# Republic of Somaliland

## The Ministry of Mining Energy & Water Resources

# THE SOMALILAND NATIONAL WATER STRATEGY

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# Contents

# SECTION A. OBJECTIVES, CONTEXT AND PRINCIPLES

## I. OBJECTIVE AND PURPOSE

The objective of the Water Sector Strategy is to establish a framework for the development and management of water resources of Somaliland on a cost-effective, efficient, equitable and sustainable basis. The purpose is to accelerate water coverage though the rapid rehabilitation or development of new water infrastructure while focussing on the fundamental long-term need for sustainable services. The aim is therefore to set out the approaches and modalities for implementing the Water Sector Policy through the enforcement of the Water Act and Regulations.

## II. CONTEXT

Water in Somaliland is a primary agent in the economic and social development of the country. Therefore the Somaliland Government recognises that proper management and utilisation of available freshwater resources is of critical importance in the promotion of public health, economic self-reliance, good governance and social harmony in Somaliland. Furthermore, sound mobilisation and equitable utilisation of water resources is a key component of environmentally sustainable economic and social development. In this respect the government through its The Ministry of Mining Energy & Water Resources is taking steps to establish the necessary regulatory framework that will enable an integrated management of freshwater resources and sustainable management of water services in Somaliland.

The regulatory framework will comprise the institutional, policy and legal tools outlined below:

1. **The National Water Policy**, which sets out the objectives, general principles and guidelines to be followed by The Ministry of Mining Energy & Water Resources in developing the water sector.
2. **The National Water Strategy**, indicating priorities, detailed measures to be taken to permit the policy to be implemented.
3. **The Water Act**, establishing the legal framework to support the strategy, defining organisations, mandates and responsibilities, as well as procedures, obligations and interdictions in a general way.
4. **The Water Regulations**, gathering all the by-laws necessary to enforce the Water Act

Freshwater is a finite and vulnerable resource. it is vital for sustaining life, for promoting development, and for maintaining the environment. Yet all over the world, rapid population growth, increased agricultural and industrial activities, and habits of "environmental carelessness", are causing a serious depletion and degradation of the available water resources forests are cut down, soils are eroded, wetlands are drained, water sources dry up, rivers and lakes are polluted. And, too often, attempts to rectify the situation rely ineffectively on single-sector and top-down strategies.

## III. PRINCIPLES

The National Water Strategy deals with aspects of integrated water resources management in order to ensure water security through sound demand management principles. It provides a flexible and dynamic framework for development and management of Somaliland's water resources. The conceptual approach aims at protecting the development and utilisation of the country's water resources in a manner that will promote maximum sustainable benefits to all people of Somaliland socially, economically and environmentally.

These strategic principles for developing the Somaliland Water Sector are summarised in Box 1.these are explained contextually in the next paragraphs.

***BOX 1: GUIDING PRINCIPLES FOR THE NATIONAL WATER STRATEGY***

- All activities in the water sector must recognise the fact that fresh water is essential to sustain life, development and for environment protection.
- Land and Water use should be managed at the lowest appropriate levels
- The government has a key role as an enabler in a participatory and demand-responsive approach to development of water resources
- Water should be considered as a social and economic good, with a value reflecting its most valuable potential use
- Water and Land use management should be integrated
- Women play an essential role in the provision, management and conservation of water resources
- The private sector has an important role in management of urban water services

### *III.1 Freshwater as finite and vulnerable resource*

Since water sustains all forms of life, effective management of water resources demands a holistic approach linking social and economic development with protection of natural ecosystems. Effective management refers to integrated mobilisation of land and water resources across the entire catchment area or within a given groundwater aquifer as single development intervention. The mandate and actions of land management must therefore be necessarily integrated with environmental protection as well as preservation of water resources.

### *III.2 Water supply management at the lowest appropriate level*

Management designates all actions and interventions that are necessary for proper and sustainable utilisation of water resources and encompasses policy implementation, project planning, design and implementation of facilities, conflict resolution.

The appropriate level is understood to be at which significant impact is experienced. If for instance the use of a water source is likely to have impact only within the village itself, then the community is the proper management level. But if this impact effects the next village then the District Administration is the most appropriate level. On the other hand in cases where utilisation of water resources in one part of the country negatively impacts the interests of users in other region(s), the most appropriate level may be the Ministry.

