



**THE REPUBLIC OF LIBERIA**

# **WATER SUPPLY AND SANITATION POLICY**

**MINISTRY OF LANDS, MINES AND ENERGY**

**In Collaboration with the Ministry of Health and Social Welfare (MOH), Ministry of Public Works (MPW), and Liberia Water and Sewer Corporation (LWSC)**

**April 2009**

## Forward

Water is life and sanitation dignity. Article 20 (a) of the Liberian Constitution proclaims that “No person shall be deprived of life”. Since water is life, it follows that nobody living in Liberia should be deprived of water. The Government of Liberia is a signatory to the Declaration of Human Rights and other United Nations Declarations which ensure that all human beings have the right to life and dignity. Among these rights are the right to safe drinking water and the right to live in dignity in ones country of choice<sup>1</sup>.

Improving water supply and sanitation (WSS) coverage has been one of the most important priorities of the Liberian Government. Liberia has come out of years of civil war and conflict during which the country’s infrastructure was virtually destroyed and the delivery of public water supply and sanitation services badly degraded. From the end of the war to end of the Interim Government, the efforts of both the Government and external support agencies (ESAs) concentrated on humanitarian issues.

With the coming of the present Government at the beginning of 2006, the focus has moved to include the rehabilitation and upgrading of water supply and sanitation infrastructure in order to restore them to the pre-war condition and improve them where possible. The Government with support from external partners is striving to rehabilitate and expand water supply and sanitation systems throughout the country

However, until now Liberia has not had a water supply and sanitation policy that can promote sector reform and enable the more rapid expansion and sustainable delivery of water supply and sanitation services.

Additionally institutional arrangements for water supply and sanitation are not properly streamlined and lack the focus that will facilitate the coherent and sustainable development of the WSS sector. What exists currently is a sector that has a fragmented governance structure with certain functions falling within the scope of a number of Ministries and Agencies. In a situation like this, one finds gaps and overlaps and a lack of clarity of responsibility.

Consequently, there is a need for a comprehensive WSS policy for the country that will guide the process of reforms to improve the WSS services in a sustainable way

The Water Supply and Sanitation Policy presented in this document is the product of extensive consultation at the national and county level that has involved key Government Ministries and Agencies and external support agencies. This document articulates

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<sup>1</sup> Two core human rights instruments — the Convention on the Rights of the Child and the Convention on the Elimination of All Forms of Discrimination against Women — explicitly recognize the right to water. The latter also recognizes the importance of sanitation. In 2002, the United Nations formally declared access to domestic water supply a human right in and of itself, through General Comment No. 15 of the Committee on Economic, Social and Cultural Rights

fundamental policy principles for both urban and rural water supply and sanitation service provision. In doing so it provides a means for the future integration and development of the sector; giving it more visibility; putting an end to the fragmentation that has held the sector back in the past; creating a framework for investment and enabling effective service delivery that will facilitate progress towards the priority interventions articulated in Liberia's Poverty Reduction Strategy; and a the first step towards a Sector Wide Approach.

April 2009

Dr. Eugene H. Shannon  
Minister  
Ministry of Lands, Mines & Energy

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## Acronyms

CLTS	Community Led Total Sanitation
ESA	External Support Agencies
GoL	Government of Liberia
IBNET	International Benchmarking Network for Water and Sanitation Utilities
IWRM	Integrated Water Resource Management
LWSC	Liberia Water and Sewer Corporation
MDG	Millennium Development Goals
MIS	Management Information Systems
MLM&E	Ministry of Lands, Mines, and Energy
MoH&SW	Ministry of Health and Social Welfare
MoPW	Ministry of Public Works
PPP	Public Private Partnerships
PRS	Poverty Reduction Strategy
SODIS	Solar disinfection
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organisation
WSS	Water Supply, and Sanitation

# **1 WATER SUPPLY AND SANITATION POLICY – PART 1: Introduction & policy statements and strategies**

## **1.1 Introduction**

Poor access to safe drinking water and sanitation services are major causes of illness and poverty. The war significantly undermined the delivery of water and sanitation services in Liberia. The impact of inadequate drinking water and sanitation services is greatest on the poor, and on women and children who fetch water from long distances or pay high prices from vendors. Water and sanitation-related illnesses<sup>2</sup> put a severe burden on health services, keep children out of school, and undermine investment in agriculture and other economic sectors.

Water Supply and Sanitation are closely linked to the efforts to achieve the Millennium Development Goals (MDG): halving, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation is a target of MDG 7; WSS is also a key input for the achievement of universal primary education and reductions in child mortality (MDG 2 and 4) and is directly linked to the eradication of poverty and hunger, the empowerment of women, improvements in maternal health and the reduction of diseases (MDG 1, 3, 5 and 6).

Making safe water and sanitation available to people in a sustainable and affordable way has proven to impact on poverty rapidly and directly in many countries. Safe water sources near homes reduce the time-wasting drudgery of fetching water (a burden borne disproportionately by women and girls) and provide opportunities for poor families to engage in small-scale productive activities such as market gardening.

Water supply is also an input in many industries which are dependent on water for their growth. From an economic point of view the inefficiencies of water supply facilities affect the productivity of firms and increase their cost of production. Since small firms can often not afford their own boreholes and other facilities, the burden of inadequate public water supply affects their development more seriously than those of larger size firms. By providing their own water supply services, firms substitute internal capital in the form of equipment, machinery, and labor for publicly provided infrastructure services which are not forthcoming.

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<sup>2</sup> Inadequate and unsafe water, poor sanitation, and unsafe hygiene practices are the main causes of diarrhea, and are also linked to many other diseases that kill children or stunt their development, including helminth infections, dracunculiasis, trachoma, cholera, fluorosis and arsenicosis. Children (and adults) living with HIV/AIDS, because of their weakened immune systems, are especially susceptible to the debilitating effects of persistent bouts of diarrhoea. There is also emerging evidence linking better hand-washing practices with reduced incidence of acute respiratory infections.

Investment in the WSS sector offers high and diverse multi-sector returns. By directly impacting key indicators in the health, education, livelihoods/food security, and environment sectors, water supply has a profound impact on quality of life indicators and is a major determinant of productivity and poverty levels.

### **1.1.1 Vision**

In conformity with the Government's Poverty Reduction Strategy (PRS) 2008 – 2011, and the National Integrated Water Resources Management Policy, Liberia's vision of the Water Supply and Sanitation Policy shall be:

**using clean water supply and safe sanitation as a vehicle for reducing the water supply and sanitation related disease burden, increasing productivity, promoting human welfare and setting the nation on a path towards long-term sustainable growth, development, and poverty reduction.**

### **1.1.2 Policy objective**

The objective of the Liberian Water Supply and Sanitation Policy shall be:

**to provide guidance and direction in institutional, economic and legal reforms that will lead to improved water governance at national, local and community levels, and improved access to safe water supply and adequate sanitation, in an affordable, sustainable and equitable manner, to all the peoples of Liberia .**

### **1.1.3 Guiding principles**

The guiding principles of Liberia's Water Supply and Sanitation Policy are based on a holistic approach incorporating considerations for equity, efficiency, environmental and service sustainability and recognize international WSS principles such as those articulated in the 1992 Dublin Principles<sup>3</sup>. These guiding principles include:

1. Fresh water is a finite and vulnerable resource which is essential to sustain life, development, and the environment.

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<sup>3</sup> The four Dublin Principles are part of the Dublin Statement that resulted from the International Conference on Water and the Environment convened in Dublin, Ireland, in January 1992, and are:

2. The protection and conservation of the environment is essential to the sustainable utilisation of water and to water security.
3. Water has an economic value and is a social good.
4. Development should be demand-driven and community based.
5. Access to safe drinking water and sanitation is a basic human right.
6. Safe water, hygiene practices and sanitation are directly linked to improved public health, especially for vulnerable groups such as children.
7. Priority in the planning and allocation of public funds will be given to those who are presently inadequately served ('some for all' rather than 'all for some').
8. There should be an equitable geographical allocation of development resources.
9. Users should pay for the services they get. Pro-poor approaches should be adopted wherever applicable.
10. The Government has a role as an enabler in a participatory approach to development.
11. Women have an essential role in the provision, management and safeguarding of water.
12. The private sector has an important role in water and sanitation service provision.
13. There is a need for an integrated approach covering water, sanitation and hygiene promotion.
14. Attention must be paid to water quality, rehabilitation, and the effective operation and maintenance of existing facilities.
15. Developments in technology and in other sectors shall be harnessed for serving the people.
16. Water and sanitation development is not possible in isolation of development in other sectors.
17. Political will is imperative for effective policy implementation.

## ***1.2 Key policy statements and strategies***

An estimated 39% of Liberia's population live in urban settlements of over 5000 people and 59.5% live in rural settlements of less than 2000 people. Keeping in view the differences inherent in the service provision/ facilitation in these different contexts, the following policy statements and strategies are enunciated in two parts: rural and urban.

## **1.2.1 Rural water supply and sanitation (WSS) policy statements and strategies**

Rural areas contribute to 73.4% of poverty in Liberia and pose particular challenges to service provision and poverty reduction that require strategies that are both simple and sustainable.

### **1.2.1.1 Rural WSS policy statement 1: Basic services for all**

Provision of basic services to all unserved rural households shall take place before developing a higher level of service. The delivery of basic services to rural households is seen as a first step leading towards the development of higher level of services. These basic services are: the provision of adequate safe<sup>4</sup> water (25 litres/person/day); sanitation (access to sanitary excreta disposal facilities that can contain human waste in a hygienic manner); and hygiene promotion (a clear understanding of the good hygiene practices).

#### **Strategies**

- Development and delivery of basic services will be based on user demand, which will be demonstrated by a willingness and ability to pay for all operation & maintenance costs.
- As part of the basic services delivery, community-based sanitation approaches such as Community Led Total Sanitation (CLTS) or the social marketing of sanitation will be used to promote open defecation free communities and appropriate facilities.
- Intensive hygiene promotion will be implemented to accelerate and maximize health benefit through hygiene behavior change.

### **1.2.1.2 Rural WSS policy statement 2: Improved health through an integrated water, sanitation and hygiene promotion approach**

Basic services will be provided using an integrated approach to maximize health benefits. The integrated approach comprises community mobilization, hygiene promotion, water supply and sanitation. Barring technical reasons, water points and community latrines should be constructed in locations selected by women to allow easy access and use of the facilities by them.

#### **Strategy**

- Wherever possible community mobilization, development of water supply facilities, hygiene promotion, and the development of sanitation facilities will be facilitated/promoted as part of a water and sanitation basic services package.

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<sup>4</sup> In accordance with WHO Guidelines for Drinking-water Quality or Liberian drinking water quality standards as and when they are framed.

### **1.2.1.3 Rural WSS policy statement 3: Commitment through cost sharing**

Construction and/or rehabilitation of water and sanitation facilities shall be on a cost-sharing basis. The costs for construction and/or rehabilitation will be shared, and will be part community contribution and part subsidy. All members of the participating community shall have equal access to water, sanitation and hygiene services and facilities.

