65,783	50,746	-4.6%
25	Other Precious Compounds	4,713	6	117	43	481	-43.5%
26	Other products	114,507	185,901	257,345	558,605	793,359	62.2%
27	Petroleum products	27,904	32,015	36,401	38,553	48,183	14.6%
<b>Total of Traditional Exports</b>		<b>244,955</b>	<b>267,522</b>	<b>288,141</b>	<b>399,354</b>	<b>530,063</b>	21.3%
<b>Total of Non-Traditional Exports</b>		<b>420,135</b>	<b>545,335</b>	<b>674,051</b>	<b>937,314</b>	<b>1,194,238</b>	29.8%
<b>TOTAL</b>		<b>665,090</b>	<b>812,857</b>	<b>962,192</b>	<b>1,336,668</b>	<b>1,724,301</b>	26.9%

Source: "2009 Statistical Abstract" Uganda Bureau of Statistics (UBOS)

Original Source:

URA: Uganda Revenue Authority

UCDA: Uganda Coffee Development Authority

UMEME:

## 5) Exports by Region and Country of Destination

Member countries of COMESA and European Union (EU) are the major destinations of Uganda's exports. COMESA region recorded the highest share of 42.1%, followed by EU with a 26.6% of market share in 2008. Exports to COMESA and EU countries increased to 42.1% per annum and 26.1% per annum, respectively, from 2004 to 2008. Although the market share of the Middle East in 2008 is relatively low (8.1%), its growth rate from 2004 to 2008 was significantly high with a rate of 39.2% per annum. Among the COMESA countries, Sudan showed the highest share of 14.3% and highest growth rate with an 81.5% per annum.



**Table 2.3.9 Exports by Region and Country of Destination ('000 US\$), 2004-2008**

Region/ Country	2004	2005	2006	2007	2008	Average Annual Growth
<b>COMESA (*)</b>	<b>177,995</b>	<b>249,336</b>	<b>283,747</b>	<b>506,509</b>	<b>725,152</b>	<b>42.1%</b>
Kenya	76,903	72,437	88,002	118,191	164,631	21.0%
D.R. Congo	28,913	60,404	44,820	100,046	124,990	44.2%
Rwanda	24,683	36,088	30,525	83,309	136,895	53.5%
Sudan	22,676	50,487	91,746	157,117	245,873	81.5%
Other COMESA	24,820	29,920	28,654	47,846	52,763	20.7%
<b>Other Africa</b>	<b>37,823</b>	<b>38,931</b>	<b>37,763</b>	<b>87,745</b>	<b>72,493</b>	<b>17.7%</b>
<b>European Union (EU)</b>	<b>181,756</b>	<b>252,708</b>	<b>263,752</b>	<b>324,395</b>	<b>460,218</b>	<b>26.1%</b>
United Kingdom	29,438	26,831	29,959	53,284	118,391	41.6%
Netherlands	57,860	85,413	61,889	66,568	81,797	9.0%
Other EU	94,458	140,464	171,904	204,543	260,030	28.8%
<b>Other Europe</b>	<b>113,676</b>	<b>82,466</b>	<b>49,074</b>	<b>91,361</b>	<b>158,982</b>	<b>8.7%</b>
<b>Middle East</b>	<b>37,060</b>	<b>88,111</b>	<b>198,544</b>	<b>190,847</b>	<b>139,064</b>	<b>39.2%</b>
United Arab Emirates	33,458	84,389	186,313	177,897	128,111	39.9%
Other Middle East	3,602	3,722	12,231	12,950	10,953	32.1%
<b>Asia</b>	<b>59,025</b>	<b>61,180</b>	<b>75,194</b>	<b>71,937</b>	<b>98,183</b>	<b>13.6%</b>
<b>North America</b>	<b>19,185</b>	<b>18,340</b>	<b>16,442</b>	<b>23,777</b>	<b>19,835</b>	<b>0.8%</b>
<b>South America</b>	<b>379</b>	<b>1,005</b>	<b>899</b>	<b>2,472</b>	<b>305</b>	<b>-5.3%</b>
<b>Rest of the World</b>	<b>80</b>	<b>566</b>	<b>297</b>	<b>159</b>	<b>2,576</b>	<b>138.2%</b>
<b>Unkown</b>	<b>38,111</b>	<b>20,214</b>	<b>36,483</b>	<b>37,465</b>	<b>47,492</b>	<b>5.7%</b>
<b>Total Exports</b>	<b>665,090</b>	<b>812,857</b>	<b>962,195</b>	<b>1,336,667</b>	<b>1,724,300</b>	<b>26.9%</b>

Note: (\*) COMESA: Common Market for Eastern and Southern Africa

Original Source: UBOS, URA

### (3) Labor Force and Employment

According to the "Uganda National Household Surveys 2002/03 and 2005/06", the labour force market indicators in FY 2002/03 and 2005/06 were estimated as shown below:

The total unemployment rate was at 3.5% in 2003/04 and 1.9% in 2005/06. Although the unemployment rate in 2005/06 was improved compared to 2002/03, the time-related underemployment rate was still at a high level (16.9% in 2002/03 and 12.1% in 2005/06).

(Note: underemployment refers to a person who works for less than 40 hours per week, but are willing and available for work additional hours.)

In 2005/06, the total rate of unemployment and time-related underemployment was 14% (1.9% + 12.1%). Furthermore, the total rate of urban unemployment and urban time-related underemployment was 15.6% (6.9% + 8.7%). The situation is more severe in urban area than in rural area.

**Table 2.3.10 Labor Market Indicators, Uganda, 2002/03 and 2005/06**

Indicator	2002/03			2005/06		
	Male	Female	Total	Male	Female	Total
1) Uganda labour force (Millions)	4.6	5.1	9.8	5.3	5.6	10.9
2) Labour force participation rate	80.3	79.9	80.1	83.5	80.9	82.0
3) Employment to population ratio	78.2	76.6	77.4	82.0	79.0	80.0
4) <u>Unemployment rate</u>	<u>2.6</u>	<u>4.2</u>	<u>3.5</u>	<u>1.7</u>	<u>2.1</u>	<u>1.9</u>
5) <b>Urban unemployment rate</b>	<b>7.6</b>	<b>17.0</b>	<b>12.2</b>	<b>3.5</b>	<b>9.5</b>	<b>6.9</b>
6) <u>Time related underemployment rate</u>	<u>18.9</u>	<u>15.1</u>	<u>16.9</u>	n.a	n.a	<u>12.1</u>
7) <b>Urban time related underemployment rate</b>	<b>9.7</b>	<b>11.1</b>	<b>10.4</b>	<b>9.0</b>	<b>7.3</b>	<b>8.7</b>
8) Median monthly wages	60,000	32,000	54,000	48,000	20,000	36,000

Source: "2009 Statistical Abstract" Uganda Bureau of Statistics (UBOS)

Original Source: Uganda National Household Survey 2002/03 and 2005/06

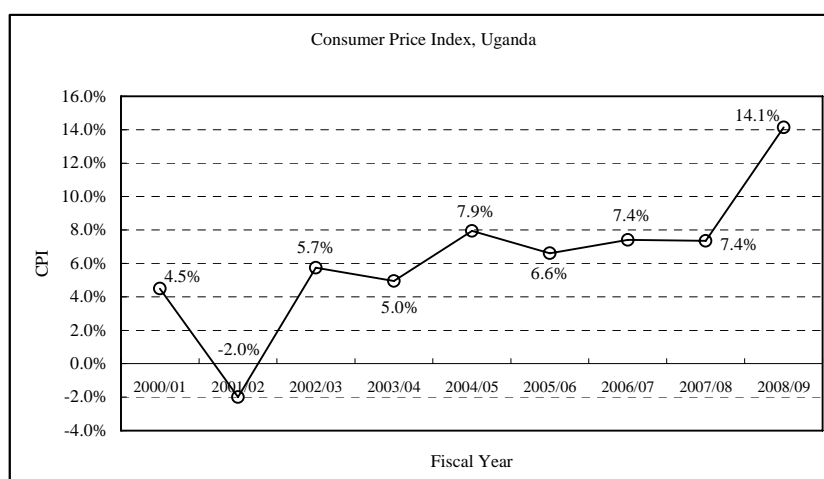
#### (4) Inflation (Consumer Price Index or CPI)

The CPI of Uganda varied within a range of 5.0% to 8% from FY 2002/03 to FY 2007/08. However, the fiscal year 2008 registered a double digit inflation rate which is twice that of 2007. This sudden high inflation rate was due to increased prices of most food items which went up by 28% in 2008/09 (145.4/1113.7=1.28). Uganda Bureau of Statistics (UBOS) analyzed the background of rising food prices and concluded that the main reasons are seasonal factors and the rising local and foreign demands for food.

**Table 2.3.11 CPI, Uganda (2005/06=100)**

Items	Food	Beverages and Tobacco	Clothing and Footwear	Rent, Fuel and Utilities	Household and Personal Goods	Transport and Communication	Education	Health Entertainment & others	All Items Index	Annual % Changes
Weight	27.2%	4.7%	4.4%	14.8%	4.5%	12.8%	14.7%	16.9%	100.0%	
Fiscal Year (Average)										
2000/01	108.5	78.6	99.4	78.1	91.1	79.4	80.2	86.5	79.9	<b>4.5%</b>
2001/02	108.4	89.8	97.3	82.6	90.5	80.4	83.4	88.7	78.3	<b>-2.0%</b>
2002/03	111.6	88.6	97.0	85.3	91.2	82.1	86.7	89.6	82.8	<b>5.7%</b>
2003/04	111.6	92.1	98.4	89.9	95.9	86.8	86.7	89.6	86.9	<b>5.0%</b>
2004/05	104.8	97.4	96.2	93.9	97.6	89.9	94.4	96.5	93.8	<b>7.9%</b>
2005/06	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	<b>6.6%</b>
2006/07	107.9	101.1	104.5	117.1	105.5	107.7	104.3	104.2	107.4	<b>7.4%</b>
2007/08	113.7	107.1	112.1	129.8	117.8	117.5	110.6	109.6	115.3	<b>7.4%</b>
2008/09	145.4	120.8	121.2	142.1	132.1	124.1	118.9	121.6	131.6	<b>14.1%</b>

Source: "Annual Report 2008/09", Bank of Uganda. Original Source: Uganda Bureau of Statistics (UBOS).



Source: As shown in Table 2.3.11

**Figure 2.3.6 CPI, Uganda**

#### (5) Oil Exploitation

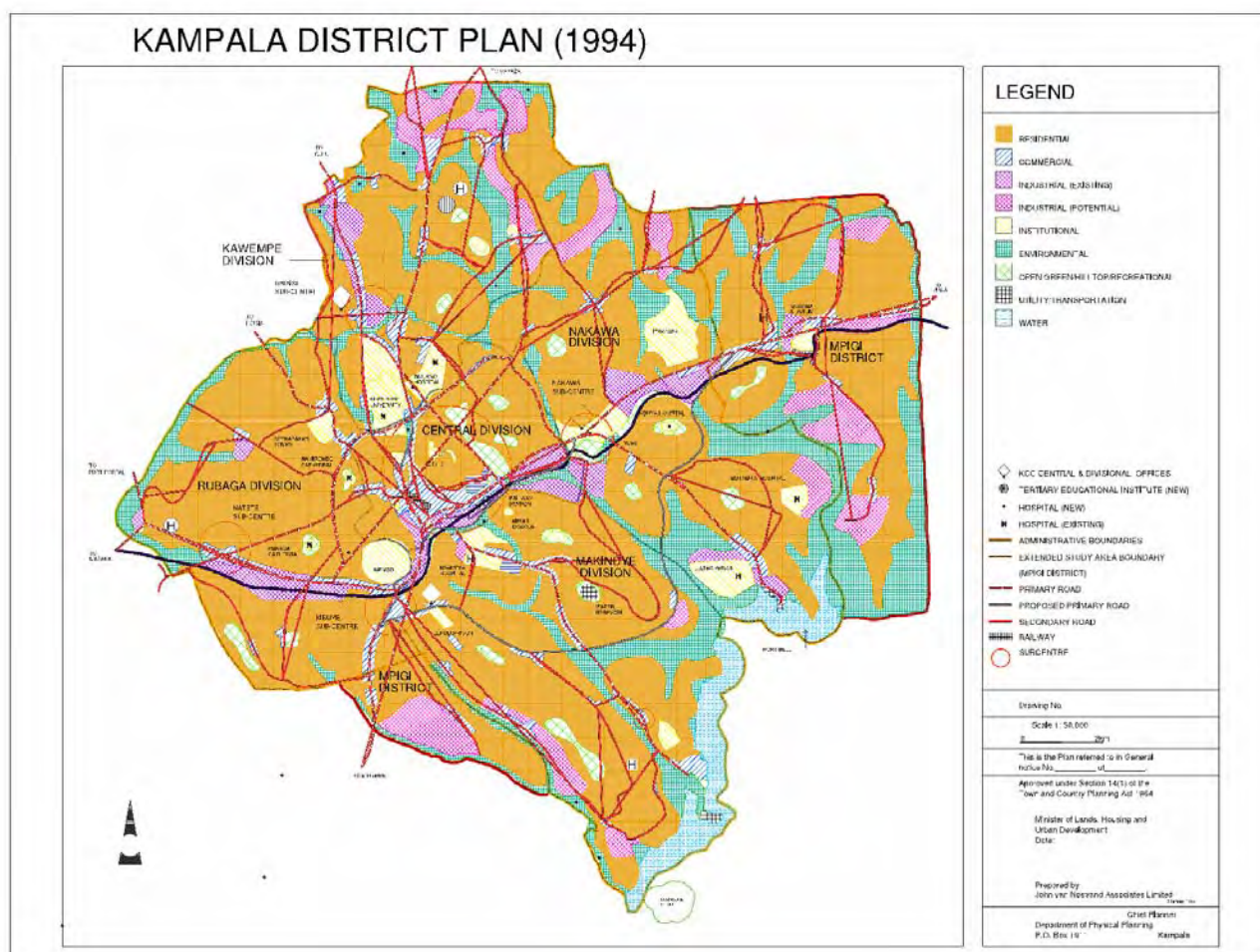
Over the period 1997 to 2008, a total of US\$ 500 million private capital had been invested in exploration and production of oil. The GOU has also invested in infrastructure support including upgrading of roads leading to exploration sites. These efforts had resulted in discovering commercially viable oil deposits in 2006. The reserves are currently estimated at 2 billion barrels of oil equivalent (BOE) as of June 2009, with most of it concentrated in Albertine Graben region (near Lake Albert) in an area of about 23,000 km<sup>2</sup>.

Currently, Uganda meets all its petroleum needs with imports now standing at 847,600 m<sup>3</sup> and estimated at US\$ 320 million per annum. This constitutes to about 8% of the total national imports. Hence, once production starts, it is envisaged to drastically boost the economic situation of Uganda. The GOU is also planning a refinery development and intends to carry out a feasibility study.

## 2.4 STRUCTURE PLAN AND LAND USE

### 2.4.1 STRUCTURE PLAN

A previous comprehensive urban plan had been adopted in the early 1970s (the 1972 Development Plan), but subsequent situations completely superseded its institutional force. The 1994 Kampala Urban Structure Plan set out existing and future land uses and development nodes for the area of KCC. Although formally adopted, the programs and policies it contains have been implemented only to a very limited extent ever since. Its formal provisions were limited to Kampala City and therefore, it was helpless in confronting the urban sprawl outside of the Kampala area. The plan stipulates the intensification of the existing land use pattern and the expansion of residential areas to the north, south and east. The plan does not envisage any dramatic change in the fundamental structure in the CBD/City Center. But even at that stage, relocation or dispersing of city center was proposed but was neglected politically.



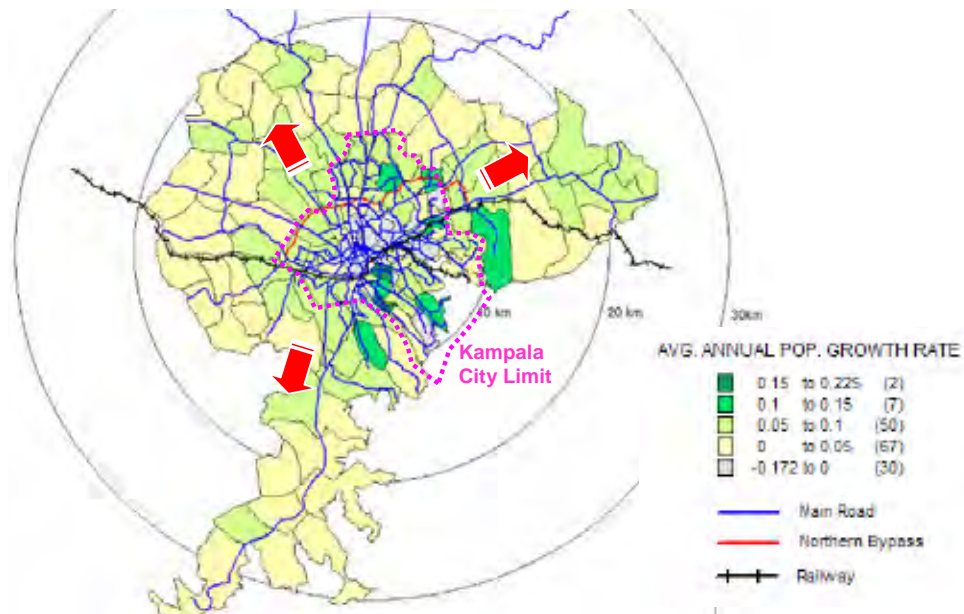
Source: Department of Physical Planning, KCC

**Figure 2.4.1 Kampala Urban Structure Plan (1994)**

Since this plan still stands in Kampala City after 15 years from its enactment, this planning document is in great need of reappraisal and renewal to resolve the current issues on land use. From June 2010, renewal and reinforcement of land use plan including the strengthening and improvement of institution will be commenced through the assistance of WB under KIIDP. At present, land use plan is adopted solely at Kampala City area. Meanwhile, new plan should be adopted at GKMA.

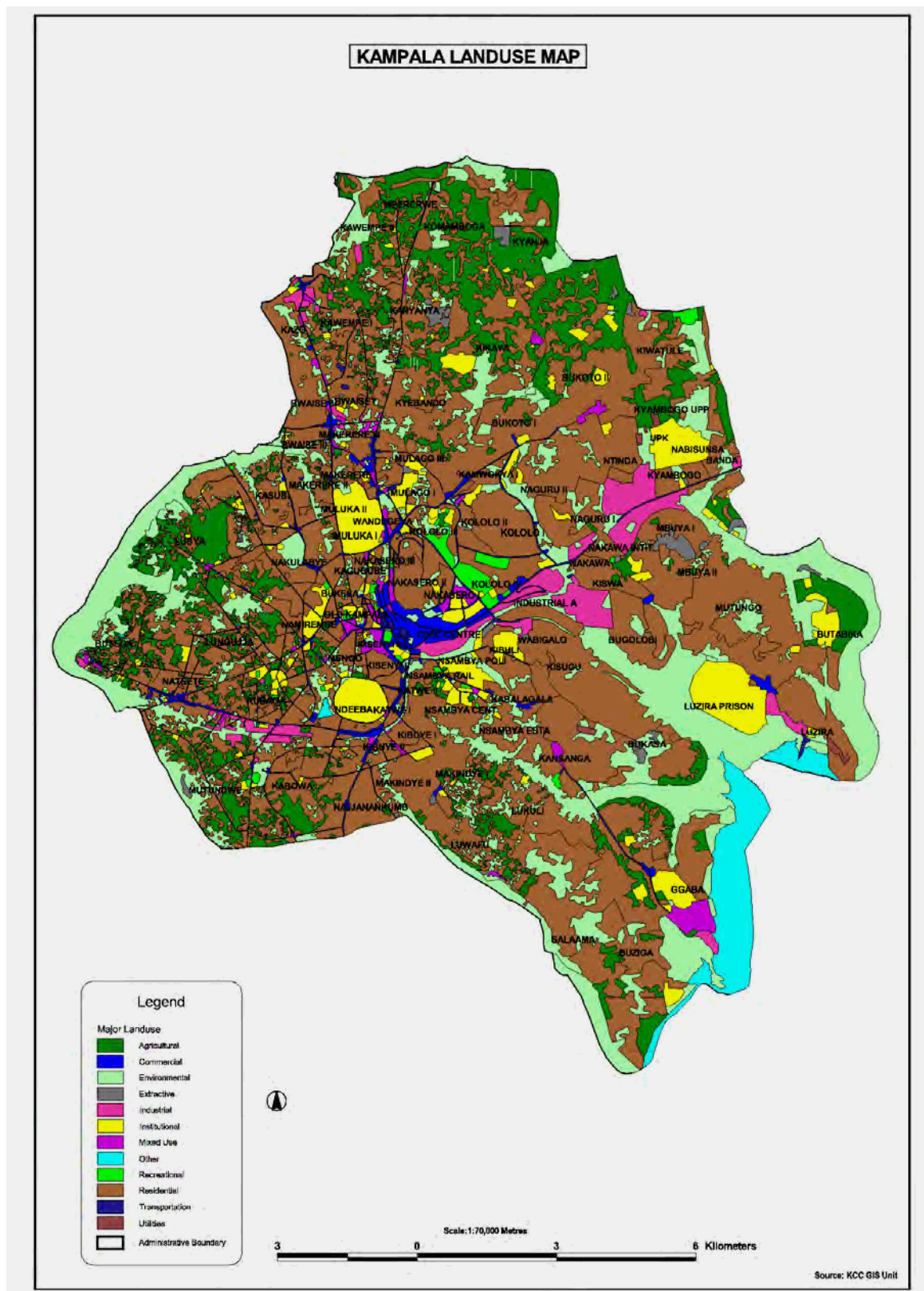
## 2.4.2 LAND USE

In GKMA there has been considerable urban sprawl, with many areas outside Kampala City experiencing high population growth rate and increase in density. This has been partly due to land cost and availability as well as due to the lack of comprehensive land use planning and enforcement for GKMA. The following figure shows the expansion of urban area from 1980 to 2001. A greater part of the urban expansion area is observed along the eight radial road corridors i.e. Jinja Road, Gayaza Road, Bombo Road, Hoima Road, Masaka Road, Entebbe Road, Gaba Road, and Port Bell Road.



**Figure 2.4.2 Urban Area Expansion 1980-2001**

The following figure shows the present land use in Kampala City (based on GIS data).



Source: KCC GIS Unit

**Figure 2.4.3 Present Land Use in KCC**

The characteristics of present land use in GKMA are identified as follows;

1) Concentrated Land Use at Only One City Center

Many key services including banks, shopping centers, markets, transport centers and government offices are concentrating on a small portion of the CBD/City Center. This includes among others, two taxi parks, three bus terminals, and three markets. In addition to markets and buildings, street stalls are occupying the walkways. These have resulted in concentration of pedestrians, taxis and private cars. Since the Kampala City Center is the only huge multi function complex in GKMA, it attracts great number of people and traffic. Consequently more functions are concentrating into the City Center.

2) Development along Radial Road Corridors

As mentioned above, eight major corridors are along the axis for land use. Usually, buildings along the roads are utilized for commercial or business purposes, while residential areas are expanding behind those buildings. This is despite the fact that the characteristics of land use along the following roads are different.

- Jinja Road: Industrial and Transport
- Port Bell Road: Industrial
- Masaka Road: Mixed use of commercial and industrial

3) Advancement of Sprawls into Adjacent Districts

Sprawl of urban area are extending to the neighboring Mukono District and Wakiso District. Moreover, these urban areas are adjacent to the Kampala Urban area. It is necessary to establish an administrative body, like a GKMA Authority, to control the land use as a whole.