### *III.3 Water as social and an economic good*

It is vital to recognise first of all the basic right of all human beings to gain access to clean and safe water at affordable prices. The concept of water as a social and economic good means that water is not considered a free commodity, but rather a valuable resource, which should be used in the best national interest. In the evaluation of which given competing water needs is most desirable, the one with the highest socio-economic benefit should take priority.

Water as an economic good also implies the application of pricing mechanisms to avoid wasteful consumption and undesirable environmental impact. It is emphasised however that poverty abatement considerations may require that subsidies be given to the most vulnerable in society, but the economic consequences of such actions need to be taken into account.

### *III.4 The Government's role as an enabler for development*

Government as an enabler means creation of institutions, laws, regulations and awareness necessary to implement a participatory, response-driven approach to development and management of water resources. Participation means that all community levels with stake in the development activities are consulted and permitted to get involved, within the limits of their capacities in the planning and implementation regimes of projects. Demand-responsive development is a concept that where projects are fully dependent on the users' perception of the need for the particular intervention.

### *III.5 The essential role of women in water management*

Women are primary users of water services. The demand and the satisfaction of the service are much better assessed through women participation. Moreover, women hold a much higher stake in the water facility than men, just because the absence or the breakdown of a water facility dramatically impacts their daily activities. Thus women are key actors to assess the demand, ensure the sustainability of the infrastructure and measure the satisfaction of the service.

However, women's role has rarely been reflected in institutional arrangements for the development and management of water services. The lack of women representation either in local management entities and in water infrastructure projects results in poor demand assessment and weak management practices.

The adoption of this guiding principle means that the specific needs and concerns of the women as defined by themselves, should be taken into account and that women must be empowered and encouraged to take part in the project activities and later on in the management structure as well as in the local entity using the facility.

### *III.6 The important role of private sector*

The involvement of private operators in the provision of water services and the maintenance of water facilities is largely recognised as a good practice, mainly because it results in the following improvements:

- Professional operation: private operators have better professional skills and time resource than volunteers from users association or community-based groups;

- Demand responsiveness: private operators continuously adjust the service to user demand to attract more customers and sell more water, which helps to attain coverage objectives and secure the level of service;
- Contract regulation: private operators have contractual obligations they must comply with, and contractual objectives they must fulfil, which is rarely the case with public water agencies or community-based organisations;
- Service sustainability: the private operator has a direct incentive to keep the service economically sustainable and even to raise the level of service.

These four assets of the private sector participation in service provision are particularly interesting in the Somaliland context where:

- There is a need for better technical operation and maintenance of the facilities,
- There is a strong demand for improved water services and, very likely, a good willingness to pay for these services (if the level of service increases),
- Most urban water supply systems are managed by independent public water agencies without clear reporting to any authority and without any direct connection between user satisfaction and operating objectives,
- Sustainability of water services are endangered by the lack of real-cost recovering mechanisms.

Therefore, delegation of operation and maintenance functions to private operators, at least in urban areas, is a keystone of this strategy.

### *III.7 Integration of water and land use management*

The rationale for integrating water and land use management has its base in the inseparable interaction between water resources and land use. Deficient agricultural or pastoral practices may cause soil erosion and therefore the silting of water bodies. Furthermore uncontrolled demand for irrigated agricultural production may result in over-exploitation of underground water resources that permanently destroys the respective aquifers. It has been observed in Somaliland that concentration of surface water facilities like berkads in one area encourages settlement by nomads and other sedentary populations. Settlements, livestock concentration and other human activities quickly degrades neighbouring land parcels leading to soil erosion and change in the local hydrological water cycle. Degradation of natural land ecosystems leads to frequent droughts and thereby undermining the renewable water resources base.