#### **Strategies**

- Low cost and affordable technology will be promoted for water supply systems.
- Community contribution to the construction and development of water facilities will be a minimum of 10% of the total costs. These contributions may be in the form of skilled and unskilled labor, local materials or cash.
- Subsidies shall be available for institutional/communal sanitation projects where communities have organized themselves, possibly with the support of district authorities or private sector bodies, and have planned a sanitation project.
- The amount of subsidy for *institutional/communal* sanitation facilities will be set according to a clear framework to cover the cost of materials not available locally, such as cement and other building materials. Subsidy for *institutional/communal* sanitation facilities will be available to those who are prepared to contribute their own resources to sanitation improvement. Mechanisms will be developed to avoid double subsidies.
- Where *households* wish to have access to sanitation facilities, capital and running costs must be met by the household.

### **1.2.1.4 Rural WSS policy statement 4: Service sustainability through community ownership**

Sustainability of services is ensured through community participation in all aspects of service delivery. Communities that have demonstrated a willingness and ability to participate in the provision of services will be empowered through participation in all aspects of delivery including planning and construction of facilities. The community will be the owner and manager of completed facilities and responsible for the operation, maintenance and management of the facilities.

## Strategies

- A management framework will be developed that includes the establishment of viable management systems for operation and maintenance of facilities by the community.
- Proven, locally appropriate, community maintainable technologies, that provide safe drinking water on a continuous basis and that are best suited for local conditions will be promoted. These include dug wells and bore wells with hand pumps, protected springs, gravity pipe schemes, rainwater harvesting, and household water treatment technologies such as chlorination, bio-sand filters, and solar disinfection (SODIS).
- Water supply systems that cannot be operated or maintained by the local community, (e.g. motorized pumps or generator-driven pumps) shall not be undertaken.
- Local technicians will be trained in the maintenance of and supply chain for spare parts, which will be facilitated in partnership with the private sector.
- Private sector development in service delivery and maintenance will be facilitated.
- Only pumps of proven quality that have spare parts that could be readily made available in partnership with the private sector will be used in water supply schemes.

For peril-urban/small towns:

- The provision of water supply needs to be community based with the communities in the driving seat from the project inception up to the management of completed schemes.
- Communities need to be mobilized, trained and motivated to actively participate in developing and eventually owning their water and sanitation facilities.
- Water supply infrastructure development needs to involve cost sharing arrangement between the central Government, the County, Districts and the communities in a coordinated and effective manner.

## **1.2.2 Urban water supply and sanitation (WSS) policy statements and strategies**

### **1.2.2.1 Urban WSS policy statement 1: Basic services for all**

The delivery of basic services to urban households is seen as a first step leading towards the development of higher level of services and shall take place before developing a higher level of service to those already served. These basic services are the provision of adequate safe water (25 litres/person/day), and sanitation (access to piped sewerage or on-site sanitation systems).

## Strategies

- All urban water and sanitation systems will be rehabilitated to their pre-war condition by commencing a national urban water supply rehabilitation project.
- Service providers will deliver 25 liters per person per day of safe water of WHO Guidelines for Drinking-water Quality or Liberian drinking water quality standards as and when they are framed.
- The quality of water supplied from all water supply systems in Liberia shall be monitored on a regular basis in accordance with the procedures established by a regulatory board.
- The sewerage systems in urban centers will be restored as quickly as possible and thereafter expanded gradually.
- Various options of safe low cost household and communal excreta disposal will be studied, and low cost replicable systems will be promoted.
- Solid waste disposal will be managed by all municipal authorities in accordance with national Solid Waste Management policies, strategies and regulations.

### 1.2.2.2 Urban WSS policy statement 2: Adoption of pro-poor approaches

Pro-poor approaches to service provision will be adopted. Poverty is a principal impediment to increasing access to services, from the household to the national level. Within communities some households simply cannot afford the costs of improved services without assistance from other families or from the state. Many poor households pay a much higher proportion of their incomes towards their daily needs for water supply and sanitation services from informal private providers.

## Strategies

- Water supply to the poor shall be guaranteed through special arrangements especially when designing tariff policies and will keep the following facts in view:
  - The poor often reside in unplanned or informal areas and they may lack the legal status to demand or qualify for direct access to formal services under existing legal and regulatory frameworks.
  - The poor suffer first (and most) from the effects of declining utility performance. During shortages, rationing of water affects the poor most adversely as their storage facilities are often inadequate.
  - The poor are commonly dependent on daily wages which means that any time spent queuing for and collecting water cuts into their earnings.
  - The poor generally purchase water from vendors at high unit cost, bribing, and paying fees for access to illegal connections to slum landlords, or queuing for long hours at the public water sources.

- Service provider(s) often bill their customers on a monthly, quarterly or even bi-annual basis, in order to keep their administrative costs low. Such billing arrangements are often an issue for the poor when buying water supply services as they do not fit cash flow and availability.
- Those not getting water supply from public systems often pay much more for water which in most cases is of questionable quality.
- Lifeline (social) tariffs should be adopted to ensure that every person has at least a basic level of service. The tariff should cover only the operation and maintenance costs. 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.

### **1.2.2.3 Urban WSS policy statement 3: Service sustainability through full cost recovery**

All urban water supply systems must work on cost recovery principles while ensuring effective efficient and sustainable service delivery. Consumers are willing to pay for water if a reliable level of service is provided - this is demonstrated by the fact that many consumers purchase their water from private providers.

#### **Strategies**

- In setting tariffs the political pricing of water should be avoided.
- Consumers should pay all costs required to achieve long-term sustainability.
- Government should gradually disengage from funding the operation and maintenance of systems to enable it concentrate on WSS capital development projects.
- Water distribution system will be rehabilitated (including leak detection and repairs), house connections will be restored, and billing, commercial activities and customer management will be improved to ensure financial viability of services delivered.
- Staff will be trained in water production, distribution (leak detection and repairs), metering consumers, computerized billing system, and commercial activities and general management.
- Water and sanitation service providers will use benchmarking indicators of the International Benchmarking Network for Water and Sanitation Utilities (IBNET) for effective monitoring and evaluation of WSS services.

#### **1.2.2.4 Urban WSS policy statement 4: Development of the private sector in service provision**

Most governments believe that private sector can bring technical and managerial expertise and new technology and can improve economic efficiency in the sector in both operating performance and the use of capital investment. The private sector can inject large-scale investment capital into the sector or gain access to private capital markets. The development of private sector in service provision can reduce public subsidies to the sector or redirect them from the groups now served, to the poor and unserved. It can also insulate the sector from short-term political intervention in utility operations and limit opportunities for intervention by powerful interest groups, while making the utilities more responsive to consumers' needs and preferences.

##### **Strategies**

- Privatization of services shall be encouraged through appropriate regulatory reforms that will separate service provision, policy and regulation and encourage private investment.
- Public-Private Partnerships (PPPs) will be encouraged to allow each actor to leverage any gaps in their skills, abilities or mandates. They better tackle the challenges of providing water and sanitation services to the poor and accelerate the rate of expansion of un-served areas, improving financial viability and affordability and designing services to meet the specific needs of poor customers. Such arrangements require close cooperation between regulators, municipalities, private sector providers, poor communities and the NGOs that work with them.
- PPPs will be encouraged for revenue collection, metering, and WSS services. A contractual and regulatory framework will be developed accordingly to ensure private sector participation.
- Where the interests of the poor are at stake, Government shall step in with subsidies for service provision. Many of the problems should be addressed at the beginning of a process of private sector participation through the careful planning of arrangement, the careful design of supporting policies (for example, subsidies to support low-income households), and ensuring that legitimate concerns are heard and responded to by involving affected stakeholders such consumers, employees, unions, management, other government agencies.

#### **1.2.2.5 Urban WSS policy statement 5: Community well-being through social and environmental considerations**

Investments in the water and sanitation sector will be socially and environmentally responsible. Environmental considerations should be integrated into the water and sanitation strategic and investment plans prepared by service providers and government authorities. Community participation is essential for the sustainability of urban water and sanitation projects. Communities living in cities will be encouraged and supported to

participate in planning and decision making. Gender analysis will be used to assess levels of participation of men and women in the planning process.

### **Strategies**

- Each project proponent should assess the environmental and social impacts on the wellbeing of the community and the environment. This will enable the proponent to design and implement appropriate mitigation measures and environmental management plans.
- Effective environmental conservation and hygiene promotion programs for consumers, educational institutions and other internal and external stakeholders will be developed and implemented. Women and children will be centre-stage in promoting better sanitation and hygiene practices.

## **2 WATER SUPPLY AND SANITATION POLICY – PART 2: Institutional arrangement & policy instruments**

### ***2.1 Institutional arrangements***

#### **2.1.1 Introduction**

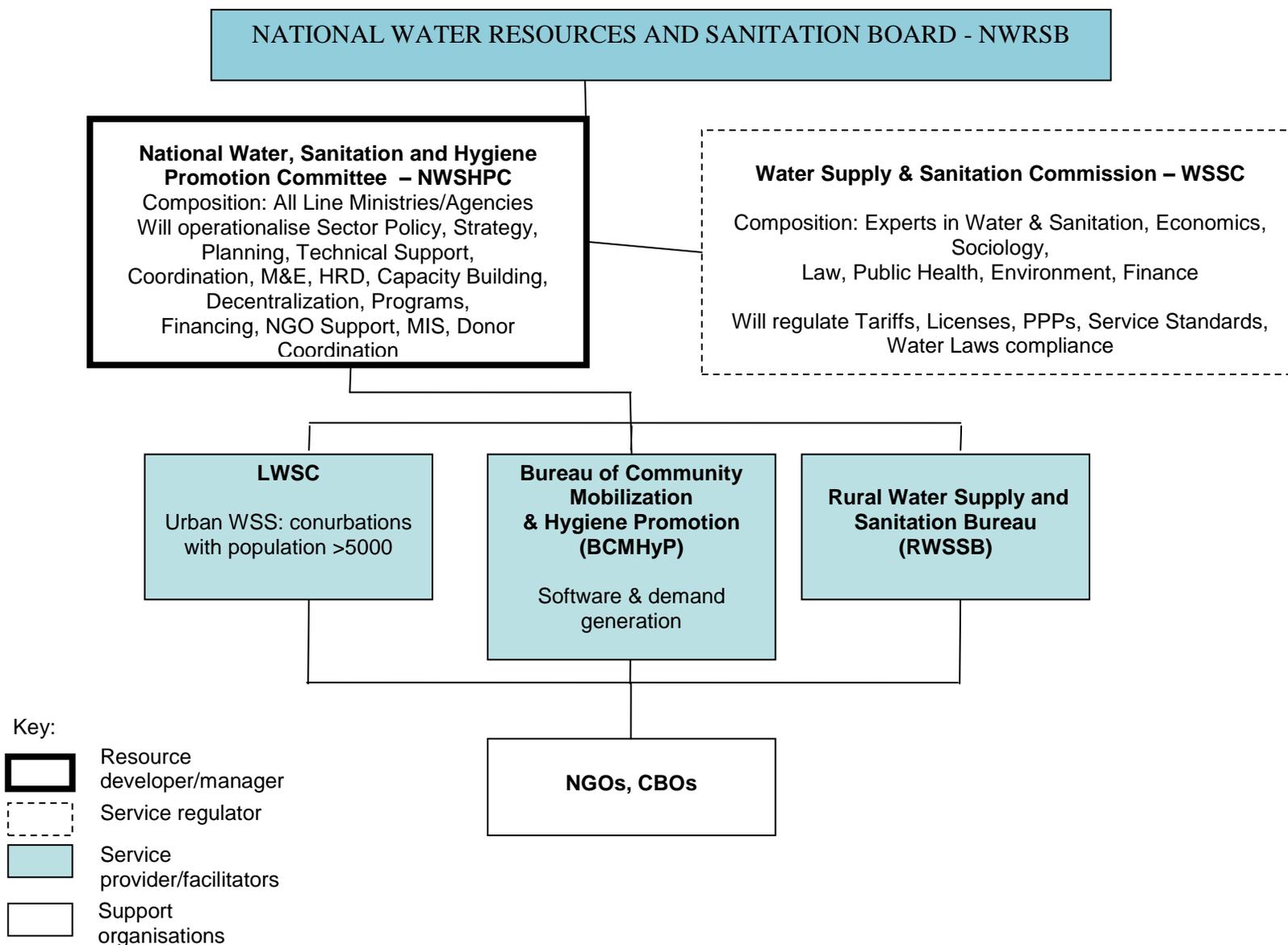
Institutions are instrumental in the implementation of a policy. Given the fragmented nature of the WSS sector in Liberia the need for a single entity to oversee the implementation of the policy becomes imperative. It is in this context that the proposed Integrated Water Resources Management (IWRM) Policy formulated by the Government of Liberia plays a vital role.

