

*Assessment of the level of implementation of
Integrated Water Resources Management
In
Uganda*

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EXTENDED EXECUTIVE SUMMARY

1 INTRODUCTION

The Nile Basin Initiative (NBI) has a vision “to achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin resources” by member countries. The principles and practices of Integrated Water Resources Management (IWRM) offer opportunities and challenges towards realization of this vision with respect to utilization of the water resources of the Nile Basin. All member countries of the Nile Basin subscribe to the concept and principles of IWRM but implementation challenges and bottlenecks exist leading to disparity in the level of implementation. For example, water management remains mostly sectoral, with various ministries dealing with water. Secondly water infrastructure, capacities and capabilities are developed in some countries and weak in others. The Applied Training Project of the Nile Basin Initiative therefore undertook a study of the level of implementation of IWRM at all levels in the Nile Basin member countries. The study was intended to shed light on pertinent areas of strength and weakness that need interventions at national or regional level. Specifically the study was to examine the policy, legal and institutional framework for water resources management in each country; level and degree of stakeholder involvement in planning and management of water resources; equitable utilization of water resources among the key water users; water development plans for the country up to 2015 if any and constraints facing the water sector.

This report presents the findings of the study of the level of implementation of IWRM in Uganda. The first two chapters provide introductory information on key aspects and status of assessment of Uganda’s water resources. The information provided includes occurrence and distribution of surface water resources in lakes, rivers, wetlands, man-made dams, ponds and valley tanks as well as waters locked up on snow-capped mountains. Groundwater aquifers appear to be widely distributed in the country. Resource assessment and mapping of ground water is underway in most parts of the country notably the eastern, southern, south-western and parts of the northwest. Some information on aspects of water demand for irrigation, livestock watering, industry, and hydropower is given. Some data are provided on mean annual precipitation and evapo-transpiration over the whole country. All major sub basins of Uganda drain directly or indirectly into River Nile and 98.2% of the country’s surface area lie within the Nile Basin. Inflows to Uganda from Kenya, Tanzania (including Kagera), and DR Congo are monitored and contribute to the Nile River waters. Total downstream outflows through the Nile River are shown. The second part of the report outlines how Uganda has integrated key principles of IWRM in her policy, legal and institutional frameworks relevant to water resources management and development. The key principles evaluated included consideration of water as a finite good with economic value; taking into account the principle of sustainable development; application of the principle of subsidiarity; equitable allocation of water for all users and uses; gender mainstreaming; and involvement of all relevant stakeholders in decision making on matters of water management and development.

2 UGANDA'S UNDERSTANDING OF IWRM

There is no formal 'homegrown' definition of Integrated Water Resources Management for Uganda. The country applies the Global Water Partnership definition which defines IWRM as "an interactive process which promotes the coordinated development and management of water, land and natural resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems". Hence, Uganda has since the 1990s perceived IWRM as a tool for ensuring that water is shared fairly and used wisely for the well-being of the people and the environment. From that perspective it is suggested that IWRM is a complex concept involving detailed planning for water resources use, development, regulation and monitoring. It calls for broad understanding of pertinent water management issues by policy makers, water sector managers and developers, the resource users as well as the inter and multi sectoral leadership at national, district or community levels.

3 INTEGRATION OF IWRM INTO POLICY FRAMEWORKS

The integration of the principles of IWRM into policy frameworks in Uganda is reflected through the following.

3.1 Over-arching Policy Framework

The Poverty Eradication Action Plan (PEAP)

The PEAP envisions implementation of the IWRM through its provision which prioritizes water supply and sanitation as these contribute to the improvement of the quality of life of the poor. PEAP underpins the concept that water is finite and that it is essential for sustainable development. PEAP implementation requires the involvement of all stakeholders in the decision making process.

Decentralisation Policy

The Local Governments Act (1997) defines operationalization of the decentralisation policy. The act gives full effect to the decentralisation of functions, powers, responsibilities and services at all levels of local governments; to ensure democratic participation in, and control of decision making by the people concerned; to establish a democratic, political and gender sensitive administrative set-up in local government; to establish sources of revenue and financial accountability and to provide for the election of local councils. The Local Governments Act provides for the involvement of all stakeholders in the decision making process as envisaged in IWRM. It presupposes equitable allocation of water for multiple users and uses, gender parity in decision making regarding sharing of water resources and enhances trends towards management and development of water resources at the lowest appropriate level. In practice, decentralization which ignores the role of catchments in practical water resources management is counter productive.

Privatisation Policy

The Privatization Policy of Uganda calls for the involvement of the private sector in management activities relevant to water and sanitation especially planning, metering, construction and maintenance. This reflects recognition of water as a finite resource to be managed prudently for sustainability.

3.2 Policies guiding direct implementation of IWRM

The National Water Policy (NWP)

The overall National Water Policy objective 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 of the present and future generations with the full participation of the stakeholders”. Hence it promotes an integrated approach to water management and guides the allocation of water as well as associated investments. This approach is based on the continuing recognition of the social and economic value of water. The NWP is the main instrument driving integration of IWRM principles into water policy directives in Uganda. The policy provides for a strategic approach to water resources planning, development and utilization; promotes an integrated approach to manage water resources towards sustainability and for the benefits most of the people in Uganda. This approach is based on the recognition that water has social and economic value – a pivotal principles of IWRM.

The National Environment Policy (1995)

The objective of is to provide for sustainable management of the environment. It provided for the establish an Authority the National Environment Management Authority (NEMA), a coordinating, monitoring and supervisory body for the environment. NEMA, together with the Directorates of Water Development (DWD) and the Directorate of Water Resource Management (DWRM) are the. lead agencies directly responsible for the development and management and of water resources in Uganda. The two directorates have shared responsibility with the National Environmental Management Authority (NEMA) for water quality standards, standards for discharge of effluent into water, limits on the uses of lakes and rivers, management of riverbanks and lake shores and the management of wetlands.

National Health Policy (1999) reiterates that sanitation lies within the mandate of the health ministry and directs that the fight against poor sanitation has to be intensified and maintained in order to consolidate and improve on the gains made in this area. In furtherance of this objective, the key priorities include support to local governments and authorities to improve sanitation and general hygiene. The policy recommends a review of the Public Health Act in order to enhance enforcement of public health regulations in the country. The National Health Policy aspects relevant to IWRM include promotion of availability of good quality water and control of water borne and water vector transmitted diseases such as cholera and diarrhoea, malaria and typhoid.

National Gender Policy (1999)

The National Gender Policy affirms gender equity in the national socio economic practices such as IWRM and encourages women to play a major role in decision making with respect to issues that affect them most such as water quality and quantity as well as sanitation. On the basis of this policy, the level, in terms of percentage of the total membership of women participation in decision-making organs has been nationally agreed and is respected. With respect to water, the National Gender Policy recognizes women and children as the main carriers and users of water.

4 IWRM AND THE LEGAL AND REGULATORY

FRAMEWORK

Institutionalization and integration of IWRM principles into the legal and regulatory frameworks in Uganda has been done through the following instruments.

The Constitution of the Republic of Uganda 1995

The Constitution is the over arching legal framework guiding the laws of Uganda and on which policy objective of the government are based including those on water supply and sanitation. These provide for laws and regulations governing the use of natural resources including water. The Constitution lays the first strategic level for the implementation of the IWRM principles. It imposes on the state as well as all persons a duty to protect and preserve the environment. It addresses issues of safety measures needed to preserve and protect the environment. It guarantees the right of every person to enjoy clean and healthy environment. The Constitution lays the premise for the Water Statute and all the other laws that have a bearing on the water sector. The Constitution provides for national objectives and directives on measures to promote a good water management system at all levels (objective XXI); and the need to promote sustainable development and public awareness about land, air and water resources in a balanced and sustainable manner for the present and future generations. The Constitution makes provision for natural resources of which water forms an integral part. The constitutional provisions make it clear that water resources management is the duty of the state unless otherwise decreed by parliament. The central government and local governments hold natural resources in trust for the people of Uganda in accordance with the provisions of the Constitution. Hence, the Constitution of Uganda provides for the development of a range of legislations to support implementation of IWRM in the country. Already in place are:

The Water Act, Cap 152

The Water Act provides for the rational management and use of clean and safe waters for domestic, agriculture, industrial, navigation, fishing, electricity generation and environmental purposes including preservation of flora and fauna. It promotes the control of pollution through the safe storage, treatment, discharge and disposal of wastes. Water use and management are regulated through the issue of licenses or permits by the Director of DWD. The Water Act also prohibits construction or operation of works that may affect the use, control, management or administration of any water, water extraction, collection, diversion or storage without a permit. The Water Act of Uganda provides for most of the key principles of IWRM. Clearly formulation of the Act was intended to promote IWRM in the country.

The National Environment Act Cap 153

The National Environment Act Cap 153 was enacted to provide for sustainable management of the environment including water. With regard to water resources the Act empowers NEMA, in consultation with the Directorate of Water Development (lead agency), to set water quality standards, establish standards for discharge of effluent into water systems, set limits on the use of lakes and rivers, establish regulation for environmental impact assessments, manage riverbanks and lakeshores as well as restrict use of wetlands to sustainable options.

The Local Government Act 1997

The Local Government Act decentralised many functions of Government leaving strategic planning, policy formulation, standards setting, monitoring and supervision, regulation and enforcement and capacity building as the core functions of central government. The Act gives

responsibility for the provision of water services and maintenance of facilities to local councils in districts and urban centres with relevant central government agencies only expected to provide support and guidance to these activities. The Act leaves the management of water resources as a function of the central government.

The Land Act 1998

The Land Act implements IWRM directly by laying control of environmentally sensitive areas in the hands of the central Government or local governments who shall hold land in trust for the people and protect natural lakes, rivers, groundwater, natural ponds, natural streams, wetlands, forest reserves, national parks, and any other land reserved for the ecological and touristic purposes for the common good of the citizens of Uganda.

The National Environment Act, 1995

The National Environment Act as the principal environmental protection law, implements the IWRM strategy through ensuring sustainable management of the environment as it regulates all aspects related to the environment. The National Environment Act imposes on every person a duty to protect the environment. In addition the Act empowers the National Environment Management Authority (NEMA) to take necessary action to prevent, stop or discontinue any act likely to damage the environment; to compel any public officer to take measures to prevent or discontinue any act likely to damage the environment and to require that on going activity be subjected to an environmental audit.

The Environmental Impact Assessment Regulations, 1998

These Regulations were made under the National Environment Act to operationalise the requirements for carrying out environmental impact assessments. This is a very important requirement for implementation of the IWRM principals. It contains detailed procedures for undertaking environment impact assessments, impact studies as well as environmental audit and monitoring. Since most projects have capacity to impact on water resources, the need for EIA is an important aspect of the implementation of the IWRM ideology.

The Water Resources Regulations, 1998

The Water Resources Regulations provides for implementation of the IWRM principals through imposition of procedures for obtaining water permits by persons wishing to extract water or to construct, own, occupy or control any waterworks. The Regulations were made to operationalise the provisions of the Water Act relating to water use and management through issuing of water permits. The Regulations prohibit any extraction of water from a waterway, well, dam, tank or any work capable of directing an inflow of more than 400 cubic meters of water in any period of 24 hours without a permit issued by the Director of DWD.

5 INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF IWRM

The institutional setting in Uganda recognizes the key elements of IWRM. Institutional arrangements for planning, management and development of water resources in Uganda are embedded into the Water Action Plan (WAP) of 1994. This put into place an enabling institutional framework for water resources planning, management and development. The following institutions are directly or in some cases indirectly responsible for implementation of the IWRM principals in Uganda.

The central Government

The Ministries mandated by the Uganda Constitution to play major roles in water management include those responsible for Water and Environment; Lands, Housing and Urban Development; Local Government; Health; Finance, Planning and Economic Development; Education and Sports; Agriculture, Animal Industry and Fisheries; Gender, Labour and Social Development; Works and Transport; Energy and Mineral Development; Trade, Tourism and Industry and Internal Affairs. The roles of the Ministries in the management of natural resources and water include strategic planning, coordination, quality assurance, technical assistance systems, collaboration with donors/ NGOs and the private sector, inspection, monitoring and capacity building.

Local governments

Under the Decentralization Act (1995), Local Governments (districts, sub counties and urban authorities) play major roles in the provision and management of rural water services, in liaison with the Ministry responsible for water. The Local Governments responsibilities also include the rural sanitation services and community mobilization. Hence, local Governments carry out planning, budgeting and resource allocation, community mobilization and ensure their effective participation and involvement, follow up implementation by private sector and support the operation and maintenance of water services, monitoring, prompt accountability and reporting.

Statutory bodies with mandates to manage water resources

These include National Environment Management Authority (NEMA) which is responsible for monitoring, planning and coordination of environmental matters in Uganda. The National Water and Sewerage Corporation (NWSC) with a *mandate* to provide clean and safe water to the consumers within its areas of operation. The Uganda Investment Authority (UIA) which facilitates investments and offers to investors is providing first-hand information on investment opportunities in Uganda including availability of water resources. The Uganda Wildlife Authority (UWA) whose mission is to conserve and sustainably manage the wildlife and Protected Areas of Uganda in partnership with neighbouring communities and stakeholders for the benefit of the people of Uganda and the global community. The National Forestry Authority which manages watersheds as the lead agency in tree planting and promotes an integrated forest sector that achieves sustainable increases in the economic, social and environmental benefits from forests and trees by the people of Uganda, especially the poor and vulnerable.

User Communities

The Water Statute provides for the formation of Water and Sanitation Committees, Water User Groups, Water User Associations as community level organizations that ensure proper management of the facilities and sustainability. These community groups carry out activities related to planning, implementation and sustainability of water resources.

Private Sector

The private sector plays a key role in the water sector for example in design, construction, operation, maintenance, training and capacity building in water related activities. The private sector is also being considered for mobilizing resources for sub-sector development in the on-going Water Sector Reform studies.

Donors

The country has received considerable donor support for funding the development budget for water and sanitation. Prominent donors have included DANIDA, UNICEF, Sida, EU, Australia, the Netherlands, DFID and JICA. In the period 1995 to 2002 the donors invested over US\$ 100 million. Donors have also played major roles in policy development and capacity building.

NGOs

There are over 80 NGOs and CBOs currently undertaking water resource management and sanitation activities in Uganda. CBOs are involved mainly in point source protection and in borehole drilling and rehabilitation especially for institutions and in the emergency areas. Apart from these hardware tasks the NGOs are instrumental in developing and implementing community mobilization programs for water management programs.

6 NATIONAL WATER DEVELOPMENT PLANS AND STRATEGY UP TO 2015

Uganda has developed water development strategies in the following five sub-sectors namely, Water Resources Management, Rural Water Supply and Sanitation, Urban Water Supply and Sanitation, National Water Quality Management and Water for Production for the period 2005-2015. These strategies document key actions, costs and institutional mechanism to promote and improve national water quantity and quality management in Uganda. They highlight the principles, issues, challenges, and opportunities that exist to promote national water management in Uganda. These strategies are outlined below.

Water Resources Management Reform Strategy

The main objective of the Water Sector Reform Strategy is to establish an effective framework for water resources management that would ensure that water resources are managed in an integrated and sustainable manner. Hence, it makes recommendations on policy and legal areas needed to implement the proposed reforms in the water sector. The program for implementation of the Water Sector Reform Strategy will be operationalized through the Strategic Investment Plan (SIP) up to 2015. The Water Sector Reform Strategy focuses attention on the Principle of Decentralized Water Resources Management as the basis for management of water resources at lower levels. This implements the IWRM principle of managing water resources at the lowest appropriate levels where the catchment is the lowest level. Uganda has eight major catchments which drain to major water receiving bodies within and outside the country. It is recommended that it would be most cost effective to amalgamate these eight major catchments into four Catchment Management Zones. The Establishment of Framework for Decentralized WRM would involve the gradual setting up of the management structures taking into account financial constraints. The Water Resources Management Reform Strategy also accommodates the principles for Shared Trans-boundary Water Resources and embraces pertinent environmental principles.

