

**PART V**

**LAW AND PUBLIC ADMINISTRATION**

**THE AFTERCARE STUDY  
ON THE NATIONAL WATER MASTER PLAN**

**SUPPORTING REPORT**

**PART V : LAW AND PUBLIC ADMINISTRATION**

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## CHAPTER 1 EXISTING POLICY AND LEGISLATION

The policy and legal framework applicable to the water sector is set out in sections 1.1 and 1.2 below.

### 1.1 National Water Policy

After a long gestation period the National Water Policy (NWP) was approved by the Government of Kenya (GOK) in late 1997. A Sessional Paper is currently being produced by a Task Force set up by GOK.

NWP "aims at achieving sustainable development and management of the water sector by providing a framework in which the desired targets/goals are set, outlining the necessary measures to guide the entire range of actions and to synchronise all water related activities and actors." Thus far, such a framework has been absent, with the result that many projects have been prepared and implemented in isolation and have failed to deliver as planned a sustainable supply of water due to lack of improvement to the support of these facilities.

NWP addresses the areas of water resources management, water supply and sewerage development, institutional framework, and finances of the water sector. For each area, objectives are first stated followed by an outline of the main issues, strategies to resolve these, and the related policy statements. In this report, for each area the objectives and summarised policy statements are given.

#### 1.1.1 Water Resources Management

The objective is to "preserve, conserve and protect available water resources and allocate them in a sustainable, rational and economical way."

Policy statements deal with:

- 1) water availability (need for conservation, introduction of water levies and fees);
- 2) roles and functions at different management levels (decentralising to four management levels - national, basin, sub-basin, and catchment);
- 3) integrated water resources management (setting up a National Standing Committee to deal with cross-sectoral issues);
- 4) legal framework (need for action to harmonise all Acts related to the principal Water Act, and to strengthen its enforcement);
- 5) impact of water resources development on the environment (development should improve the environment not spoil it);
- 6) water quality issues (protection of water quality, discharge of pollutants is illegal, levies based on quantity of effluent to be introduced);



- 7) water resources assessment, monitoring and information system (MWR to establish comprehensive updated water resources databases to be used in sector development, to be charged for and available publicly); and
- 8) water research and technology (MWR to promote by collaboration with established research bodies, by endeavouring to establish a research institute on water matters, and by increasing financial support).

### **1.1.2 Water and Sewerage Development**

The objective is to “supply water of good quality and in sufficient quantities to meet the various water needs while ensuring safe disposal of wastewater and environmental protection.”

Policy statements deal with:

- 1) development to meet water demands (an enormous task requiring concerted effort by all actors involved; GOK to play a major enabling role while encouraging full participation of the community, private sector, donors, and NGOs; GOK to promote development of appropriate water and sanitation facilities in rural areas to attract viable economic activities; MWR to promote natural storage of water for irrigation in view of the vast quantities of water consumed; MWR to support GOK’s efforts to attain self-sufficiency in energy production by making sufficient water available where feasible);
- 2) technology (to be appropriate, i.e. comprehensible to users; encouraging traditional technologies while not obstructing the introduction of suitable technological breakthroughs);
- 3) monitoring system (MWR, with other actors: to develop a comprehensive water sector monitoring system, including Country Level Collaboration (CLC), to have access to reliable socio-economic, institutional, technical and financial data, to support policy formulation and the regulatory process);
- 4) operation and maintenance (in line with GOK’s policy of cost-sharing, MWR to encourage beneficiaries to help develop and operate water supplies, and promote development of self-sustaining water systems where beneficiaries take full responsibility for operation and maintenance); and
- 5) waste disposal systems (development of water supplies in urban areas to be accompanied by development of corresponding sewerage systems, in particular, industrial wastewater to be properly treated before discharge into natural water courses; in minor urban areas, sanitation systems to be developed concurrently with new water supply systems; in rural areas, on site sanitation to be developed where economically and technically viable).

### **1.1.3 Institutional Framework**

The objective is to “establish an efficient and effective institutional framework to achieve a systematic development and management of the water sector.”

Policy statements deal with:

- (1) institutional set-up (GOK role to be redefined, emphasising regulatory and enabling functions as opposed to direct service provision; to effect this, organisation structure of MWR and other actor institutions to be reviewed; this to be accompanied by institutional reforms promoting an “integrated” approach requiring changes in procedures, attitudes and behaviour, and the full participation of women at all levels in sector institutions; GOK to support private sector participation and community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes; to further this, GOK, collaborating with relevant training institutions, to develop an institutional capacity building policy to build, strengthen and maintain the required institutional capacity throughout the sector);
- (2) coordination (MWR to clearly define the roles for all actors in the sector according to their capabilities, to establish mechanisms and define performance indicators for monitoring role performance; all actors to register with MWR);
- (3) legislation (the Water Act to be reviewed and updated to comprehensively address all the legislative water issues, particularly that dealing with transfer of water facilities from one institution to another; where needed, new legislation to be introduced to give various institutions legal mandate to perform certain specific roles in water development and provide mechanisms to regulate their performance);
- (4) community participation (community involvement to be an essential part of project formulation; every effort to be made to appropriately train communities to equip them with the appropriate knowledge for this purpose; Community Based Water Committees with clearly defined roles to be established at district level); and
- (5) handing over water supplies (GOK to endeavour to hand over Urban Water Supplies and Sanitation facilities to autonomous departments within Local Authorities, and Rural Water Supplies to communities; however, each community and Local Authority to be assessed on their abilities and preparedness to manage a scheme and if found wanting, GOK to assist the community and Local Authority with technical matters through deployment of qualified staff as required).

#### 1.1.4 Financing of Water Sector

The objective is to “develop a sound and sustainable financing system for effective water resources management, water supply and sanitation development.”

Policy statements deal with:

- (1) financial resources (GOK, recognising the central importance of water development to Kenya’s overall development, to make the necessary efforts to mobilise local financial

resources for water resources management and development; in addition, to solicit for donor funding to complement local financial resources where necessary);

- (2) revenue base (all water consumers to pay for water as an economic good; in pursuit of this, water supplies to be gazetted and appropriate tariffs set so that schemes can be self-sustaining at all times; thus, water abstracted in its natural form to be charged a fee commensurate with the amount abstracted, and the funds generated to be used for assessing, monitoring, conserving and managing water resources and related research; effluent discharge levies to be introduced, and their level to be commensurate with the amount and nature of the effluent discharged and with the cost of treatment required, based on the "polluter pays" principle); and
- (3) management of financial resources (GOK's laid down regulations to be observed in the management of financial resources in the sector; as indicated in the District Focus for Rural Development, MWR to coordinate activities of donor agencies and NGOs so that funds are channelled to areas where they are most needed, and planned so that they can effectively supplement local resources; all sources and quality of bottled water and water vending operations to be monitored and regulated, in pursuit of which appropriate tariffs and licensing procedures to be formulated by MWR in collaboration with other relevant agencies).

Generally, the NWP appears sound and in keeping with the needs of the sector. One important shortcoming, however, is the absence of a policy and structure for the overall management of the sewerage sub-sector, long a neglected issue, as studies in the 1970s testify.

The NWP should be formally expressed by legislation related to the water sector so that the policy may be implemented. Legislation should therefore be consistent with national policy.

## **1.2 Laws Related to Water and Sanitation Sector**

The Kenyan Government (GOK) has enacted many laws related to water supply and sewage disposal and has proposed some environmental legislation. The most important of these in the context of this Aftercare Study of the National Water Master Plan are:

- 1) The Water Act (Cap 372)
- 2) The National Water Conservation and Pipeline Corporation Order (Legal Notice No. 270, June 24, 1988)
- 3) The Mombasa Pipeline Board Act (1957)
- 4) The Local Government Act (Cap 265)
- 5) The Irrigation Act
- 6) The Tana and Athi Rivers Development Authority Act
- 7) The Kerio Valley Development Authority Act and The Lake Basin Development Authority Act
- 8) The Agriculture Act (Cap 318)

- 9) The Public Health Act (Cap 242)
- 10) The Environmental Management and Coordination Bill 1996.

These laws are briefly described and assessed where relevant to the water sector.

### 1.2.1 The Water Act (Cap 372)

The Water Act, which is the most important law related to water, was first established in 1951 to make better provision for the conservation, control, apportionment and use of water resources. It was revised in 1972 and further subsidiary legislation was enacted in 1995. The Water (Amendment) Bill was drafted in 1992 (the Study was unable to review this) to make some necessary alterations to the Water Act but was rejected by Parliament in 1993.

A further attempt to amend the Act is now in progress led by the Water Rights Section of the MWR and sponsored by SIDA. It is intended that a second Water (Amendment) Bill be prepared, circulated to stakeholders and the Attorney General, and then submitted to Parliament.

The Water Act currently provides that ownership and control of "every body of water" is vested in the Minister [for Water Resources] and that abstraction, use of water has to be in accordance with this right. The Minister is given very wide powers, for example, to acquire land, construct works, impose water rates, establish catchment areas and drain swamps, and is advised by the Water Resources Authority or Water Apportionment Board (see below).

The Water Resources Authority (WRA) is established to investigate water resources and demands and to advise the Minister on the discharge of his duties. Unfortunately this body does not exist and has not functioned since the late 1960s; the then Ministry of Water Development took over the WRA's functions in 1968. The country is divided into catchment areas, of which there are currently six, and there is a Catchment Board for each area to advise the Water Apportionment Board on the issue, amendment or cancellation of permits. The Act also provides for Regional Water Committees (RWCs), one for each province, to advise the Minister on water conservation and development and nominate appointees to the WRA. Again, these RWCs have not functioned for at least 25 years.

The Water Apportionment Board (WAB), which is subordinate to the WRA, is provided for and given wide powers, for example concerning the control of water abstraction by the issue, revision or discontinuation of permits. Local Water Authorities may also be appointed to manage and use water for community projects. The Minister may acquire land for state water schemes.

Permits for water abstraction and use are covered at length and the circumstances in which they are and are not required are set out. Applications are made to WAB through the local Water Bailiff, who is a key part of the system controlling water use. It is understood that permit conditions are not being adequately enforced by the Water Bailiffs, and that permits are not always issued, both serious deficiencies in the control of water use.

The abstraction of groundwater and the construction of wells, including boreholes, also need permits but only for certain wells. Many wells do not therefore require a permit, although provisions exist for the prevention of waste and pollution.

Precedence is given to the use of water for domestic purposes over the use for all other purposes and empowers WAB to reserve part of the flow of a body of water for domestic purposes.

Also dealt with is the Minister's powers to appoint water undertakers, which once appointed have a duty to provide an adequate supply of water within their area, and a prior right to give such supplies. The Minister can permit or order two or more undertakers to furnish joint supplies, transfer an undertaking or part of it to another undertaking and vary supply limits. Default powers of the Minister apply only to undertakers which are not local authorities (the Minister for Local Authorities alone has default powers over local authorities). Undertaker powers and duties to make and enforce regulations for tariffs, management of the supply, prevention of waste and pollution are also set out.

There is further provision for the prevention of pollution; for example, any act polluting water for human consumption or domestic purposes is prohibited, bringing penalties of up to 10,000 shillings for transgressors. However, these penalties are at least 25 years out of date and would be very much more if adjusted for inflation over the intervening period.

The Water Act seems comprehensive and detailed, and free of major deficiencies. The main problem appears to be seriously inadequate enforcement, and this will be explored in 1.3 below. There are nevertheless some shortcomings which should be corrected. These are summarised below:

- 1) Many provisions of the Water Act and its subsidiary legislation do not apply to non-gazetted nor local nor public authority undertakers;
- 2) The long defunct WRA, Regional Water Committees and the Water Apportionment Board still appear in the Act. The appeal procedure described therein no longer exists;
- 3) There is no clear provision for the WAB to exercise the Minister's power to issue permits for the use of water;
- 4) The groundwater provisions of Part IX impose less control on groundwater abstractions than on those from surface water. As the effects of groundwater over-abstraction or pollution are more serious than for surface water, this anomaly should be rectified; and
- 5) There are a number of other instances in the Act where control on water abstraction and pollution could be improved. Some of these are set out in 5.1 below.

A further point to note is that MWR, having taken over WRA's functions, is currently discharging dual functions: regulatory, as an authority for appointing water undertakers, and operational, as the largest water undertaker.

### 1.2.2 The National Water Conservation and Pipeline Corporation Order, 1988

The National Water Conservation and Pipeline Corporation (NWCPC) was set up through the State Corporation Act (Cap 446) and was officially declared by the Legal Notice No. 270 dated June 24, 1988.

The Corporation was established to improve, manage and develop water projects nationally with the objective of assisting GOK in the formulation and execution of water policies.

The Corporation shall, according to the Legal Notice:

- 1) "supply water in bulk to such water undertakers as the Minister may, after consultation with the Board, by notice in the Gazette, designate;
- 2) supply water, in bulk or otherwise, to such persons or class of persons as the Minister may, after consultation with the Board, by notice in the Gazette, designate;
- 3) do all such things as may be necessary or advantageous for the management and development of water projects and for securing an adequate supply of water; and
- 4) apply for and obtain all such licences, permits and other written law or as may be desirable."

In addition to the functions specified in the Legal Notice, the Corporation was also to undertake the following:

- 1) "Plan, manage and procure equipment for construction of dams and water supplies;
- 2) Promote efficiency in the operations for existing water projects;
- 3) Ensure that water projects are financially viable to actually generating revenue, and
- 4) Assists the Government in the formulation and execution of a National Water Development Policy."

A major weakness in the legislation establishing the Corporation is the absence of any statement indicating how it is to relate to other institutions, e.g. MWR and local authorities, in the development and management of water supplies. This has caused considerable confusion among these other institutions and needs to be resolved.

### 1.2.3 The Mombasa Pipeline Board Act (1957)

This Act, which provides for the establishment of the Board, its constitution, assets, powers and functions, should be repealed as the Board was proscribed in the early 1980s following the recommendations of a Presidential Commission on Government Expenditure (the Philip Ndegwa Report). Its functions, which included administering the bulk supply of water to Mombasa and its environs via various pipelines and reservoirs, were taken over by the then Ministry of Water Development and are now executed by NWCPC. (The Corporation also acts as water undertaker for Mombasa and its environs, distributing water to consumers.)

#### **1.2.4 The Local Government Act (Cap 265)**

This Act was set up in 1963 to provide for the establishment of authorities for local government, to define their functions and to provide for "connected" and "incidental" matters. It was revised in 1986.

In the context of this study, the Act provides that every local authority (municipal, town and urban council) may establish, maintain and regulate sewerage and drainage works within or outside its area. It may also compel the construction of private drains and their connection to public drains or sewers, and fix charges for the use of sewerage and drainage facilities.