The fundamental component of IWRM process is the establishment of a comprehensive water policy to reform and develop institutions and to put integrated water resources management into practice. It also sets the tone for putting an end to fragmentation in the WSS sector by establishing a single institution to drive the WSS sector in Liberia.

In its new mandate the NWRSB will oversee an appointed Water Supply and Sanitation Commission (WSSC) comprising of eminent experts in the fields of Water, Sanitation, Environment, Economy, Finance, Law, Sociology, and Public Health who will regulate all activities related to Tariffs, Licenses, PPPs, Service Standards, and Water Laws compliance. The NWRSB will also serve as the supervisory arm for the National Water Supply and Sanitation Committee and Hygiene Promotion Committee (NWSSCHP), comprising of service providers on the part of the Government on one hand and PPP on the other.

The NWRSB, besides being responsible for WSS Sector Policy, Strategy, Planning, Technical Support, Coordination, M&E, HRD, Capacity Building, Decentralization, Programs, Financing, NGO Support, Management Information Systems (MIS), Donor Coordination, will also enforce standards, regulations and by-laws (including the existing Public Health Laws, chapter 24 of Title 33 of the revised Public Health Law and Section 35, Part IV, related to Drinking Water Quality Standards in the Environmental Protection and Management Law) through the WSSC.

FIGURE z: PROPOSED INSTITUTIONAL FRAMEWORKS FOR WATER AND SANITATION SECTOR



The NWRSB will also have oversight function of three entities, which are either service providers/ facilitators:

- (a) Liberia Water and Sewer Corporation (LWSC),
- (b) Proposed Rural Water Supply and Sanitation Agency (RWSSA), and
- (c) Proposed Bureau of Community Mobilization & Hygiene Promotion (BCMHyP)

The service providers/ facilitators will work in collaboration with Support Organizations: NGOs, CBOs, VWSC's, etc., where applicable.

### **2.1.2 Formation of the new entities**

- The formation of the National Water Resources and Sanitation Board is expected to be effected by an Executive Order, soon after the approval of the Integrated Water Resources Management Policy.
- The composition of the Water Supply and Sanitation Commission (WSSC), the regulator, could be formalized thereafter, also by appointment by an Executive Order upon recommendations by the NWRSB
- Liberia Water and Sewer Corporation is already in existence, and is expected to under go structural changes after the proposed Corporatization Study. The structural changes should allow for independent urban authorities in county capitals.
- The proposed RWSSB will comprise of the existing National Rural Water Supply and Sanitation Program, which will be elevated to the status of a Bureau, within the Ministry of Public Works. In the interim support from the Ministry of Lands, Mines, and Energy and the Ministry of Education (Education Facilities Unit), will be crucial for the functioning this enhanced Bureau.
- Likewise, the Bureau of Community Mobilization and Hygiene Promotion (BCMHyP) will now serve in the capacity of the Division of Environmental and Occupational Health (DEOH), with a Bureau status within the Ministry of Health and Social Welfare, and supplemented with Community Mobilization expertise, providing dedicated software support to the RWSSA.

The BCMHyP which provides software support, and demand generation for WATSAN services, has been intentionally kept separate from RWSSB, whose core function is hardware provision. This is to enable the BCMHyP to have its own for software support programs and work collaboratively with RWSSB in service facilitation.

The long-term objective of the proposed institutional framework is the eventual establishment of a Ministry of Water Resources and Sanitation in the country.

### **2.1.3 Roles and responsibilities of the proposed entities**

It is expected that the Government would gradually disengage from direct service delivery and play a more active facilitating role. It shall focus on facilitating change and creating the enabling environment for success of the sector. Its role should include but will not be limited to:

- Development of policy and legislation on water resources
- Coordination
- Capital projects financing
- Technical support to the sector
- Long term planning
- Water resources management
- Developing government programs
- Providing the link to external support agencies
- Promote NGO support and coordinate their activities.
- Ensure the preparation of and compliance with Water Services Development Plans;
- Facilitate financing from the Government and international sources for projects across the Country
- Promote the gathering of information in a country's Information System.
- Ensure adequate autonomy for the service providers

The organizational structure of the proposed NWSC is given in Figure z. The NWSC will act as the Resource Manager and Developer and shall among other things:

- Coordinate all water supply and sanitation activities
- Establish measures and standards for water quality
- Serve as regulatory authority on water and sanitation activities
- Make policy decisions on water and sanitation within the framework of national legal institutions/instruments

The WSSC will perform a regulatory function under the oversight of the NWSB, and will among other things:

- Promote the rights of access to basic water supply and sanitation;
- Set standards and norms for consumer service standards,
- Regulate tariffs charged to consumers;
- Issue Water Services Provider Licenses;
- Promote private sector / public-private partnerships;
- Promote National Water Laws and Policies;
- Ensure the preparation of and compliance with quality of service (quantity and

quality of water delivered to the consumers)

The Service Providers/ Facilitators, whether LWSC, RWSSB, BCMHyP or other private, government, or community organizations, shall be charged with the responsibility of service delivery to the people.

The primary role of the RWSSB will be hardware delivery, and to provide technical expertise and knowledge and build capacity in the sector. This is required, because the Village Water Committees (VWCs) and the County Administration will both have limited technical capacity – at least at the initial stages of the new policy. In essence RWSSA will enable the VWCs and County Administration to have access to water supply and sanitation management expertise that they could not otherwise afford to have in-house. Other roles will be to enforce service delivery standards in the sector and monitor and co-ordinate NGO activities in rural water supply and sanitation. The organizational structure of the proposed RWSSB is given in Figure z

Process compliance is central to sustainability of Rural Water Supply and Sanitation interventions in the country. The primary role of BCMHyP will be to ensure this by generating and sustaining demand for services, through community mobilization and hygiene promotion processes. The organizational structure of the proposed BCMHyP is given in Figure z

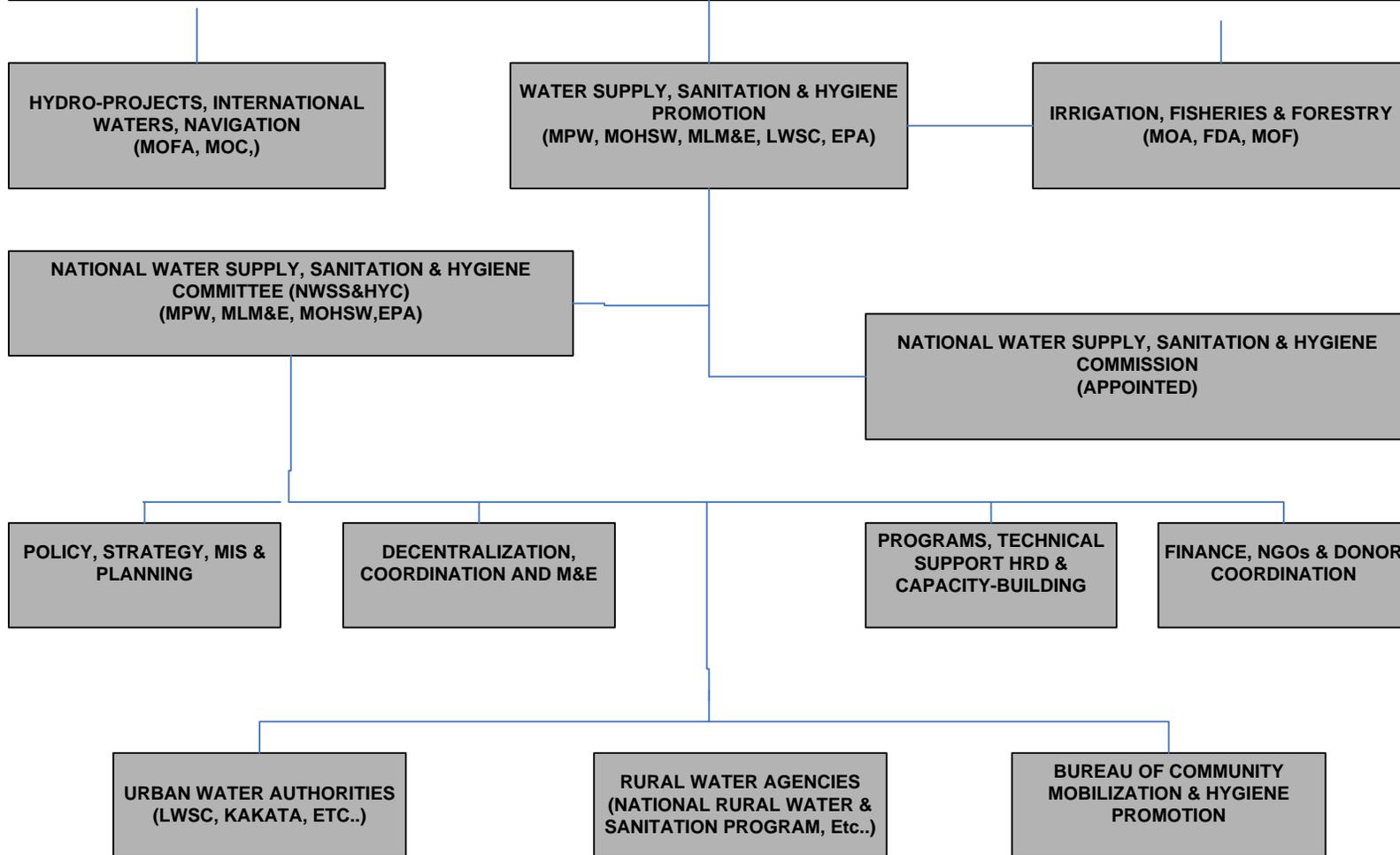
Service providers will in the long run be private sector companies. Government may choose to reform some of the existing entities in the water sector to act as service providers, but these entities would need to compete with private operators on an equal footing (iwithout government budgetary support). Service providers will either carry out the operation and maintenance of the systems themselves (on small rural systems) or will hire an operator under management contract, to perform these functions on larger systems. Service Providers/ Facilitators, regulated by WSSC, will be accountable to their customers.