4) Intermingled Land Use of Low and High Density Inhabited Areas

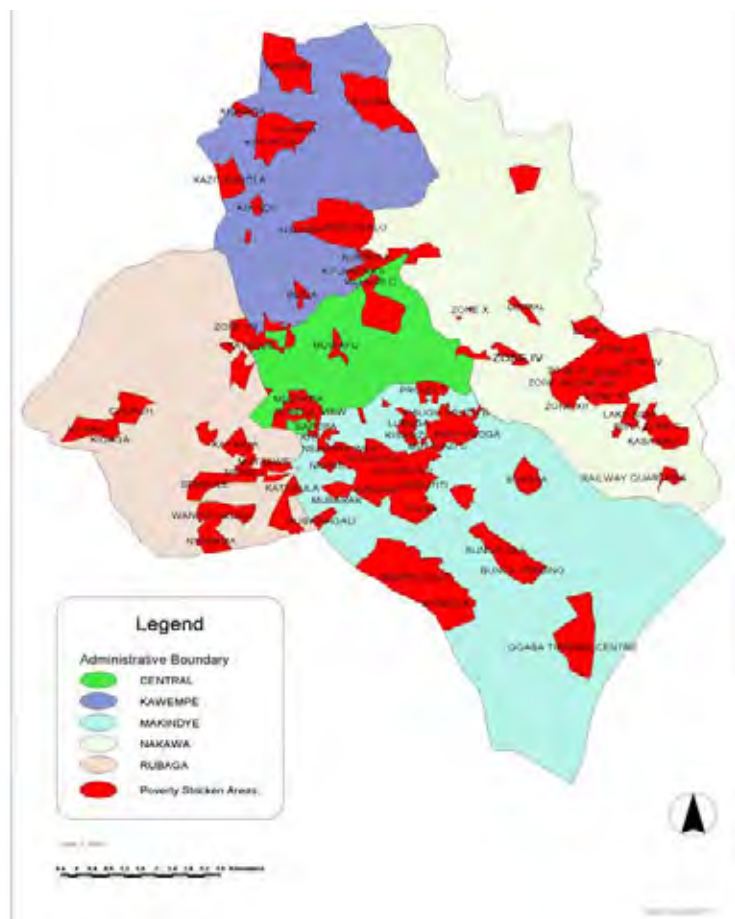
According to the 2009 Statistical Abstract by UBOS, population of Kampala City is estimated to be 1,533,600 while its built up area is 81.5 km<sup>2</sup>, and hence, the population density is 188.2 person/ha in the built up area. This is determined as the average density of densely inhabited area and low density area. The former consists of settlements of low income residents while the latter is situated on the hilly area in most cases.

5) Existence of Factories and Transport Facilities near the City Center

Formerly, industrial area and transport-related facilities were located along the railways. These facilities still exist along the railways near the central area even though railways are not functioning sufficiently. Moreover, road transport-related facilities are situated along Jinja Road. These facilities are not necessary to be near the city center or inside an urban area.

6) Spreading of Poverty Stricken Areas

Kampala City contributed to the National Population Statistics of those living in absolute poverty and the hard core poor, which is 38.9% and 5.7%, respectively, in 2000 (Background to the budget 2004/2005). Although poverty rate has improved considerably, it seems that poverty stricken areas have been spreading from Kampala City to its surroundings. Therefore, sustainable development at the city level requires full utilization, (participation) and development of human resources.



Source: Integrated three-year Rolled Development Plan 2009 – 2012, KCC

**Figure 2.4.4 Poverty Stricken Areas in Kampala**

### 2.4.3 BUSINESS AND INDUSTRIAL PARK DEVELOPMENT IN KAMPALA

The Uganda Investment Authority (UIA) is the leading government agency for investment promotion and facilitation for establishing business parks projects in Uganda. UIA is currently directly facilitating the following three industrial parks in GKMA:

**Luzira Industrial Park:** The park is located near the Port Bell. Its area is 26.3 ha. The park is already operational with 13 projects, consisting of one quality chemicals already operational, six which are still settling in, and another six which are in advanced stages of setting up their structures.

**Bweyogerer Industrial Park:** It is located in Wakiso District, 13 km east of Kampala. Its area is 20.2 ha. The park intended for light and clean businesses is in advanced stages of implementation with a major investor, Bweyogere Hospital, planning to begin its construction. The other seven investors meanwhile are finalizing their implementation plans.

**Kampala Industrial and Business Park (KIBP) at Namanve:** The park is located at the boarder of Wakiso and Mukono districts, approximately 14 km east of Kampala City Center along Jinja Road. The area of the park is 894 ha. The park is in the process of being allocated to investors.

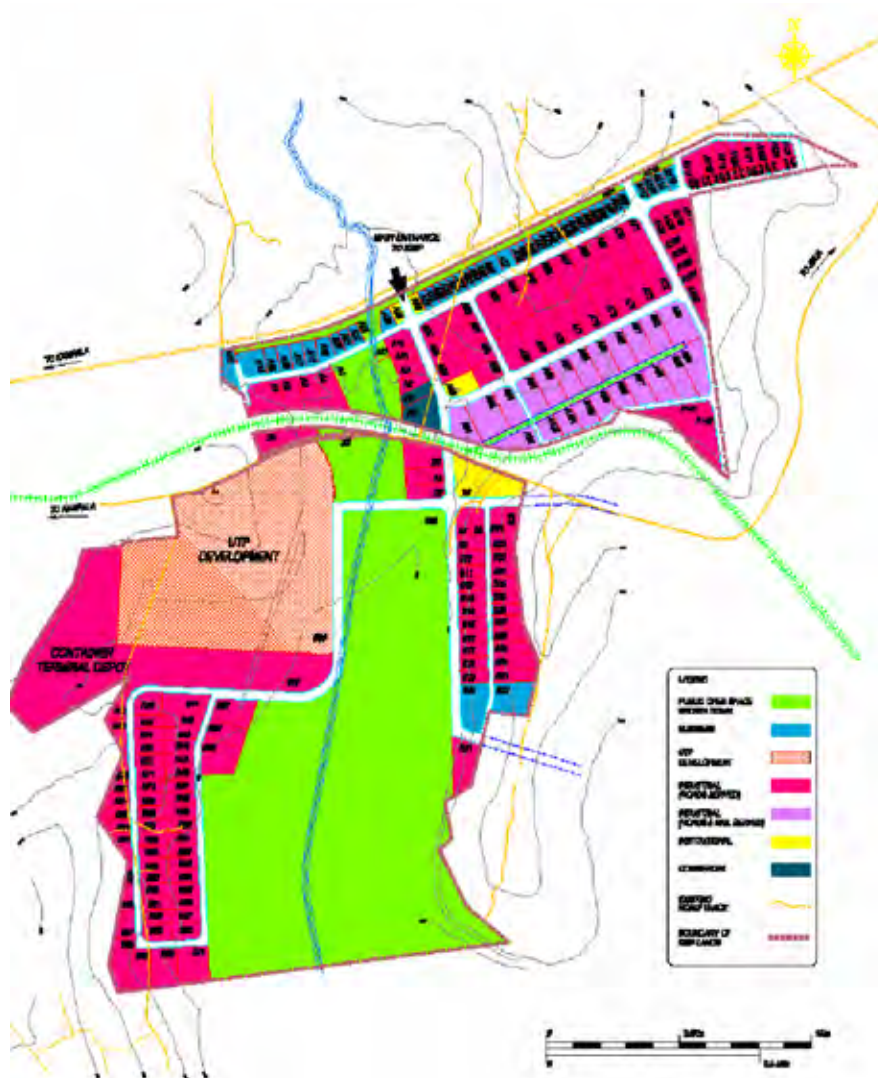
The development of KIBP aims at attracting foreign direct investment and fostering higher-value creation for the national economy. The project started from 1970. After some studies, the WB assisted the study for KIBP from 2003. After the invitation by UIA in 2006, 230 investors have been offered land in KIBP.

Its area is divided into the following zones:

- Industrial: 456 ha
- Residential 88 ha
- Business 27 ha
- Swamps and natural drainage area: approximately 190 ha

Infrastructure development for the first phase (419 ha) commenced in 2007.

The following figure is the zone map of KIBP.



Source: Consultative Study to support the implementation process for the development of the KIBP, 2006

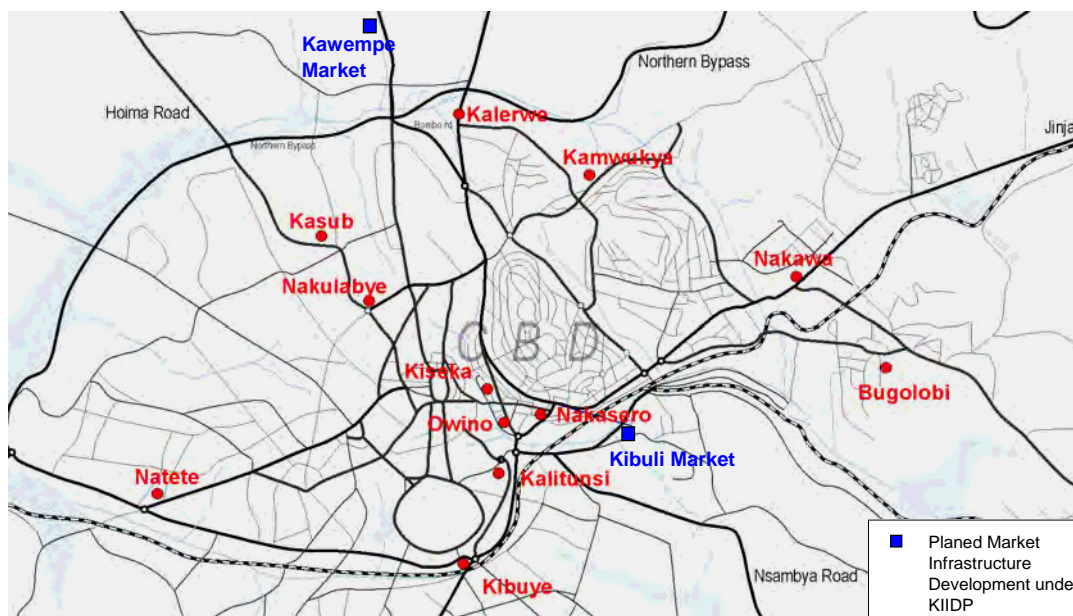
Figure 2.4.5 Zone Map of KIBP at Namanve



#### 2.4.4 MAJOR MARKETS

In this section, market is defined as an establishment which is open to general vendors and situated in the open field. KCC has provided the vendors with either owned land or borrowed land as their market place. Rent fees collected from the vendors become part of the revenue of KCC. The markets operated by KCC are as follows (Figure 2.4.6);

- |                    |                      |
|--------------------|----------------------|
| 1) Nakasero Market | 7) Kalitunsi Market  |
| 2) Owino Market    | 8) Nakawa Market     |
| 3) Kiseka Market   | 9) Kamwukya Market   |
| 4) Kalerwe Market  | 10) Kibuye Market    |
| 5) Bugolobi Market | 11) Kasubi Market    |
| 6) Natete Market   | 12) Nakulabye Market |



Source: The Study Team

**Figure 2.4.6 Major Markets in Kampala City and Planned Improvement under KIIDP**

These markets are situated at road junctions or nearby since many people are passing by. Markets attract not only commercial activities but also traffic movements. Thus, roads along the markets are congested by people and vehicles.

The WB intends to assist urban markets infrastructure development under KIIDP. The Kibuli and Kawempe markets have been selected as the first phase of implementation (Figure 2.4.6). Kibuli Market will be fully developed to a two-storey market block, including necessary infrastructure for water supply, sanitation, drainage, access roads, electricity, fencing, etc. Meanwhile, the developments for Kawempe Market have been phased. The first phase comprises of two numbers of two-storey market blocks, while the remaining two blocks will be developed in phase 2.

## 2.4.5 KEY ISSUES

The key issues of the land use are pointed out from viewpoint of the transport planning here.

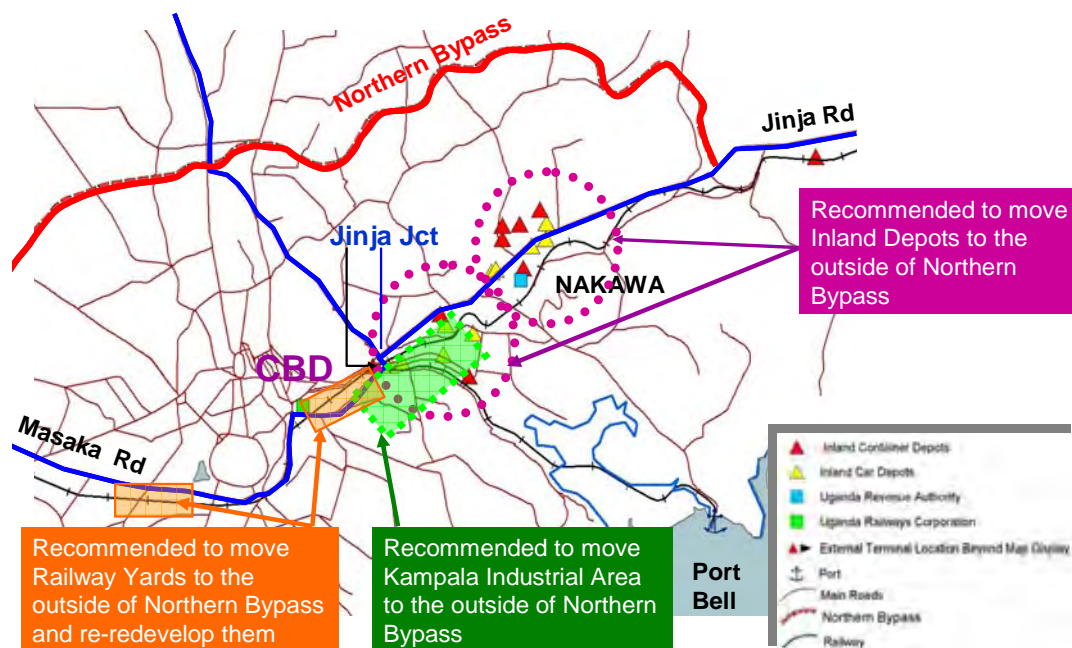
### 1) Continuous Sprawl Outside Kampala City

Interminable sprawl is proceeding into the adjoining districts (Wakiso and Mukono) of Kampala City along the major radial road corridors. This sparse land use is inefficient for the provision of urban infrastructure i.e. road, water, electricity and transport. To prevent disordered sprawl, the following measures are required:

- Necessity of comprehensive land use plan
- Land use control by enforcement of building regulations in the areas designated as an urban development control area
- Land redevelopment plans for the down towns and slum areas
- Establishment of administrative body, like a GKMA Authority, to control the land use of GKMA as a whole

### 2) Over Concentration in the Single City Center

Although negative influence by the overconcentration to the city center is pointed out repeatedly, no effective measures were implemented. Since the new installation of bulk of city functions has enormous costs, step-by-step measures are called for strongly in order to deal with the evidently increasing population. To this end, relocation of the factories and transport facilities is proposed as the first step to realize these measures. After the completion of comprehensive land use plan, restriction of buildings for industry and transport inside the urban central area is required. According to the population forecast by NTMP/GKMA, population of GKMA will nearly double in 2023. Proper allocation of the increasing population and dispersion of urban functions by the creation of sub urban centers are essential to solve the urban problems. This includes relocation of factories and transport facilities to outside of the urban central area.



Source: The Study Team based on NTMP/GKMA

**Figure 2.4.7 Recommended Relocation and Redevelopment of Transport and Industrial Facilities**

3) Development without conformity to the traffic demand

Only facilities which have vast lands are allocating sufficient parking lots. Most of the markets, shops and office buildings along the road have no parking space for their customers and employees. Provision of parking lots to serve the new development is highly important in commercial and business zones. With the provision of large parking facilities, roadside parking near the commercial and business areas shall be strictly prohibited.

- Enforcement of provision for parking lots at new development site
- Prohibition of illegal roadside parking and strictly limiting even the legal parking within the CBD / City Center by providing parking facilities



## CHAPTER 3 CURRENT SITUATION OF THE TRANSPORT SECTOR

### 3.1 OUTLINE OF THE TRANSPORT SECTOR

#### 3.1.1 OUTLINE OF NATIONAL TRANSPORT SYSTEM

##### (1) General

The national transport system of Uganda comprises of road, rail, air and inland water transport modes. Over 90% of cargo freight and passengers in Uganda move by road. The road accounts for 96.5% of the freight cargo whereas the rail accounts for only 3.5%. In nominal terms, roads carry an estimated 5,500 million ton-km per year compared to 200 million ton-km by rail, 0.03 million ton-km by air and negligible freight volume by water. As far as passenger traffic is concerned, road accounts for an average of 95%. In nominal terms, the road network carries 40,000 million passenger-km per annum as compared to 9 million passenger-km by air transport, and 6 million passenger-km by water and nil by rail<sup>1</sup>.

##### (2) Road Transport

The road network in Uganda is classified into national road, district road and urban road and community access road as shown in Table 3.1.1. MoWT is responsible for the national roads, while the district roads and urban roads are the responsibility of MoLG (District Local Government and Urban Council). However, with regard to the district, urban and community access roads<sup>2</sup>, MoWT is still responsible for the coordination, monitoring, setting standards for rehabilitation and maintenance and other assistance for maintenance in technical, administrative and financial aspects.

**Table 3.1.1 Administrative Classification of Roads**

Classification	Administration	Description
National Roads	National Government (MoWT / UNRA)	Main trunk roads of the nationwide road network, which are of particularly important effect in service of national or regional socio-economic development, defense and security, including: <ul style="list-style-type: none"> <li>- Roads linking Kampala with district headquarters;</li> <li>- Roads linking district headquarters of three or more districts; and</li> <li>- Roads linking important airports/ports with international border gates and main land border gates.</li> </ul>
District Roads	District Council	Trunk roads within one district including roads linking a district headquarter with sub-county centers or with adjacent district headquarters.
Urban Roads	City / Municipal Council	Roads/streets within the urban area of the city or the municipality to be designated as such.
Community Access Roads	Local Council III (LC III)	Roads linking the sub-county centers with parishes and villages, or roads linking parishes and villages together.

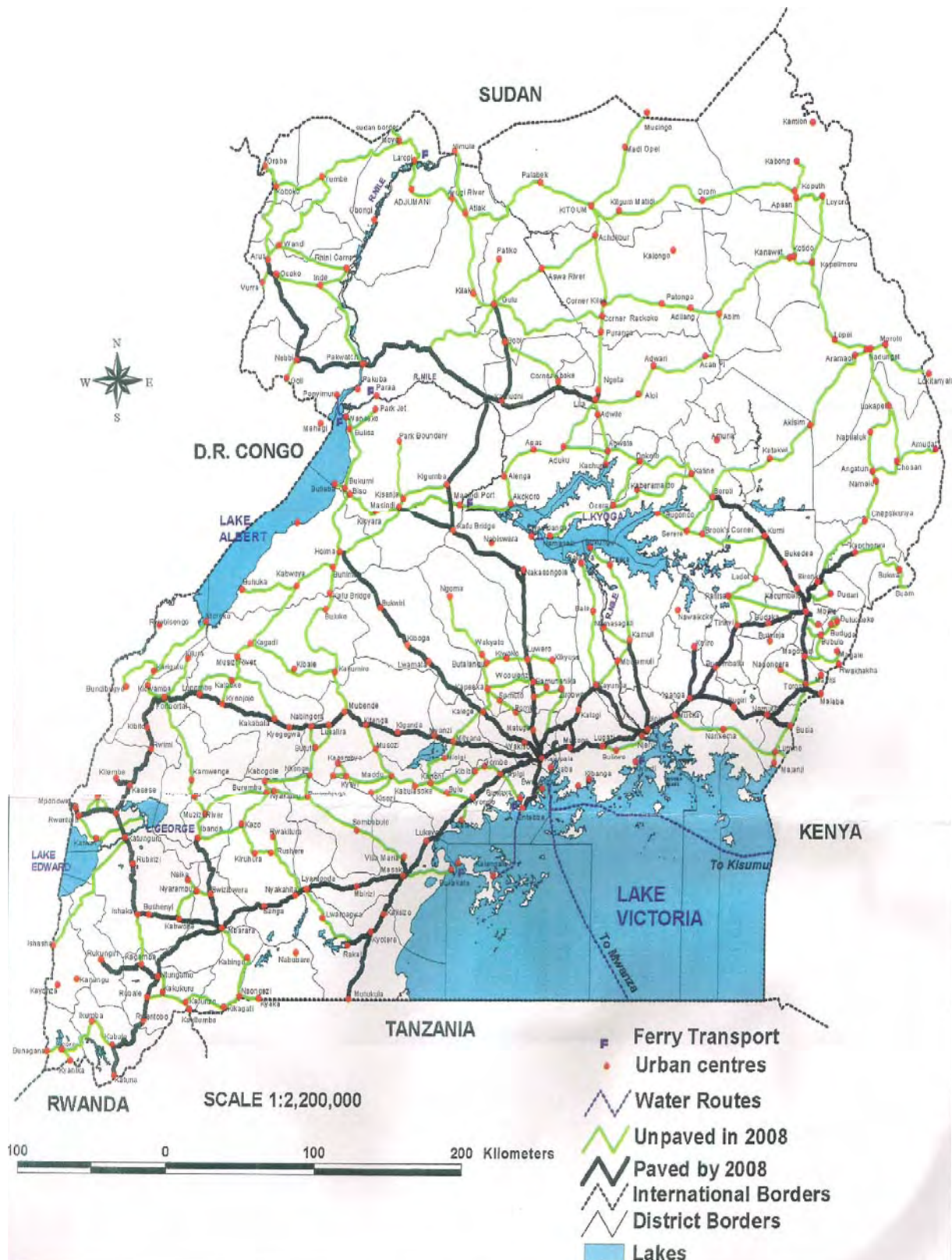
Source: Uganda Road Design Manual

Currently, Uganda's road network has a total length of 78,100 km, of which only 4% is paved (Figure 3.1.1). Of the total road network, 20,800 km is categorized as national roads in 2010<sup>3</sup>, 17,500 km are district roads, and the rest are urban roads (4,800 km) and community access roads (35,000 km). Compared with 1996, the national road length has almost doubled by re-classification of district roads to national roads. Dual carriageway accounts only for 25 km, located mostly in urban areas of Kampala and Jinja.

<sup>1</sup> National Development Plan (NDP), April 2010

<sup>2</sup> The District, Urban and Community Access Roads are collectively known as DUCAR.

<sup>3</sup> Approximately 10,000 km of district roads were transferred to national roads in 2009-2010.



Source: Final Report, NTMP/GKMA, May 2009

**Figure 3.1.1 National Road Network and Inland Waterway in Uganda**

The length of paved national roads increased from 2,200 km in 1996 to 3,098 km in 2008, but pavement ratio is still very low (16% in 2009). The UNRA has prepared an upgrading program for five years, 2008-2013, which targets expanding paved road to 4,100 km by mid-2013. Furthermore, paved road network will be expanded to 7,100 km by 2023 according to the upgrading program.

### (3) Air Transport

Air transport system in Uganda consists of 20 airports and airfields located throughout the country. The major part of these airfields are owned, managed and run by the Civil Aviation Authority of Uganda (CAA). Entebbe International Airport (EIA) is the main gateway to Uganda for passengers and cargo. It also serves as the domestic hub for the upcountry airfields.