# SECTION B. STRATEGIC FRAMEWORK

## I. THE MANDATE

The mandate of The Ministry of Mining Energy & Water Resources is to facilitate, monitor and regulate the development, management and utilisation of fresh water resources of the Republic of Somaliland. The main responsibilities of the Ministry therefore are:

- Develop and monitor a functional water sector regulatory framework
- Coordinate activities of the various actors including those of line ministries
- Promote and regulate efficient, equitable and sustainable utilisation of water resources
- Elaborate and implement an integrated water resources management programme

## II. THE AUTHORITY LIMITS

In the exercise of the mandate outlined above The Ministry of Mining Energy & Water Resources is authorised to:

- Re-structure the institutional framework of the sector
- Elaborate and enforce the water sector regulatory framework
- Establish integrated water resources management
- Assist the preparation, consolidate and monitor sector investment plans
- Promote and facilitate efficient and effective management of water services

## III. THE MODALITIES

The modalities by which the Ministry will enforce its mandated authority are outlined hereunder:

- Re-structure the institutional framework of the sector implies:
  - Re-organizing the institutional arrangements to cope with sector reforms
  - Re-defining institutional **functions** to establish separate arrangements for water **resource** management and for water supply
  - Supervision of the water supply **services**
- Enforce the water sector **regulatory framework** implies:
  - Implementing and monitoring **policies**,
  - Elaborating sector **strategies**,
  - Establishing the **Water Act** and
  - Enacting respective **Regulations**
- Establish integrated water resources management, implies:
  - Creating, updating and operating water resources **database**

  - **Permitting** water abstraction using appropriate procedures and regulations
  - Elaborating **guidelines** and enforcing **standards** for water quality monitoring
- Define, **plan** and monitor sector development implies:
  - Preparing sector wide **investment** programmes in a decentralised framework
  - Ensuring that **projects conform** to development programmes
  - Establishing **budgets** and sourcing investment **financing**
  - defining guidelines and procedures for project implementation
- facilitate **efficient and effective management** of water services, implies:
  - enforcing modalities for **separation** of **ownership** from **provision of services**
  - establishing local **water boards** for the supervision of the provision of services in urban areas
  - defining **tariff** guidelines and standards
  - promoting **private sector** participation
  - building **capacity** at all administration levels

# SECTION C. WATER RESOURCES MANAGEMENT STRATEGY

## I. SPECIFIC GUIDING PRINCIPLES

The specific guiding principles applied in designing the water resources management strategy address four main considerations, which include creating an **enabling environment**, building **institutional structures**, establishing **priorities** and planning **procedures**.

### *I.1 Creating an enabling environment*

- Government of Somaliland, through its The Ministry of Mining Energy & Water Resources will set the water resources management framework, monitor, mediate and enforce, rather than implement water resources activities.
- The Water Resources Act, and its associated regulations, will ensure adherence to the National Water Resources Policy.
- Regulatory controls will be introduced only in response to identified needs.
- Regulations will be kept at a level consistent with the capacity to enforce them and at cost whose benefits are superior.
- Regulatory controls will be combined with economic incentives, to influence individuals and organisations towards sound management of water resources.
- Guidelines and tools for efficient water resources management will be developed and made available to appropriate institutions and community groups.

### *I.2 Building institutional structures*

- A Water Policy Committee (WPC) will provide the mechanism for cross-sectoral policy decisions at the national level – as well as for policy development in relation to the different water use requirements.
- WPC will work in close collaboration with other policy making bodies, such as the line ministries.
- A WPC Secretariat will be established within the Directorate of Water of The Ministry of Mining Energy & Water Resources.
- Government and its development partners will develop and promote an integrated approach for implementation of water development projects and for the extension services required to sustain services.
- Water services management functions will be delegated to the lowest appropriate levels based on existing District Council structures.
- Private sector involvement will be promoted.
- The participation of women will be enhanced.
- Capacities will be developed at the national, district and community levels – to plan and initiate water conservation activities, to monitor the use of water resources, and to enforce regulations.
- Public awareness will be raised about the impacts of water quality on health.

