

- The roles of water resource management, including standard setting and regulatory enforcement, shall be separated institutionally from service provision at all levels.
- The lower levels shall be given a greater degree of responsibility in the management of water resources, subject to appropriate regulatory frameworks.
- Gender implications shall be examined and taken into account at all stages of management of water resources.
- Roles of government and official bodies at all levels shall be clearly defined and areas of responsibility officially established.
- The structure and systems of management shall be designed in such a way as to facilitate involvement by the responsible authorities at different levels.
- Involvement of user organizations and the private sector is fundamental.
- Institutions for water resources management including participating groups at all levels shall be strengthened and capacitated.
- Management systems shall be transparent, appropriate and accountable to the public.

#### **4. POLICY ISSUES IN WATER RESOURCES MANAGEMENT**

The objective of the policy for Water Resources Management is to develop a comprehensive framework for promoting the optimal, sustainable and equitable development and use of water resources for the benefit of all Tanzanians, based on a clear set of guiding principles.

The specific objectives of the water resources management are:

- (i) To develop equal and fair procedures in access and allocation of the water resources.
- (ii) To ensure that social and productive sectors, and the environment receive their adequate share of the water resources.
- (iii) To ensure effectiveness and efficiency of water resources utilization.
- (iv) To promote the management of water quality and conservation.
- (v) To improve the management and conservation of ecosystems and wetlands.
- (vi) To promote integrated planning and management of water resources.
- (vii) To raise public awareness and broaden stakeholder participation in the planning and management of water resources.
- (viii) To ensure financial sustainability and autonomy of Basin Water Boards,
- (ix) To promote regional and international cooperation in the planning, management and utilization of water.
- (x) To provide the basis for future institutional framework and legislation for water resources management.

### **4.1 Water Resources Allocation, Use and Socio-Economic Considerations**

#### **4.1.1 Water as a common use resource**

**Objective:** To have in place fair and equal procedures in access to and allocation of water

resources so that all social and economic activities are able to maximize their capacities.

Water is a basic natural resource for sustenance of life and for socio-economic development. Many social and economic activities rely heavily on availability of adequate supply of fresh water. As a source of natural capital, water in adequate quantity and quality is a primary input for a whole array of productive activities. Water is fundamental for food security, domestic – urban and rural water use, livestock development, hydropower production, industrial production, fisheries and for wildlife water use, and for the sustenance of ecosystems. As a sink water sources are used as receptors for wastewater discharges from industrial, municipal and agricultural sources. Therefore water is a public good of very high value in all its competing uses, and requires that careful conservation and sustainable utilization is ensured. Deliberate efforts are, therefore, needed towards protection and sustaining the resource and to ensure that it is used efficiently and effectively for the benefit of the present and future generation.

Laws and Regulations will be put in place to ensure that, like many other natural resources, by constitution and law, all the water in the country is vested in the United Republic of Tanzania and every citizen has an equal right to access and use of the nation's natural water resources for his and the nations benefit.

### **4.1.2 Prioritization of water uses**

*Objective: To have criteria for prioritization of water allocations so as to ensure that socio-economic activities and the environment receive their adequate share of the water resources on the basis of its availability, and to enable the sectors increase productivity, and to mitigate conflicts.*

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Water is a finite and vulnerable resource which is under pressure and growing scarce as a result of increasing multi-sectoral demands of the rapidly growing population. For example, over the past 15 years these demands have become apparent due to increase in population and concurrent growth in economic activities such as irrigated agriculture, industrial production, hydropower production, mining, livestock keeping, fisheries, environmental sanitation and for wildlife water use. Water is also vulnerable due to increasing environmental degradation, which causes unsustainable availability of the resource and hence failure to meet demands. Severe widespread water shortages also occur due to low and highly variable rainfall resulting in inadequate river flows and reservoir levels. All these have manifest implications in the overall availability of the water resources for domestic uses, food and energy production, and environmental sanitation which result in competition and conflicts among the different social and economic sectors.