The Rural Water Supply and Sanitation Reform Strategy

The main object of the Rural Water Supply and Sanitation Reform Strategy is to provide sustainable safe water supply and sanitation facilities, based on management responsibility and ownership by the users, within easy reach of 65% of the rural population and 80% of the urban population by the year 2005 with an 80%-90% effective use and functionality of facilities. It is then hoped to extend the coverage to 100% of the urban population by 2010 and 100% of the rural population by the year 2015. Further, the strategy will promote the co-ordinated, integrated and sustainable water resources management to ensure conservation

of water resources and provision of water for all social and economic activities. The strategy will invoke a demand responsive approach, sector-wide approach to planning in order to build an integrated approach, sustainability and financial viability into the program. This will require co-ordination and collaboration, institutional reform and the full involvement and participation of government ministries, departments, government agencies, the private sector and the civil society organizations. The roles and responsibilities of the key actors in the implementation of the strategy will be the following. At national level, the Ministry of Water and Environment, through its two Directorates, the Directorate of Water Development (DWD) and the Directorate of Water Resources Management (DWRM), will play supporting roles of carrying out strategic planning, coordination, quality assurance, providing technical assistance and capacity building in the implementation of the rural water investment program. The local governments and the local communities will be the main implementers of the program. The District Local Governments are the overall planning authorities for the Districts and have the general responsibility for the provision of services in the water and sanitation sector.

Urban Water Supply and Sanitation Strategy

The Urban Water and Sanitation Sub-sector strategic goals are to expand service coverage to give 100% of the population access to safe water and appropriate sanitation by the year 2015; to ensure that a basic adequate level of service is affordable via low-cost service delivery and that the implementation of a subsidy and tariff framework is equitable and beneficial to the poor. The strategy hopes to ensure that water, as a social and economic good, is managed in the best way, bringing consequent benefits in terms of infrastructure, economic development, and health to the nation. The National Water and Sewerage Corporation is the main actor in urban water sector program. It was created by Statute in 1995 as a corporate body with powers to acquire, hold and dispose of real and personal property and sue or be sued in its corporate name. At the commencement of the NWSC Statute the corporation was deemed to have been appointed a Water Authority and Sewerage Authority, under the provisions of the Water Statute 1995. The size of the urban water sub-sector is however, small with only about 66,000 active water connections earning total revenue of about \$17 million per annum. The sub-sector is concentrated in the Kampala, Entebbe and Jinja area which have only 40% of the urban population, 75% of the active water connections, 72% of the active sewer connections and about 80% of the revenues in relation to the total urban water sector.

National Water Quality Management Strategy

The National Water Quality Management Strategy was developed through a Joint Water and Sanitation Sector Review carried out in 2004 and approved in 2006. The main purpose of the National Water Quality Management Strategy is to ensure that water quality is recognized as a cross cutting issue and that its management is streamlined into all water, sanitation and environmental management activities. The National Water Quality Management Strategy takes onto consideration all current water quality issues and problems which affect water quality such as point-source pollution; non-point source pollution; pollution threats and pollution pressures. The strategy identified current shortcomings and deficiencies in the current management of water quality and these included gaps in accountability, design of programs, data collection, management, distribution inadequate water quality standards and poor funding of the management system and generation. The design of the National Water Quality Management Strategy adopted key principles such as Integrated Water Resources Management which invokes application of concepts like the “the polluter pays “ principle, water as a finite resource, recognition of women in water management, wide stakeholder participation, cross sectoral integration, management of water on the basis of catchments and

at the lowest possible level. The National Water Quality Management Strategy also recommends reviewing, updating and improving the institutional framework including the creation of a new Water Quality Management Department; creation of a National Reference Laboratory and a three tier laboratory structure. The National Water Quality Management Strategy further recommends the establishment of a National Water Quality Coordination Committee to oversee the implementation of the strategy. It also recommends adoption of water quality management tools such as surveys, monitoring, modeling, assessments and application of economic incentives and dis-incentives.

Water for Production Strategy

The strategy covers five sub-sectors which include water for crops, livestock, wildlife, aquaculture and water for rural industries. The Ministry of Water and Environment is the lead ministry for water supply and management whilst the Ministry of Agriculture Animal Industry and Fisheries is the lead agency for water needs identification and use. Water for Production Strategy involves identification of water sources, creation of an enabling environment for harnessing water and controlling mechanisms for extracting and exploiting the water resources and carrying out planning and monitoring related activities. The strategy identifies funding for Water for Production through the Government and donors. The policy of decentralization under the Fiscal Decentralization Strategy permits provision of unconditional development grants and conditional grants to districts for purposes of running water sector related activities and implementation of the Water for Production Strategy. The key guiding principles for Water for Production Strategy are that the strategy focuses on poverty reduction, it employs demand driven and sector wide approaches, it calls for sustainability, cost effectiveness, decentralization, privatisation, gender parity and environmentally friendly approaches.

7 NATIONAL CONVENTIONS RELATED TO WATER RESOURCES MANAGEMENT

Those Conventions and Protocols related to Water Resources Management signed and ratified by Government of Uganda include the Convention on Biological Diversity, the United Nations Convention to combat Desertification, the United Nations Framework Convention on Climate Change, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Bamako Convention on Transboundary Movement of Hazardous waste, the Ramsar Convention on Wetlands, the Kyoto Protocol, the African Convention on the Conservation of Natural Resources, the Convention on Environmental Impact Assessment in a Transboundary Context and the Stockholm Convention on Persistent Organic Pollutants. Uganda is signatory to several regional water resource management cooperative programs aiming at collaborative and equitable utilization of the shared water resources. Some of these are the Nile Basin Initiatives, the Nile Equatorial Lakes Subsidiary Action Programme, the NBI shared Vision Programme, the Lake Victoria Environmental Management Project, the FAO Lake Victoria Water Resources Project, the FAO Nile Basin Water Resources Project and the Protocol for the Sustainable Development of the Lake Victoria Basin adopted by the Council of Ministers of Foreign Affairs of East African Community partner states in 2003.

8 FINANCING OF IWRM

Funding for water resources management activities in Uganda is through the Joint Water and Sanitation Sector Support Program; the Lake Victoria Environment World Bank Trust Fund for Lake Victoria Environmental Management Project; the Nile Basin Initiative Shared Vision and Strategic Action Program Support; the FAO Nile Basin Information Management Support; the EAC Partnership Fund for Lake Victoria under Lake Victoria Basin Commission and the Government of Uganda. The Water Sector attracts about 152 Billion Uganda Shillings of which only 6% is channeled towards water resources management activities. Donor Funds and Government Funds invested in the sector currently amount to approximately \$33m annually. In addition to the sector specific investments, the Local Government Development Program of MoLG/World Bank, are supporting District Development Programs.

9 PERSPECTIVES ON SUCCESS OF IWRM AND LESSONS LEARNT

Uganda's Water Resources Management Reform Strategy focused on decentralizing water resource management in the country. The report in Chapter 7 provides some major reasons why IWRM in Uganda has been largely successful. Chapter 8 gives the main constraints and challenges facing water resources planning and management in Uganda. Chapter 9 provides some recommendations. Chapter 10 gives two case studies (a) on implementing decentralized water resource management in the Rwizi Catchment and lessons learnt and the second (b) on partnering with *Protos* a Belgian International NGO in implementing IWRM in the Lake George Basin.

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ACRONYMS AND ABBREVIATIONS

ACAV	Associazione Centro Aiuti Volontari Associazione
AVSI	Volontari per il Servizio Internazionale
BCM	Billion Cubic Meters
BMU	Beach Management Unit
CBOs	Community Based Organization
CMC	Catchment Management Committee
CWRP	Catchment Water Resources Plan
CWRP	Catchment Water Resources Plans
CWMO	Catchment Water Management Offices
DANIDA	Danish Aid
DFID	Department for International Development
DMT	Decentralization Management Team
DRC	Democratic Republic of the Congo
DWD	Directorate of Water Development
DWRM	Directorate of Water Resources Management
DWD	Directorate of Water Development
EAC	East African Community
EU	European Union
FAO	Food and Agriculture Organization
FY	Financial Year
HIV	Human Immune Syndrome
ICAC	Interim Catchment Advisory Committee
IICD	Italian Institute for Co-operation and Development
IWRM	Integrated Water Resources Management
JICA	Japanese Aid
KRIP	Kampala Revenue Improvement Program
LAGBIMO:	Lake George Basin Integrated Management Organization
LGB	Lake George Basin
LVEMP	Lake Victoria Environmental Management Project
MAAIF	Ministry of Agriculture, Animal Industry, and Fisheries
MEMD	Ministry of Energy and Mineral Development
MoLG	Ministry of Local Government
MOU	Memoranda of Understanding
NBI	Nile Basin Initiative
NELSAP	Nile Equatorial Lakes Subsidiary Action Program
NEMA	National Environment Management Authority
NWP	National Water Policy
NGOs	Non Governmental Organization
NWP	National Water Policy
NWSC	National Water and Sewerage Corporation
NFA	National Forestry Authority
NWQMS	National Water Quality Management Strategy
PEAP	Poverty Eradication Action Plan
SC	Steering Committee
Sida	Swedish Aid
SIP	Strategic Investment Plan

TB	Tuberculosis
UBOS	Uganda Bureau of Statistics
UIA	Uganda Investment Authority
U.N.	United Nations
UNCCD	United Nations Convention to combat Desertification
UNICEF	United Nations Children's Educational Fund
UWA	Uganda Wildlife Authority
UWASNET	Uganda Water and Sanitation Network of NGOs
SWG	Sector Working Group
WAP	Water Action Plan
WMZ	Water Management Zone
WWF	World Wildlife Fund
WMZC	Water Management Zone Coordinator
WPC	Water Policy Committee
WPS	Water for Production Strategy
WRM	Water Resources Management
WSC	Water and Sanitation Committee
WUAs	Water Users Associations
WUG	Water User Groups
ZWMT	Zonal Water Management Teams
ZWMO	Zonal Water Management Offices

1 INTRODUCTION

1.1 *The water resources of Uganda*

Water is essential for life. It is the basis for aquatic ecosystems, vital to industrial development and is indispensable to successful agriculture. Uganda is well endowed with vast amounts of relatively good quality water resources in lakes, reservoirs, rivers, wetlands, snow on mountain tops; and in underground aquifers. Most water resources in the country are fresh. Some salty water sources occur in various parts of the country notably in crater lakes of Western Uganda.

Occurrence and distribution of surface water resources

Surface waters of Uganda are vested in lakes, rivers, wetlands, man-made dams, ponds and valley tanks as well as on snow-capped mountains. Open water bodies are estimated to cover about 15% of the country's surface area while wetlands cover about 15% more. The drainage system of Uganda is divisible into eight sub basins namely Lake Victoria, Lake Kyoga, River Kafu, Lake Edward/George, Lake Albert, River Aswa, and Kidepo Valley. All the sub basins drain either directly or indirectly into River Nile and 98.2% of Uganda's surface area lies within the Nile Basin. Fig. 1.1 below shows a pictorial representation of Uganda's drainage system and some characteristics of the major lakes located wholly or partly within the country are given in Table 1.1. The major rivers of Uganda and their catchment areas are listed in Table 1.2. In general terms the water resources of Uganda are often described as abundant although several areas of the country for example Karamoja region and other parts of the cattle corridor experience severe water shortages due to high temporal and spatial variability of rainfall and evaporation rates coupled with few storage features.

Snows and glaciers are mostly located in the highest reaches of the Rwenzori Mountains whose altitude ranges from 1,700m to 5,109m; with areal cover of 698 km² above 2,500m. The Rwenzori Mountains are a vital water catchment area for Lakes Edward and George. The mountains may be regarded as the highest and most permanent sources of the River Nile. The Rwenzori are extremely wet, with rain falling on most days, including during the dryer months (Source: World Heritage Sites: Rwenzori Mountains National Park).

Figure. 1.1 Hydrological Map of Uganda showing major drainage features

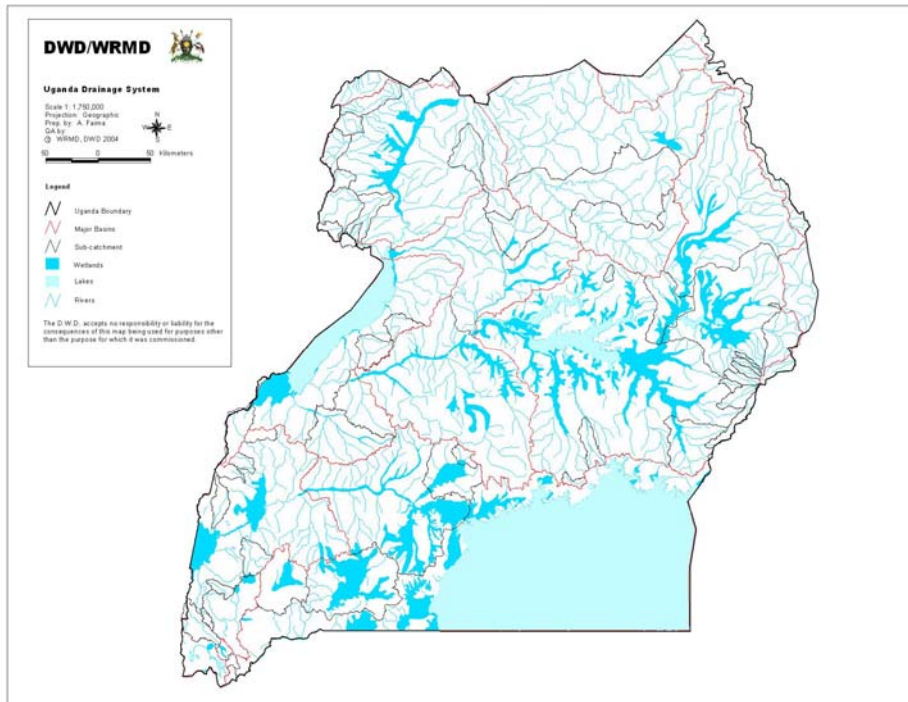


Table 1.1 Some characteristics of major Lakes in Uganda

Lake Name	Total Surface Area (km ²)	Volume (km ³)	Mean Depth	Max Depth (m)	Flushing Time	Annual Level Fluctuations (MASL)
Lake Victoria ¹ (LVEMP)	68,800	2760	40	84	NA ²	1136.3– 1133.4
Albert	5,335	NA	NA	51	NA	624.7 – 620.1
Kyoga and Kwania)	2047	NA	NA	7	NA	1034.5– 1030.7
George	246	NA	NA	3	NA	NA
Edward	2,203	NA	NA	117	NA	NA

¹ LVEMP Integrated study on WQ and Limnology; NA = not available

¹ LVEMP Integrated study on WQ and Limnology

² Information not available

Table 1.2 Major rivers in Uganda and their catchment areas.

STN ID	Stn. Name	Catchment area (Km ²)
81216	R. Kakinga Index Catchment	985
81224	R. Ruizi at Mbarara Water Works	2,070
81233	R. Kibale at Kalungi (Lower Site)	4,715
81248	R. Nyakizumba at Maziba	358
81259	R. Katonga at Kampala - Masaka Road	13,930
81260	R. Kibimba at Kinoni - Mubende Road	2,270
81270	R. Bukora at Mutukula - Kyotera Road	
82203	R. Victoria Nile at Mbulamuti	265,727
82212	R. Manafwa at Mbale - Tororo Rd.	494
82213	R. Namatala at Mbale - Soroti Rd.	124
82217	R. Mpologoma at Budumba	3,614
82218	R. Malaba at Jinja - Tororo Road	1,604
82220	R. Enget at Bata - Dokolo Road	105
82225	R. Sezibwa at Falls	427
82227	R. Kapiri at Kumi - Soroti Road	14,123
82228	R. Namalu at Mbale - Moroto Rd	37
82240	R. Sironko at Mbale - Moroto Rd.	265
82241	R. Simu at Mbale - Moroto Road	165
82243	R. Sipi at Mbale - Moroto Road	92
82245	R. Akokorio at Soroti - Katakwi Road	1,401
83203	R. Kyoga Nile at Masindi Port	338,465
83209	R. Kyoga Nile at Paraa	349,207
83212	R. Tochi II at Gulu - Atura Road	2,188
83213	R. Kafu at Kampala - Gulu Road	12,952
84212	R. Mpanga at Kampala - Fort Portal Road	401
84215	R. Mpanga at Fort Portal - Ibanda Road	4,670
84227	R. Chambura at Kichwamba	660
84228	R. Nyamugasani at Katwe - Zaire Road	507
84267	R. Mitano at Kanungu - Rwensama Road	1,746
85211	R. Muzizi at Kyenjojo - Hoima Road	2,602
85212	R. Nkussi at Kyenjojo - Hoima Road	2,839
85217	R. Waki II at Biiso - Hoima Road	343
86201	R. Aswa 1 at Paranga	5,489
86202	R. Aswa 11 at Gulu - Kitgum RD	13,275
86212	R. Pager at Kitgum	9,100
86216	R. Aringa at Kitgum - Mucwani Rd	1,759
87206	R. Anyau at Arua - Moyo Road	794
87208	R. Oru at Arua - Yumbe Road	431
87212	R. Ora at Inde - Pakwach Road	2,775
87217	R. Albert Nile at Laropi	427,131
87218	R. Nyagak at Nyapea	602
87222	R. Albert Nile at Panyango.	413,046

Groundwater resources

Groundwater aquifers are fairly widely distributed all over Uganda. This water resource is vital for the rural communities and some towns supplied under the Rural Towns Water and Sanitation Program. Groundwater supplies about 90% of those needs (Ministry of Natural Resources 1995; Kahangire and Lubanga 2001; Tindimugaya personal communication). Although water development has been on going since the 1930s through deep boreholes and springs, only limited effort has been made to determine their full extent and water reserve potential. The Government is therefore undertaking groundwater resources assessment in most parts of the country but more particularly in the eastern, southern, south-western and parts of the North West. These area studies are going on to assess ground water potential, water balance and ground water pollution. Simultaneously studies are being conducted to assess the impact of motorized pumping on production well, the timing and rates of re-charge, aquifer vulnerability to pollution as well as to collect baseline data on water quantity and water quality.

