

PREAMBLE

This National Water Development Report (**NWDR, 2005**) is a comprehensive report that gives a broad overview of status of the water sector in Uganda and the progress made by government to address the challenges related to sustainable water resources management and efficient provision and delivery of water for different uses.

Preparation of this report was a collaborative effort between the Directorate of Water Development and the World Water Assessment Program (WWAP), which provided both technical and limited financial support.

WWAP is a United Nations (UN) programme bringing together 24 UN agencies to produce a triennial global evaluation of the world's freshwater resources and their management. Under this initiative, WWAP will be publishing a series of World Water Development Report (WWDR) every three years. The first report (WWDR I) was released in March 2003 and the second report (WWDR II) is under preparation and is planned to be released in March 2006. Five African countries were selected as case studies during the preparation of the WWDR II i.e. Uganda, Mali, Kenya, South Africa, Ethiopia.

The National Water Development Reports prepared by each case study country are meant to provide some useful practical experience and lessons to be captured in the preparation of the WWDR II. In addition, summaries of the case study reports will be published in the case study section of the WWDR II. This is a very unique opportunity for Uganda to share its experience in the water sector with the international community!

Preparation of the report was a collective effort of a National Working Group (NWG) comprising of several experts from different government institutions and agencies including: Directorate of Water Development; National Environment Management Authority; Ministry of Agriculture, Animal Industries and Fisheries; Ministry of Energy and Mineral Development; National Water and Sewerage Corporation; Ministry of Health; Ministry of Education and Sports; Wetlands Inspection Division; and the Meteorological Department. Details of the members of the NWG and their respective roles are given in **Tables A.6** in **Annex A**.

The report is a result of a highly consultative process, which involved several stakeholders and interested parties. The report preparation process involved extensive consultations at both national and local levels, collection of information and data, and holding of a number of consultative and brainstorming meetings, seminars and workshops.

The report comprises of 12 Chapters and is structured into three broad sections as follows:

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Section 1 gives general socio-economic information about Uganda, presents an overview of Uganda's Water sector, and highlights the state of Uganda's Freshwater resources.

Section 2 discusses the major socio-economic uses of water including: Rural Water and Sanitation; Urban Water and Sanitation; Water for Food Security; Water for Energy; and Water for the Environment.

Section 3 discusses the broad water management challenges including Water Education, Research and Capacity Building; Valuing Water; and Coping with Water-related Disasters.

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LIST OF ABBREVIATIONS AND ACRONYMS

AHA	<i>Asset Holding Authority</i>
BOD	<i>Biological Oxygen Demand</i>
CAO	<i>Chief Administrative Officer</i>
CBO	<i>Community Based Organizations</i>
CIDA	<i>Canadian International Development Agency</i>
COM	<i>Council of Ministers</i>
CSD	<i>Commission for Sustainable Development</i>
CWP	<i>Country Water Partnership</i>
DANIDA	<i>Danish International Development Agency</i>
DC	<i>District Council</i>
DEO	<i>District Environmental Officer</i>
DEAP	<i>District Environmental Action Plan</i>
DfID	<i>Department for International Development – U.K</i>
DWD	<i>Directorate of Water Development</i>
DWO	<i>District Water Officer</i>
EAC	<i>East African Community</i>
ECWSP	<i>Eastern Centers Water and Sanitation Project</i>
ELA	<i>Environmental Impact Assessment</i>
ERA	<i>Electricity Regulatory Authority</i>
EU	<i>European Community</i>
FAO	<i>Food and Agricultural Organization</i>
GDP	<i>Gross Domestic Product</i>
GEF	<i>Global Environmental Fund</i>
GIS	<i>Geographical Information System</i>
GTZ	<i>German Technical Cooperation</i>
GoU	<i>Government of Uganda</i>
HEP	<i>Hydroelectric Power</i>
HRD	<i>Human Resource Development</i>
IDA	<i>International Development Agency</i>
IDPs	<i>Internally Displaced Persons</i>
IHP	<i>International Hydrological Program</i>
ILM	<i>Integrated Land Management</i>
IGAD	<i>Inter-Governmental; Authority on Development</i>
IUCN	<i>International Union for the Conservation of Nature</i>