*In planning water uses, water for basic human needs in adequate quantity and acceptable quality will receive highest priority. Water for the environment to protect the ecosystems that underpin our water resources, now and in the future will attain second priority and will be reserved. Other uses will be subject to social and economic criteria, which will be reviewed from time to time. Utilization of transboundary water resources will be based on the principle of equity, right and rationality in accordance with agreements among the riparian state, and by respecting the principle of international obligations on transboundary water resource.*

*All water abstractions and effluent discharges into water bodies shall be subject to a "water use permit "or" discharge permit" to be issued for a specific duration.*

*Water use permits shall be issued only for a determined beneficial water use. Procedure, criteria and guidelines for issuing of the permits will be prepared and operationalized.*

### **4.2 Water Conservation, Water Quality Management and Pollution Control**

#### **4.2.1 Water Conservation**

##### **(a) Sustainable water use and conservation**

*Objective: To have in place appropriate principles and procedures for managing the quality and conservation of water resources, as well as improve and protect the ecological systems and wetlands.*

Water resources comprise of rivers, reservoirs, lakes, wetlands, springs and groundwater resources. These resources are used for various social and economic activities. Despite its importance, bad water use practices and degradation threatens sustainability of the resource with potential negative effect to ecosystem integrity, human health, food security, industrial production, and investment in various socio and economic sectors. Conflicts which have already surfaced, for example, in the Pangani and Rufiji Basins are between hydropower production and irrigated agriculture, environment and irrigated agriculture, hydropower production and environment, and upstream and downstream water users. Additionally, environmental degradation and pollution of water sources from increasing discharge of untreated and partially treated municipal and industrial wastewater contribute to the deterioration of the quality of the water resources. If measures are not taken to control the situation our resources will be severely degraded, which will deprive future generations their basic right. Lack of multi-sectoral and integrated

approach, lack of comprehensive water resources information base and inefficient use of the resource aggravates the problem.

In order to ensure that water resources are used in a sustainable manner, conserved and that ecological system and biodiversity are sustained the following will be undertaken:

- (i) Water management approaches will focus on how best water is used beneficially and efficiently. Water allocations and use shall be carried out considering the principles of sustainability so that the resources remain viable for the use of the present and future generations.
- (ii) Trading of water rights, application of economic incentives and pricing for water use, shall be gradually built into the management system as a means or strategy for demand management and water conservation.
- (iii) Urban and rural water supply entities, hydropower producers, irrigators, industries, mining operators, etc are required to improve the efficiencies of their water abstractions and distribution systems to avoid undue wasteful use of the resource.
- (iv) Where feasible and necessary, rainwater harvesting, wastewater recycling and desalination of seawater will be employed as a means of increasing the availability of water resources.

**(b) Sustainable groundwater resources development and use**

*Objective: To have sustainable groundwater resources for the present and future generation.*

Groundwater is a viable source of domestic, livestock

and irrigation, and industrial water, etc. for many areas in the country. In other places which have persistent water shortages such as Shinyanga, Coast, Mwanza, Arusha, Mara, Tabora, Dodoma, Singida, Mtwara and Lindi Regions, it is a better and secure alternative to surface water. The on-going groundwater resources development in the country is being carried out without sufficient knowledge of the resource potential, in terms of quantity and quality, due to lack of data and adequate regulations to monitor the activity. This has led to under utilization of the resource, and in some places overexploitation and interference in the existing groundwater sources, notably in coastal areas, may result in saltwater intrusion. The role of the private sector in groundwater development, especially in providing consultancy services and private drilling companies are involved directly in the development of this resource. However, there are no comprehensive procedures and guidelines governing the development of this resource, thus threatening its sustainability.

In order to have systematic and sustainable development of groundwater resource, the following will be undertaken:

- (i) Groundwater will be managed on the basis of aquifer boundaries and in conjunction with the river basin.
- (ii) An effective system for controlling pollution will be developed and implemented.
- (iii) Vulnerable recharge areas and potential groundwater sources, and areas with poor water quality will be identified, delineated and declared as protected areas.
- (iv) Assessment, research, and monitoring and controlling groundwater exploration and drilling activities will be strengthened.

- (v) Procedures and guidelines governing groundwater development and management, including exploration and drilling activities as well as operation of projects, which use groundwater resources will be reviewed and disseminated.