1.2 Estimates of demands (requirements) for each user

Figures that are available for potential water demand cover uses of irrigation, livestock watering, and potential domestic water demand. In Uganda, water supply for agricultural production are combined with that of rural industrial use

Table 1.3 Potential irrigation water demand.

No.	Sub basin name	Potential irrigation water demand in MCM ³
1	Lake Victoria	355.09
2	Lake Kyoga	1,371.34
3	River Kyoga Nile	248.86
4	Lakes Edward/George	165.32
5	River Aswa	44.17
6	River Albert Nile	274.99
7	Kidepo Valley	12.49
8	Total	2,472.79

³ Million cubic metres

Table 1.4 Livestock water demand.

No.	Sub basin name	Potential livestock water demand in MCM ⁴
1	Lake Victoria	38.68
2	Lake Kyoga	43.94
3	River Kyoga Nile	15.39
4	Lakes Edward/George	30.21
5	River Aswa	11.21
6	River Albert Nile	6.71
7	Kidepo Valley	0.54
8	River Aswa	4.06
9	Total	150.74

Table 1.5 Domestic water use demand.

No.	Sub basin name	Potential domestic use water demand in MCM ⁵ (Urban)	Potential domestic use water demand in MCM ⁶ (Rural)
1	Lake Victoria	24.43	43.47
2	Lake Kyoga	25.21	54.51
3	River Kyoga Nile	15.32	17.42
4	Lakes Edward/George	4.23	26.75
5	Lake Albert	1.38	10.34
6	River Aswa	1.38	8.38
7	River Albert Nile	2.81	14.07
8	Kidepo Valley	0.054	0.49
9	Others	0.892	2.18
10	Total	75.71	177.61

Source: DWRM State of Water Resources Report

1.3 Potential quantities: Surface water and groundwater

Present knowledge about surface water availability is good because of long time series of data that dates back to 1896 (for Lake Victoria Levels). However, knowledge about groundwater availability is still very scanty. There is an ongoing groundwater mapping programme which started in 2001, and covered only 17 out of 83 districts in Uganda. The information is insufficient to give a national outlook of groundwater potential in Uganda. This section is therefore mainly dealing with surface water.

Mean annual precipitation

The country receives marked rainfall regimes in the following areas:

⁴ Million cubic metres

⁵ Million cubic metres

⁶ Million cubic metres

Lake Victoria basin because of the combination of the easterly winds and the localized lake phenomenon created by the nature and size of the lake.

Western Uganda Mountains of Rwenzori and Muhavura due to the westerly air stream from Congo Basin Air mass in the thick tropical forests.

Mbale Mountain as the Easterly Monsoon rises over the high ground.

There is a dry stretch associated with what is generally called the cattle corridor, extending from Rakai (in the South) through Sembabule, Luwero, Soroti to Karamoja in the North East. The Western Rift Valley which includes the Lakes Albert, George and Edward appear dry (about 700 mm per annum.)

The high rainfalls of Masindi and Northern Uganda are also a noticeable feature.

Mean annual evapo-transpiration (evaporation)

Not much analysis has been done on evaporation considering the low number of stations. However, some deductions can be made based on the regionalised factors.

Total inflows from upstream neighbours

Inflows to Uganda are from Kenya, Tanzania (including Kagera), and DR Congo. Most of the inflows are directly into Lake Victoria; eventually, all are routed into the Nile system. The inflows expressed in billion cubic metres (BCM) per year are as follows;

- a. Kenya – 9 BCM directly into L. Victoria and 0.6 BCM through R. Malaba;
- b. Tanzania – 15 BCM directly into L. Victoria (including R. Kagera); and
- c. DR Congo – 5 BCM through R. Semliki into L. Albert.

Total outflows to downstream neighbours

Being 99% in the Nile basin, virtually all outflows from Uganda are into The Sudan through the White Nile at Nimule. The only other major outflow is River, Aswa, which joins the Nile in southern Sudan. The other minor outflows which are not part connected to the Nile in Uganda are the River Kotido and River Kinan systems in the extreme northeast, River Kaya in the extreme northwest and the thin strip on the Uganda – Kenya border of which R. Suam is the biggest. All these are ungauged. The gauged outflows are as follows;

- a. River Nile at Nimule – about 39.97 BCM
- b. River Aswa – about 3 BCM⁷

The White Nile flows

The Nile is the longest river in the world at about 6,700km⁸. It extends over an extremely wide band of latitude, from 4°S to 32°N, with a total basin area of nearly 3 million Km². The Nile is mainly made of two main tributaries. The White Nile, whose furthest origin is traced to the source of R. Kagera and the Blue Nile whose furthest origin is traced to Lake Tana. The White Nile is whitish in colour because of the clean water filtered by the vast wetlands of the Sudds in the Sudan. The Blue Nile is bluish because of the huge amounts of sediments that it carries which reflects sky blue colour.

Lake Victoria

The furthest tributary into the lake is the Kagera River headwaters, as mentioned above. This river drains the mountains of Burundi and Rwanda with an average rainfall up to 1,800mm. It flows into Lake Victoria at an elevation of about 1,134 metres above mean sea level, after

⁷ (Estimate based on river flow data from 1949-79)

⁸ The Hydrology of the Nile by Sutcliffe and Parks (1999)

meandering through a series of lakes and swamps adjoining the river channel. The Kagera thus contributes 33% of all the catchment inflows into Lake Victoria (Table 1.6)

Table 1.6 Discharges into Lake Victoria from catchments

Country	Basin	Discharge (m ³ /s)	Percent
KENYA	Sio	11.4	1.5
	Nzoia	115.3	14.8
	Yala	37.6	4.8
	Nyando	18.0	2.3
	North Awach	3.7	0.5
	South Awach	5.9	0.8
	Sondu	42.2	5.4
	Gucha-Migori	58.0	7.5
TANZANIA	Mara	37.5	4.8
	Grumeti	11.5	1.5
	Mbalageti	4.3	0.5
	E. Shore Streams	18.6	2.4
	Simyu	39.0	5.0
	Magogo-Moame	8.3	1.1
	Nyashishi	1.6	0.2
	Issanga	30.6	3.9
	S. Shore Streams	25.6	3.3
	Biharamulo	17.8	2.3
	W. Shore Streams	20.7	2.7
	Kagera	260.9	33.5
	UGANDA	Bukora	3.2
Katonga		5.1	0.7
N. Shore Streams		1.5	0.2
	Total	778.3	100.0

Source: Integrated WQ and Limnology Study of Lake Victoria.

1.4 Recent trends in water resources management in Uganda

Uganda has since the preparation of Water Action Plan (WAP) in 1994 put in place a water policy, legal frameworks and institutional frameworks to enable water resources planning, management and development. Secondly, water sector reform strategies have been prepared and are being fine-tuned for the four sub-sectors (Rural Water Supply and Sanitation, Urban Water Supply and Sanitation, Water for Production Reform and Water Resources Management) of the Water Sector in Uganda. These reform strategies would be expected to set the direction and pace of development and delivery of services in the water sector until 2015. The contribution of the national policy orientation, the national legal instruments, the institutional set up and the above strategies towards implementation of IWRM in Uganda so far is the key task of this report.

2 BACKGROUND

2.1 The case for coordinated management and development of water resources in the Nile Basin countries.

The Nile Basin Initiative (NBI) has a vision “to achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin resources” by member countries. The principles and practices of Integrated Water Resources Management (IWRM) offer opportunities and challenges towards realization of this vision. All member countries of the Nile Basin subscribe to IWRM principles. In order to foster application of IWRM towards achieving the vision, implementation challenges and bottlenecks leading to disparity in the level of implementation of IWRM among member countries would have to be overcome. For example, water management remains mostly sectoral, with various ministries dealing with water. Secondly water infrastructure, capacities and capabilities are developed in some countries and weak in others. The Applied Training Project of the Nile Basin Initiative therefore undertook a study of the level of implementation of IWRM at all levels in the Nile Basin member countries. The study was intended to shed light on pertinent areas of strength and weakness that need interventions at national or regional level. Specifically the study was to examine the policy, legal and institutional framework for water resources management in each country; level and degree of stakeholder involvement in planning and management of water resources; equitable utilization of water resources among the key water users; water plans for the country up to 2015 if any and constraints facing the water sector.

2.2 Integrated Water Resources Management

The concept of IWRM has been recommended over a period of time through reviews at various international fora. The international conferences on water and environmental issues in Dublin and Rio de Janeiro during 1992 gave rise to a set of guiding principles for IWRM. The principles were recommended during the United Nations Water Conference held at Mar del Plata, Argentina in 1977; and endorsed by the World Commission on Water at the Second World Water Forum in The Hague in 2000. Many presentations at the Johannesburg Summit in 2002 and Third World Water Forum in Japan in 2003 were explicitly based on IWRM principles. During the Johannesburg Summit African countries adopted the IWRM concept and decided that their countries would put in place mechanisms to implement IWRM principles in their water management and planning by 2005.

The concept of Integrated Water Resources Management in Uganda

There is no formal homegrown definition of Integrated Water Resources Management for Uganda. The country appears to have adopted the Global Water Partnership definition which defines IWRM as “an interactive process which promotes the coordinated development and management of water, land and natural resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”. Hence, Uganda has since the 1990s perceives IWRM as a tool for ensuring that water is shared fairly and used wisely for the well-being of people and the environment. From that perspective it is suggested that IWRM is a complex concept involving detailed planning for water resources use, development, regulation and monitoring. It calls for broad

understanding of pertinent water management issues by policy makers, water sector managers and developers, the resource users as well as the inter-sectoral and multi sectoral leadership at national, district and community levels.

2.3 Objective of assessment of implementation status of IWRM in Nile Basin countries

Although the concept of IWRM is well accepted, there are few documents available on real case studies about its implementation especially in developing countries. It is however expected that implementation of the concept in the member countries of the Nile Basin is at different stages. The main objective of the present study is therefore to examine the concept of IWRM and its current implementation status in the real world, critically and objectively for the countries of the Nile Basin where water is often an essential requirement for fostering regional development and poverty alleviation, and where water management and development has a long history. This report presents an assessment of the status of implementation of IWRM in Uganda

2.4 Methodology for the assessment

Terms of Reference considered

In order to understand progress in the implementation of IWRM principals in Uganda, the Consultants examined the following Terms of Reference individually:

- a. How has Uganda defined IWRM?
- b. To what extent has the IWRM concept been systematically applied in Uganda – through Policy, Legal and Institutional arrangements?
- c. What have been the overall results (positive, negative and/or neutral) on water management because of the implementation of the concept?
- d. What have been the impacts in terms of poverty alleviation, employment generation, improving quality of life and environmental conservation?
- e. If the concept has worked, what were the conditions that made it work, and why? What can be done to further improve the operationality and efficiency of the concept?
- f. If the concept did not work, what were the main reasons? Can these constraints be successfully overcome so that the concept can be implemented? If not, what practical steps should be considered?
- g. Based on these experiences, what lessons can be learnt? If the concept works, how can its operationalization be made more efficient and widespread? If it does not, should adaptations or a new paradigm or pluralism of paradigms, be considered, depending upon social, economic, institutional and other relevant conditions for each specific case, and/or region?
- h. What are Uganda's water plans for the country up to 2015; and
- i. What constraints were faced by the water sector?

Stakeholder consultations

The process to gather data and other information on the level of implementation of IWRM in Uganda included consultations with key stakeholders, limited use of the harmonized questionnaire (due to negative response to its huge size), literature search and a stakeholder review and consultative workshop. The Consultant conducted individual and group consultations and discussions with stakeholders in their places of work. During the interviews relevant documents on government policies, laws, regulations, plans, programs and other

useful statements were obtained. These documents were the source of factual information reported in the study. The stakeholder consultative workshop held in the Fairway Hotel Kampala in November 2008 was the source of vital information and guidance. The discussions during the workshop contributed considerable improvement to the Draft Report.

Principles of IWRM considered

In order to gauge progress in the implementation of the concept of IWRM in Uganda an analysis was made to identify the level of integration of the principles of IWRM into the key national water management and development policies, legal and regulatory frameworks, institutional arrangements as well as into the plans and strategies. The following key principles of IWRM were specifically considered in the analysis.

- a. Consideration of water as a finite good with economic value;
- b. Consideration of how Uganda had mainstreamed gender in the implementation of IWRM;
- c. Consideration of how all stakeholders in Uganda were involved in decision making in the implementation of IWRM including integration of the Sector Working Group;
- d. Consideration of how implementation of IWRM in Uganda had so far taken into account, the principle of sustainable development thus balancing economic development with environmental protection;
- e. How IWRM implementation in Uganda had balanced water uses between all interested parties including domestic use, agricultural use, industrial use, hydropower interests and ecological interests;
- f. How IWRM implementation in Uganda had taken into account the principle of subsidiarity and management of water resources on the basis of catchments;

The analysis also sought to identify opportunities, challenges as well as constraints faced by the water sector in the implementation of IWRM principles. Recommendations were suggested.

3 KEY FINDINGS OF THE STUDY ON THE LEVEL OF IMPLEMENTATION OF IWRM

3.1 *Uganda's understanding of IWRM*

There was no formal 'homegrown' definition of IWRM for Uganda. The country applied the Global Water Partnership definition which defines IWRM as "*an interactive process which promotes the coordinated development and management of water, land and natural resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*". Hence, Uganda had since the 1990s perceived IWRM as a tool for ensuring that water is shared fairly and used wisely for the well-being of the people and for sustaining the integrity of the environment. From that perspective it is suggested that IWRM is a complex concept involving detailed planning for water resources use, development, regulation and monitoring. It calls for broad understanding of pertinent water management issues by policy makers, water sector managers, developers, the resource users as well as the inter-sectoral and multi-sectoral leadership at national, district and community levels.

Preparedness to implement IWRM in Uganda had gone through a process which started after the Stockholm Conference of 1992. Uganda has since the early 1990s laid the foundation towards implementing the IWRM in order to address the challenges the country faced in the management and development of its water resources. The initial steps were preparation of the Water Action Plan in 1993-94. This plan laid down the basic principles and actions for long term sector reform reflected in relevant national policy, legal and institutional frameworks prepared or reviewed there after.

3.2 *Integration of IWRM principles into the policy framework of Uganda*

Integration of the principles of IWRM into policy frameworks of Uganda is reflected in the following.