#### **2.1.4 Role and responsibilities of NGOs**

The Government WSS institutions will be complemented by support from NGOS in a coordinated manner. The role of the NGOs shall concentrate on the most vulnerable and directed towards community empowerment and overall increase in their health, welfare and wellbeing. Their immediate roles could include but not limited to:

- Assisting households in disinfection of well water
- Assist the community in developing and adopting improved methods of excreta Disposal

**NATIONAL WATER RESOURCES & SANITATION BOARD (NWRSB)  
CHAIR: MINISTRY OF LANDS, MINES & ENERGY -IWRM**



**PROPOSED ORGANIZATIONAL STRUCTURE OF THE BUREAU OF RURAL WATER SUPPLY & SANITATION**

**ASSISTANT MINISTER**  
(Policy, Strategy, Coordination, Budget & Administration)

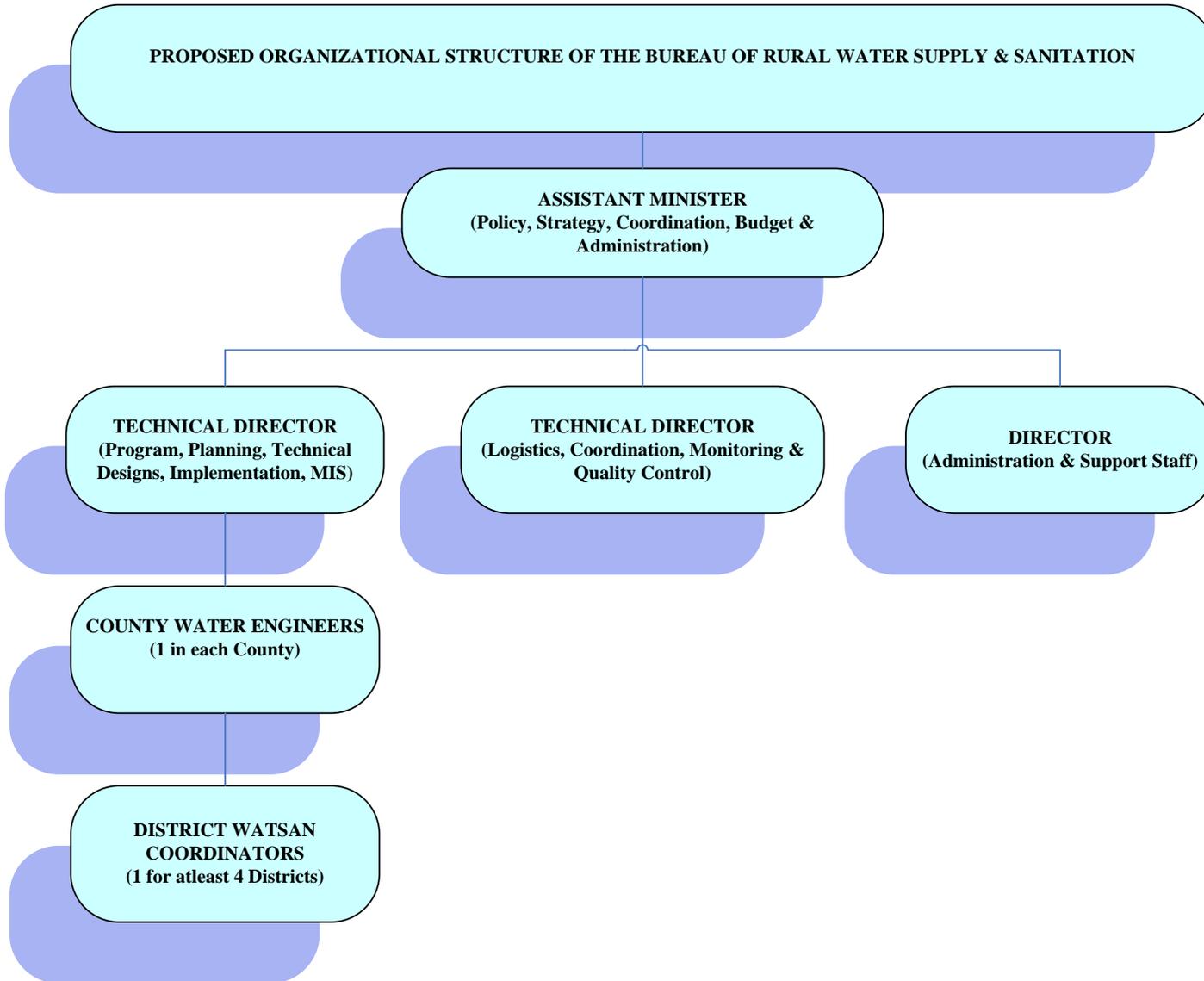
**TECHNICAL DIRECTOR**  
(Program, Planning, Technical Designs, Implementation, MIS)

**TECHNICAL DIRECTOR**  
(Logistics, Coordination, Monitoring & Quality Control)

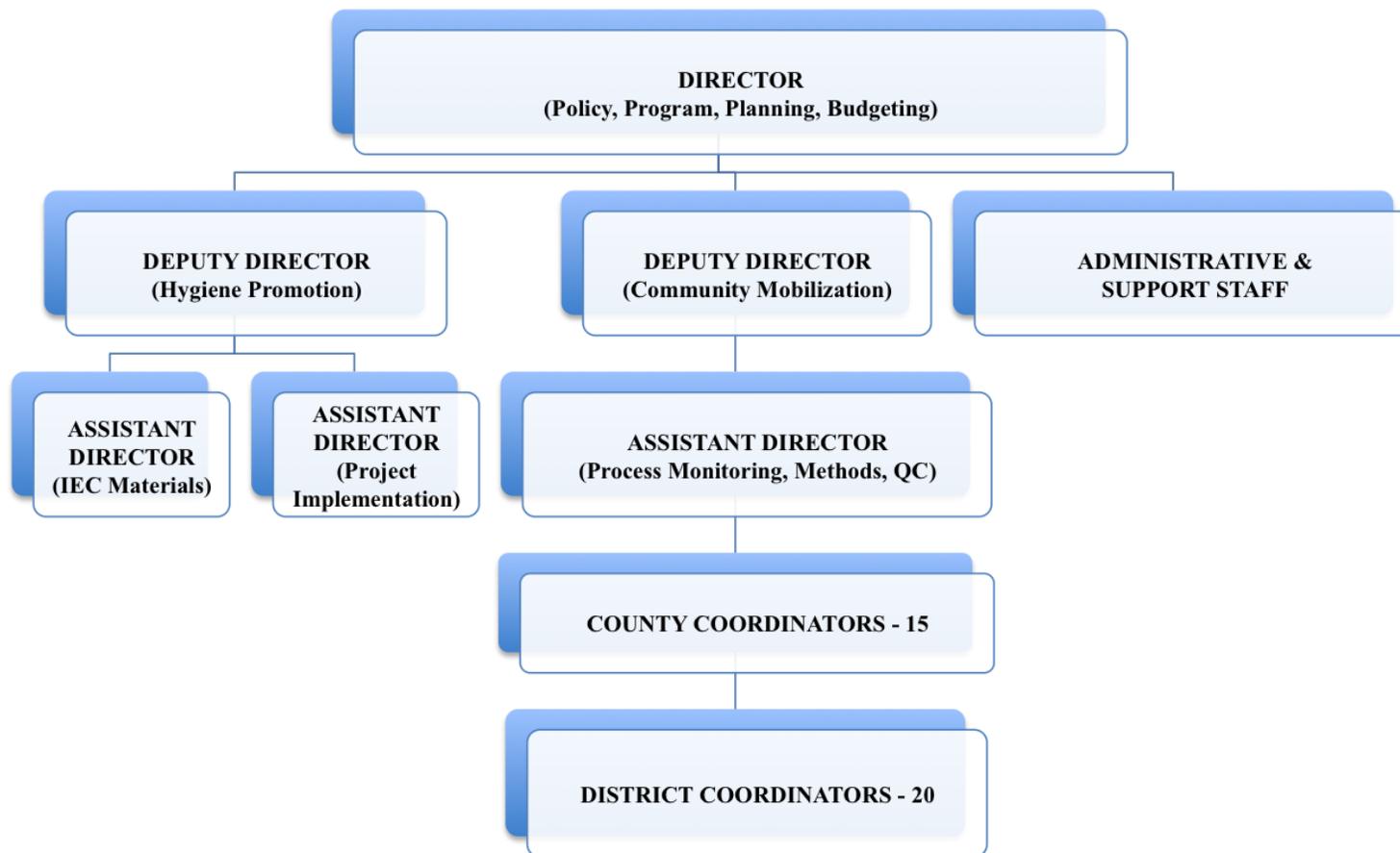
**DIRECTOR**  
(Administration & Support Staff)

**COUNTY WATER ENGINEERS**  
(1 in each County)

**DISTRICT WATSAN COORDINATORS**  
(1 for atleast 4 Districts)



7.5: PROPOSED ORGANIZATIONAL STRUCTURE OF DIRECTORATE OF COMMUNITY MOBILIZATION AND HYGIENE PROMOTION (DCMHyP)



Assisting communities to form viable water consumer associations (WCAs) to manage the water supply.

In the long term the NGOs could:

- Assist communities in the extension of secondary water mains.
- Assist the communities to manage public water selling points.
- Assist the community to develop bargaining power and improve relations with the water service providers in the area.
- Take more active part in school sanitation and hygiene promotion
- Assist in building capacity of Government agencies
- Mobilizing and training communities to carry out water supply development projects and eventual management of the water schemes.

The NGOs should not act in contravention of the Government policy on service provision. This often leads to the government policy becoming ineffective. It should be their responsibility to report to the Sector Chair, the interventions they are providing in the field.

### **2.1.5 Roles and responsibilities of External Support Agencies (ESAs)**

The policy recognizes that External Support Agencies and Donors usually provide support in line with their own country assistance strategies / national objectives/ other bilateral agreements. However, External Support Agencies shall be guided by Indicators of Paris Declaration on Aid Effectiveness: Ownership, Alignment, Harmonization, Managing for Results, and Mutual Accountability .

Government shall ensure that all ESAs comply with the following:

- Align all their support in line with government's policy, strategy and action plan
- Support scaling up effective approaches in water supply, sanitation and hygiene education.
- Be guided by internationally agreed modalities for aid management, as laid down in the 2005 Paris Declaration on Aid Effectiveness
- In as much as possible use, promote and support local and regional materials and human resources.

## **2.2 Policy instruments**

The following key policy instruments would be employed for achieving the objectives of the Policy.