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<i>IWRM</i>	<i>Integrated Water Resources Management</i>
<i>LC</i>	<i>Local Council</i>
<i>LG</i>	<i>Local Government</i>
<i>LGDP</i>	<i>Local Government Development Program</i>
<i>LVDP</i>	<i>Lake Victoria Development Program</i>
<i>LVEMP</i>	<i>Lake Victoria Environmental Management Programme</i>
<i>MAAIF</i>	<i>Ministry of Agriculture, Animal Industries and Fisheries</i>
<i>MDG</i>	<i>Millennium Development Goals</i>
<i>MEMD</i>	<i>Ministry of Energy and Mineral Development</i>
<i>MOLG</i>	<i>Ministry of Local Government</i>
<i>MoES</i>	<i>Ministry of Education and Sports</i>
<i>MIS</i>	<i>Management Information System</i>
<i>MoH</i>	<i>Ministry of Health</i>
<i>MTEF</i>	<i>Medium Term Expenditure Framework</i>
<i>MWLE</i>	<i>Ministry of Water, Lands and Environment</i>
<i>NBI</i>	<i>Nile Basin Initiative</i>
<i>NELSAP</i>	<i>Nile Equatorial Lakes Subsidiary Action Program</i>
<i>NEMA</i>	<i>National Environment Management Authority</i>
<i>NGO</i>	<i>Non-Government Organization</i>
<i>NWSC</i>	<i>National Water and Sewage Corporation</i>
<i>NGWD</i>	<i>National Ground Water Data Base</i>
<i>PEAP</i>	<i>Poverty Eradication Action Plan</i>
<i>QA</i>	<i>Quality Assurance</i>
<i>RGC</i>	<i>Rural Growth Center</i>
<i>RUWASA</i>	<i>Rural Water and Sanitation East Uganda Project</i>
<i>RWSD</i>	<i>Rural Water Supply Department</i>
<i>RWSS</i>	<i>Rural Water Supply and Sanitation</i>
<i>SIDA</i>	<i>Swedish International Development Agency</i>
<i>SIP</i>	<i>Strategic Investment Plan</i>
<i>SIP 15</i>	<i>Sector Investment Plan for RWSS 2000 -2015</i>
<i>SWRMD</i>	<i>Support to Water Resources Development Department</i>
<i>TAC</i>	<i>Technical Advisory Committee</i>
<i>TC</i>	<i>Technical Committee</i>
<i>TECCONILE</i>	<i>Technical Committee for the promotion of the Development and Environmental Protection of the Nile Basin</i>
<i>TLU</i>	<i>Total Tropical Livestock Units</i>
<i>ToR</i>	<i>Terms of Reference</i>
<i>TPC</i>	<i>Technical Planning Committee</i>
<i>TSU</i>	<i>Technical Support Unit</i>
<i>UK</i>	<i>United Kingdom</i>
<i>UMD</i>	<i>Uganda Meteorological Department</i>

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UNDP	<i>United Nations Development Programme</i>
UNESCO	<i>United Nations Education, Science and Cultural Organization</i>
USA	<i>United States of America</i>
USD	<i>United States dollar</i>
USH	<i>Uganda Shilling</i>
UWASNET	<i>Uganda Water and Sanitation Network of NGO's</i>
UWSD	<i>Urban Water Supply Department</i>
UWSS	<i>Urban Water Supply and Sanitation</i>
WAP	<i>Water Action Plan</i>
WID	<i>Wetland Inspection Division</i>
WRAP	<i>Water Resources Assessment Project</i>
WfP	<i>Water for Production</i>
WPC	<i>Water Policy Committee</i>
WPU	<i>Water Permit Unit</i>
WRM	<i>Water Resources Management</i>
WRMD	<i>Water Resources Management Department</i>
WRMS	<i>Water Resources Management Study</i>
WSPS	<i>Water Sector program Support</i>
WSRIC	<i>Water Sector Reform Implementation Committee</i>
WSS	<i>Water Supply and Sanitation</i>
WWAP	<i>World Water Assessment Program</i>

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EXECUTIVE SUMMARY

Uganda's Freshwater Resources

Uganda's fresh water resources are considered to be a key strategic resource, vital for sustaining life, promoting development and maintaining the environment. Access to clean and safe water and improved sanitation facilities and practices are pre-requisites to a health population and therefore have a direct impact on the quality of life and productivity of the population. Besides domestic water supply, water is also vital for: Livestock Water Supply, Industrial Water Supply, Hydropower generation, Agriculture, Marine Transport, Fisheries, Waste Discharge, Tourism, and Environmental Conservation. Water, therefore, significantly contributes to the national socio-economic development and thus poverty eradication.