### *I.3 Establishing priorities and planning procedures*

- First priority will be given to providing water of adequate quantity and quality to meet domestic needs.
- The allocation of water to meet the needs of irrigation, livestock, industry and other demands, will be made considering the economic, social and environmental values of water.
- The planning of water use will be based on the sustainable yields of sources.
- Water quality management will focus on minimising pollution by specifying appropriate water quality and effluent discharge criteria.
- Linkages to land use management will be taken into account in the design of water projects.
- Water resources management will be co-ordinated between districts within the same watersheds.
- Soil and water conservation measures, agricultural and forestry practices will be seen as integral to water resources planning.
- The important linkages between wetlands, surface water regimes and water quality will necessitate an integrated conservation and development strategy.
- In major water resources development projects, the Environmental Impact Assessment process will be applied and consideration will be given to the trade-offs between economic or social benefits and the associated environmental costs.
- Opportunity and environmental, as well as direct, costs will be taken into account when establishing project priorities.
- Tariff system, fees and charges will be designed to provide incentives for water conservation and minimum wastage as well as recovery of costs to sustain services.
- Adopting a "polluter pays" principle, fees and penalties will be assessed and levied on the volume, chemical and biological composition of the discharge – so pollution reduction at source will be encouraged.
- The allocation of water for use within Somaliland will take into account international obligations.
- Regional cooperation in the development, management and equitable use of shared water resources will be promoted.

## II. MANAGEMENT FUNCTIONS AND LEVELS

The long term functional management of water resources of Somaliland is based on the framework in Table 1 below:

***TABLE 1: WATER RESOURCES MANAGEMENT FRAMEWORK***

| FUNCTIONS | NATIONAL LEVEL | DISTRICT LEVEL | COMMUNITY LEVEL |
|---|---|---|---|
| Formulation of international policies | Through WPC: Defining the Somaliland position with regard to cross-border issues of water quantity and quality. | Not involved . Only informed | Not involved . Only informed |
| Policy making, planning and coordination | Through WPC: Formulating national priorities for water and land resources. Setting water quality standards. Mediating on water resources issues. | Through communities and district administrations: Coordinating extension programmes. | Through communities: formulating by-laws on water-related issues of direct concern to local communities. |
| Registration of Water Rights | Through Districts: Create and manage database on water rights | Process applications and issue water rights certificates | Through Communities: vet applications for water rights where necessary |
| Water Abstraction regulation | Through MWMR: specifying water volumes for which abstraction permits can be allocated and issues abstraction permits. | Through District offices: Processing applications for abstraction permits | Through Communities: vet applications for abstraction applications where necessary |
| Monitoring | Monitoring water abstraction and water quality. Managing surface water, groundwater and water quality databases.. | Assisting in monitoring water abstraction Checking groundwater for possible contamination. | Monitoring the condition and use of water resources and of facilities. Reporting misuse and infringements |
| Enforcement | Enforcing water quality standards and regulations through a monitoring system | Imposing sanctions when water quality regulations are not being followed. | Report instances of breach |
| Mediation | Through WPC: acting as final administrative mediation body for settling institutional disputes | Through Magistrates Courts: Mediating disputes over water rights and uses | Through Elders and village courts: Mediating water resource disputes |
| Training and information dissemination | Through MWMR Developing water resources management training workshops and the water development guidebook for public information on water resources management issues. | Through District Water Offices: conducting workshops for extension workers on water resources management issues. | Through the Village Elders: Conducting educational activities on water resources issues, for the general public. |

## III. FUNCTIONS, POTENTIALS, AND CONSTRAINTS

Table2 below displays the potentials for water resources management in Somaliland and the constraints that could delay the realisation of these potentials (other than the general ones of lack of finance, transport and equipment).

***TABLE2 : FUNCTIONS, POTENTIALS AND CONSTRAINTS***

| FUNCTIONS | POTENTIALS | CONSTRAINTS |
|---|---|---|
| Formulation of international policies | Establishment of a Water Policy Committee would be an asset | Lack of formal agreements between the countries in the Region. Lack of reliable information on the quantity and quality of shared water resources. |