Between 2004 and 2008 passenger traffic grew rapidly from 543,600 to 998,000, and cargo traffic from 48,500 to 59,700 tons at Entebbe International Airport as shown in Table 3.1.2. Nevertheless, domestic passengers accounted for only 2%. Number of passengers and volume of cargoes at Entebbe International Airport have been increasing as the international exchange of people and commodities becomes more active. International passengers almost doubled while unloaded cargoes increased to 150% during said four years. On the other hand, number of passengers taking domestic flights decreased to approximately half as compared to that five years ago.

**Table 3.1.2 Commercial Traffic at Entebbe International Airport, 2004 – 2008**

Mode of traffic		Unit	2004	2005	2006	2007	2008
Commercial aircraft movement		Number	16,692	17,253	19,200	22,000	23,847
Over flight at Entebbe		Number	3,816	n.a	n.a	n.a	n.a
Passengers	International						
	Landed	Number	237,869	274,307	252,432	396,079	470,397
	Embarked	Number	237,857	277,546	254,606	392,695	465,787
	In Transit	Number	24,509	33,107	35,692	35,988	38,681
	Domestic						
	Landed	Number	21,918	19,837	18,458	13,703	12,205
	Embarked	Number	21,437	19,087	17,692	12,196	10,867
Total		Number	543,590	623,884	578,880	850,661	997,937
Freight	Cargo						
	Unloaded	Ton	14,420	14,180	13,236	22,881	21,298
	Loaded	Ton	33,473	38,231	35,075	40,837	37,695
	Mail						
	Unloaded	Ton	486	516	463	511	520
	Loaded	Ton	135	150	113	110	166
Total		Ton	48,514	53,077	48,887	64,339	59,679

By 2009 Statistical Abstract

Source: Civil Aviation Authority

Arua, Gulu and Kasese airfields are the major domestic airports and handled approximately 94% of the annual domestic traffic volume. Pakuba airfield used to be one of the busiest airfields serving the northern district as well as Murchison Falls National Park, prior to the unrest that broke out in Gulu District. Soroti, Mbarara and Kisoro handled less than 150 passengers each during that year, while Masindi and Tororo handled none.

The lack of a national carrier for enhancing the national economy has affected the nature of Uganda's national air transport system. The competing neighboring airports, such as Nairobi, Dar es Salaam, Mombassa and Kilimanjaro, on the other hand, are benefiting from the existence of national carriers, and show steady growth.

#### (4) Waterways

At present, three types of waterway services are operated in Uganda, namely;

- Rail wagon ferry between Lake Victoria ports in Uganda, Kenya and Tanzania
- Short distance ferries for vehicles crossing rivers and lakes, acting as the “road bridge”
- Short-distance informal ferry services operated by private owners in canoes and small motor boats.

As for the wagon ferry, after one ferry sank in 2005, only a much limited service between Port Bell and Mwanza in Tanzania is now operating with a single wagon ferry. The Entebbe-Lutoboka (Bugala Island) Ferry owned by MoWT is operated by a private sector.

**Table 3.1.3 Ferry Service Operation on Lake Victoria (as of 2008)**

Name of the Ferry	Capacity	Operator	Modality of Operation
MV Umoja	22 wagons/1 million Lt	Marine Services of Tanzania Ltd	Regular
MV THO	297 thousand Lt	Kamanga Ferries Ltd.	Occasional
MV Orion	400 thousand Lt	Kamanga Ferries Ltd.	Occasional
MV Allez	400 thousand Lt	MOIL Ferries	Occasional
MT Harambe	N/A	MOIL Ferries	Occasional

Source: MoWT

Seven “road bridge” crossings are operated on Lake Victoria, Lake Albert and the Nile River. All the crossings are operated by UNRA except for the Nile River which is operated by Uganda Wildlife Authority. Infrastructures at ports such as berths and loaders are generally in poor condition and superannuated.

#### (5) Railways

Although formerly over 1,260 km railways was in operation in Uganda, only 320 km remained in operation in 2009. This includes Malaba - Kampala line (250 km), Tororo - Mbale (60 km) line and Port Bell - Kampala (6 km) line. The former Uganda Railways Cooperation (URC) had suffered serious operational and financial problems for many years. The freight cargo volume was 186 million ton-km in 2005 and declined to 128 million ton-km in 2007. Presently, most of the traffic volume flows on the main line from Malaba (Kenyan Boarder) to Kampala. The railway transport is expected to play an important role, carrying cargoes in bulk for long distances such as from Mombasa Port to Kampala, which is supposed to contribute for the cross-border interchange of the economy.

In 2006, long term concession was awarded to Rift Valley Railways Uganda Ltd (RVR) to operate the railways for 25 years, 2006-2032. The prime objectives of the concession are to achieve substantial improvements in maintenance, operating performance and traffic flows. However, the Kampala-Kasese Line, the Tororo-Packwach Line (beyond Mbale only) and the Busoga Loop have been closed.

Despite the various issues, the assets portfolio under URC remains strong, comprising significant prime land, mechanical workshops, goods and passenger shades and terminals located near the city center. These assets might catapult the rail transport to play a much more important role within the national and GKMA transport system. In GKMA, railways might have potentials in alleviating serious traffic congestions at corridors along the railways. However, no concrete policy and plan have been established yet.



### 3.1.2 BUDGET ALLOCATION AND EXPENDITURES FOR THE TRANSPORT SECTOR

#### (1) Central Government Fiscal Condition and Projections

The GOU prepared the national budget framework including the fiscal projection up to the fiscal year (FY) 2013/14 as shown in Table 3.1.3.

The actual fiscal condition of the central government is in a chronic deficit. The actual overall deficit is estimated to increase from US\$ 337.2 billion in FY 2005/06 to US\$ 1,277.6 billion in FY 2009/10, including grants. This tendency is projected to continue up to FY 2013 and resulting fiscal deficit could reach US\$ 2,753.9 billion.

**Table 3.1.4 Fiscal Framework FY 2005/6-2013/14**

ITEMS	2005/06 Outturn	2006/07 Outturn	2007/08 Outturn	2008/09 Approved Budget	2009/10 Approved Estimate	2010/11 Projection	2011/12 Projection	2012/3 Projection	2013/14 Projection
<b>REVENUE AND GRANTS</b>	<b>3,211.5</b>	<b>3,904.6</b>	<b>3,909.2</b>	<b>5,187.8</b>	<b>5,803.0</b>	<b>6,102.2</b>	<b>6,704.3</b>	<b>7,877.9</b>	<b>9,150.4</b>
<b>Revenue</b>	<b>2,313.9</b>	<b>2,710.6</b>	<b>3,246.8</b>	<b>3,954.6</b>	<b>4,546.4</b>	<b>5,197.9</b>	<b>6,123.1</b>	<b>7,276.9</b>	<b>8,536.3</b>
URA Revenue	2,230.9	2,615.2	3,161.1	3,850.7	4,474.0	5,134.0	6,049.5	7,184.9	8,436.3
Other Non Tax Revenue	83.0	95.4	85.7	103.9	72.4	63.9	73.6	92.0	100.0
<b>Grants</b>	<b>897.6</b>	<b>1,194.0</b>	<b>662.4</b>	<b>1,233.2</b>	<b>1,256.6</b>	<b>904.3</b>	<b>581.2</b>	<b>601.0</b>	<b>614.1</b>
Budget Support Grants	484.4	692.4	475.2	494.9	603.4	400.5	413.7	429.4	438.5
Project Support Grants	413.2	501.6	187.2	738.3	653.2	503.8	167.5	171.6	175.6
<b>EXPENDITURE</b>	<b>3,548.7</b>	<b>4,289.1</b>	<b>4,382.8</b>	<b>6,129.8</b>	<b>7,080.6</b>	<b>7,742.7</b>	<b>8,885.9</b>	<b>10,452.0</b>	<b>11,904.3</b>
<b>Recurrent Expenditure</b>	<b>2,231.6</b>	<b>2,404.3</b>	<b>2,881.3</b>	<b>3,149.0</b>	<b>3,583.1</b>	<b>3,793.7</b>	<b>4,393.1</b>	<b>5,114.3</b>	<b>5,920.9</b>
Wages & Salaries	866.5	985.9	1,106.1	1,200.9	1,307.0	1,447.9	1,665.0	1,914.8	2,202.0
Non Wage	895.9	1,048.0	1,301.1	1,360.2	1,605.3	1,617.1	2,007.3	2,408.8	2,855.1
Statutory	221.3	157.4	164.7	208.8	302.6	383.5	390.3	429.9	515.8
Interest Payments	247.9	213.0	309.4	379.1	368.2	345.2	330.5	360.8	348.0
External	63.7	38.0	38.0	53.3	46.1	63.1	72.8	71.3	80.4
Domestic	184.2	175.0	271.4	325.8	305.1	272.4	259.2	280.4	280.4
<b>Development Expenditure</b>	<b>1,255.9</b>	<b>1,690.1</b>	<b>1,380.3</b>	<b>2,718.1</b>	<b>3,461.3</b>	<b>3,937.9</b>	<b>4,481.7</b>	<b>5,322.1</b>	<b>5,967.8</b>
Donor Projects	737.4	969.1	642.7	1,333.6	1,698.1	1,884.1	1,323.4	1,355.7	1,387.0
Domestic	518.5	721.0	737.6	1,384.5	1,763.2	2,053.8	3,158.3	3,966.4	4,580.8
<b>Net Lending and Investment (Repayments)</b>	<b>-29.3</b>	<b>45.8</b>	<b>-162.9</b>	<b>-39.9</b>	<b>-39.9</b>	<b>-38.9</b>	<b>-38.9</b>	<b>-34.4</b>	<b>-34.4</b>
<b>Domestic Arrears Repayments</b>	<b>90.5</b>	<b>148.9</b>	<b>284.1</b>	<b>302.6</b>	<b>76.1</b>	<b>50.0</b>	<b>50.0</b>	<b>50.0</b>	<b>50.0</b>
<b>OVERALL DEFICIT</b>									
<b>Including Grants</b>	<b>-337.2</b>	<b>-384.5</b>	<b>-473.6</b>	<b>-942.0</b>	<b>-1,277.6</b>	<b>-1,640.5</b>	<b>-2,181.6</b>	<b>-2,574.1</b>	<b>-2,753.9</b>
<b>Excluding Grants</b>	<b>-1,234.8</b>	<b>-1,578.5</b>	<b>-1,136.0</b>	<b>-2,175.2</b>	<b>-2,534.2</b>	<b>-2,544.8</b>	<b>-2,762.8</b>	<b>-3,175.1</b>	<b>-3,368.0</b>
<b>FINANCING</b>	<b>337.2</b>	<b>384.5</b>	<b>473.6</b>	<b>942.0</b>	<b>1,277.8</b>	<b>1,640.6</b>	<b>2,181.6</b>	<b>2,573.9</b>	<b>2,753.9</b>
<b>External Financing (Net)</b>	<b>263.7</b>	<b>703.0</b>	<b>381.1</b>	<b>646.1</b>	<b>1,063.9</b>	<b>1,453.3</b>	<b>1,229.7</b>	<b>1,238.4</b>	<b>1,270.8</b>
Loans (Disbursement)	466.2	861.6	498.9	773.3	1,274.2	1,618.3	1,400.0	1,434.0	1,467.2
Budget Support Loans	76.3	394.1	4.1	178.0	229.3	238.0	244.1	250.0	255.8
Project Support Loans	389.9	467.5	494.8	595.3	1,044.9	1,380.3	1,155.9	1,184.0	1,211.4
Amortization	-155.7	-113.9	-86.7	-78.3	-140.9	-144.1	-158.2	-182.2	-192.2
Exceptional Financing	-41.3	-39.0	-22.7	-33.3	-37.5	-9.8	-12.1	-13.4	-4.2
<b>External Arrears Repayment</b>	<b>-5.5</b>	<b>-5.7</b>	<b>-8.4</b>	<b>-15.6</b>	<b>-31.9</b>	<b>-11.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Domestic Financing (Net)</b>	<b>68.1</b>	<b>-357.9</b>	<b>-114.5</b>	<b>295.8</b>	<b>213.9</b>	<b>187.3</b>	<b>951.9</b>	<b>1,335.5</b>	<b>1,483.1</b>
Errors and Omissions	5.4	39.4	207.0	0.1					
<b>Fiscal Deficit as % of GDP</b>									
Incl. Grants	-1.9%	-1.5%	-1.9%	-3.5%	-3.9%	-4.5%	-5.2%	-5.3%	-5.0%
Excl. Grants	-7.2%	-8.0%	-4.6%	-8.0%	-7.5%	-6.8%	-6.5%	-6.5%	-6.0%
Domestic Revenue as % of GDP	13.4%	13.5%	13.1%	14.1%	12.9%	13.4%	13.9%	14.4%	14.9%
Tax Revenue as % of GDP	12.9%	13.1%	12.8%	13.8%	12.7%	13.2%	13.7%	14.2%	14.7%
Expenditure % of GDP	20.6%	21.5%	17.6%	22.0%	20.2%	20.0%	20.2%	20.7%	20.8%

Approved Estimates of Revenue and Expenditure (Recurrent and Development)

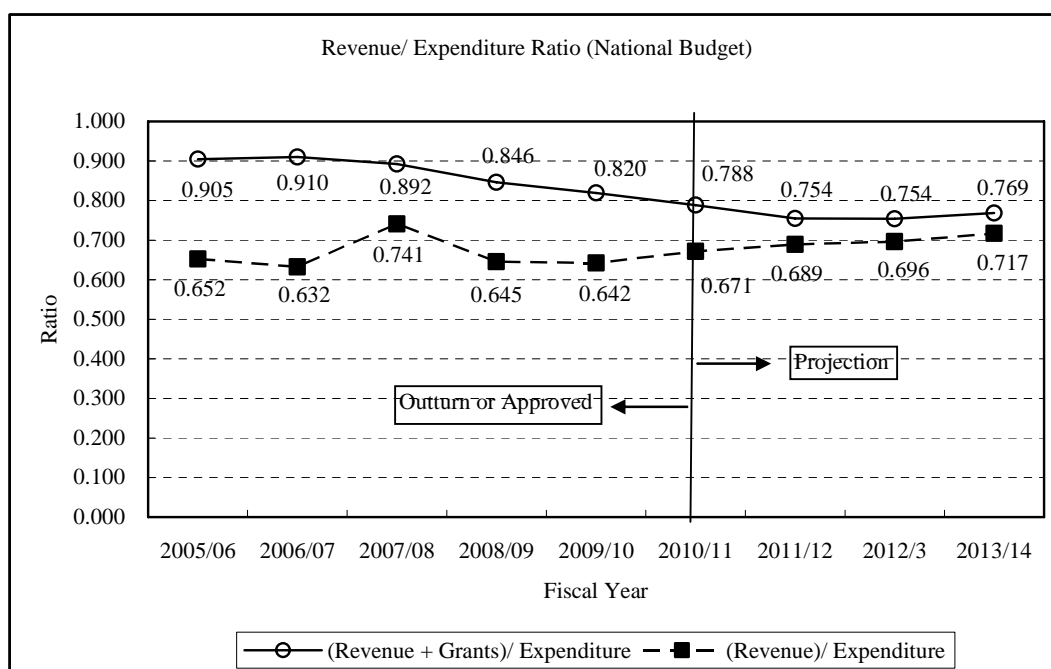
FY 2009/10, Volume I: Central Government Votes

For the Year Ending on the 30th June 2010

Ministry of Finance, Planning and Economic Development (MoFPED)

Source: Ministry of Finance, Planning and Economic Development

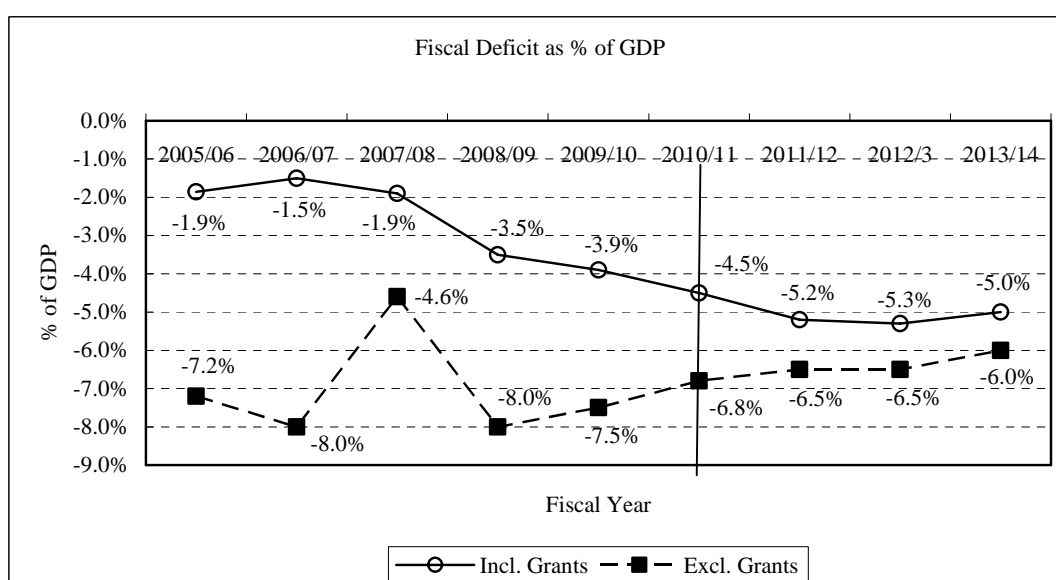
The government's revenues can cover only the portion of 80% to 90% of the expenditure even if the grants are considered. At present, revenue/ expenditure ratios excluding grants are around 0.6 to 0.7. The government intends to reduce the portion of grants in the future and to maintain the ratio at 0.72 in FY 2013/14, as shown in the figure below.



Source: As shown in Table 3.1.4

**Figure 3.1.2 Revenue/ Expenditure Ratio (National Budget)**

The fiscal deficit including grants as percent of GDP showed the minimum level in 2006/07 at -1.5%, and then worsened afterward with -3.9% in FY 2009/10. The government projected that this rate will be maintained to around a level of -5.0% for the period FY 2010/11 to 2013/14.



Source: As shown in Table 2.3.5

**Figure 3.1.3 Fiscal Deficit as % of GDP**

## (2) Budget Allocation for Transport Sector and Projections

According to the transport sector budget FY 2009/10 and the National Budget Framework of FY 2009/10 to FY 2013/14, actual budget allocation from FY 2008/09 to FY 2010/11 is as shown below. The transport sector (works and transport) has allocated budgets amounting to US\$1,084 billion in FY 2008/09, US\$1,134 billion in 2009/10 and US\$1,409 billion in FY 2010/11. These amounts represent 18.5%, 16.4% and 18.4% of total GOU expenditures respectively, the highest percentage share among the all sectors.

**Table 3.1.5 Sectoral Budget Allocations for FY 2008/09-FY 2010/11 (US\$ Billion)**

No.	SECTOR	Actual Budget Allocation (Shs. Billion)			Percentage Share of Total Budget		
		2008/09 Budget	2009/10 Budget	2010/11 Budget	2008/09 Budget	2009/10 Budget	2010/11 Budget
1	Security	477.2	477.9	504.3	8.1%	6.9%	6.6%
2	Works and Transport	1,083.7	1,133.7	1,409.1	18.5%	16.4%	18.4%
3	Agriculture	223.2	328.2	374.2	3.8%	4.7%	4.9%
4	Education	899.3	1,061.1	1,055.2	15.4%	15.3%	13.8%
5	Health	628.5	723.6	784.4	10.7%	10.5%	10.3%
6	Water and Environment	150.3	163.6	148.0	2.6%	2.4%	1.9%
7	Justice/ Law and Order	280.4	350.8	368.6	4.8%	5.1%	4.8%
8	Accountability	417.6	401.0	430.1	7.1%	5.8%	5.6%
9	Energy and Mineral Development	461.2	698.9	785.9	7.9%	10.1%	10.3%
10	Tourism, Trade and Industry	31.0	63.0	97.6	0.5%	0.9%	1.3%
11	Lands, Housing and Urban Development	12.3	20.3	53.0	0.2%	0.3%	0.7%
12	Social Development	24.1	31.1	45.3	0.4%	0.4%	0.6%
13	ICT	6.5	9.5	9.5	0.1%	0.1%	0.1%
14	Public Sector Management	535.3	698.2	779.6	9.1%	10.1%	10.2%
15	Public Administration	136.3	215.2	281.9	2.3%	3.1%	3.7%
16	Legislature	112.6	122.0	121.3	1.9%	1.8%	1.6%
17	Interest Payment Due	379.1	363.7	345.2	6.5%	5.3%	4.5%
18	Unallocated	0.0	54.0	54.0	0.0%	0.8%	0.7%
	<b>GRAND TOTAL</b>	<b>5,858.6</b>	<b>6,915.8</b>	<b>7,647.2</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: Background to the Budget 2009/10, Ministry of Finance, Planning and Economic Development, June 2009

## (3) Shares of Budget of Road Sub-Sector and Other Transport Modes

The above budget allocations for the transport sector are not classified into each transport mode. Estimation was made based on the budget data of MoWT and the budget allocations to road sub-sector as shown below:

The road sub-sector will be allocated with a budget of 80%-90% of the total budget of the transport sector.

**Table 3.1.6 Budget Allocations to Sub-Sectors in the Transport Sector (US\$ Billion)**

Sub-Sector	FY 2008/09	FY 2009/10	FY 2010/11
Road	935.8	1,006.77	1,308.28
Other Modes	147.91	126.94	100.85
Total of Transport	1,083.71	1,133.71	1,409.13

Source: Ministry of Finance, Planning and Economic Development

### 3.1.3 BUDGET ALLOCATION AND EXPENDITURES FOR THE ROAD SECTOR

#### (1) National Budget for Road Sector

The detailed budget allocations to the road sector are presented in the Medium Term Expenditure Framework prepared by the GOU and as shown in Table 3.1.6.