In addition, a local authority (municipal, town, urban or area council) may undertake the supply of water within its area, and may establish, acquire and maintain works for this purpose. A local authority may make bylaws under this Act to the extent that a water undertaker may make regulations under the Water Act. However, it is not stated clearly that every local authority undertaking water supply is a water undertaker under the Water Act. For example, the Water (Water Undertakers) Rules apply only to gazetted water undertakers.

It should be noted that by a recent Ministerial decree all urban councils have been upgraded to town councils, and therefore the category no longer exists.

#### **1.2.5 The Irrigation Act**

This Act provides for the establishment, constitution and functions of the National Irrigation Board which is responsible for the development, control and improvement of national irrigation schemes in the areas designated by the Minister of Water Resources. The Board is required to cooperate with the defunct Water Resources Authority in "formulating policy" for national irrigation schemes.

#### **1.2.6 The Tana and Athi Rivers Development Authority Act**

The Act provides for the establishment of an authority to advise on the institution and coordination of development projects in the two basins.

#### **1.2.7 The Kerio Valley Development Authority Act and the Lake Basin Development Authority Act**

These Acts each provide for the establishment of an authority to:

- 1) plan and coordinate the implementation of development projects in the catchment area;
- 2) establish a long range development plan for the area;
- 3) coordinate the abstraction and use of natural resources, especially water, and to monitor this; and
- 4) maintain a database of all relevant statistics for the area.

The Acts do not state that the Authorities have sole or any responsibility for developing and distributing water supplies in bulk, either within the Area or outside it.

### **1.2.8 The Agriculture Act (Cap 318)**

The Act promotes agricultural development according to sound practices of good land management and stresses the need for conservation of soil and its fertility. Thereby, the Act indirectly emphasises the importance of preventing of soil erosion and the consequential deterioration of the quality of surface water.

### **1.2.9 The Public Health Act (Cap 242)**

This Act requires local authorities to take all lawful measures to prevent and deal with the outbreak of disease. As there is a direct connection between certain diseases, sewage and water supply, every local authority, whether a water undertaker or not, has a statutory duty in water supply, water pollution and sewage disposal. For this purpose, the Act gives every local authority wide powers to deal with unsatisfactory water supplies, wastewater and sewage disposal and water pollution. For example, a local authority is mandated to prevent pollution of any supply of water used for drinking or domestic purposes, to purify it should it become polluted and to take action against those causing the pollution. Furthermore, the local authority is empowered to exercise its powers outside its area, if for example the source of water is outside its area.

Powers given to the Minister include: delegation of powers to local authorities and others to control the standard of purity of treated effluent and to control industries liable to pollute water courses; making rules for the protection of water supplies in defined areas; prohibition of insanitary irrigation within a town or its environs. There is a fair amount of subsidiary legislation which includes detailed provisions for drainage and sewerage.

### **1.2.10 The Environmental Management and Coordination Bill 1996**

This comprehensive Bill is based on the principle that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance it. The Bill is in 12 Parts which deal with such matters as: administration (e.g. establishment of a National Environmental Council, National Environmental Management Authority and Provincial and District Environmental Committees and Action Plans); environmental quality standards (e.g. for water, air, waste); obligatory environmental impact assessments; environmental restoration orders; inspection, analysis and records; funding (e.g. establishment and operation of an environmental management fund); and the powers to make regulations. It is not known when the Bill will be submitted to Parliament for approval.



### **1.3 Implementation of Policy and Laws**

Implementation of the law is generally intended by the Government and public authorities. If laws are made for good reasons, there must be equally good reasons for their enforcement. Law which is not implemented because it is not enforced encourages the public to disregard it, and is unfair to those who observe it.

Several studies of the sector spanning two decades have revealed that most problems are due to poor implementation and enforcement of the law, rather than any serious deficiencies in it. It is reported that formal enforcement action is virtually unknown, with scarcely a single prosecution under the relevant laws in the last 35 years. (The Study was unable to verify this absence of prosecutions.) The reasons for this low level of enforcement were summarised in 1972 as follows, and appear to be equally relevant today:

- 1) The division of responsibilities among many agencies, with little coordination and between which cooperation is not always good. At best this makes for procedural difficulties, and at worst leads to lack of interest.
- 2) The number of laws involved which may be difficult to understand and correlate, particularly by the subordinate officials concerned.
- 3) The demise of the Water Resources Authority and the Regional Water Committees, which, in the absence of amendments to the Water Act, implies that their functions have been taken over unlawfully.
- 4) Lack of experience of enforcement procedures by officials and lack of case law.
- 5) Staff shortages.
- 6) Inability to take Water Act prosecutions to subordinate courts quickly. (The present procedure whereby prosecution of people contravening the Water Act must be initiated by the AG will be quite unworkable if the number of prosecutions increases. This would be better handled by designated officers at a lower level, e.g. water bailiffs).
- 7) An absence of what can best be described as the "philosophy of enforcement", particularly at senior levels. One might add, from the present perspective.
- 8) Generally poor motivation among officials of the public service because of inadequate pay and service conditions when these are compared to the private sector and even state corporations.

Recommendations for improving the present position are given in 5.1 below.

## CHAPTER 2 WATER SUPPLY AND SANITATION SECTOR ADMINISTRATION

According to the latest Presidential Circular No. 1/95 "Organisation of the Government", GOK has 20 ministries, reduced from 35 in 1988. Among these was the lead ministry for the water supply and sewerage development sector (although the latter is less clear from the Water Act); this was the Ministry of Land Reclamation, Regional and Water Development (MLRRWD), until a decision to form the Ministry of Water Resources was announced in early January 1998. However, the official confirmation of the new GOK structure, which affects other Ministries as well, has not yet been issued from the President's Office.

Other ministries and agencies with responsibilities which impinge significantly on the water sector are the Ministry of Local Authorities<sup>1</sup>, the Ministry of Health, the Office of the President which administers the District Development Committees, and the Ministry of Culture and Social Services which is responsible for self-help schemes in the rural areas. Non-governmental organisations working with local communities are active in the development and operation of water supplies and sanitation also in the rural areas.

There are several other ministries and government departments which can be regarded as users (rather than bulk suppliers and undertakers) of water to a greater or lesser degree, and they are required to obtain approval from MWR before developing projects making use of water resources. Such ministries include Department of Regional Development (part of MWR) (river and lake basin development), Ministry of Energy (hydropower development and operation), Ministry of Agriculture (irrigation development), and Ministry of Transport and Communications (Kenya Railways Corporation as water user). In addition, the Ministry of Livestock Development and the Ministry of Tourism and Wildlife are both responsible for water supply schemes and sewerage works associated with their development projects.

### 2.1 Organisations Concerned with Water Supply

In this section of the report, the principal institutions responsible for the development, operation and maintenance, and regulation of water supply are reviewed in terms of their functions and responsibilities, and their activities and organisation in the provinces and districts. Their effectiveness and efficiency are assessed in broad terms and major problems and issues are identified. There is some overlapping of the subject matter between this 2.1 and 2.2 below.

#### 2.1.1 Ministry of Water Resources

The government administration of water development has had, institutionally, a somewhat chequered history, culminating in 1974 with the creation of the Ministry of Water Development which had responsibility for all GOK water schemes and county council schemes (taken over in 1974/5), and some self-help schemes as well. In 1993, MLRRWD was formed by the

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<sup>1</sup> According to a decision taken in late January 1998 the Ministry of Local Government became known as the Ministry of Local Authorities, although this change has not yet been officially announced.

amalgamation of three ministries, each of which became a technical department<sup>2</sup> in an enlarged Ministry but retaining its former structure. Support services from the three original ministries were also brought together, resulting in considerable duplication. Since then there have been partial attempts to rationalise the integration of support services. (The recent decision to recreate the original three ministries will therefore, if fully implemented, probably require some further restructuring of the support services.)

The Department of Water Development (WDD) in MWR is, therefore, the GOK agency responsible for the development, conservation and control of water. In support of this, its mission statement is: "to ensure proper and orderly Water Resources Management including assessment, conservation, development and protection of the environment from degradation from water related activities."

In order to fulfil its mission, the functions of the department are stated as:

- 1) water development and water supply;
- 2) control of water catchments;
- 3) water resource management;
- 4) water quality and pollution control; and
- 5) water conservation.

but sewage disposal is not mentioned.

To execute these functions, the Director of Water Development is responsible for three Branches - which together are responsible for ten divisions, one additional division, the Kenya Water Institute (KEWI), six provincial water offices and, through the provincial offices, 64 district offices throughout Kenya (see **Figure - 2.1.1**). This arrangement is the latest of several revisions which have seen WDD expand from six divisions, KEWI and the provincial and district offices in late 1996. These revisions are, it is understood, associated with the Civil Service Reform Programme (CSR), a programme for rationalising ministry structures and mandates. WDD operates a total of 375 (309 rural)<sup>3</sup> schemes for which it is at present responsible through its network of provincial, district and divisional, offices.

The Water Resources Management Branch manages ground and surface water resources (through four divisions) by hydrological observation, assessing water resources, controlling water quality, planning water projects, assessing environmental and other impact of water resource management practices. There are 500 observation stations around the country providing data for this unit. The branch also manages a division for water rights and assessment which issues, cancels and registers water permits and maintains the national water resources database.

The Water Resources Development Branch supervises five divisions, two of which appear to have little to do with development. The divisions are:

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<sup>2</sup> Water Development Department, Land Reclamation Department, and Regional Development Department (now known as State Corporations Department).

<sup>3</sup> *Water Supply Projects and Schemes Status Report*, July 1996, MLRRWD

(1) Technical Planning and Design Division

This division plans and designs water supply and sanitation projects for MWR and other ministries, NGOs, private and public institutions and individuals. It also carries out feasibility studies and sets technical standards in the water and sanitation sector, and prepares national and regional water master plans.

(2) Construction Division

This division executes by supervision construction works for water and sewerage systems, dam construction, irrigation, drilling and drainage works, as well as Arid and Semi-Arid Lands (ASAL) Programmes. Much of the work of this division is done with and for other ministries and GOK departments.

(3) Operations and Maintenance (O&M) Division

The O&M Division is responsible for the operation and maintenance of all water supply schemes and, it is stated, sewerage schemes under MWR; it is also supposed to assist technically water supply and sewerage schemes under other agencies in the sector. Most of the activities and staff of this key division are based in the districts - in accordance with the District Focus for Rural Development Strategy (DFRDS) promoted by the President.

(4) Water Conservation, Irrigation and Drainage Division

This division is to design and implement water conservation projects such as dams and other water harvesting techniques, and to maintain data on such technology including irrigation and flood control.

(5) Mechanical and Electrical Services Division

This division provides mechanical and electrical services to MWR.

The Special Water Programmes Division coordinates and supervises the preparation of water project proposals for internal or external funding. It coordinates donor and NGO supported programmes as well as those funded by GOK.

The Applied Water Research Branch is charged with the formulation and execution of water research policy in water resources management, water supply and sanitation (but with no mention of sanitation in detailed duties of sections), also the storage and dissemination of research data and output.

The Kenya Water Institute (KEWI) is the main body responsible for training personnel employed by MWR, local authorities and other organisations in the water sector. The Institute offers diploma and certificate courses in water technology as well as numerous shorter courses. It has

seven teaching departments in: water engineering; water resources; planning, Marketing and coordinating; mathematics, science and computer use; operation and maintenance; mechanical and electrical engineering; and management and general studies.

The present organisational scale of KEWI is as below.

1) Administrative staff	90 persons
2) Teaching staff	60 persons
3) Number of trainees	250 persons/year
4) Number of trainees by course	20 - 50 persons/year

The Institute has recently received donor support from GTZ and France. GTZ is helping KEWI to reorganise to achieve a greater degree of autonomy, and to extend the curriculum, improve staff training, and provide additional training equipment.

Following a needs assessment, carried out by the project, it was discovered that that Institute should offer more flexible curriculum, rather than limit itself to certificate and diploma courses, it was found that informal, shorter courses that satisfy unique requirements of clients were more in demand. The Institute now offers more such courses on commercial basis with emphasis on the customers' needs. Among those who have already benefited from the new-approach courses of the Institute are:

- 1) Borehole Operators in Kajiado and Marsabit/Moyale
- 2) NWCPD Personnel at Malindi, Mombasa and Nyeri
- 3) Ministry of Water Resources Personnel of Machakos District

Some of the cadres of personnel trained so far were:

- 1) Borehole operators
- 2) Meter readers
- 3) Billing and Revenue Clerks
- 4) Water Supply Operators
- 5) Chemical and Pump Attendants
- 6) Water Guards
- 7) Line Patrollers, Meter Readers and Pipe Filters

Other refresher courses were covering:

- 1) Operation and Maintenance and Appurtenances
- 2) Installation and Servicing of Water Meters
- 3) Burst and Leakage Repair
- 4) Connection and Installation of Service Lines

The project will place more emphasis on practical and all-round training so that the multi-discipline graduates could handle entire operations within their stations rather than the specialised

type that encourage over-staffing in these schemes. This will be achieved through training the trainers and hands-on training on the equipment.

France, through the Kenya/France Development Co-operation Task Force on Human Resource Development (HRD) in the Water Sector, has prepared, and is presumably executing, a two-year Action Plan for human resources development.

Activities in the Plan include setting up a central HRD unit and training management information system, developing existing ministerial HRD units, and preparing and implementing a prioritised training plan which would include assessment of training programmes and trainees. Also included is the implementation of priority training in management, technical and special programmes (e.g. community mobilisation and private sector participation), improving collaboration with other training institutions, and training trainers according to the needs of the expanded training programme. Unfortunately, where courses do not currently exist, it cannot be determined when courses which are to be "planned" or "developed" are likely to be available, making planning future training by users very approximate.

About 75% of the Kshs 18.5 m cost is to be met by the French Government. Ultimately a range of courses will be available in KEWI and other Kenyan institutions for management, District Water Engineers, and various staff in Water Resource Management, Planning and Construction, Operation and Maintenance (from MWR and municipalities).

Finally, the field offices of WDD are responsible for planning and developing, operating and maintaining MWR water supply schemes, and for water regulation throughout Kenya. Their performance is crucial to delivery of a satisfactory water supply to the consumer, generation of revenue and control of water abstraction.

In districts visited by the Study Team, regulation was not effective for lack of qualified staff and transportation, and a very slow permit approval process. The delays at each stage of the approval procedure (District Water Board, Catchment Board, Water Apportionment Board - see 2.1.2 below) mean that an applicant could wait for more than one year for a decision. There are strong grounds for assigning more powers to Catchment Boards so that they can approve the less significant applications without involving the Water Apportionment Board (Chapter 3 has more on district functions.)

