

PSAWEN

Puntland State for Water, Energy and
Natural Resources Corporation

Water Supply Policy Green Paper

A discussion paper for review

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Section A: Introduction

Provision of surface water and ground water supply services in Puntland State of Somalia has not been able to keep pace with demands. The population growth and livestock are faster than permanent and non-permanent water supply sources development with the result that coverage for these services is deteriorating.

Puntland State of Somalia Government resources are limited. This has adversely affected improvement in water supply coverage. In addition, the operation and maintenance of existing facilities has collapsed in many areas, particularly for smaller water supply facilities.

As a result of serious challenges, the existing system of water supply can not be scaled up without first making structural and institutional changes.

This Green Paper has been developed jointly by PSAWEN and UNICEF

Development of a Sanitation policy is a complex process and relies heavily on input from other ministries, such as the Ministry of Social Affairs & Ministry of Interior. It has to be developed separately.

WATER: CENTRAL TO DEVELOPMENT

The lack of basic services such as water supply and sanitation is a key symptom of poverty and under-development. The provision of such services must be part of a coherent development strategy if it is to be successful.

The way in which Puntland State of Somalia's limited water resources are used must also be part of such a development strategy. The creative management and use of water will be vital to assure the objectives of eradicating poverty and promoting sustainable economic and social development.

Water is central to development. A small amount is essential for people's physical survival. Beyond this, a limited amount is needed for basic personal hygiene and household uses.

The limited water resources of Puntland State of Somalia are a national asset which must be properly managed if they are to bring maximum benefit to the country as a whole. As custodian of this precious resource, the Puntland State for Water, Energy and Natural Resources Corporation, PSAWEN has the national responsibility of ensuring that both the needs of people and of the economy which sustains them are effectively met.

PSAWEN, Puntland State for Water, Energy and Natural Resources Corporation

PSAWEN will be the lead technical agency directing and coordinating sector activities, policy development, guidelines, standards, monitoring and evaluation, surveys, database collections, training and advice on financing. It will also take the lead in drafting proposals for update Puntland Water policies and with necessary amendments in the legal and regulatory framework to facilitate sustainable development.

A special Regional water authority unit will be established in order to play a leading role in providing advisory support and community coordination. A lot could be learnt on sustainability by focusing on what works within a given setting. Very often, in the past, people have been supplied with facilities they could not afford under such circumstances, the system have frequently broken down.

Demand driven approach means only services that people want, are willing to pay for and can afford are developed. It is believed that this is one of the fundamental criteria for sustainability.

SCOPE AND PURPOSE OF THE GREEN PAPER

The objective of this Green Paper is to set out the policy for PSAWEN, Puntland State of Somalia with specific regard to water supply services. It does not address other functions of PSAWEN such as the management of the quantity and quality of water resources except insofar as they are relevant to the main theme.

The absence of clear policy is of particular concern since it is widely agreed that service provision should be implemented at local level wherever possible. For this to occur, a clear framework is needed which enables local level organisations to play their role with full knowledge of what support they can expect from higher levels of Government.

As important, goals need to be set and progress in achieving them needs to be monitored. Only in this way can problems be identified and resolved at an early stage.

The Green Paper is divided into five Sections, A to E. The purpose of the Green Paper is to:

- Provide some historical background regarding water supply in Somalia;
- Explain the development approach which has guided policy formulation;
- Put forward certain basic policy principles;
- Outline the institutional framework proposed for water supply services,
- Provide standards and guidelines for basic service delivery;
- Set out policy for the financing of services;
- Outline certain immediate initiatives which are being taken;
- Provide supplementary policy and briefing information on important related topics

The Green Paper is prepared by PSAWEN as discussion material for a review process. The Green Paper and the input from the review process will be endorsed by the Parliament as a White Paper on Water Policy.

The document is not intended to present a detailed strategy for achieving the overall goal outlined in the introduction. This will be developed by PSAWEN as the institution builds up its resources.

A further function is to make the issues addressed understandable to as wide a group as possible. While the policy reflected in the document is the result of wide consultation, it is not the last word on the subject. The involvement of all interested parties will be needed if the goals of the policy are to be achieved. Comment on the document is invited from all concerned parties.

Section B: BACKGROUND AND CONTEXT

THE HISTORY OF WATER DEVELOPMENT IN SOMALIA

Water availability has always been a major focus of the struggle for survival and of competition for livelihood. The history of water management in Puntland State of Somalia can be summarized as follows;

Prior to the imposition of colonial rule each Somali clan was an independent entity which owned water sources and exercised grazing rights.

During the colonial and UN Trust Territory period (1880-1960) some urban systems were started, but these were designed and operated to supply only the small, ruling and wealthy elite of the towns.

Somali state - 1960. Traditional dug wells and reservoirs have always been constructed (and then controlled) by individual families, lineage groups or clans. The drilling of borewells on a large scale began in the 1970's under the authority of different government agencies. A National Water Committee (NWC) was formed from various Ministries and the General Managers of the autonomous Water Development Agency and the National Range Agency. Their approval was required prior to construction of any borewell to ensure that strategic and environmental concerns were addressed. There were four autonomous institutions in the water sector - Mogadishu, Hargeisa, Kismayo, and the WDA, which was responsible for rural water supply while responsibility for the urban water supply was allocated to the regional authorities. In 1978, the responsibility for the urban water supply was transferred to WDA.

During the conflict time, wells and water supply systems that were developed or constructed by government agencies or other external agencies were regarded simply as resources to be exploited as long as they were serviceable, but no one felt responsible for them or their maintenance. The remnants of previous functioning rural borewells and urban water systems are run primarily by former WDA personnel. These systems are operated on an ad hoc basis and live off the capital of past government, community, and donor investments.

During the post-conflict situation beginning 1992, there has been emergency rehabilitation of rural borewells by international agencies, consisting primarily of replacing pumps and generators (and in a few cases drilling new wells), the provision of hand pumps and other aid to rehabilitate and make more efficient shallow wells, and an emphasis on surface water storage in berkads, primarily spearheaded by communities with NGO support. These efforts have primarily taken place within an emergency response framework. Within the period of the last 5 years all functioning rural borewells have been rehabilitated to various degrees.

DEVELOPMENT APPROACH

The development approach which guides the policy proposed for water supply is informed by substantial, sobering, international experience gained during and after the International Drinking Water and Sanitation Decade of the 1980s.

The principle of an integrated and sustainable programme has already been identified as critical to the success of service provision. It is recognized that there is limited value in having a water supply strategy that is not part of a comprehensive development strategy.

The need for development to be a people driven process is fundamental. There is wide international experience that confirms the view that the provision of services in poor communities will fail if the people themselves are not directly involved. The involvement and empowerment of people is thus a cornerstone of the approaches proposed. One reflection of this must be the democratization of the institutions at all levels of the sector since they are often among the first points of contact between communities and the organized State.

Since water in particular can easily become a focus for conflict within and between communities, the development of effective delivery mechanisms must contribute to the principle of achieving peace and security for all. Related to this, the very establishment of the goal of assuring that all citizens have access to the basic services needed to ensure their health is a contribution to the process of nation-building.

Finally, the link between reconstruction and development remains a guiding concept. The provision of infrastructure for services such as water supply and sanitation as one of the key elements of the strategy for developing the Puntland State of Somalia's economy. The way in which services are provided must ensure that they do not simply satisfy peoples' basic needs but also contribute to the growth of a dynamic economy, which is increasingly able to provide all citizens with opportunities for a better life.

Water supply should be integrated into programmes for the provision of other basic needs. The co-ordination of the various public organizations involved in the planning and delivery of basic services is therefore essential. It is necessary to consider at least four mutually related factors required for development:

- physical infrastructure such as water supply, sanitation, roads, electricity and communications.
- social infrastructure including schools, hospitals, clinics and welfare organisations.
- economic infrastructure which is the employment, production and trading base including access to markets and finance.
- institutional infrastructure being organisational and civil administration structures at all levels.

INTERNATIONAL EXPERIENCE

Somalia can benefit from many lessons learned internationally in the field of community water supply and sanitation services which has been a matter for growing world concern since the 1960s.

In the belief that access to adequate supplies of clean water and adequate sanitation is important not just for public health but also for overall prosperity, the UN General Assembly proclaimed the period from 1981 to 1990 as the "International Drinking Water and Sanitation Decade". The intention of the Decade was to promote the well-being of mankind world-wide by bringing about a substantial improvement in the level of services for the poor.

The aim of encouraging the provision of at least minimal services to everyone throughout the world within a decade proved to be over-ambitious. The rate of progress fell far short of that hoped for with population growth outstripping progress in many countries. As a result, the goal of universal coverage remained a distant vision. A year before the Decade ended, four out of ten people still lacked basic services.

The Decade did however succeed in focusing attention on core problems. Economic pressures imposed tight constraints on investments in water supply and sanitation, especially in developing countries with flagging economies and high debts. It became clear that governments and donors could provide only a fraction of the resources needed and that communities themselves would have to carry much of the cost of service provision.

Similarly, investment itself was only the start of the process. Many new water systems soon failed because of inadequate maintenance and ineffective management. The need to empower communities to take responsibility for their own service provision was a lesson learnt from harsh experience.

The initiative and impetus launched by the Decade has nevertheless continued. Valuable experience in approaches to attain sustainable development has been gained, much of it systematized in the proceedings of several world conferences, notably Abidjan 1990, New Delhi 1990, and Dublin 1992.