| FUNCTIONS | POTENTIALS | CONSTRAINTS |
|---|---|---|
| Policy formulation, planning and coordination | A Water Act is being established. MWMR is being restructured to focus on advisory and supervisory roles. | Central government is still weak, and practical application of the policy in remote areas is at risk .<br><br>Planning process relies heavily on centralised authorities that need a substantial capacity building.<br><br>Refusing a permit for a new infrastructure because of capacity issues might be unrealistic given the demand. Low capacity at the district level for conducting environmental impact assessments. Economic and social pressures, such that environmental concerns are often over ridden. |
| Water abstraction regulation | A process has been engaged to enable the drafting of Regulations. Capacity requirements at national level may not be t significant. The local administrative system is established in all districts | Lack of knowledge on the groundwater resources, low capacity in monitoring and management of water resources. Lack of monitoring equipment. |
| Monitoring | Regional MWMR co-ordinators can assist in monitoring activities | No practical monitoring system. No agreed standards yet, Lack of staff at district level with engineering qualifications Limited access to lab. Lack of facilities. |
| Enforcement | A process has been engaged to enable the drafting of Regulations. Village Councils and Magistrate Courts are in place and functioning. | Possible adverse public and political priorities and pressures. |
| Mediation | Elders, as well as magistrates Courts are in place and functioning. | Possible conflicts between new regulations and customary law principles. |
| Training and information dissemination | Donors and international agencies recognise the need for training and support to the MWNR | Shortage of qualified staff who could carry out educational programmes concerned with the management of water resources. Lack of coordination between extension agencies, so that harmonised information on water resource management issues can be disseminated and discussed. |

## IV. SHORT TERM MANAGEMENT FUNCTIONS

The targets for the first five years, considering the constraints and potentials for water resources management outlined above are given in Table 3 below:

***TABLE 3: SHORT TERM TARGETS***

| MAIN FUNCTIONS | NATIONAL LEVEL | DISTRICT AND COMMUNITY LEVELS |
|---|---|---|
| Formulation of international policies | Establish Water Policy Committee, and its international sub-committee. | No action required |

| MAIN FUNCTIONS | NATIONAL LEVEL | DISTRICT AND COMMUNITY LEVELS |
|---|---|---|
| Policy making, planning and coordination | Draft new regulations. Ensure plans and projects conform to national policies, standards and guidelines. Advise Minister on decentralisation of national functions and on appeals regarding water rights and abstraction permits Mediate disputes between government bodies concerning water resources issues. | Define district priorities. Make relevant by-laws and regulations, which address the priority problems. Prepare a district development plan, identifying which component to be submitted to the MWMR. Promote the management role of women in water resources. |
| Water abstraction regulation | Establish a unit within MWMR (and regional offices) for processing applications and issuing permits for water abstraction– as per regulations | Identify large water users for licensing. Set up procedures for commenting on applications. Establish an inventory of local water resources to feed the central database of water resources. Village committees to comment on water abstraction applications where necessary . |
| Monitoring | Measure flows & water quality. Monitor permit holders. Process information collected at monitoring stations into the centralised database. Disseminate water resources data to relevant users. | Observe performance of permits holders and report misuse or under use to MWMR. Strengthen monitoring capacity |
| Enforcement | Through the special unit set up within MWMR enforce regulations for water abstraction | Advise and support applicants whose water rights may require permits |
| Mediation | WPC to act as final administrative agency for mediation between government institutions regarding water resources issues | Districts to act as mediating body for disputes that cannot be resolved at lower levels. Elders to act in settling local disputes |
| Training and information dissemination | Establish Training tools (guidebooks, check-lists, standard procedures, forms ) within MWMR in relation to national legislation, regulations policies and standards. | Train extension agents in the integrated extension approach to water and land management, and in disseminating integrated environmental information. |

# V. MANAGEMENT PROCEDURES

## *V.1 The need for regulation*

The conservation, equitable use and protection of Somaliland's water resources can be achieved only by putting in place appropriate regulatory machinery – and making sure that there is capacity to operate that machinery. Among the many issues that require proper control, there are three main activities for which regulatory mechanisms are urgently needed:

1. abstraction of both surface and groundwater,
2. planning of construction or rehabilitation of water infrastructure,
3. and water quality control

These are the three areas for which the National Water Strategy presents the case for a permit system, proposes outline regulations, and identifies the required administrative procedures.

## *V.2 Proposed administration*

A small unit will be established within regional offices of the MWMR for processing applications and issuing permits for water abstraction and water quality control.

Through established institutional channels the unit will also have responsibility for enforcing water quality standards and regulations. And at the district level, in cases where monitoring reveals that permits, by-laws or regulations are not being followed, the district authorities will need to apply sanctions, either administratively or through the MWMR, Elders and Magistrates Courts.