**Table 3.1.7 Medium Term Expenditure Framework for Works and Transport Sector, 2008/09-2013/14 (US\$ Billion)**

Works and Transport	FY2008/09 Approved Budget					
	Wage	Non-Wage Recurrent	Domestic Dev't	Donor Project	Total excl. Donor Project	Total incl. Donor Project
<b>Ministry of Works and Transport (MOWT)</b>	3.66	39.65	62.17	42.43	105.48	147.91
<b>Uganda National Road Authority (UNRA)</b>	13.50	139.22	411.26	304.64	563.98	868.62
-National Roads Maintenance & Construction	0.00	135.39	320.26	0.00	455.65	455.65
Trunk Road Maintenance		135.39			135.39	135.39
Transport Corridor Project			320.26		320.26	320.26
<b>Local Government</b>		67.18			67.18	67.18
- District, Urban and Community Access Roads		67.18			67.18	67.18
<b>Sub-Total Works and Transport</b>	<b>17.16</b>	<b>246.05</b>	<b>473.43</b>	<b>347.07</b>	<b>736.64</b>	<b>1,083.71</b>
Works and Transport	FY2009/10 Budget Estimates					
	Wage	Non-Wage Recurrent	Domestic Dev't	Donor Project	Total excl. Donor Project	Total incl. Donor Project
<b>Ministry of Works and Transport (MOWT)</b>	3.66	12.65	79.05	31.58	95.36	126.94
<b>Uganda National Road Authority (UNRA)</b>	23.50	139.22	401.26	327.63	563.98	891.61
-National Roads Maintenance & Construction	0.00	135.39	320.26	0.00	455.65	455.65
Trunk Road Maintenance		135.39			135.39	135.39
Transport Corridor Project			320.26		320.26	320.26
<b>Local Government</b>		97.18	17.98		115.16	115.16
- District, Urban and Community Access Roads		97.18	17.98		115.16	115.16
<b>Sub-Total Works and Transport</b>	<b>27.16</b>	<b>249.05</b>	<b>498.29</b>	<b>359.21</b>	<b>774.50</b>	<b>1,133.71</b>
Works and Transport	FY2010/11 Budget Projection					
	Wage	Non-Wage Recurrent	Domestic Dev't	Donor Project	Total excl. Donor Project	Total incl. Donor Project
<b>Ministry of Works and Transport (MOWT)</b>	3.84	12.65	79.05	5.31	95.54	100.85
<b>Uganda National Road Authority (UNRA)</b>	24.68	139.22	496.24	532.98	660.14	1,193.12
-National Roads Maintenance & Construction	0.00	135.39	415.24	0.00	550.63	550.63
Trunk Road Maintenance		135.39			135.39	135.39
Transport Corridor Project			415.24		415.24	415.24
<b>Local Government</b>		97.18	17.98		115.16	115.16
- District, Urban and Community Access Roads		97.18	17.98		115.16	115.16
<b>Sub-Total Works and Transport</b>	<b>28.52</b>	<b>249.05</b>	<b>593.27</b>	<b>538.29</b>	<b>870.84</b>	<b>1,409.13</b>
Works and Transport	FY2011/12 Budget Projections					
	Wage	Non-Wage Recurrent	Domestic Dev't	Donor Project	Total excl. Donor Project	Total incl. Donor Project
<b>Ministry of Works and Transport (MOWT)</b>	4.42	15.18	98.81	5.44	118.41	123.85
<b>Uganda National Road Authority (UNRA)</b>	28.38	167.06	101.25	394.03	296.69	690.72
-National Roads Maintenance & Construction	0.00	162.47	0.00	0.00	162.47	162.47
Trunk Road Maintenance		162.47			162.47	162.47
Transport Corridor Project					0.00	0.00
<b>Local Government</b>	0.00	116.63	22.48	0.00	139.11	139.11
- District, Urban and Community Access Roads		116.63	22.48		139.11	139.11
<b>Sub-Total Works and Transport</b>	<b>32.80</b>	<b>298.87</b>	<b>222.54</b>	<b>399.47</b>	<b>554.21</b>	<b>953.68</b>
Works and Transport	FY2012/13 Budget Projection					
	Wage	Non-Wage Recurrent	Domestic Dev't	Donor Project	Total excl. Donor Project	Total incl. Donor Project
<b>Ministry of Works and Transport (MOWT)</b>	5.08	18.22	128.45	5.70	151.75	157.45
<b>Uganda National Road Authority (UNRA)</b>	32.63	200.48	131.63	402.16	364.74	766.90
-National Roads Maintenance & Construction	0.00	194.97	0.00	0.00	194.97	194.97
Trunk Road Maintenance		194.97			194.97	194.97
Transport Corridor Project					0.00	0.00
<b>Local Government</b>	0.00	139.95	29.22	0.00	169.17	169.17
- District, Urban and Community Access Roads		139.95	29.22		169.17	169.17
<b>Sub-Total Works and Transport</b>	<b>37.71</b>	<b>358.65</b>	<b>289.30</b>	<b>407.86</b>	<b>685.66</b>	<b>1,093.52</b>
Works and Transport	FY2013/14 Budget Projections					
	Wage	Non-Wage Recurrent	Domestic Dev't	Donor Project	Total excl. Donor Project	Total incl. Donor Project
<b>Ministry of Works and Transport (MOWT)</b>	5.84	21.87	173.41	5.70	201.12	206.82
<b>Uganda National Road Authority (UNRA)</b>	37.53	240.57	177.70	412.97	455.80	868.77
-National Roads Maintenance & Construction	0.00	233.96	0.00	0.00	233.96	233.96
Trunk Road Maintenance		233.96			233.96	233.96
Transport Corridor Project					0.00	0.00
<b>Local Government</b>	0.00	167.94	39.44	0.00	207.38	207.38
- District, Urban and Community Access Roads		167.94	39.44		207.38	207.38
<b>Sub-Total Works and Transport</b>	<b>43.37</b>	<b>430.38</b>	<b>390.55</b>	<b>418.67</b>	<b>864.30</b>	<b>1,282.97</b>

Source: Background to the Budget 2009/10, Ministry of Finance, Planning and Economic Development, June 2009

The budget allocations to the road sub-sector are summarized in the table below. The UNRA, is the responsible government agency for the construction and maintenance of national roads, will be allocated with the highest portion of the road sector budget. At the same time, about US\$ 67 billion is allocated to the district and urban road maintenance (7.1%) in FY 2008/09. This will be increased to US\$ 207 billion (19%) in 2013/14, which is three times of FY 2008/09 budget.

**Table 3.1.8 Summary of Medium Term Expenditure Framework**

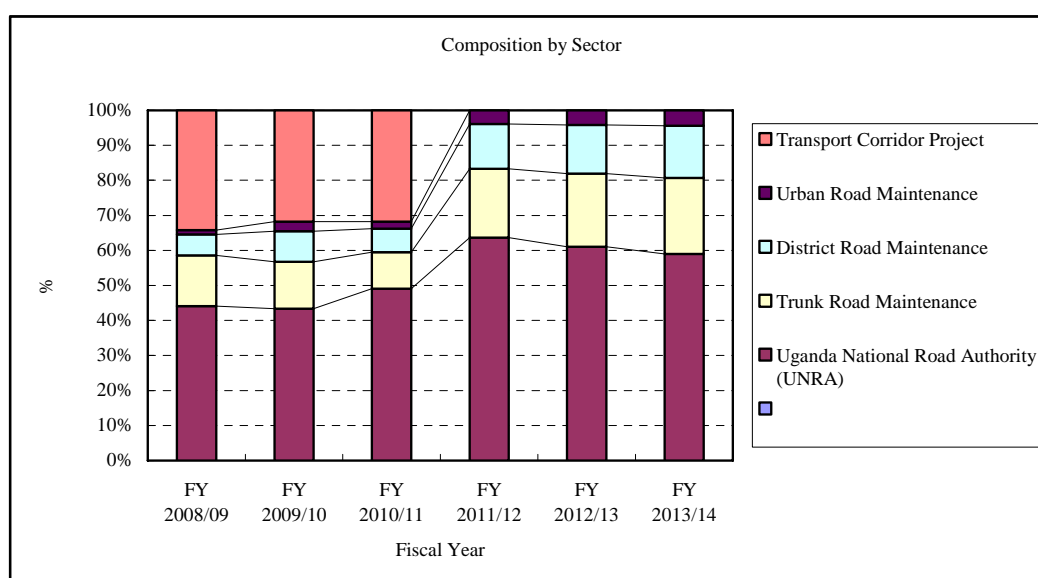
VOTE Road Sub-Sector		Total Budget incl. Donor Project (Shs. Billion)					
		FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14
113	Uganda National Road Authority (UNRA)	412.97	435.96	642.49	528.25	571.93	634.81
113	Trunk Road Maintenance	135.39	135.39	135.39	162.47	194.97	233.96
501-850	District Road Maintenance	55.63	88.16	88.16	106.63	130.02	160.05
501-850	Urban Road Maintenance	11.55	27.00	27.00	32.48	39.15	47.33
113	Transport Corridor Project	320.26	320.26	415.24	0.00	0.00	0.00
<b>Total of Road Sub-Sector</b>		<b>935.80</b>	<b>1,006.77</b>	<b>1,308.28</b>	<b>829.83</b>	<b>936.07</b>	<b>1,076.15</b>

Source: As shown in Table 3.1.7

**Table 3.1.9 Composition Rate % by Type of Work**

Composition Rate %	FY 2008/09	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14
113 Uganda National Road Authority (UNRA)	44.1%	43.3%	49.1%	63.7%	61.1%	59.0%
113 Trunk Road Maintenance	14.5%	13.4%	10.3%	19.6%	20.8%	21.7%
501-850 District Road Maintenance	5.9%	8.8%	6.7%	12.8%	13.9%	14.9%
501-850 Urban Road Maintenance	1.2%	2.7%	2.1%	3.9%	4.2%	4.4%
113 Transport Corridor Project	34.2%	31.8%	31.7%	0.0%	0.0%	0.0%
<b>Total of Road Sub-Sector</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: As shown in Table 3.1.7



Source: As shown in Table 3.1.7

**Figure 3.1.4 Composition of Budget Allocations for Road Sector**

Regarding the road sub-sector, the total budget allocation will be increased with 2.8% of annual growth rate from FY 2008 to FY 2013 (15% increase compared to FY 2008) of which the allocation to UNRA will be increased at 9.0% of average annual rate. The Transport Corridor Project is scheduled to be completed in FY 2010. For the maintenance budget, Trunk Roads are planned to be allocated 1.73 times of budget (233.96/135.39) by FY 2013 compared to FY 2008, District roads 2.88 times (160.05/55.63) and Urban Roads 4.1 times of budget (47.33/11.55).

### 3.1.4 ORGANIZATIONS FOR TRANSPORT SECTOR ADMINISTRATION

#### (1) Ministry of Works and Transport (MoWT)

Present organization and mandate of MoWT was established in the late 2006, when the government ministries and agency were reorganized, and when the housing and communication sections were separated from the former organization, Ministry of Works, Housing and Communication (MoWHC).

The mandate of MoWT is stipulated as:

- i) Plan, develop and maintain an economic, efficient and effective transport infrastructure;
- ii) Plan, develop and maintain an economic, efficient and effective transport services by road, rail, water and air;
- iii) Manage public works including government structures; and
- iv) Promote standards in the construction industry.

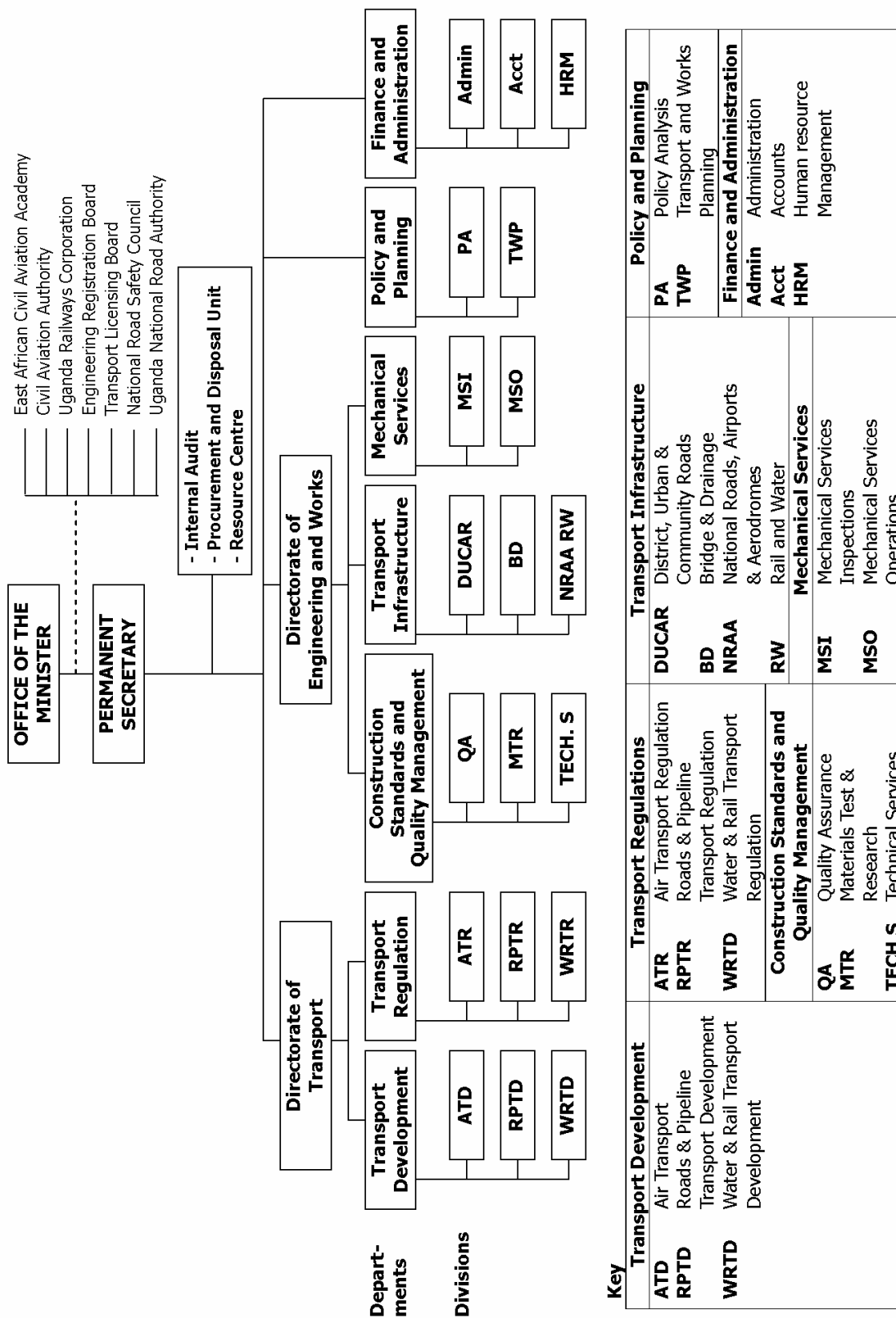
The strategic objective of MoWT is recounted in the Ministerial Budget Policy Statement in FY 2008/2009 as follows:

- i) Develop policy, set standards, regulate and ensure compliance and monitor transport infrastructure and services and public buildings to meet the needs of users and promote social and economic development;
- ii) Plan, design and ensure construction and maintenance of well-coordinated and efficient transport infrastructure and buildings which meet the needs of users and promote social and economic development;
- iii) Develop the capacity of the national construction industry;
- iv) Ensure safe and environmentally friendly transport services and physical infrastructure;
- v) Ensure the mainstreaming of cross-cutting issues namely; environment, HIV/AIDS, gender and occupational health and safety (OHS) into the policies, programs and activities of the sector.

Since MoWT manages the principal transport in Uganda, organization of MoWT is divided into road, air, pipelines and railways at division level.

After the establishment of UNRA and subsequent transfer of development work and maintenance work for national road to UNRA, mandate for MoWT concerning the national road is 1) finance, administration and planning, 2) formulation of regulation and 3) monitoring.

MoWT is also responsible for the district roads, urban roads and community access roads with regard to macro-planning, coordination, monitoring, setting standards for rehabilitation and maintenance and other assistance for maintenance in the technical, administrative and financial aspects. A comprehensive ten-year investment plan for district, urban and community roads, which is identified by the acronym DUCARIP, was prepared by MoWT in March 2008.



Source: MoWT

Figure 3.1.5 Organization Chart of MoWT

## (2) Uganda National Road Authority (UNRA)

The UNRA was established through an Act of Parliament in 2006 as one of the products of the road sector reforms. It was reorganized from its former organization, the Road Agency Formulation Unit (RAFU), and became fully operational on 1<sup>st</sup> July 2008.

MoWT is the parent ministry for the transport sector. Its role is policy formulation, regulation, setting standards, strategic planning, monitoring and evaluation. These activities have a direct impact on UNRA's planning and implementation of programmed activities. Meanwhile, MoFPED is responsible for the disbursement of GOU funding for road maintenance and development. However, starting from January 2010, road maintenance funds will be disbursed through the Uganda Road Fund (URF).

UNRA's vision is to operate a safe, efficient and well developed national roads network. Its mission is to develop and maintain a national roads network that is responsive to the economic development needs of Uganda, to the safety of all road users and to the environmental sustainability of the national roads corridors.

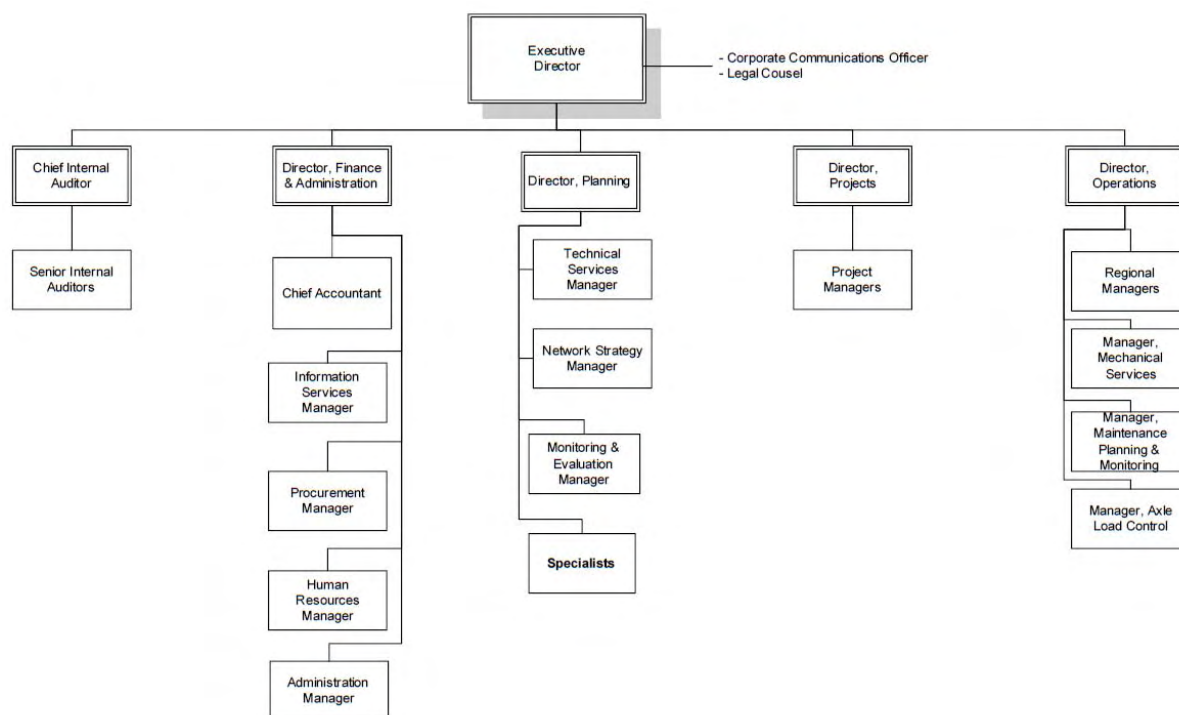
In pursuit of its mission, UNRA has the following strategic objectives:

- To ensure all year round safe and efficient movement of people and goods on the national roads network
- To enhance road safety through improved design and education of the users
- To optimize the quality, timeliness and cost effectiveness of the road works interventions
- To improve the private sector participation in service delivery
- To attract, develop and retain a quality team
- To use innovative and creative techniques and strategies for optimizing the performance of the road system.

UNRA operates under an organizational structure as approved by the board in 2008 (Figure 3.1.5). UNRA is headed by an executive director appointed by MoWT. In the UNRA organizational structure, there are five directorates, each headed by a director who reports to the executive director. The directorates are: i) Planning, ii) Projects, iii) Operations, iv) Finance and Administration, and v) Internal Audit.

Presently (2008), UNRA's staffing position stands at 916 employees of which 296 are professionals, 456 are technicians and 254 are support staff. The staff is distributed between the headquarters (16%) and outfield stations (84%).





Source: Business Plan 2009/10, UNRA

**Figure 3.1.6 Organization Chart of UNRA**

### (3) Kampala City Council (KCC)

KCC is administrating a total area of 195 km<sup>2</sup> of which 86.7% is land. Its administrative area is divided into five divisions, 99 parishes and 802 villages. The following table shows the administrative units with their land areas.

**Table 3.1.10 Administrative Area of Kampala City**

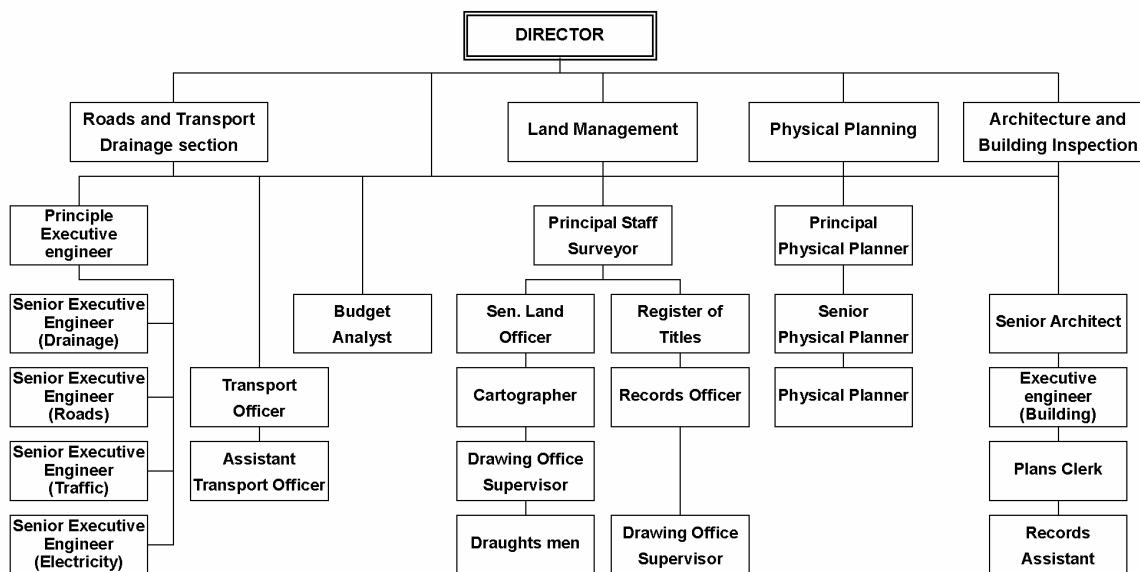
Divisions	Parishes	Villages	Land Area km <sup>2</sup>
Central	20	138	14.6
Kawemne	22	122	31.5
Makindye	21	132	40.6
Nakawa	23	279	42.5
Rubaga	13	131	33.8
Total	99	802	169.0

Source: KCC

As for the road sector, KCC at present administers a total of 1,030 km of which 330 km (32%) are tarmac (paved). The remaining 700 km (68) % are either gravel (unpaved) or earth roads<sup>4</sup>. The road maintenance for these roads is carried out through the district offices. In addition, there is approximately 75 km of road network which is under the responsibility of MoWT (or UNRA).

The following figure shows the organization chart of the Directorate of Works and Urban Planning of KCC, responsible for the road planning, implementation and maintenance.

<sup>4</sup> Source: Kampala City Council Three-Year Integrated Development Plan 2009/2010 – 2011/2012.



Source: KCC

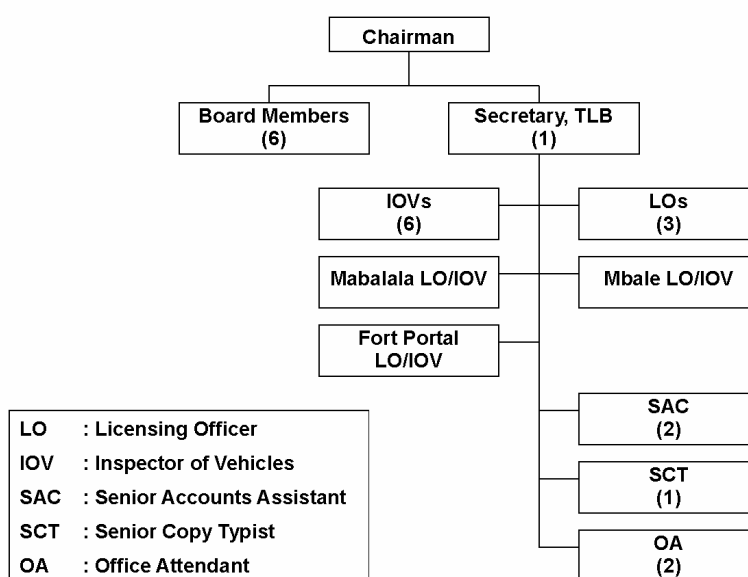
**Figure 3.1.7 Organization Chart of Directorate of Works and Urban Planning, KCC**

#### (4) Other Organizations relating Transport Sector

##### 1) Traffic Licensing Board (TLB)

TLB is the authority that issues license to public service vehicles (PSV) and commercial trucks under the Traffic and Safety (Public Service Vehicles) Regulations (1971). In order to get license, PSV operator is required to submit an application to TLB and its vehicles are inspected by TLB inspectors based on the regulation. Since the regulation was enacted in 1971, the TLB licensing classification for the Kampala minibuses are covered under public omnibus and not among the taxi classifications. However, TLB is facing the shortage of personnel and only limited activities are carried out.