Uganda's rivers and lakes, including wetlands, cover about 18% of the total surface area of the country, with rainfall being the greatest contributor to the surface and ground water resources. Almost the whole of Uganda lies within the Nile basin, which is shared by 10 countries¹. The most significant hydrological feature in Uganda is Lake Victoria, the second largest freshwater lake in the world, which is also the source of the Nile, the longest river in the world. Lake Victoria is the lifeline to Uganda's fisheries industry, the source of almost all Uganda's hydropower, and a source of domestic and industrial water supply for the three biggest towns² in Uganda. Lake Victoria is also supporting an upcoming and very lucrative horticulture industry along its shores and not forgetting its strategic role as a key marine transport link between the three East African countries³.

With total renewable water resources estimated at 66 Km³/year, corresponding to about 2,800 m³/person/year, Uganda may be considered to be endowed with significant freshwater resources. However, their uneven spatial and temporal distribution coupled with the ever increasing pressure on the resource due to rapid population growth, increased urbanization and industrialization, uncontrolled environmental degradation and pollution still remains a big challenge to the sustainable management and development of country's fresh water resources.

The country encompasses both humid and semi-arid areas with the average annual rainfall varying from 900mm in the north-eastern semi-arid areas of Kotido to 2000mm on Sese islands in Lake Victoria. There are considerable variations in the onset of rain seasons as well as significant differences between wet and dry years. It is also observed that the settlement and development patterns in Uganda are highly influenced by the rainfall distribution.

¹ Nile basin countries include: Burundi, DR Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda.

² Kampala, Jinja and Entebbe.

³ Kenya, Tanzania and Uganda.

Overview of Uganda's Water Sector

The water sector is one of the priority sectors in Uganda, as it directly impacts on the quality of life of the people and overall productivity of the population. Water supply and sanitation are among the key issues emphasized under the national Poverty Eradication Action Plan (PEAP), which is the key government framework for ensuring poverty eradication through creation of an enabling environment for rapid economic development and social transformation.

The main goal of the water sector in Uganda is:

“To manage and develop the water resources of Uganda in an integrated and sustainable manner so as to secure and provide water of adequate quantity and quality for all social and economic needs for the present and future generations with the full participation of all stakeholders.”

The national targets for water supply and sanitation in both urban and rural areas are:

1. **Urban Areas:** Achieve 100% safe water coverage and 100% sanitation coverage in urban areas by 2015, with an 80%-90% effective use and functionality of facilities.
2. **Rural Areas:** Achieve 77% safe water coverage and 95% sanitation coverage in rural areas by 2015, with an 80%-90% effective use and functionality of facilities.

Water Sector Legal and Institutional Framework

In order to meet the emerging water sector challenges, Uganda prepared a Water Action Plan (WAP) in 1993 – 1994 to provide a flexible and dynamic framework for development and management of country's water resources.

As a follow up to the WAP, Government put in place a comprehensive policy and legal framework for the management of the water sector. The framework comprises of a set of policies and laws the most notable of which include: The National Water Policy (1999); The Water Statute (1995); The National Water and Sewerage Corporation Statute (1995), and the Local Government Act (1997).

In order to address the water sector institutional challenges, Government undertook to establish a comprehensive institutional framework for the management and development of the country's water resources. This process took due cognizance of other national initiatives (i.e. Decentralization, Privatization, Gender Emancipation, etc) geared towards the redefinition of the roles of the different levels of government, with the central government creating the enabling environment for action by local governments, communities, and the private sector.

At a strategic level, government has also been vigorously promoting the principles of Integrated Water Resources Management (IWRM) as an integral part of its strategy to ensure sustainable water resources management and development.