Integration into over-arching Policy Framework

a. Poverty Eradication Action Plan (PEAP)

Poverty eradication has been a fundamental objective of Uganda's development strategy. Government prepared a Poverty Eradication Action Plan (PEAP) in 1997 (revised 2000) as a guiding framework for the achievement of poverty eradication. Implementation of IWRM directly addresses the problems of poverty. The PEAP proposes a multi-sectoral approach (similar to the IWRM strategy) which recognises the multi-dimensional nature of poverty and the inter linkages between the influencing factors. The PEAP envisions implementation of the IWRM through its provision which has prioritized water supply and sanitation as these contribute to the improvement of the quality of life to the poor.

b. Decentralisation Policy

The decentralization policy which was operationalised by the decentralization Act (1997) provides for several key principles of IWRM. The Local Governments Act (1997) aims to

give full effect to the decentralisation of functions, powers, responsibilities and services at all levels of local governments; to ensure democratic participation in, and control of decision making by the people concerned; to establish a democratic, political and gender sensitive administrative set-up in local government; to establish sources of revenue and financial accountability and to provide for the election of local councils. The Local Governments Act ensures the involvement of all stakeholders in the decision making process as stipulated in IWRM.

c. Privatisation Policy

Private sector involvement in the water sector has been steadily expanding. The National Water and Sewerage Corporation (NWSC) is mandated to provide clean and safe water to the consumers within towns and urban centres in Uganda. The National Water and Sewerage Corporation, an autonomous parastatal entity established in 1972 is responsible for the delivery of water supply and sewerage services in 15 large urban centres. Private sector consultants and contractors are involved in the implementation of water. Twenty small towns are presently being managed by local private operators under Local Government, and more towns are in the process of contracting out the management and operations of their systems. The borehole drilling function, which was undertaken by the DWD, is now largely undertaken by the private sector. NWSC entered into a private sector management contract entitled the Kampala Revenue Improvement Program (KRIP) with Gauff from 1997 to 2001 and is presently employing a private management contractor for Kampala Water and Sewerage Service area. In April 1999 Government directed the Ministry of Water Lands and Environment, to design reduce operating costs, and to place the sector in a more favourable position to negotiate and secure attractive private sector participation. It remains an underlying objective to ensure that water, as a social and economic good, is managed in the best way, bringing consequent benefits in terms of infrastructure, economic development, and health to the nation.

The involvement of the private sector is seen as beneficial for the water and sanitation sector and directly reflects consideration of water as a finite resource to be rationed. Metering and charging for water consumed by the NWSC further reflects the economic value of water. Establishment of the NWSC institutionalized the principle of sustainable management of water resources as well as the principle of involving all stakeholders in the decision making and management processes for example through the Sector Working Group (SWAP) and donors.

Policies that directly provide for implementation of IWRM

The level of preparedness to implement IWRM in Uganda is best identified through a review of the Policy, Legal and Institutional arrangements directly relevant to WRM.

a. The National Water Policy (1999)

The National Water Policy (NWP) sets the stage for water resources management and guides development efforts aimed at improving water supply and sanitation in Uganda. To a large extent, the policies reflect the socio-economic, development and financial fabric prevailing in Uganda but with foresight to the future. The *NWP* outlines the strategy under five main areas of Technology and Service Provision, Financing, Subsidies and tariffs, Management and Sustainability Aspects, Private Sector Participation and Co-ordination and Collaboration. The NWP is the main instrument that provides for integration of IWRM principles into water policy directives in Uganda as illustrated below by most of the key policy directives:

- i. Separation of regulatory powers from user interests;

- ii. Integration and sustainable development, management and use of the national water resources, with full participation of all stakeholders;
 - iii. Regulated use of all water, whether public, private or groundwater, other than domestic use;
 - iv. Improvement of coordination and collaboration among the sector stakeholders to achieve efficient and effective use of financial and human resources, following consistent planning and implementation approaches within the context of decentralization and Government policies on private sector participation on the role of NGOs, civil society and beneficiary communities;
 - v. Equitable access and use of the Nile waters through effective involvement of the Government in the Nile water issues, to secure adequate water for Uganda's needs for today, and for the future;
 - vi. Promotion of awareness of water management and development issues, and the creation of the necessary capacity for the sector players at different levels;
 - vii. Promoting rational, optimal and wise use of the water resources for all Ugandans and all sectors;
 - viii. Promoting measures for controlling pollution and water resources;
 - ix. Promoting the gathering and maintenance of reliable water resources information and databases; and
 - x. Promoting viable management options for the resource management and provision of water supply and sanitation services at all levels.
- b. ***The National Environment Policy (1995)***

The Objective of the National Environment Policy is to provide for sustainable management of the environment; and to establish an Authority the National Environment Management Authority (NEMA) as a coordinating, monitoring and supervisory body. It is a lead agency on matters of water resources management alongside the Directorate of Water Resource Management (DWRM) and the Directorate of Water Development (DWD). Their legal frameworks provide for the decentralization of functions to the lowest possible level. The Water Statute it self provides for decentralization by devolution of functions to the water user groups, water associations and water authorities, while the local Government Act decentralized functions to Administrative Units such as districts, towns and sub counties

c. ***National Health Policy (1999)***

The Health Policy (1999) reiterates that sanitation lies within the mandate of the health ministry and directs that the fight against poor sanitation has to be intensified and maintained in order to consolidate and improve on the gains made in this area. In furtherance of this objective, the key priorities include support to local governments and authorities to improve sanitation and general hygiene. The policy recommends a review of the Public Health Act in order to enhance enforcement of public health regulations in the country. The National Health Policy addresses the main issues related to IWRM and these include control of contributors to diseases such as malaria, HIV, TB cholera and diarrhea. The Government places great emphasis on rural areas where the population has low access to safe water and low sanitation coverage. This is to be achieved through the promotion of personal, household, institutional, community sanitation and hygiene.

d. ***National Gender Policy (1999)***

The affirmative action by Government in support of gender equity in the national socio economic activities has encouraged women to play a major role in decision making with respect to issues that affect them most such as water quality and quantity, as well as

sanitation. On the basis of this policy, the level, in terms of percentage of the total membership, of women participation in decision-making organs has been nationally agreed and is respected. With respect to water, the National Gender Policy recognizes women and children as the main carriers and users of water.

3.3 Level of integration of IWRM principles into the legal framework

The study revealed that implementation of IWRM principles is provided for in the following instruments of the legal and regulatory frameworks of Uganda.

The Constitution of the Republic of Uganda 1995

The Constitution is the over arching legal framework guiding the laws of Uganda and through which policy objective of the government are implemented including those on water supply and sanitation. These include broadly, laws and regulations governing the use of natural resources (including water). The Constitution lays the first strategic level for the implementation of the IWRM protocols. It imposes on the state as well as all persons a duty to protect and preserve the environment. It addresses issues of safety measures needed to address the preservation and protection of the environment as well as other environmental aspects. It guarantees the right of every person to enjoy a clean and healthy environment. The Constitution lays the premise for the Water Statute and all the other laws that have a bearing on the water sector. The Constitution of Uganda lays the foundation for implementation of IWRM in the country through the following national objectives and directives:

- a. The state taking all practical measures to promote a good water management systems at all levels (objective XXI);
- b. The state promoting sustainable development and public awareness of the need to manage land, air and water resources in a balanced and sustainable manner for the present and future generations. In addition, the utilisation of the natural resources of Uganda must be managed in such a way as to meet the development and environmental needs of present and future generations (objective XXVII);

The following constitutional provision for the protection of natural resources (water included) and the environment inherently provide for the implementation of various principles of IWRM.:

- a. Natural Resources - the State shall protect important natural resources including land, water, wetlands, oil, minerals, fauna and flora on behalf of the people of Uganda (Chapter XIII);
- b. Land (Chapter XV – Article 237) - Land in Uganda belongs to the citizens of Ugandan and shall vest in them in accordance with the land tenure systems provided for in this Constitution. The government or a local government as determined by Parliament by law, shall hold in trust for the people and protect natural lakes, rivers, wetlands, forest reserves, game reserves, national parks and any land to be reserved for ecological and touristic purposes for the common good of all citizens.
- c. Clean and Safe Water (Chapter XXI) - the State shall take all practical measures to provide a good water management system at all levels.
- d. The Environment (Chapter XXVII) - the State shall promote sustainable development and public awareness of the need to manage land, air and water resources in a balanced and sustainable manner for the present and future generations.

Legislation supporting implementation of IWRM in Uganda

a. *The Water Act, Cap 152 Part I:* the following objectives of the Water Act embrace the principals of IWRM directly:

- i. To promote the rational management and use of the waters of Ugandan;
- ii. To promote the provision of a clean, safe and sufficient supply of water for domestic purposes to all persons;
- iii. To allow for the orderly development and use of water resources for purposes other than domestic use such as, the watering of stock, irrigation and agriculture, industrial, commercial and mining uses, the generation of hydroelectric or geothermal energy, navigation, fishing, preservation of flora and fauna and recreation in ways which minimize harmful effects to the environment; and
- iv. To control pollution and to promote the safe storage treatment, discharge and disposal of waste which may pollute water or otherwise harm the environment and human health.

b. *The Water Act also provides for:*

- i. Creation of a Water Policy Committee (WPC) responsible for overall development of water resource policies and plans and for conflict resolution. The multi-sectoral WPC comprises all key stakeholders;
- ii. Water resources monitoring and assessment;
- iii. Regulation of water abstraction and effluent discharge; and
- iv. Regulation of hydraulic works.

The National Environment Act Cap 153

The National Environment Act Cap 153 was enacted to provide for sustainable management of the environment including water. With regard to water resources the Act empowers NEMA, in consultation with the Directorate of Water Development (lead agency), to set water quality standards, establish standards for discharge of effluent into water systems, set limits on the use of lakes and rivers, establish regulation for environmental impact assessments, manage riverbanks and lakeshores, restrict use of wetlands in a sustainable way.

The Local Government Act 1997

The Local Government Act decentralised many functions of Government leaving strategic planning, policy formulation, standards setting, monitoring and supervision, regulation and enforcement and capacity building as the core functions of central government. The Act gives responsibility for the provision of water services and maintenance of facilities to local councils in districts and urban centers with relevant central government agencies only expected to provide support and guidance to these activities. The Act leaves the management of water resources as a function of the central government.

The Land Act 1998

Section 45: Control of environmentally sensitive areas – The Government or local governments shall hold in trust for the people and protect natural lakes, rivers, groundwater, natural ponds, natural streams, wetlands, forest reserves, national parks, and any other land reserved for the ecological and touristic purposes for the common good of the citizens of Uganda. This implements IWRM directly.

The Water Resources Regulations Act 1998

The Water Resources Regulations implement IWRM principals through control of procedures for obtaining water permits by persons wishing to extract water or to construct, own, occupy

or control any waterworks. The Regulations were in effect made to operationalise the provisions of the Water Act relating to water use and management through issuing of water permits. The Regulations prohibit any extraction of water from a waterway, well, dam, tank or any work capable of directing an inflow of more than 400 cubic meters of water in any period of 24 hours without a permit issued by the Director of DWD.

The National Environment Act, 1995

The National Environment Act as the principal environmental protection law, provides for implementation of the IWRM strategy through ensuring sustainable management of the environment as it regulates all aspects related to the environment. The National Environment Act imposes on every person a duty to protect the environment. In addition the Act empowers the National Environment Management Authority (NEMA) to take necessary action to prevent, stop or discontinue any act likely to damage the environment; to compel any public officer to take measures to prevent or discontinue any act likely to damage the environment and to require that on going activity be subjected to an environmental audit.

The Environmental Impact Assessment Regulations, 1998

These Regulations were made under the National Environment Act to operationalise the requirements for carrying out environmental impact assessments. This is a very important requirement for implementation of the IWRM principals. It contains detailed procedures for undertaking environment impact assessments, impact studies as well as environmental audit and monitoring. Since most projects have capacity to impact on water resources, the need for EIA is an important aspect of the implementation of the IWRM ideology. The regulations apply to all projects included in the Third Schedule to the Act such as major repairs, extensions or routine maintenance of any existing project which is included in the Third Schedule of the Act.

3.4 Institutional framework for implementation of IWRM principles in Uganda

The institutional setting in Uganda recognizes the key elements of IWRM as defined in Para 3.0 above. These principles are effectively embedded in the mandates of these institutions as reflected in their responsibilities and functions as shown below. Hence, these institutions are directly or in some cases indirectly responsible for implementation of the IWRM principals in Uganda. Table 3.1 below shows the current institutional framework for implementation of IWRM and Figure.3.1 shows institutions which presently participate in IWRM implementation in Uganda.

Table 3.1: Institutional framework for implementation of IWRM in Uganda

Institution	Responsible entity	Responsibilities and Duties
Ministry of Water and Environment	Minister	Policy, Regulation, Coordination and Monitoring
Permanent Secretary	Permanent Secretary	Implementing Policies, Regulations and Reporting
Directorate of Water Development	Director	Implementing Policies, Regulations, coordination, monitoring, liaison and reporting
Directorate of Water Resources	Director	Implementing Policies, Regulations and coordination, monitoring and reporting

management		
District Water Offices	District Water Officers	Implementing Policies, Regulations and coordination, monitoring, mobilization liaison

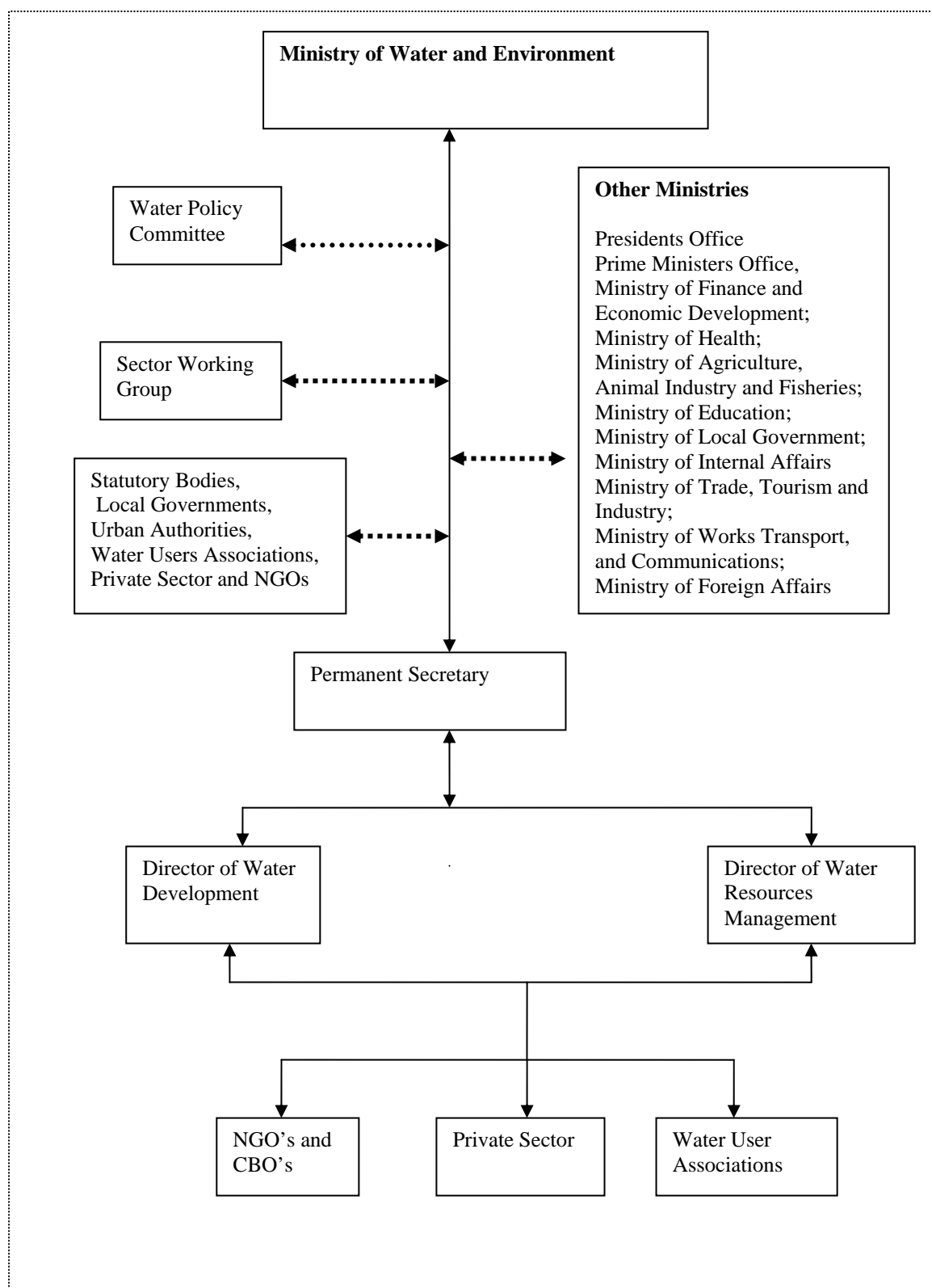


Figure 3.1: Institutions presently participating in IWRM in Uganda

Responsibilities of institutions participating in IWRM in Uganda

a. The Water Policy Committee

The Water Statute established a WPC composed of heads of key agencies related to water resources management namely; the National Environment Management Authority, Ministry of Agriculture, Industry, Animal Industry and Fisheries, Ministry of Energy and Mineral Resources and National Water and Sewerage Corporation. The committee also includes representatives of local governments (one District Resistance Council Chairman and one Chief Administrative Officer) and two persons with specified qualifications or experience relevant to the mandate of the Water Policy Committee. The WPC is chaired by the Permanent Secretary responsible for water while the Director, Directorate of Water Development is its secretary. The WPC is a inter-sectoral institutional framework for water resources management and is supposed to play an essential high-level role in directing the development and management of Uganda's water resources across sectors and development interests. Some of its functions include co-ordination implementation of the Water Action Plan, reviewing the laws relating to water and advising the Minister of Water on any amendments that may be required for the improvement or better administration of the water law, advising the Minister on any dispute between agencies involved in water management, co-ordinate the formulation of an international water resources policy. Although the WPC has been operational since 1998, it has not effectively carried out its work due partly to inadequate understanding of its functions and lack of effective participation by representatives of some institutions. The absence of a secretariat for the WPC and funding for its operations led to the ineffectiveness of the committee. However, under the Water Resources reform studies, strategies were proposed to revitalize the WPC and make it more functional.

b. Government Ministries, private sector, NGOs and Water Users

The roles of the Ministries in the management of natural resources and water include strategic planning, coordination, quality assurance, technical assistance systems, collaboration with donors/ NGOs and the private sector, inspection, monitoring and capacity building.