The troubled experiences of other countries, especially in Africa and Latin America, need to be heeded and sound development principles applied if Puntland State of Somalia is to be more successful than they have been in achieving equitable access to sustainable basic infrastructure for all its people.

At the Abidjan conference, it was agreed that for sustainable progress, particularly in rural development projects, there was a need for:

- involvement of communities in the planning, design, financing, construction and maintenance of improved water supplies, with women's groups taking the leading role;
- use of public and private sector resources to provide initial training and long-term support, so as to create an environment in which community management can function successfully; and
- choice of affordable, sustainable technology.

Until recently, cost recovery policies in the water supply sector worldwide were dominated by a view that is now recognized as outdated. The thrust of the programmes was based on the premise that neither rural nor peri-urban communities could afford to pay for services.

An insistence that disadvantaged people should pay for improved water services may seem harsh but the evidence indicates that the worst possible approach is to regard poor people as having no resources. This leads to people being treated as the objects rather than as the subjects of development; it generates proposals for unaffordable subsidies which tend to reach only those with influence, leaving the situation of the majority unchanged. Promises of free services for all have, in practice, usually resulted in some service for a few and little or none for most. A key element influencing a household's willingness to pay for an improved water supply is the households' sense of entitlement to Government services and their attitude toward Government policy regarding water supply and sanitation. In general, communities are reluctant to involve themselves in countries where the perception prevails that it is the Government's responsibility to provide services.

Other international experience suggests the primary role of central Government agencies and donors must not be that of direct providers and financiers of services. Rather than operate and maintain water supply systems directly, central Government and external agencies should create an environment within which locally based organizations can plan, construct, and manage their own services. These can include both local government institutions as well as specialized utilities operating on a commercial but accountable basis.

Aside from the establishment of a policy framework and the setting and monitoring of policy goals, central Government agencies still have vital supportive functions to perform in the areas of training, information dissemination, and technical and managerial assistance. In addition, they continue to have an important role in the targeted allocation of finance to achieve public goals.

NO EASY ROAD

The achievement of the Constitutional goal that all citizens have the right to a healthy environment will be no easy task. The continent of Africa and the rest of the developing world is littered with failed good intentions implemented by highly qualified engineers, economists and development "specialists". Somalia can only avoid travelling the same road if programmes are guided by the considerations outlined above.

It is the intention of this Government to create the enabling environment necessary to ensure that all citizens have access to acceptable levels of water supply.

SECTION C: WATER SUPPLY POLICY

POLICY PRINCIPLES

Based on local and international experience, the following principles are adopted as the basis for the policy which follows. These principles assume a context of universal human rights and the equality of all persons regardless of race, gender, creed or culture.

Policy principles:

1. **Development should be demand driven and community based.** Decision making and control will be devolved as far as possible to accountable local structures. There is a reciprocal obligation on communities to accept responsibility for their own development and governance, with the assistance of the State.
2. **Basic services are a human right.** This will be interpreted, in terms of the Constitution, as a right to a level of services adequate to provide a healthy environment. They do not imply the right of an individual person or community to demand services at the expense of others.
3. **Equitable regional allocation of development resources.** The limited national resources available to support the provision of basic services should be equitably distributed among regions, taking account of population and level of development.
4. **Water has economic value.** The way in which water and sanitation services are provided must reflect the growing scarcity of good quality water in Somalia in a manner which reflects their value and does not undermine long term sustainability and economic growth.
5. **The user pays.** This is a central principle to ensure sustainable and equitable development, as well as efficient and effective management.
6. **Integrated development.** Water development is not possible in isolation from development in other sectors. Co-ordination is necessary with all tiers of government and other involved parties and maximum direct and indirect benefit must be derived from development in, for instance, education and training.
7. **Environmental integrity.** It is necessary to ensure that the environment is considered and protected in all development activities.

It must be noted that principle 1 may appear to contradict principles 2 and 3 in that the first implies a demand driven development philosophy whereas the second and third imply a supply driven, centralized approach. **The primary principle is that development should be demand driven.** The second two principles will determine how the State prioritizes its response to community demand.

"Demand" in this context should be clearly understood as the motivation for development originating from within the community, not from some outside agency (including the State) on behalf of the community. "Demand driven development" does not mean that the community simply "demands" services from the Government. This ultimately leads to the community having no control over its own future and becoming dis-empowered.

INSTITUTIONAL FRAMEWORK

Institutional goals

The policy of the PSAWEN is to ensure that all communities in the country have access to basic services and to the support that they need to achieve them. This does not imply that the provision of these is necessarily the direct responsibility of the PSAWEN. What is required is a framework within which responsibilities and lines of support for water supply and sanitation activities are clear. This institutional framework will necessarily involve a range of other agencies, notably provincial and local governments as well as other interested parties such as the private sector and non-governmental organizations. The PSAWEN will support the work of the other agencies; as important, it will assume the responsibility to fill the gaps in the interim.

In this context, the institutional goals of the PSAWEN with regard to water supply services can be stated as follows:

In the long term, the goal is that the provision of services to consumers should be based on full cost recovery where local communities themselves are involved and responsible for the function of water systems whether its a rural or urban system. Public agencies should be served by a strong private and NGO sector.

In the medium term, the objective of Government is to support institutional development at national and local level as well as to provide technical assistance for the physical development of water supply and sanitation services. This will be achieved through capacity building of the PSAWEN structures with the full involvement of the private and NGO sectors.

In the short term, the immediate goal is to maintain service delivery, to build the institutions and to "gear up" to achieve medium term goals. The emergency approach must turn into a development approach

The following section details the roles of each of the different levels of government and other agencies within the broad institutional framework described above.

The role of Central Government

The role of the Central Government in the water sector can be divided into two distinct areas:

- **Managing the nation's water resources in the public interest and,**
- **Ensuring that all citizens have access to adequate water services.**

The structure of Central Government and its agencies must reflect these separate but related functions.

Thus the task of water resource management has to be carried out directly by a central agency. This is because naturally occurring water can only effectively be managed within a river basin or catchment area. Since in many cases regional and other political boundaries divide catchment basins, and because water is a strategic national resource, water resource management is defined as a national function.

For the provision of water services, Central Government has a less direct role. It must be able to comply with the constitutional obligation to ensure that every citizen has "an environment which is not detrimental to his or her health or well-being" and the equality provision in the Constitution. This requires the capacity to establish national policy guidelines, a national water and sanitation

development strategy, the setting of minimum services standards as well as monitoring and regulating service provision.

The PSAWEN should be responsible for:

- technical guidance in the development of a national water plan;
- co-ordination and certification of water sector interventions;
- supervision of the operation and maintenance of borewells and reservoirs;
- establishing water quality standards and attendant water quality lab; and,
- function as a water sector (ground water and surface water) information center establishing base line data.

The role of Regional Water Authorities

The regional water authorities and their staff are professionally responsible and under the technical guidance of PSAWEN while being administratively responsible to the Governor of the region. Professionally responsible means that these Regional Water Authorities will implement and follow the guidelines and standards established by PSAWEN for the development and operation of water resources.

The Regional Water Authorities and their staff will provide a formal framework for the supervision of the operation and maintenance of borewells and shallow wells in their regions. Their responsibilities shall include:

- providing primary technical assistance for the region;
- performing monthly inspections of the wells;
- certifying quality and completeness of water sector interventions;
- renewing operating agreements where there is no complications;
- collecting relevant data on on the borewells/ shallow wells in the region and preparing monthly and annual reports for the PSAWEN, and;
- assessment of sanctions/ penalties for infraction and neglect.

The Regional Water Authorities will also be responsible for organizing, collecting and prioritizing community level needs and plans for water resources utilization and development.

The role of Urban Water Agencies

The Chairmen of various Water Authorities are to be appointed by and to be professional and technically responsible to the PSAWEN. Their responsibilities entail the monitoring and protection of freshwater resources that urban water systems depend upon. To that end, these authorities are to submit to PSAWEN the following:

- Monthly production reports detailing account of water pumped, current status of equipment and operations, and other relevant information as determined by PSAWEN. These reports are to be standard for all Urban Water Authorities;
- Annual reports detailing production, delivery, revenue and expenditures;

- Plans involving significant operational changes, production expansion, and developing alternate water sources must be submitted to the PSAWEN for review and approval;
- Establish according to PSAWEN guidelines and accountable to the PSAWEN a water quality program.

The role of local communities and Private Operating Concerns:

PSAWEN through the Regional Water Authorities will relate to those communities and/or private concerns operating borewells and mechanically pumped springs through a formal operating agreement. Failure to comply with the conditions of the operating agreement will result in the PSAWEN renegotiating the operating agreement with other parties in the community or assuming management of the borewell itself.

The Regional Water Authority will seek input from local communities when developing regional water sector plans and will consult communities as they receive project proposals that are likely to affect that community.

The role of the Private Sector

In order to achieve the objectives and to implement the policy set out in this Green Paper, all sectors of Somali society will have to be involved in partnership with the government, particularly those where the resources and skills of the country have been vested in the past. The private sector represents a vast resource that must be harnessed to contribute to the implementation of this policy in a variety of areas including:

- capital investment
- operation and maintenance
- training and capacity building
- organization development
- financing and commercial services

Capital Investment. As designers of systems, contractors and suppliers of goods and services, the private sector has enjoyed huge profits in service provision in poor communities.

