

Liberia Water Supply, Sanitation and Hygiene

WASH Sector Investment Plan

2012 - 2017

Summary Report



Preface

This document provides a summary of the Sector Investment Plan (SIP) for the Water, Sanitation and Hygiene (WASH) sector in Liberia.

The summary SIP has been produced to provide an introduction to the WASH sector investment plans – in the longer term until 2030 and in detail for the first five years as described in the SIP 2012-17. This summary SIP document is intended for sector stakeholders and the public in general to provide an overview of the challenges, targets and funding needs in the sector; while the detailed SIP documents provides comprehensive information for the sector institutions, the Government of Liberia and Development Partners.

The SIP documentation has been developed through a consultative process with the sector stakeholders as represented in the National Water, Sanitation and Hygiene Promotion Committee and in particular the Ministry of Lands, Mines and Energy, the Ministry of Public Works, the Liberia Water and Sewer Corporation and the Ministry of Health.

The process has been supported by the World Bank Water and Sanitation Programme and the complementary WASH Sector Capacity Development Plan has been supported by the United Nations Children's Fund - UNICEF and the Government of Japan.

Foreword

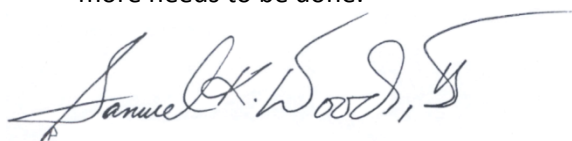
Liberia, under the leadership of President Ellen Johnson Sirleaf, has prioritised water, sanitation and hygiene as necessities for its citizens in the new millennia. During the course of her first term in office the President participated in and authorized activities intended to improve clean water delivery in Liberia through pipe borne water delivery systems as well as protected well water for citizens in the rural and less accessible communities. In May 2011, the President signed the Water and Sanitation (WASH) compact that aligns the principles of the Sanitation and Water for All, (A Global Framework for Action) to subsequent sector planning that has brought improvement to planning in the sector. The Government has sought to implement its WASH activities through the Ministry of Public Works, specifically through the department of Rural Development and Community Services that has responsibility to supervise and implement the WASH Sector Strategic Plan (2012-2017) and WASH section of the Agenda for Transformation (AfT).

These plans are products of the reform process in the Liberian water, sanitation and hygiene (WASH) sector, driven by the Liberia WASH Compact commitments to improve sector capacity, financing and financing mechanisms. These plans also call for investing both external and internal resources in the WASH sector in order to help Liberia achieve the vision articulated in the Water Supply and Sanitation Policy (2009) of “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.”

This entire process is part of the **administration’s Agenda for Transformation, Step Towards Liberia Rising 2030**. This follows the ‘Lift Liberia Poverty Reduction Strategy’ (PRS) that helped raise Liberia from post-conflict emergency reconstruction and positioned it for future growth. While the Agenda for Transformation may not in itself provide all the solutions to Liberia’s problems, it is the first step towards achieving the goals set out in Liberia Rising 2030, Liberia’s long term vision of social economic development, intended to make Liberia a middle income country by 2030. The Agenda for Transformation supports the principles of the Paris Declaration of Aid Effectiveness, the Accra Action Plan, and the New Deal for Engagement in Fragile States, to all of which Liberia is a signatory.

The goal of Liberia’s WASH agenda is several folds including: 1) To establish and strengthen institutional capacity to manage, expand and sustain Liberia’s WASH services; 2) increase equitable access to environmentally friendly and sustainable water and sanitation services and promote hygiene behaviour change at scale; 3) establish information management systems and strengthen monitoring, data collection, communication and sector engagement and 4) improve sector financing and financing mechanisms.

We have made progress in delivering safe and adequate water and sanitation services to our people through the various WASH activities and agreements. Today we can say that the sector is a priority emphasized in national documents and commitments outlining the future of our nation. This ensures that the prioritization of the sector will continue into the future while acknowledging that much more needs to be done.