The total number of licenses given by TLB to buses and minibuses was 12,035 in 2004 and 12,465 in 2007, according to NTMP in 2005 and 2006 respectively. These numbers do not reflect the recent increase of PSV because of incomplete statistics.



Note: Number in parenthesis is number of personnel

**Figure 3.1 8 Organization Chart of TLB**

2) Uganda Railways Corporation (URC)

After the concession of the Uganda railway freight services in November 2006, the roles of URC are limited to monitoring the railway concession and providing technical support to the government on matters concerning railways. URC is now responsible for the custody and maintenance of the non-conceded railway assets, and conceded assets that are not taken over by the concessionaire, RVR.

The closed railway lines are the Kampala-Kasese Line, the Tororo-Packwach Line (beyond Mbale only) and the Busoga Loop. These railway lines are conceded but are not yet taken over by the concessionaire for their operations. URC is still responsible for their custody and maintenance.

3) Uganda Taxi Operators and Drivers Association (UTODA)

UTODA is an association of taxi operators and drivers in Uganda. In Kampala, UTODA controls and influences operation of some 7,000 taxis in various ways, such as obtaining a fee-based franchise contract with the KCC. UTODA manages the two main GKMA minibus terminals. The franchise contract is a fixed-term and renewal is theoretically subject to a public competitive tendering process. In reality, as few viable competitors with proven resources and experience exist. UTODA also has a very dominant market position.

UTODA supports taxi operators and drivers by implementing regular seminars to educate them about driving manners and regulations for orderly operation. UTODA also supports them in settlement of traffic accidents. It plans to introduce a micro-finance scheme to assist owners in maintaining their vehicles or replacing them with new vehicles.

UTODA charges a daily fee and monthly fee to taxi drivers for use of the taxi parks. The income earned is shared with KCC according to the charges collected.

## (5) Metropolitan Area Transport Authority (MATA)

NTMP recommended establishing MATA. The objective of MATA is to combine their GKMA transportation responsibilities within a single authority, acting on behalf of the seven GKMA local authorities on transportation planning and policy issues. The format and composition of MATA will be defined based on the outcomes of the negotiations and agreements during its setting up which needs to take place among the seven local authorities, within whose boundaries the GKMA transport zone has evolved.

However, as there is no specific transport legislation for GKMA, it needs to prepare a new legislation that governs the establishment of MATA. The procurement of consultancy services, funded under TSDP of the World Bank, which includes preparation of the principles to draft the MATA Bill, is in an advanced stage. The completion of assignment is estimated to take three months from the commencement scheduled in September – October 2010<sup>5</sup>.

### 3.1.5 DEVELOPMENT AND MAINTENANCE PROGRAMS

#### (1) National Road Development and Maintenance Budget

UNRA has prepared a five year national road development and maintenance plan for FY 2010/11 to 2014/15 as shown in Table 3.1.11 below:

**Table 3.1.11 Five-Year National Road Development and Maintenance Plan of UNRA**

Activity Description		Estimated Expenditure for Road Development and Maintenance					
		2010/11	2011/12	2012/13	2013/14	2014/15	Total
National Road	Upgrading to Tarmac (paved) Standard	226.7	216.3	288.8	154.4	178.9	1065.1
	Reconstruction	125.1	156.6	105.3	168.8	225.0	780.8
	Rehabilitation	89.5	2.2	3.4	0.0	0.0	95.1
	Bridges	0.0	7.5	7.5	20.0	15.0	50.0
	Consultancy services	16.3	26.3	16.3	31.3	41.3	131.5
	Land Acquisition	6.0	6.0	6.0	3.0	3.0	24.0
District & Urban Roads	Periodic Maintenance	24.4	36.5	48.8	60.9	73.2	243.8
	Routine Maintenance	44.9	44.9	44.9	44.9	44.9	224.5
	Routine Maintenance	5.8	5.8	5.8	5.8	5.8	29.0
	Low Cost Seals	0.0	12.0	24.0	36.0	48.0	120.0
	Road Safety	5.0	5.0	5.0	5.0	5.0	25.0
	Bridges	5.0	5.0	5.0	5.0	5.0	25.0
Total		548.7	524.1	560.8	535.1	645.1	2813.8

Source: NTMP

Average annual expenditures for development amount to about US\$ 430 million and those for maintenance is US\$120 million, making a total of about US\$ 550 million per annum. The budget of UNRA is used for project preparation studies, road maintenance operations, road development projects and administrative operations.

With this program UNRA will pave an additional 1,000 km national roads, bringing the total to 4,000 km. Consequently, this will reduce the percentage of national roads rated in poor condition from the current 36% to 15 % by 2013/14.

During FY 2009/10, the total budget allocation for UNRA's activities is US\$ 982 billion which represents a 3% increase compared to that of FY 2008/09. The contribution of the government

<sup>5</sup> Information of the MoWT at Transport Sector Working Group Meeting on 21<sup>st</sup> July 2010.

increased the amount from US\$ 564 billion in FY 2008/09 to US\$ 644 billion. The contribution of development partners also increased the allocation from US\$ 305 billion in FY 2008/09 to US\$ 328 billion, as shown in the table below.

**Table 3.1.12 Business Plan of UNRA**

Unit: US\$ Billion

Budget	Item	FY 2008/09 Budget	FY 2009/10 Budget
Recurrent	Wage	13.500	23.500
	Non Wage (incl. Maintenance)	139.221	139.221
Development	GOU	411.266	481.266
	Dev. Partners	304.643	327.633
Sub – Total		715.909	808.899
	GOU Total	563.987	643.987
	Total GOU+ Dev. Partners	868.630	971.620
	Taxes	80.000	10.000
	Total Budget	948.630	981.620

Source: Business Plan 2009/10, UNRA

## (2) National Road Maintenance System

The Road Maintenance Section of MoWT used to be directly responsible for maintaining the classified road network, and had divided the country into four regions. The regions operate under the regional engineers and were sub-divided into 22 field stations, managed by district engineers. These maintenance functions were transferred to UNRA (Director for Operations) in 2009 together with axle load control and other activities.

Routine and periodic maintenance activities are carried out by direct labor (force account) and by contractual service of small scale local contractors that are usually supervised by the regional offices of UNRA. A policy for contracting out road maintenance is being implemented to replace the traditional force-account system. The medium strategy of UNRA intends to gradually phase out force account. During FY 2008/09, force account accounted to 11% of the road maintenance expenditures, but will be reduced to less than 5% over the next five years. This could contribute to developing the capacity of local contractors, and enhance more effective maintenance performance.

## (3) National Road Development Programs

The priorities for UNRA on the national road development sector for FY 2009/10 are to complete ongoing projects on schedule, to construct quality roads within provided budgets, and to build the capacity of the project managers and engineers in contracting and contract management.

The overall targets for FY 2009/10 are:

- 175 km of gravel roads for upgrading to bitumen standard
- 300 km of paved roads for reconstruction /rehabilitation
- 8 numbers of bridges for rehabilitation.

Table 3.1.13 and Figure 3.1.9 show the summary of the projects to be implemented in 2009/10 which is compiled by UNRA on November 20, 2009 during the steering committee meeting and based on information from “UNRA Business Plan 2009/10”.

**Table 3.1.13 The Road Projects to be implemented by UNRA in FY 2009/10**

	Section of Road	Length	Co-finance
Construction will be completed	• Soroti-Dokolo	63 km	WB
	• Dokolo –Lira	61 km	WB
	• Kampala-Gazaya-Zirobwe	43 km	WB
	• Masaka –Kyotera	38 km	
	• Kampala –Mukono (inside GKMA)	23 km	
Construction will be continued	• Matugga –Semuto –Kapeeka	41 km	NDF
	• Kampala –Masaka	158 km	
	• Masaka –Mbarara	124 km	EU
	• Kabale-Kisoro-Bunagayana/Kyanika	100 km	AFDB
	• Mabarara-Ntugamo-Kabale-Katuna	155 km	
	• Kamudini-Lira	67 km	
	• Mabarara-Ishanka	61 km	
Upgrading will be commenced	• Fort Portal-Bundibugyo-Lamia	104 km	AFDB
	• Mbarara-Kikagati	70 km	
	• Nyakahita –Jbanda –Kamwenge	150 km	AFDB
	• Gulu –Atiak –Bibia-Nimule	104 km	WB
	• Vurra-Arua-Koboko-Oraba	92 km	WB
	• Atiak –Moyo –Afoji	103 km	WB / GOJ
Rehabilitation will be commenced	• Busega –Mityana	57 km	
	• Malabal Busia –Bugiri (Overlay)	82 km	
	• Mukono –Jinja	85 km	
	• Kawempe –Kafu (Overlay)	166 km	
	• Mukono –Kayunga	69 km	
	• Kafu –Karuma –Kamudini	88 km	
	• Jinja –Kamuli	69 km	
	• Tororo –Mbale –Soroti	156 km	
The designs for tarmacking will be completed	• Mukono –KatosllKisoga –Nyenga	72 km	
	• Mpigi-Kabulasole-Maddu-Sembabule	135 km	
	• Muyembe –Namalu –Moroto –Kotido	290 km	
	• Ntungamo –Mirama Hills/Ishaka –Kagambe	135 km	
	• Muyembe –Namalu –Moroto –Kotido	290 km	
	• Ntungamo –Mirama Hills/Ishaka –Kagamba	72 km	
	• Kapchorwa –Suam	77 km	
	• Rukungiri –Kihiki –Kanungu/Ishasha road	74 km	
	• Mbale –Magale –Bumbo-Lwakhakha border	41 km	
	• Kyenjojo-Hoima-Masidi-Kigumba road	238 km	
	• Kaiso-Tonya-Hoima	85 km	
	• Nyendo-Sembabule	58 km	
	• Musita-Lumino-Busia/Majanji	104 km	
	• Masaka-Bukakata	36 km	
	• Olwiyo –Gulu –Kitgum	167 km	
	• Rwenkunyie –Apac –Lira-Kitgum –Musingo	230 km	
	• Soroti –Katakwi –Moroto –Lokitanyala	215 km	
	• Tirinyi –Pallisa –Kumi/Pallisa –Mbale	69 km	
	• Namagumba –Budadiri –Nalugugu	30 km	
	• Kamuli –Bukungu	64 km	
	The designs for dualing will be substantial/y completed	• Kampala –Entebbe (inside of GKMA)	36 km
• Kampala-Jinja (inside of GKMA)		80 km	
• Kibuye –Mpigi (inside of GKMA)		30 km	
• Kampala Northern Bypass (inside of GKMA)		17 km	
The designs for reconstruction will be full commenced	• Tororo -Soroti	156 km	
	• Lira -Kamudini -Gulu	130 km	
<b>The design of the New Nile Bridge (will be commenced in 2010/2011)</b>			JICA/ GOJ

Source: UNRA



Source: Business Plan 2009/10, UNRA

**Figure 3.1.9 National Roads Development Plan FY2009/10**

#### (4) National Road Maintenance Programs

Road maintenance is now carried out on national roads by UNRA, who also assists in the rehabilitation and maintenance services carried out by local and urban authorities, including KCC.

Maintenance of roads has been a longstanding problem in Uganda, with shortage of funding. This has led to maintenance shortfalls and premature road failures. However, since the road fund is now fully active, maintenance funds will be considerably increased. The maintenance budget of UNRA is funded through the URF. The priorities for funding for the road sector comprise the following:

- Clearing of the maintenance backlog on the major export corridors through rehabilitation of road sections in critical condition
- Undertaking reconstruction projects on major export corridors and its spurs or feeders that have completed designs
- Undertaking design (project preparatory) studies for road upgrading and reconstruction with emphasis on the major export corridors.

The purpose of road maintenance is to preserve the investment in the vital road infrastructure. Without appropriate maintenance at the right time, the roads are bound to fail before the end of their design life. Due to inadequate road maintenance funding, appropriate maintenance regime has not been followed. As a result, most of the tarmac roads are very old and have outlived their design life. Patching can no longer eliminate potholes on these roads. This has led to accumulation of roads maintenance backlog, estimated at 3,633 km (paved – 827 km and unpaved – 2,805 km).

The strategic objectives of UNRA on maintenance aspects are to ensure that at least 80% of the national road networks are in fair to good condition by the end of 2009/2010, and to enhance transport safety through improved maintenance of roads, better road marking, signage and furniture, education and sensitization of road users.

During FY 2009/10, several regular activities for routine manual maintenance, routine mechanized maintenance, periodic maintenance, axle load control, road safety, etc. are planned on parts or the entire core 10,000 km, based on the needs as indicated in the table below.

Intervention	Targets for FY 2009/10
Routine Manual Maintenance	10,900 km
Routine maintenance of paved road	3000 km
Period maintenance of paved road:	
Rehabilitation	100 km
Resealing	220 km
Term Maintenance	182 km
Routine maintenance of unpaved road	12,258 km
Period maintenance of unpaved road (re-graveling )	1,500 km
Vehicles weighed for axle overloading	500,000 vehicles
Ferries operated and maintained	8 Ferries
Consultancy for supervision of Periodic Maintenance	2 studies
Road marking	665 km



## (5) Road Maintenance of District and Urban Roads

The district roads are maintained through district administrations under the supervision of the MoWT in liaison with the MoLG. According to the MoWT, the maintenance requirement for the national, district and urban roads per year is about US\$ 100.0 million (2006/07). Comparing this maintenance requirement with actual allocation, the historical funding gap has increased from about US\$ 35.7 million (2001/02) to US\$ 50.5 million (2006/07), indicating that only about 50% of the requirements are met.

In FY 2007/2008, US\$ 29.4 billion and US\$ 11.55 billion were transferred to district local government and urban councils respectively, which is 60 % and 50% of the requirement (proposal) for the maintenance work as shown in Table 3.1.14. National roads maintenance and Kampala roads maintenance will be granted 100% from the PAF and the Road Fund.

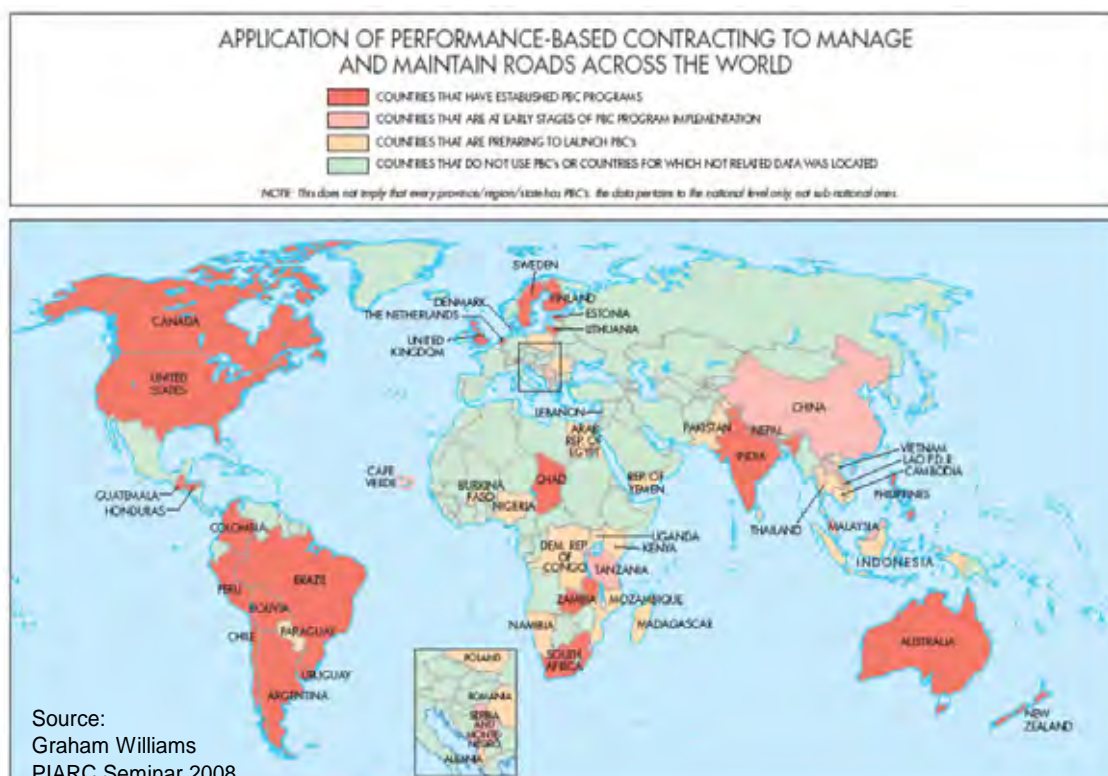
**Table 3.1.14 Summary of Road Maintenance/Budget Estimates for 2007/2008**

Items	2006/07	2007/08 Budget			
	Required (Billion Shs.)	Required (Billion Shs.)	Budget (Billion Shs.)	Equiv. to US\$ (Million)	% of Requirement
1. National Roads Maintenance	73.88	127.79	127.79	70.72	100%
2. District Roads Maintenance	17.75	49	29.27	16.2	60%
3. Kampala Roads Maintenance	0.56	15	15	8.3	100%
4. Urban Roads Maintenance	4.1	23	11.55	6.39	50%
5. UNRA Operation Costs	0	16	14	7.65	88%
6. Road Fund Administration	0	4.34	3.6	1.89	83%
<b>Total</b>	<b>96.29</b>	<b>235.13</b>	<b>201.21</b>	<b>111.15</b>	<b>86%</b>

Source: Detailed Budget Estimates for District and Urban Roads Maintenance

## (6) Introduction of Performance-based Maintenance and Management Contract (PMMC)

The PMMC is a new contract system aimed at reducing life cycle costs, increasing in maintenance efficiency and reducing the government burden. Australia and New Zealand are advanced among the developed countries adapting PMMC. The PMMC has also been introduced to developing countries, mostly with the World Bank's support. The following figure shows the application of PMMC in the world, including Uganda.



**Figure 3.1.10 Application of Performance-based Road Maintenance Contract in the World**

The private sector has more active participation and responsibility in operation and maintenance compared with conventional maintenance system in PMMC. The scope of works under PMMC could be comprised of rehabilitation, preventive maintenance, backlog maintenance and routine maintenance, including road safety. Contract periods vary mostly between five and ten years.

### 3.1.6 ROAD FUND

#### (1) Establishment of the Road Fund

The Parliament passed the URF Act in June, 2008. Its objective is to finance the routine and periodic maintenance of public roads from earmarked road user charges. Funds in the URF shall consist of road user charges including fuel levies, international transit fees (collected from foreign vehicles entering the country), road license fees, axle load fines, bridge tolls and road tolls, and weight distance charge. The URF is in the process of initiating preparatory activities and is scheduled to be fully operational from July 1, 2010.

The URF has a duty to finance the implementation of the Annual Road Maintenance Programs that are carried out by UNRA and the other designated road agencies responsible for district, urban and community access roads. The dedicated fund earned from road user charges is expected to guarantee a regular and steady flow of funds for maintenance.

The GOU maintenance contribution is expected to double with the introduction of the dedicated road fund, from US\$ 49.5 million in 2006/07 to US\$ 105.8 million in 2007/08, and sustained at an average of about US\$102.0 million per year until 2010/11. As per the act that establish URF, statutory allocation to UNRA will be on the basis of 63.5 % of its annual revenue for maintenance of the national roads, 14.5% for districts roads, 7.5% for Kampala City roads, 5.7 % for other urban roads, 7.0% for administrative and operational costs and 1.8% for the fund's administration.

The road fund could be applied for:

- routine and periodic maintenance of public roads
- road safety activities including erection of sign posts
- operational expenses of UNRA
- administrative expense of the Fund
- research in road works, and
- other activities relevant to the maintenance of public roads as may be determined by the Board.

The characteristics/ features and roles of Road Fund are as follows:

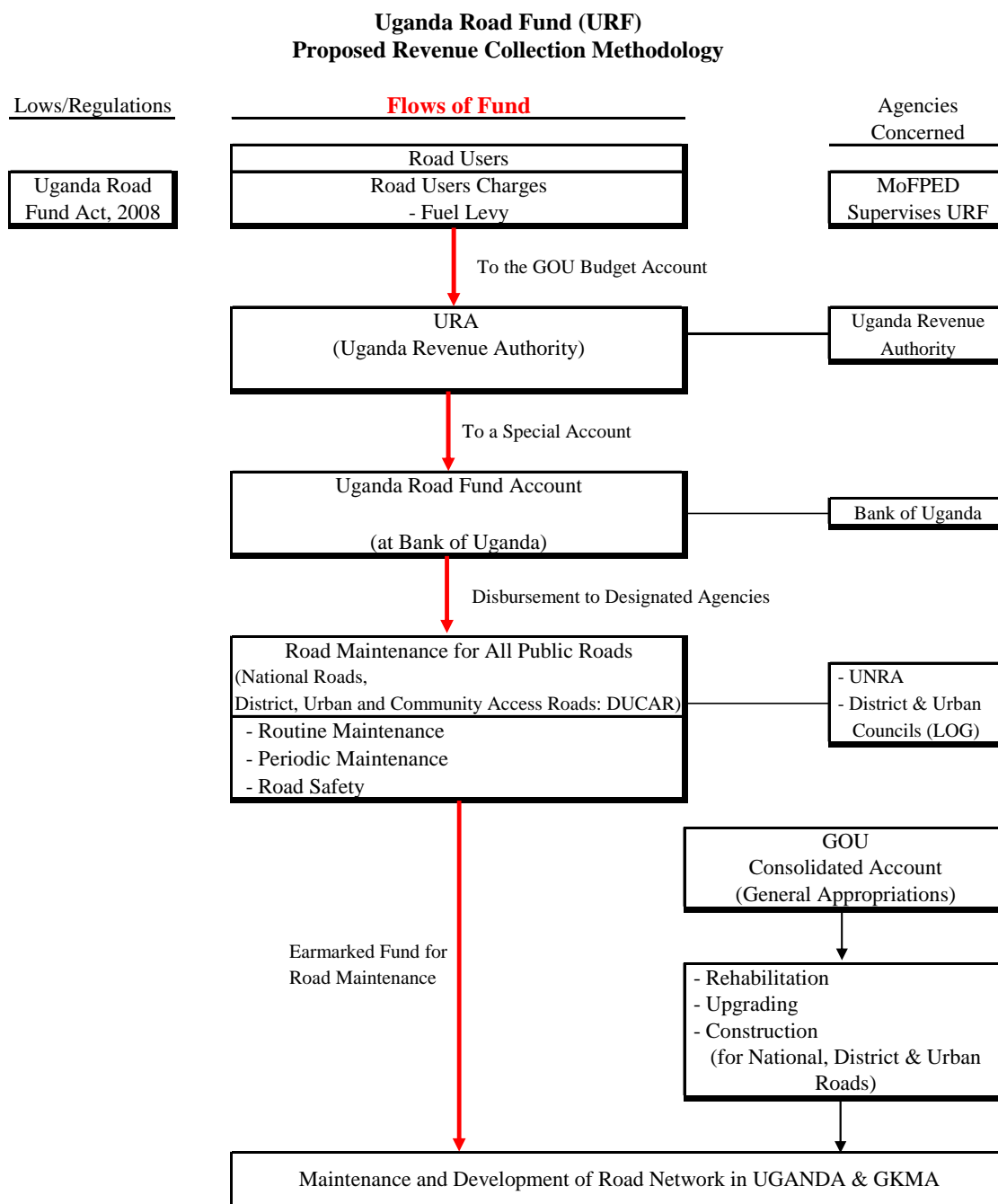
- 1) Revenues of the Road Fund are incremental and additional to the general budget and no diversion from other sectors.
- 2) Separated Road Fund administration. The Road Authority (UNRA) is under MoWT, and, Road Fund is under MFPEd.
- 3) Revenues of Road Fund are incremental to the General Budget, coming from charges related to the road use and channeled to directly to the Road Fund bank account. That is independent and neutral from the General Budget.
- 4) The use of Road Fund is limited to only for road maintenance works for all public roads (and for road safety purpose, as well) including National Roads, and District, Urban & Community Access Roads (DUCA).
- 5) UNRA's budget covers rehabilitation, upgrading and construction of National Roads and the Road Fund is used for routine and periodic maintenance of all public roads, not only National Roads but also DUCA through allocation to the Districts and Urban councils.