Unfortunately, because of the framework within which projects were implemented, many projects in poor communities which were viewed as relatively rudimentary have often experienced failure rates which would be considered as totally unacceptable in a more "conventional" sector.

There is a need to evaluate the reasons for poor performance and to propose steps to remedy them. In this context, while the development of innovative proprietary products is welcomed where these are cost effective and meet community needs, it is often the case that management and skills are what is required rather than new products.

Operation and maintenance There is great interest internationally in the involvement of the private sector in service provision. Such involvement may range from simple short-term contract, to the complete privatization of full water supply systems in which the concession holder owns the infrastructure and is responsible for financing its expansion.

The PSAWEN will consider proposals for the private sector to provide services where these may be in the public interest and where the community concerned supports this approach. Given the challenges facing the sector in the development of financially self-sufficient, consumer orientated services, there would appear to be particular opportunities for innovative partnerships in these areas.

In no case will contracts which undermine the functions or authority of any tier of the legitimate government be supported. A commitment to the building of local administrative, technical and managerial capacity will be a major criterion in assessing such proposals as will the views of organized labor. Given the growth of the private sector in this area, the Department will develop a more detailed policy both for its own use as a contractor and regulator and in order to fulfil its role as adviser to other agencies.

Training and capacity building and organization development The growth of activities in this area will provide opportunities for private sector involvement. Some of these are discussed in the section on training below.

Financing and commercial services The use of market finance to complement government grants and user charges in the provision of services is well established.

The role of the professions One of the most important reservoirs of skill in Puntland State of Somalia are the professionals working in the private sector. Private sector professionals will have to continue to adapt their skills and their orientation to engage in the type of development now required. The main incentive for them to do this is that new approaches will be needed by future spending programmes in the sector.

Private sector role:

- expand investment in water supply;
- participate in O&M of public and private facilities.

The role of International Agencies/ Non-Governmental Organizations (NGOs)

International Agencies/ NGOs have played an important role in Puntland State of Somalia over many years under difficult, and at times, dangerous conditions. This has produced a cadre of leaders as well as organizations with proven capacity to innovate and work effectively at community level.

It is the responsibility of the International agencies/ NGO's to follow the guidance established in this policy and other Ministerial policies as related to development in the water sector. These International agencies/ NGO's are required for interventions in the water sector (like borewells, hand dug wells, springs etc) to:

- submit a project statement to PSAWEN;
- follow established guidelines/ regulations/ standards for the implementation of water sector interventions;
- support the PSAWEN in its certification and supervisory functions;
- participate in coordination meetings organized by PSAWEN.

The role of International Co-operation

The PSAWEN welcomes international co-operation and assistance to meet its development objectives. There are a number of areas of possible engagement.

Sharing of experience and knowledge Neighboring countries, and many other countries around the world, have been engaged in the provision of basic water supply and sanitation services to their citizens for many years. We have a great deal to learn from them and to share with them.

Many of our neighbors face similar problems to us in regard to climate, available water sources, community organization, local government and scarce financial resources. There is increased scope for a range of inter-action including :

- Policy development,
- The exchange of experience, skills and expertise,
- Technology exchange,
- Information,
- Training materials and resources,
- Research,
- and many other possibilities.

Aid and development finance The Department welcomes co-operation with foreign agencies. There are very limited opportunities for financing arrangements other than grant financing in the arena of basic service development because such development is by definition in poorer communities who require assistance in order to provide services, making it very difficult to repay loan finance.

Foreign engineering firms and suppliers of equipment. The engagement of foreign firms is welcomed by the PSAWEN. The following points are made in order to provide guidance:

- Foreign companies should encourage the growth and development potential of existing firms.
- Foreign companies should seek to operate within the ethos of the policy of the Government, and the standards as laid down by national and local authorities.
- Projects should be undertaken within the context of the development planning of the PSAWEN, the Regional authorities and local government in any given area and projects should be approved by these authorities.
- Local communities and local authorities should not find that they lose control of their development processes.
- Particular care should be taken to ensure that projects are sustainable when the foreign involvement comes to an end.

- Local skills and capacity should be built in the course of projects and skills should be transferred.
- Agreements should not lead to the use of equipment manufactured in foreign countries which is not appropriate to the Puntland State of Somalia situation, which is not acceptable to the local community or which does not meet the standards or specifications of the PSAWEN or local authority.

BASIC SERVICE PROVISION POLICY

The policy of the PSAWEN is to ensure that all citizens can have access to basic water supply. The following section of the Green Paper provides basic guidelines for the provision of services and for capacity building and training.

The setting of guidelines and standards must be approached with caution. Guidelines are intended to assist decision-making whilst standards are enforceable absolute limits. The rigid application of guidelines or inappropriate standards can have the opposite effect to that intended. An example would be the closure of "sub-standard" water supplies that forced communities to revert to sources of even worse quality.

Given that they are chosen to be the minimum needed to ensure health, the levels of service presented below should be seen as minimum standards to be applied in publicly funded schemes unless a relaxation has been specifically approved.

This does not mean that higher standards cannot be applied. However, there is a direct correlation between the standard of service and the cost, both in terms of initial capital and operation and maintenance. Where higher standards of service are to be provided, the costs will not normally be supported by the programmes of the PSAWEN.

Details of the relevant financial policies and tariff arrangements are provided below.

Water supply

Basic water supply is defined as

Quantity: 20 litres per person per day. This is considered to be the minimum required for direct consumption, for the preparation of food and for personal hygiene. It is not considered to be adequate for a full, healthy and productive life which is why it is considered as a minimum.

Cartage: The maximum distance which a person should have to cart water to their dwelling is 200 m. In steep terrain this distance may have to be reduced to take account of the extra effort required to cart water up steep slopes.

Availability: The flow rate of water from the outlet should not be less than 10 litres a minute and the water should be available on a regular, daily basis.

Assurance of supply: The supply should provide water security for the community. Two factors are important here.

First, schemes for domestic water supply should ensure the availability of "raw" water for 98% of the time. This means that the service should not fail due to drought more than one year in fifty, on average.

Second, the operation and maintenance of the system must be effective. The aim should be to have no more than one week's interruption in supply per year.

Quality: Once the minimum quantity of water is available, its health-related quality is as important in achieving the goal of a water supply adequate for health. The quality of water provided as a basic service should be in accordance with currently accepted minimum standards in the Puntland State of Somalia context with respect to health related chemical and microbial contaminants. It should also be acceptable to consumers in terms of its potability (taste, odour and appearance).

Upgradability The desire of many communities to upgrade a basic service to provide for household connections should be taken into account during planning. If this is not done the system could either fail due to illegal connections or have to be expensively upgraded when there is a demand for house connections. Any additional infrastructure required to provide upgraded services will not be considered as part of the basic needs infrastructure.

Training and capacity building

Training is one of the factors that will determine whether or not the objectives of the Government will succeed in the implementation of the Water Sector Programmes. This is particularly the case in the water. The enormous backlog of basic water and sanitation services to local communities will not be reduced unless the communities themselves are empowered to undertake their own development. This is not possible if they do not have the skills required which they can only acquire through training and experience.

Although training is not cheap, the costs of project failure are far greater. Because of the long lead times in establishing training resources and in training suitable trainers, it is imperative that the issue receives a high and early priority.

Training of engineers, technologists, technicians, social scientists and other skilled persons will need to be increased if there are to be sufficient such persons to meet future needs. Particular attention needs to be given to ensuring that training is goal orientated to meet new demands. Greater numbers of technologists and technicians are required in proportion to the number of degreed engineers. There is a need to develop new courses to train people as general development practitioners with an understanding of both the social dynamics of development as well as specific technical skills. Specific attention will be given by the Government to ensure that gender issues are addressed in respect of training to more truly reflect the proportions reflected in our society at large.

Scale An estimated 55% do not have adequate water and sanitation services. They also largely do not have the local government skills and structures to undertake service development, operation and maintenance. To build the capacity of such a vast number of communities and to provide trained support staff is a national undertaking of vast proportions. It will require the commitment of many sectors of society and the allocation of substantial resources.

Categories of training required Training and capacity building is not only required at community level. Skilled personnel are needed across a broad spectrum. The training categories include:

- General community awareness on water, and related issues, including providing information packs and teaching aids to schools;
- Training of Local Authorities and Local Water Committees in the principles of democratic governance and public office, a basic understanding of water and public health, administrative skills and necessary technical skills;

- Training of community support personnel. Creative solutions are required to produce a cadre of development support workers who are equipped with a balanced set of both community organization skills and appropriate technical skills;
- Training of specialized water care technicians (plant operators etc.)
- Training of professional and managerial staff.

FINANCE AND TARIFF POLICY

There are limited public funds available for water supply and the policy of PSAWEN is to use these as far as possible to achieve the goal of ensuring that all citizens have access to at least basic levels of service. The question of who pays, how much, for what and how is one of the most contentious policy issues of all.

A key principle of the policy is that services should be provided and paid for in a manner which does not require ongoing Government funds to keep them running. To achieve this it is necessary to review both the cost of providing services and the way in which these are paid for.