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Reform of the Water Sector

In order to ensure that water services are provided and managed with increased efficiency and cost effectiveness, government initiated reforms in the water sector in 1997. As part of the reform process, detailed situation analysis of the sector has been carried out resulting in the preparation of a comprehensive Water Sector Strategy, detailed sub-sectoral investment plans and clear definition of national targets for the sector.

One of the key strategic outcomes from the reform studies is the adoption of a ‘Sector Wide Approach to Planning (SWAP)’ for the sector. The SWAP framework, which has been embraced by both government and the water sector development partners, has already proved to be the most appropriate mechanism for resources mobilization and implementation of the action plans. The SWAP framework also guarantees the participation of all stakeholders in the planning and implementation of water sector activities. This openness has resulted in increased confidence from the development partners who have now agreed to finance water sector programs through the regular government budget, contrary to the project specific funding characteristic of the past.

Water Sector Financing

Funding for the water sector has been increasing steadily over the past 10 years. The water sector, being one of the key priority sectors, has benefited significantly from the Poverty Action Fund (PAF) to which government has committed significant resources for the Poverty Eradication Action Program (PEAP). Donor financing is still the major source of funding for the water sector, accounting for up to 75% of the total sector funding. This is expected to be gradually scaled downwards as government funding increases.

Under the SWAP framework, government and most development partners have agreed to finance the water sector through general budget support, which gives government a high degree of flexibility in allocating both local and donor financial resources according to the national priorities and development objectives

Preliminary estimates from the investment plans culminating from the Sector Reform Studies indicate total sector investment needs of about US\$ 1.682 billion⁴. The biggest challenge is how to mobilize these funds.

Monitoring, Evaluation and Reporting

Government considers effective Monitoring, Evaluation and Reporting (ME&R) as a key pre-requisite for the successful and timely achievement of the water sector targets and goals. As part of the water sector reform process, government has put in place a very elaborate ME&R framework, which aims at ensuring coordinated and periodic reporting on all sector activities by the different stakeholders. This has greatly enhanced transparency and accountability in the water sector through improved information flow between the central

⁴ The breakdown of this estimate is as follows: US\$ 951 million for the RWSS, US\$ 481 million for the UWSS, US\$ 200 million for Water for Production, and US\$ 50 million for WRMSS.

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government, donors, local governments, NGOs and the private sector. In order to further strengthen the ME&R framework, Government has embarked on the process of defining clear indicators for the water sector against which the performance of the sector will be periodically reviewed.

Progress towards achieving the Millennium Development Goals

Results from household surveys conducted in 2002, and projected for the year 2003, indicate that nationwide, access to water supply is at 61.5% which indicates that Uganda is actually on course towards meeting the 2005 targets of 62%. Results from the survey also indicate access to water supply of 90% and 55% for the urban and rural areas, both of which are within the 2005 targets.

Results from the same surveys also indicate that Uganda is well ahead of its target for access to improved sanitation, which now stands at 90%, the national target for 2005.

Water Sector Challenges

Despite the significant progress made so far, the sector is still faced with a number of challenges. The major challenge is establishment of strong mechanisms for effective, efficient and sustainable delivery of water and sanitation services to the end users, on the basis of the strategies and funding mechanisms established under the SWAP framework. This challenge, coupled with the inherent financial and human resources constraints at both national and local levels pauses the greatest risk for the untimely achievement of the sector targets.

Improvement on the sector services will require enhanced capacity of the sector institutions, in particular the Directorate of Water Development (DWD), to assume its new role of planning, supporting and supervising water and sanitation programs through improvements in monitoring systems and procedures. Government is now focusing on building capacity of the water sector institutions and Local Governments as well as promoting increased private sector participation and effective community participation in all water sector activities. The policy of promoting community participation based on demand-driven approach is being emphasized. Hygiene and health education are actively being pursued as an integral part of the drive to improve household sanitation.

Challenges to Life and Well-being

Water for Human Consumption

Access to clean and safe water and improved sanitation facilities and practices leads to improved health and are essential investments in human capital and therefore have a direct and immediate impact on the quality of life, thus contributing to long-term socio-economic development of the country and eventual elimination of poverty.