- Executive Decisions: Powers vested in the State Executive would be exercised for formation of the NWRSB, NWSC, RWSSB, and the BWQHP, which will be instrumental in operationalizing the WSS Policy.
- Statutory Instruments: Appropriate legislation to raise the functions, and functionalities of the National Rural Water Supply and Sanitation Program (NRWSSP) and the Division of Environmental and Occupational Health (DEOH) of the Ministries of Public Works and Health and Social Welfare respectively to the status of Bureaus.
- Environmental Governance Instruments: Environmental Impact Assessment (EIA) and related provisions of the Environmental Protection and Management Law of the Republic of Liberia would be enforced for all the large scale water supply and sanitation projects. (Research for ISO)
- Socio-economic Instruments:
  - Water and sanitation projects will use internal and external component sharing model for financing of community based interventions.
  - Public-Private Partnerships shall be used as instruments to facilitate capital investment, enhance efficiencies, expand the service areas; and improve accountability & quality of service delivery.
  - The tariff for service provision shall be linked to the actual cost of service provision to ensure financial sustainability.
  - Targeted subsidies will be provided through lifeline tariff in the low income areas.

## **3 APPENDICES**

### ***3.1 Physical setting***

Liberia is situated on the southwestern corner of the West Coast of Africa. It has a surface area of about 111,400 sq. km. out of which 14% is covered by water. Liberia borders Sierra Leone to the west, Guinea to the north, Côte d'Ivoire to the east and the Atlantic Ocean to the south.

Liberia has a tropical climate with relatively small variations between day and night and between seasons. Temperatures never exceed 37 degrees C. There are two seasons - the wet season from May to October and the dry season from November to April. The annual rainfall averages 4,320 millimeters inland. The average humidity in the coastal belt is 78% during the wet season, but it is liable to drop to 30% from December to March when the Harmattan winds blow from the Sahara.

Liberia is endowed with abundant water resources, but the proper management and planning of these remain crucial to meeting the national priorities and goals and reducing conflicts between competitive uses. This problem is further compounded by various administrative, technical and political problems, particularly the poor state of the Liberian economy after 14 years of civil strife.

There are several important rivers in Liberia. The longest is the Cavalla River shared between Liberia and Cote D'Ivoire while the Mano River is shared between Liberia and Sierra Leone. St. Paul River is the second longest river feeding Mt. Coffee hydro-electric plant and providing the bulk of the raw water for Monrovia.

There are only two major lakes in Liberia – Lake Shepherd in Maryland County and Lake Piso in Grand Cape Mount County, with Piso being the larger of the two. Both of them are situated along the Atlantic Ocean, with Lake Piso characterized by a vast expanse of wetlands and lowland forest vegetation.

Generally, groundwater is available and can be exploited in most parts of the country in amounts needed for rural water supply, which relies on dug wells and to some extent on drilled boreholes. Data from the rural water supply program indicate that the depth to the water table in shallow wells can be less than one meter. Drilled boreholes can be as deep as 100 meters. However, reliable data on boreholes and yields and data on water quality both from surface and groundwater are scarce.

Domestic sewage, however, causes many problems as the only conventional sewerage system, which was already poorly functioning before the civil crisis, is out of operation. Some sewage water is collected by vacuum trucks and disposed of into lagoons and other water bodies. In some areas there are indications that water quality is deteriorating due to mining, logging, farming and industrial activities.

### **3.2 Socio-economic setting**

Liberia's population is approximately 3.5 million people (2008) with an annual growth rate of 2.1%. The 2008 figure corresponds to an average density of 93 persons / square mile. Monrovia, the Capital is the largest city with a population of 1.01 million. About 40% of the population live in urban areas, while 60% live in rural areas.

Liberia is divided into 15 major administrative subdivisions called Counties. Each of these subdivisions is headed by a Superintendent who serves as the Vice Juror to the President of Liberia. An Assistant Superintendent for development is concerned with the development aspects of the county. There are 16 major ethnic groups in Liberia.

During the 1950s, Liberia was among the highest achievers in terms of economic growth with a real annual growth rate of 12%. This high growth rate was fuelled principally by the buoyant world market prices of the country's principal exports of iron ore, rubber, timber, cocoa and coffee. There was also significant production of food crops. It is notable that Liberia adopted an "open door" policy to external investment, which resulted in considerable success in attracting foreign investment in mineral and rubber production. However, the 1970s and 1980s saw negative growth rates.

The unequal pattern of Liberia's growth and development process and declining livelihood opportunities for an increasing proportion of the population, combined with a prolonged period of poor governance, were the primary underlying causes of the civil war that erupted in late 1989. The dramatic effects of the war aggravated the policy and structural deficiencies of the economy, thereby accelerating the long-term social and economic decline. Foreign trade, which historically served as the main impetus for growth, was disrupted.

Civil war and mismanagement have destroyed much of Liberia's economy, especially the country's infrastructure while international sanctions on diamonds and timber exports limited growth prospects for almost half of a decade during 2000–2007. Many businessmen had fled the country, taking capital and expertise with them. The reconstruction of infrastructure and rising of incomes in the ravaged economy will largely depend on financial support and technical assistance from donor countries.

### **3.3 History of water and sanitation in Liberia**

#### **3.3.1 Urban Water Supply**

Prior to 1948, water was available to the residents of Monrovia only from private wells and cisterns most of which were highly contaminated. Thereafter in 1948, three wells were constructed in Point Four, which supplied water to Monrovia. As the population rapidly grew and the economy developed, the demand exceeded the productive capacity of these wells. In 1952, infiltration galleries with a pumping station were developed in New Kru Town (Bushrod Island). Since then, the water supply system had undergone successive expansions to culminate by 1980, in the capacity of the White Plains Water Treatment plant being increased to 60.5 million m<sup>3</sup> per day. A chronological development of Monrovia's water supply between 1948 and 1980 is given in Table z

The Monrovia Water Supply System was damaged on three occasions between 1990 and 1992. It was put out of operation again in 1996 and during the hostilities of 2003. Recent rehabilitations have restored the system to 25% its pre-war capacity of 16 million gallons per day, pumping and distributing about 4 million gallons of water per day to Monrovia and its environs.

Between the period 1970 and 1985 pipe-borne water supply systems were developed and commissioned in ten (10) urban centres (mainly county capitals) as shown in Table z. All of these systems were gravely vandalized during the war and none has been restored to pre war conditions.

Nine of the Outstations were constructed specifically for Liberia Water and Sewer Corporation (LWSC) while the tenth plant was inherited from the Liberia Mining Company in Tubmanburg when the Bomi Iron Mine closed down in 1977. Seven of the Outstations (Tubmanburg, Harper and Greenville excluded), were constructed between 1978 and 1985 at a total cost of \$17.34 millions provided as a soft loan by the West German Government (KFW).

The laudable policy of launching regional development by massive investment in basic infrastructure beginning in the late '70s has not been fruitful in this particular sector. The dismal truth was that after the investment of nearly \$20 M in Outstation Infrastructure, only 35,000 people were benefiting before the war. Four Outstations (Buchanan, Greenville, Kakata and Zwedru) exploit Groundwater, which is pumped from deep boreholes while the other six Outstations use surface water. For design purposes, the per capita consumption for the Outstations was set at 70 liters per person per day (18.5 US gallons/day) and plant capacity was designed in general to meet the needs of populations projected 15 years ahead.

At the outbreak of the war, LWSC reported that the nine functioning Outstations produced an overall average of 658,000 GD (29 l/sec) compared with the design capacity of 3.7 MGD (163 l/sec.) This water served 34,000 people, which average out at 19 G or

72 liters per person/day. The similarity between declared consumption rate and design capacity suggests that since there was probably only limited bulk metering and most usage was on an unmetered flat rate basis, Outstation water production was estimated by means of billing rather than flow into the transmission mains. The aggregate

TABLE z: CHRONOLOGICAL DEVELOPMENT OF MONROVIA'S WATER SUPPLY SYSTEM

<b>YEAR</b>	<b>DESCRIPTION</b>
Prior to 1948	No protected water supply to Monrovia.
1948	Three wells were constructed in Point-Four which supplied water to Monrovia.
1952	Infiltration galleries with a pumping station were developed in New Kru Town (Bushrod Island). The average production capacity of the collector wells was 1,500 m <sup>3</sup> /day and a maximum capacity of 3,785 m <sup>3</sup> /day. The transmission main was a 16" diameter transmission main extending approximately 5,500 meters from Bushrod Island pumping station to the Monrovia distribution system. The system also included a 2,270 m <sup>3</sup> reservoir located at Mamba Point, the highest elevation in the city, and a distribution system extending from Mamba Point reservoir throughout Monrovia proper to the Camp Johnson Road area. The total length of the distribution system installed was approximately 20,700 meters, all of cast iron pipe, of which 50% was 4", 40% was 8" and 10% was 6" diameter.
1954	Ducor Reservoir constructed.
1957	The population of Monrovia had increased to over 50,000 and it became apparent that Bushrod Island filtration galleries were not capable of meeting the increased demands. There was also the problem of sea water intrusion as a result of over-exploitation of the wells. To meet the increasing demand, a slow sand filter plant at White Plains approximately 21 km upstream the Saint Paul River from Monrovia was constructed to augment Bushrod Island galleries.
1960	Slow sand filters at White Plains water

	<p>treatment plant commissioned. The treatment plant facilities included intake and raw water pumping station at the Saint Paul River, settling basins, slow sand filters and chemical feed equipment. The White Plains plant had a capacity of 5680 m<sup>3</sup>/day. Finished water was pumped to Monrovia through a new 16" diameter transmission main along Mount Coffee Road approximately 18.7km in length. The project further included a booster station located on the new 16" transmission main at Bushrod Island and the construction of a 3785 m<sup>3</sup> reservoir at Mamba Point with the same elevation as the Ducor Reservoir constructed in 1954. Only two major extensions to the distribution system were made in this phase. One was the 6" main from the new 16" transmission main to the Monrovia Brewery, and the other was the 6" diameter asbestos feeder main to the Sinkor area.</p>
1961	<p>Early in 1961, the above facilities were inadequate to meet the rapidly increasing water demand of the fast growing population which was now estimated at about 75,000. As a short-term solution, the plant capacity was increased to 7750 m<sup>3</sup>/day.</p>
1967	<p>The third phase of the Monrovia's water supply expansion started; involving intake, raw water pumping station, two flocculation basins, two settling basins, and four rapid sand filters. Also included were chemical facilities, clear water pumping station, clear water reservoir of 3,785 m<sup>3</sup> capacity, chlorination and electrical facilities.</p>
Dec. '68	<p>A 36" diameter transmission main was constructed from White Plains to Monrovia via Johnsonville, Paynesville, Congo Town, where the main reduces in diameter to 24" extending to Sinkor, and ending as 16" main at Mamba Point. Substantial reinforcements and extensions of the distribution system were made under this</p>

	expansion phase. The total length of the distribution system was doubled by adding some 30 km of cast iron pipes ranging in diameter from 4” to 12”. These facilities provided a safe and reliable water supply for the greater Monrovia area until about 1973/74.
1980	With consecutive improvements to meet the rising demand, by 1980, the capacity of the White Plains Water Treatment plant was increased to 60.5 million m <sup>3</sup> per day (that corresponds to a continuous production of 700 litres per second, 24 hours per day).

