

**INTERNATIONAL PROGRAMME FOR RESEARCH ON THE INTERACTIONS
BETWEEN POPULATION, DEVELOPMENT AND THE ENVIRONMENT
(PRIPODE)**

Dossier no

Received

Title of the project: Urban Development, Population and the Environment in Uganda:
The Case of Kampala and its Environs

The person in charge Dr. Jockey Baker Nyakaana

Applicant Center Geography Department
Makerere University, P.O Box 7062, Kampala - Uganda
Tel: 256 - 41 - 531261
Fax 256 - 41 - 542265

Country Uganda

SUMMARY OF THE PROJECT

1. Title of the project: Urban Development, Population and the Environment in Uganda: The Case of Kampala and its Environs

2. The person in charge: Dr. Jockey Baker Nyakaana

3. Address of the person in charge:

Geography Department
Makerere University,
P.O Box 7062,
Kampala - Uganda
E-mail dr_nyakaana@arts.mak.ac.ug
Tel: 256 - 41 - 531261
Fax 256 - 41 - 542265

4. Centers or teams involved in the project:

- ◆ Gender and Women Studies,
- ◆ Institute of Economics
- ◆ Makerere University Institute of Environment and Natural Resources (MUIENR)
- ◆ Department of Geography
- ◆ Institute of Statistics and Applied Economics

5. Number of researchers involved in the project: 7

6. Disciplines concerned by the project Environment
Gender
Development Economics
Geography
Population

7. Area(s) of research Kampala City, Peri-Urban Areas of Kampala

8. Key words describing the project (between 2 and 4 per heading)	Population	Growth rates, migration, and livelihoods
	Development	Unplanned housing, industrialization, income
	Environment	Pollution, wetlands, solid wastes
	Geographical field	Kampala, Peri-Urban areas
	Methods of analysis	GIS, Statistical
	Sources of data	Secondary, Primary

Abbreviations used in the proposal

P/D/E	Population Development and Environment
MPED	Ministry of Planning and Economic Development
SAPs	Structural Adjustment Programs
NEMA	National Environmental Management Authority

UEPF	Uganda Environment Protection Forum
JET	Journalist Environmental Association of Tanzania
GPS	Global Positioning System
GIS	Geographic Information Systems
RS	Remote Sensing
MOHUD	Ministry of Housing and Urban Development
MUIENR	Makerere University Institute of Environment and Natural Resources

Summary of the Project

Kampala the capital city of Uganda is a primate urban center experiencing a rapidly growing population from (774,241 in 1991 and approximately 1.2 million 2002). The population growth has led to the changes in the population structure of the city and a rapid urban growth. Migration from rural areas has also greatly contributed to population growth in the city and both have created significant demographic changes in and around the city. This growth has been responsible for increased demand for employment, land for housing, a fast spatial urban development and an increasing level of industrialization. The effects of demographic changes in Kampala have ushered in unprecedented interactions between population variables and environmental resources through the urbanization, urban development and industrialization as the development activities. But the development is occurring in a haphazard manner largely dominated by the urban informal sector, which has greatly contributed to the degradation of the environment through wetland destruction, solid waste accumulation, water pollution and land use change. Though there is an increasing concentration of social services, increasing housing stock and activities like urban agriculture within the city, these are not adequate for a growing population. Consequently this has created vulnerable groups of unemployed street traders and women who have had to evolve coping strategies, as they cannot afford to go back to the rural areas without realising their migration objectives. The resultant living environment in the city is deplorable with poor environmental quality, poor housing, poorly managed solid wastes and increased water pollution.

This project is set out to evaluate the impact of the demographic changes in Kampala on the environment through the interactions of urban development, urbanization and industrialization. The study will be multidisciplinary to evaluate the interactions between P/D/E as a result of population increase, urban population structure change and migration. The study will analyze the population change, development and environmental degradation processes of wetland degradation, solid waste disposal and management, water pollution and land use change.

The project will use both primary and secondary data will be got from government documents, academic research reports, and consultancy and news paper reports. Secondary data will be supplemented with primary data collected through interviews and discussion groups with relevant informed stakeholders. Primary data will be collected using GPS and this will be integrated in the existing GIS data. GIS and RS will be used for input, processing, analysing and display of spatial data. Statistical and qualitative analytical tools will be used in analysing data collected through interviews and secondary sources.