Water is a natural resource - considered by many to be a "gift from God" - which as such should be free. The **cost** of water arises from the need to abstract it from a source, treat it and bring it to where it is required. This cost of water is made up of three basic components:

- Capital costs: the money required to build the water scheme. These costs vary depending on the nature of the scheme. They may include the costs of storage facilities such as dams and reservoirs, water treatment plants, pump stations, main pipe lines, reticulation, bore hole drilling and equipping, or simple spring protection.
- Operation and maintenance costs: the costs of keeping the services running. Also known as "recurrent costs", these include the costs of maintenance and operating staff, fuel or electricity for pumps, replacement of broken pipes and fittings, the costs of chemicals for treating the water etc.
- Replacement costs: the money required to replace an engine or a pipeline when it reaches the end of its useful life.

Financial policy

Financing, the question of how to pay for the construction, running, maintenance and replacement of services, is a complex issue. Simply put, however, sources of finance include:

- Consumers, through their cash contributions and tariff payments;
- Government, at all levels, which can give grants from money it raises from taxes and other sources;
- Loans, which can be obtained from the "money market", although a Government agency may be needed to assist small communities and organizations to obtain such funds;
- Donations and cheap or concessional loans may be available from local or foreign sources for some projects;

- Privatization which can raise funds for service provision in a number of ways.

The basic policy of Government is that services should be self-financing at a local and regional level.

Urban service financing. In urban areas, the cost of internal services and reticulation within property boundaries are generally considered to be part of the development costs of the property. There are however the additional costs of connector, bulk and treatment services of both water and sanitation. These costs are not considered as part of the internal services and are therefore not covered by the housing subsidy.

Services in economically viable urban areas must be managed in a financially viable and sustainable way, whilst ensuring that adequate services are provided to the whole population. The agency responsible for these services in each discreet urban area therefore has the following responsibilities:

- To ensure that all households within their areas of service are provided with at least basic services within a reasonable time frame.
- To facilitate the provision of higher service levels through appropriate financing and tariff mechanisms, whilst ensuring the financial viability of the water and sanitation sector.
- To develop a business plan to show:
 - the investment requirements and programme to meet service level goals decided, in terms of the above two principles, in consultation with the elected representatives of local residents;
 - how the required capital investments will be funded, within the given capital subsidy policy framework;
 - how the operating and maintenance costs, including interest and capital redemption charges on borrowed capital, will be fully recovered;
 - the extent to which residents can afford, and are willing to pay for the new services provided in terms of the tariff and income policy adopted

Rural service financing. Although there are discussions about the introduction of rural service subsidies, the debate on subsidies and the financing of infrastructure in rural areas is not as advanced as in an urban context.

Currently all investments rely on foreign aid.

Where communities choose a higher level of service than the basic service, such as making provision for household connections, the extra costs will have to be borne by the community.

Development in marginal areas The funding of services in marginal areas of the country with limited potential for sustainable economic development is a matter of concern.

Financing services beyond basic minimum levels The financing of local services is generally considered to be a local government issue. However the implications of financing policies are far-reaching and it is often the Central Government who is called in to solve problems when local authorities are not able to service their obligations. It is for this reason that the Government must lay down guidelines and, in some instances, constraints. The PSAWEN will support and assist local governments, and Regions to arrange financing where communities choose higher levels of service than the minimum levels or where communities can afford the finance costs.

External finance, privatization and other sources The PSAWEN will actively develop relationships with external funders with a view to identifying possible areas of financial co-operation. Of particular interest will be the potential to use concessional finance to fund the more economically viable schemes undertaken by the PSAWEN. This may enable Government to allocate further grant funding to meet the needs of the poorer communities.

As indicated in the discussion on the role of the private sector, full privatization involving the sale of water supply infrastructure is unlikely to yield significant sums of money since those services which are attractive to foreign investors are currently able to finance their operations and expansions from consumer tariffs and normal market loans while providing an effective service.

Tariff policy

Tariffs are the price paid for services. A sound tariff policy is essential if user contributions to the cost of service provision and operation are to be collected in a rational and systematic manner. While an overall national tariff would be virtually impossible to establish, since every water supply and sanitation system has a different cost, there is an urgent need for clear guidelines for the setting of tariffs for service provision.

The setting of tariffs and the adoption of tariff systems may be a local matter in the case of small supply schemes within a local authority area. There is at present great uncertainty throughout the country about tariff policies.

The policy of the PSAWEN is that all consumers of potable water must contribute to the cost of their water supplies. In poor communities which are unable to afford to pay both the construction and operation costs of schemes provided by Government, a social tariff covering only the operating expenses will be charged for the minimum level of service, which is a communal water source. For higher levels of service, the full cost of supply will be charged.

Provided the costs are covered, the tariff may be charged as a fixed monthly levy, a charge per volume of water received, or direct payment by the community towards the operation, fuelling and maintenance of their water supply. This policy will be put in place immediately in the case of new schemes. Where other arrangements currently exist, the new arrangements will be introduced in close consultation with the communities involved, within a period of two years.

Operating and maintenance costs *Communities must pay for their operating and maintenance costs to ensure both equity and sustainability. If not, the result is that a small portion of the population enjoys free services whilst the majority has no services. It is therefore not equitable for any community to expect not to have to pay for the recurring cost of their services. It is not the Government who is paying for their free services but the unserved.*

The other reason why operating and maintenance costs should be borne by the communities is the principle of Community Based Development. If the community expects some outside agency to be responsible for keeping their supplies going, they will have no

control over the processes and lose leverage and ownership. Responsibility for keeping the service going is placed with a remote authority and accountability is lost. This will have an impact on the reliability of the supplies since the person who has to carry water every day is likely to be far more interested in the sustainability of the village water scheme than some remote Government official.

Uniform tariffs. The adoption of a uniform tariff system throughout the country has been proposed in some quarters. The provision of water supply is unlike other basic services such as electricity in that the development of the water sources and the costs of supply vary greatly from one place to another. If a uniform basic tariff were set throughout the country or even in a particular region it would generally result in poor communities who had access to relatively low cost systems subsidizing other, perhaps better-off communities, with more expensive systems. The costs of administering the transfer of such funds from one part of the country to another would add a further burden and it would be almost impossible to maintain transparency.

Life-line (social) tariffs It is the policy of the PSAWEN to support the adoption of life-line tariff systems to ensure that every person has at least a basic level of service. It is neither possible nor wise to set such a minimum tariff at national level - that would be equivalent to the setting of a uniform tariff rate. Such rates need to be set at local or regional level with the full participation of all interested parties.

Sliding tariff scales In accordance with the principle that water has an economic value which should be recognized, the policy of sliding tariff scales is endorsed by the PSAWEN. The basic approach identifies three separate tariffs:

A life-line or social tariff. This is to cover basic human needs. The quantity shall not exceed 20 liters per capita per day. The tariff shall be set so as to cover only the operation and maintenance costs.

Normal tariff. This is for normal use. The quantity shall not exceed 250 liters per capita per day and shall be provided at cost (operation and maintenance plus capital) including the losses incurred through the life-line tariff.

Marginal tariff. Water consumption exceeding 250 liters per capita per day will be charged for at marginal cost defined as the present day cost of the latest or next augmentation scheme.

Sliding tariff scales require some form of metering. The guidelines provided will be considered as the standard for all Government assisted or subsidized schemes. It should be noted that whilst these guidelines are provided in the form of daily amounts per person, these may need to be transformed into formats which simplify administration such as typical monthly consumption per household.

Marginal tariffs and the re-evaluation of capital costs A technical issue which may be of importance is the accounting approach used to calculate tariffs in large regional schemes. Because certain communities have been served for a long period, the historic cost of the original infrastructure is very low and it has little impact on tariffs. The cost of replacing or expanding such infrastructure is very high. It is possible that calculating certain tariffs on the basis of the current value of the infrastructure would help both to restrain the growth of water consumption, an increasingly important consideration in many areas, as well as generate funds for investment in basic needs. The options and their potential impact will be reviewed by the PSAWEN as part of its overall approach to sector financing.

Communal tariffs: Where communal services are provided by the Local Water Operators such as a borehole equipped with a handpump or a street standpipe, the

average usage is unlikely to exceed the basic level. In such cases residents could pay a uniform life-line tariff as described above.

Improvements in water supply services: Where communities or individuals wish to upgrade or improve their water supply services to a higher level than the basic services described in this Green Paper, this cost should be fully paid for by the individual or community. Depending on the nature of the upgrade and the local circumstances, the improvements could be paid for through a connection fee, the ongoing tariff or a combination of both. The provision of alternative forms of credit should be considered to assist consumers who would not otherwise be able to afford connection fees.

Tariffs and service choice. A common experience in many countries is that there is consumer resistance resulting in non-payment where the consumer community has not been fully involved in the development processes, in the choice of service levels and in the processes of tariff setting. Often resistance occurs where the level of service does not meet the expectations of the consumers. People are often prepared to pay a higher rate for a service that meets their expectations than a lower rate for a service that does not. Often therefore lower levels of service are less sustainable than higher levels.

SECTION D: IMMEDIATE INITIATIVES

In response to the high priority attributed to water supply services, a number of initiatives have already been taken, or are in the process.

REGIONAL WATER AUTHORITIES

Regional Water Authorities have or are in the process of being established.

URBAN WATER AUTHORITIES

Urban Water Authorities have been established in Bossaso and Qardho and is under way in Galkaio.

WATER SUPPLY INVENTORY

An updated water supply inventory has been established in a database format and will be part of the review process. International agencies and NGO's are urged to provide relevant information on their previous intervention.