## **(2) Allocation of Budget from the URF to Local Governments**

Allocations from the URF to the designated agencies shall be based among other factors, on the conditions that the public roads, maintenance requirement, the length of the road network and the relevant volume of traffic are derived from an approved maintenance management tool.

Outline of the fund collection methodology currently considered and proposed by the URF and flows of collected funds are explained below and in Figure 3.1.10.

- 1) Lows/Regulation = Uganda Road Fund Act, 2008
- 2) Collection of Road User Charge (RUC) such as Fuel Levy
- 3) Above collected charges, for the present, will go to the GoU's budget account as part of tax revenue by Uganda Revenue Authority (URA)
- 4) The fund is transferred to a "Special Account" established in the Bank of Uganda.
- 5) Disbursement/release of Fund to designated agencies (UNRA, District and Urban Councils)
- 6) Implementation of road maintenance works for all public roads, i.e., DUCAR, for routine maintenance, periodic maintenance and road safety as well.
- 7) At the same time, the funds for road rehabilitation, upgrading and construction will come from the government's general budget (general appropriations).



Source: URA

**Figure 3.1.11 Flows of Fund Collection (Draft), URF**

**(3) Annual Road Maintenance and Expenditure Programs**

Each designated agency shall prepare annually and at least three months before the start of each financial year, an Annual Road Maintenance Program in such form containing details that may be required by the Board.

The Annual Road Maintenance Program shall be reviewed by the Board in order to determine:

- Affordability of the program, and
- Appropriateness of the amounts allocated in the program for each class of roads.

The Board shall prepare an Annual Road Expenditure Program to be financed from the fund, in consultation with the respective minister and the ministries responsible for the roads.

The Board may recommend an increase in the level of road tariff to ensure that it generates sufficient revenue for financing the approved Annual Road Maintenance Program. The Board shall also provide the minister and the ministries responsible for roads with an estimate of the additional income for the fund due to such tariff increases.

#### (4) Road Maintenance Plans

The Board shall, after consultation with the designated agencies, prepare one-year, three-year and five-year road maintenance plans. These road maintenance plans shall contain the following:

- Particulars of the estimated income of the Fund
- Particular of the proposed level of road tariffs
- Administrative expenses of the Fund
- Administrative expenses of the UNRA, and
- Particulars of any factors which may affect the implementation of the plan and measures which will be taken to ensure execution of the plan.

### 3.1.7 ROAD CLASSIFICATION BY DESIGN CLASS

#### (1) Classification of Rural Roads

##### i) Classification of Rural Roads by Function

The rural roads in Uganda are classified into the following five classes according to their function in the road networks as shown in Table 3.1.15.

**Table 3.1.15 Classification of Rural Roads by Function**

Classification	Description
Class A International Trunk Roads	Roads that link internationally important centers. Connection between the national road system and those of neighboring countries. Major function is to provide mobility.
Class B National Trunk Roads	Roads that link provincial capitals, main centers of population and nationally important centers. Major function is to ensure mobility.
Class C Primary Roads	Roads linking provincially important centers to each other or to higher class roads (urban/rural centers). Linkage between districts local centers of population and development areas with higher class road. Major function is to ensure both mobility and access.
Class D Secondary Roads	Roads linking locally important centers to each other, to the more important centers, or to a higher class roads (rural/market centers), and linkage between locally important traffic generators and their rural hinterlands. Major function is to ensure both mobility and access.
Class E Minor Roads	Any road link to minor center (market/local center) and all other motorable roads. Major function is to provide access to land adjacent to the secondary road system.

Source: Road Design Manual (Vol. 1: Geometric Design), July 2005

The major function of roads belonging to the highest classes, A and B, is to ensure mobility while accommodating longer trip lengths. Roads belonging to Class C and D serve a dual function in accommodating shorter trips and feeding the higher classes of road. Class E roads have short trip

lengths and their primary function is to serve as local accesses. Design speeds and level of services for these roads may be low.

Road function determines the level of access control needed as shown in Table 3.1.16.

**Table 3.1.16 Function of Road and Level of Access Control**

Functional Class	Level of Access Control	
	Desirable	Reduced
Class A: International Trunk Roads	Full	Partial
Class B: National Trunk Roads	Full or Partial	Partial
Class C: Primary Roads	Partial or Unrestricted	Partial
Class D: Secondary Roads	Partial	Unrestricted
Class E: Minor Roads	Partial or Unrestricted	Unrestricted

Source: Road Design Manual (Vol. 1: Geometric Design), July 2005

ii) Classification of Rural Roads by Design Class

There are six design classes of road in addition to the classes for access control mentioned above. Design classes I, II and III are for bitumen surfaced roads while design classes A, B and C are for gravel surfaced roads. Design class I is further divided into two namely, Class Ia is for four lanes and class Ib is for two (2) lanes. Classification of rural roads by design class is summarized in Tables 3.1.17 and 3.1.18.

**Table 3.1.17 Classification of Rural Roads by Design Class**

Design Class	Capacity [pcu x 1,000/day]	Road-way width [m]	Maximum Design Speed [km/h]			Functional Classification				
			Level	Rolling	Mountainous	A	B	C	D	E
Ia Paved	12-20	20.80-24.60	120	100	80	√				
Ib Paved	6-10	11.0	110	100	80	√	√			
II Paved	4-8	10.0	90	70	60	√	√	√		
III Paved	2-6	8.6	80	70	50	√	√	√		
A Gravel	4-8	10.0	90	80	70		√	√	√	
B Gravel	2-6	8.6	80	60	50				√	√
C Gravel		6.4	60	50	40					√

Source: Road Design Manual (Vol. 1: Geometric Design), July 2005

**Table 3.1.18 Classification of the Rural Roads for Design Class (Continued)**

Design Class	Right of Way width [m]	Road-way width [m]	Carriageway			Shoulder width [m]	Median width [m]
			Width [m]	Lane width [m]	No. of Lane		
Ia Paved	60	20.80-24.60	14.6	3.65	4	2 x 2.5	1.2 - 5.0
Ib Paved	60	11.0	7.0	3.5	2	2 x 2.0	-
II Paved	50	10.0	6.0	3.0	2	2 x 2.0	-
III Paved	50	8.6	5.6	2.8	2	2 x 1.5	-
A Gravel	40	10.0	6.0	3.0	2	2 x 2.0	-
B Gravel	30	8.6	5.6	2.8	2	2 x 1.5	-
C Gravel	30	6.4	4.0	4.0	1	2 x 1.2	-

Source: Road Design Manual (Vol. 1: Geometric Design), July 2005

**(2) Classification of Urban Roads by Design Class**

As for the urban roads which are represented by KCC roads, the classification shown in Table 3.1.19 has been proposed in the Kampala Urban Traffic Improvement Plan (KUTIP).

**Table 3.1.19 Classification of Urban Roads by Design Class**

Design Class	Description
Urban Class-I Roads (UC-I)	Provide continuity for the MoWT Primary Road System through the Urban Authority Provide paved, all weather service.
Urban Class-II Roads (UC-II)	Provide continuity for the MoWT Secondary/Tertiary Road System through the Urban Authority. May be paved, all weather service.
Urban Class-III Roads (UC-III)	Provide continuity for Tertiary/District Roads through the Urban Authority May be paved or graveled, but provide all weather service.
Urban Class-IV Roads (UC-IV)	Consist of roads within the central community serving Government administrative facilities and local commerce establishments. May be paved or gravelled.
Urban Class-V Roads (UC-V)	Serve residential and agricultural areas One end of the road may a dead end (closed) or in the form of cul-de-sac. .May be paved or graveled/earth.

Source: Main Report: Road Maintenance Plan, Kampala Urban Traffic Improvement Plan (KUTIP), July 2003

### 3.1.8 REGISTERED VEHICLES ON ROADS

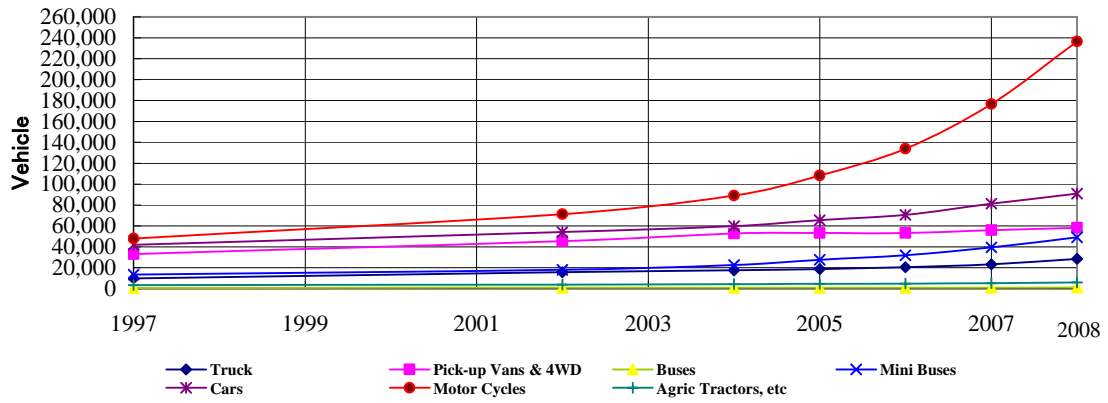
Table 3.1.20 and Figure 3.1.11 show registered vehicles on roads from 1997 to 2008. The annual growth rate over 11 years was 10.9% per annum for all vehicles. The total population of vehicles, including motorcycles, had approximately tripled from 150,500 in 1997 to 470,500 in 2008. Of these, more than 50% are operated in Kampala. It is noted that over 90% of vehicles are Japanese made used-cars.

Registered numbers of trucks, pick-up and four-wheel drive vehicles, buses, mini buses, cars and motorcycles are 28,500 (6.1%), 58,300 (0.3%), 49,200 (10.5%), 90,900 (19.3%) and 236,500 (50.3%), respectively in 2008. The average annual growth rate of all the vehicles without motorcycles was 7.9% while that of motor cycles was 15.6% over 11 years. The growth rates of motorcycles and mini buses were 33% and 24% per annum, respectively, in the last three years (2006-2008).

**Table 3.1.20 Registered Vehicles on Road (1997-2008)**

Type	1997	2002	2004	2005	2006	2007	2008	Average Annual Growth Rate (1997-2008)	Share (2008)
Truck (Annual Increase)	9,900	15,700 9.7%	17,530 5.7%	18,684 6.6%	20,496 9.7%	23,323 13.8%	28,501 22.2%	10.1%	6.1%
Pick-up Vans & 4WD (Annual Increase)	33,100	45,500 6.6%	52,685 7.6%	53,203 1.0%	53,137 -0.1%	55,950 5.3%	58,317 4.2%	5.3%	12.4%
Buses (Annual Increase)	600	800 5.9%	878 4.8%	868 -1.1%	857 -1.3%	995 16.1%	1,237 24.3%	6.8%	0.3%
Mini Buses (Annual Increase)	13,400	18,000 6.1%	22,565 12.0%	27,568 22.2%	32,006 16.1%	39,476 23.3%	49,235 24.7%	12.6%	10.5%
Cars (Annual Increase)	42,000	54,200 5.2%	59,786 5.0%	65,471 9.5%	70,652 7.9%	81,320 15.1%	90,856 11.7%	7.3%	19.3%
Motor Cycles (Annual Increase)	48,000	71,200 8.2%	89,212 11.9%	108,207 21.3%	133,985 23.8%	176,516 31.7%	236,452 34.0%	15.6%	50.3%
Agric Tractors, etc (Annual Increase)	3,500	3,800 1.7%	4,389 7.5%	4,593 4.6%	4,769 3.8%	5,193 8.9%	5,890 13.4%	4.8%	1.3%
Total without Motor Cycles & Agric Tractors (Annual Increase)	99,000	134,200 6.3%	153,444 6.9%	165,794 8.0%	177,148 6.8%	201,064 13.5%	228,146 13.5%	7.9%	
Grand Total (Annual Increase)	150,500	209,200 6.8%	247,045 8.7%	278,594 12.8%	315,902 13.4%	382,773 21.2%	470,488 22.9%	10.9%	100.0%

Source: Statiscal Abstract, UBOS (2009) and NTMP/MOWT



Source: As shown in Table 3.1.18

**Figure 3.1.12 Growth of Registered Vehicles on Road by Type (1997-2008)**

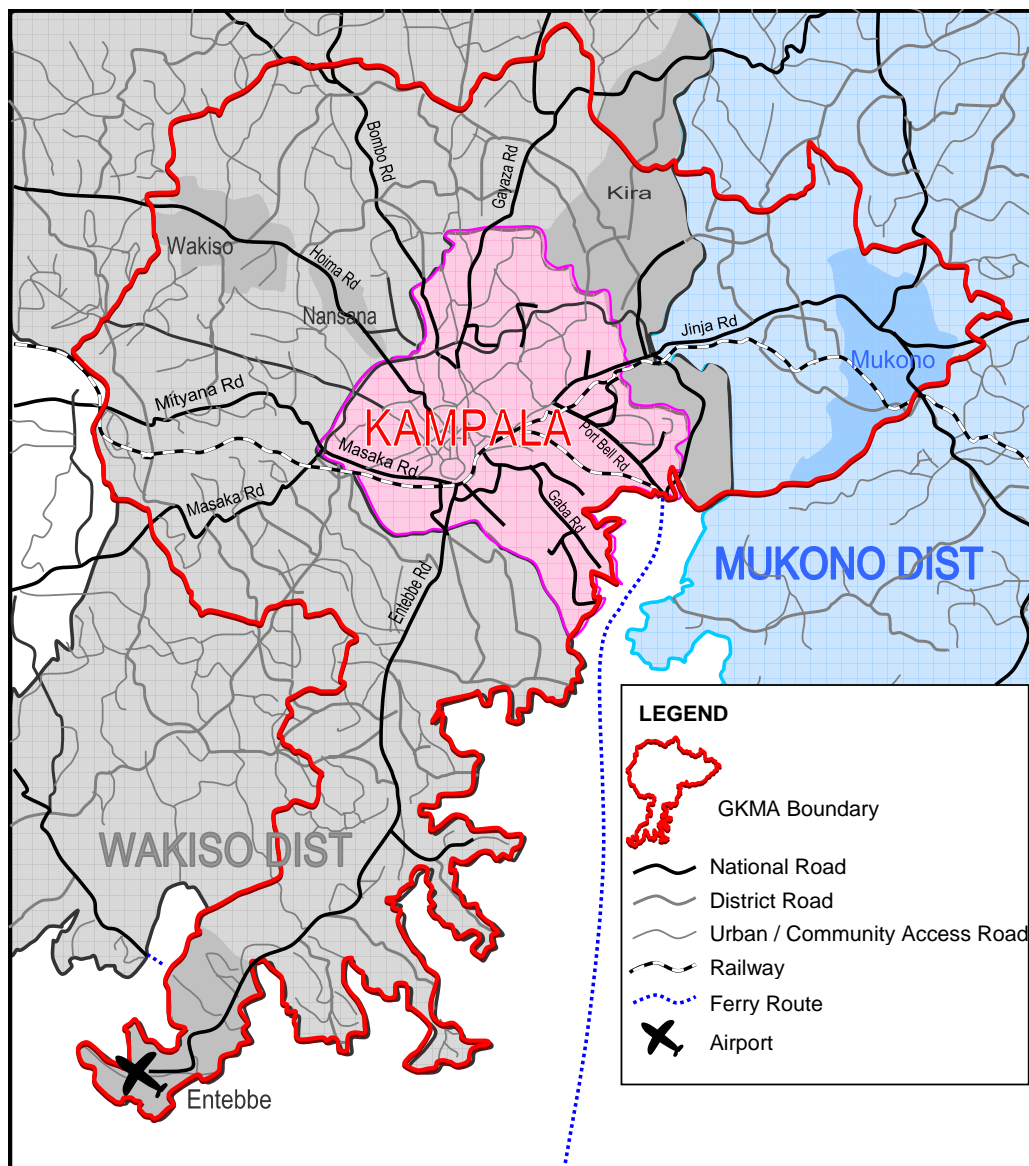


### 3.2 CURRENT SITUATION AND KEY ISSUES OF THE ROAD SECTOR IN GKMA

#### 3.2.1 GKMA AND KCC ROAD NETWORK

##### (1) GKMA Road Network

GKMA is defined as a geographical zone encompassed by a circle of some 20 km radius from the Kampala City centre, extended to nearly 40 km in the direction of Entebbe. Road network is distributed throughout the area as shown in Figure 3.2.1.



Source: JICA Study Team based on the information of MoWT

Figure 3.2.1 Road Network in GKMA

##### (2) KCC Road Network and Condition

A road network database within the area administered by KCC was first created in 1994 and this was updated during KUTIP in 2003. Furthermore, road condition data was updated by KCC in 2009. This database stores road inventory information of all the important roads of 619 km. However, minor access roads, of which total length is estimated to be 410 km, are not recorded.

In this section, discussion on the KCC road network is made based on this database.

The KCC road network consists of 290 km of paved and 329 km of unpaved (gravel or earth) roads. All are single carriageway roads except about 20 km which are dual carriageway roads. Road distribution by functional classification and by division is shown in Table 3.2.1. Nakawa Division has the longest length of 165 km while Kawempe Division has the shortest with 91 km.

**Table 3.2.1 KCC Road Length by Functional Classification and by Division**

Functional Classification	Road Length (km) in Divisions					Total	
	CEN	KAW	MAK	NAK	RUB	(km)	(%)
UC-I	1.3	21.3	27.1	18.4	13.2	81.3	13%
UC-II	45.2	43.2	26.1	25.5	7.4	147.5	24%
UC-III	15.6	11.6	10.1	27.2	20.9	85.3	14%
UC-IV	44.6	9.0	21.7	20.0	55.7	151.0	24%
UC-V	6.7	6.3	41.0	74.1	26.3	154.4	25%
Total (km)	113.3	91.4	125.9	165.3	123.5	619.4	100%

CEN=Central Division; KAW=Kawempe Division; MAK=Makindye Division;  
NAK=Nakawa Division; RUB=Rubaga Division

Source: KCC Road Database

Note: Northern Bypass (21km) is not included in the database.

Definitions of classification for road condition are not mentioned in the database, however, it is supposed that they were judged based on the results of visual observation taking number of cracks on pavement surface, ride quality, etc. into account.

Table 3.2.2 shows the road surface condition of paved roads by division. Totally, roads of 33% is rated as either Very good or Good, 43% is rated Fair and 21 % is rated as either Poor or Very poor.

**Table 3.2.2 KCC Road Condition by Division**

Condition	Road Length (km) in Divisions					Total	
	CEN	KAW	MAK	NAK	RUB	(km)	(%)
Very Good	0.0	0.7	4.6	3.9	0.0	9.1	3%
Good	29.0	16.2	15.8	14.0	12.2	87.1	30%
Fair	45.0	11.0	15.6	31.9	20.7	124.2	43%
Poor	14.6	4.7	6.2	7.9	5.6	38.9	13%
Very Poor	15.9	2.1	2.0	2.0	0.0	22.1	8%
N.A.	0.0	0.7	0.0	8.3	0.0	9.0	3%
Total (km)	104.5	35.3	44.1	68.0	38.4	290.3	100%

CEN=Central Division; KAW=Kawempe Division; MAK=Makindye Division;

Source: KCC Road Database

Note: Northern Bypass (21km) is not included in the database.

Road length by surface type and by division is shown in Table 3.2.3 and Figure 3.2.2. Pavement ratio is 47% in whole Kampala but it varies considerably by district. Only Central Division has a high pavement ratio of 92% and others have those of 31-41%.

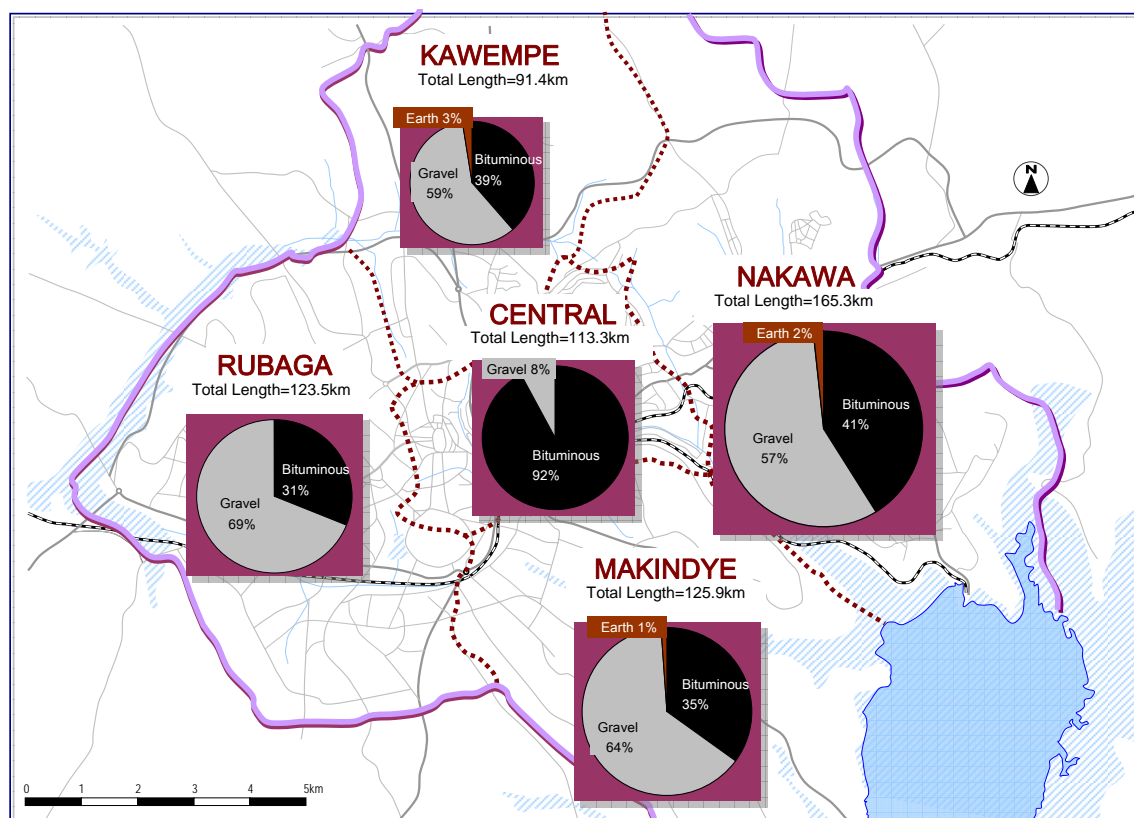
**Table 3.2.3 KCC Road Length by Surface Type and Division**

Surface Type	Road Length (km) in Divisions					Total	
	CEN	KAW	MAK	NAK	RUB	(km)	(%)
Bituminous	104.5	35.3	44.1	68.0	38.4	290.3	47%
Gravel	8.8	53.7	80.4	94.5	85.1	322.5	52%
Earth	0.0	2.4	1.4	2.8	0.0	6.6	1%
Total (km)	113.3	91.4	125.9	165.3	123.5	619.4	100%

CEN=Central Division; KAW=Kawempe Division; MAK=Makindye Division;

Source: KCC Road Database

Note: Northern Bypass (21km) is not included in the database.