But the drafting and implementation of regulations, permits, by-laws and procedures should all be in harmony with the principles that underlie the National Water Strategy: devised in a participatory manner and managed at the lowest appropriate level, also recognising capacity constraints, the regulatory system should apply only to activities where the negative impact on the water resources are on a significant scale.

## *V.3 Regulating Water Abstraction*

A core element of water resources management is the rational prioritisation and sustainable allocation of water supplies among different users. Of course, the more scarce the resources, the more necessary and difficult this management becomes. But always, as a basis for making these judgements, it is vital to have adequate information about what resources are available and what is the present and likely future demand on those resources. Such information can be obtained only if abstraction is reported to those who have the responsibility for managing the resource. Hence the first need for the regulation of water abstraction

However, it is argued that there is no case for regulating small-scale water abstraction if they do not adversely affect the possible use of the resource by others. Therefore, although there will be an obligation to report on all groundwater drilling, only large scale abstractors will need to apply for permits and be subjected to the consequent monitoring.

Two levels for regulation of groundwater abstraction and three for surface water abstraction are envisaged. As shown in the following Table, the determined factor is the degree of anticipated impact on the resource.

***TABLE 4: CRITERIA FOR LEVELS OF WATER ABSTRACTION REGULATION***

| DEGREE OF CONTROL | GROUNDWATER | SURFACE WATER |
|---|---|---|
| No regulation | Domestic use as defined in Water Act | ▪ Domestic use as defined in Water Act<br>▪ Abstraction without motorised equipment or by manual means |
| Registration required | Water Rights prior to applying for an Abstraction Permit | Water Rights prior to applying for an Abstraction Permit |
| Permit required | Abstraction by motorised pump, except for domestic use as defined in Water Act | ▪ Abstraction of water by motorised equipment or by gravity diversion with a capacity greater than volumes defined in the regulations<br>▪ Irrigation schemes greater than hectares defined in the regulations<br>▪ Fish ponds of areas greater than defined in regulations |

### *V.4 Charges*

The recommended charges in connection with water abstraction permits comprise two elements:

- A flat rate, one-time charge, to cover the costs of the administration associated with handling the permits.
- An annual charge for water abstracted calculated on a volumetric basis.

The annual charge could be designed to reflect any scarcity in particular areas. The revenue should be an income for administering the permit system; it would be used to cover, among other things, the costs of monitoring compliance with the given permit and impacts on water resources. MWNR would design the structure and WPC decide on the size of the charges.