Results of the study will be improved through sensitisation workshops with stakeholders, key informants and presentation to relevant committees of parliament who are expected to provide vital inputs. The final project report will be an important document, highlighting the importance of urbanization in the national development process, provide awareness to policy makers and planners on issues of population change, urban development and environment. Urban planners can use such information when planning/demarcating land use zones while integrating population and environmental issues. The project result will further be utilized in Policy formulation on waste management for a sustainable clean environment, low cost planned housing schemes for the urban poor and provisioning of safe water.

DESCRIPTION OF THE PROJECT

Problem studied:

The study will evaluate the impact of the background factors of demographic changes i.e. population growth, urban population composition, structure and migration, on how they accelerate urbanization process and urban development through industrialization, search for employment and housing. The impact of the background factors will be analyzed as to manifest the interactions in environmental degradation i.e. wetland degradation, solid waste accumulation, water pollution and land use changes (*see figure 1*). Demographic changes in the country and the City have accelerated urbanization, urban development and industrialization which in turn are threatening the environment of the City and its environs. Through migration, the attracted population has created stress on the existing infrastructure like housing, water supply and solid waste disposal leading settling in marginal areas. The consequence is the creation of vulnerable groups (low income, women, street traders, children, unemployed), with various coping strategies that impact on the environment through urban agriculture and unplanned housing provisioning. The research will therefore analyze the interactions of population and demographic dynamics with the environment through wetland degradation, solid waste disposal/management, water pollution and land use changes and their implications for sustainable development.