#### **4.2.2 Water quality management and pollution control**

*Objective: To have water resources with an acceptable quality.*

Pollution from point and non-point sources of water resources is responsible for the deterioration of the quality of water, makes water unusable and its treatment very costly. Increased human activities including poor land use practices, as well as uncontrolled abstractions and pollution of water bodies impact on the quantity and quality of the available water resources. Generally, the options for using water depend on its water quality. The proliferation of water hyacinth in Lake Victoria, and in some rivers and reservoirs, is a result of high nutrient levels.

In order to remedy this water shall be protected from pollution and harmful depletion through the following measure:

- (i) Water quality monitoring and assessment will be undertaken systematically so as to identify extent and status of the quality of the water resources so that problems are detected early and remedial actions employed timely.
- (ii) The quality and quantity of water resources will be dealt with conjunctively, and will be assessed comprehensively.
- (iii) The "polluter pays" principle shall apply in conjunction with other legal and administrative actions.

Standards for in-stream flows, industrial effluents and other waste discharges for meeting environmental objectives will be developed and enforced.

- (iv) Practical and cost effective water quality and pollution control monitoring programs (including networks) will be developed and implemented. Factories, municipal authorities, large irrigation schemes and mining operations will be required to collect and keep accurate records of the quality of effluents into receiving water bodies.
- (v) Creation of public awareness in the importance of protecting water resources from pollution including that resulting from inappropriate use of agrochemicals will be undertaken.

### 4.3 Water and the Environment

*Objective: To have in place water management system which protects the environment, ecological system and biodiversity.*

Water is critical to ecological systems and to the maintenance of the environment. The ecological systems include wetlands, floodplains, estuaries and coastal zones. Such systems serve important hydrological and ecological functions such as biophysical filters, safeguard biological diversity, maintain sea and freshwater balance. Management of this system is an integral part of water resources management, however there are no procedures and guidelines to ensure sustainability of these important ecological systems. Basin water resources are part of a management continuum starting with the upstream freshwater resources (in the watershed) moving down into the freshwater-seawater interface in the coastal areas (in the deltas and estuaries) and into the

seawater realms. Various land use activities such as hill-slope cultivation and deforestation are responsible for soil erosion which contribute to generating sediments that are eventually deposited in reservoirs, thereby reducing their storage capacities and hence useful life. High turbidity levels pollute water and causes costly treatment of water for domestic water supply. Water related activities will have to be planned to enhance or to cause least detrimental effects on the natural environment and its health and life giving properties.

In order to protect ecological systems and biodiversity which, together, are important part of sustainable water resources system the following will be undertaken.

- (i) Water for the environment, in terms of quantity and quality, and levels, and for both surface and groundwater resource shall be determined on the best scientific information available considering both the temporal and spatial water requirements to maintain the health and viability of riverine and estuary ecosystems, and associated flora and fauna.
- (ii) In order to contain the erosion problem, public awareness campaigns will be carried out on good land use practices.

#### **4.4 Water Resources Assessment, Planning and Development**

##### **4.4.1 Water resources assessment**

*Objective: To have appropriate and sustainable procedures for management and preparation of water use plans*

Water resource assessment, of both surface water and groundwater, quantitatively and qualitatively,

is a very fundamental element of the water resources planning process. Generally, effective planning cannot proceed without a thorough assessment of the water resources available. The assessment refers to all sector-wide basin and national level comprehensive collection and assembly of information on the quantity, quality, character, location and patterns of use, and response of the resource to use and user demands, pollution and water quality degradation processes. This assessment also includes water use projects and those for mitigating water related disasters such as floods and droughts. Currently the data collection networks are in a state of near total collapse due to lack of adequate resources and tools. This has led to operational weaknesses in implementing comprehensive water resources assessment, which has resulted in under-designing of projects which could cause their failure and thus loss to nation, or over-design which are not cost effective.

In order to have appropriate basis for sustainable planning and development of water resources the following will be done:

- (i) Water resources assessment will be done on the basis of sound scientific and technical information and understanding.
- (ii) The status of surface and groundwater resources in terms of quantity and quality and its use will be defined regularly on the basis of river basin and in conjunction with aquifer boundaries; and the information made easily accessible to users, stakeholders and decision makers.