INFORMATION AND DECISION SUPPORT SYSTEM

Central Government has a responsibility to ensure that basic services are delivered and has a performance-monitoring role. Other organizations at various levels will be responsible for implementation and operation. Such functions at different levels are not possible in the absence of adequate information. The PSAWEN is therefore planning to establish a National Water Supply and Resources Information Management System.

Vital elements in the proposed National Water Supply Information Management System are:

- ***Water sources*** - *The Hydrological information system [ground & surface water]*
- ***Water quality*** - *Quality data base*
- ***Water demand*** - *Water demand information system*
- ***Spatial information*** - *Geographic information system*

The information system must provide useful and accessible information for communities and Local Authorities, International agencies, NGOs, and various other Government Departments

The principles of the proposed National Water Supply and Resources Information Management System will be:

- The National System must be people - focused and service orientated.
- Information should be accessible to communities and to all levels of the water industry. Information available to different sectors should be useful, relevant, reliable, and in an appropriate format.
- Participation in the information system must encourage co-operation and co-ordination among the various levels in the water industry.
- The PSAWEN will be the custodian of the information system and will rely heavily on various organizations for updating the information.

SECTION E: SUPPLEMENTARY POLICY AND BRIEFING INFORMATION

There are a number of policy issues that are related to basic water supply service provision. These should be read in conjunction with the issues already raised in this Green Paper.

SUPPLEMENTARY POLICY

Women - the focus of development

Development experience worldwide has demonstrated that women play a fundamental role in the provision and maintenance of basic services. Women are the key to household health and have borne the burden of underdevelopment over the years. They care for those who suffer the inevitable consequences of unsafe water and sanitation, and they are the basic survival strategists of the household and the community. Any policy or project which does not ensure their full and active engagement at all levels is bound to meet with failure or only partial success.

The contribution of women must extend far beyond the patronizing concept that their role is restricted to involvement in basic services only, as described above. Women must assume increasing roles in all spheres and levels of the water sector, particularly in the public service.

In order to ensure successful and sustainable development, and to give substance to the constitutional prerequisite that women should enjoy a full and proper role in society, all statutory bodies in the water sector, shall be recommended to comprise a minimum of 30% women. This should apply at all levels, particularly in management, and should be instituted within five years. Measures will be established to monitor progress in this regard.

Water and the environment

The PSAWEN's policy on the environment is based on the unity and indivisibility of all aspects of human life and the total environment in which human development occurs. It is therefore a contradiction to talk of sustainable development from the perspective of service provision without ensuring that the environment from which the resource is derived is protected and sustained. In this regard the "indivisibility" of water as a natural resource is clearly evident - each activity or call on the resource has an impact and an effect. The environment should not therefore be regarded as a "user" of water in competition with other users, but as the base from which the resource is derived and without which no development is sustainable. Protection and conservation of the natural resource base is therefore imperative. Even the simplest and smallest of projects thus requires attention. The concept of water as having economic value should therefore be extended to it also having intrinsic environmental value.

The PSAWEN will compile guidelines for sustainable development in the near future, after due consultation. The guidelines will aim to ensure that, in all developments irrespective of size, the following issues are addressed:

- The resource characteristics are understood,
- Abstraction is sustainable and does not degrade the resource,
- Provision is made for monitoring the resource,
- Protection measures are implemented where necessary,
- Simple environmental impact assessment procedures are applied.

- An auditing function is established to review development projects and to ensure that the guidelines are being applied.

Further policy perspectives of the Department in relation to the environment are:

Conservation and demand management In an arid country different users are increasingly having to compete for water resources. This could lead to the long term degrading of limited sources of water, which will be, difficult if not impossible to rehabilitate. An important element of both water supply and water resource management is the establishment of a culture of conservation and the introduction of stringent demand management strategies to reduce water usage and the stress on resources.

Consultation Arising from the unity and indivisibility of human development and the environment, the role, opinion, and local wisdom of communities and other interested and affected parties is essential in ensuring the sustainability of both development and the environment. Of particular importance is the role of women and youth.

Managing droughts and other disasters

The PSAWEN, assumes responsibility to provide assistance at appropriate levels in the event of disasters related to water. The majority of such crises are either drought or flood. In most instances it is the poor who suffer most because a small change in their circumstances can have a far greater effect on their ability to survive than a similar change in the lives of more affluent citizens. The poor are often forced by their circumstances to occupy land that is prone to disaster, such as the more arid parts of the country and flood plains.

Drought is a common occurrence in the country and, as the demand on limited resources increases, the situation becomes more vulnerable. Water scarcity is often more a case of poor management of water supply systems than the physical lack of water - the situation is merely highlighted during dry periods because alternative sources such as rivers and springs cease to yield an alternative supply. It is the policy of the PSAWEN that crises such as drought need to be managed and co-ordinated on an inter-departmental basis because multiple resources are needed to support affected communities.

Because drought is a common occurrence it would be expected that greater preparedness would exist to alleviate its impact. In the past most drought aid has been channeled into reducing commercial agricultural debt and many marginal communities, particularly in rural areas, have had very little effective and sustainable support.

Ad hoc solutions to disasters are inadequate. The PSAWEN supports the ongoing process to create an inter-departmental structure to take responsibility for long term national disaster management and mitigation strategies.

BRIEFING INFORMATION

Water as a natural resource

Water is a scarce and valuable resource in Puntland State of Somalia. Most parts of the country do not have high rainfall and droughts are an ever-present threat in all regions.

Surface water. Puntland State of Somalia's average annual rainfall of 200 mm is only 20 per cent of the world average. It is poorly distributed, particularly relative to areas experiencing growth in demand.

Ground water: The importance of ground water is rapidly growing throughout the country because of dwindling surface water resources and the need to develop local resources optimally. The ground water is also saline over large areas of the country. A difficulty hampering the use of ground water is uncertainty about its location and the potential supply from borewells, mainly owing to insufficient knowledge about the characteristics of ground water sources.

Water rights and the law

Water law is extremely complex. It is inter-linked with many other aspects of law including land rights. Water law has a direct bearing on the everyday lives of all Puntland State of Somalia citizens and therefore is very relevant to the achievement of the goal of universal basic service coverage in the country. A Preamble and Table of Content based on an USAID project for Somalia Water Law Draft in 1990 follows below:

Preamble

God Almighty, the Nourisher of the hydro-geophysical worlds and Rab al-Allamin the Nourisher of the worlds, directs the clouds, winds and circulatory patterns to make parts of the earth arid and semi-arid. Water is a scarce and a most natural resource of Somalia. This predicament, determined by God Almighty, is a challenge and opportunity for us to increase, conserve, and use judiciously our water resources. The purpose of this National Water Law, and National Water Code, is to promote, regulate, plan, manage, and coordinate the conservation, development, protection, and augmentation of water resources, and their beneficial uses, for the universal common good of the human beings, livestock and wildlife, and the human and natural environments of Somalia. The Water Code shall be based on, utilize and nurture, the Islamic ethics of the Somali people who have acculturated, institutionalized, and professionalized, through their Somali Islamic primary and customary laws, usage's and socio-cultural mentality, the wise, beneficial and equitable use of water resources in times and at places of scarcity or excess. The awareness of the people of this heritage and calling shall be increased so that the development and enforcement of water laws and regulations is willed from within our ethics and ethos, ensuring thereby that their implementation will be carried out most efficiently and effectively, and at least cost.

- Chapter 1 The National Water Code
- Chapter 2 Ownership of Water and Water Rights
- Chapter 3 Water Uses and Users
- Chapter 4 Authorization for Water Use
- Chapter 5 Impact of Water Use on Natural Water Resources: Groundwater
- Chapter 6 Impact of Water Use on Natural Water Resources: Surface Water
- Chapter 7 Impact of Water Use on Natural Water Resources: Coastal Seawater
- Chapter 8 Water Charges and Special Payments
- Chapter 9 Organization
- Chapter 10 Water-Related Encumbrances, Purchase and Expropriation, and Land Ownership
- Chapter 11 Miscellaneous

A full version of the Draft Somalia National Water Law is available at PSAWEN office.

SUMMARY OF MAIN POLICY POINTS AND CONCLUSION

SUMMARY

Policy Principles:

- **Development should be demand driven and community based,**
- **Basic services are a human right,**
- **Equitable regional allocation of development resources,**
- **Water has economic value,**
- **The user pays,**
- **Integrated development,**
- **Environmental integrity.**

The policy of Government is that services should be self-financing at a local and regional level.

Financing and tariff structures must ensure viability, efficiency and sustainability.

CONCLUSION

This Green Paper presents both the hard realities of the task before us all as a nation and a vision of what we can achieve. The achievement of our goals is not the job of the Government - it is the job of all sectors of our society, particularly the thousands of communities for whom the policy laid out in this Green Paper represents the hope of a better life.

Policy is dynamic. It is created to serve the people and we must continually be reassessing it to ensure that it is performing its role. Comment on this Green Paper is welcomed, both now and in the months to come. As our mutual experience grows so will our ability as a nation to meet the needs of all our citizens.

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PSAWEN

Puntland State for Water, Energy and
Natural Resources Corporation

**Keynotes on Management of water supply
systems, Economic value of water, Tariff
setting, and Water quality concerns in cost
and value.**

Prepared by Engineer Khalif Nur Ali (Qonof)
Director of PSAWEN Water Department

22-01-2001

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I. Management of Water Supply Systems

The management of water supply systems can be defined in different ways;

- a) **Water Resources Management:** Implies (Water Supplies) all that is done to organize sustainable development of water resources including regulations, water master plan development, the build-up of a support structure and hydro geological, morphological and other technical aspects (satellite imagery or remote sensing, exploration, drilling activities). It takes place at various levels (regional and locally).
- b) **Water System Management:** Focuses on the usage (water demands) of the resource and actual managerial aspects, such as: Management structure, organization of operations and maintenance, issue of finance and cost recovery and effective demand.