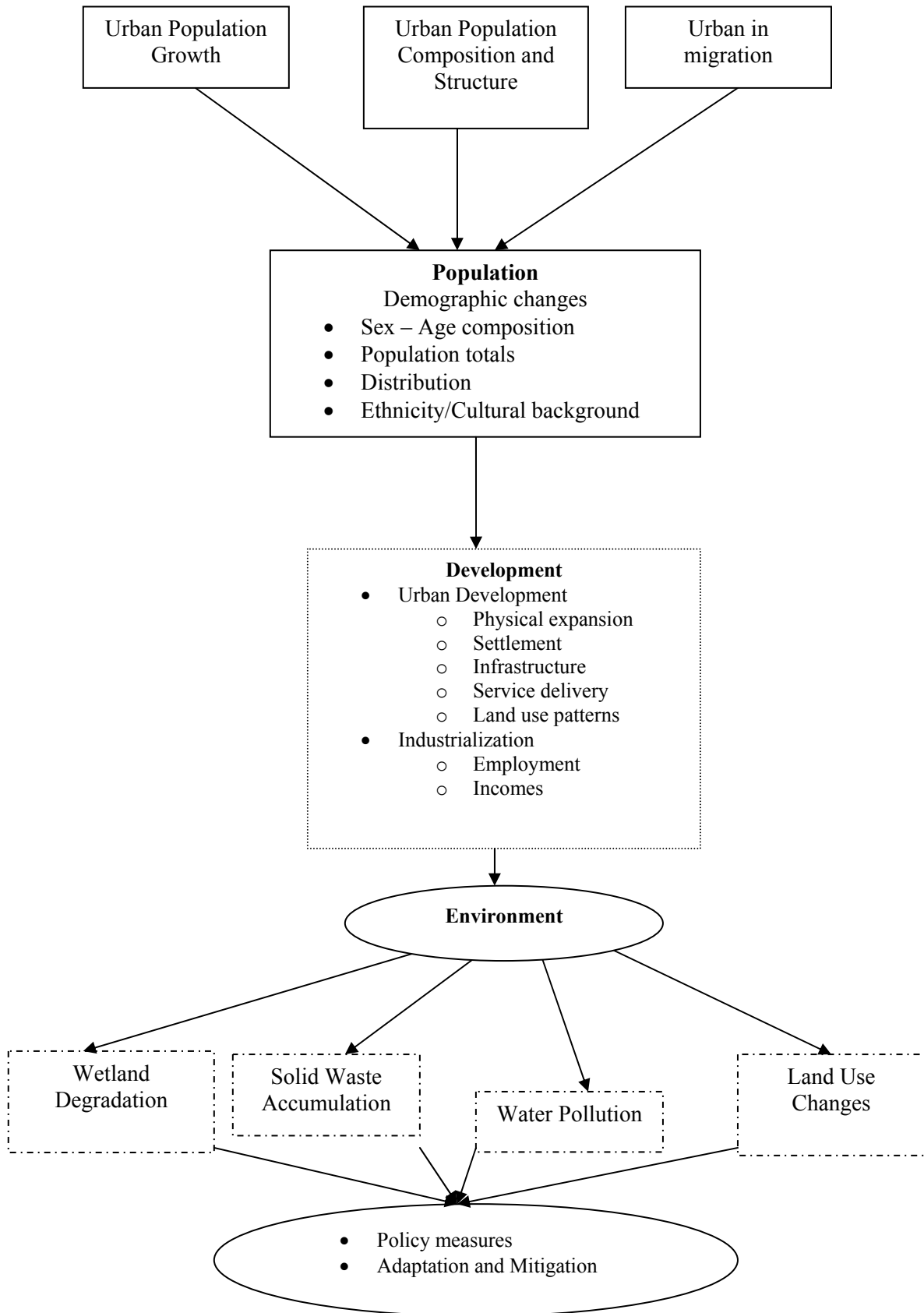


Figure 1 Conceptual model of the study

National Importance of the Problem

The country's population is growing with corresponding need for development efforts to foster good welfare. But there is a wide difference in the growth levels of population compared to the development process and efforts in the country. Any effort for development and improvement of welfare requires an understanding of the interactions between population, development and the impacts on the environment which form the resource base for development. With a City of such National importance, there is need to analyze the interactions between population, the urbanization and environment for better policies. Therefore this study will attempt to highlight the importance of city specific policy for sustainable development on the following;

- Provisioning of low cost housing for the urban poor in planned settlements.
- Urban development and urbanization policy
- City specific Environmental policy for sustainable development
- Policy on urban poverty

Relevance for policies on sustainable development

Therefore the results of the study will be used in policy formulation on;

- Population growth, urban employment, environment, service delivery (waste management, housing, water) for sustainable development
- Resource utilization for sustainable Industrial development (i.e. industrial development policy that integrates environmental issues)
- Sustainable urban development through appropriate urban planning (being mindful of the vulnerable groups and the environment)

Scientific objectives

General objective: Generate information that can be used for policy formulation, which will lead to sustainable urbanization through the integration of population, development and environmental issues

Specific objectives

- Determine the levels of pollution due to industrialization, siltation and solid waste management
- Determine the extent of wetland degradation through urban development
- Examine the trends of population growth and its impacts on the environment through coping strategies to earn a livelihood
- Assess the trends of industrialization and its role in generating migrants, unplanned housing and impacts on the environment

A brief Literature Review

Population

Data on population will mainly be obtained from the national census reports of 1969, 1980, 1991 and 2002. However research documents which handle specific issues on population will also be used. Mukulu (1994), Adeokun (1994) and Matovu (1994), MPED (1992) looked at methodology of integrating population data in development planning. This will be useful in providing information and methods of integrating population and development.

Poverty and vulnerable groups as they relate to population and development have been documented and presented through workshops and conferences. Omwony Ojok (1995) studied poverty and HIV/AIDS,

Sewaya (1995) looked at poverty as a multidisciplinary research agenda and Balihuta (1995) related education to poverty. Kayiso (1995) tried to establish the significance of SAPs in Uganda's attempt to alleviate poverty.

Environment

The Kampala District Environment Profile (NEMA 2001/02) is a general document covering the various environmental aspects of the district like wetlands, wildlife, waste management and population. It provides information on effects of human activities on wetlands and environmental implications of Kampala's physical features. This information is very vital for this study in trying to relate P/D/E. This document lacks policy guidelines on natural resource utilization for sustainable urbanization and development. These gaps will be filled in by this study.