The burden of water collection falls mainly on women and children who are the most vulnerable members of society. Owing to the long distances they travel to collect water, this significantly reduces their productive time and subsequent contribution to the economic development of the country.

Investments in water supply and sanitation services has direct socio-economic impacts by relieving the burden on women, improved hygienic conditions through better access to water and sanitation services, and reduced water pollution through the construction of wastewater treatment plants and other mitigation measures. Increasing access to safe water is equally vital to the health and welfare of the population.

The current safe water supply coverage (58% in rural areas and 60% in urban areas) is still low and there is a need for a concerted effort by the government to invest the necessary resources to ensure that all Ugandans have access to safe water supply.

A detailed description of water for domestic consumption is given in **Chapters 5 and 6**.

Water for Food Security

Water is a key factor in the production of adequate food for Uganda. Water resources are a prime factor in irrigation, livestock watering, aquaculture, fisheries, food processing and other agro-industry, and fishing industries, which provides opportunities for employment to a large proportion of the rural and urban populations. The provision of water for water supply and agriculture to the poor segments of the society is a development imperative, both for reasons of social equity as well as food security and economic development.

A detailed description of the role of water in ensuring food security is given in **Chapter 8**.

Water for Energy Generation

Hydropower is the major source of electrical power in Uganda. With a total estimated potential of 2,000 MW, it is the most abundant and cheapest electrical power source in the country. Uganda has a comparative advantage in hydropower resources in the region. Most of Uganda's hydropower potential is concentrated along the White Nile. In addition, there are also several small rivers in different parts of the country, with a potential for mini and micro hydropower development.

Uganda relies solely on hydropower for energy production needed for all socio-economic activities. The current installed capacity of only 260MW is grossly inadequate to meet the

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national demands. The current low level of economic development in Uganda is partly attributed to the inadequate power, which cannot support large-scale manufacturing industries and agro-processing factories.

A detailed description of the role of water in energy production in Uganda is given in **Chapter 9**.

Water and the Environment

With the growing awareness of environmental issues in Uganda, the natural environment is slowly being considered a legitimate water user. It is, therefore, a requirement under the current Environment and Water legislation that any planned water use takes into consideration water requirements for the environment within its vicinity. This is being enforced through the mandatory Environment Impact Assessment conducted for all water related projects, which ensures that all environmental concerns are addressed during the planning and implementation of the projects.

In order to ensure the integrity of the environment, the Government has also introduced water abstraction and waste discharge permits, which are used to regulate water abstraction and discharge of waste into water bodies. These permits have proved to be very effective regulatory instruments whose use has greatly enhanced environmental conservation and management in Uganda.

Management Challenges

Ensuring the Knowledge Base: Water Education, Research and Capacity Building

Basic education is a fundamental right for all human beings and one of the essential elements for ensuring successful implementation and sustainability of water sector activities and for combating poverty in general.

The process of developing, maintaining and disseminating knowledge on water in such a way that all stakeholders benefit and feel part of the process remains a big challenge to the water sector. The government of Uganda has however recognized the seriousness of this challenge and has embarked on the process of implementation of appropriate intervention measures to address the issue.

One of the Government strategies to address the low levels of understanding of water and hygiene issues by the public is to integrate water, sanitation, hygiene and health education in the primary and secondary school curriculum as part of the basic science education at these levels. The aim of this initiative is to develop and inculcate positive knowledge and traits that will enhance healthy living and a sustainable environment not only in the schools but also at community level. In addition, there are two universities in Uganda (i.e. Makerere and Kyambogo) offering degree courses in Civil Engineering, with options for students to specialize in Water Resources Engineering and other Water related Sciences.

In addition to the above interventions, the water sector is also implementing a comprehensive sector-wide capacity building and sensitisation program. The sector-wide approach to capacity building mainly focuses on equipping the sector personnel with the relevant skills, knowledge and attitudes in the management of water and sanitation programs through specific tailor made training courses and formal graduate training.

The key challenge in this regard is the long time it takes to realize tangible benefits from investments in water education, research and capacity building. In addition, sensitisation of the public may not immediately translate into behavioural change and change in people's attitude. Learning is a very slow process that needs a lot of patience and dedication, which facts policy makers are not willing to accept since they are under pressure to deliver tangible results in a very short time.