Taking management of water into account, the following four issues are imperative intervention:

1. Potential management capacity to be a criteria or selection of projects to be assisted
2. Raise awareness of capacity and recurrent cost of system at every possible interaction with beneficiaries
3. Recovery of recurrent and replacement cost and cost-sharing extensions to the system and capital cost, and
4. Training in financial management to be provided.

Public oversight/ Private Management Concept

Urban Water Authorities responsibilities:

- Ensuring access to safe water for the poorest of the Community.
- Ensuring equitable service is provided.
- Acting as court of last appeal for land disputes and customer complaints.
- Arranging with the community needed access and land donations for water activities, including expansion.
- Arranging with the community needed usage rights of existing borewells, functional as well as non-functional
- Explaining operations and policies to the community.
- Raising the awareness of the community for the need of clean water and sanitation.
- Setting maximum price of water. (will be discussed with the private management company)
- Insure environmentally sound principals of water source conservation and pollution control are adhered to.

Private management company responsibilities:

The management and operations of the urban water systems shall be leased out to a private firm for a lease period of 10 years with an option of extension for a further 5 years period. The company shall have full responsibility for the management and operations of the system, including hiring of all personnel necessary for the successful maintenance, operation and security of the system, providing house connections, marketing of the water, and in general having all the authorities needed in order to ensure the economic sustainability of the system while providing good, quality service as outlined in separate contract between PSAWEN and the operator.

II. Estimation of the value and the cost of water (Pricing or tariff)

A. *Estimation of the value*

There are several general principles involved in assessing the economic value of water. These values may be determined either individually or by analysis of the whole system, from the use of water, one can derive a value, which can be affected by the reliability of supply and by the quality of water. Regardless of the method of estimation the ideal for the sustainability use of water requires that the value and costs should balance each other.

Components of the value of water

For economic equilibrium the value of water can be estimated from the **value-in-use** should just equal the full cost of water and at that point the social welfare is maximized. Therefore, the value-in-use is typically expected to be higher than the estimated full cost. This is often because of difficulties in estimating the environmental externalities in the full cost calculations. However, in many cases it may be lower than the full cost, full economic cost, and even below full supply cost. The value of water depends both upon the user and to the use to which it is for. The components of economic value are:

- a. value to users of water
- b. net benefits from return flows
- c. net benefits from indirect use
- d. adjustments for societal objectives

Economic value

Value to users of water: the value to users is at least as large as the original value of the product.

Net benefit from return flows: return flows from water diverted for urban, industrial and agricultural users constitute a vital element of many hydrological systems, thus the effects of these flows must be taken into account while estimating the value and cost of water.

However, the benefit from the return flows will critically depend on the proportion of water that is "lost" to evaporation (due to open drains and canals) or to other "sinks".

Net benefits from indirect use: these benefits occur with irrigation schemes that provide water for domestic (drinking and personal hygiene) and livestock purposes. These indirect benefits have to be included while estimating the value-in-use of water that is diverted for agricultural purpose.

Adjustment for societal objectives: For water use in the household and agricultural sectors, there may be an adjustment made for societal objectives such as: poverty alleviation, food security and employment. Such adjustments are over and above the value of water to the user and should be added to reflect various societal objectives.

B. Estimation of the cost of water

Those costs involved with the provision of water, both direct and indirect.

Components of full cost:

Full cost must be equal to the sustainable value in use of water and there are three important concepts, such as

- a. ***the full supply cost***
- b. ***the full economic cost and***
- c. ***the full cost***

Full Supply Cost

Are comprised of two separate items

- Operation and Maintenance (O&M)
- Capital charges

Both of which could be evaluated at the full economic cost of inputs.

O&M Cost; these costs are associated with daily running of supply systems, fuel, oil, labor, repair material and input cost for managing operating, storage and distribution systems.

Capital charge; these include capital consumption (depreciation charges) and interest costs associated with reservoirs and distribution systems.

$$\text{F.S.C} = \text{O\&M} + \text{C.C}$$

Full Economic Cost of Water

Is the sum of the full supply cost and the Opportunity cost associated with alternate use of the same water resource and economic externalities imposed upon others due to the consumption of water by specific actor.

$$\text{F.E.C} = \text{O.C} + \text{E.E}$$

Opportunity cost: this cost addresses the fact that by consuming water, the user is depriving another user of the water. Opportunity cost is zero only when there is no alternative use that is no shortage of water.

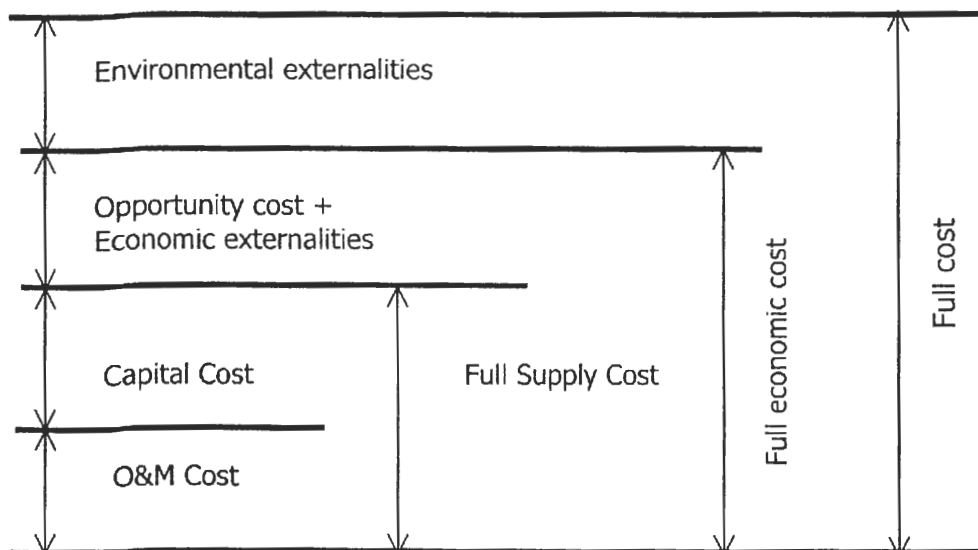
Full cost of water

The full cost of consumption of water is the full economic cost plus the environmental externalities.

$$F.C. = F.E.C + E.Ex$$

Environmental Externalities of water: are those associated with public health and Eco-system maintenance.

Full cost components diagram



III. Tariff Policy

Tariffs are the price paid for services. The policy of the PSAWEN is that all consumer of potable water must contribute to the cost of their water supply. Both the construction and operation costs, a social tariff only the operating expenses will be charged for the minimum level of service, which is a communal water source. For higher levels of service, the full cost of supply will be charged per volume of water received or direct payment by the community towards the operation, fuelling, and maintenance to ensure both equity and sustainability.