### **2.1.2 Agencies related to the Ministry of Water Resources**

The following agencies operate under the general jurisdiction of MWR, with varying degrees of autonomy.

#### **(1) Water Apportionment Board (WAB)**

Reporting to the Minister and on his behalf the Water Apportionment Board authorises, supervises and controls the use of water throughout Kenya. It does this through Catchment Boards, one for each of the six catchment areas, that report to it. The catchment areas are for

Tana, Rift Valley, Athi, Northern Ewaso Nyiro, Lake Victoria North, and Lake Victoria South. The effectiveness of these bodies is unknown. However, it appears that they have no executive staff, budget or formal funds to carry out their statutory responsibilities.

(2) Water Resources Authority (WRA) and Catchment Boards

WRA was established in 1951 and operated until 1968, when it ceased to function and its responsibilities were assumed by the Agency responsible for the water sector. As noted above, the Water Act has not yet been appropriately amended. WRA originally advised on various aspects of water management and was also an appeal body for those dissatisfied with decisions of WAB.

(3) District Water Boards

The Water Act provides for the establishment of a Regional Water Committee (RWC) for each of the six provinces but these were abandoned at about the same time as WRA. The purpose of RWCs was to advise WRA and Minister on water development and conservation matters and link the local authorities involved in the water sector with WRA.

In line with a number of moves in recent years to decentralise the machinery of public administration, the then Ministry of Water Development was directed in 1991 to set up a District Water Board in each district to assist the planning and coordination of water related activities. The Boards are subcommittees of DDCs and seem to have broad mandates which are rather close to those of the catchment boards:

- 1) protection, conservation and preservation of all catchment areas in the district;
- 2) partitioning, allocations and authorisation of all water bodies;
- 3) water quality and pollution control activities;
- 4) management and control of water use;
- 5) overseeing and coordinating all water related activities in the district; and
- 6) assisting in the enforcement of the Water Act.

The tasks are not well specified at this level; it is not known whether a more detailed schedule of duties and responsibilities exists, or whether there is any conflict with catchment boards.

The District Water Engineer is Board Secretary and executes decisions as required by DDC.

(4) National Water Conservation and Pipeline Corporation (NWCPC)

In accordance with Legal Notice No. 270 of 24 June 1988 under the State Corporation Act (Cap 446), NWCPC was set up to improve, manage, and develop water projects nationally and to assist GOK to formulate and execute water policy.

The broad functions of the Corporation are outlined in the Legal Notice 270 (which the Study has not yet seen) as:

- 1) "supply water in bulk to such water undertakers as the Minister may, after consultation with the Board, by notice in the Gazette, designate;
- 2) supply water, in bulk or otherwise, to such persons or class of persons as the Minister may, after consultation with the Board, by notice in the Gazette, designate;
- 3) do all such things as may be necessary or advantageous for the management and development of water projects and for securing an adequate supply of water; and
- 4) apply for and obtain all such licences, permits and other written law or as may be desirable."

In addition, NWCPC was to:

- 1) Plan, manage and procure equipment for construction of dams and water supplies;
- 2) Promote efficiency in the operations for existing macro-water projects;
- 3) Ensure that water projects are financially viable to actually generating revenue, and
- 4) Assist the Government in the formulation and execution of a National Water Policy.

The long term objective of the Corporation is to "ensure that water supplies are managed in a professional way to ensure sustainability of the systems at an affordable level." It is explained in a recent NWCPC report<sup>4</sup> that although all systems should be run commercially with full cost recovery, there is still need for cross-subsidisation as some schemes cannot even cover operation and maintenance costs. In setting up the Corporation, GOK were clearly expecting a better organisational and financial performance than the parent MLRRWD could deliver, and there has been some modest progress in this respect (see 4.1.5 above), although this may have been partly achieved by poaching schemes with a better financial performance and potential.

NWCPC has a Board of Directors numbering 16 of whom only one, the Managing Director, is an executive, five are Permanent Secretaries, and one the Director of Water Development. Decisions of the Board are subject to the approval of the Minister as the Corporation is under the general jurisdiction of MWR. With this proviso, NWCPC has fairly wide powers to plan the development of water supply, borrow money, set water tariffs and rates, and to employ the revenue so derived.

The Managing Director is responsible for five departments:

- 1) Operation Services Department
- 2) Development Services Department
- 3) Corporate Services Department
- 4) Human Resources Department
- 5) Finance Department

Operation Services is stated to deal with the "coordination" of the Operation and Maintenance of the present 45 water supply schemes "administered" (to use NWCPC's own words) by Regional

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<sup>4</sup> *Brief on National Water Conservation and Pipeline Corporation's Activities and Present Status - September 1997*



Managers in the five regions - Coast (Mombasa), Rift Valley (Nakuru), Central (Nyeri), Southern (Sultan Hamud) and Western (Kisumu). This total excludes those urban and rural schemes which form part of the main pipeline systems (e.g. Mzima, Nol-Turesh) and are served from them. A number of water undertakings were transferred from WDD in MLRRWD to the Corporation in 1989 (it is not known how many were transferred or how they were selected; neither is it known which of these are purely bulk supply schemes). Regional Managers, to achieve their objectives, generally control a management team responsible for operations, customer accounts, personnel and administration, and finance. Currently cost centres, regions are expected to become full profit centres after performance has improved to a satisfactory level. However, it appears that the operation and maintenance of schemes is highly centralised, Regional Managers having to refer quite minor procurement and personnel decisions to Head Office for approval. Substantial changes to current corporate management practice will be needed before such Regional autonomy is achieved.

The function of Development Services is to plan and implement capital projects and comprises an Engineering Planning Section (demand forecasting, water resource planning, investment planning, project preparation and concept design, and environmental impact assessment) and a Project Implementation Division for this purpose. Currently, the department is managing seven projects under construction and eight in the planning and design stage, all of which are supported by donors. There are an additional eleven projects either proposed or being planned which are not funded. Also in 1989, NWCPC took over some projects under construction or planning and design. (The Atkins/Price Waterhouse corporate planning study in 1993 noted a tendency to rely on donor staff to do the "hands-on" project management.)

Corporate Services is currently stated as managing the corporate planning process, developing and updating corporate strategy and the business plan, monitoring, investment appraisal. However, the department has also been given the task of project managing the 29 components of the US\$43.2m Mombasa and Coastal Water Supply Project (which includes expansion of sewerage, drainage, and sanitation services) for which it would appear not to be properly equipped. The studies which formed part of the institutional support components of the project envisaged that a separate PIU would be set up under Development Services where project management expertise and resources would normally be found. Furthermore, when asked by the Study Team for NWCPC's current approved or draft corporate plan including mission statement, corporate policies, objectives, standards and performance targets, the material produced was not of a satisfactory standard, and there was no current corporate plan. Concerning staff, there was no establishment for the organisation, and therefore vacancies could not be determined.

The Human Resources Department is responsible for providing personnel management services - i.e. recruitment, pay and conditions of service, and records - and for training.

Finance would appear to be responsible for the meter reading, billing and revenue collection system, the accounting and budgetary control system, and the preparation of the annual accounts. It has particular responsibility for monitoring regional financial performance and supervising the operations of the regional financial departments. The accounting system is being computerised which, it is believed, will solve many of its operating problems.

(5) Mombasa Pipeline Board

As explained in 1.2 above, this Board has not functioned since the early 1980s. Its responsibilities are now undertaken by NWCPC.

### 2.1.3 Other Institutions Related to Water

(1) Ministry of Local Authorities (MOLA) and Local Authorities

MOLA is the third institution with major responsibilities for the water supply and sanitation sector. Its overall functions as stated in Presidential Circular No. 1/95 "Organisation of the Government of Kenya" comprise:

- 1) Local Government Policy
- 2) Bylaws of all Local Authorities
- 3) Local Government Loans Authority
- 4) Local Government Provident Fund
- 5) Training of Local Government Personnel
- 6) Urban Development,

while the ministry's mission is to promote the development of Kenya through the establishment and existence of viable and well organised Local Authorities (LAs). MOLA currently oversees 164 LAs which are established by the Minister as provided for in the Local Government Act. Among their many responsibilities is the provision of water and sanitation services in their areas as set out in the Act. Of the 164 LAs, 10 administer water and sewerage schemes, and the rest administer sewerage only or sanitation schemes, water being supplied by another water undertaker such as MWR or NWCPC. The Water and Sewerage Department of the Nairobi City Council, although a local authority scheme, is really a special case because of its size and the degree of autonomy it enjoys.

Of the five MOLA departments reporting to the Permanent Secretary and which together are to execute the functions and fulfil the mission, the Urban Development Department has direct technical responsibility for water and sanitation (see **Figure - 2.1.2** for its organisation structure). It has a Planning Division and a Technical Division to carry out its functions of

- 1) formulating with LAs urban development policies;
- 2) coordinating implementation of urban development policies, programmes and projects in LAs; monitoring and evaluating these; and
- 3) providing technical assistance to LAs.

Water and Sanitation Section is one of four technical sections addressing different subsectors of LAs and providing technical assistance to them. Three engineers and consultants work on project design and implementation, while two more engineers and technicians are seconded to LAs to help with operation and maintenance. The section is currently operating from what seems to be a

severe staff shortage, with only about half its approved staffing of 22 in place. This must be worrying when the institutional and technical weakness of a number of LAs means that considerable support and control in water sector management is needed from MOLA. This would not be a problem if responsibility for planning, development and technical supervision of sewerage schemes was completely in the hands of MWR.

The Local Government Finance and Administration Department (LGFAD) is also relevant as it is concerned with LA recurrent and development finance and budgeting, and assists with LA accounting systems. This largest department also has seven provincial and 14 district offices, although some of the latter are unmanned for lack of staff as there are numerous vacancies.

The Ministry is responsible for training its own employees and those of the LAs. The Human Resources Development Department (HRDD) has this task, in conjunction with the central Directorate of Personnel Management, and was set up as part of a joint GOK/GTZ project in the early 1990s to carry out management and technical training in nine LAs. As noted elsewhere, training facilities outside MOLA for water sector staff are improving partly due to the French and German donor projects strengthening the Kenya Water Institute; in the latter project GTZ is commercialising the Institute.

It is now GOK policy for municipalities to assume responsibility for their own water supply and sewerage facilities as soon as they can be made sufficiently capable. Surprisingly, Mombasa, which is Kenya's second city, is not a water undertaker but is supplied by NWCP.

In pursuit of this policy, the Urban Water and Sanitation Management (UWASAM) Project, jointly funded by GOK and GTZ and based in UDD, is making a big effort to upgrade the performance of nine selected LAs, and to extend the lessons learned to others. For nearly ten years GTZ and MOLA have, under this project, cooperated in strengthening the management of water and sanitation systems owned and operated by selected LAs to make them self-sustaining in operation and finance. In the early stages a Water and Sewerage Operations Unit was set up in MOLG. Extensive training in management, billing and customer relations, finance and accounting, procurement and stores was also given. Later, LAs were assisted in the establishment of separate Water & Sanitation Departments; however, after considerable effort these were found to be unsatisfactory for the achievement of financial independence for a number of reasons, including continuing:

- 1) poor management of system and service;
- 2) high water losses;
- 3) low efficiency in billing and revenue collection; and
- 4) inadequate maintenance of the utilities.

The project identified the following problems hindering the attainment of sustainability in the W&S Departments:

- 1) institutional arrangements in LAs not conducive to efficient and effective provision of W&S services;

- 2) difficulty of recruiting and retaining suitable staff, due to the involvement of the Public Service Commission for senior grades (a major constraint);
- 3) application of unrealistic tariffs which do not cover the full costs of the W&S services provided;
- 4) utilisation of some of the revenue generated from water to finance operations and maintenance of other services offered by LAs. One result of this was inadequate maintenance of W&S infrastructure; and
- 5) even where separate financial accounts for the W&S Department were agreed, no signatory powers were assigned to the General Manager.

After much discussion and consideration of several options, by the end of 1996, several LAs had decided to attempt the commercialisation of their W&S services, and during 1997 formalities were completed for the establishment of the new companies, to be registered under the Companies Act and not the Local Government Act. Also, a project team has advised several LAs on ways of generating more non-water revenue for LAs, to make less painful the separation of the water and sewerage account from the main LA accounts.

The project is now in its fourth phase (January 1997 to December 1999) during which it is intended to assist the establishment and consolidation of Water and Sanitation companies in selected LAs (Eldoret, Kericho and Nyeri Municipalities). In addition, the remaining six municipalities (Thika, Nyahururu, Kisumu (under a JICA project), Nakuru, Kitale, Nanyuki), which are also water undertakers, will in turn be brought up to the standard needed for incorporation. Other towns such as Embu, Kakamega, Muranga, Machakos, Kisii, and Bungoma, (which are not at present water undertakers but the project is encouraging and helping them to be, against the wishes, it is said, of MWR and NWCPC - there is even a court case at Embu on the matter<sup>5</sup>), are to be started on the same improvement route that the first three municipalities have already travelled. By these means, the work of UWASAM is being progressively extended to an increasing number of municipalities, either to prepare them as water undertakers for greater autonomy and better operational and financial performance, or, to become water undertakers.

There is clearly a need for a strategy to be agreed by all the main players in the water sector on the future role of LAs as undertakers so that the gradual increase in their numbers is encouraged and not resisted by the major national or regional undertakers.

## (2) Office of the President: District Development Committees

The Office of the President is responsible for assisting the implementation of the District Focus for Rural Development policy which involves the decentralisation of planning and implementing rural development. Chaired by the District Commissioner, District Development Committees (DDCs) have been set up in each District to ensure that development projects meet local needs. The DDC establishes development priorities, approves or rejects projects proposed by LAs, monitors technical work of its committees and the progress of development projects.

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<sup>5</sup> The extent of this opposition can be gauged by the removal from the UWASAM information leaflet of reference to these towns, which are being prepared for their future role as water undertakers.

### (3) Non-Governmental Organisations (NGOs) and Community Schemes

The impact of NGOs in the provision of water supplies appears to be considerable and to have operated over many years. It has been estimated that at least 60 of the more than 400 NGOs active in Kenya are engaged in the water sector. Most have water components in integrated rural development projects. One, though, specialises in water development - Kenya Water for Health organisation (KWAHO) - and is funded from Water Aid and SIDA.

It appears that many NGO projects employ MWR staff as technical advisers during development, after which they are handed over to the communities with some on-going help from the Ministry. However, other water projects which may form part of larger integrated development projects, are undertaken without MWR being notified. The district or divisional offices of the Ministry should be the contact point for all such schemes and a registration procedure should be mandatory.