#### **4.4.2 Water resources planning and development**

*Objective: To have sustainable plans and development of water resources.*

Water resources development projects have been sectorally oriented without due consideration of the demands of other users. This has led to failure to realize the objectives by some of the projects, or face frequent water shortages to the extent of considering inter-basin water transfers. Implementation of inter-basin water transfers could have serious negative impacts if no procedures, guidelines and standards are in place to govern it. In addition, operation of hydropower reservoirs and large irrigation schemes do not take adequate consideration of the environment thus threatening sustainability of the ecosystems and biodiversity.

Planning is one of crucial aspects in water resources management. The various technical and policy issues are incorporated in the development and management plans. For a long time water resources planning has been sectoral oriented, regionally based or project specific, resulting in conflicts among users.

In order to have appropriate water utilization plans the following will be done:

- (i) Water resources planning will be on the basis of river basins; and will be done in an integrated-multisectoral approach. The main levels of planning are National, Basin, District and Community or User level. In addition the plans will take into consideration land use-water-environmental linkages.
- (ii) Development of both surface and groundwater resources will conform to basin or catchment water resources development and management plans.
- (iii) Development of large water schemes including

construction of dams, large rainfall harvesting schemes, water intakes, river diversion works, pumping stations, water well drilling, groundwater abstraction and use, and inter-basin water transfers must meet objectives of water resources management, and will be subject to a permit and an Environmental Impact Assessment (EIA).

### 4.5 Data and Information

*Objective: To have correct and timely data and information for design, construction and operation of different projects.*

A sound information and knowledge base is needed for different kinds of assessment, preparation of plans, construction and operation of projects. In addition, data are required for decision making and for taking appropriate interventional measures regarding management, allocation and development of water resources. An effective integrated water resource management system must be able to provide timely and correct information on the quantity, quality and resource use. Presently data gathering networks have deteriorated due to lack of resources and tools, thus affecting the system of collecting data and information. This lack of important water resources data leads to unsustainable projects, non cost effective and inefficient. In addition, lack of important data has led to inability to prepare and effectively implement disaster mitigation plans. These weaknesses notwithstanding, currently there is no unified, adequately coordinated information management for water resource management.

In order to obtain correct and timely data and information the following will be implemented:

- (i) The existing system of data collection, processing, storage and dissemination of various water resources information will be strengthened at National and Basin levels. The operational capacity for data collection, management of information and assessment of water resources will be strengthened on the basis of simplified, practical needs and cost effective solutions.
- (ii) An effective system of local and international exchange of information will be strengthened, with a view to increase knowledge and experience, efficiency, and collaboration.
- (iii) Regulatory authorities will be empowered by law to obtain information from water users.

### **4.6 Research and Technological Development**

*Objective: Increase knowledge, information and communication between community and resource users.*

Integrated Water Resources Management is a complex process, which takes into account environmental, ecological and socio-economic concerns in the planning and management of the resource, aimed at solving the problems of supply, demand and control. It involves research, technical works and administrative and legal controls for the purpose of preserving and allocating the available water resources to the needs of society and increase efficiency and cost effectiveness. Very little research or identification of low cost technologies is done and is not sustainable. Additionally, there is lack of sectoral coordination, and research findings are not disseminated to users. Due to these weaknesses, technologies which may not be appropriate to our country may have been used.

In order to improve water resources research the following will be implemented:

- (i) Determination of research and technological development needs will be undertaken.
- (ii) Water resources research and technological development centers will be established, and local researchers initiatives will be recognized and encouraged.
- (iii) Collaboration with local and international research institutions will be strengthened.

### **4.7 Training and Human Resources Development**

*Objective: To have adequate number of staff who would implement different water resources activities.*

Water resources management functions include data collect, processing and analysis, assessment, water allocation, monitoring and control, basin planning and development, research and various administrative controls and legal enforcement. These activities require specialized expertise to implement. Presently implementation of the activities is affected to a large extent by lack of enough number of qualified staff and absence of in-service training for the available staff. The number of experts in the various fields has continued to dwindle due to some of them leaving their jobs, retirement or death. Expertise on water issues among water resources experts, water users and decision-makers at all levels is essential for effective water resources management. There is need to have qualified experts in the fields of hydrology, hydrogeology, water quality, water law, water conflict resolution and who can identify and implement the best water technologies, as well as socio-economic aspects of water resources planning and man-

agement. Presently, the capability to deal with various water resource management issues continue to go down due to lack of adequate number of graduates from technical and higher learning institutions.