A considerable amount of research has been conducted on different aspects of the environment in Kampala and environment. On solid waste management, UEPF (1995), Mugabi (1998), Mpamize (1998), Nyakaana (2000), Namakula (2003) considered different aspects. Mugabi considered urban commercial wastes, Mpamize studied domestic solid waste and UEPF Nyakaana and Namakula considered waste management in Kampala in general. These studies are vital for the present study as they provide vital information regarding the solid waste problem in Kampala. This study will use this information to relate waste generation and management to P/D/E and based on that propose appropriate measures to improve solid waste management through enacting strong and effective legal and regulatory framework.

It will be important for this study to establish and analyse the infrastructure requirements for Kampala's garbage problem and the legal and regulatory requirements to sustain the established infrastructure. Studies have been carried out which indicate a deficiency in legal and regulatory framework as well as infrastructure requirements. KCC and The World Bank (2000) studied the level of garbage management and actors involved in garbage collection and disposal. While Plan International, (1997) studied the solid waste management problem and drainage. Sengendo (1997) also looked at governance and formulation of environmental strategy in Kampala.

On pollution JET (1994) Kasimwe et.al. (1995) and considered the levels of pollution in Lake Victoria as a result of the developments in the surrounding urban centers. While Kasimwe et.al studied aquatic pollutants and the effects on the distribution of planktons, JET identified five areas of consideration for pollution of lake Victoria namely; water hyacinth, industries, agriculture, human settlements and over population and illegal fishing, over fishing and legislation. These studies are useful for this project in an effort to integrate P/D/E.

Development

Urban development will be studied by focusing on urban housing, urban planning, incomes, industrialization and employment indicators. Available studies in Kampala indicate that urban development is occurring in a haphazard manner despite the existence of planning regulations and law. MOHUD (1990), The Kampala Urban study (1993), Kampala Structure Plan (1994) considered urban housing and planning. On the other hand MFEP (1994) carried out an inventory of industrial establishment in Uganda for different sectors. The statistics will be very useful in determining industrialization levels and trends in Kampala. On coping strategies, Nyakaana (1999), considered the street traders, a vulnerable but important group of the Kampala business life.

Data required for the project

Variable	Nature of data	Source	Availability	Indicators
General information on Kampala	<ul style="list-style-type: none"> Spatial digital database (scale 1:2500) Topographic maps 	<ul style="list-style-type: none"> Lands and survey Biomass Ministry of Housing and Works National Bureau of statistics 	Available on purchase	
Population	<ul style="list-style-type: none"> Total population Distribution Migration Policy issues Population composition 	<ul style="list-style-type: none"> National housing and population censuses 1959, 1969, 19991, 2002 Demographic and health survey 1995 Population secretariat 	<p>Available</p> <p>Available</p>	<ul style="list-style-type: none"> % of growth migration rate proportion of migrants reason for migration occupation
Development	<ul style="list-style-type: none"> Urban housing Demand, housing stock, quality Urban planning Urban growth Income Industrialization Spatial distribution Types of products Ownership Level of employment Policy 	<ul style="list-style-type: none"> Kampala urban study Namuwongo housing project dossier MOHW documents Aerial photographs Digital maps Academic research doc. Kampala master plan 1972 Kampala structure plan 1994 Detailed plans for parishes (Geography department) Not available Ministry of Tourism, Trade and Industry Not available Not available Not available KCC Relevant policy statutes 	<p>Available</p> <ul style="list-style-type: none"> Available Available Available for some few parishes Available To be collected To be collected To be collected Available 	<ul style="list-style-type: none"> Type of housing Nature of housing Floor space Level of satisfaction Planning procedures Environmental consideration Average income Location of industries Types of ownership Number of employees Proportion of employees migrated
Environment	<ul style="list-style-type: none"> Land cover/use Orthoimages of wetlands Pollution data Location of water springs Solid waste management Policy 	<ul style="list-style-type: none"> Biomass project MUIENR MUIENR Field survey KCC NEMA Policy statutes 	<ul style="list-style-type: none"> Available on purchase Available Available To be captured using GPS Available 	<ul style="list-style-type: none"> Area coverage Change rates Area degraded Level of pollution Number of springs Waste generation rates Disposal practices