The responsibilities of ministries with prominent roles are outlined below:

i *The Ministry of Water and Environment (MWE)* through the Directorate of Water Development (DWD) and the Directorate of Water Resources Management (DWRM) is the lead agency for water including water supplies and sanitation. Its role is mainly policymaking, standard setting, national planning, regulation, coordination, inspection, monitoring and back-up technical support relating to water and environment including weather and climate. The involvement of stakeholders has been promoted by Inter-ministerial Steering Committee (IMSC) and Technical Committees. The MWE is the key ministry responsible for the management of water resources in Uganda. Ministry operates through a structure comprising of political, technical and support services levels. At the Political Level, the structure has one Minister, who gives the overall political direction. The MWE has overall responsibility for initiating national policies, setting standards and priorities for water resources management in the country. The ministry carries out its functions through the Directorate of Water Development (DWD). Similarly, DWD carries out water resources management functions through the Water Resource Management Department (WRMD). The WRMD is responsible for carrying out water resources monitoring and assessment and regulating water abstraction and wastewater discharge, among others. The mission statement of the WRMD is to "promote and ensure the rational and sustainable utilisation and development, and the effective management and safeguarding of the water resources of

Uganda for socio-economic development”. Derived from its mission statement the main obligations of WRMD are aimed at achieving the Water Resources Management policy objectives. Thus, the key issue is to secure and provide water of adequate quantity and quality for all social and economic needs of the present and future generations with the full participation of stakeholders. WRMD provides secretariat services to the Water Policy Committee (WPC).

ii *The Ministry of Finance, Planning and Economic Development* allocates funds, does general mobilization for funds and co-ordinates all donor inputs. Its role in the water sector includes development and control of the national budget framework and budget guidelines; monitoring of macro economic policy and co-ordination.

iii *The Ministry of Local Government*, in accordance with the Local Government Act (1997) is mandated to establish, develop and facilitate the management of self sustaining, efficient and effective decentralized government systems capable of delivering the required services to the people, in order to foster good governance and integrated social and economic development. Water is a basic need and the Ministry of Local Government plays a central role in its management through mentoring, advocacy, inspection, monitoring and where necessary, providing technical assistance, support, supervision and training to all Local Governments. Under the Decentralization Act (1995), Local Governments (districts, sub counties and urban authorities) take on the responsibility of provision and management of rural water services, in liaison with the Ministry responsible for water. Responsibilities of Local Governments include planning, budgeting, resource allocation, monitoring and prompt accountability. They are mandated to undertake rural sanitation services and community mobilization to ensure effective participation and involvement. They are also responsible for promoting private sector involvement to support operation and maintenance of water services. User Communities are provided for in the Water Statute with a mandate to form Water and Sanitation Committees (WSC), Water User Groups (WUG) and Water User Associations (WUA). These community level water users’ organizations are to ensure proper planning and management of water facilities as well as their sustainability.

iv *Districts are obliged to develop capacities* for planning, implementation, monitoring, and evaluation of water supply and sanitation facilities and services. However, their capacities vary significantly throughout the country and are generally still inadequate to undertake the tasks effectively.

v *The Ministry of Health* has the responsibility for policy on hygiene promotion and sanitation development. It is responsible for setting guidelines for training and monitoring related to public health education and sanitation. The responsible agency for water and sanitation within the Ministry is the Environmental Health Division under the Department for Primary Health Care. The Division is responsible for policy making, preparation of guidelines, setting of standards and provision of support to the Districts. The division works closely with the health departments in local governments to implement water quality surveillance programmes.

vi *The Ministry of Gender, Labour and Social Development* is responsible for spear heading and co-coordinating gender responsive development and community mobilization. The Ministry of Gender, Labour and Social Development is mandated to carry out community mobilisation including water sector related mobilisation at national, local government and community levels among others.

vii *The Ministry of Agriculture, Animal Industry, and Fisheries (MAAIF)* is responsible for the development of agriculture, animal husbandry and fisheries and is a major stakeholder in the utilization of water for agriculture production. The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is responsible for the development of agriculture, animal husbandry and fisheries. It gives support to the Districts with the objective of ensuring that national sector targets and standards are attained. This ministry is the major stakeholder in the provision and utilisation of water resources for watering and dipping animals, irrigation and fisheries. MAAIF has a collaborative role with the MWE in the implementation of Government water sector policies affecting the rational extraction and use of water as well as the management of water resources.

viii *The Ministry of Works and Transport* is mandated to plan, develop and maintain an adequate and effective infrastructure to facilitate provision of safe and efficient transport services in the country. The ministry is in charge of all public engineering works in the country. In regard to the water sector, the ministry of works and transport is in charge of the water transport, which includes management of ships and ferries.

ix *The Ministry of Energy and Mineral Development (MEMD)* has the role to establish, promote, develop, safeguard and manage strategically, the rational and sustainable exploitation and utilization of energy and mineral resources of Uganda for social and economic development. Its role is to develop policies on hydro electric power generation where water is the major resource.

x *The Ministry of Internal Affairs* is in charge of enforcing water-related laws, and collection of fines including those relating to water extraction, pollution or other impacts. The police department in the ministry works hand in hand with other agencies to keep security and curb smuggling on the lakes through routine patrols.

xi *The Office of the President and the Office of the Prime Minister* monitor and evaluate government programmes and ensure that their implementation is in line with relevant aspects of government policy. The Prime Ministers Office is also mandated to ensure disaster preparedness, including management of water related disasters.

xii *Statutory Bodies* with mandates to manage water resources include the National Environment Management Authority (NEMA) which is responsible for monitoring, planning and coordination of environmental matters in Uganda. NEMA is the principal agency for the management of the environment in Uganda and coordinates, monitors and supervises all activities in this field. The National Water and Sewerage Corporation (NWSC) has the mandate to provide clean and safe water to the consumers within its areas of operation. The Uganda Investment Authority (UIA) facilitates and promotes investment One of the services that UIA offers to investors is providing first-hand information on investment opportunities in Uganda including availability of water resources especially those that have a direct impact on foreign direct investment such as for power generation and tourism. The Uganda Wildlife Authority (UWA) has the mandate to conserve and sustainably manage the wildlife and Protected Areas of Uganda in partnership with neighbouring communities and stakeholders for the benefit of the people of Uganda and the global community. It is in charge of management of 10 National Parks, 12 Wildlife Reserves, 14 Wildlife Sanctuaries and provides guidance for 5 Community Wildlife Areas and some of these areas contain water sources that are of great importance to the animals and surrounding community. The National

Forestry Authority aims at establishing an integrated forest sector that achieves sustainable increases in the economic, social and environmental benefits from forests and trees by the people of Uganda, especially the poor and vulnerable. The authority is directly linked to watershed management by being the lead agency in tree planting in the water catchment.

xiii *Private Sector, NGOs and Water Users' Associations (WUAs)*, are involved mainly in point source protection and in borehole drilling and rehabilitation especially for institutions and in the emergency areas. The Private Sector role in the water *sector* includes design, construction, operation, maintenance, training and capacity building. The private sector is also being considered for mobilizing resources for sub-sector development in the on-going Water Sector Reform studies. Uganda continues to receive considerable donor support for funding the development budget for water and sanitation. Prominent donors have included DANIDA, UNICEF, Sida, EU, Australia, the Netherlands, DFID and JICA. In the period 1995 to 2002 the donors invested over US\$ 100 million.

xiv *Donors* have also played major roles in policy development and capacity building. There are over 80 NGOs and CBOs currently undertaking water resource management and sanitation activities in Uganda. Major NGOs active in the sector include the Italian Institute for Co-operation and Development (IICD), Associazione Centro Aiuti Volontari (ACAV), Plan International, World Vision International, CARE, VEDCO, Associazione Volontari per il Servizio Internazionale (AVSI), Water Aid, Busoga Trust, Action Aid, SNV and GTZ. NGOs and CBOs are involved mainly in point source protection and in borehole drilling and rehabilitation especially for institutions and in the emergency areas. Apart from these hardware tasks the NGOs are instrumental in developing and implementing community mobilization programs for water management programs. Apart from these hardware tasks the NGOs are very instrumental in developing and implementing community mobilization programs. NGO/CBO inputs is a component which is increasingly being emphasized by donors in the area of mobilization and actual project implementation. There are over 200 NGOs and CBOs currently involved in various aspects of water resources management and development in Uganda. Some NGOs active in the sector include: Uganda Water and Sanitation Network of NGOs (UWASNET) which represents a network of over 140 NGOs and CBOs that are working in areas of water and sanitation.

4 UGANDA'S NATIONAL WATER DEVELOPMENT

PLANS AND STRATEGY UP TO 2015

Uganda has since the early 1990s adopted the principle of Integrated Water Resource Management (IWRM) based on the guiding principles from the international conferences on water and environmental issues in Dublin and Rio de Janeiro during 1992. Sub-sector studies have been completed in the four areas of Urban Water and Sanitation, Rural Water and Sanitation, Water for Production and Water Resources Management. These studies have in turn generated strategies for implementing the sub-sector plans intended to address the reforms over the period 2005-2015 of which this is the fourth and the last.

So far, the Government through the Ministry of Water and Environment has developed strategic documents for the development, use and management of water resources. These strategy documents provide for key actions, costs and institutional mechanism to promote and improve national water quantity and quality management in Uganda. They highlight the principles, issues, challenges, and opportunities that exist to promote national water management in Uganda. As part of the strategy, water management will be decentralized in order to respond to local needs as opposed to a more central management approach that characterizes the present state of water quality management. Already in this financial year, government has committed resources to support the implementation of these strategies. Details of these strategies are highlighted below.

In 1997, Cabinet directed the ministry responsible for water to undertake a sector reform with the objective to ensure that services are provided and managed with increased performance and cost effectiveness, to decrease the government burden while maintaining the government's commitment to equitable and sustainable provision of services. To ensure the above, water sector reform studies were conducted in four sub-sectors comprising:

- I Water Resources Management, July 2003- January 2005.
- II Rural Water Supply and Sanitation, Jan 1999 – June 2000;
- III Urban Water Supply and Sanitation, Sept 1999 – Dec 2000; and
- IV Water for Production, May 2002 – Jan 2004.

These reform studies generated strategies as the main vehicles to champion the development and delivery of sector services. High lights of the main features of their recommendations are given below.

4.1 Water Resources Management Reform Strategy

The main objective of the Water Sector Reform Strategy is to establish an effective framework for water resources management that would ensure that water resources are managed in an integrated and sustainable manner. Hence, it makes recommendations on policy and legal areas needed to implement the proposed reforms in the water sector. The program for implementation of the Water Sector Reform Strategy will be operationalized through the Strategic Investment Plan (SIP) up to 2015.

The Strategic Investment Plan (SIP)

The following are the key elements in the SIP:

- a. Enhancement of the WRM governing and enabling environment;
- b. Development of a framework for decentralization of WRM;
- c. Water resources planning allocation;
- d. Permit management;
- e. Revitalization of WPC;
- f. Enhancement of DWD-WRMD;
- g. Revitalization of water resource Monitoring and information services;
- h. Revitalization of water quality management;
- i. Implementing the Human Resource Development Program for WRM;
- j. Enhancing the participation of stakeholders;
- k. Developing an implementing the National Strategy for Management of International Waters; and
- l. Harmonizing and up dating the legal framework for WRM.

Government views the Water Resources Management Reform Strategy as a process of changing policies, institutions and people and consequently a long-term intervention. How fast the process will evolve depends on a number of factors. The medium and long-term interventions will therefore depend on the achievements made at the initial stage. Basically the approach is to lay down a realistic basis for facilitation of a gradual integration of the strategic recommendations into Uganda's WRM operations along with the building of required institutional capacity. The Government intends that the WRM reform process including its decentralization shall start small, be selective on priority WRM functions, take a long term perspective and shall be given time to mature. In general the Strategic Investment Plan is part of the ongoing sector reform process since the outset of the Water Action Plan and subsequent programs. The SIP plan shall be carried out in three phases as follows: Phase 1 (2005-2007), Phase 2 (2008-2011) and Phase 3 (2012-2015). The total budget for the plan up to 2015 is estimated at US\$ 60.71 million of which US\$ 3.3 million (5.4%) is for management and administration support to WRMD; US\$ 3.4 million (5.6%) is from government recurrent expenditure and US\$ 54.0 million (88.9%) is for the SIP core activities, most of which is expected to be raised from development partners. Infrastructure is expected to cost about US\$ 37.9 million (62.4%).

Decentralized Water Resources Management

The reform studies revealed shortcomings in the WRM in Uganda. These included limited understanding of the resource potential; low priority and hence under funding of the sub-sector; a non-decentralized WRM system; a poorly staffed sub-sector; a multiplicity of institutions that have some authority on WRM and not often acting in unison. Further, the management of water resources has remained at the centre with very little direct responsibility at the district levels. Amalgamation of districts in order to facilitate devolution of some WRM functions is well recommended. This would involve the establishment of Catchment Based Water Resources Management structures as the basis for management of water resources at lower levels.

The National Water Policy (1999) allows for the decentralization of those WRM functions that can best be performed at district or community level. The Local Government Act mandates Local Governments to formulate by-laws, which could be relevant for Water Resources Management. The Local Government Act further stipulates that the District Local Governments should formulate comprehensive development plans integrating priorities of

lower District Local Governments. District Local Government involvement in WRM will enhance the integration of WRM issues with related sector planning responsibilities and plan for water supply and other natural resources interventions. The Local Government Act provides for creation of multi-district administrative instruments where clusters of districts may cooperate administratively. This applies to management of forests and wetlands. It also involves Local Governments assisting the Government to preserve the environment through protection of forests, wetlands, lakeshores, streams and protection of environmental degradation.

Consequently recommendations have been made to address the issues that were identified in the reform studies. These include implementation of the principle of Decentralized Water Resources Management. IWRM principles promote the management of water resources at the lowest appropriate levels where the catchment is the lowest level. Agenda 21 supports this principle of decentralized WRM. The National Water Policy (1999) also permits decentralization of those WRM functions that can best be performed at district or community level. District Local Government involvement in WRM will, therefore, enhance the integration of WRM issues with related sector planning responsibilities and plan for water supply and other natural resources interventions. However, catchments do not always coincide with district boundaries nor do districts create catchments. Worse still, numerous districts continue to be created. Therefore, within the framework of the proposed Catchment Based Water Resources Management, there is need for amalgamation of districts on the basis of catchments.

Uganda has eight major catchments which drain to major water receiving bodies within and outside the country. These vary in size from the catchment discharging into Lake Victoria with an area of 59 858 km², including Ugandan part of Lake Victoria to the Kidepo Basin at the extreme north-eastern part of the country with an area of 3 129 km². Due to the differences arising from the sheer sizes, water stress and potential water conflicts in each region, it is recommended that it would be most cost effective to amalgamate these eight major catchments into four Catchment Management Zones as shown in Figure 4.1 below.