In addition to the above, there are schemes operated by small informal groups which often collapse without financial or technical assistance. Those that do not fail are better managed, either with or without external help from, say, MWR field staff, with realistic fund raising arrangements. The Ministry of Culture and Social Services attempts to mobilise and assist groups like these, but is hampered by lack of funds and manpower in the field.

A detailed survey in the Meru water supply area done during the recent Seven Towns Water Supply Study summarised the characteristics of a typical scheme as follows:

#### Profile of Typical Community Water Supply Scheme

Supply area:	6 km <sup>2</sup>	
Number of households served:	200	
Water demand:	150 m <sup>3</sup> /d	
Source:	River/stream	60%
	Spring	40%
Treatment:	None	
Designed by:	MWR	
Average cost:	Kshs 350,000	
Funding:	Community	23%
	External/NGO	77%
Operated and managed by:	Community	
Charges for water consumption:	None	
Management committee size:	10 persons (range 7-13 persons)	
Bank account:	Yes	
Management composition:	Men	84%
	Women	16%
Initial construction year:	1960s	10%
	1970s	25%
	1980s	35%
	1990s	30%
Water use:	Domestic	55%
	Institutional	5%
	Irrigation	40%
Water quality supplied:	Faecal coliform pollution	50%

The same study concluded, for the Meru study area, that community water supplies are most important in supplementing GOK efforts in providing water. The coverage of community schemes is higher than GOK schemes and there is significant overlap between the two types of scheme. Some of the projects are not registered, and so MWR has no information on, for example, the numbers of people served or the quantity of water abstracted. This seems to have been caused by the many NGOs which have helped to set up these projects. The committees which manage community schemes lack training in management and do not have tariff structures. Funds are collected when the system breaks down which leads to unplanned maintenance and excessive water leakage.

Because none of the water is treated and it is often polluted there is a high risk of disease. Most communities do not want to connect to the MWR water supply. This is because community systems were set up partly for small scale irrigation, and amalgamation with the MWR system would introduce restrictions on the use of water for this purpose. Communities also fear that they would lose control if MWR were to become directly involved in the management of their schemes. Meters and regular water charges would be, on the whole, accepted if the beneficiary community were left in control.

It is likely that the Meru study findings are applicable to Kenya as a whole.

#### **2.1.4 Staffing, Recruitment, Transfers, Remuneration, Conditions of Service, Human Resources Development**

Staff matters are the responsibility overall of the Directorate of Personnel Management, a national body which issues and maintains the Public Service Regulations, and has charge of training, schemes of service, and government training institutes.

The Public Service Commission (PSC) is responsible overall for recruitment, promotions, transfers, disciplinary action (if any), and dismissals for all staff in the public service, including LAs. The PSC exercises direct control of officers on salary scales 1 to 9, and delegates control of personnel in lower grades to Ministries and LAs. LA personnel matters are supervised by MOLA which in consultation with LAs recommends transfers, promotions, training and disciplinary action, and participates in salary negotiation.

Staff lists form part of the submission for the Annual Budget, approval of which gives authorisation to the staff establishment for each agency. Most water (and sewerage) departments are suffering from a high level of vacancies, particularly at senior levels. Some agencies have 50% or more of their management and supervisory posts vacant. This means that many posts are filled by more junior staff in acting roles, and often without the necessary qualifications and experience. Staffing levels on NWCP schemes appear significantly lower than those for equivalent Ministry or local authority schemes which is to be expected in view of the Corporation's greater powers to recruit and layoff in accordance with the leaner establishments required for profitable business operation. The Corporation's powers are, at present, limited in this and other areas as it is still a quasi-governmental organisation (vied the public sector composition of the Board of Directors for example) despite its corporate status. Further

economics in staff, accompanied by recruitment and training to provide a smaller, better qualified and more experienced workforce may be expected therefore if or when its level of autonomy is increased.

Updated schemes of service were signed and registered in 1994 and 1995, between public service employers and unions, advised by the various specialist personnel agencies operating in Government. These schemes are in operation and provide a concise if broad framework of employment and career progression for all Central and Local Government employees. However, W&S Departments need to develop detailed job descriptions to use as a basis for training and monitoring the work of employees at every level. Job descriptions and person specifications have been recently updated for MWR staff positions and include some of the CSRP recommendations made in a 1996 study.

Remuneration levels in the water sector are in accordance with the relevant public service pay scheme, all of which (even that of NWCPC) are broadly similar, and showing big discounts to existing levels in the private sector. A WDD committee and the Policy, Regulations and Resources Management Working Group are reported to be investigating the issue. Results have not been made available to the Study team.

Major personnel issues constraining the performance of the water sector are considered to be:

- (1) PSC recruitment, placement and transfer of senior and middle level staff without the approval and in some case the knowledge of the managers involved. This is a problem everywhere but particularly for Water and Sewerage Departments in those municipalities becoming more commercialised, e.g. through the UWASAM project;
- (2) Very low remuneration in comparison with the private sector is a major factor responsible for the poor motivation, attendance, job commitment and interest rife among employees of all the principal water sector agencies, including NWCPC;
- (3) Properly qualified and experienced individuals are not always being recruited for, or transferred to, middle and especially senior level positions; and
- (4) There are many vacancies for senior and middle level personnel, although this situation is worse for some municipalities than others.

### **2.1.5 Regulation**

The regulatory functions within the water sector are currently the responsibility, mainly, of the MWR and its Water Apportionment Board, and the Ministry of Health, and are as follows:

#### **(1) Water Pollution**

This comprises the protection of the quality of watercourses and aquifers from the discharge of untreated and harmful effluents, whether domestic or industrial. There are also regulations relating to the deterioration of surface waters due to soil erosion in the Agriculture and Forest Acts.

(2) Water Abstraction

A national view must be taken of water resources and the licensing of new abstractions from both surface and underground sources. This is necessary to husband a scarce resource effectively and to protect the interests of existing licence holders from unplanned and unauthorised extraction. Powers are available if needed to amend or cancel existing licences in certain justified circumstances.

(3) Water Quality

The enforcement of drinking water regulations is essential to ensure that water supplied to consumers is not injurious to health and is to the standard set out in the relevant law and regulations. The institution responsible for water quality compliance must have the facilities to sample and test drinking water, and the legal powers to prosecute those who breach the regulations.

(4) Tariffs

A water undertaking incurs cost when providing good quality treated water to its consumers. Such water supplied to a consumer's premises is not a gift from God but a product which normally has to be paid for by those who consume it. However, the sale of water is a natural monopoly and, therefore, requires regulation (a) to avoid unreasonable profits being made by the undertaker and (b) to encourage efficient operation. The usual form of regulation is through some kind of index which links the tariff to, for example, return on assets or some similar indicator or combination of indicators. Tariff setting which is fair to both consumer and water undertaker has to take into account a variety of aspects and interests. At present, MWR is responsible for setting water tariffs in Kenya. However, as reported in 4.1.4 below, certain water undertakers, e.g. the municipalities, are setting tariffs which vary considerably from the MWR baseline tariff structure to take into account their need to recover O&M costs as a minimum for sustainable operation.

(5) Issues

MWR is the principal policy maker and the regulatory authority for the sector, as well as being the largest water undertaker. As the 1992 National Water Master Plan points out, there is significant inconsistency and a potential for conflict of interest

- 1) between the roles of regulator of water resources (through the WAB) and developer of water schemes, and
- 2) between the roles of appointees of undertakers (by assuming the responsibility of the defunct and soon to be abolished WRA) and acting as the largest water undertaker.

In fact, such a conflict of interest is already apparent in actions between municipalities who want to take over water undertakings from MWR as part of GOK's decentralisation and commercialisation policy for the water sector, and MWR scheme management. Although it is not



suggested that the WAB or the MWR in its WRA role are unable to act impartially under the present set-up, it would be wise to ensure greater separation of these regulatory roles before too long. Possible options and a recommended course of action are presented in 5.2. It is reported that certain donors (e.g. SIDA) support the view that a conflict of interests exists and should be corrected.

There are further issues regarding regulation and enforcement as follows:

- 1) Pollution Control Sections of MWR District Offices who are actively monitoring pollutant levels in effluent appear to find it difficult or impossible to make factories comply with pollution control regulations;
- 2) Sanitation Section of district offices finds it difficult to implement the relevant regulations where there is disagreement with a municipality. The LA "has the upper hand" and can override the District Water Engineer (DWE); and there is "little support from Nairobi";
- 3) Inadequate control of boreholes in certain Divisions;
- 4) District and division heads say that MWR has no power in the districts to control LAs or NWCPC; and
- 5) Some districts appear to do no routine water monitoring, only "when a crisis occurs".

## **2.2 Organisations Concerned with Sanitation**

### **2.2.1 Local Authorities and Ministry of Local Authorities (MOLA)**

Currently, sewerage, or the safe disposal of sewage and industrial effluent through sewers and treatment plants, is provided in municipalities and some urban areas by Local Authorities which are the responsibility of MOLA. About 30 LAs operate 38 sewerage systems, in the larger municipalities through a separate Water and Sewerage Department reporting to a Water and Sewerage Committee. And three of these are being corporatised through the UDD's UWASAM project in MOLA (see 2.1.3 for details), and will therefore enjoy more operating and financial autonomy. Sewerage services are provided from the three functional divisions of the Water and Sewerage Department, which are Operation and Maintenance, Engineering (which undertakes or supervises planning and design, and construction services), and the Commercial Division (which provides customer services - although these are mainly directed to water consumers - and billing, revenue collection, accounting and budgeting, and procurement services). Only the O&M Division has a separate Section dedicated to sewerage under its own technically qualified superintendent.

Although W&S Departments are organisationally detached from the rest of the council, in most cases there has been no real separation particularly in terms of staff and finance. The exception to this is the W&S Departments of the three UWASAM municipalities of Eldoret, Nyeri and Kericho. The accommodation provided for W&S Departments is far from adequate in some municipalities and this obviously affects their ability to perform adequately.

In the remaining LAs, the sewerage system would probably be operated from the Town Engineer's Department and would not even have departmental status and its own councillors' committee. In the exceptional case of Nairobi Municipality, the Water and Sewerage Department appears to be almost entirely autonomous and virtually independent of MOLA except for budgeting and funding for development projects (see 3.1.3 for further comment). Where there are no public sewers, LA is responsible for seeing that individual facilities are properly constructed and maintained and, if necessary, emptied.

MWR should, in theory, provide policy direction, planning, technical advice and financial assistance for sewerage development. MWR contributes to training technical personnel at KEWI where more emphasis is now placed on sewerage than hitherto, but could be further improved. Any additional funds needed for operation and maintenance are provided, if available, from MOLA.

As noted in the previous section, MOLA attempts to control this dispersed system by the lightly staffed Water and Sanitation Section, LGFAD and HRDD, all part of the Urban Development Department. Much needed support is provided by the UWASAM Project but this cannot last indefinitely. There are other donor projects providing the same type of capacity building support on the sewerage side, such as the ADB project in Kisii and Bungoma.

Other institutions with significant responsibilities in the sewerage subsector include:

- 1) MWR;
- 2) Ministry of Health; and
- 3) NWCPC.

## 2.2.2 Ministry of Water Resources

The Water Development Department in MWR has, in the Water Act, no role leading or coordinating the operation or development of sewerage or sanitation facilities. Its theoretical or nominal legal responsibilities are limited to the control, by monitoring and applying penalties, of polluters. Organisationally, as stated in a recent listing of department, division and section tasks and duties, the WDD should assist with the technical planning and design of sanitation projects for any ministry or public agency requesting this service. WDD will also supervise the construction of sanitation projects on behalf of other ministries or agencies. The O&M division of WDD will provide advice and guidance to other ministries on the operation and maintenance of sewerage schemes. WDD's Applied Water Research Branch is supposed to include sanitation among its research subjects, although sanitation does not appear in any section responsibilities. Finally, the Kenya Water Institute does offer, either immediately or in the near future, several courses for sewerage managers and supervisors, and operators, but little on treatment technology. This confirms that WDD has no lead responsibility for the national planning of sewerage development.

The Water Apportionment Board, described above, has responsibilities in the field of water pollution control in addition to those dealing with control of water abstraction. Its water bailiffs

are supposed to ensure that permit conditions are complied with and also advise the catchment boards and the Water Apportionment Board on infringements and new applications. As earlier discussed, these important officials are at present less than effective. They could, if adequately supported and motivated, help to control effluents by invoking permit conditions, which should specify the quality of effluents allowed to be discharged. However, any sanctions like the cancellation of the permit which might be imposed on a persistent offender, can only be applied to individual industrial polluters, but not to an entire town. Prosecution by the Ministry of Health would be the only remedy in this case.

### **2.2.3 Ministry of Health**

The Ministry of Health carries the ultimate responsibility for the health of the Kenyan people. As such it has a direct responsibility to lobby for improvements in the country's sanitary facilities and, more specifically, arrangements for the disposal of sewage and industrial effluent. It can and should do this nationally and locally through its health inspectors who operate independently of the local authorities. It is likely that there are too few of these to provide a sufficiently strong voice for the major improvement in these facilities that is currently needed. Municipalities are supposed to employ their own health inspectors. These are approved by MOH but otherwise are administered by the municipality.

### **2.2.4 National Water Conservation and Pipeline Corporation**

According to its enabling legislation, mission statement, objectives and corporate plan, NWPC has no responsibilities in the sewerage subsector. Nevertheless, the Corporation is according to one of its own recent briefs on activities and present status of projects: managing a project to develop sewerage, drainage and sanitation services for Mombasa; and executing a project study up to feasibility stage for water supply and sanitation facilities in Nakuru. This suggests that, contrary to its original brief, NWPC is positioning itself to enter the sewerage subsector as operator.

### **2.2.5 Staffing, Recruitment, Transfers, Remuneration and Conditions of Service, HRD**

There are serious staff shortages particularly at senior levels in most municipalities, although some locations are worse than others in this respect; Kisumu is especially badly off. More than half the senior positions are vacant in its W&S Department and one third of the positions responsible for sewerage O&M.

Staffing for sewerage operations in most of the smaller municipalities and town councils is inadequate. Frequently the responsibility of the Public Works or Public Health Department, the labour force is large and unskilled, and provides no more than general maintenance; trained operators or tradesmen are rare.

As regards recruitment, transfers, remuneration and HRD, the position is very similar to that described in 2.1.4.