In order to have adequate number of qualified staff the following measures will be taken:

- (i) Inventory of different expertise and needs assessment will be prepared, and training programs prepared and implemented.
- (ii) A succession plan for the sector staff will be developed and implemented.

### **4.8 Disasters Management**

#### **4.8.1 Floods**

*Objective: To have flood mitigation plans.*

Two types of floods have been recorded in the country i.e. floods of the normal rainfall runoff process and floods caused by landslides resulting into mudflows. These floods, for example in Rufiji, have resulted in losses of property and life, and damage to infrastructure. Water disaster management in the country has been based on limited inter-sectoral co-ordination and inadequate real time information thus focusing on remedial actions rather than on preventive approaches. There are no early warning systems. Due to these weaknesses large floods have occurred quite suddenly with loss to life and property.

- (i) Management of disasters will include establishment of flood monitoring stations and early warning systems so that occurrences of flood events can be detected early and information disseminated to public in advance, strengthening existing hydrological stations and development of mechanisms for emergency

preparedness, in collaboration with other sector departments and agencies.

- (ii) Flood prone areas and areas susceptible to landslides and mudflows will be identified and mapped,
- (iii) Public will be encouraged to avoid development in areas susceptible to floods and landslide. Hazardous flood prone areas delineated and development controlled by water legislation.

### **4.8.2 Droughts**

*Objective: To minimize the negative impacts of droughts.*

Droughts have been experienced quite often with losses to crops and livestock, and hence reducing food security. Diminished flows in rivers and reservoirs has had negative impact on various water use activities such as power production.

In order to mitigate the negative impacts of droughts the following measures will be taken:

- (i) Drought monitoring and mitigation plans will be prepared in collaboration with other sector departments and agencies such as Tanzania Meteorological Agency.
- (ii) Procedures, guidelines and parameters for reviewing water allocations during droughts will be strengthened and streamlined so as to mitigate the potential negative impacts.

### **4.8.3 Dam Safety Monitoring, and Ownership of Dams**

*Objective: To have procedure for safety and ownership of dams.*

Dams are important structures for storing water, regulating flows and containing floods.

However, establishment of dams and reservoirs in a watercourse automatically introduces the element of risk in possible loss of life and property to the people living downstream due to possibility of dam failure. Sedimentation of reservoirs is also a problem as it reduces storage capacities and hence their useful life, but no guidelines are in place to control land use activities around reservoirs. In addition, operation of reservoirs which does not follow established rules threatens the safety of dams and is a source of undue wastage of water. Currently there are no guidelines and regulating mechanism on dam safety issues, registration and ownership.

In order to have dams appropriately registered, owned and operated the following measures will be implemented:

- (i) Dams will be constructed, operated and maintained by the respective owners in accordance with established procedures and guidelines.
- (ii) Dams will be owned by those who invested in their construction in accordance with established procedure and regulations.
- (iii) The impounded water resources will remain public property and its use will be governed by established rules and regulations.
- (iv) Dam owners and potential developers will be required to prepare dam safety monitoring plans and implement them in accordance with the established procedures. Water Legislation shall provide for dam safety.

### **4.8.4 Disasters associated with accidental pollution of water sources**

*Objective: to protect against hazards associated with pollution of water sources.*

There are disasters associated with accidental spills of poisonous and hazardous materials into surface and groundwater resources. Such accidents could occur from burst or leaked oil pipes, damaged chemical industries or spillage from transportation vehicles and vessels. This could lead to serious pollution of water sources and thus ecosystems and biodiversity, and may seriously affect health of people and animals.

In order to protect against and mitigate the effect of hazards associated with accidental pollution of water resources a quick and emergency assessment of extent, and possible impact will be implemented and information made available to concerned authorities. Transportation of poisonous and hazardous materials will follow established rules and guidelines.