### *V.5 Decentralisation*

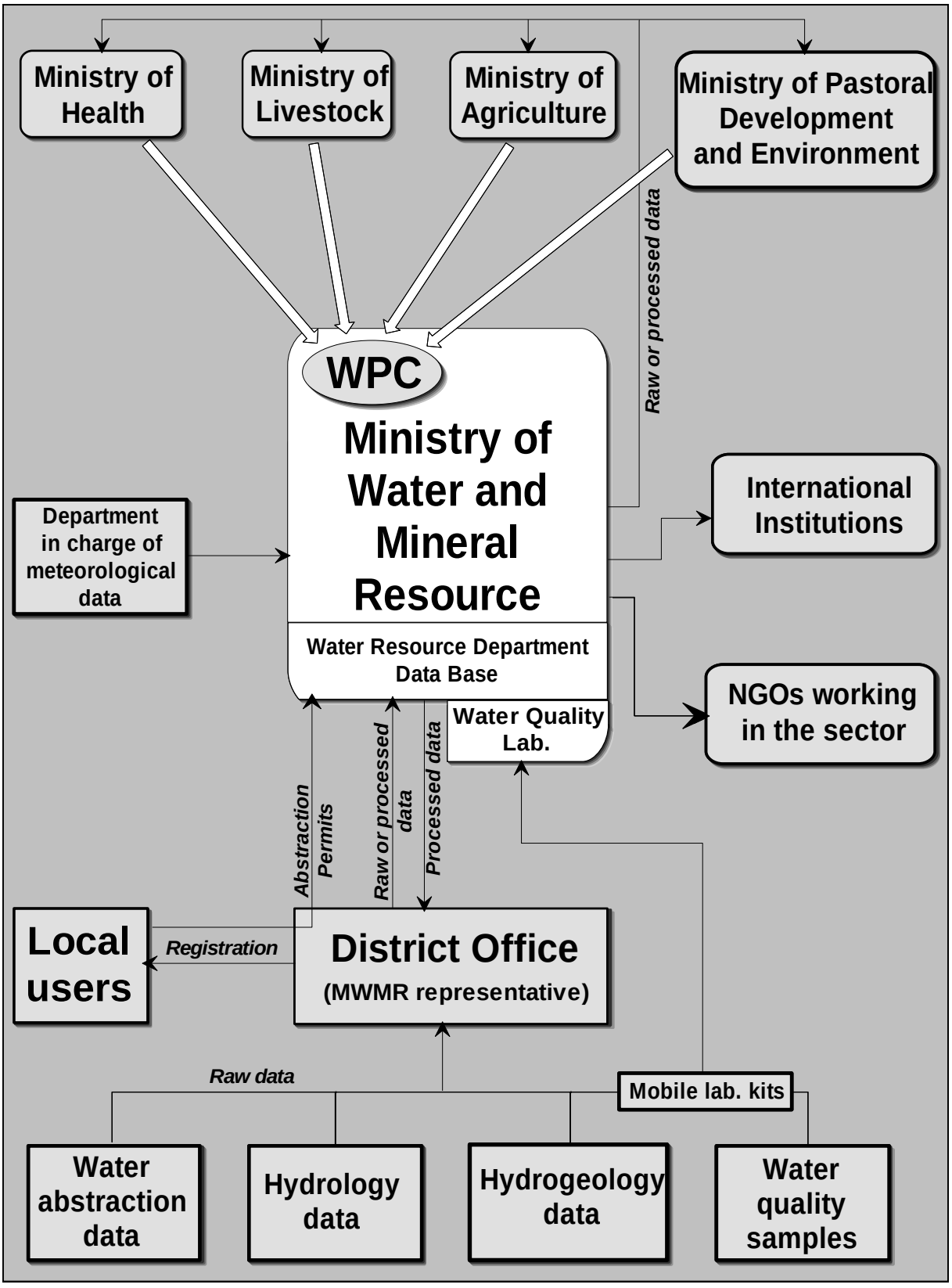
The long-term strategy is that districts will receive from MWNR, as the central authority, permission to allocate a specified volume of water from streams or rivers. The permission will be based on existing use, hydrological criteria, and on an assessment of possible environmental impacts. Then the districts will decide how the permitted volume of water will be divided among competing users, including what surface works can be constructed, and they will issue the abstraction permits. Somaliland Government will carry out assessments to determine the uses of cross-boundary sources, taking into account any international implications.

In the short term, The Ministry of Mining Energy & Water Resources will administer the water abstraction permit system, and it is assumed that this involve licensing only a small number of large-scale users.

## VI. DATA MANAGEMENT SYSTEM

The National Water Strategy is proposing an integrated data management system that will collect, analyse, store and disseminate information – and assist the wide variety of users in their access to and application of the information that is relevant to heir specific management functions:

**CHART 1: DATA MANAGEMENT FLOW CHART**




To ensure speed and efficiency in making and implementing decisions, it is important that, whenever possible, relevant information is abstracted, analysed and used at the district level-instead of waiting for it to come and go out of the central databank. Also, in order to facilitate cross-sectoral management mechanisms, data will need to flow,

as illustrated, to sectors related to water resources, such as agriculture, land, fisheries and forestry.

## VII. ACTION PROGRAMME

The programme of action that emerges from the analysis of significant issues, and the identification of the responses that are necessary, does not call for a radical restructuring of institutions or massive input of resources. The National Water Strategy is a pragmatic document, which is designed to fit proposals to existing economic, political and social realities. However the structures, functions, procedures and actions proposed will need some external assistance – some materials and expertise in support of capacity building – but the action programme is achievable and sustainable because it is moulded within the existing institutional structures and it recognises the general resource constraints.