### 2.2.6 Problems and Constraints Relating to Sewerage Development

The foregoing review reveals that the chief feature of the institutional arrangements for sewage and industrial wastewater disposal in Kenya is its extreme fragmentation among various public bodies, and the lack of any lead organisation clearly responsible for it. This has been the case for many years. By contrast, as described above, although the water supply subsector is complex and also fragmented, and many agencies are involved in it, it is nonetheless clear that MWR is responsible overall for all water supply activities and the legal and administrative structure, by and large, supports the MWR role. There is no such structure available for the development and operation of the sewerage subsector. Even the newly approved National Water Policy fails to adequately emphasise this point and give guidelines for future action.

The National Development Plan 1997-2001 draws attention to the need for "a properly organised and efficient system of sanitation" while drawing attention to the fact that out of the 142 gazetted urban areas in Kenya, only 30% have sewerage systems. It admits that this dangerous state of affairs is because the development of water supplies has not been matched by a corresponding increase in facilities for the sanitary disposal of wastewater, thereby posing serious environmental and health problems. Many of the systems cannot even handle their full sewage load. Moreover, the National Development Plan does not mention in the context of sewage disposal the important question of industrial effluent, which untreated or inadequately treated is even now a major hazard to public health in the industrialised urban areas. The latter is especially important when considering the industrial development envisaged in the Sessional Paper No. 2 on Industrial Transformation for the Year 2020 issued in late 1996. This Paper expects "relatively modest" industrial sector growth rates of 8 to 10 per cent annually up to the year 2006, and from 2007 to 2020 "accelerated" growth rates of 12 to 15 per cent annually arising from the impact of new capital intensive and heavy industries.

This study considers that this problem, which will become steadily worse until radical action is taken, is largely due to poor planning and a lack of national emphasis on wastewater disposal brought about by the weak national organisation of this subsector. The situation should be rectified as a matter of urgency.

Other reported constraints, which generally stem from the institutional deficiency, include:

- (1) financial constraints: for many years insufficient money has been spent on the development, operation and maintenance of community sewerage facilities, and where it has been spent, often projects have been (as in the on-going Mombasa Sewerage Project) ill-considered with inappropriate technology requiring high cost and high technology operation and maintenance. For example, the level of capital investment for sewerage development projects is only 10-15 per cent of that for water supply projects. As a result, the proportion of the population having the convenience of sewerage is progressively falling and existing treatment plants are falling into disrepair;

- (2) shortage of trained personnel: there is and has been for some time a lack of suitably qualified and experienced staff at technical, supervisory and operator level. This is despite the availability of appropriate courses at national training institutions such as KEWI;
- (3) legislation and its enforcement: the major problem as discussed above is enforcement rather than the national laws. However, certain areas of the law require reinforcing (for example the definition of "pollution") or updating (for example the weak penalties to be imposed on polluters) and there is the problem of divided responsibility for enforcement between MWR and the Water Act, and the Ministry of Health and the Public Health Act; and potentially the Ministry of Environment and Natural Resources and the Environmental Management and Coordination Bill when it becomes law; and
- (4) shortage of research establishments and laboratories.

### **2.2.7 Regulation**

Local authorities are responsible for establishing bylaws to control pollution by individuals, trade effluent disposal, and the operations of local sewage disposal facilities. In many cases, these bylaws either do not exist or are out of date. Some municipalities, e.g. Kericho, have already updated their bylaws on wastewater disposal under the Local Government Act. Those that have not, e.g. Kisumu, should follow their example without delay.

## **2.3 Donor Coordination in the Water and Sanitation Sector**

The continuing importance of donor support to the sector and to GOK is illustrated by the financial statistics in 4.3. To improve coordination and thereby maximise the effectiveness of donor funding and other assistance, it was decided in 1996, after a performance review and consultations with GOK, to streamline the arrangements by adopting a Programme Approach based on consolidated areas of project funding in the Development Estimates.

### **2.3.1 Overall Framework for Coordination**

The following coordination framework was adopted:

- 1) A General Coordination Group, to be facilitated by the World Bank and UNDP;
- 2) Programme Coordination Groups, under the leadership of the relevant GOK ministry. These would address programme-specific issues, co-ordinate activities and maximise utilisation of resources;
- 3) Working Groups, to be formed temporarily under the aegis of Programme Coordination Groups for the resolution of specific issues. There would not be too many of these groups and they would be wound up when their work was done.

### 2.3.2 Coordination in the Water and Sanitation Sector

The first meeting of the Water Supply and Sanitation Programme Coordination Group (WSSPCG - representing some 30 donor and Kenyan bodies), chaired by the MLRRWD Permanent Secretary, was held in November 1996. At this and several subsequent meetings, the Group identified three key areas which it wished to focus on and created three working groups each chaired by a MLRRWD official:

- 1) Policy, Regulations and Resources Management Working Group;
- 2) Rural Water Supply and Sanitation Projects Working Group;
- 3) Urban and Pre-urban Water and Sanitation Projects Working Group.

Outline TOR were agreed as follows:

#### (1) Policy, Regulations and Resources Management Working Group

Regarding policy:

- 1) Examine current policies to determine implementation bottlenecks/deficiencies and advise appropriately,
- 2) Examine donor policies and make recommendations for harmonisation,
- 3) Promote dissemination of current and future water policies to water sector actors,

Regarding regulation:

- 4) Examine current sector legislation, identify deficiencies and make recommendations,
- 5) Examine the Legislative regulatory mechanism and recommend improvements,
- 6) Examine regulations on sanitation systems and recommend corrective measures,

Regarding resources management:

- 7) Examine current policies on utilisation of financial, water, human, environmental, land and animal resources and advise appropriately,
- 8) Examine current legislation guiding the utilisation of the above resources and propose necessary changes to promote their efficient and sustainable utilisation.

This group has created four subcommittees.

#### (2) Rural Water Supply and Sanitation Projects Working Group

- 1) Coordination of actors in the RWSS sub-sector,
- 2) Management of RWSS covering: institutional framework, community participation, and capacity building,
- 3) Financing of the sub-sector covering: water tariffs, community contribution, and financing mechanisms, and

- 4) Environmental impact and sanitation
- (3) Urban and Pre-urban Water and Sanitation Projects Working Group
- 1) Formulate guidelines and recommend solutions to WSSPCG,
  - 2) Disseminate guidelines/ideas to interested groups (private sector, donors, and municipalities),
  - 3) Work with existing projects to implement these guidelines,
  - 4) Mobilise resources from other water sector actors/players,
  - 5) Regularly monitor and evaluate projects thus implemented.
  - 6) Issues to be examined include:
    - a) Institutional arrangements - roles of stakeholders, multiple undertakership, decentralised water supplies,
    - b) Economic considerations of water operations - resources mobilisation, financing, tariffs, cost recovery, safeguarding low income groups,
    - c) Urban, pre-urban and informal areas - identify specific problems and propose sustainable solutions,
    - d) Sanitation options - identify and propose,
    - e) Commercialisation and private sector participation (identified as a priority issue and for which a study team has been formed), and
    - f) Conservation, reuse and alternative water supplies.

Each WG has identified issues to be addressed under its TOR and has prioritised these for attention within prioritised TOR items. Some progress has been made in addressing prioritised issues. For example, the Urban and Pre-urban Water and Sanitation Projects WG has selected commercialisation and private sector participation as a priority issue and has formed a study team to produce specific recommendations for Kenya.

However, there are potential problems. The multiplicity of subject areas and groups will themselves require considerable coordination, both within and between programme groups, particularly in view of the overlapping TORs. Furthermore, it appears that some key players in the sector such as MOLA, MOH, NCC, NGOs, and MOENR have not been taking part; without them the process will not be effective.

## CHAPTER 3 OPERATION AND MAINTENANCE

### 3.1 System Operation and Maintenance in the Water Supply Sector

At the overview level of detail adopted in this Study, there is little to choose between the performance of the schemes of the main water undertakers, including the City of Nairobi.

There are a number of major, well known, and extensively documented issues which are severely hampering the delivery of a reliable supply of properly treated water to domestic, institutional, commercial and industrial consumers.

#### 3.1.1 Ministry of Water Resources

##### (1) Lack of Funds and Qualified, Motivated Staff

Water supplied is at a reduced proportion of the design capacity (in some cases less than 50%) and even with full design capacity most schemes have been overtaken by the increasing demands of a rapidly increasing population. Consequently, some water rationing is practised by virtually every scheme. This is due to the poor physical condition of many schemes resulting in breakdowns in equipment and bursts in pipelines. Original designs were generally appropriate but planning horizons were usually not more than five years and so water shortages were often experienced at or within a short time of commissioning. District Water Engineers (DWEs) in some schemes spend most of their time dealing with emergencies, either breakdowns or reallocation of supplies to priority institutions. Some DWEs refer to their jobs as crisis managers, continually dealing with complaining customers.

##### (2) Lack of Leakage Control

Many bulk flow meters are not working or not even installed in some cases and so waste prevention efforts are limited to customer reports of leaks: passive leak detection. Active leak detection is not practised. Estimates of leakage rates range as high as 40 per cent or more of the water supplied, partly due to the way systems have to be operated because of the rationing enforced. Active leakage control requires a dedicated team properly equipped with specific targets to work to.

##### (3) Inadequate Raw Water Treatment

While the original choice of process and equipment was usually satisfactory, poor operation and maintenance has led to failures in mechanical and electrical equipment. Process control is generally poor, with inadequate testing regimes, partly due to insufficient stocks of the requisite chemicals. Because of the poor treatment, unreliable control of chlorination, and the backsyphonage risk from rationing, "treated" water is unlikely to be safe.



(4) Poor operation of plant and lack of adequate maintenance

Maintenance records are usually not kept and planned maintenance does not seem to be practised much if at all. Since procurement through the Ministry tendering scheme is usually slow, with this system of breakdown maintenance, plant could remain out of action for up to one month. However, the average return of 65 per cent of revenue back to districts means that, where available, spare parts and chemicals can be bought locally with this fund. It is estimated that early failure of schemes is mainly due to poor scheme management. The lack of functioning flow meters means that flow control is not being properly managed with deleterious effects on plant and water quality. Meter cleaning and repairs require dedicated teams with the necessary equipment and planned schedules of work. O&M is not adequately funded and operation of plant is not as specified due to poor operator training and supervision. There is either inadequate documentation of procedures to operate plant and networks, or instructions are ignored.

(5) Shortage of vehicles to cover the sometimes extensive area of water supply systems

This problem appears endemic throughout. Many divisional offices with responsibilities for schemes and regulation (issue and monitoring of water permits) have no working vehicles.

(6) Conflicts between local authorities and MWR (and NWPC) regarding ownership of schemes

In several cases there is a dispute between the local authority and the Ministry (and occasionally NWPC) as to which agency should operate and maintain, and which should bill for the water supply service. This appears to be due to a lack of legislation and firm procedure for the handover of schemes to local authorities, in particular, but this also applies in principle to all handovers or takeovers of the revenue-earning water supply business. Unsettled disputes have serious consequences for the operation and management of water supply schemes.

### **3.1.2 National Water Conservation and Pipeline Corporation**

Most of the above issues apply in principle to NWPC operated schemes although reports and performance statistics suggest that performance overall is marginally better than the Ministry schemes. Coastal schemes appear to show the largest shortfalls between water supply and demand at well below 50%. The lack of bulk meters applies to most schemes. Potential UFW losses have been estimated at between 15% and 40%, but in many cases scheme engineers are underestimating losses because of inadequate or non-existent bulk and distribution metering. Water wastage is exacerbated by lack of water pressure control and domestic metering, the latter encouraging significant waste. There is virtually no active leakage control practised.

Asset maintenance has been reported as particularly poor due to underfunding, but also probably to a lack of specific guidance to Regional and Scheme Managers on what is expected in this area.

### 3.1.3 Municipalities

Nairobi, the largest municipality, is a water undertaker and operates the municipal sewerage scheme. Although no visits could be arranged (despite continual efforts) to assess the situation directly, considerable anecdotal evidence suggests that the Water and Sewerage Department has severe operating problems which require urgent attention. These include the lack of its own computer systems (shared with the City's Treasury), water and sewerage revenue passing to the City Council and not being reserved for the W&S Department, excessive staff and therefore high labour cost given the existing workload, a serious billing backlog because of the shared computer system. The relatively rapid turnover in house ownership requires a much shorter process cycle than currently prevails.

Nine other municipalities are water undertakers as well as operating sewerage schemes. Some, like Nakuru, receive a bulk water supply from NWCP for which they are charged. The Ministry issues above apply in most instances to municipalities; any notable exceptions are indicated here.

At least one municipality has been actively addressing the issue of waste, through accurate monitoring and leak detection. Their estimate of around 40% UFW after significant effort gives perspective to the claims of 10-20% from schemes responding only passively to leaks.

The quality of water treatment appears highly variable from good with adequate chemical and spare parts stocks to poor, with the smaller municipalities tending to give the best performance.

Considering the management and operation of schemes, some economies of scale are said to result from the use of management, administration, accommodation, billing and cash collection facilities shared between water supply and sewerage systems. The quality of maintenance varies greatly among the municipalities; from very good with positive programmes of equipment repair and replacement, and good records, to poor, with no planned maintenance, few or no stocks of spare parts, and plant and equipment in poor condition considering its age. This variation is related closely to the proportion of water revenue which is returned to the water supply service for O&M purposes. The good performers receive up 100% of water revenue; the poorest may receive as little as 30%, amounting to perhaps no more than 50% of O&M costs.

As discussed earlier, where municipalities, or other LAs suffer from a lack of management and engineering resources to manage efficiently and effectively their water and sewerage departments, MOLA is also weak in these resources, relying to a considerable extent on donor funded projects and their consultants and specially recruited staff to provide the necessary support. Indeed, the current MOLA strategy appears to be to hand over most technical responsibilities to LAs as part of their CSR decentralisation programme. MOLA may have overdone this leaving LAs still needing assistance on their own at too early a stage. MWR has design, development, and O&M technical resources in water supply which are in theory available for MOLA, but only as one of a number of potential beneficiaries. So such support cannot be relied upon.

Given the shortage of technical resources at scheme and District levels, and the number of local offices belonging to MWR, NWCPC, and LAs doing similar things, the possible amalgamation of these could be considered during a later stage of institutional development.

### **3.2 System Operation and Maintenance in the Sewerage Sector**

As stated in 2.2.1, the Municipal Water and Sewerage Department (or its equivalent in smaller LAs) is responsible for undertaking the operation and maintenance of sewers and sewage treatment facilities, specifically by the Sewerage Section of the Operations and Maintenance Division.