Establishment of a framework for decentralized WRM

A framework for the decentralized management of water resources is to be introduced gradually taking into account financial constraints. The promotion of decentralized and catchment based WRM in Uganda will embrace the following:

- a. Enhanced involvement of the districts in Water Resources Management under the guidance and regular cooperation with DWD-WRMD;
- b. Development of catchment based WRM and promotion of the establishment and functioning of appropriate institutional structures for catchment (zone) water management consisting of multi-district agencies cooperating with central level zone coordinators at DWD-WRMD.
- c. Recruitment of Water Management Zone Coordinators (WMZCs) who will initiate and facilitate multi-district workshops within their zones;
- d. Establishment of Interim Catchment Advisory Committees in agreed catchments (ICACs);
- e. formulation of Terms of Reference for the Catchment Water Resources Plans (CWRP) studies.
- f. Establishment of Priority Catchment Water Management Offices (CWMOs); Operationalisation of the geographical and organizational framework for Integrated Catchment Water Resource Management and Development in Phase 1;
- g. Promotion of the activities of the Catchment Water Management Offices (CWMOs) arising from the agreed actions from the Preliminary Integrated Catchment Water Resource Plans (CWRPs) in Phases 2 and 3.

- h. Harmonize and update the existing legal framework for Water Resources Management;
- i. Improve the functioning of the Water Policy Committee;
- j. Develop the human resources capacity to handle the emerging reform issues;
- k. Promote full stakeholder participation;
- l. Carrying out regular public awareness advocacy campaigns;
- m. Promote collaboration with Meteorological Department;
- n. Establish a Water Resources Institute; and
- o. Develop a National Strategy for Management of International Waters

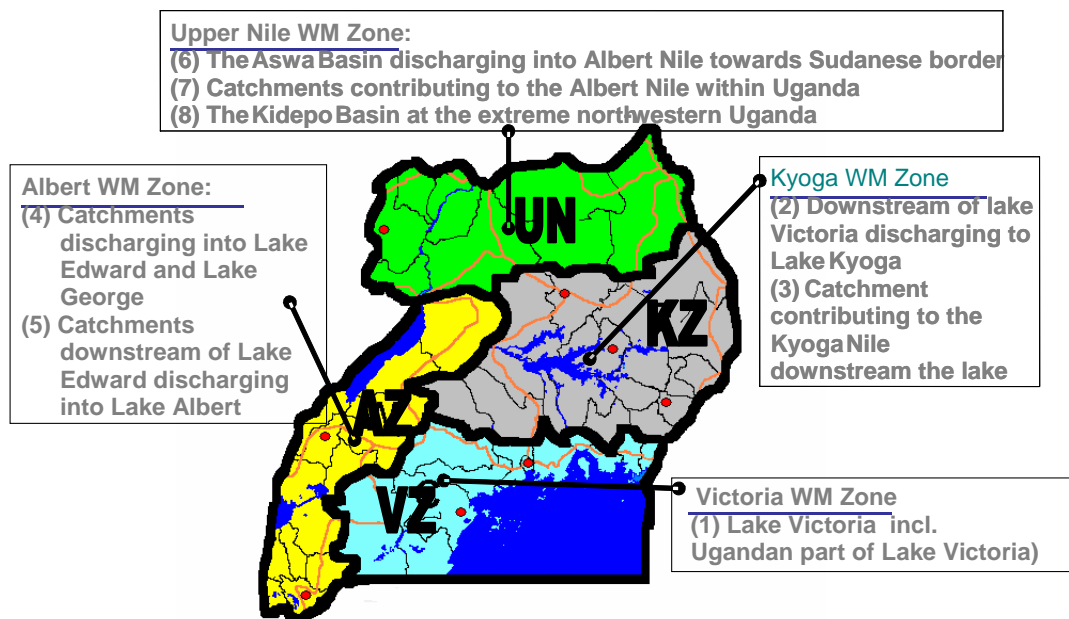


Figure 4.1: The four decentralized water management zones in Uganda
 (Source: Water Resources Management Reform Strategy 2005)

The proposed Decentralized Institutional Framework for IWRM is shown in Table 4.1 and the Interim Institutional Organogram for IWRM (Phase 1 during the roll out period) are indicated in Figure 4.2 below.

Table 4.1: Proposed Decentralized Institutional Framework for IWRM in Uganda

Institutional Hierarchy	Responsible Entity	Duties
Ministry of Water and Environment	Minister	Policy, Regulation, Coordination and Monitoring
Permanent Secretary	Permanent Secretary	Planning; Implementing Policies, Regulations and Reporting
Directorate of Water Development	Director	Planning and implementing Policies, Regulations, Reporting and Liaison
Directorate of Water Resources Management	Director	Planning and implementing Policies, Regulations, Reporting and Liaison
Decentralization Management Team (DMT)	Commissioner and four Assistant Commissioners from the three existing departments and the Transboundary Division	Planning and developing and implementing decentralized water management plans; Coordination of WMZ activities Direction, advice and support to rolling out decentralized WRM in the Rwizi and other catchments in Uganda
Zonal Water Management Teams (ZWMT) - 4	ZWM Team be constituted for each of the four WMZs	Implementing decentralized water management plans, programs, projects and activities
Zonal Water Management Offices (ZWMO)	Water Management Zone Coordinators (WMZCs)	Implementing decentralized water management plans, programs, projects and activities
Interim Catchment Advisory Committees (ICACs)	Water Management Zone Coordinators (WMZCs)	Organizing multi-district Consultative Workshops for District to participate in WRM; Developing TOR for the Catchment Water Resources Plan (CWRP) studies
Catchment Water Management Offices (CWMOs)	Catchment Water Management Officers	Operationalizing geographical and organizational framework for Integrated Catchment Water Resource Management and Development in Phase 1; Promoting the establishment of Priority Catchment Water Management Offices (CWMOs) arising from the agreed actions from the Preliminary Integrated Catchment Water Resource Plans (CWRPs) in Phases 2 and 3; and Providing operational support to the Water Management Zone Coordinators (WMZCs) in order to coordinate required Technical Assistance and other support to catchment Water Management (CWM) operations.

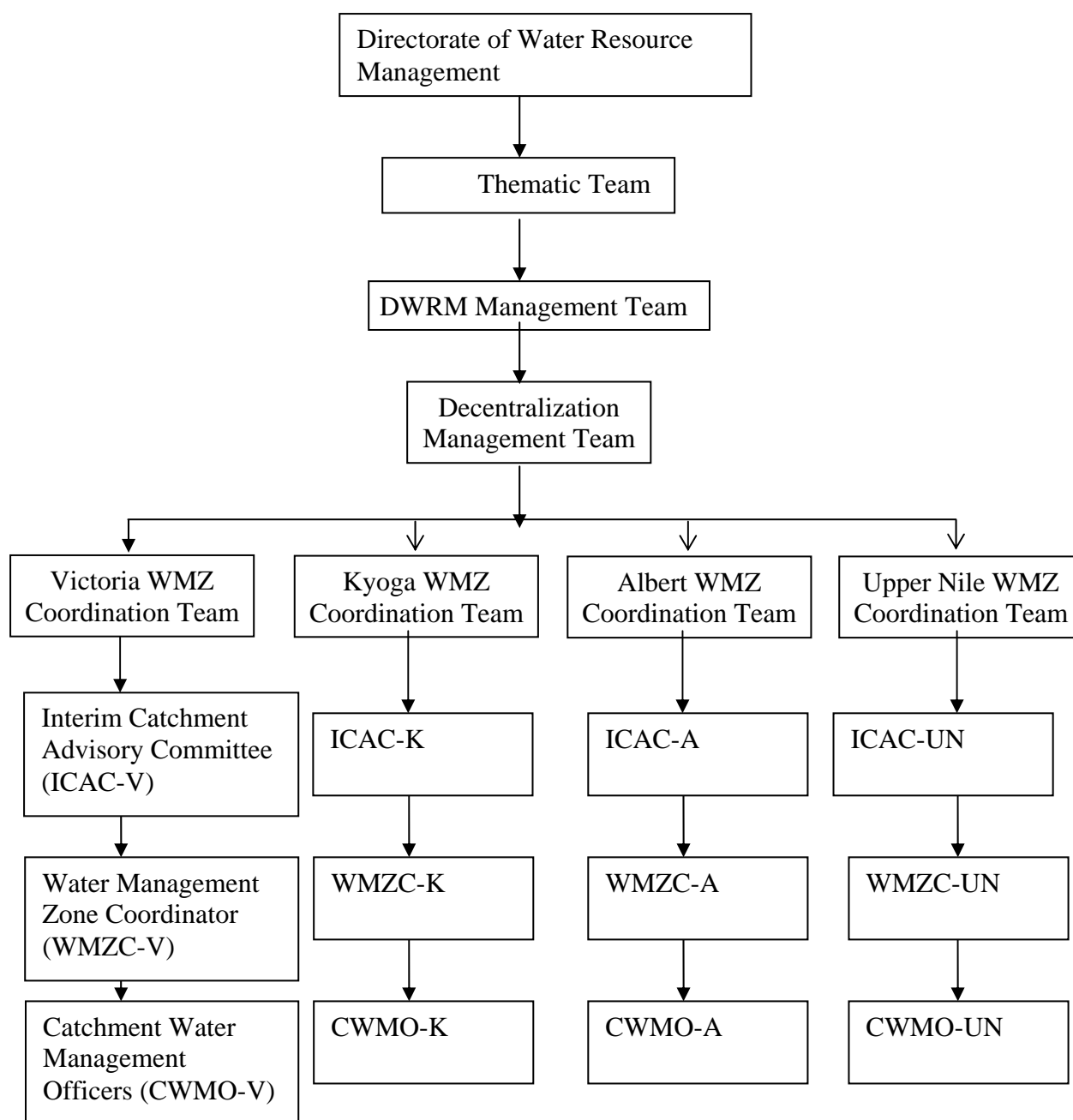


Figure 4.2: Interim Institutional Organogram for IWRM in Uganda (Phase 1 during the roll out period)

The decentralization of IWRM in Uganda will involve the creation of a Decentralization Management Team (DMT) within DWRM. The DMT will be chaired by a Commissioner but will consist of four Assistant Commissioners from the three existing departments. It will be responsible for planning, guiding, supervising and supporting implementation of decentralized WRM in the Rwizi and other catchments in the country. The DMT will report to the top management of Directorate of Water Resources Management. It will also report to the thematic team for guidance and advice as appropriate. The decentralization of WRM in Uganda is to be gradually introduced bearing in mind funding and human resources constraints. The decentralized framework will enhance involvement of the districts in Water

Resources Management under the guidance and regular cooperation of the directorates of Water Development and Water Resources Management. It will promote the development of catchment based WRM and the establishment and functioning of appropriate institutional structures for catchment (zone) water management consisting of multi-district agencies cooperating with central level zone coordinators at Directorates in the Ministry. Consultative workshops will be organized for district participants. Water Management Zone Coordinators (WMZCs) will initiate and facilitate multi-district workshops within their zones. It will provide support to the establishment of ICACs in agreed catchments and agree on final ToR for the Catchment Water Resources Plans (CWRPs). It will involve the engagement of Interim Catchment Advisory Committees and offer operational support to the CWMOs.

The activities identified in the decentralized IWRM framework will be phased out for ease of implementation and management. It will be based on a demand responsive and functioning institutional framework that will meet the requirements for local WRM. This is expected to cater for the local level involvement and capacity; and open ground for gradual development of future local water management structures based on the needs of lessons learned.

Roll out of IWRM to other catchments

Decentralized WRM was piloted initially in the Rwizi catchment. It will continue through 2008 and 2009. The program will be expanded to other catchments in the country exploiting lessons learnt from piloting decentralized WRM in the Rwizi catchment. Experiences learnt from implementation of the Rwizi pilot decentralized management strategy provided the basis for rolling out WRM in other catchments in Uganda. The roll out plans in all the catchments would be based on the following common elements. The approach that has been adopted for rolling out decentralized WRM is based on partnerships with strategic partners. This approach requires engaging other relevant organizations and building on ongoing and planned WRM activities being planned or supported by these partners. This partnership approach facilitates coordination and cooperation among various organizations and initiatives while fostering a common understanding and approach to decentralized WRM in Uganda. There are a number of ongoing and planned WRM activities whose areas of operation, taken collectively, cover most of Uganda as well as important transboundary catchments including most neighboring countries. On going collaboration already exists with Lake George Basin IWRM Project (Protos), Lake Albert Project (WWF-Uganda), Sio-Malaba-Malakisi Transboundary IWRM Project (NBI-NELSAP) and the Kagera Transboundary IWRM Project (NBI-NELSAP). Other planned collaborative activities will bring on board the Lake Kyoga WRM Study (with technical assistance from JICA - proposed start in early 2009), the Lake Kyoga Multipurpose Water Resources Development and Management Project which is being developed in collaboration with Nile Equatorial Lakes Subsidiary Action Program (NELSAP), the Katonga Integrated Watershed Management Project (proposed under LVEMP II). The Netherlands Development Organization (SNV) Country IWRM Strategy (SNV plans to give more focus to IWRM in their programs in various parts of the country. These initiatives constitute an enabling environment and are a good opportunity for expanding decentralized IWRM in Uganda while testing several organizational models and cooperative frameworks which include transboundary IWRM.

Collaboration and partnering with other organizations will involve the following:

- a. The Directorate of WRM establishing and disseminating guidelines;
- b. DWRM to sign Memoranda of Understanding (MOUs) with relevant partners;
- c. DWRM to provide technical data, maps and relevant support to participating partners;
- d. DWRM to operate surface and groundwater monitoring stations, carry out water quality surveillance where required, participate in meetings, workshops; and
- e. DWRM to mobilize financial resources for the IWRM activities.

The management of decentralized WRM rollout plans needed re-organization within the DWRM itself for example, the DWRM needs to assume responsibilities for planning, coordinating, supervising, implementing and monitoring water resource management activities in the four Water Management Zones (WMZ). A Thematic Team (to be called “*Thematic Team for Decentralization of Water Resources Management*”) is necessary to provide guidance for decentralization of IWRM. Although this body was formed, it needs to be expanded and its mandate broadened to include direction, advice and support for rolling out decentralized WRM in the Rwizi and other basins/catchments in Uganda. A Decentralization Management Team (DMT) be created within DWRM. The DMT, chaired by a Commissioner and consisting of four Assistant Commissioners from the three existing departments and the Transboundary Division will be responsible for planning, guiding, supervising and supporting implementation of decentralized WRM in Rwizi and other catchments in the country. The DMT reports to the top management of DWRM composed of the Director and Commissioners in DWRM. This team reports to the thematic team for guidance and advice as appropriate. Further, a Coordination Team headed by a principal officer would be constituted for each WMZ with representatives from each of the three existing departments and the Transboundary Division of DWRM. The teams will initially operate from DWRM headquarters in Entebbe but would later be located within each WMZ as the scope and nature of responsibilities and tasks expand.

The Principles for the Shared Trans-boundary Water Resources

It has been observed that most of the waters of Uganda fall within the Nile Basin and hence comprise international water course system. There are therefore rules at play governing operations and utilization of international waters. The Uganda Water Sector Reform Strategy is cognizant of these principles and pays due attention. These principles include:

- a. the principle of international cooperation;
- b. the principle of prior notification;
- c. the principle of information sharing;
- d. the principle of the prevention, minimization and control of pollution of watercourses;
- e. the principle of community of interest in an international watercourse;
- f. the principle that water is a social and economic good; and
- g. the inter-generational principle which states that future generation should not be deprived from access to an adequate resource base.
- h. the trans-boundary principle where upstream water users have a responsibility towards downstream water users and vice-versa;

The Uganda Water Sector Reform Strategy recognizes and takes full advantage of pertinent Environmental Principles. These include:

- a. the principle of environmental impact assessment of any planned activity;
- b. the principle of environmental audits of existing projects and economic activities in a given Basin;
- c. the precautionary principle about necessary measures to prevent environmental degradation from threats of serious or irreversible harm to the environment;
- d. the “polluter pays” principle;
- e. the principle of pollution prevention at source;
- f. the principle of public participation;
- g. the principle of sustainable development; and
- h. the principle of permanent sovereignty over natural resources.