TABLE z: DETAILS OF OTHER URBAN CENTER WATER SUPPLY SYSTEMS

No.	City	Water Source	Year Completed	Design Population
1	Gbarnga	Surface water	1978	7500
2	Sanniquelle	Surface water	1979	9500
3	Voinjama	Surface water	1980	8600
4	Buchanan	Groundwater/ Nine boreholes/ Six operational before 1990 with the capacity of 300,000GD	1981	31000
5	Kakata	Groundwater/ Four boreholes/ Two operational before 1990 with the capacity of 213,000GD	1984	20800
6	Zwedru	Groundwater/ Three boreholes/ Two	1980	8000

		operational with the capacity of 32 cu m/hr		
7	Robertsports	Surface water	1985	3000
8	Harper	Groundwater	1971	10000
9	Greenville	Groundwater/ Infiltration gallery	1970	8000
10	Tubmanburg	Surface water	n.a	10500

Note: The population served is estimated for the year of completion of the water supply system.

(source: National Action Plan 1985 -1997).

production of the Outstations was probably much greater than that declared. The minimum price of water from 1985 to the outbreak of the war was \$ 2.1 per 1000 gallons. Approved budgets for total operating expenditure of the Outstations were \$L 476,5000 1989 and \$L 511,443 in 1990. Billed cost recovery in 1989 (\$L 230,000 expected but only partially collected) was sufficient to meet only about 48% of annual current expenditure which consisted of \$L 179,750 for chemicals, fuel, spares, etc., and \$L285,600 for personnel (56 field staff and 11 headquarters staff). Budgeted expenditure did not include any provision for capital investment or repayment of debt.

### 3.3.2 Rural Water Supply and Sanitation

Records suggesting the implementation of an organized rural water program date to 1974. The NRWP as it was referred to, began in the then Ministry of Local Government, Rural Development and Urban Reconstruction as a US Peace Corps Volunteer program. Major activities included the development of shallow hand-dug wells fitted with Consallen and Aweiller hand pumps, spring catchments systems and mini hydro electric dams, such as one constructed in Yandohun, Lofa County.

In 1975, an Act of the Liberian National Legislature created the Agency for Action Development and Progress (ADP) and transferred many programs that had direct impact on the wellbeing of rural people. The National Rural Water Program, the National Feeder and the rural sanitation programs were then transferred with their staff to the Agency for Action, Development and Progress. As a result of increased funding support particularly from donors (UNDP, UNICEF and the EU) a rural sanitation (VIP latrines) component and nine county-based (cable tool, percussion) drilling fleet was added, although the nomenclature remained unchanged. Organized water and sanitation project activities were on-going through the EEC 4 counties (Grand Bassa, River Cess, Sinoe and Grand Kru Counties). The Program also seconded technicians to agricultural projects with rural

water supply and sanitation components. These were the German Technical Cooperation (GTZ) rural development project, the World Bank funded Lofa and Bong Counties Agricultural Development projects.

In 1982, an Act of the National Legislature of the People's Redemption Council (PRC), created the Ministry of Rural Development and transferred the activities of the Agency for Action, Development and Progress and made the National Rural Program headed by a Program Coordinator, a full fledged program with an annual development budget to serve as matching fund to donor support.

Rural water supply and sanitation had been a shared responsibility among a considerable number of agents. By 1987, there was a strong collaboration with the Ministry of Health & Social Welfare – Division of Environmental & Occupational Health (DEOH), the Ministry of Lands, Mines & Energy – Liberia Hydrological Services (LHS), Plan International and the Christian Health Association (CHAL), a creation of the Lutheran Church of Liberia. Other areas of work included the formulation of an organized body to harness the cooperation of the fragmented structure of water supply and sanitation activities, what has become known in history as the National Water Supply and Sanitation Board.

The National Rural Water Program received a major boost in 1987, when the British Overseas Development (ODA), under the British Government granted funding to hire the services of M Sir McDonald & Partners. The work of this consulting firm resulted into the commissioning of documents for the rehabilitation of the Program. These included a thorough assessment of existing capacities – logistical and manpower and the subsequent formulation of guidelines to the policy aims and practical implementation of activities of the Program. Among these are the Policy and Implementation Manual and Social Appraisal documents.

The work of the consultants coincided with the implementation of the Southeastern Village Water Supply Project based in Grand Gedeh, Sinoe, Grand Kru and Grand Bassa Counties. The advent of the war pre-maturely disrupted the implementation of the software component of the project.

### **3.3.3 Sanitation and Hygiene Promotion**

In the 1930s, President C.D.B. King promoted the institutionalization of basic sanitation for Monrovia and its environs. With international assistance in 1945, the Government of Liberia, under the Administration of the late President William V.S. Tubman, established what was then known as the National Public Health Services. The Public Health and Safety Laws of Liberia was formulated in 1956 and underwent revision in 1976 by the Liberia Association of Public Health Inspectors (LAPHI), the Division of Environment and Occupational Health (DEOH) and the School of Environmental Health/Tubman National Institute of Medical Arts (TNIMA) with collaborated effort from WHO. The

Division Environmental and Occupation Health have been involved with Health education activities since 1950. Health education is the nucleus of the Primary Health Care. In Liberia, Hygiene Promotion gained prominence since the civil crisis and was formally launched in 2005 in Buchanan, Grand Bassa County by the Division of Environmental and Occupational Health in collaboration with the School Health Division of the Ministry of Education with support from Unicef-Liberia.

### **3.4 Current status of water and sanitation in Liberia**

#### **3.4.1 Urban Water Supply and Sanitation coverage**

Coverage refers to proportion of people served with adequate levels of water supply and sanitation services. It is an indicator of current sector capacity to deliver and a starting point to set realistic sector targets and to plan for achieving those targets.

The criteria for water supply coverage is defined in terms of ‘access’ to water, based upon the type of technology employed, distance from the house and quantity available. Access includes (i) household water connections with either taps within the house or within a private plot of land, or (ii) public water points, including public standpipes, boreholes with hand pumps, protected dug wells, protected springs, rainwater collection or other locally defined technologies. Reasonable access to a public water point is broadly defined as the availability of at least 20 liters/person per day of safe water from a public water point located within one kilometer of the user’s dwelling . Systems must be functioning to provide adequate services. For water supplies, piped systems must operate at 50% of design capacity or more on a daily basis, while hand pumps must operate at least 70% of the time and experience no breakdowns longer than two weeks.

Access to adequate sanitation is defined in terms of technologies that safely dispose of human excreta. It includes flush toilets connected to public sewers as well as a variety of on-site disposal systems (septic tanks, pour flush latrines, VIP latrines, simple pit latrines). Sanitation facilities must be structurally sound and operating in a manner that encourages use. Key indicators of coverage include data at country levels that are disaggregated into urban and rural areas and further broken down into types of services provided.

Liberia Water and Sewer Corporation is in-charge of providing water and sanitation services in Monrovia, all County capitals, and urban centers with population more than 5000 . Outside of Monrovia there is said to be no sewerage system in any of the County capitals, and most of them are said to be dependent on hand pumps and hand dug wells for water supply.

The 83.5% access figure for water supply in urban areas given in the LDHS 2007 is on account of the large percentage of dug-well sources reported in urban areas. This needs to

be verified by a dug-well specific survey, focusing on their numbers and status/condition as improved sources of water supply. Also in case of public taps/standpipes, the service levels are not up to norms of reasonable access indicated earlier. According to LWSC, Monrovia's water supply is said to have declined over the years from 16 MGD to 4 MGD currently, and currently a water supply of 15 liters per capita per day is said to be maintained.

There are said to be 2641 family (household) water connections, which works out to a coverage of about 1% of Monrovia's 1,010,970 population . However, supplementary sources of potable water supply are available by hand pumps, rain catchments and street vendors in all of the capitals of the 15 sub-political divisions of Liberia. These are emergency initiatives with support from development partners.

As regards sewerage, about 25% of Monrovia's geographical area is said to be connected to the sewer system, which conveys the sewage to the treatment plant. This leaves about 75% of Monrovia's population resorting to either on-site sanitation (pit latrines and septic tanks) or hanging latrines. Use of plastic bags for feces disposal and open defecation is also prevalent. There are 724 house sewer connections, and some of the population (no estimates) are said to be having flush toilets with septic tanks. The septic tank contents again are carried by vacuum trucks and discharged into the sewer network.

The 11.2% sanitation access given in LDHS 2007 is mostly due to the 4.4% connected to the sewer system and 15.7% connected to the septic tanks in the urban areas (in this case, mostly Monrovia). It is implied in the definition of a flush toilet connected to a sewer or a septic tank (as an improved access to sanitation), that the sewage / effluent from it will undergo treatment before final disposal. In Monrovia, the sewage from the flush toilets and sewage from hundreds of septic tanks (collected by vacuum trucks) is discharged into the sewer network. However since the sewage treatment plant is not working and the sewage eventually finds its way untreated into the environment, it is strictly not considered as safe disposal of excreta. The limited amount of water in Monrovia has also posed a challenge for the water-borne sewage system and the sewage treatment plant was looted during the war.

Communal latrines were constructed in both rural and urban communities during the humanitarian period but often fell into disrepair. In urban communities some filled up and were abandoned. Some communal latrines with strong management systems are seen to operate effectively in the urban environment with a payment for use (3 uses of the latrine per 5 LD).

### **3.4.2 Rural Water Supply and Sanitation Coverage**

LDHS 2007 estimates of water supply and sanitation access in rural areas are 55.8% and 4% respectively. As stated earlier the high access figure for water supply is on account of a large number of dug wells reported in the rural areas. In rural areas the supply of drinking water is obtained from Hand pumps, Spring boxes, Rainwater and rivers and creeks. The sanitary disposal of human wastes is primarily by means of Pit Latrines. Generally ring wells (up to 40 ft deep) or drilled boreholes are used with hand pumps. Hand pump types commonly used are Afridev, Vergnet, Consallen and Kardia. There is no formal national policy standardizing hand pumps but UNICEF and most INGOs are now supporting the Afridev (and in 2007 ECHO was only funding Afridev hand pumps).

In some parts of the country shallow wells dry up in the dry season and there are also challenges with saltwater intrusion, collapsing wells and rocks preventing easy excavation of wells. For a country which has significant rainfall, with some rainfall even during the dry season, there is good scope for rainwater harvesting, particularly from institutions. Households undertake rainwater harvesting using buckets under the edges of their roofs without gutters and including from thatched roofs.

ACF had started a small spare parts distribution in the areas it has been working and the others in the INGO Consortium are also now trying to replicate the same. UNICEF is also providing training through local NGOs, for pump mechanics at district level and supplying a set of spares on a revolving basis. There is however no supply chain mechanism for spare parts.

The sector is field-testing and disseminating new technologies (Bio-sand filter are currently being undertaken as a new introduction to Liberia and this is already included in the activities in the PRS matrix). There is also scope for field-testing other technologies which are easier to adopt and maintain such as the rope pump, rainwater harvesting, and solar disinfection (SODIS) of water supplies.

### **3.4.3 Countrywide coverage of Water Supply and Sanitation**

There are multiple sources of data indicating different coverage figures of water and sanitation in the country, and these are not necessarily comparable. There is also no proper reporting mechanism in place, besides ad hoc and inconsistent reporting of interventions by the partners to the Government. Table z gives an overview of the access figures determined by LDHS and other sources.