Atty. Samuel Kofi Woods, II
MINISTER

SIP Highlights



WASH LIBERIA SIP



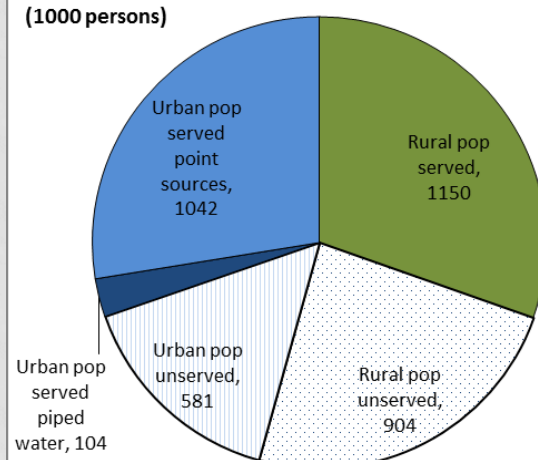
- This document is the WASH Sector Investment Plan SIP 2012-17 based on the Sector Strategies and the planning outlook to 2030
- The current coverage with water and sanitation services is low and reaching the 2017 Sector Targets and the 2030 Targets of access for all Liberians requires large investments and decisive action
- Action is needed on all fronts: completion of the institutional set-up; capacity development at all levels; and increased funding. In particular urban services require major funding to reach the targets and achieve longer term goals of full cost recovery
- The following pages summarise the highlights of the SIP 2012-17 in the context of the long-term 2030 needs

Where the WASH Sector is now

Access to water is low and many facilities are no longer working

- Serious economic development, quality of life and health challenges caused by:
 - largely non-functioning piped water and sewerage infrastructure in Monrovia
 - low coverage with adequate facilities in areas outside the capital combined with a low functionality rate of existing point water sources
- Access to water is estimated at 56% in rural areas, 65% in urban areas

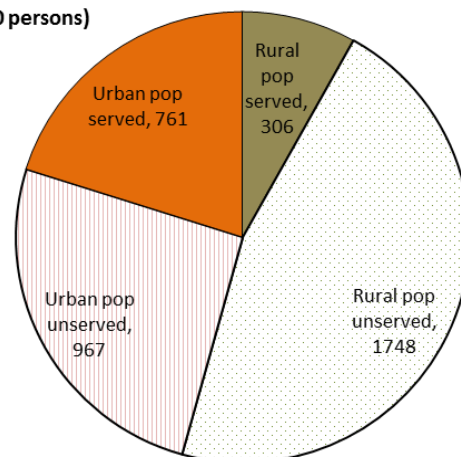
Access to Water
(1000 persons)



Access to improved sanitation is low and serious environmental sanitation problems

- Access to sanitation is:
 - 15% in rural areas
 - 57% in Monrovia
 - 43% in other urban
- An estimated 35% of existing clinics and schools do not have adequate W&S facilities.
- Solid waste management services are only available in Monrovia covering an estimated 55% of the solid waste in the capital

Access to Sanitation
(1000 persons)



Attainable targets defined according to the national development agenda

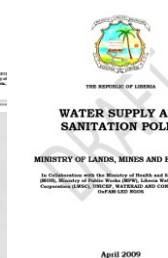
- Liberia's development agenda sets the WASH sector targets:
 - In 2030 Liberia is a middle income country with access to adequate services for all
 - The 2017 targets reflect the MDGs and the 'Agenda for Transformation'
- Emphasis on hygiene and shift towards piped water systems in urban areas and sewerage in Monrovia

Sub-sector	2012	2017	2022	2030
WS Monrovia	65%	93%	96%	100%
WS Other Urban	66%	93%	96%	100%
WS Rural	56%	67%	80%	100%
San Monrovia	57%	61%	80%	100%
San Other Urban	43%	61%	75%	100%
San Rural	15%	52%	70%	100%
Solid Waste Monrovia	55%	60%	90%	100%
Solid Waste other urban	0%	0% - 25%	25% - 50%	100%

The WASH Sector has a supportive policy environment

Foundation for the SIP is the supportive WASH Sector Policy Framework:

- The IWRM Policy, Nov 2007
- The 'Water Supply and Sanitation Policy' Nov 2009
- The Liberia WASH Compact: Sanitation and Water for All, May 2011
- The 'Water, Sanitation and Hygiene Sector Strategic Plan' 2012-2017, April 2012