Methodology

Several methods will be used systematically at various stages in conducting the research. Primary and secondary sources of information will be used. Primary sources will involve conducting interviews while secondary data will be derived from existing government documents, academic research findings, consultancy reports and news paper reports. Population and demographic changes will be analyzed using SPSS program basing on available population data and additional field collected data from the sample population of households on incomes and livelihood. A spatial analysis of these changes will also be analyzed using GIS. The urban development process and urbanization will also be analyzed using SPSS program and particularly correlations, regressions and multivariate analyses to elicit relationships between population dynamics and development. A spatial analysis of urban growth, industrialization and housing will also be done in a GIS environment focusing on the characterization of the relationships between population and demographic changes with urban development changes. Data for the analysis will collected by GPS and Remote Sensing on environmental variables; statistical analysis linked to GIS analysis will form the main technique for establishment of relations and interactions between population and environment. Land use changes, wetland degradation and pollution levels will be analyzed in a GIS through interpolation, overlays and trend analysis. GIS will be used because it integrates spatial with socio-economic data. Other data to be collected from the field with GPS is the spatial location of springs and waste disposal points. This data will be integrated with the existing GIS data acquired from existing spatial databases for further analysis. GIS and RS will be used for input, processing, analyzing and display of spatial data. For field surveys the sample size will be determined from a sampling frame, which will be derived from the National Census data for 2002 for selected administrative parishes within the study area. For qualitative data, content analysis technique will be used to establish relations and description between variables. This will be applied to data on urban planning in relation to population, development and environmental degradation indicators. These techniques are appropriate to the study because of the nature of data to be used.

Use and Valorization of Results

The results will be used in policy formulation on;

- Urban population growth, migration and livelihood
- Environmental consciousness in urban planning which caters for the vulnerable groups
- Industrialization without environmental degradation
- Pollution control measures
- Environmental friendly methods of waste management
- Integrated sectoral urban development that links population, development and environment

The valorization process of the results will involve;

- Conducting sensitization workshops for the different stake holders i.e community, industrialists, urban planners, community leaders, ministry officials (Local government, Health, Tourism trade and Industry) Housing and Urban Development
- Developing a bottom-top approach to planning process
- Presenting the results to the relevant committees of parliament
- Policy formulation by the various organs of government
- Formulating Acts of parliament which integrate P/D/E

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I. THE TEAM

1. The person in charge

Name Nyakaana
First name Jockey Baker
Sex male
Date of Birth 1955
Nationality Ugandan
Position Senior Lecturer

2. The Center

Geography Department
Faculty of Arts MUK
Makerere University (MAK)
P.O Box 7062
Kampala - Uganda
Tel: 256 - 41 - 531261
Fax 256 - 41 - 542265
E-Mail geog@arts.mak.ac.ug

Person representing Organisation

Dr. Hannington Sengendo
Dean faculty of Arts
P.O Box 7062 K'la
Tel 256 41 542241
Fax 256 41 542265
Email faculty@arts.mak.ac.ug

3. Team members

Surname	Other names	Center	Name of organisation	% working time
Nyakaana	Jockey Baker	Geography department	Makerere University	50%
Lwasa	Shuaib	Geography department	Makerere University	40%
Mugisha	Sam	MUIENR	Makerere University	40%
Sengendo	Hannington	Geography department	Makerere University	30%
Mwebaze	Tom	Institute of Economics	Makerere University	30%
Okiria	Judith	Gender and Women studies	Makerere University	20%
Tumwine	Fred	Institute of Statistics and population	Makerere University	20%

5. Presentation of the Team

The members of the team, especially members from geography department, have been together as a research team on various projects. These projects include cross border trade in Eastern Uganda, Informal Sector development and its role in employment creation in Kampala as well as various consultancies on urban environmental management. This team existed before the call for proposals. All the team members are researchers and lecturers at Makerere University, which is a public institution. The team members have various materials at their disposal including software, access to Internet through the University-wide network and some limited IT hardware. The team is comprised of highly qualified academicians with proven research experience and quality. The diversity of background disciplines and specialisations will add a resourceful dimension required for the success of the project since it requires multi-disciplinary and multi-sectoral approach for integration of population, development and environment.