Sewer systems are generally working below capacity due to water rationing and these results in silting. Maintenance standards are poor, in many cases non-existent, but over-capacity and the relatively new systems allow, in some instances, a reasonable service to be delivered. But clearly this untenable situation cannot continue for long before plant and equipment fails. As with water supply managed by municipalities, system performance varies greatly from one municipality to another. Broadly speaking, municipalities which manage the water supply well also manage the sewerage system well, and these are the LAs that direct the largest proportion of water revenue to water and sewerage O&M. The poor performers, which are the majority, have serious problems, however. For example, in Kisumu, pumping stations are not operational, and both conventional works and lagoons are not functioning correctly resulting in raw sewage spillage in densely populated parts of the town, and pollution of Lake Victoria. Frequently pumps, an essential part of the process, do not operate because attendants are unreliable or lack mechanical knowledge; supervision appears unable or unwilling to resolve or correct these problems. A common occurrence is the theft of electrical switchgear (which is seldom replaced) rendering the plant inoperative.

Because of the inadequate funding in the poorer performing municipalities, there are the usual problems of shortages of spare parts and supplies for operating the process.

In practice, O&M support is totally inadequate from central government. MOLA and MWR have inspectors responsible for monitoring operations, but there is little documented evidence in the form of usable reports. From the LA perspective, the role of both ministries is unclear. There appears to be no visible evidence that either supports or monitors operations in any significant way. The burden of responsibility, financial and operational, has been moved decisively to LAs ("decentralisation") with no guidance on standards and no regulation. Most municipalities have insufficient funds and other resources to support operation and maintenance, and certainly not major new or replacement works.

A German funded sewerage inspection and training programme which ran intermittently from 1983 to 1991 recommended that an Inspection Unit for Sewage Schemes should be set up in MOLG. This proposal was agreed with MOLG but was never acted. However, if MWR is to lead the technical management of the subsector, such an inspection unit would be better located with this Ministry.

## CHAPTER 4 FINANCIAL MANAGEMENT

### 4.1 Financial Management in Water Supply

#### 4.1.1 Planning, Budgeting and Funds Allocation System

The current National Development Plan 1997-2001 sets out in summary the present framework for national water development. The planning, budgeting and funds allocation system is described briefly as follows.

The planning system and the coordination of ministries and districts concerned to produce the Annual and Five Year Plans is the job of the Ministry of Planning (MOP) which is attached to the Office of the Vice President. A MOP Director has responsibility for the water sector within the National Plan. Sectoral planning should be done by MWR, itself covering the national water supply, sewerage (in theory), small scale irrigation and currently regional development, while other major water users such as the Ministry of Energy plan projects with the involvement and consent of MWR on the use of water resources.

Capital planning is done from the bottom up starting at the division level. Projects are generated by the Divisional Development Committee, then screened by the District Development Committee (DDC) and finally passed to MOP. The District Water Engineer (DWE), who is secretary to the DDC, prepares a technical document for water sector proposals. Local authorities are included in the District planning process. They pass their development projects to DDC to allow them to be coordinated with other planned development activity in the District before forwarding them, if endorsed by DDC, to MOLA for funding.

Projects are subject to overall budget constraints and have to pass through the budget cycle. Projects are screened by MOP in preparing the Public Investment Programme (PIP); budgetary, economic and social implications are also examined. PIP looks at investments and expenditure over the life of the project, not just for the three year programme. To ensure that projects do not exceed expenditure ceilings, an iterative process is adopted. The budget is supposed to be "firm" for one year; figures for later years are estimates and expect to be revised.

MOP is understood to use a simple classification of project priorities: "core" (essential investments), "high priority" (important but dependent on funds), "medium priority" (e.g. training), and "low priority." Formal economic appraisal is, though, not usually undertaken.

The Ministry of Finance's Budget Department coordinates the budget process in the public sector. When the Five Year Plan is being prepared, the Forward Budget covers the five year plan period. Annual budgeting begins with the Programme Review and the Forward Budget update. During the annual review, the Forward Budget is revised on a three year rolling basis, and the revised or Supplementary Budget is prepared between December and March, with the creation of Supplementary Estimates. The Annual Budget for the following financial year must be completed before June 20.

For the Forward, Revised and Annual stages in the budgeting process, the Treasury issues an advance Budget Circular, instructing ministries how to select projects and make their submissions. Expenditure ceilings, which are set jointly by MOF and MOP, and submission deadlines are also given for each agency. State corporations, like NWCPC, make their submissions to the Government Investment Division.

Operational budgets for recurrent expenditure on existing water schemes are frequently very much less than the funds needed to provide an adequate service to consumers and to maintain assets properly. It is reported that the NWCPC O&M budget estimates are prepared by headquarters without reference to scheme or regional managers.

State Corporations such as NWCPC which have to comply with this time consuming, bureaucratic procedure will find it difficult to develop a more commercial orientation, and to break out of the public service culture it epitomises.

A further major problem has to do with the funds that are actually made available for development and recurrent expenditure. These are in all cases less than amounts budgeted, and in some cases catastrophically less. Development funds received in the districts can be as low as 15% of those officially budgeted. Such a system makes a mockery of the elaborate and expensive planning and budgeting process just described, encourages unrealistically high budgeting, and makes organised management impossible.

#### **4.1.2 Customer Service**

Customer service responsibilities include: meter reading; connection, disconnection and reconnection to the water supply; customer records; and customer relations. In the case of LAs, some or most of these activities are undertaken by a commercial division of the water and sewerage department (or similar organisational unit), while in MWR districts they are done either by part of the O&M Section or by separate Revenue Section, depending probably on the workload involved.

All three organisations experience similar difficulties in varying degrees as follows. Some are due to, or made worse by, a lack of customer relations activity. Most of these points have revenue implications and are also listed in the revenue section of this report. Illustrative figures for a large municipality in Western Kenya are given in brackets:

- 1) Meters not installed;
- 2) meters not working (26% of total installed);
- 3) meters "disconnected" (nearly 40% of total installed);
- 4) installed and working meters not read regularly, despite the existence of an adequate number of meter readers;
- 5) absence of, or deficient records of, connections without meters, and connections with disconnected meters; and

- 6) absence of, or deficient, public relations and public awareness campaigns on major water issues (such as the need to pay for a service that costs money). Generally there is not enough customer or potential customer contact.

A MWR district in Central region stated that of 6,400 connections, only 5% are metered; the remaining 95% pay at the flat rate. It is unlikely that this is an isolated case and gives some idea of the scale and gravity of the problem.

Nationally, the urgent need to increase the number of connections is acknowledged by MWR, NWPC and LAs, in order to reduce waste and misuse of water, to increase revenue, and to improve the people's welfare, but the lack of funds is a constraint on progress in this direction.

#### 4.1.3 Revenue Collection System

The system for determining and billing for water consumed, collecting and receiving the revenue due is summarised as follows. The system described is the MWR District based system, but the principle is currently similar for the municipal water undertakers. In four of the five NWPC regions meter reading is conventional and billing is manual. (Progress of computerisation of NWPC's system is not known.) Coastal region has a computerised billing system with a facility for producing estimates based on previous bills where meters are not read for any reason.

In MWR, the District Water Office (DWO) reads the installed water meters at the month end. DWO then prepares water bills based on the readings taken which are distributed to consumers at or near the beginning of the following month. Consumers are then required to pay the due water charges within the same month to the District Treasury Office (DTO), which is administratively under the control of the District Commissioner's Office (DCO). If consumers fail to pay the due water charges for two consecutive months, DWO is legally entitled to disconnect the water supply to such consumers. Reconnection results in further charges.

After water charges have been collected by DTO, the revenue is transferred to the Ministry of Finance as are all other public charges in the country, and then fully refunded to MWR without passing through the general account of the national government.

The water revenue refunded to MWR is then allocated, after adjustment, to each DWO, to be used exclusively for the operation and maintenance of the water supply systems. The amount each DWO receives (as a proportion of the amount submitted to central government) therefore varies from district to district, according to the adjustment applied by MWR. This adjustment is the Appropriation in Aid, and results in each district receiving between 65% and more than 100% of the water revenue collected, depending on its prosperity. This is to balance surpluses with deficits within each province.

Operation and maintenance costs of the DWO exclude salaries of engineers and administrative officers but include those of subordinate staff. Salaries of engineers and similar level officers are therefore, at present, subsidised by MWR.

Current major problems relating to meter reading, billing and collecting revenue are as follows. Some have been noted in the section dealing with customer relations above, and all cumulatively contribute to a serious shortfall in revenue collected:

- 1) An unacceptably large number of consumers being provided with water at a flat rate, due to water meters not being installed or being broken. This results in a large increase in water consumption, and in wasted water;
- 2) Existence of illegal connections;
- 3) Lack of serviceable meters;
- 4) Lack of, or inadequate maintenance of meters;
- 5) Inefficient meter reading and billing, and bill distribution;
- 6) Many consumers unwilling to pay because of their dissatisfaction with water supplies; and
- 7) Large debts from public sector consumers.

#### **4.1.4 Tariff Structure**

The National Water Policy on water charges encompasses the previously agreed principle that water beneficiaries should share, according to the benefits they receive, the entire capital and operating cost of the relevant public facilities. The cost should not, in principle, be covered by tax revenue from general taxpayers who include non-beneficiaries, but should be recovered from the beneficiaries themselves as a separate charge. This is clearly not happening at the moment, as earlier parts of this report have explained, but must be a major objective of any improvement programme in the water sector.

The second principle is that GOK grant or subsidy should be provided only if needed to (a) encourage the beneficiaries' participation in development or (b) provide social amenities, by subsidising those on low incomes.

Current tariffs are shown in the table below:

## Water Tariff Structure by Major Water Undertakers

Category	Volume Scale (m <sup>3</sup> )	MWR NWPCPC Basic Rate (Index = 100)	Local Authorities with Water Department (Under the Municipal General Account)								GTZ-UWASAM Project (Commercialisation Pilot Towns)					
			Nairobi		Kisumu		Nakuru		Kitale		Nyeri		Kericho		Eldoret	
			Rate	Index	Rate	Index	Rate	Index	Rate	Index	Rate	Index	Rate	Index	Rate	Index
Domestic	0-10	12.00	12.00	100	18.00	150	11.50	96	10.00	83	14.00	117	22.00	183	9.70	81
	11-20	18.00	18.00	100	20.00	111	12.00	67	9.00	50	19.60	109	22.50	125	19.30	107
	21-40	23.00	27.00	117	23.00	100	16.65	72	9.00	39	22.40	97	24.00	104	25.70	112
	41-60	35.00	34.00	97	26.00	74	16.65	48	9.00	26	25.20	72	24.00	69	25.70	73
	Over 60	45.00	34.50	77	33.00	73	26.70	59	10.00	22	28.00	62	26.00	58	38.60	86
Government Institution	0-10	12.00	12.00	100	20.00	167	44.00	367	10.00	83	21.00	175	22.00	183	9.70	81
	11-20	15.00	18.00	120	22.00	147	43.50	290	9.00	60	26.60	177	22.50	150	19.30	129
	21-40	23.00	27.50	120	25.00	109	38.00	165	9.00	39	30.80	134	24.00	104	25.70	112
	41-60	35.00	34.50	99	30.00	86	16.20	46	10.00	29	35.00	100	26.00	74	38.60	110
	Over 60	45.00	34.50	77	37.00	82	16.20	36	15.00	33	42.00	93	28.00	62	48.30	107
Commercial/Industry	0-10	12.00	12.00	100	20.00	167	44.10	368	14.00	117	21.00	175	88.50	738	23.20	193
	11-20	18.00	18.00	100	24.00	133	38.00	211	16.00	89	26.60	148	30.00	167	34.00	189
	21-40	23.00	27.50	120	28.00	122	38.00	165	18.00	78	30.80	134	30.00	130	34.80	151
	41-60	35.00	34.50	99	32.00	91	16.20	46	22.00	63	35.00	100	32.00	91	48.30	138
	Over 60	45.00	34.50	77	39.00	87	16.20	36	22.00	49	42.00	93	32.00	71	54.10	120
Latest Year Amended		1997/8	1997/8		1996/7		1995/6		1994/5		1996/7		1996/7		1996/7	

Source: Water Tariff of Water Undertakers, Ministry of Local Authorities

The MWR and NWPCPC tariff, which is the same for both bodies, is compared with those of Nairobi City Council and three other municipality water undertakers, and those of the three UWASAM municipalities of Eldoret, Kericho, and Nyeri which are participating in the commercialisation project.

These tariffs exhibit a wide variety of trends and values. All are block tariffs, that is, there is a different rate for each block of volumes which range as follows: 0-10, 11-20, 21-40, 41-60, more than 60 cubic metres.

Five of the eight undertakers use an increasing block tariff although the rate of increase varies as do the base and maximum rates. Of these five, two (MWR/NWPCPC and Nairobi) charge the same tariff for water consumed by different category of consumer, i.e. there is no differentiation between domestic, government/institutional, and commercial/industrial customers. They also have among the steepest total increases at 275% and 188%, respectively. The other three (Kisumu, Nyeri, Eldoret) of the five using an increasing block tariff, charge different tariffs for each consumer category and have relatively modest total increases at 95% and 100% except for Eldoret which has the highest total increase for the Government/institution category of 398%, albeit from the lowest starting point.

The two of the three remaining undertakers use a decreasing block tariff for certain user categories (Nakuru, which reduces its starting tariff by 63% for the two non-domestic categories, and Kericho, which reduces its starting tariff by 64% for its commercial/industrial customers). Nakuru's tariff structure appears especially anomalous in that domestic consumers using more than 60 cubic metres pay nearly twice what the non-domestic consumers pay.



The remaining undertaker, Kitale, has a virtually level block tariff for domestic consumers, and a modestly increasing tariff (50-57%) for the non-domestic categories.

It is instructive to compare the eight tariff structures above against the analysis done by NWCPC's own tariff study in 1995. This was done during the corporate planning exercise under the Second Mombasa and Coastal Water Supply Project.

This study concluded, from an analysis of a wide range of international tariff data in 16 countries and 42 different tariffs, that a progressive rising block tariff was best suited to the needs of Kenya (and NWCPC) for the following reasons:

- 1) it provides an incentive for conservation;
- 2) it can be structured to achieve social objectives (such as a basic needs block);
- 3) it obviates the need for more complex industry specific tariffs; and
- 4) it is in current use, and is familiar to customers and billing staff.

The following further recommendations were made concerning the structure of the rising block tariff:

- (1) the size of the "basic needs" block should be 10 cubic metres;
- (2) there should be five consumption blocks with the following bandwidths:
  - a) <math> < 10 \text{ m}^3 </math>
  - b) 10 to 20  $\text{m}^3$
  - c) 20 to 50  $\text{m}^3$
  - d) 50 to 100  $\text{m}^3$
  - e) >100  $\text{m}^3$

Such a tariff structure fulfils the "progressive" requirement.