4.2 The Rural Water Supply and Sanitation Reform Strategy

The main object of the Rural Water Supply and Sanitation Reform Strategy is to provide sustainable safe water supply and sanitation facilities, based on management responsibility and ownership by the users, within easy reach of 65% of the rural population and 80% of the urban population by the year 2005 with an 80%-90% effective use and functionality of facilities. It is then hoped to extend the coverage to 100% of the urban population by 2010 and 100% of the rural population by the year 2015. Further, the strategy will promote the co-ordinated, integrated and sustainable water resources management to ensure conservation of water resources and provision of water for all social and economic activities. The strategy will invoke a demand responsive approach, sector-wide approach to planning in order to build an integrated approach, sustainability and financial viability into the program. This will require co-ordination and collaboration, institutional reform and the full involvement and participation of government ministries, departments, government agencies, the private sector and the civil society organizations.

The roles and responsibilities of the key actors in the implementation of the strategy will be the following. At national level, the Ministry of Water and Environment, through its two Directorates, the Directorate of Water Development (DWD) and the Directorate of Water Resources Management (DWRM), will play supporting roles of carrying out strategic planning, coordination, quality assurance, providing technical assistance and capacity building in the implementation of the rural water investment program. The local governments and the local communities will be the main implementers of the program. The District Local Governments are the overall planning authorities for the Districts and have the general responsibility for the provision of services in the water and sanitation sector. As such the District responsibilities include preparation of workplans and budget for the water and sanitation sector that integrate lower council's plans and co-ordination of health education, sanitation, water construction and operation and maintenance activities. The program requires sub-counties to meet minimum conditions in order to qualify for development grants for the water and sanitation sector. The parishes are directly involved in the planning of the use of a conditional development grants for the water and sanitation sector. They provide indicative planning figures for funding to each parish. Community level players plan will establish Water User Groups (WUG) and a Water and Sanitation Committees (WSC) to collectively plan and manage water point sources exploiting demand driven approach to each case. In the water sector private participation is in the form of consultants and contractors investing in the design, construction and management of facilities are fully used. The contractors include those engaged in construction; supplies of hardware pump sets, other equipment and consumables and billing. This program is to be implemented over three phases; Immediate and Short Term (2001 to 2005), Medium Term (2006 to 2010) and the Long Term (2011 to 2015). The program is financed through Conditional Grants which are funds channeled directly to districts as conditional grants as well as funds from Co- Financing with Local Governments and Communities. Many organizations and agencies have been involved in the rural water supply program and these include line ministries, local governments, donors, Non-Governmental Organizations (NGOs), community-based organizations and local communities. With support from development partners, the Government has been able to increase access to safe rural water supply from 18% (1990) to 47% (1999) and access to Sanitary excreta disposal (using pit latrines as index) has also increased to 49%. The programs have contributed to institutional development and capacity.

4.3 Urban Water Supply and Sanitation Strategy

The Urban Water and Sanitation Sub-sector Goals are:

To expand service coverage to give 100% of the population access to safe water and appropriate sanitation by the year 2015;

- a. To achieve sustainability of service delivery including reduction of government subsidies if they remain necessary, or at least improving the efficiency of such subsidies;
- b. To ensure that a basic adequate level of service is affordable via low-cost service delivery and the implementation of a subsidy and tariff framework which is equitable and beneficial to the poor;
- c. To ensure that water, as a social and economic good, is managed in the best way, bringing consequent benefits in terms of infrastructure, economic development, and health to the nation.

The urban water sub-sector comprises of towns with population above 5,000 people and gazetted town councils. Of these 151 towns, 44 have populations exceeding 15,000 and comprise a population of about 2.81 million. The remaining 107 smaller centres comprise an urban core with dispersed surrounding settlements, and comprise a total population of about 860,000. Therefore the total urban population is about 3.67 million people based on the provisional 2002 census figures. Currently only about 64% of the urban population have access to safe water supply. Of these, only 12% of the households have direct connections at home. The situation for sewerage is worse. An estimated 5% of the urban population is covered by sewers leaving the rest of the urban population to rely on on-site systems, which are predominantly pit latrines.

The National Water and Sewerage Corporation is the main actor in urban water sector program. It was created by Statute in 1995 as a corporate body with powers to acquire, hold and dispose of real and personal property and sue or be sued in its corporate name. At the commencement of the NWSC Statute the corporation was deemed to have been appointed a Water Authority and Sewerage Authority, under the provisions of the Water Statute 1995. The Minister is required to enter into a performance contract with NWSC in relation to its operations in accordance with the provisions of the Water Statute. The size of the urban water sub-sector is however, small with only about 66,000 active water connections earning total revenue of about \$17 million per annum. The sub-sector is concentrated in the Kampala, Entebbe and Jinja area which has only 40% of the urban population, 75% of the active water connections, 72% of the active sewer connections and about 80% of the revenues in relation to the total urban water sector.

4.4 Water for Production Strategy

This is made up of five sub-sectors which include water for crops, livestock, wildlife, aquaculture and water for rural industries. The Ministry of Water and Environment is the lead ministry for water supply and management whilst the Ministry of Agriculture Animal Industry and Fisheries is the lead agency for water needs identification and use. Water for Production Strategy involves identification of water sources, creation of an enabling environment for harnessing water and controlling mechanisms for extracting and exploiting the water resources and carrying out planning and monitoring related activities. The strategy identifies funding for Water for Production through the Government and donors. The policy of decentralization under the Fiscal Decentralization Strategy permits provision of

unconditional development grants and conditional grants to districts for purposes of running water sector related activities and implementation of the Water for Production Strategy. The key guiding principles for Water for Production Strategy are that the strategy focuses on poverty reduction, it employs demand driven and sector wide approaches, it calls for sustainability, cost effectiveness, it emphasizes decentralization, privatisation, and gender. It is gender sensitive and environmentally friendly. Water for Production Strategy sub sector embraces the following:

Water for crops

This is principally water for irrigation as shown in the **Table 4.2** below. Currently yields are below potential and the schemes are operating below capacity due to numerous problems such as land ownership, tenure complications, type of crop, market problems, poor infrastructure, poor farming methods, poor extension services and low technology.

Table 4.2: Irrigation coverage and water demand for Uganda by 2003

Type of Irrigation	Area under Irrigation		Water requirement		
	ha	%	m ³ /ha/year	10(6) m ³ /year	%
Small scale	300	2.1	10,000	3.00	2.4
GoU Schemes	2,036	14.1	12,000	24.43	19.6
Commercial Plantations	5,282	36.6	12,000	63.38	50.8
Commercial Plantations Partial Kakira	6,800	47.2	5,000	34.00	27.2
TOTAL	14,418	100		124.81	100

Water for livestock and wildlife

Current facilities for water for livestock are shown in the Table 1.10 below. However, all these facilities are not operational. The present water facilities can impound about 6.5 million m³ which is only able to provide current livestock demand for 21 days without re-charge. Given that the 2002 livestock population expressed as Tropical Livestock Units was 6 million which is at the same time expected to grow, the current facilities are far from adequate.

Table 4.3: Current facilities for water for livestock (not all are operational)

Facility	No.	Ownership				Functional	
		Government		Private			
		No.	%	No.	%	No.	%
Dams	316	305	28.2	11	1.0	111	35.1
Valley Tanks	765	586	54.2	179	16.6	268	35.0
Total	1,081	891	82.4	190	17.6	379	35.1

Water for aquaculture

There are about 1,100 Aquaculture reservoirs in Uganda with a total surface area of about 5,300 ha. There are also about 10,000-20,000 small size fish ponds 10-30 per cent of which may not be operational. Uganda is well endowed with permanent water sources which are excellent for aquaculture. However, production and management problems encumber aquaculture due to poor seed, poor management practices, poor marketing and poor feeds. Hence, water requirements for aquaculture are presently minimal but this will change if aquaculture is commercialized.

Water for rural industries

Water is needed for rural industries involved in food processing, mining, textiles, brewing and brick making. However, the development of these industries is associated with good road and communication network, power and other services. Hence, presently water for rural industries is considered as an essential element for the growth of rural growth centers.

4.5 National Water Quality Management Strategy

The National Water Quality Management Strategy was developed through a Joint Water and Sanitation Sector Review carried out in 2004 and approved in 2006. The main purpose of the National Water Quality Management Strategy is to ensure that water quality is recognized as a cross cutting issue and that its management is streamlined into all water, sanitation and environmental management activities. The National Water Quality Management Strategy takes onto consideration all current water quality issues and problems which affect water quality such as point-source pollution; non-point source pollution; pollution threats and pollution pressures. The strategy identified current shortcomings and deficiencies in the current management of water quality and these included gaps in accountability, design of programs, data collection, management, distribution inadequate water quality standards and poor funding of the management system. and generation. The design of the National Water Quality Management Strategy therefore took into account these weaknesses and adopted the following key principles so as to rectify the current deficiencies: Integrated water resources management which invokes application of principles such as “the polluter pays “, water as a finite resource, recognition of women in water management, wide stakeholder participation cross sectoral integration, management of water on the basis of catchments and management of water at the lowest possible level; Water quality management options which applies source directed and resource directed options and Performance monitoring and enforcement which involves regular inspection and supervision. The National Water Quality Management Strategy, therefore, recommends strengthening the policy and legal framework through harmonization of laws, standard, guidelines and by-laws in drinking water supply sub-sector, water for production sub-sector, effluent management, water for ecological and environmental purposes as well as water for recreation and aesthetics. The National Water Quality Management Strategy also recommends reviewing, updating and improving the institutional framework including the creation of a new Water Quality Management Department; creation of a National Reference Laboratory and a three tier laboratory structure. The National Water Quality Management Strategy further recommends the establishment of a National Water Quality Coordination Committee to oversee the implementation of the strategy. It also recommends adoption of water quality management tools such as surveys, monitoring, modeling, assessments and application of economic incentives and dis-incentives. The National Water Quality Management Strategy further recommends and integrated monitoring program for basic and ambient monitoring, operational and effluent monitoring and preventive monitoring. It also recommends a data

management framework. The implementation of the National Water Quality Management Strategy will be from 2007 to 2015 and its implementation is expected to cost US\$ 40 million. However, operational manuals for its implementation are yet to be developed.

5 INTERNATIONAL CONVENTIONS RELATED TO WATER RESOURCES

Those conventions and protocols related to water resources management signed and ratified by Government include the following:

- a. Convention on Biological Diversity 1992;
- b. United Nations Convention to combat Desertification (UNCCD);
- c. United Nations Framework Convention on Climate Change 1992;
- d. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal;
- e. Bamako Convention on Trans-boundary Movement of Hazardous waste;
- f. Ramsar Convention on Wetlands;
- g. Kyoto Protocol;
- h. African Convention on the Conservation of Natural Resources (ratified in 1973);
- i. Convention on Environmental Impact Assessment in a Transboundary Context; and
- j. Stockholm Convention on Persistent Organic Pollutants.

Uganda is signatory to several regional water resource management cooperative programs aiming at collaborative and equitable utilization of the shared water resources. Some of these are:

- a. The Nile Basin Initiatives (NBI);
- b. Nile Equatorial Lakes Subsidiary Action Programme (NELSAP);
- c. NBI shared Vision Programme;
- d. Lake Victoria Environmental Management Project (LVEMP);
- e. FAO Lake Victoria Water Resources Project;
- f. FAO Nile Basin Water Resources Project; and
- g. The Protocol for the Sustainable Development of the Lake Victoria Basin adopted by the Council of Ministers of Foreign Affairs of East African Community partner states in 2003.

There are other Conventions and Protocols which could be useful and of mutual benefits to all parties and these include:

- a. The Doctrine of Equitable and Reasonable Utilization of International Watercourses and other Trans-boundary Natural Resources;
- b. The Helsinki Rules on the uses of the Waters of International Rivers adopted by the International Law Association in 1966;
- c. The U.N. Convention on the Law of the Non-Navigational Uses of International Watercourses, which was adopted by the U.N. General Assembly on May 21, 1997.

6 FINANCING OF IWRM IN UGANDA

The Water Sector attracts about 152 Billion Uganda Shillings of which only 6% is channeled towards water resources management activities. Presently funding is channeled through:

- a. The Joint Water and Sanitation Sector Support Program;
- b. The Lake Victoria Environment World Bank Trust Fund for Lake Victoria Environmental Management Project (LVEMP);
- c. The Nile Basin Initiative Shared Vision and Strategic Action Program Support;
- d. The FAO Nile Basin Information Management Support;
- e. The EAC Partnership Fund for Lake Victoria under Lake Victoria Basin Commission;
- a. Government of Uganda.

Donor Funds and Government Funds invested in the sector currently amount to approximately \$33m annually. In addition to the sector specific investments, the Local Government Development Program of MoLG/World Bank, are supporting District Development Programs, whereby Districts receive capital budget support and in most cases based on their three year rolling District Development Plans. Investments through these Programs are largely targeted for the five Priority Program Areas, which include the rural water and sanitation sector and are estimated at approximately \$ 5.1 million per year. Thus the total capital investment in the rural water and sanitation sector is currently about \$38 million annually. It must be noted that donor investments in the sector decrease dramatically in FY 00/2001 and that no donor investment is yet identified for FY 01/2002. In the case of rural water and sanitation sector Table 1.11 below represents investment needs, committed funds and shortfall over five years (FY 1999/2000, FY 2000/01, FY2001/02, FY 2002/03 FY, 2003/04). However, very few of the eligible water users and wastewater discharges have been issued with permits. This implies that water resources continue to be abstracted and polluted without control. To make the Water Permits system an effective water allocation tool, it is necessary to ensure that all the water users and wastewater discharges are identified and registered before they are issued with permits. Similarly, for a legal and regulatory framework for water resources management to be effective, there is need to enforce it and monitor its compliance. The current compliance monitoring system should be effectively implemented so that compliance by water users and wastewater dischargers is ensured.

Table 6.1: Sector Investments (1999-2004) needs, committed funds and shortfall over five years (FY 1999/2000, FY 2000/01, FY2001/02, FY 2002/03 FY, 2003/04

	1999/02	2000/01	2001/02	2002/03	2003/04
	US\$ m	US\$ m	US\$ m	US\$ m	US\$ m
1.0 Investment needs					
1.1 Water Development		27.62	36	38.72	40.78
1.2 Sanitation Services		1.73	1.73	1.73	1.73
1.3 Notational Program Support		11.26	10.96	10.66	10.39
		40.61	48.69	51.12	52.90
2.0 Committed Funds					
2.1 District Water Dev Grant	\$9.75	13.5	16.5	18.5	20.7
2.2 Central Support	\$ 2.00	2.5	2.5	2.5	2.5
2.3 Donors	\$23.25	19.75	16.25	4.75	4.75
Total Funds	\$35.10	35.75	35.25	25.75	27.95
Short fall		13.44	25.37	24.95	24.37

7 CASE STUDIES

7.1 Case 1: Decentralized water resource management of River Rwizi Catchment

In Uganda implementation of IWRM in Uganda has been piloted in the Rwizi River. In October 2006 proposed the piloting of participatory water resources management in the Rwizi River catchment.

The following actions were initiated.

- a. A thematic team chaired by Director of Water Resources Management (DWRM) Directorate was established in 2006 to oversee implementation of the project and to serve as a forum for national-level stakeholder participation;
- b. The Thematic Team met four times during in its first year of operation;
- c. A core team was established in the DWRM to undertake coordination, planning and to be the project secretariat;
- d. An inaugural workshop was held in Mbarara in April 2007;
- e. A Catchment Management Committee (CMC) was formed in August 2007;
- f. The CMC has identified priority water resource issues near wetlands, riverbanks and lakeshores for priority interventions in each of the riparian district;
- g. A stakeholder training session and field surveys were undertaken and some of the results have been received and interpreted;
- h. An ecological survey and socio-economic study have been undertaken in the same area by the Wetlands Management Department;
- i. Groundwater mapping has been completed in four of the five districts in the catchment;
- j. A water resources Situation Analysis is being undertaken by the DWRM;

Activities will continue during 2008 to 2009 in the Rwizi catchment to prepare a Water Resources Management Strategy and an Action Plan;

Implementation of priority water resources management activities including capacity building will follow.