Source: JICA Study Team based on KCC Inventory

**Figure 3.2.2 KCC Road Length by Surface Type and Division**

### (3) Budget Allocation for Road Maintenance to Districts in GKMA

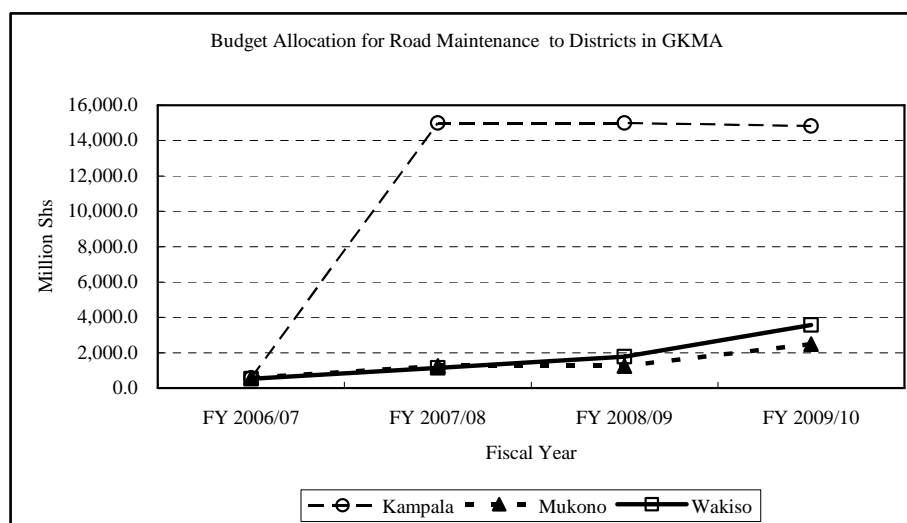
The national budget for road maintenance is transferred to each local government in the whole country. This budget is applied to the maintenance for DUCAR, under the management of district and urban councils. The planned allocations to the districts in GKMA (Kampala, Mukono, and Wakiso districts) are summarized in the table below.

In 2007, the GOU introduced the URF programmed through which all local governments are supposed to allocate funds to support their road maintenance programs. The total budget to these three districts in GKMA was about US\$ 1.7 billion in FY 2006/07. This was increased to US\$ 17.4 billion in FY 2007/08, US\$ 18.0 billion in 2008/09 and US\$ 20.9 billion in FY 2009/10. Percentage share of the budget for GKMA has increased drastically from 8.9% in FY 2006/07 to 33.9% in FY 2007/08. The budget allocation to Kampala District is almost fixed at US\$ 15 billion from FY 2007/08 to FY 2009/10. Rest of the districts in GKMA, i.e., Mukono and Wakiso districts will receive benefit in FY 2009/10 from doubled allocations compared to the budget in FY 2008/09.

**Table 3.2.4 Estimated Budget for District and Urban Maintenance (Shs. Million)**

Fiscal Year	District/Urban	Kampala	Mukono District	Wakiso District	Sub-Total	Other LOG	TOTAL
FY 2006/07 (*)	District Road	565.4	343.3	150.0	1,058.7	13,705.4	14,764.1
	Urban Road		250.6	377.7	628.3	3,471.7	4,100.0
	Total Budget	565.4	593.9	527.7	1,687.0	17,177.1	18,864.1
	% share	3.0%	3.1%	2.8%	8.9%	91.1%	100.0%
FY 2007/08 (*)	District Road	15,000.0	559.1	310.5	15,869.6	23,895.6	39,765.2
	Urban Road		694.2	837.2	1,531.4	10,021.6	11,553.0
	Total Budget	15,000.0	1,253.3	1,147.7	17,401.0	33,917.2	51,318.2
	% share	29.2%	2.4%	2.2%	33.9%	66.1%	100.0%
FY 2008/09 (**)	District Road	15,000.0					
	Urban Road						
	Total Budget	15,000.0	1,246.4	1,772.0	18,018.4	43,168.5	61,186.9
	% share	24.5%	2.0%	2.9%	29.4%	70.6%	100.0%
FY 2009/10 (**)	District Road	14,827.2	1,446.9	1,390.7	17,664.8	70,503.0	88,167.8
	Urban Road		1,036.2	2,182.4	3,218.6	23,778.2	26,996.8
	Total Budget	14,827.2	2,483.1	3,573.1	20,883.4	94,281.2	115,164.6
	% share	12.9%	2.2%	3.1%	18.1%	81.9%	100.0%

Source: (\*): Detailed Budget Estimates for District and Urban Roads Maintenance, Uganda Road Fund (Down); (\*\*): Ministry of Finance, Planning and Economic Development (MoFPED)



Source: As shown in Table 3.2.4

**Figure 3.2.3 Budget Allocation to Districts in GKMA for Road Maintenance**

#### (4) Road Budget of KCC

The budget of KCC during the 2009/10 financial year is US\$ 27.0 billion, excluding the budget from the URF. From that, US\$ 5.6 billion (21%) was allocated for the works.

KCC estimated the annual maintenance requirements in collaboration with the road-related government agencies in 2009. The results showed that about US\$ 25.5 billion is required for the annual maintenance of all types of roads in their administrative area. On the other hand, as explained in the next section, budget allocation to KCC for all road maintenance is far below its requirement provided with US\$ 15 billion in each FY 2007/08 and FY 2008/09. The funding gap is thus US\$ 10 billion every year.

**Table 3.2.5 Requirement for Annual Road Maintenance for KCC**

KCC Road Category	Pavement Type	Unit Maintenance Cost/ km/ Year				Length (km)	Annual Maintenance Costs Required ('000 Shs)		
		Standard	Routine	Recurrent	Total		Routine	Recurrent	Total
Arterials	Bitumen	A	44,178	52,500	96,678	89	3,931,842	4,672,500	8,604,342
Collectors	Bitumen	B	29,452	35,000	64,452	70	2,061,640	2,450,000	4,511,640
Local Roads	Bitumen	C	14,726	17,500	32,226	130	1,914,380	2,275,000	4,189,380
Collectors	Gravel	B1	17,452	35,840	53,292	27	471,204	967,680	1,438,884
Local Roads	Gravel	C1	8,726	17,920	26,646	254	2,216,404	4,551,680	6,768,084
<b>Total</b>						570	10,595,470	14,916,860	25,512,330

Source: "Measures to Improve Traffic Flow in Kampala City, Sep.2009.MoWT, KCC, UPF, LOG, UNRA.

KCC repaired a total of 80.4 km roads, reconstructed 11.3 km (periodic maintenance program) and upgraded 8.1 km from gravel to bitumen standard, under the URF in FY 2007/08. In FY 2008/09, KCC budgeted US\$ 15 billion for routine and periodic maintenance, upgrading to bitumen standard, maintenance of traffic signals and other activities. A total of 154.9 km roads were repaired under routine maintenance programs, 7.0 km was reconstructed under periodic maintenance programs and 6.2 km was upgraded.

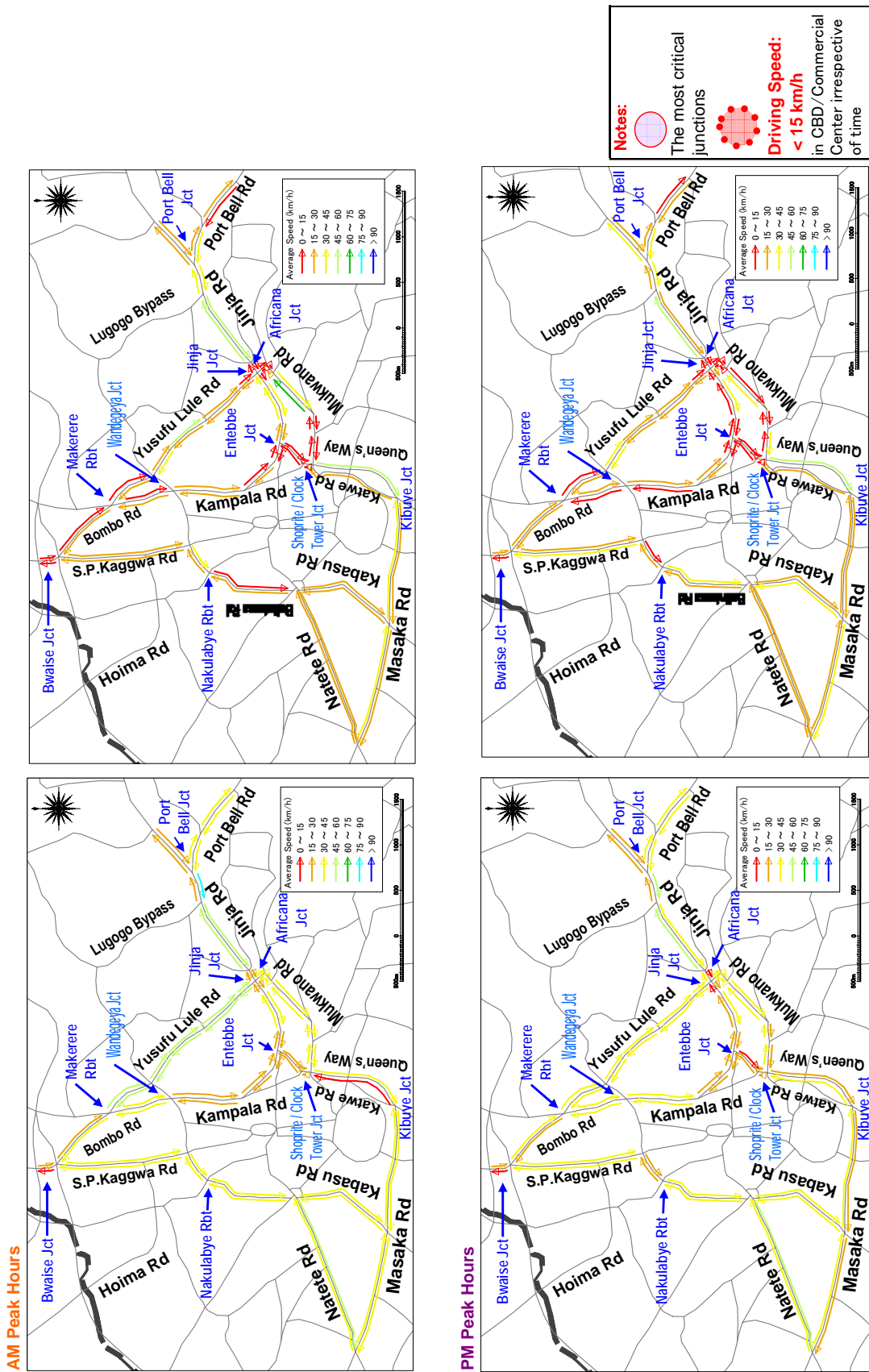
### 3.2.2 TRAFFIC CONGESTION/JAM

#### (1) Driving Speed on Major Arterial Roads in Kampala City

The Study Team conducted a driving speed survey in February 2010 on major arterial roads of Kampala City during the morning and evening peak hours (refer to Section 5.2.4 of this Report). The Study Team compared the results with the survey conducted in November 2003 – April 2004 under NTMP/GKMA (Figure 3.2.4). The major findings are as follows:

- Traffic jam has become worse at all major junctions and on major roads, except Queen's Way.
- The driving speed on Queen's Way was 15-30 km/hr in 2004 but improved to 45-60 km/hr as of this Study. Queen's Way accommodates a two-way traffic in 2004 but it was changed to one-way traffic flow at the end of 2004. As the traffic capacity of one-way, two-lane road is approximately thrice of that for two-way, two-lane road without road crossings, no traffic congestions are seen on said road except near Kibuye Roundabout.
- Traffic jam has spread to outside the City Center, including Bombo Road, Makerere Hill Road, Port Bell Road and Nsambya / Mukwano Roads.
- Traffic Jam (driving speed of 0-15km/hr) is dominant through the day in the CBD (commercial area), including Namirembe St, Ben Kiwanuka St, Luwum St, etc.
- The severe traffic congestion/jam (driving speed of 0-15 km/hr) was recorded on the roads and junctions in the following table:

Morning Peak Hours			Evening Peak Hours		
Name of Road	Name of Junction	Direction*	Name of Road	Name of Junction	Direction*
Bombo Rd	Bwaise Jct	In & Out	Bombo Rd	Bwaise Jct	Out
	Makerere Rbt	In		Makerere Rbt	Out
	Wandegeya Jct	In			
Kampala Rd	Entebbe Jct	In & Out	Kampala Rd	Wandegeya Jct	Out
				Entebbe Jct	In & Out
				Siad Barre Ave Jct	Out
Entebbe Rd	Clock Tower & Shoprite Jct	In & Out	Entebbe Rd	Clock Tower & Shoprite Jct	In & Out
Yusufu Lule Rd	Haji Kasule Rd/ Kira Rd Jct	In	Yusufu Lule Rd	Haji Kasule Rd/ Kira Rd Jct	In
	Jinja Rd Jct	(In)		Jinja Rd Jct	(Out)
Jinja Rd / Access Rd	Jinja Jct, Africana Rbt, Mukwano Rbt	In & Out	Jinja Rd / Access Rd	Jinja Jct, Africana Rbt, Mukwano Rbt	Out
Nsambya Rd/ Kibuli Rd	Nsambya Jct	In & Out	Nsambya Rd/ Kibuli Rd	Nsambya Jct	Out
			Mukwano Rd	Nsambya Jct	Out
Port Bell Rd	Port Bell Jct	In	Port Bell Rd	Port Bell Jct	Out
Balintuma Rd	Nakulabye Rbt	In	Makerere Hill Rd	Nakulabye Rbt	Out



The Study Team ( 2nd, 3rd, 4th, 9th, 10th, 11th of Feb, 2010)

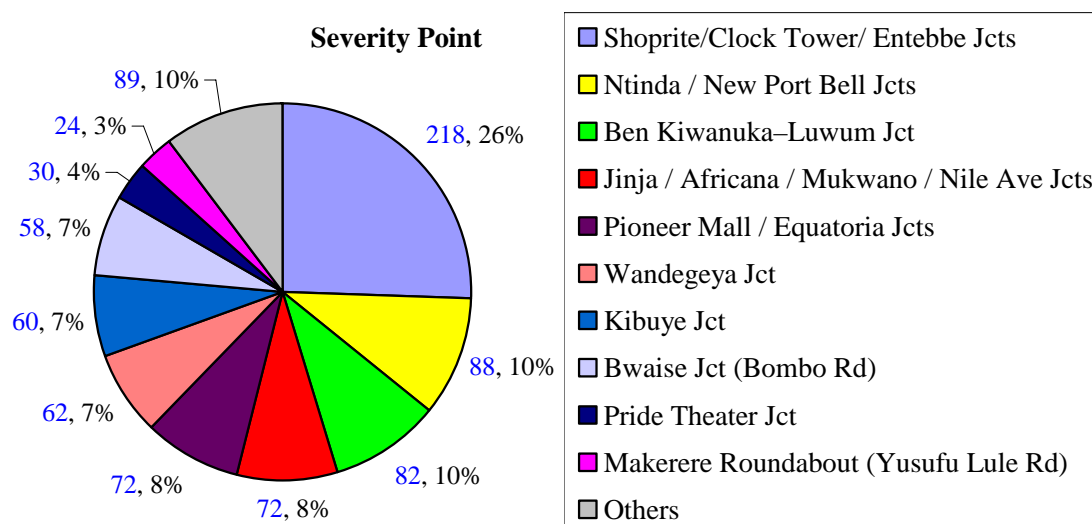
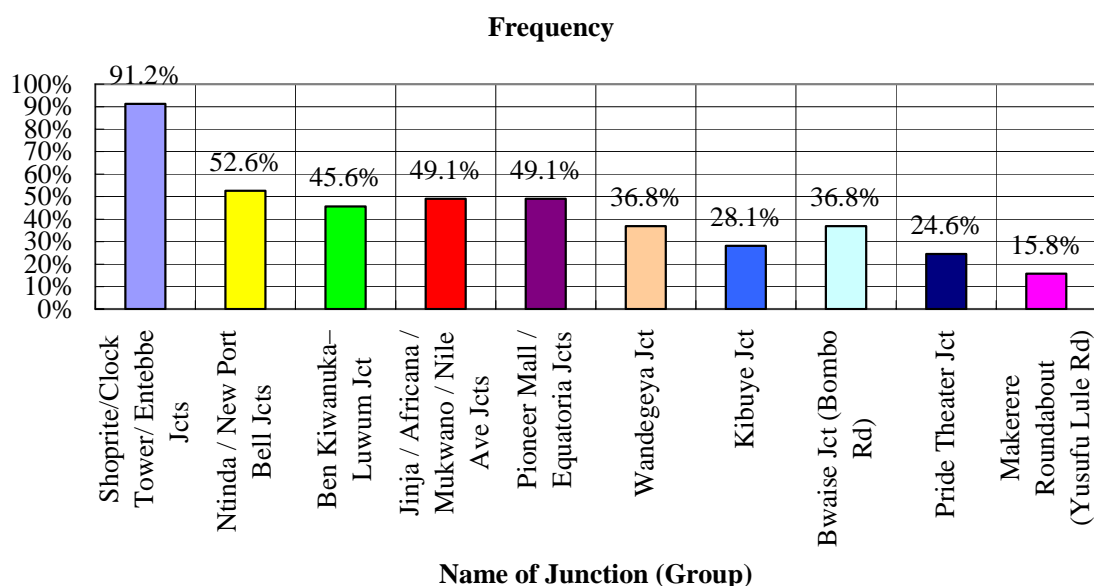
NTMP/GKMA 2005 (Survey Period: From Nov 2003 To Apr 2004)

Source: JICA Study Team

Figure 3.2.4 Driving Speed and Traffic Jam during Morning / Evening Peak Hours

## (2) Interview Results Regarding Junctions with Worst Traffic Jam

The Study Team conducted interviews related to junctions with worst traffic jam during the Steering Committee/ Stakeholder meetings and collected 57 replies. Over 90% replied that the traffic jam at Shoprite / Clock Tower / Entebbe Jcts is most serious (Figure 3.2.5). About 50% replied that the traffic jams at Ntinda Jct, Jinja Jct and Africana Roundabout, Equatoria Jct and Ben Kiwanuka are very serious. Refer to Table 3.2.6 for the “Summary of Interview Results” and Figure 3.2.6 “Location Map of Ten Worst Traffic Congested Junctions in GKMA”.



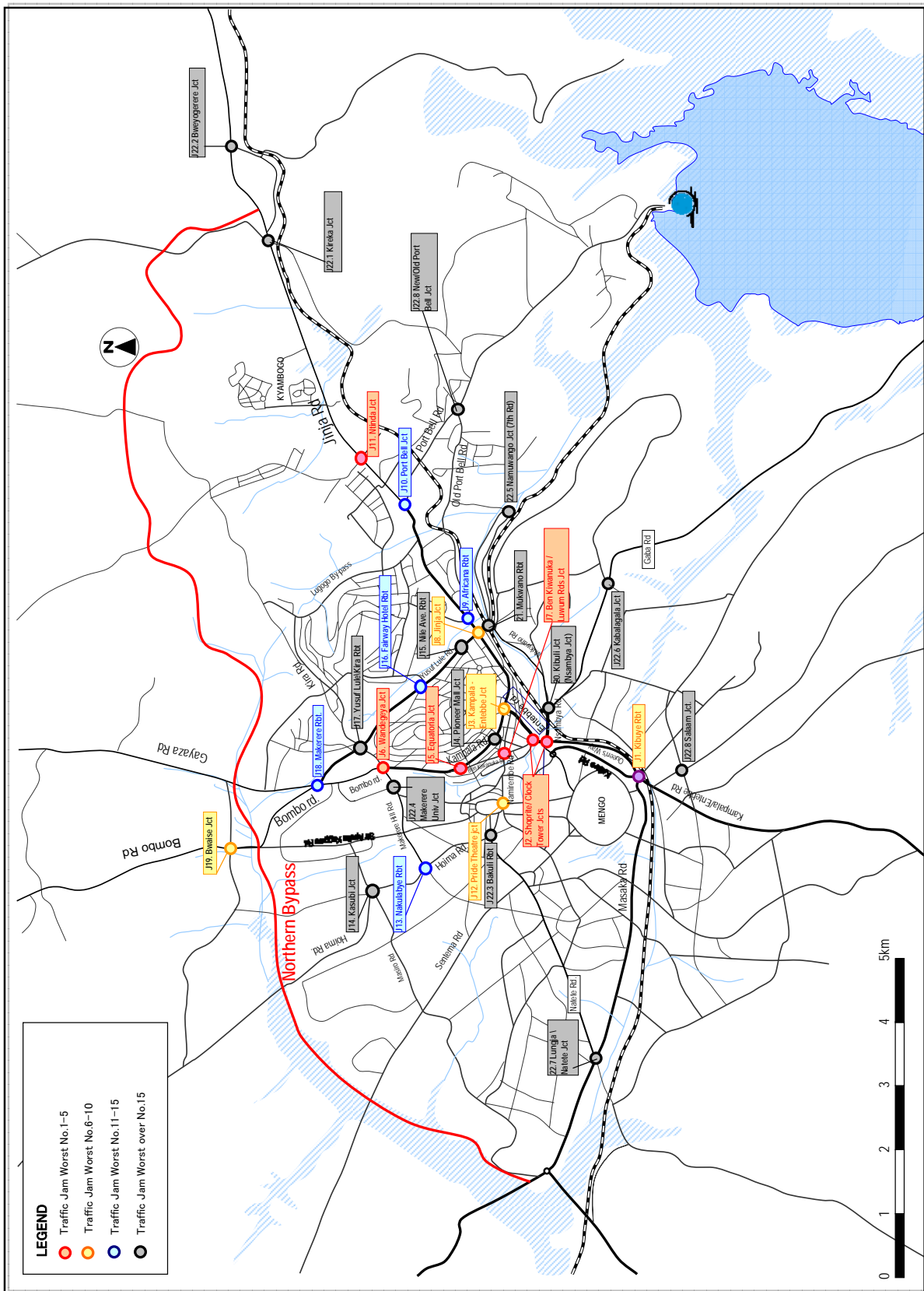
Source: JICA Study Team

**Figure 3.2.5 Interview Summary Related to Junctions Worst Traffic Jam**

As the traffic at all these junctions has far exceeded the traffic capacity, flyover construction and/or road and junction widening are required to improve the current severe traffic jam.