### **4.9 Trans-Boundary Water Resources**

Tanzania is riparian to transboundary water bodies with neighboring countries. Large abstractions and use of Transboundary water resources requires understanding and agreement among the riparian states. In principle, a needs assessment and strategy for utilization of these resources are not yet prepared for all basins. Each of the transboundary water bodies exhibits unique characteristics, and a complex range of water management challenges. These challenges are broadly grouped as follows: (a) environmental management challenges on issues like water pollution, biodiversity conservation, wetlands and catchment degradation, fisheries management, and water hyacinth control; (b) river

basin development for hydropower production, domestic rural and urban water supply, and irrigation, (c) river control and regulation, and international boarder stabilization, and (d) inter-basin water transfer. All these require specific strategies and actions aimed at development and management of the water resources.

In order to have effective framework for the management, development and utilization of transboundary water resources the following measures will be taken:

- (i) An assessment for the identification of national priorities related to the management of trans-boundary water will be carried out in collaboration different national institutions.
- (ii) Transboundary water resources such as lakes and rivers which we are riparian to will be used effectively to meet different social and economic demands based on the principle of equity, right and rationality. Local capacities to utilize the resources will be strengthened in collaboration with different national departments and agencies.
- (iii) A framework for the management and utilization of trans-boundary water resources will be developed, based on the need for fostering regional cooperation. Technical collaboration on areas of research, data collection and information exchange will be promoted.

#### 4.10 Institutional Framework

*Objective: to have an effective institutional framework for effective management of water resources.*

Water resources management requires an effective institutional setup to perform core functions of (i) water resources exploration, (ii) water resources assessment

both in quantity and quality, monitoring and evaluation, (iii) water allocation, (iv) pollution control, and other cross-sectoral activities such as catchment management, basin planning and development. Strong institutional set-up will be responsible for enforcement of the water legislation.

- (i) The institutional setup will be reviewed and streamlined to meet challenges in water resources management and planning. Roles and responsibilities of different stakeholders will be clearly defined in the new framework, and will ensure the participation of legitimate representatives of stakeholders.
- (ii) The structure and system of management will be designed to facilitate the involvement of responsible authorities at different levels and promote autonomy at the Basin level. Appropriate, transparent and accountable management information systems will be established.

### ***Co-ordination and collaboration***

Water resources management is a multi-sectoral activity that requires an effective collaboration and coordination mechanism among sectors at all levels. Co-ordination and collaboration mechanisms that enhance information sharing thus, keeping stakeholders aware of sector problems, successes and needs to encourage exchange of ideas and experiences and to provide mechanisms for collaborative action will be established and strengthened.

### ***Institutional set-up and resolution of conflict***

Tanzania is divided into nine river Basins, that do not follow administrative boundaries such as Regions and Districts. Considering this fact, the management of water resources will have five main levels; National

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level, Basin level, Cathment level, District level, and Community or Water User Association level which will be the lowest level and will bring integrate users of the same source.

### **National Level**

The Ministry with the mandate for water is responsible for managing the nation's water resources. It will determine policy orientation, development and time-to-time review of policy and legislation, preparation of conducive environment, sectoral coordination and integration, and sectoral planning, National water assessments and planning; data collection and dissemination, monitoring and evaluation, establishment and maintenance of water resources databases and information management systems, preparation and implementation of training programs, and preparation of Regulations. This is the level where the perimeters of the Basins and sub-basins, the groundwater recharge areas, aquifers are defined. The Minister is the appellate authority. The structure and functions of present Central Water Board will be reviewed and assigned new roles of integrated, multi-sectoral water resources planning and management, in addition to resolution of national level conflicts among sectors. In addition, the Ministry responsible for Water will be the custodian and implementer of the water law and will coordinate water use planning and preparation of Basin plans.

### **Basin Level**

Since water resource management and development will be undertaken on the basis of river basins, this is the level for data collection, processing and analysis, water allocation, pollution control, preparation of water utilization plans, collection of the various

fees and charges, and resolution of various water related conflicts. The present system of managing through Basin Water Boards will be strengthened.