TABLE z: AN OVERVIEW OF WATSAN ACCESS DATA IN LIBERIA

	Access to Improved drinking Water sources, %				Access to improved Sanitation, %			
Source of Data	Urban	Rural	Total	MDG Target	Urban	Rural	Total	MDG Target
LDHS, 1986	90	28	NG		62	29	NG	
LDHS, 1990	85	34	55	78	59	24	39	70
LDHS, 2000	75	49	NG		51	10	NG	
LDHS, 2004	72	52	61*		49	7	27	
MRD-UNICEF VPA#	NG	17	NG		NG	2	NG	
LDHS 2007	83.5	55.8	66.1		23	4	11.2	

NG: Not Given

\* Extrapolated from LDHS 2000.

# Conducted by MRD, UNICEF and NGOs in 15 counties. Urban areas not covered.

In the PRS 2008, the joint Government–NGO Working Group, adopted the base access figures for water supply and sanitation in the country as 25% and 15% respectively. However the 2007 Liberia Demographic and Health Survey (LDHS) figures, which are internationally quoted for tracking the MDGs, are 66.1% for water supply and 11.2% for sanitation. A joint survey to arrive at realistic access figures has therefore been recommended to be conducted in the PRS Priority Action Matrix for Water and Sanitation, from a strategic planning perspective, and to enable the country re-assess its progress in the sector in relation to the MDG.

### 3.4.4 Fragmented mandates

Various ministries and agencies have mandates and responsibilities in the water and environmental sanitation sector. Overlaps exist in some cases amongst the key ministries and agencies such as MOH, MPW, MLM&E and LWSC, due to the absence of water and sanitation policy, legal framework and a strong coordination mechanism. The role of various Ministries involved in the water and sanitation activities are shown in Table z

TABLE z : ROLES AND RESPONSIBILITIES OF MINISTRIES AND AGENCIES INVOLVED IN WATER AND SANITATION

Ministry	Responsibility
Ministry of Public Works	<p>Lead Ministry of Infrastructure and Basic Services Pillar in the PRS. Leads the Sector Coordination at National level through monthly meetings. Responsible for service delivery in rural areas. County level Sector Coordination is carried out through various partners, notably the County Health Teams, UNMIL/HCS, or NGOs. The Ministry of Public Works is responsible for design, construction and maintenance of highways, streets, roads, bridges and related transport infrastructure; construction of sanitary sewers, hospitals, public buildings and other public works for other government Ministry or agencies exclusive of public authorities. It cooperates with representatives of such ministries or agencies in planning and carrying out construction. It provides architectural and engineering services to all departments and agencies of government. In addition to this, it also carries out urban and town planning and land use zoning. The Ministry also enforces construction standards for non governmental buildings and administers the law with regard to issuance of licenses to electricians, plumbers and any other persons who are required by law to obtain licenses to carry out their occupations. The Ministry in conjunction with the National Planning Agency and the defunct Public Utilities Authority (PUA) used to plan public works facilities and public utilities systems. The PUA was finally split into two the Liberia Electricity Corporation and the Liberia Water and Sewer Corporation. The Ministry of Public Works also provides surface drainage water throughout the country, particularly in the cities. This is done usually during road construction or rehabilitation.</p>
Liberia Water Supply and Sewerage Corporation (LWSC)	<p>Lead Agency of Infrastructure and Basic Services Pillar in the PRS Responsible for service delivery in urban areas (of population over 5000) . Provides technical support to the sector. Focal point for the PRS discussions and working groups. The formulation of policies and direction of management of the corporation is vested in its Board of Directors consisting of a Chairman and other members (which include the Minister of Finance, the Minister of Justice, the Minister of Planning and Economic affairs and five other members chosen from the private sector. All the board members are appointed by the President of Liberia.</p>

	<p>The Chief executive officer of the Corporation is its Managing Director who is charged with the operational responsibility for implementing the programmes and policies of the Corporation. He is appointed by the President with the advice and consent of the Senate. The Corporation has the power to (and indeed does) maintain a ringed account and is responsible for its revenue collection and settlement of its financial obligations. The Act creating LWSC did not specify who the Supervising Ministry is that can take up major policy decisions of the Board to the National Executive Council and to which the Board is responsible.</p>
<p>Ministry of Land, Mines and Energy</p>	<p>Leads in Policy formulation. Provision of hydrological services (through the Liberia Hydrological Services Bureau), Water Analysis, and collection of hydrological data. Can provide assistance and advice with the siting of boreholes and wells, and drilling techniques. But in practice, staffing, financial, and logistic constraints make this extremely difficult to organize. The ministry's involvement with the water program is limited to cooperation in the collection and storage of data and water quality analysis. The LHS is also engaged in water supply investigation assessing the available surface and ground water potential and water demand. Before the war the LHS provided water quality analysis for chemical and biological contamination.</p>
<p>Ministry of Health</p>	<p>Through its Department of Environmental and Occupational Health, responsible for Health Promotion, Environmental and Occupational Health activities. Hygiene Education and development of Sanitation facilities. Prevention of the spread of communicable, infectious and preventable diseases; promotion of conducting research in the prevention and treatment of human diseases and the collection and compilation of pertinent statistical data; preventing and abating conditions hazardous to the public health; promoting research, experiments, investigations and studies in the development of scientific methods for the diagnosis and prevention of social problems; setting standards of water quality control and environmental health. The Ministry is also responsible for the enforcement of the Public Health Law which includes among others, waste management, disinfection, drinking water, industrial waste, sewerage, vectors, environmental sanitation, sanitation in housing and other structures, prevention and destruction of mosquitoes, water pollution control. Other responsibilities include water</p>

	<p>supply, environmental sanitation component program to promote household and community hygiene and sanitation through access to safe water, proper latrines and pleasant environments that support health through the components of water quality control, technological support services, environmental health and health education. The Ministry also (under the authority of Statute or executive Order) lends assistance to persons in need because of public disaster.</p>
Ministry of Education	<p>Division of School Health in the Ministry is responsible for School Health and Hygiene in the country's 4900 schools (Private and Public). It has one Focal Point for Hygiene Promotion in schools. Constructs hardware in collaboration with Education Facilities Unit in the ministry. Software activities related to water supply and sanitation in schools are developed in collaboration with the Department of Hygiene Promotion in the MOHSW.</p>
Environmental Protection Agency	<p>Responsible for Environment protection; The Environment Protection and Management Law of the Republic of Liberia was created and approved November 26, 2002 charged with the responsibility for coordinating, integrating and harmonizing the implementation of the National Environmental Policy of Liberia and law under the guidance of the Environmental Council. The National Policy provides for the integration of environmental considerations in sectoral, structural, regional and socio economic planning at all levels; sound management of environmental and natural resources; protection and maintenance of human habitats, ecosystems and ecological processes; guidance for the national action plan and for healthy environmental practice on national development; sustainable development and common approaches to environmental issues. It's specific responsibilities are : Protecting the Right to a Clean and Healthy Environment; enforcing environment Impact Assessment and issue license which must be done prior to commencement of projects that affect environment; promulgating guidelines describing the contents and format of environmental reviews, and specifying the procedures to be followed by the Agency in evaluating environmental reviews; in consultation with the relevant Line Ministries responsible for water supply and use, design water quality standards, monitoring quality and pollution levels, investigations of suspected pollution and monitoring and advising on industrial effluents; in consultation with relevant line ministries identify hazardous wastes and issue guidelines</p>

	<p>on handling storage and disposal; in cooperation with relevant ministries, agencies, city and county governments and in consultation with other stakeholders in the community and after public hearings, develops and publishes national guidelines for solid waste management. The guidelines shall include strategies and incentives for reducing, recycling and reusing waste; in consideration with relevant line ministries publish notices and guidelines or standards for the management and protection of rivers, lakes and wetlands; through the County and District Environment Committees identify and in consultation with relevant line ministries provide guidelines for protection of the area at risk; in consultation with the Ministry of Education take appropriate measures for the integration in schools, colleges and universities curricula of environment education.</p>
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### 3.4.5 Constrained capacities

In addition to fragmented responsibilities, the sector also suffers from capacity constraints in terms of trained manpower, mobility, and finances.

Ministry of Public Works: The Ministry is engineering focused, handling among other tasks, the national rural water supply program. They have one drilling rig provided by UNICEF. They look after the water and sanitation in towns less than 5000 population. They encourage household sanitation, and construct community sanitation units and institutional sanitation units (in schools, hospitals, markets). They have 29 Technical staff and 14 non-technical staff in the center, and just two representatives in the counties. Their annual budget is USD 430,000 / annum for the entire Ministry. They have one rig, one compressor, one gen-set, 4 dewatering pumps, one development compressor, one mobile water treatment unit, spares for pumps, one truck, 4 pick-ups, 2 monitoring pick-ups, all auxiliary equipment, pre-positioned spare parts in 5 counties. They intend to procure two pick-ups, motorbikes, meet personnel costs, allowances, fuel, and lubricants, etc. 50% of their staff are technical, and the rest non-technical. They implement directly, and/or through contractors and NGOs.

Liberia Water and Sewerage Corporation (LWSC): LWSC was established in 1973 under an Act of the Legislature as a legal public autonomous corporation for the provision, distribution, and supply of water in Liberia for public, domestic and industrial purposes. It is controlled by a Board of Directors. It has 'less than' ten pick-ups, one sewage truck, operating in one county out of fifteen. The budget is \$400,000 per annum. The WTP needs huge repairs and rehabilitation amounting to \$19 million. The manpower is said to

be low. The asset and customer register database is manually managed. Not enough computers or trained manpower. The distribution of staff in LWSC is heavily skewed towards the lower levels (semi-skilled and unskilled), as shown in Table z

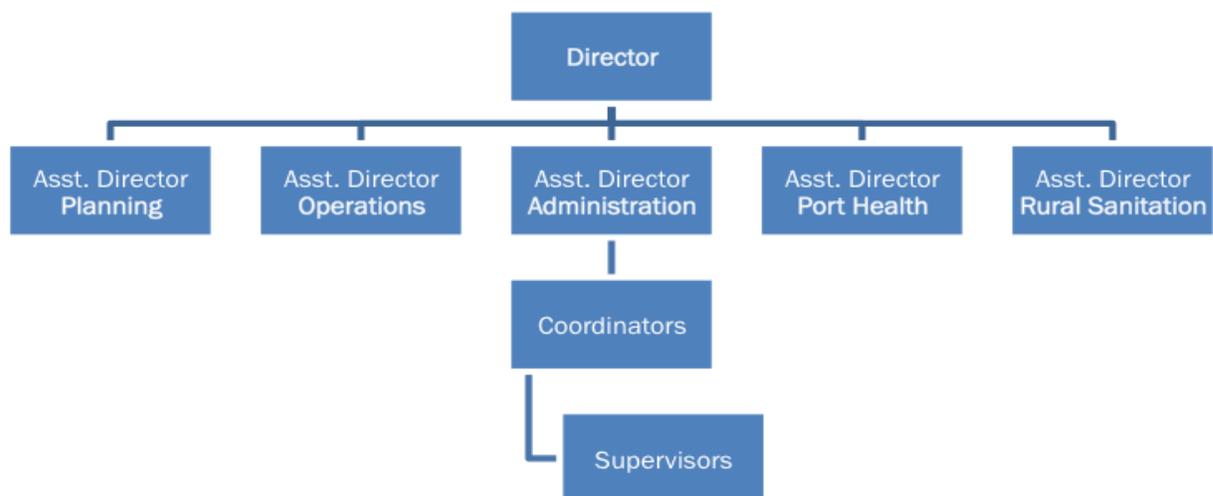
TABLE z : SKEWED DISTRIBUTION OF LWSC’s STAFF CADRE

Category	Number	%
Management	5	3
Professional	14	9
Supervisory	16	10
Skilled	16	10
Semi-skilled	34	21
Unskilled	86	55
TOTAL	171	100

There is a severe shortage of qualified staff at the managerial and professional levels and an over-staffing at the lower levels. Less than 4% of the entire staff occupy managerial and professional positions, while over 70% occupies the semi-skilled and unskilled positions. There is an acute shortage of qualified staff especially Engineers and Accountants in the Agency.