WATER, SANITATION AND HYGIENE SECTOR STRATEGIC PLAN



REPUBLIC OF LIBERIA



Institutional arrangements sound but incomplete

NATIONAL WATER RESOURCES AND SANITATION BOARD – NWRSB
(Composition – MLME, MOA, MOF, MPW, MFA, MOHSW, MGD, LWSC, EPA, International Development Partners & Others)

National Water, Sanitation and Hygiene Promotion Committee – NWSHPC
Composition: All Line Ministries/Agencies
Will operationalise Sector Policy, Strategy, Planning, Technical Support, Coordination, M&E, HRD, Capacity Building, Decentralization, Programs, Financing, NGO Support, MIS, Donor Coordination

Water Supply & Sanitation Commission – WSSC
Composition: Experts in Water & Sanitation, Economics, Sociology, Law, Public Health, Environment, Finance
Will regulate Tariffs, Licenses, PPPs, Service Standards, Water Laws compliance

LWSC
Urban WSS: conurbations with population >5000

Directorate of Community Mobilization & Hygiene Promotion (DCMHyP)
Software & demand generation

Rural Water Supply and Sanitation Bureau (RWSSB)
Rural WSS: conurbations with population <5000

Key:
 Resource developer/manager
 Service regulator
 Service provider/facilitators
 Support organisations

NGOs, CBOs

- NWRSB and WSSC not yet appointed
- Decentralisation process important for service delivery

The SIP quantifies the WASH Sector Targets

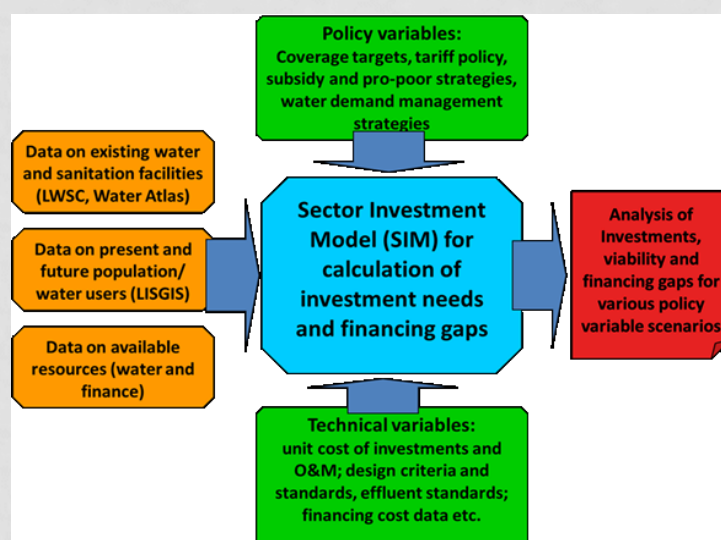
- The SIP 2012-17:
 - provides information on investment requirements, current plans and gaps to reach the Sector Strategic Plan targets
 - is based on existing sector policy and strategy and ongoing and proposed programmes
 - New projects have been identified, scoped and costed to fill gaps between sector strategy targets and current programme



The SIP analyses funding requirements depending on data and policy variables

Sector investment Model (SIM):

- Provides data analysis and calculation of the funding requirements based on targets;
- Enables decision-making on priorities and service level targets depending on strategic choices to be made