Ideally, tariff rates should be set to satisfy an attainable revenue target, such as to cover operating and maintenance costs or to cover O&M costs plus depreciation plus a contribution to reserves at an agreed percentage rate of new capital works. It was recommended that NWCPC tariffs be set on a regional basis, and should be fixed in real price terms for an agreed period, say five years, during which adjustments for inflation would be made annually.

When compared with the above criteria, none of the existing structures conforms, because the structure of the Kenyan rising block tariff is linear and not progressive.

The structures conforming most closely are MWR/NWCPC, Nairobi and Eldoret (we may call them Group 1), although their total increases (particularly Nairobi but even Eldoret) are very much less than the average recommended for NWCPC in 1993, which was more than 700% from the bottom rate to the rate applying from 50-100 cubic metres monthly. Rather less conforming is Nyeri and Kisumu (Group 2) because their total increases are less than Group 1. And the remainder, Nakuru, Kitale and Kericho (Group 3) hardly conform at all, for several reasons.

While tariff values can and should vary between municipalities and perhaps regions of a decentralised major undertaker such as NWCPC, structures should conform to the same general logic. The structures reviewed above do not. There is a good case for reviewing them in the light of this principle.

The foregoing deals with tariffs to the end-user or consumer.

The bulk or wholesale water tariff from a bulk supplier such as NWCPC to a water undertaker such as a municipality is currently Kshs 10/m<sup>3</sup> (which is, in 1998, not up to the Kshs 11.7/m<sup>3</sup> recommended by the NWCPC tariff study in 1993). This is much less than the cost of production even where low cost water resources are available, as in Kisumu, for example. It is, therefore, surprising that municipal councils are tending to develop their own water sources rather than buy from regional or national providers, which would be more economical. One explanation is the reluctance of municipalities to deal with NWCPC because of the latter's tendency to muscle into water retailing at the expense of the municipalities who need the water revenue. On the other hand, it is reported that municipalities receiving bulk supplies are not paying for them thus asking to be taken over.

However, it is in the economic interest to provide water to the consumer as cheaply as possible, consistent with the GOK decentralisation policy. With this in mind, there needs to be more cooperation between NWCPC and the municipalities to ensure this. The Study recommendations on the future role of NWCPC (see 5.2.2 below) are quite consistent with this approach.

#### 4.1.5 Financial Performance of Water Supply Schemes

The aggregated performance of water supply schemes, in terms of revenue and O&M cost are examined below. In some cases, sewerage schemes are included where they could not be separated from water supply.

##### (1) MWR

According to the Water Supply Projects and Schemes Status Report 1996 (MWR), there are 375 water supply schemes operated by MWR, some of which are jointly operated with NWCPC. The financial position of these schemes is presented in Table - 4.1.1 and summarised in (3) below. In most schemes outside Central province revenue does not cover O&M costs.

##### (2) NWCPC

The financial performance of NWCPC's water supply schemes is summarised by region in the two tables below. The tables indicate an average revenue recovery ratio of 65.2% nationally, which is considered low. Also O&M costs are not covered by revenue in any region except Coast, where a large surplus covers the losses in all other regions.

### Financial Performance of NWCP by Region

Region Name	Monthly Average Revenue (Kshs)			Monthly Average O&M Costs (Kshs)						Financial Efficiency		
	Revenue Billed (A)	Revenue Collected (B)	Revenue Recovery Ratio (B)/(A)	Electricity		Chemicals		Others		Total O&M Costs (C)	Financial Deficit (B)-(C)	Deficit Ratio (B-C)/(B)
				Amount	%	Amount	%	Amount	%			
Western	2,716,223	2,045,390	75.3%	2,169,770	26.8	1,141,800	14.1	4,771,111	59.0	8,082,681	-6,037,291	-2.95
Southern	2,785,285	2,340,839	84.0%	2,141,587	40.1	196,125	3.7	3,007,052	56.3	5,344,764	-3,003,925	-1.28
Central	5,242,564	2,504,001	47.8%	168,620	6.5	555,025	21.4	1,870,831	72.1	2,594,476	-90,475	-0.04
Rift Valley	7,632,012	4,170,505	54.6%	1,858,042	26.6	995,087	14.3	4,120,195	59.1	6,973,324	-2,802,819	-0.67
Coast	45,672,752	32,645,852	67.1%	5,903,543	28.6	962,000	4.7	13,772,656	66.7	20,638,199	12,007,653	0.37
NATIONAL	67,048,836	43,706,587	65.2%	12,241,562	28.1	3,850,037	8.3	27,541,845	63.1	43,633,444	73,143	0.00

Source: Brief on National Water Conservation and Pipeline Corporation's Activities and Present Status, NWCP, September 1997

### Unit Revenue and O&M Costs of NWCP by Region

Region Name	Average Monthly Water Produced (m <sup>3</sup> ) (A)	Average Monthly Revenue Collected (Kshs) (B)	Average Monthly O&M Costs (Kshs) (C)	Unit Rate		O&M Costs Coverage (Kshs/m <sup>3</sup> ) (B/A) - (C/A)
				Water Revenue (Kshs/m <sup>3</sup> ) (B)/(A)	O&M Costs (Kshs/m <sup>3</sup> ) (C)/(A)	
Western	675,600	2,045,390	8,082,681	3.0	12.0	-8.9
Southern	514,200	2,340,839	5,344,764	4.6	10.4	-5.8
Central	2,739,300	2,504,001	2,594,476	0.9	0.9	-0.0
Rift Valley	1,464,000	4,170,505	6,973,324	2.8	4.8	-1.9
Coast	2,496,000	32,645,852	20,638,199	13.1	8.3	4.8
NATIONAL	5,393,100	11,060,735	22,995,245	2.1	4.3	-2.2

Source: Brief on National Water Conservation and Pipeline Corporation's Activities and Present Status, NWCP, September 1997

The financial performance of NWCP analysed by water supply scheme is presented, in addition, in Table - 4.1.2 and Table - 4.1.3.

### (3) Local Authorities

The availability of reliable financial information for water supply schemes operated by LAs was found to be limited. Data for Nyahururu Municipal Council (NMC) was, however, available and is shown in Table - 4.1.4 as an example of a particularly good LA in terms of water and sewerage revenue and costs, where actual revenue collected in 1995/96 was 105% of the assessed potential. The performance of other revenue sources was less impressive but still substantial, showing further potential. Table - 4.1.5 shows NMC's annual revenue and expenditure for the three years ending 1995/96 indicating a surplus in each year, the largest was in the third year at 43% of total water and sewerage revenue.

By comparison, Table - 4.1.6 shows the financial performance of the three municipalities selected for the UWASAM pilot commercialisation project, which are Eldoret, Nyeri and Kericho. All have good revenue recovery ratios for water supply and sewerage, but only two show a surplus of revenue over expenditure.

## (4) Comparison of MWR, NWCPC and Municipality Schemes

The following comparative indicators of financial performance were summarised from the data given in (1) to (3) above:

- 1) monthly revenue per cubic metre of water produced
- 2) financial deficit (revenue less expenditure)
- 3) deficit ratio (revenue less expenditure / revenue)
- 4) revenue recovery (revenue collected / revenue billed)

for: all MLRRWD schemes during 1996; all NWCPC schemes in each region; and the three water undertaker municipalities (January to June 1997) selected for commercialisation (Nyeri, Kericho, Eldoret); the latter are water and sewerage schemes in aggregate. The results are given in the table below:

**Financial Performance of Water Supply and Sewerage Schemes**  
Local Authority Statistics include Sewerage Schemes

	Local Authorities	NWCPC	MLRRWD
Monthly Revenue (Kshs) Billed (A)	23,548,660	67,048,836	n.a.
Monthly Revenue (Kshs) Collected (B)	19,281,693	43,706,587	11,947,113
Monthly Total O&M Costs (Kshs) (C)	12,989,862	43,633,444	34,394,645
Monthly Water Produced (m <sup>3</sup> ) (D)	1,175,194	n.a.	8,751,381
Revenue/m <sup>3</sup> (B)/(D)	16.4	n.a.	1.4
Financial Surplus/deficit (B) - (C)	6,291,831	73,143	-22,447,532
Surplus/deficit Ratio (B) - (C) / (B)	0.33	NIL	-1.88
Revenue Recovery Ratio (B) / (A)	82%	65%	n.a.

Sources: Local Authorities: UWASAM

NWCPC: Brief on National Water Conservation and Pipeline Corporation's Activities and Present Status, NWCPC, Sept 1997

MWR: Water Supply Projects and Schemes Status Report, MWR, 1996

The table shows, as expected, that the three selected Local Authorities have by far the best financial performance, that MLRRWD has by far the worst, and NWCPC comes somewhere in between. There are reasons for both the good LA performance and the poor MLRRWD performance, but the latter's very low revenue per cubic metre of water produced and the huge financial deficit are cause for much concern. No doubt the problems itemised at district level have much to do with MLRRWD's difficulties, and should therefore be tackled as soon as possible and in the manner proposed.

It should be noted that in most cases O&M costs are less than needed to provide the required level of maintenance. Thus the real financial performances of all three groups of schemes are likely to be worse than stated.

## **4.2 Financial Management in Sewerage**

### **4.2.1 Planning, Budgeting and Funds Allocation System**

Current procedures for planning, budgeting, and allocation of funds are described in 4.1.1 above.

### **4.2.2 Customer Service**

MWR, MOLA and LAs are not, as far as is known, engaged in any large scale attempt to educate and inform the public about sewage disposal methods, the institution responsible for coverage, funding, charging and plans for the future.

### **4.2.3 Revenue Collection System**

The sewerage charge is normally a surcharge to the water supply charge although this is not easy to implement where the water undertaker is under a different management. In at least three towns (Meru, Kisii, Muranga) significant amounts of money have not been transferred from the water undertaker (MWR) to LA. The same is apparently true of NWCPC (from anecdotal evidence only) which usually collects sewerage charges on behalf of the LA when it is the water undertaker. Generally, this is one of several reasons for favouring water supply and sewerage development under the same management. It also explains why LAs are so keen to become water undertakers.

Public sewerage mainly benefits the users of sewerage facilities. It is therefore logical that these users should contribute towards the cost of operating and maintaining the facilities, and preferably the development cost also. This is in line with current National Water Policy. In addition, non-users living in the area may be considered to benefit from the improved public health environment attributable to the sewerage works. The charging system should be accounted for separately as in water supply schemes.

At present, progressively less revenue is being collected to pay for sewerage costs as more people are "disconnected" from the water supply system in some municipalities. Thus, the viability of the sewerage operation is very largely dependent on the good management of the water supply system and the extent to which water can be delivered to satisfied consumers who will pay their water bills. This is another argument for placing the two systems under one management.

### **4.2.4 Tariff Structure**

Generally, sewerage tariffs are charged on metered water consumers and are based on the amount of water used. Sewerage tariff rates are set as a percentage of water tariffs, percentage varying between 50% and 100%, according to sector studies. Additionally, tariffs are charged on percentages of water billed; these vary from 100% to less than 10%. Consequently, total charges for sewerage as a proportion of total water charges vary greatly among local authorities. Tariff rates are not, however, calculated from the O&M and capital costs of providing the sewerage service, as they should be. It is clearly necessary to rationalise these arrangements.

#### 4.2.5 Financial Performance of Sewerage Schemes

At present, 38 sewerage schemes in 30 urban centres are operated by LAs under MOLA's supervision. The financial performance of these schemes during 1995, 1996 and 1997 was surveyed by the Study Team. Of the 30 schemes surveyed, 15 yielded the necessary data, and this is reproduced in Table - 4.2.1. According to the data, only two schemes have given consistently a reasonable contribution to asset replacement having spent a significant amount on O&M: Mavoko-Athi River and Nyeri.

Generally, the financial performance of sewerage schemes varies greatly, depending on factors such as the success of the associated water supply system (both in terms of water supply and revenue collection) and the O&M cost which will, in turn, vary according to the technology employed and the capacity of the scheme. Some schemes, such as Nyeri and Mavoko-Athi River appear to more than cover the costs of operation and maintenance; others such as Mombasa (not unfortunately, adequately surveyed) are understood to be having large losses with little hope of becoming financially viable under current conditions. Few, if any, are yet financially viable in being able to cover sustainably O&M costs, depreciation and a contribution to reserves - the "break-even" position.

### 4.3 Financial Situation

#### 4.3.1 Financial Situation of the Kenyan Government

On the current account, as the table below shows, there has been some improvement from an average deficit of Kshs 651 m over the two years 1992/3 and 1993/4 to an average surplus of Kshs 218 m.

However, the financing of domestic development has continued to be largely dependent on external resources as it has over recent years. Although the grant ratio is showing a slight decline over the five year period during the last two it has been on an upswing while remaining below the average.

The financial structure clearly illustrates GOK's weak capability for implementing capital projects and this is likely to continue while capital expenditure stays at or around its present increasing trend line. This means that donor assistance will be vital for economic development, particularly for funding projects with low financial returns but high socio-economic benefits.

Historical Trend of Revenue and Expenditure of Kenyan Government, 1992/93 – 1996/97

	(Unit: K£ million)					
	1992/93	1993/94	1994/95	1995/96	1996/97	Average
Current Revenue (A)	3,454.71	5,039.37	6,097.82	7,181.84	7,441.42	-
Current Expenditure	3,884.17	5,912.64	5,888.84	6,745.53	7,404.05	-
Current Surplus	-429.46	-873.27	208.98	436.31	37.37	-
Capital Revenue	21.37	12.31	38.62	29.02	5.02	-
Capital Expenditure (B)	423.71	566.67	715.17	890.36	1,052.63	-
Gross Fixed Capital Formation (GFCF) (C)	384.79	465.30	687.34	812.10	979.14	-
- GFCF Ratio (C / B)	90.8%	82.1%	96.1%	91.2%	93.0%	90.7%
Net Lending	76.28	35.90	29.53	-209.71	133.36	-
Overall Deficit (D)	-908.08	-1,463.53	-497.10	-215.32	-1,143.60	-
- Deficit Ratio (D / A)	-26.3%	-29.0%	-8.2%	-3.0%	-15.4%	-16.4%
External Grants (E)	440.40	485.15	661.45	450.05	787.15	-
- Grant Ratio (E / B)	103.9%	85.6%	92.5%	50.5%	74.8%	81.5%
Total Borrowing (F)	1,069.75	1,155.40	295.40	-27.25	224.90	-
External Loans (Net)	318.00	-56.75	-106.50	86.30	136.60	-
Total Domestic Borrowing	751.75	1,212.15	401.90	-113.55	88.30	-
- Long Term Borrowing (Net)	66.05	-168.80	-376.70	-355.10	-19.75	-
- Short Term Borrowing(Net)	685.70	1,380.95	778.60	241.55	108.05	-
Total Financing of Deficit (G)	1,510.15	1,640.55	956.85	422.80	1,012.05	-
Cash Balance (D + G)	602.07	177.02	459.75	207.48	-131.55	-

Source: Economic Survey 1995, 1996 and 1997, Central Bureau of Statistics

#### 4.3.2 Financial Situation of MWR and MOLA

The recurrent and development expenditures of MWR (then MLRRWD) and MOLA then MOLG) for the water supply and sewerage sector in the five fiscal years ending 1996/97 are shown in the table below compared with MWR's total expenditure. While sectoral development expenditure has tripled in nominal terms over the period, the share of appropriation-in-aid has gradually risen to about 58% of the total in 1996/97. Recurrent expenditure for the whole Ministry and probably for the sector has more than doubled and the appropriation-in-aid has been steady, at about 8% of total.