Valuing Water

Access to clean and safe water and improved sanitation facilities and practices are pre-requisites to a health population and therefore have a direct impact on the quality of life and productivity of the population. Besides domestic water supply, water is also vital for: Livestock Water Supply, Industrial Water Supply, Hydropower generation, Agriculture, Marine Transport, Fisheries, Waste Discharge, Tourism, and Environmental Conservation. Water, therefore, significantly contributes to the national socio-economic development and thus poverty eradication.

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However, despite the important role plays in the socio-economic development of the country, water has traditionally been considered as a public and social good, which is available in unlimited quantities and therefore should be available to everyone free of charge! This has led to misuse and pollution of water resources making it increasingly scarce. There has been very limited private sector involvement in the management and development of water resources in Uganda. The public good nature of the water resource discourages a private entity to invest in the preservation or improvement of the resource since it is difficult to recover costs from users.

In order to address the above issues, the Government prepared a National Water Action Plan (WAP) which embraced most of the Rio (UNCED, 1992) principles, the most important one of which being the recognition of water as an economic good with an economic value and that should be taken into account while allocating it among competing uses. The WAP principles were later embedded in the Water Statute, 1995, and the National Water Policy, 1999. These developments, coupled with the extensive sensitisation of the public on the value of water, have started yielding results as the general public has started recognizing water as a precious resource, which ought to be managed and used responsibly.

Sharing Water

Almost all of Uganda's water resources are transboundary in nature and shared with her neighbours. This poses the challenge of Uganda making maximum use of the water resources within its territory for her socio-economic development while not compromising the legitimate right by her neighbours to the same shared resources. As a result, Uganda has been very keen on fostering close collaboration with her neighbours in the joint planning, management and development of the shared water resources.

Uganda is interested in ensuring that all its shared waters are managed optimally and equitably to derive mutual benefits for all the riparian countries. Specifically, Uganda is keen on ensuring sustainable inflows of water of adequate quantity and quality from its upstream riparians and securing an equitable share of the shared waters to support its national economic and social objectives. Equitable use of the shared waters and utilization of the comparative advantages of the riparian countries, using water where it can most efficiently and cost-effectively produce power, grow food, and support industrialization, provides the greatest opportunities for sustainable growth and development in the region and sustainable use of the resource.

Uganda recognizes the fact that cooperative management and development of shared water resources can serve as a catalyst for a broader range of cooperation and economic integration. This is partly reflected in the significant number of regional water resources management and development initiatives that Uganda is involved in i.e. the Nile Basin Initiative, the Lake Victoria Development Program, the Lake Victoria Environmental Management Program, etc.

Copying with Water related Disasters

In Uganda water related disasters such as droughts, floods, landslides, windstorms and hailstorms contribute well over 70% of the natural disasters and destroy annually an average

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of 800,000 hectares of crops making economic losses in excess of 120 billion shillings. Economic losses resulting from transport accidents and fires and other climate related disasters are estimated at shillings 50 billion annually.

The vulnerability of many Ugandan communities to water related disasters is growing by the day due to many undesirable human activities such as deforestation, ecosystem degradation, environmental pollution, social unrest, transport accidents, urban and wild fires and poor land use in many parts of the country.

Following recognition of the severe socio-economic impacts of both natural and man-made disasters, Government decided to establish a fully-fledged Ministry in charge of disaster preparedness and management. Government has also developed a Disaster Preparedness and Management Strategy whose key objective is to establish national and local capabilities to ensure that all the known natural and man-made hazards do not result into disasters and in the event that they do, the people affected can continue to meet their minimum needs for food, water, shelter, health, and security through their own efforts and minimal external appropriate assistance.

Based on the lessons learnt in the last five years, Government is now refocusing its efforts towards a more holistic approach to disaster management in Uganda. Government is in the process of further strengthening the enabling policy, legal and institutional framework required to address cross-sectoral disaster management issues. There are also plans to strengthen the national and local capacity for disaster preparedness and management in the country. This will go hand-in-hand with the enhancing the existing administrative and coordination mechanisms for disaster preparedness and management in the country.