The principle of community based development

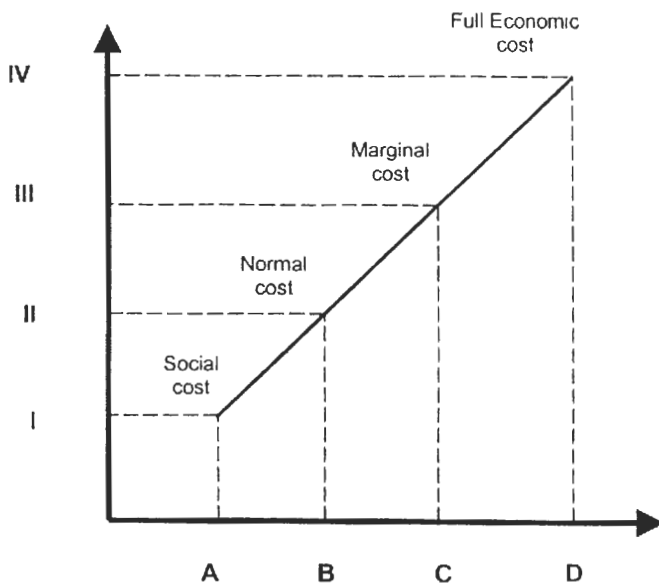
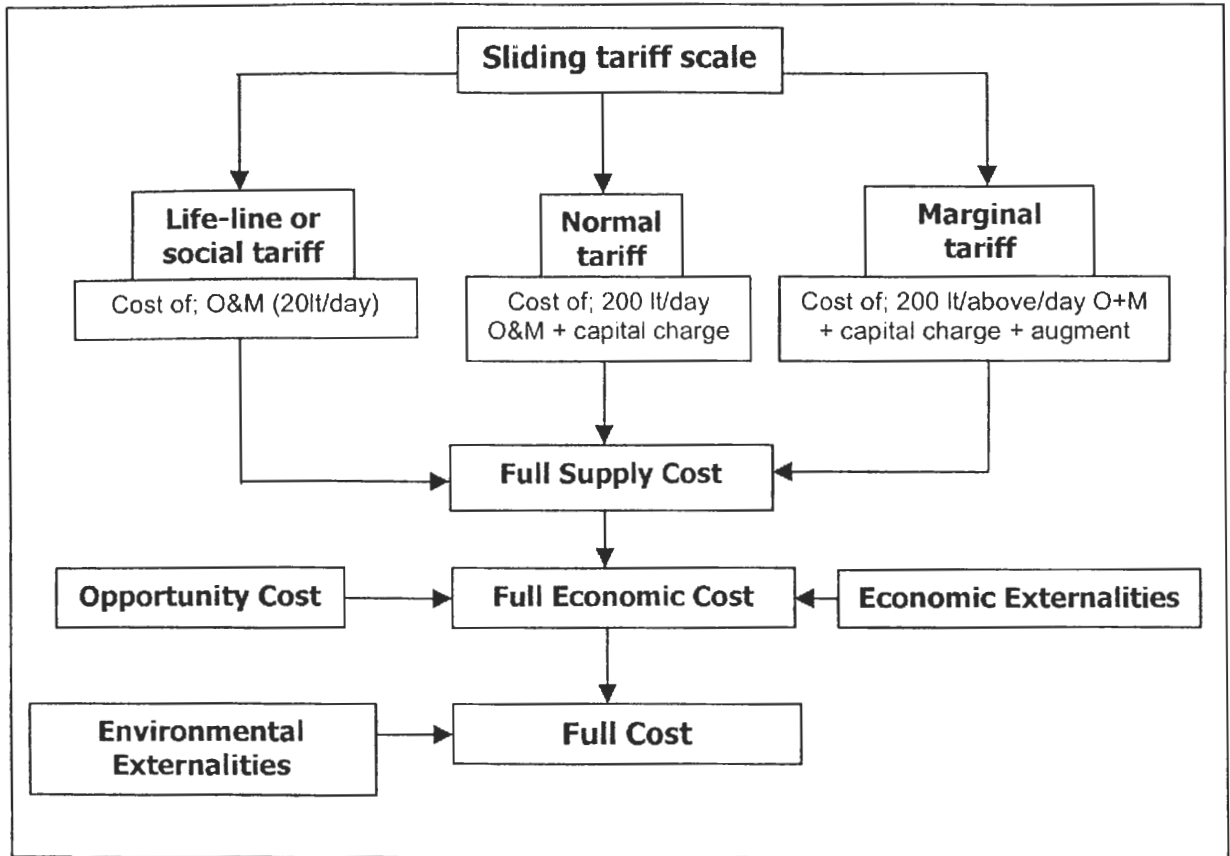
If the community expects the outside agency to be responsible for keeping their water supply systems going, they will have no control over the processes and ownership. Responsibility for keeping the service going is placed with a remote authority and accountability is lost. This will have an impact on the reliability of the supplies since the operators who carry water every day is likely to be far more interested in the sustainability of the village water scheme than some remote agency official.

Since every water supply has a different cost, there is an urgent need for clear guidelines for the setting of tariff for service provision and should be determined by governmental authorities (PSAWEN), local communities and service providers.

The proposed adoption of tariffs can be classified the following basic approaches

- A. Uniform tariffs: the adoption of a uniform tariff system throughout the Puntland regions has been proposed even in a particular region it would generally result in poor communities who had access to relatively low cost system subsidizing other, perhaps better of communities, with more expensive systems and it would be almost impossible to maintain transparency.
- B. Life-line or social tariff: It is the policy of PSAWEN to support the adoption of life-line tariff systems to ensure that every person has at least a basic level service. It is neither possible nor wise to set such a minimum tariff at state level - that would be equivalent to the setting of a uniform tariff rate. Such rates need to be set at local or regional level with full participation of all interested parts.
- C. Sliding tariff scale: In accordance wit the principle that has an economic value, which should be recognized, the policy of sliding tariff scale is endorsed by PSAWEN. The basic approach identifies three separate tariffs:
 1. A life-line or social tariff: This is to cover basic human needs. The water consumption shall not exceed 20-25 liters per capita per day. The tariff shall be set as to cover only the operation and maintenance.
 2. Normal tariff: this is for normal use. the water consumption quantity shall not exceed 200-250 liters per capita per day and shall be provided at O&M cost plus capital costs.
 3. Marginal tariff: Water consumption exceeds 250 liter per capita per day will be charged for at marginal cost defined as the present day cost of the latest or next augmentation scheme.
 4. Communal tariff: Where communal services are provided by the local water committee such as a borewell equipped with a handpump or a street standpipe kiosks, the average usage is unlikely to exceed the basic level. In such cases residents should pay a uniform life-line tariff as described above.

Tariff diagrams



Legend: Supply costs

- I. Operation and Maintenance cost
- II. Average financial (capital + O&M) cost
- III. Average financial (capital + O&M) cost with capital costs computed in replacement terms
- IV. Long run marginal cost of additional supplies

IV. Water quality concerns in cost and value

As in the case of reliability, water quality influences both values and costs. The water use for drinking purpose has to be of the best quality and provides high value to the consumers as well as society in general. Water for bathing, washing and personal hygiene need not to be of the same quality as that used for drinking and cooking purpose. Flushing of toilets, cleaning and gardening require varying qualities of water, resulting in differing levels of value, and hence willingness to pay.

In particular, the demand for various water qualities for different uses such as human, livestock and agriculture provides with a view to matching demands with supplies. Natural water supplies are the main source of water for livestock belonging to the extensive migratory animal system. The relationship between livestock and human population is important and has considerable bearing upon the use of distribution of the water facilities. Livestock also needs fresh drinking water for normal and high milk production. The total salt content of water is the most important characteristic in determining the suitability of water for livestock and it is also the easiest water quality data to obtain, even in the field.

Excessive intake of saline water may cause sickness and death. Adult sheep appear to be fairly tolerant, cattle are less tolerant than sheep. The effect of excessive water or food salt content on livestock will produce symptoms of salt poisoning in the various domestic animals. The main symptoms in sheep and cattle are excessive thirst, abdominal pain, loss of appetite, diarrhea and increased urination.

The water quality can deteriorate over the years (mainly ground water) and even from season to season, and it is wise to check suspect water before letting human and livestock have access to the supply. During the warmest months, high evaporation increases the concentration of salt in the water standing in troughs or in ponds for a long time and it may be advantageous to place the water troughs in the shade to limit the water temperature. Where possible, human and animal should be given water, which is bacteriological clean as well chemically satisfactorily.

Water Quality in Puntland State of Somalia

No	Region	Electro-conductivity range μcm	Temperature range $t^{\circ}\text{C}$	PH - reuse
1.	Bari	1.200 - 5.800	25 - 45	7.4 - 7.8
2.	Nugal	3.400 - 12.000	27 - 48	7.6 - 7.8
3.	Mudug	2.800 - 4.800	25 - 37	7.6 - 7.8
4.	Sool	2.900 - 5.000	27 - 50	7.6 - 7.8
5.	Sanaag	2.800 - 5.000	27 - 48	7.6 - 7.8

Water always contains impurities. Most of the impurities are not harmful and are even used by the human body. These impurities can be put into four (4) groups. The difference of the groups is the build-up and the way they react in water.

1. **Elements**; are the basic of all groups. Oxygen (O₂), nitrogen, chlorine, iron, mercury. Some of the elements will dissolve in water and some not.
2. **Minerals**, are found in almost all the normal water. Minerals include: salt, stones, sand gypsum, soda. Minerals are some of the basic elements on earth and are needed by all organisms. If they dissolve in water, minerals split and become ions. Some minerals do not dissolve at all. The ions can transfer electric energy. In fact, it is these minerals which give water the ability to conduct electricity.
3. **Compounds**; next to the minerals are the compounds like water, carbon dioxide, ammonia. Some will dissolve easily and some will never dissolve. Compounds will not split when they dissolve. Only chemical or biological processes can split compounds.
4. **Complex Organic Compound**; organic compound are like sugar, starch, cellulose, glucose, alcohol and all human tissue etc.

PSAWEN

Puntland State for Water, Energy and
Natural Resources Corporation

Draft National Water Plan

1st of February 2001

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Introduction and scope of the draft National Water Plan