## VIII. IMPLEMENTATION

Table 5 indicates the proposed action programme: a three-stage strategy in which 39 actions will be undertaken. Stage one is expected to be completed after two years: Stage Two after four, and Stage Three after six years. The criteria used in determining the schedule has been a balancing of constructions such as clustering actions that are best schedule has been a balancing of considerations such as clustering actions that are best dealt with together, and following the logic of the overall Water Strategy: first creating the enabling environment, then building the institutional structures, and finally, producing and using the needed management procedures and tools.

***TABLE 5 :***

***TENTATIVE ACTION PROGRAMME***

| 1ST STAGE ACTION PROGRAMME |
|---|
| **POLICY DEVELOPMENT**<br><br>- Finalise water policy framework |
| **REGULATIONS AND MANAGEMENT PROCEDURES**<br><br>o Prepare water resources regulations<br>o Prepare Water Supply Regulations<br>o Prepare detailed definition of abstraction limits and charges<br>o Establish water resources assessment procedures<br>o Establish enforcement procedures |
| **NATIONAL AND DISTRICT INSTITUTIONAL STRUCTURE**<br><br>o Establish Water Policy Committees<br>o Provide orientation workshops at national level<br>o<br>o Prepare guidelines for integrated extension service<br>o Prepare guidelines for interaction between MWMR and Other Line Ministries |
| **WATER RESOURCES MONITORING**<br><br>o Rehabilitate/ Install hydrometric network<br>o Prepare hydrological yearbook<br>o Implement sediment transport measurements<br>o Monitor major water abstraction trends<br>o Monitor water quality trends<br>o Establish Water quality information system<br>o Train MWMR staff in groundwater quality analysis |
| **GROUNDWATER POTENTIAL**<br><br>o Investigate recharge<br>o Establish Groundwater database<br>o Monitor groundwater Levels |
| **GROUNDWATER DATABASE**<br><br>o Train MWMR staff in use and further development of groundwater database<br>o Update groundwater database<br>o Promote use of groundwater database |
| **PROJECT IMPLEMENTATION ARRANGEMENTS**<br><br>o Enforce project implementation arrangements<br>o implement project information system<br>o Train MWMR staff in project cycle monitoring |

| 2nd STAGE ACTION PROGRAMME |
|---|
| **POLICY DEVELOPMENT**<br>o Prepare international water resources policy<br>o Support to policy development in water resources related sectors |
| **REGULATIONS AND MANAGEMENT PROCEDURES**<br>o Develop water resources related regulations<br>o Prepare management procedures for water resources related regulations<br>o Develop code of Practice<br>o |
| **DISTRICT INSTITUTIONAL STRUCTURE**<br>o Conduct orientation training at the centre and in districts |
| **WATER QUALITY MANAGEMENT TOOLS**<br>o Describe major water pollution sources<br>o Establish water quality modelling tools |
| **GROUNDWATER POTENTIAL**<br>o Investigate aquifer capacities and potentials |
| **INSTITUTIONAL STRUCTURE AND CAPACITY BUILDING**<br>o Establish MWMR permit processing unit<br>o Establish permit database and train staff<br>o Promote permit systems<br>o Establish Water Supply Management Monitoring arrangements and train staff |
| **WATER RESOURCE ASSESSMENTS**<br>o Train in use of hydrological assessment tools |
| **WOMENS ROLE**<br>o Conduct a study on women potential roles in the management of water resources |
| **HUMAN RESOURCES DEVELOPMENT**<br>o Integrate water resources management training within the activities of the human resources support unit (HRDSU)<br>o Integrate water resources management topics within the curriculum at training institutions |

| 3RD STAGE ACTION PROGRAMME |
| --- |
| **WATER RESOURCES ASSESSMENT**<br><br>o Collect hydro meteorological data<br>o Investigate water balances<br>o Train in water balance computations<br>o Investigate the hydrology of wetlands |
| **WATER QUALITY MANAGEMENT TOOLS**<br><br>o Prepare Environment Impact Assessments for sector activities |
| **MANAGEMENT PROCEDURE**<br><br>o Prepare guidelines for district water resources planning<br>o Prepare procedure for bulk water allocation to districts<br>o Prepare guidelines for design for dams and valley tanks |