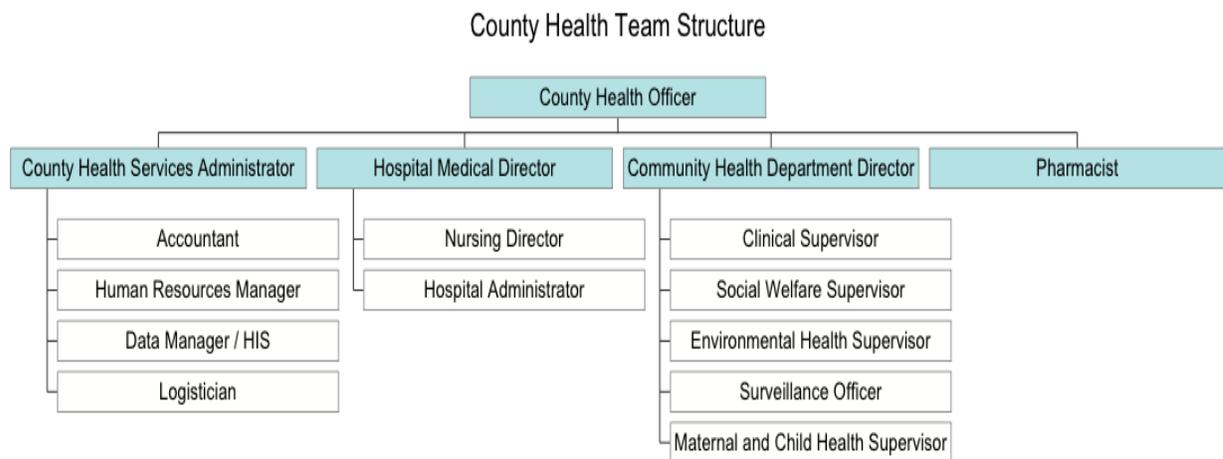
Ministry of Health and Social Welfare (MOHSW): Within the Ministry is the Division of Environmental and Occupational Health, situated within the Public Health Division of the Department of Health Services. The organizational set up of the Division of Environmental and Occupational Health at the Central Level is shown in Figure z. The DOEH has one Sanitary Engineer trained at the University of Liberia, and needs capacity development to handle sanitation programs on a large scale .

FIGURE z: ORGANIZATIONAL SET UP OF THE DEOH AT THE CENTRAL LEVEL



This is an entirely donor dependent division, supported by OXFAM and UNICEF. Annual budget is USD 25000. There are no vehicles in the department. Current staff strength is 46 at central level and 200 at the counties. The Department of Health Promotion has a budget of USD 20,000 per annum, released quarterly. Depends on project based external assistance. They have no car. While they have the mandate to develop IEC materials, there are other NGOs also developing IEC materials, underscoring the need for coordinating in this area. Most of the hygiene promotion activities are carried out by the NGOs on a project basis. The Ministry is said to have strong presence in the counties in the form of County Health Teams (Figure z). In county capitals they are responsible for several activities, including waste management, collection and disposal, WASH promotion and assessment, Water quality control, food safety, chemical safety, environmental sanitation, occupational health. Implementation is through NGOs. They supervise and monitor them.

FIGURE z: STRUCTURE OF THE COUNTY HEALTH TEAMS



Ministry of Land, Mines, and Environment: The Ministry is taking the lead in policy formulation (IWRM, White Paper on Water & Sanitation, etc). Has the capacity to advise regarding groundwater prospecting and drilling, and water quality analysis. The implementation is carried out by LWSC and Rural Water Program. There is no separate budget for water supply activities. Rural water supply is largely funded by donors. The

current staff strength of the Hydrological Service is 32. They have no staff in the counties nor logistical capacity to carry out water supply projects in the counties.

### 3.4.6 Donors / financial institutions

Among the donors / financial institutions met were EC, ECHO, USAID, DFID and the WB.

Donor/ Financial Institution	Plans/Priorities
European Commission	<p>The European Commission’s priority has been urban water supply and have been providing emergency project grants to LWSC to rehabilitate the WTP, repair pumps and transmission mains. The EC are now working with WB and AfDB to harmonize investments in infrastructure sector. The AfDB will cover the water sector, while the WB is concentrating on the transport sector. The EC is providing €3.234m (approx. \$4.75m) funding through the WB-managed AIDP programme. This includes funding for rehabilitation of Monrovia water distribution network, as well as engineering design and supervision. They are also committed to completion of those elements of the Quick Impact Interventions (QII) that were not completed earlier this year through the AIDP programme.</p> <p>ECHO’s activities in Liberia had three phases. The first phase was Emergency (in IDP Cams, etc) for 18 months, and it is over. The second phase, lasting 24-30 months, concentrated on return of people at the counties (same as in reinforcing development). The third phase, starting now, focuses on establishing and reinforcing capacities. It has a duration of 18 months, with a programmatic approach. The priorities are WASH and Health, WATSAN, and Food Security. In WATSAN they are supporting the NGO consortium. They fund only INGOs and UN Agencies. They focus at community level and support for policy.</p>
World Bank	<p>The World Bank’s priority is Quick Impact Projects, and improvement of urban water supply and sewerage in Monrovia and secondary cities, through LWSC. A joint mission is planned with AfDB soon to draw up a joint strategy. The AfDB is expected to set up a new project implementation unit to help the water sector.</p>
AfDB	<p>The African Development Bank will be the lead Bank for Water Sector in Liberia. They plan to carry out a comprehensive water and sanitation sector reform study,</p>

	over a period of eight to nine months, focusing on capacity building and investment programs. There will be three components of the study: IWRM, Objective Oriented Capacity building, and Institutional reforms study. The investment programs would be immediate term (2008-2010), medium term (2011-2020), and long term programs. The immediate term investment programs cover rehabilitation of water treatment plant in Monrovia, study of Monrovia water supply expansion and in 3 county capitals (Grand Bassa, Grand Gedeh, and Margibi).
USAID	The USAID are in the design stage of their activities. They are developing a \$2.5 million program in six counties, with a health outcome. The six-Counties strategy is expected to be ready in about three months. They are moving away from NGO activities to more development focused activities. Currently exposure to WATSAN is minimal. Typical focus areas are Behaviour change, Hand washing, Hygiene Education in health centers, Secondary Schools. Not supportive of urban WATSAN.
DFID	DFID is channeling funds through the AfDB (approx. \$5.9m over two years) to enable their participation in the Monrovia Water and Sanitation Reconstruction Program, in close coordination with the EC and the World Bank. DFID is also providing \$7m over three years to a 5agency NGO Consortium (led by OXFAM) to continue the strengthening of water supply systems in rural areas, and support the broader GoL WATSAN sector reform process.

### 3.4.7 UN agencies

Among the UN Agencies visited were UNICEF, UNHCR, UNDP, WHO and UNMIL. Their roles and responsibilities in the water sector are delineated below.

UNICEF: UNICEF’s country programme (2008-2012) focuses on Child Survival, Basic Education and Gender Equality, and Child Protection. WASH is one of the clusters under Child Survival. It aims to increase effectiveness in policy and strategic planning; achieving results at scale and leveraging resources. Working at three levels, the cluster will focus on: (i) sectoral financing and policy; (ii) training and monitoring of service providers to participate in the design and implementation of targeted capacity development efforts in the health, education and WASH sectors, and to implement high-impact, low-cost WASH interventions at scale; and (iii) finding rapid and efficient approaches to fast track at scale the promotion of basic hygiene, sanitation and safe water usage at the household level.

UNHCR: UNHCR have been active since 2003 when the reintegration program started. Currently they are scaling down their operations, and engaged in consolidation activities, like setting up and training of watsan committees, mechanics, supply tool kits, repair and installation of hand pumps. They are not engaged in any new projects. Their watsan programs are expected to end in 2008.

UNDP: UNDP's Community based recovery program (2003-2005) focused on capacity building, livelihoods, and basic services under which water supply was highly supported in five counties. They made it a policy to have a watsan component in all schools they rehabilitated. The program closed in 2007. From 2008, it is Community based Recovery and Development program in four counties, driven by the County Development Agendas. They work on pro-poor approaches, and implement through local partners.

WHO: WHO's areas of interest are strengthening the health systems, disease prevention, reproductive health, and emergency health action, which is getting phased out. Watsan is part of the disease prevention area. They supported MLME with Water Testing Kits for counties. They support draft policy in health promotion. They are not engaged in direct provision of services.

UNMIL: UNMIL works with LRDC on governance issues. They feel the humanitarian phase is over and recovery development phase is on. They feel the need for a strong sector coordination structure with UNICEF as co-lead.

### **3.4.8 Coordination**

Monthly sector coordination meetings are conducted under the Chairmanship of the Ministry of Public Works with support from UNICEF. There are 33 accredited International NGOs and 128 National NGOs in the country. Only one third of the INGOs are WASH sector NGOs. There is an INGO Coordination Forum called the Management Steering Group of INGOs (MSG) which also meets once a month. OXFAM leads a Consortium of five NGOs. There are also a number of local NGO network organizations, including the Local NGO Network (LINNK), which has branches around the country and covers a number of sectors including WASH. They meet weekly in Monrovia and discuss issues pertinent to their work. There is a monthly LNGO hygiene promotion coordination meeting which is chaired by the MOHSW, Environmental Health Department (which can have up to 50 LNGOs in attendance). There are monthly WATSAN coordination meetings in some of the counties. In Grand Cape Mount, ADEN, a local NGO, chairs the WATSAN coordination meeting with the CHT. This meeting includes community leaders as well as WATSAN actors. There is generally a good collaboration between the various organizations working in Liberia, including support to INGOs and others from the UNMIL forces for logistics in the remote areas of Liberia.

### **3.4.9 Monitoring and evaluation**

The PRS targets for access to safe drinking water and improved sanitation are 50% and 40% respectively. The PRS target for sanitation has been recommended to be downsized to 33% keeping in view the sector performance over the last four years and assuming a doubling of the current sector capacity to deliver. Given the lack of road access to certain parts of the country, achieving these targets duly complying with equity considerations per se is a challenging task. However, to ensure that this is happening, monitoring and evaluation, is very essential, but is constrained by problems related to institutional fragmentation, geographical connectivity and mobility besides lack of adequate trained manpower and funding. This has often resulted in inadequate supervision and substandard execution of works and services leading to wasted investments.