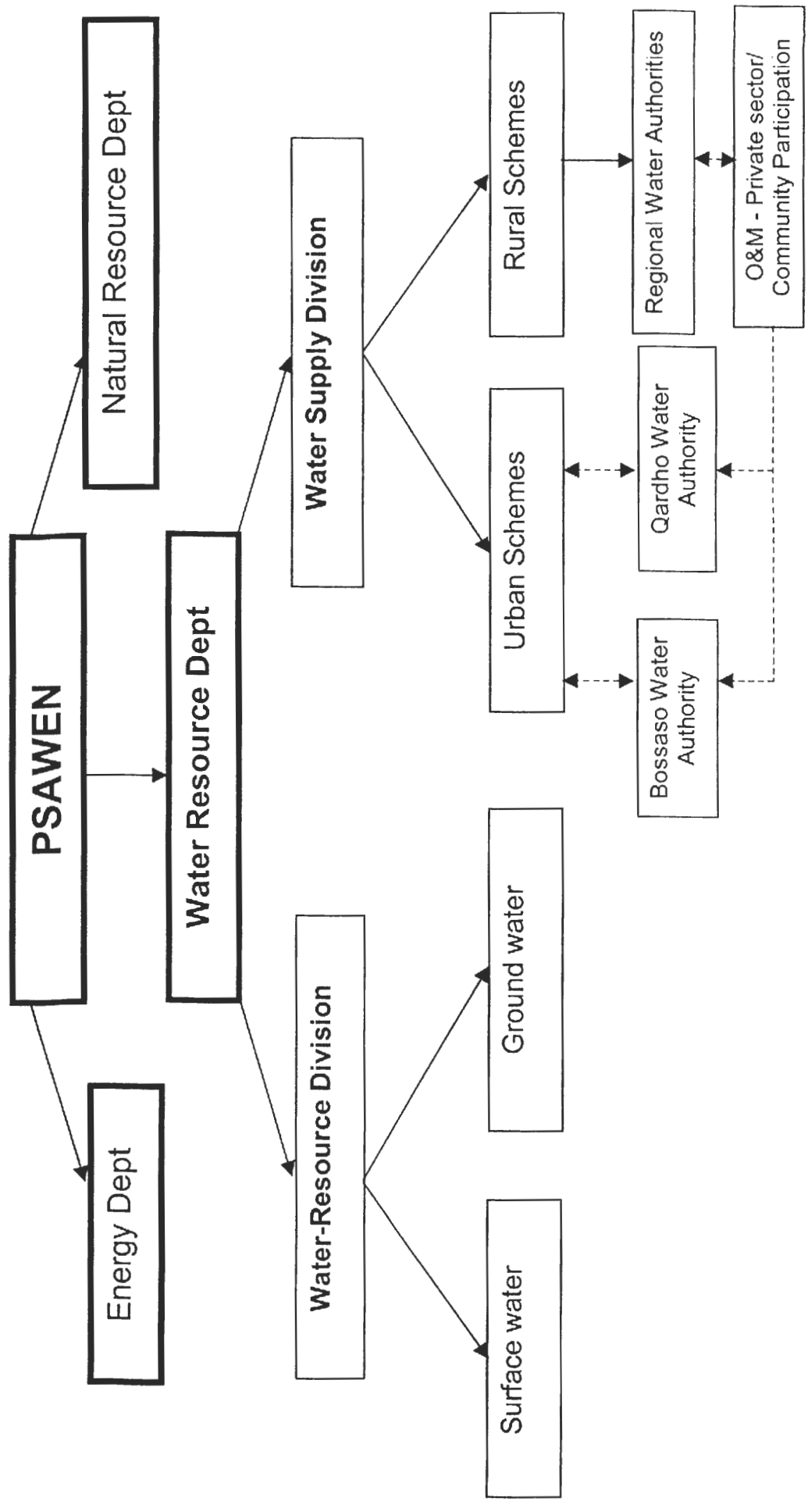
This draft National Water Plan is far from a complete document. Many baseline data are still lacking and, therefore, it can not be utilized fully as a National Water Plan. However, in the meantime of building the institution of PSAWEN it is presented for review and input from other actors involved in the water sector. All actors are urged to contribute to a successful establishment of a National Water Plan and capacity building of the PSAWEN institution

This document is presented together with a PSAWEN Water Supply Policy Green Paper and Key notes on Water Management. After approval by the Parliament, these documents will be utilized in a review process where all the actors are given the opportunity to bring their contributions and knowledge. The next step is to finalize them in the Parliament as White papers (Governmental fact Sheets) on Policy and National Water Plans, awaiting development of accurate documents.

This is the first step in a long process to establish appropriate Water Policy, Water Strategy, Water Plan, Water Laws, Rules and regulations for water interventions in Puntland State of Somalia. To achieve all these documents and to build the institution of PSAWEN it takes all actors to participate and contribute with all possible means.

PSAWEN is fully committed to build up its own capacity and resources as well as to participate and take the lead role in formulation of the above-mentioned documents. With the assistance and contribution from other actors in the sector it is possible to create a modern, sustainable and accountable sector where all parts of the society are participating.

PSAWEN ORGANOGRAPH



ECO-Zones Characteristics in Puntland State of Somalia

Deeh and Coastal Plains

Lies along the coastal line characterized by abundant hand-dug wells with salty water. With sheep and fishing FEGs, Grassland.

Addun

This stretches from S Nugaal to S Mudug. It has boundaries with the Hawd and Doho. Some springs may be found, the majority of the zone is water scarce. The main water points are the deep borewells with goat and camel herder FEGs. Berkads are also good water points.

Hawd

This is vigorously vegetational zone, with browsing vegetation prevailing, very dense but with deficit in water. Berkads are the main source of water, deep borewells are the most important supply of water in the dry season. Camel and goats FEGs are populated.

Nugaal

This is a plain, flat with salty grass, abundant of water points. Flood irrigated, hand dug wells and streams as well as springs. Sheep camel dominant species.

Sool

Is an area with permanent water. Berkads and borewells are the main sources of water, the vegetation is more like that of Haud eco-zone. Camel and goats are the dominant species.

Iyah

Plain area with grassland, scarce water source berkads are the main source added to the deep borewells. Sheep and goat dominated zone with some camel species present,

Talax

Nearby Hawd in the dry season Competition between livestock, farms and water table and for construction caused risky for water availability. This dried up most of the wells in B/weyn.

Karkar

A mountainous highland, with patchy low lands scattered, which is good grazing areas and good breeding grounds for goats. There is a water deficit and it is accessed through berkads mainly

and some stagnant spring and oasis. The sheep species come first then the camel goes 2nd for FEGs.

Hadeed

Hadeed is a good breeding ground for sheep. This eco-zone is a pasture rich area where 80-90% of the animals that it holds are sheep. In Hadeed water shortage is a chronic baseline vulnerability due to the imbalance between human and livestock population and the available water related infrastructure.

Gebi Valley

Is a hilly lowland less vulnerable area, according to the availability and accessibility of water. 70-80% of the livestock in the eco-zone is sheep. Mainly due to lack of sustainable management and facilities water pollution is the major problem, like many other eco-zones.

Golis Range

Is a mountaineous rangeland, high altitude, availability of water is always normal in case of drought. It is a less risky environment in terms of water and pasture.

Nobir

Is a low land with less vegetation but good grazing power, rich in sorings, near the coastal area, so less vulnerable to water availability. Sheep and goats are the dominant species.

Dharor

Is flat (flood) plains, a catchment of water. It is supplied by all the streams from western section and Erigavo Eco-zone. Goat and cattle are the dominant species. According to /the availability of water the area contains above normal quantity of water throughout the year.

Rain fall

Statistics are lacking although with the newly established rain gauges provided by FSAU statistics will be collected and compared to existing old data. Current estimates an average rainfall of 200 mm per year.

Inventory of water sources

Attached is the latest update of water sources inventory. All actors, International agencies, NGO's are urged to provide their input for compilation of an accurate database which would make it possible to better plan and coordinate water interventions.

PSAWEN Priorities for 2001

- *Assure sustainability and accountability at rural bore wells (full cost recovery)*
- *Supply water meters to all rural bore wells*
- *Institutional capacity building*
- *Develop policy and strategy*
- *Develop data information systems and draft national water plan*
- *Identify and develop more water sources*
- *Introduce alternative water sources, such as spring development, communal dams, catchment*
- *Introduce alternative energy sources for rural bore wells, such as solar energy, wind, and gravity-flow according to the Eco-zones*

Water Sector Constraints

- *Limited resources for water development*
- *Existing water sources can not cope with population and livestock growth*
- *Lack of data and data information system*
- *Inadequate capacity within stakeholders for implementation and appropriate management systems*

Possible projects/ Rehabilitation of Water sources

PSAWEN has received applications for the following possible projects and, therefore, seek assistance for implementation.

Any actor interested to get involved should contact PSAWEN before starting in order to make sure any other actor already is involved. Coordination is essential for a successful implementation of projects in order to avoid duplication of efforts, or to make sure no areas are left out of interventions.

PSAWEN has the full information and background material available for below requests.

Berkads

No applications received

Springs

- Eyl - rehabilitation of spring water supply (UNICEF seeks funding 2001, pending security clearance)
- Gala'ood
- Halin
- Gacalguule
- Dhaxan
- Burue

Shallow wells

- Baq-Baq - improvement of shallow well (UNICEF seeks funding 2001)
- Taleex
- Dhurbo
- Buq-Buq (Kandela)

Deep drilled borewells

- Habbo (UNICEF implementing)
- Dongorayo (UNICEF implementing, depends on success of rehabilitation of dropped pump)
- Libaaxo (IDB - Islamic Development Bank implementing)
- Gardo (Harracly) + Qawane (OTP & IDB implementing)
- Balli Dhidhin (IDB implementing)
- Ceel Dofar (UNICEF implementing)
- Armo (UNICEF seeks funding 2001, depending on success in clearing blocked borewell))
- Balli Busle (IDB implementing)
- Burtinle (Diakonia implementing)
- Xunbeys
- Sherbi
- Xidda
- Waaciye
- Dalweyn (improvement of pipeline)
- Hurridiye
- Dharoor
- Jalam
- Qol
- Uusgure

Urban water systems

- Bossaso Water System (UNICEF implementing)
- Qardho Water System (UNICEF implementing)
- Galkaio Water System (UNICEF implementing)
- Garowe Water System
- Las Caanood - rehabilitation and extension
- Baran

WES Coordination Meetings

Water Coordination meetings are held on a monthly basis under the chair of PSAWEN. Contact PSAWEN office for previous minutes or for contribution to the database. Any new actors are requested to participate in the coordination in order not to double any efforts and to find out the priorities and possibilities for intervention.