The following lessons have so far been learned from the River Rwizi case:

- a. Irregular attendance at meetings and restrained participation in activities by some stakeholders;
- b. The core group in DWRM was unable to provide sustained long-term managerial and coordination assistance to the CMC due to the long distance problems. It was found necessary to locate the facilitator of IWRM activities within the catchment;
- c. IWRM was well accepted by many stakeholders in the areas possibly due to the serious water resources problems;
- d. Stakeholders will be well aware of the issues and their potential solutions;
- e. Cooperation is easily realized in districts with a common factor like shared culture and historical background;
- f. Data required for water resources situation analysis is inadequate, scattered and is often difficult to get;
- g. It is recommended to use metadata for the initial development of the catchment management plan;

- h. District extension staff should be used to collect field data cheaply;
- i. IWRM interventions require large funds to operationalize;
- j. Partnering with other organizations operating in the catchment for example, from participating local governments and NGOs could be a source of funds for IWRM activities;
- k. Existing structures and institutions within the catchment can be used to implement IWRM activities complemented with new initiatives;
- l. It is beneficial to institutionalize from start the principle of co-ownership, co-funding and co-management in all the operations of IWRM;
- m. Catchment conservation measures must be affordable and cost effective;
- n. Conservation measures must be quickly and easily achievable and their results and impacts must be highly visible;
- o. Institutional framework for implementing IWRM should be continuously tested before drawing conclusions on their effectiveness;
- p. The hierarchical organization proposed by the DWRM's for management of a decentralized sustainable IWRM is not appropriate at this stage and needs to be modified;
- q. Experience from the Rwizi pilot catchment decentralized WRM strongly indicated that an approach which includes a Catchment Management Committee (CMC) consisting of political, administrative and technical representatives from participating local authorities is viable for the implementation of a decentralized IWRM system.

7.2 Case 2: Implementation of IWRM in the Lake George Basin, Uganda in partnership with Protos a Belgian International NGO.

In March 2008, implementation of IWRM strategy was initiated through partnership with *Protos*, a Belgian International NGO, that worked in the Lake George Basin (LGB) since 2006, following a Lake George Integrated Lake Management Project implemented with DFID support. This partnership was seen as a positive opportunity to expand the scope of decentralized WRM activities and to test collaboration with *Protos* in an important catchment with a number of potentially environmentally damaging activities such as unsustainable agriculture, deforestation, mining, industry, fisheries and tourism. The following are the advantages noted regarding collaboration with *Protos* in the LGB catchment.

Achievements realized through collaboration between Protos and DWRM

Stakeholders' workshop was conducted with the assistance of Protos and the full collaboration of DWRM Protos in Fort Portal in March 2008 to discuss water resources issues in Lake George catchment and to propose how the issues could be collaboratively handled. As a result of this meeting a way forward was agreed and initiated as follows:

- i. A Steering Committee (SC) for IWRM was created made up of 10 members from local governments, NGOs, central level institutions and the private sector to spear head the activities in Lake George catchment.
- ii. The SC met 5 times since March 2008 to plan for IWRM and implement the various interventions.
- iii. Selection of priority catchments (Mpanga and Mubuku) in which IWRM will be implemented was completed using a criteria employed in the Rwizi pilot.

- iv. An action plan that includes environmental protection, training, formation of various IWRM structures, water resources situation analysis, stakeholder's analysis and preparation of IWRM plan is under preparation by the SC.
- v. Concept papers on river bank protection and possible funding options for IWRM in Lake George are under preparation
- vi. Since the SC for IWRM in Lake George is all encompassing, it was proposed that it continues operating as the Catchment Management Committee in the interim period.
- vii. LAGBIMO in collaboration with Protos are playing the role of a Secretariat for the SC
- viii. A stake holder Forum that will bring together all the stakeholders in the Lake George Basin was planned for early October 2008
- ix. The revision of the MOU between DWRM and Protos, to among others address the roles and responsibilities of each party including information sharing was initiated

Lessons Learnt

The following are some of the lessons that had emerged from the implementation of the collaboration between *Protos* and the DWRM towards IWRM in the Lake George Basin.

- i. Collaboration with *Protos* was consistent with DWRM ideals of IWRM;
- ii. *Protos* had established good working relationships with local governments, local NGOs and other stakeholders in the LGB which greatly facilitated the implementation of IWRM activities in the LGB;
- iii. Established organizations in the LGB worked well with *Protos* and the DWRM for example LAGBIMO and beach management units (BMUs) on Lake George;
- iv. The Mubuku catchment in the LGB is in the priority list of catchments prepared for piloting and was found ideal for the purpose;
- v. WR information collection and analysis of WR data on the LGB was well done by *Protos*
- vi. DWRM has prepared a report on water availability in the Albert (Western) Water Management Zone, which includes the LGB and will be very useful in preparation of an IWRM plan for the catchment;
- vii. *Protos* expressed an interest and is playing an active role in collaborating with DWRM for capacity building in IWRM
- viii. LAGBIMO prepared the *Lake George Basin Management Plan for the period July 2007 – June 2010* which contains a number of IWRM elements and is a good starting point for developing a WR strategy and action plan for the LGB.
- ix. An IWRM working group was established which included representatives from *Protos*; and
- x. It was proved through collaborative efforts between *Protos* and the DWRM that it is possible to garner financial and other logistical support from *Protos* and other sources.

8 PERSPECTIVES OF WHY IWRM HAS BEEN SUCCESSFUL

Uganda's Water Resources Management Reform Strategy focused on decentralizing water resource management in the country. The following are some of the major reasons why IWRM in Uganda has been largely successful.

- a. Uganda is well endowed with vast water resources in form of lakes, rivers and wetlands but that these water resources are facing increasing challenges and abuse through over exploitation and pollution, arising out of domestic, industrial and agricultural contamination. Uganda is itself facing increasing population, higher demand for water and bigger demand for power which necessitates availability of water for domestic, agriculture, recreation, trade, transport, wild life as well as for hydropower production. Hence the country feels duty bound to use its water resources diligently for the present and for future generations;
- b. The Government of Uganda is seriously interested in the IWRM principles arising out **of the world sustainable conferences in Stockholm, Rio de Janeiro and Johannesburg;**
- c. The Government had put in place conducive policies on environment, water and decentralization which were enforced and implemented by relevant parliamentary acts and laws thus making it easy and practical to implement the IWRM strategy;
- d. The Government had established appropriate institutions which were able to implement government policies, laws, decisions and guidelines;
- e. Government put in place correct and timely directives to ministries and departments to enable implementation of IWRM;
- f. Government allocated adequate seed money to run the IWRM programs in the ministries;
- g. The international partners were willing and ready to participate in the IWRM programs providing technical assistance, funds, experts and equipment;
- h. Local Government structures in Uganda were created and were willing to cooperate in the implementation of IWRM;
- i. There were sufficiently well trained local experts and staff on the ground to implement the IRWM programs;
- j. The staffs in various ministries and departments were keen and enthusiastic to implement the IWRM principles.

9 MAIN CONSTRAINTS AND CHALLENGES

9.1 Policy related issues

There are a number of issues that affect water resources planning and management in Uganda. These issues pose a big challenge to any successful efforts to improve on service delivery and ensure sustainable management and development of Uganda's water resources.

IWRM provides an exceptionally strong framework for good governance. But, in Uganda, the introduction and scaling-up of IWRM faces many difficulties due in part to the inherent complexity of the concept itself. Since it involves many sub-sectors and stakeholders, coordination and collaborative engagement difficult and complex to manage. It may indeed overwhelm the local institutional capacity and capabilities. Further complicating the situation is the relative weakness of the Directorate of Water Resources Management (DWRM) compared to the sister Directorate of Water Development (DWD). Sources of relative weakness include comparative lower profile, budget, staffing levels and hence clout. Furthermore, the volume of accurate information required for effective IWRM is rarely within the capacity of governments to collect and manage, except perhaps on a project-specific, externally-supported scale, which tends not to be sustainable. Adding to the complexity is the fact that basin boundaries being adopted in the decentralization under water management zones (WMZs) seldom correspond to administrative boundaries, and are likely to create overlaps and gaps between IWRM basin offices and local/district and regional government administration offices; this can lead to conflicting and counter-productive planning and activities being undertaken by different arms of government. Failure to implement IWRM directly impacts governance by continuing the practice of poorly-informed and ad hoc decision-making, resulting in inefficiencies, misuse and poor allocation of water, as well as economic and financial losses.

In addition, IWRM initiatives are frequently under-resourced, especially compared to high profile water supply and irrigation projects with more readily-understood objectives. Effective IWRM requires significant investment, particularly in capacity building, equipment, awareness raising and infrastructure. Staff shortages have plagued the new DWRM, and Government is reluctant and unable to provide more human resource due to constrained national budgets. While out-sourcing work to the private sector has been practiced to overcome staff shortages in some cases, this is usually externally supported and sometimes not sustainable. Attention is needed to expand revenue generating activities, such as issuance of permits and service fees, for water resource departments to improve their financial base. Only a financially-secure and adequately skilled water resource DWRM can be expected to contribute to improving governance through effective IWRM. When IWRM and stakeholder consultations are not implemented, misallocation of water resources can result from pressure by influential political or business interests, where water resource officials lack adequate backup or support to withstand such pressure. Some of these areas are detailed below.

9.2 Sector implementation constraints

The following important issues have tended to constrain the development of the water sector:

- a. Sector activities are project oriented;
- b. There are low technical and functional capacities at district level;

- c. Although the WPC has been operational since 1998, it has not effectively carried out its work due partly to inadequate understanding of its functions and lack of effective participation by representatives of some institutions. The absence of a secretariat for the WPC and funding for its operations led to the ineffectiveness of the committee. However, under the Water Resources reform studies, strategies were proposed to revitalize the WPC and make it more functional.
- d. Planning and budgets for water and sanitation are being done in isolation;
- e. There is limited technical and functional capacities at sub-county level;
- f. Most sub counties lack a technical officer responsible for water, buildings and roads;
- g. Community mobilization and capacity building gender mainstreaming is weak;
- h. Full private sector participation is yet to be realized especially for simple technologies.
- i. There are difficulties in the distribution of spare parts;
- j. District level tendering, contract management, financial management as well as reporting not well developed thus leading to very substantial **delays in** sector programme implementation and under-utilisation of allocated funds;
- k. Operations and maintenance structures are weak or non-existent and most districts lacked back-up support for community based programs especially for borehole activities.

9.3 Water governance issues

Sectoral approaches to water resources management have dominated in the past and are still prevailing. This leads to fragmented and uncoordinated development and management of the resource. Water management is usually top-down, the legitimacy and effectiveness of which have increasingly been questioned. Weak water governance aggravates increased competition for the finite resource. IWRM brings coordination and collaboration among the individual sectors, plus a fostering of stakeholder participation, transparency and cost-effective local management.

9.4 Securing water for people

Meeting water supply and sanitation needs for urban and rural areas represents one of the most serious challenges in the years ahead. Halving the proportion of the population without access to safe water and adequate sanitation services by 2015 is one of the Millennium Development Goals' targets. Without proper planning and managing of water resources, these MDGs targets will not be achieved.

9.5 Securing water for food production

Population projections indicate that over the next 25 years food will be required for an extra 50 million people in Uganda (UBOS, 2006). Water is increasingly seen as a key constraint on food production, equivalent to if not more crucial than land scarcity. IWRM offers the prospect of greater efficiencies, water conservation and demand management equitably shared among water users, and of increased recycling and reuse of wastewater to supplement new resource development.

9.6 Protecting vital ecosystems

Terrestrial ecosystems in the upstream areas of a basin are important for rainwater infiltration, aquifer/groundwater recharge and river flow regimes. Aquatic ecosystems produce a range of economic benefits, including such products as timber, fuel wood and medicinal plants, and they also provide wildlife habitats and spawning grounds. The ecosystems depend on water flows, seasonality and water-table fluctuations and are threatened by poor water quality. Land and water resources management must ensure that vital ecosystems are maintained and that adverse effects on other natural resources are considered and where possible reduced when development and management decisions are made. IWRM can help to safeguard an “environmental reserve” of water commensurate with the value of ecosystems to human development.

9.7 Securing and safeguarding Uganda’s rights on internationally shared water bodies

The key issue of concern to Uganda is related to the removal of the legal constraints imposed on Uganda by the pre-independence colonial agreements on the Nile that was contracted between either Egypt and Britain, or Egypt and Sudan. These agreements impose restrictions on how Uganda plans and manages her water resources. In other words, the colonial Agreements tend to interfere with Uganda’s sovereignty and restrict her choices to develop and operate hydropower facilities in order to harness her full potential on the Nile River. The three key agreements include:

- a. The 1929 Agreement that guarantees Egypt the “historical and Natural rights” over waters of the Nile by Britain; and further grants Egypt the right to go to war with any State that interferes with the flow regime of the Nile;
- b. The 1959 Agreement between Egypt and Sudan that allows for full utilization of Nile Waters and shares out the Nile waters between Egypt and Sudan. Also it provides for the draining of the sudds in the Sudan through the Jonglei canal to free additional water to Aswan High dam; and
- c. The 1954 Agreement, which puts a constraint on the operating policy of Owen Falls Dam to the “Agreed Curve”. This curve puts a constraint such that no regulation aimed at maximizing benefits of the Nile outflow to generate power can be done. Also it provides for the stationing of Egyptian Engineers at Jinja and has provisions for compensation by Egypt in case of flooding as a result of additional one meter raised on the dam wall upon request from Egypt.

These Agreements, although not enforceable by the Contracting parties, who wield a lot of international influence, have restricted Uganda’s funding options for big projects on the Nile. Uganda hopes to get reprieve once the negotiations on the Nile Cooperative Framework is concluded and she secures her equitable share and safeguards it.

9.8 Rising population

Water use projections show that water demand in Uganda will almost double from 461 MCM per year in 2002, to 709 MCM per year in 2015. The major water users are rural water supply (the rural areas are where over 80% of the population lives), livestock production and wildlife, and crop production and irrigation. The predictions further show that the water demand of the largest towns in Uganda (Kampala, Entebbe and Jinja) will have risen

considerably by 2015. A large proportion of the water supplied to the large towns is for non-domestic use (processing and manufacturing). The water demand of industries located in rural areas is also expected to double by 2015. By 2020, it is envisaged that Uganda will have become a water scarce country mainly owing to the rapid growth in population, uneven spatial distribution of water resources, increasing frequency of floods and droughts, rising industrialization and environmental degradation.

9.9 Gender disparities

Formal water management is male dominated. Though their numbers are starting to grow, the representation of women in water sector institutions is still very low. Gender is important because the way water resources are managed affects women and men differently. Being custodians of family health and hygiene and providers of domestic water and food, women are the primary stakeholders in household water and sanitation. However, decisions on water supply and sanitation technologies, locations of water points and operation and maintenance systems are mostly made by men. A crucial element of the IWRM is that water users, rich and poor, male and female, should be able to influence decisions that affect their daily lives.

9.10 Urban water supply and sanitation issues

The process of decentralisation and the implementation of the Local Government Act (1997) have not been without difficulties. In a number of towns, the water supply systems have not been professionally managed and maintained. The problems have been primarily due to the rapid transfer of functions from one sphere of government to another has not been accompanied with a corresponding building of skills in all technical, commercial and managerial areas; and financial resources provided through the decentralised system do not match the responsibility demands.

This sub-sector faces some fundamental problems some of which include the following:

- a. There is under-performance of billing and collection efficiency, operational and overhead costs;
- b. The average NWSC tariff of U\$ 0.52 per m³ is high but not unacceptable;
- c. The performance of urban areas outside of NWSC is generally below that of NWSC operated areas;
- d. Policy and Governance Framework is inadequate;
- e. Operating costs are high and there are excessive staff structures;
- f. Best practices have not been established;
- g. The sector cannot sustain itself, service its debt, and raise capital for new plant, nor fund renewal or growth, despite adequate tariffs.

10 RECOMMENDATIONS

Decentralized WRM in the Rwizi catchment will continue during 2008 and in 2009 and the program will be expanded to other catchments in the country exploiting lessons learnt from piloting decentralized WRM in the Rwizi catchment. Experiences learnt from implementation of the Rwizi pilot decentralized management provided the basis for rolling out WRM in other catchments in Uganda. The roll out plans in all the catchments would be based on the following common elements:

- a. Catchment area/basin should be defined and mapped;
- b. Water resource issues and problems should be identified in a participatory manner;
- c. Positive interest from local authorities and other key stakeholders should be ensured;
- d. Water resources assessment/situation analysis should be prepared;
- e. Catchment management committee should be formed;
- f. Stakeholder analysis should be conducted;
- g. Stakeholder Fora should be established;
- h. Water user associations should be identified and involved;
- i. Capacity of decentralized WRM bodies should be built;
- j. Catchment WRM strategies should be prepared;
- k. WRM action plans and budgets should be prepared;
- l. Funding and other required support should be secured; and
- m. WRM action plans should be implemented in collaboration with all stakeholders

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