Given the diverse backgrounds of the research team, the project results will offer new integral and crosscutting opportunities for further research, which will reinforce collaborative research between the disciplines involved. Such will enhance and promote education by providing upto-date information for reference in teaching. The information generated will also allow the growth of expertise in integrative studies.

Several members of the team have either individual or group partnerships with other Universities, local and global research institutes. Members have relations with the University of Stockholm, University of Bergen in Norway, the International Human Dimensions Program on Global Environmental Change and Urbanization and Environmental Change Institute. Team members are also part of various research networks involved in several issues such as Gender relations, Global Environmental Change scientists and people, Place and Politics of Provisioning in Urban centers.

Non scientific partners also exist including local governments, NGO's, Community organisations and private institutions. The team is composed of members of different and diverse background and specialisations including gender, environment, GIS/RS, economic development, Housing, Population studies and information systems. Therefore, the team does not lack expertise in demography, economics agronomy and environmental studies. It is suited for the project and will carry out the research effectively.

II. WORK SCHEDULE

Activity	Duration	Timeframe	Resource persons from team
Preparation for project <ul style="list-style-type: none"> Setting office Acquiring equipment Installation Reconnaissance study 	1 month 2 weeks	June 2003	<ul style="list-style-type: none"> Study team
Assembly of relevant literature and Research Equipment <ul style="list-style-type: none"> Getting cadastral maps of study area at a scale of 1:2500 Organising and editing data layers (features, attributes and boundaries) 	4 weeks 4 weeks	July 2003	Study Team
Pre-field preparations <ul style="list-style-type: none"> Preparations of Data collection instruments 	<ul style="list-style-type: none"> 2 weeks 	July 2003	Dr. Nyakaana Mr. Lwasa
Field survey	3 months	August 2003 to	<ul style="list-style-type: none"> Dr. Nyakaana

<ul style="list-style-type: none"> • Field data collection • Spatial Data capture 		November 2003	<ul style="list-style-type: none"> • Mr. Mwebaze • Dr. Sengendo • Mr. Mugisha • Mr. Lwasa
Analysis <ul style="list-style-type: none"> • Statistical analysis (SPSS) • Image Classification • Spatial analysis and modeling (ILWIS & IDRIS) 	3 months	October 2003 to December 2003	<ul style="list-style-type: none"> • Mr. Mwebaze • Mr. Tumwine • Mr. Mugisha • Mr. Lwasa
Mid - term evaluation Report <ul style="list-style-type: none"> • Drafting report 	2 months	December 2003 to January 2004	<ul style="list-style-type: none"> • Dr. Sengendo • Dr. Nyakaana • Dr. Okiria
Submission of mid - term report		February 2004	<ul style="list-style-type: none"> • Dr. Nyakaana
Field verification	11 months Including 20 weeks of field verifications spread through the period	March 2004 to February 2005	<ul style="list-style-type: none"> • Study Team
Pre-report drafting	4 months	November 2004 to February 2005	<ul style="list-style-type: none"> • Dr. Sengendo • Dr. Nyakaana • Dr. Okiria
Valorization Workshop <ul style="list-style-type: none"> • Preparation and actual workshop 	1 month Including 2 weeks of travel for preparations	February 2005	<ul style="list-style-type: none"> • Study team
Final report drafting	1 month	March 2005	<ul style="list-style-type: none"> • Dr. Nyakaana • Dr. Sengendo • Dr. Okiria
Revision of report	3 weeks	April 2005	<ul style="list-style-type: none"> • Dr. Nyakaana • Dr. Sengendo • Dr. Okiria
Submission of report		First week of may 2005	

Workload of Team

Team Member	Work Load in Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Dr. Nyakaana	14	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Dr. Sengendo	10	■	■	■	■	■	■	■	■	■	■				
Dr. Okiria	7	■	■	■	■	■	■	■							
Mr. Mugisha Sam	8	■	■	■	■	■	■	■	■	■					
Mr. Lwasa	10	■	■	■	■	■	■	■	■	■	■				
Mr. Tumwine	7	■	■	■	■	■	■	■							
Mr. Mwebaze	9	■	■	■	■	■	■	■	■	■	■				