### **Catchment Level**

The large size of our River Basins makes water management difficult since Basin staff are distant from water users. In order to remedy this, Catchment Water Committees and Sub-catchment Water Committees will be established, and will be composed of representatives from the public and private sector, and from the Water User Associations within the respective Basin. The role of Catchment Water Board include preparation of preparation and implementation of catchment plans, and resolution of conflicts within the catchment.

### **District Level**

District Councils shall participate fully in Basin Boards and Catchment Committees. The Districts will be responsible for planning and development of water resources in accordance with Basin plans, protection and conservation of natural resources in the villages and wards, establishment of bye-laws on the management of water resources, conflict resolution in accordance with established laws and regulations. In addition the District Councils will make assessment of water demands of their respective districts, and participate fully in the preparation of Basin plans.

### **Community Level and Water User Associations**

Water User Associations (WUAs) or Water User Groups (WUGs) will be the lowest appropriate level of management. These associations will be responsible for local level management of allocated water resources, mediation of disputes among users and

between groups within their areas of jurisdiction, collection of various data and information, participate in the preparation of water utilization plans, conservation and protecting water sources, and catchment areas, efficient and effective water use and ensuring return flows, enforcement of the law and implementation of conditions of water rights, and control of pollution. They provide legitimate representatives in Basin Boards and Catchment Committees.

**Participation**

Community in general play a major role in the water sector because they are the primary users, guardians and managers of water sources. Participation of both men and women in decision-making, planning, management and implementation of water resources management and development will be enhanced. Youth and children as the future managers of water resources have to be involved from the early stages for better management and future sustainability. Youth and children will be educated on the management, protection, conservation and development of water resources as they are the facilitators for change.

**4.11 Legal and Regulatory Framework for Water Resources Management**

*Objective: to have strong and effective legal and regulatory framework for management of water resources*

The Water Utilization Act of 1974 and its amendments is the principle legislation governing the utilization and pollution control of the water resources. This legislation and associated regulations do not adequately meet present and emerging water resources man-

agement challenges. Thus the legislation needs to be reviewed in order to address the growing water management challenges.

In order to have an effective legal and regulatory framework the following will be done:

- (i) The existing Water Act and regulations will be reviewed and conflicting water related laws and regulations will be identified and harmonized. In the review the mandates of Basin Water Offices will be strengthened to enable these offices to (a) enforce and follow-up on existing legislation, regulations and operating rules governing water use and control of pollution; (b) become the legal authority to collect the various water use charges, (c) facilitate the establishment of lower level water management organizations which will bring together users and stakeholders of the same source, (d) become centres for conflict resolution in water allocation, water use and pollution.
- (ii) Relevant customary law and practice related to water management will be institutionalised into statutes.

### **4.12 Financing of Water Resources Management**

*Objective: To have sustainable source of financial resources to meet the costs for water resources management.*

Water resources management entails a variety of technical, administrative and legal activities that cost money to implement and that must be funded. These activities include water resources exploration, assessment, water allocation, pollution control, monitoring and evaluation, regulation and enforcement, environmental protection, basin planning and development, and other cross-sec-

toral activities such as catchment management, basin planning and development. The constraint of inadequate resources has resulted into poor infrastructure for continuous water resources data collection which are important for water resources management.

In order to realize the objectives of water resources management all water uses, especially water use for economic purposes will be charged for. The level of the charges and criteria to be used will be reviewed from time to time and will be based on studies to be conducted.

## SECTION II: RURAL WATER SUPPLY

### 1. OVERVIEW

About 80% of Tanzania's population estimated at 34 million live in rural areas. Despite significant investment in the Rural Water Supply (RWS) since the early 1970s, presently only about 50% of the rural population has access to a reliable water supply service. However, due to poor operation and maintenance, over 30% of the rural water supply schemes are not functioning properly.

A review of the water sector carried out in 1995 identified a number of shortfalls in the 1991 National Water Policy amongst which are: the under estimation of the role that could be played by the private sector, necessity of a stronger involvement of the various stakeholders especially the communities and inadequacy of the legal and institutional framework. These findings led to the review of the rural water supply section of the National Water Policy with the aim of articulating more clearly the rural water supply sub-sector policy objectives as well as