## Historical Trend of Public Expenditure on Water Supply Sector, 1992/93-1996/97

(Unit: K£ million)

	1992/93		1993/94		1994/95		1995/96		1996/97		Average
A. Ministry of Water Resources (MWR)	122.060	100.0	141.735	100.0	257.123	100.0	261.928	100.0	266.349	100.0	-
Recurrent Expenditure by MWR	38.015	31.1	51.063	36.0	74.767	29.1	83.572	31.9	82.135	30.8	31.8
Net Expenditure	(34.885)	(91.8)	(45.976)	(90.0)	(69.533)	(93.0)	(77.723)	(93.0)	(75.004)	(91.3)	(91.8)
Appropriation-in-Aid	(3.133)	(8.2)	(5.087)	(10.0)	(5.234)	(7.0)	(5.849)	(7.0)	(7.134)	(8.7)	(8.2)
Development Expenditure by MWR	84.042	68.9	90.672	64.0	182.356	70.9	178.356	68.1	184.214	69.2	68.2
Net Expenditure	(33.870)	(40.3)	(42.388)	(46.7)	(65.552)	(35.9)	(78.347)	(43.9)	(77.396)	(42.0)	(41.8)
Appropriation-in-Aid	(50.172)	(59.7)	(48.285)	(53.3)	(116.804)	(64.1)	(100.009)	(56.1)	(106.818)	(53.0)	(58.7)
Share of Water Supply and Sewerage Development Expenditure in MWR (%)	69.3	-	70.3	-	82.2	-	81.8	-	92.7	-	79.2
Development Expenditure for Water Supply and Sewerage Sector by MWR	58.240	100.0	63.698	100.0	149.857	100.0	145.875	100.0	170.754	100.0	-
Net Expenditure	(27.042)	(46.4)	(36.085)	(56.7)	(56.964)	(38.0)	(68.181)	(46.7)	(71.050)	(41.6)	(45.9)
Appropriation-in-Aid	(31.198)	(53.6)	(27.613)	(43.3)	(92.893)	(62.0)	(71.694)	(53.3)	(99.704)	(58.4)	(54.1)
B. Ministry of Local Authorities (MOLA)	93.706	100.0	109.339	100.0	156.089	100.0	161.408	100.0	199.359	100.0	-
Recurrent Expenditure by MWR	9.002	9.6	11.020	10.1	16.659	10.7	14.010	13.8	27.221	13.7	11.6
Net Expenditure	8.924	99.1	10.961	99.5	16.600	99.6	13.946	99.5	27.156	99.8	99.5
Appropriation-in-Aid	0.078	0.9	0.059	0.5	0.069	0.4	0.064	0.5	0.065	0.2	0.5
Development Expenditure by MOLA	84.704	90.4	98.319	89.9	139.430	89.3	87.398	86.2	172.138	86.3	88.4
Net Expenditure	(20.499)	(24.2)	(19.156)	(19.5)	(30.388)	(21.8)	(38.661)	(44.2)	(40.987)	(23.8)	(26.7)
Appropriation-in-Aid	(64.205)	(75.8)	(79.163)	(80.5)	(109.042)	(78.2)	(48.737)	(55.8)	(131.151)	(76.2)	(73.3)
Share of Water Supply and Sewerage Development Expenditure in MOLA (%)	81.7	-	87.6	-	83.2	-	89.0	-	92.0	-	86.7
Development Expenditure for Water Supply and Sewerage Sector by MOLA	69.197	100.0	86.092	100.0	116.025	100.0	77.753	100.0	158.427	100.0	-
Net Expenditure	(11.783)	(17.0)	(9.613)	(11.2)	(28.752)	(24.8)	(35.681)	45.9	(33.727)	(21.3)	(24.0)
Appropriation-in-Aid	(57.414)	(83.0)	(76.479)	(88.8)	(87.273)	(75.2)	(42.092)	(54.1)	(124.700)	(78.7)	(76.0)

Source: Development Estimates and Estimates of Recurrent Expenditure, 1992/93 - 1997/98  
Economic Survey 1997, Central Bureau of Statistics

MOLA's overall recurrent expenditure tripled over the period, with negligible appropriation-in-aid, while its development expenditure in the sector about doubled although showing a lumpy trend. Appropriation-in-aid declined slightly over the period, ending just short of 80%, still a high figure.

Both water sector ministries continue to rely heavily on aid for development, MOLA being the most dependent.



## **CHAPTER 5 STRENGTHENING PLAN**

### **5.1 Proposed Amendments to Legislation**

The review in 1.2 of existing legislation for the water sector suggested that the major problem was implementation and enforcement of the law, not the law itself, and this aspect is further addressed at the end of this report section. However, certain omissions and defects in water law were noted and have been reported, some correctable in the short term, others requiring an extended period and considerable resources. In general, the revision of the Water Act should harmonise with the recently agreed National Water Policy and with other laws dealing with water and wastewater. Potential legislation, particularly the Environmental Management and Coordination Bill 1996, should also be borne in mind. Short term recommendations could, once agreed, be incorporated (if not already proposed) in the draft Water (Amendment) Bill 1998, now being prepared by the Water Act Review Secretariat in MWR. The Study Team recommends that the enactment of both the Water Act revisions and the Environmental Management and Coordination Bill 1996 should proceed without delay.

#### **5.1.1 Short Term Recommendations**

##### **(1) Water Resources Authority and Regional Water Committees**

Both these bodies should be excluded from the present law, and their functions assigned to (a) MWR and (b) either Catchment Boards or District Water Boards as appropriate, respectively. WRA's responsibilities and powers should be assigned as appropriate to the Minister or the Water Apportionment Board (WAB).

##### **(2) Water Apportionment Board**

Following from (1) above, the powers and duties of WAB should be strengthened to exercise on behalf of the Minister those powers he wishes to assign to it including: the issue, alteration and revocation of permits for:

- 1) water abstraction
- 2) land drainage works
- 3) works affecting land drainage, river flows, etc.
- 4) discharge of effluents into any body of water
- 5) making bylaws for all matters relating to their functions including waste prevention, misuse or pollution of any water.

The strengthened powers and duties should be devolved appropriately to Catchment Boards and District Water Boards, while adequate funding should be provided for them to properly perform their statutory duties. Catchment Boards should be able to finally approve certain types of permit without WAB intervention.

(3) Water Undertakers

Those provisions of the Water Act and its subsidiary legislation relating to water undertakers should be modified to ensure uniform treatment for all water undertakers including local authorities and self-help community water groups; the latter should be registered as water undertakers by the Minister responsible for water. In addition, the transfer of undertakings or facilities from one institution to another should be according to a procedure and overall rationale, which should be legally defined. This would complement legislation which should be introduced to specify the roles of the main water sector institutions, whether public or private. Mechanisms for monitoring these institutions would be specified in the legislation required to establish the proposed new agency for regulating schemes and undertakers (see 5.2.1 below).

(4) Abstraction of Ground Water

Section 50 of the Water Act should be extended to cover all wells and groundwater abstractions.

(5) Defective Wells

In Sections 58-65, definition should be extended to cover all polluted water in addition to salt water.

(6) Water Use Charges

The Minister, as advised by WAB, should be able to levy water use charges for the purpose of monitoring and conserving water resources.

(7) District Water Boards

District Water Boards and their relationship with the existing Catchment Boards should be provided for and specified, probably in Section 24 replacing legislation for the defunct Regional Water Committees.

(8) Effluent Charges

The standards for disposal of industrial or other effluent into a body of water should be prescribed, together with the levies for exceeding the levels permitted. Charges should be based on the quantity and nature of the pollutants and should be related to the cost of treatment to remove the pollutants.

(9) Charges and Penalties

The monetary value of charges and penalties stated in the Act should be adjusted upwards, using the rate of inflation during the intervening period as a guide to present values.

(10) Kenya Water Institute

The Act should provide for the establishment and increased autonomy of this Institute which should have responsibility for HRD in the entire water sector, which includes water resource management and development, and sewage disposal and sanitation. In recognition of its increased autonomy and scope, it should report to the MWR Permanent Secretary.

Changes recommended to other water-related legislation are as follows:

(11) The Mombasa Pipeline Board Act (1957)

This Act should be repealed as the subject of the Act was proscribed in the early 1980s.

(12) Tani and Athi Rivers Development Authority Act

It is suggested that this Act should be amended to agree with the Kerio Valley and Lake Basin Development Authority Acts so that TARDA can undertake construction, operation and maintenance of development projects, as well as planning and coordination.

As stated in 1.2.7 concerning the Kerio Valley and Lake Basin Development Authorities, the Acts do not state that the authorities have sole or indeed any responsibility for developing and distributing water supplies in bulk, either within their areas or outside them. They merely provide for the coordination and monitoring of water abstraction, which is not the same thing. If it is the intention that the river and lake basin development authorities should develop and distribute bulk water supplies, the Acts should be amended, although this is not recommended.

### **5.1.2 Longer Term Recommendations**

Certain recommendations for the longer term have been made in the past. Those considered to be still valid are included below.

(1) A Single Enforcement Authority

The multiplicity of authorities involved in water law enforcement has been noted as a constraint. There should be a long term objective to reduce the number, eventually to a single authority. The Environmental Management and Coordination Bill, 1996, could when enacted ultimately become the framework for such an authority. In this eventuality, the proposed National Environmental Council and its Management Authority would be responsible for all environmental management, including the conservation and management of water resources and waste control. Such an arrangement would be similar to the UK's Environment Agency, recently formed by expanding the remit of the National Rivers Authority (NRA) to include all environmental issues, and sponsored by the Department of the Environment, Transport and the Regions. NRA was created to protect water resources and regulate abstractions when the UK water boards were privatised in the 1980s.

(2) A Comprehensive Water Act

As a further aid to comprehension, implementation and enforcement of the water law, a Bill encompassing and consolidating all water sector legislation (water resources, water use management, sewage disposal and sanitation, and water pollution) should be drafted soon. As a new law would require some two years in all to enact, the work could begin as soon as the planned Water (Amendment) Bill becomes law using some of the resources from that exercise. When environmental legislation includes the conservation and management of water resources as suggested in (1) above, this would be a further consolidation and simplification of sectoral legislation.

**5.1.3 Recommendations to Assist Implementation of the Law**

The following measures should be taken to address the reasons for the current poor implementation and enforcement of the law set out in 1.3.

(1) Decentralisation

The multiplicity of agencies and laws would be solved in the longer term by 5.1.2 (1) and (2) above respectively. In the shorter term, and in line with GOK's policy of decentralisation, the practical business of law implementation and enforcement at district level should be handled by the district offices of each ministry or local authority. Cases requiring coordination among sectors would be reported to and coordinated by the District Water Board (DWB). The DWB should be assigned the responsibility (if it has not been already) for receiving the first level of appeals and disputes concerning water related issues. Issues not resolved by DWB, would be referred up to the Catchment Board, and WAB, and finally, if still not resolved, to the subordinate courts in the Districts.

This decentralisation of enforcement responsibilities will require considerable top level effort, support and promotion together with thorough education in all skills and knowledge needed, and systematic monitoring and follow-up to ensure that enforcement actually occurs at the correct level.

(2) Training and Motivating Officials Responsible for Enforcement

It is clearly vital for the officials responsible for implementing and enforcing the law to have a thorough knowledge of the law, the reasons for it and to be committed to its enforcement. They must also know their powers and the procedures to be followed and techniques to be used to settle a dispute or achieve a successful prosecution.

The necessary legal training for the responsible officials, which would include water bailiffs, health inspectors, provincial and district water engineers, would be organised by the relevant ministry, particularly MWR. A competent, motivated senior officer with the necessary technical qualifications and experience should be assigned as a legal training officer, after receiving the appropriate in depth instruction. WAB should be extensively involved with this programme, and

would presumably be able to access the necessary legal expertise to backstop, where necessary, the work of the field officials.

The absence of case law (due to the absence of prosecutions) has been noted as a constraint to enforcement. It has been suggested that records of appeals and disputes handled by WAB would be useful training and reference material.

### (3) Full Use of Available Powers

It is important that those responsible for enforcement of the water law in each ministry, particularly MWR, are aware of the powers that are available. There are powers in existing law which are not fully used; these should be properly explored before requesting changes. Furthermore, responsibility for enforcement of the Water Law should be clearly stated in position descriptions, from the Permanent Secretary and Director of Water Development down to the relevant division head; not at present the case.

### (4) Public Relations

If this has not been attempted already (and even if it has a repeat would be wise), MWR and other responsible ministries should organise a PR campaign to educate and inform the public about the water laws, how they impact on people from day to day, and why enforcement is necessary for the benefit of individuals as well as society and the nation. There are various means for disseminating the message:

- 1) Press and magazine articles;
- 2) Distribution of illustrated booklet on water law;
- 3) Talks by relevant officials to societies, clubs, schools, etc.;
- 4) Tactful and well-informed officials visiting offenders to explain the relevant law and reasons for it; and
- 5) Publicity in newspapers, radio etc. reporting on significant prosecutions.

The campaign should be launched after the completion of the training programme for officials advocated above.

### (5) Remuneration and Conditions of Employment

This aspect is considered elsewhere in this report (see 5.2.3) but should be mentioned here as it is relevant to enforcement of the water law in particular and legislation in general. A major problem throughout the public service is low pay relative to the private sector and the cost of living. This has led to a demoralised staff with extremely low motivation and job commitment. To help reverse this very serious situation which has become endemic, a review of pay policy and levels is recommended as an urgent project.