Source: JICA Study Team

Figure 3.2.6 Location Map of 10 Worst-Congested Junctions in GKMA

### **(3) Major Causes of Traffic Congestion/Jam**

The following are the major reasons behind the serious traffic congestion/jam;

- Rapid urbanization and population increase
- High GRDP growth, rapid increase of vehicles and traffic volume
- Urban structure which concentrates the traffic on CBD/City Center
- Weak road network, poor quality and insufficient traffic capacity
- Lack of integrated traffic demand management and inappropriate traffic control, including roadside parking
- Lack of appropriate public transport system
- Insufficient capacity of road administration bodies and human resources
- Insufficient investments on the transport infrastructures, inappropriate maintenance of facilities and insufficient capacity of human resources for planning and management
- Others (inland depots, industrial areas in near the city center, hilly topography, at-grade railways crossings, flooding, mixture with non-motorized traffic, high accidents, etc).

### **3.2.3 KEY ISSUES**

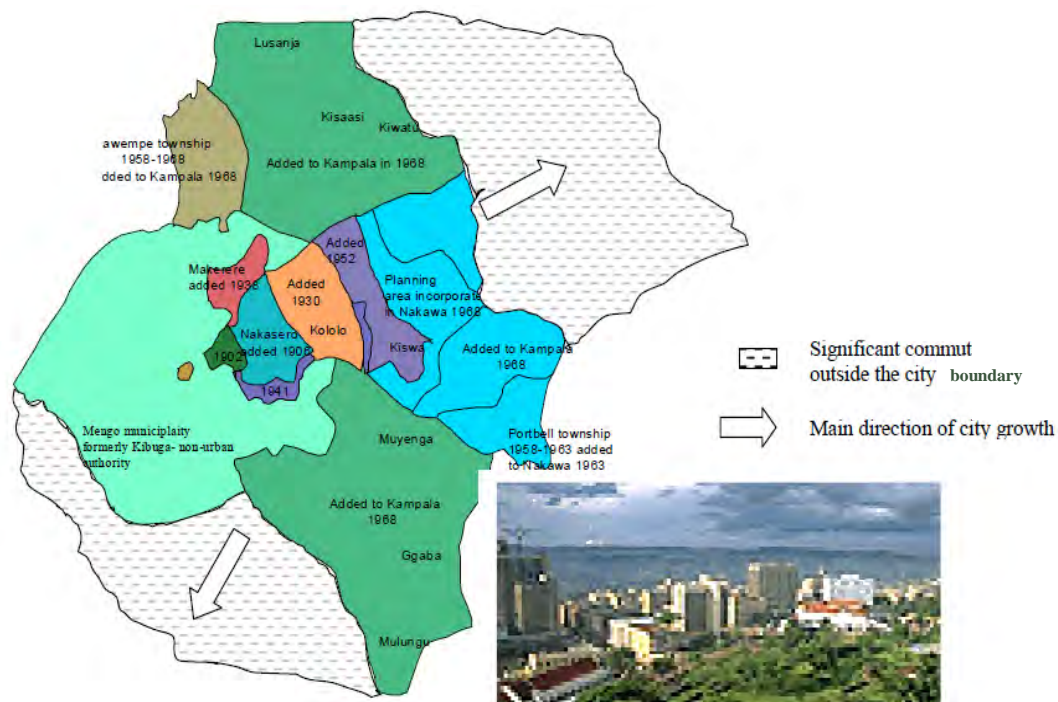
#### **(1) Serious Traffic Congestion / Jam**

The traffic congestion/jam in the Kampala City center and at its accesses has become unbearable for the sustainable development of national and regional economy development and socio-economic activities. The traffic jam has also adverse impacts on global warming (CO<sub>2</sub>) and pollution. The following is the analysis on major causes of the serious traffic congestion.

##### **1) Population Increase and Rapid Urbanization without effective GKMA Structure Plan**

Figure 3.2.7 shows the development history of Kampala City. Kampala has evolved from a small town occupying 8 km<sup>2</sup> in 1906 and developed to a “city of seven hills” during its independence in 1962. It has grown to a city occupying more than twenty five hills (189 km<sup>2</sup>) in 2009 and urbanization has progressed exceeding the city boundary.

The population of Kampala has increased by six times within about 50 years, from approximately 0.25 million in 1962 to the current 1.5 million. However, as the road facilities mostly remained as they were in the early 1970s, both increased population and traffic could not be accommodated.



**Figure 3.2.7 Rapid Expansion of Kampala City**

The current population of GKMA is 2.5 million. The national population growth rate is 3.3% per year but it increases at 4.0-5.0% in urban areas. As urbanization in Uganda is just in the initial stage and no other large cities exist other than Kampala City to absorb the population, the population increase in GKMA will continue or rather be accelerated. The population of GKMA is forecasted to increase to 4.5 million in 2023 at an estimated growth rate of 4.0% per annum.

Rapid urbanization and population increase have raised many issues, especially:

- Where to accommodate an increased population of 2 million
- Where and how to provide employment opportunities
- What facilities and services are required to provide, including transport infrastructures
- Whether environment can be maintained at a sustainable level.

**As there are no effective GKMA (KCC) structure plans (urban development and land use plans), the Study Team recommends an earliest study and establishment of such plans to control and guide the development.**

## 2) High GRDP Growth, Rapid Increase of Vehicle Population and Traffic Volume

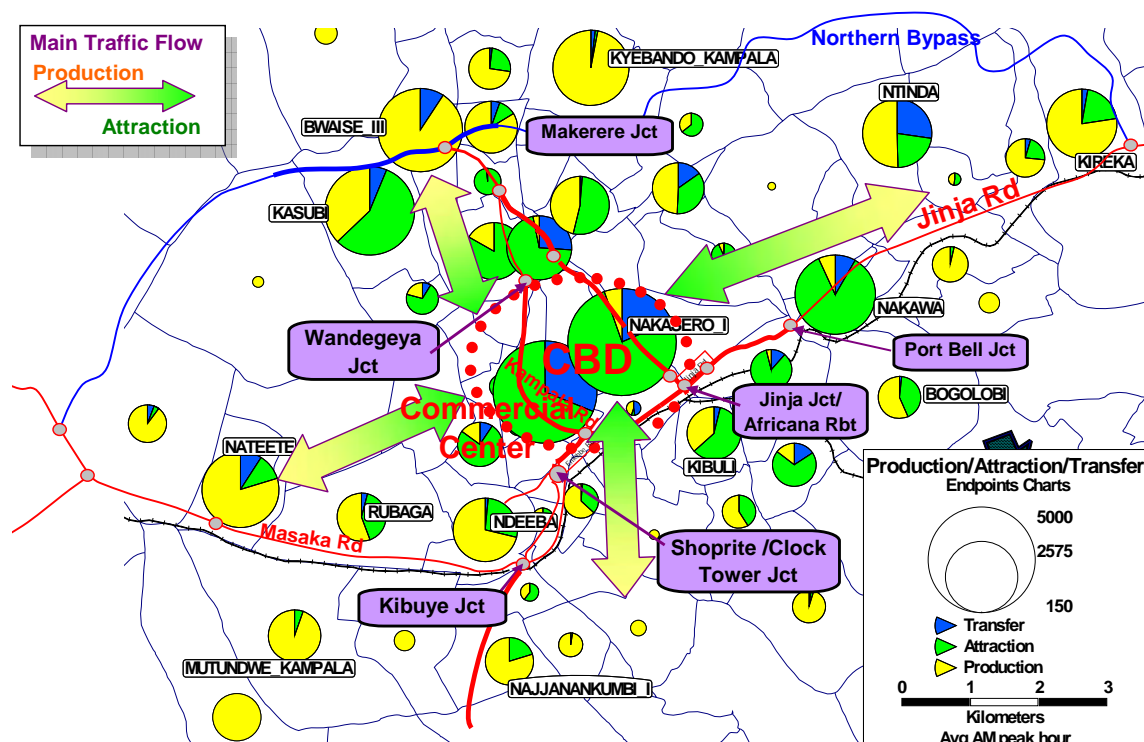
The traffic increase relies mostly on economic growth and population increase in principle. Uganda recorded an annual GDP growth rate of 7.8% in 2001-2008, population growth rate of over 3.3 % since 1992 and vehicle population growth rate of 10.9% in 1997-2008. In line with the rapid urbanization, traffic volume on major arterial roads in Kampala has increased with an average of 13.3 % per annum since 1992.

Considering traffic increase, new road construction or road widening from two to four lanes in

Kampala was almost not executed except for the 3.5 km of the 21 km Northern Bypass opened in October 2009. The traffic volume has far exceeded the capacity on all major arterial roads and junctions, and this is the basic reason behind serious traffic congestion.

### 3) Urban Structure which concentrates the traffic on CBD/Commercial Center

Figure 3.2.8 shows the production/attraction/transfer and main flow of traffic during the morning peak hours. About half of the traffic produced shown in yellow color, are coming from the suburbs, traveling to the CBD/commercial center as shown in green color. This is why Jinja Jct/Africana junctions (eastern gateways), Shoprite/Clock Tower Junctions (southern gateways) and Makerere / Wandegeya Junctions (northern gateways) have faced very serious traffic congestion.



**Figure 3.2.8 Production /Attraction / Transfer and Main Flow of Traffic**

As the CBD/commercial center are the largest attraction areas (Figure 3.2.9) and no other competitive urban centers exist, the main traffic flows would not change much in the future unless urban structure is modified. The traffic will continuously concentrate in the CBD area at least in the short to medium terms.



Source: JICA Study Team

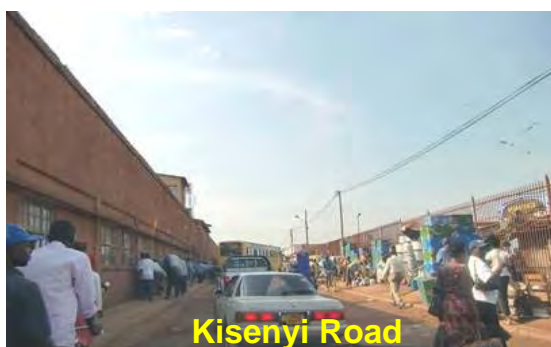
**Figure 3.2.9 Facilities Causing Traffic Jam at CBD Commercial Center**

However, as approximately a quarter of the traffic in CBD/commercial center is transfer traffic, (blue color) this can be reduced if taxi parks and interurban bus terminals are moved to the outside of the city center.

#### 4) Weak Road Network, Poor Quality and Insufficient Traffic Capacity

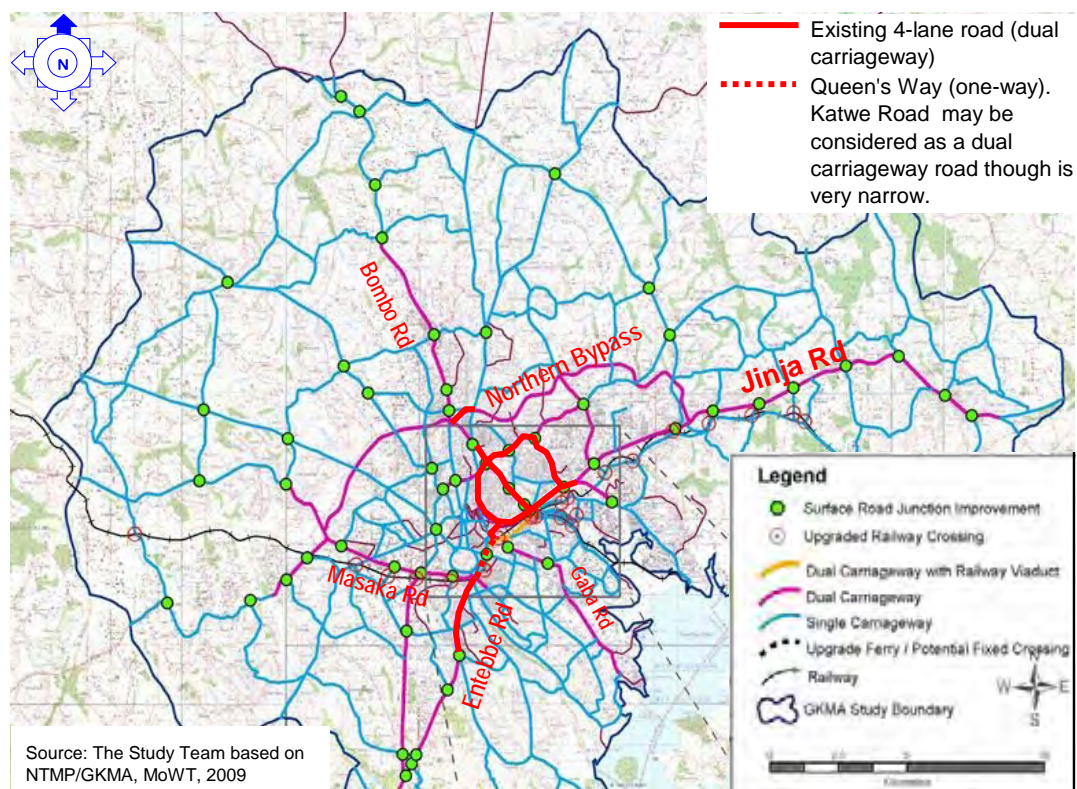
As shown in Figure 3.2.10, most of the arterial roads are currently two-lane roads. NTMP/GKMA planned dual carriage programs but so far is not much progressing except for the Northern Bypass opened in October 2009, of which only 3.5 km of the 21 km long is dual lane. Although the traffic volume has far exceeded the capacity, implementation of the dual carriageway programs would not be easy as it requires a lot of land acquisition and resettlement.

The total road length of KCC is 1,030 km of which paved roads (310 km) are approximately one thirds. This is one of the major reasons why traffic is rather concentrated in the main arterial roads. The single carriageway programs (paving) should be progressed as its implementation does not require land acquisition and resettlement.



Source: JICA Study Team

**Example of Gravel Roads in CBD Commercial Area**



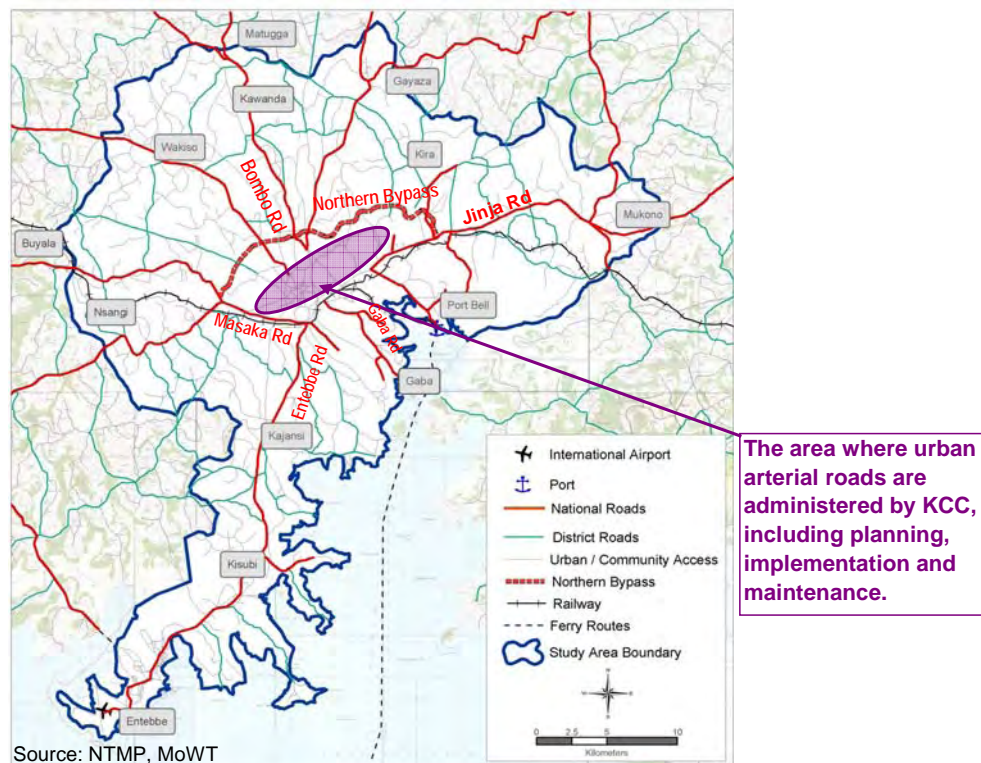
**Figure 3.2.10 Road Development Plans in NTMP/GKMA and Existing Condition**

5) Insufficient Capacity of Road Administration Bodies and Human Resources

Capacity of road administration bodies and human resources is insufficient in planning, implementation and operation and maintenance. The GOU should speed up the current organization reforms, including creation of:

- GKMA Transport Authority (MATA)
- Multi-sector Transport Regulation Authority (MTRA)

Most of the KCC arterial roads, approximately 130 km, connected to national roads are currently under the administration of KCC. However, as capacity of KCC both in budget and human resources are insufficient, these roads are directly administered and managed by MoWT (and UNRA) to maintain consistency in policy and management as a part of the national roads in the near future.



The area where urban arterial roads are administered by KCC, including planning, implementation and maintenance.

Figure 3.2.11 Roads Administration in GKMA

6) Others (inland depots, hilly topography, at-grade railways crossings, flooding, etc)

Other causes of traffic jam include the following:

- Lack of efficient and effective public transport system
- Inland depots located in the urban area (Nakawa) and Kampala Industrial Area near the city center
- At grade crossing of railways, especially at access road and Mukwano Roundabout
- Flooding and poor drainage
- No appropriate phasing of traffic signals. There are nine signalized junctions in Kampala City installed through the grant aid from GOJ. However, no appropriate signal phasing adjustments were made since the installation although traffic patterns have already changed. The traffic police are working instead of signal control at all busy junctions. Refer to Chapter 10 as to details.
- Undisciplined drivers and pedestrians
- Mixture of non-motorized transport, especially bicycle taxis on arterial roads
- Poor road conditions (insufficient maintenance)
- Roadside (curb) parking
- Traffic accidents



## (2) Sprawling Urbanization and Poverty

One of the serious problems in rapid urbanization is the increase of the urban poor (slums and slum population). The urban population increase is at 5.0% per annum. However, a large part of the increasing population could belong to the poverty level without appropriate residences, employment and accesses to socio-economic facilities. The poverty eradication has been the top priority of GOU and is one of the key issues that road infrastructure and services could support such government policy and efforts.

Figure 3.1.12 shows the Priority Junctions/Roads listed in the Strategy of the Improvement of Traffic Flow in Kampala, MoWT, Dec.2009 and locations of slums in Kampala City.

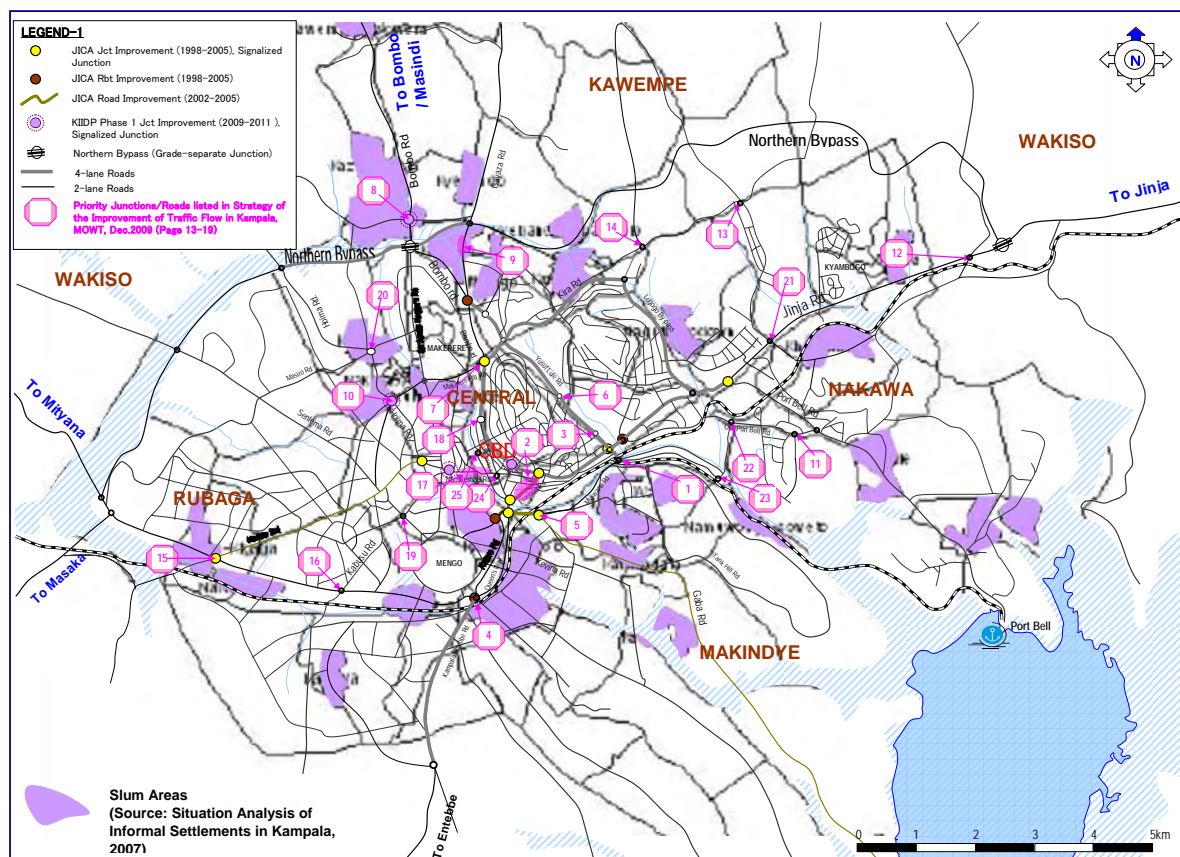


Figure 3.1.12 Spread of Slums and Traffic Congestion

There are several junctions or streets where poor people stay and are with open markets along or even on sidewalks and right-of-way, causing serious traffic congestion (photographs below). It should be noted that road or junction improvement would not solve traffic congestion unless these encroaching market activities and facilities are addressed in appropriate ways without scarifying the life of residents.



**Kawaala Market encroaching to Hoima Road**

Source: JICA Study Team



**Kalerwe Market encroaching to Gayaza Road**

### (3) Non-motorized Traffic

#### 1) Pedestrian

Walking is one of the basic modes of transport means. However, the widespread lack of adequate and friendly pedestrian facilities in GKMA, especially in the city center, has increased accident risks and conflicts between pedestrians and vehicles. Most of the existing sidewalks for pedestrians have the following defects:

- Narrow width, lack of sidewalks (footways) at both or at one side of the road
- Large gaps at crossing without appropriate signals that give priority to pedestrians
- Spaces occupied by installed signboards, trees, utility poles and street vendors
- Unpaved or uncut grass remains
- No proper separation from the carriageways
- No markings on crossings
- Steep overhead crossings (pedestrian bridges) are not popular to pedestrians and not used.

NTMP/GKMA intends to address these issues and planned to provide about 1,050 km paved sidewalks for pedestrians. KIIDP under the World Bank will provide guardrails and sign boards separating the lanes between vehicles and pedestrians at the city center.

#### 2) Bicycles

Bicycle is an environmentally friendly transport means and, therefore, its use should be encouraged by providing proper cyclist routes and cycle-lanes, including paved shoulders separate from pedestrian lanes, bicycle-safe drainage grates and by maintaining a smooth and clean riding surface. According to the Project Appraisal Documents (PAD), a bicycle path master plan study will be conducted under the Transport Sector Development Project (TSDP).

One of the unique non-motorized transport means in Kampala City is bicycle taxi (boda boda), which offer transport services near the city center. As bicycle taxis use the carriageway, these have caused many accidents and forcing slow movement of vehicles. However, as ban on use of boda boda on arterial roads may endanger daily income of the poor, appropriate policy and measures should be established.