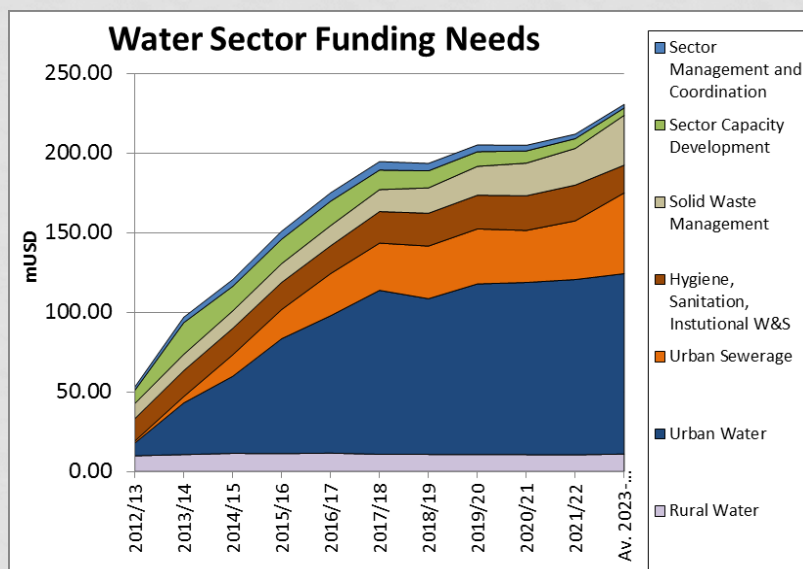


The Cost of Reaching the Targets

Major investment requirements until 2030 – mainly in urban areas

3,500 mUSD cost to 2030 of providing:

- piped water for urban population
- point sources or piped systems for rural population
- sanitation for all with sewerage for 50% of Monrovia
- W&S for institutions
- solid waste service in urban areas

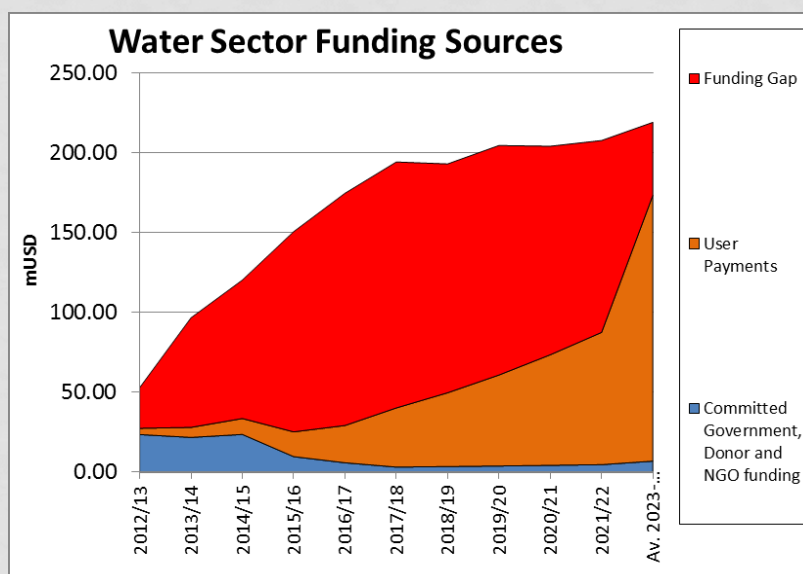


Where will the money come from

Possibility for cost recovery for urban services – need decisive policy decisions

Main features of sector funding:

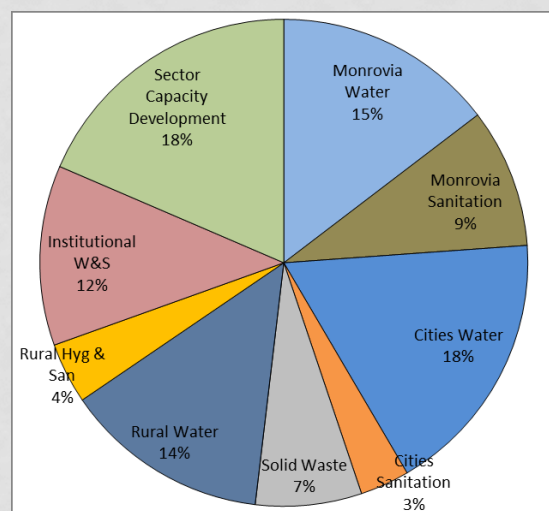
- Large investment inputs needed until 2030 in infrastructure
- full cost recovery for urban services possible provided substantial tariff increases (10% annually) and improved operational efficiencies are achieved
- Full cost recovery tariffs will need social safeguards



Substantive funding needed to reach the 2017 targets

Within the longer term 2030 estimates, the 2012-17 SIP provides the details of the WASH sector funding requirements to reach the 2017 targets:

- 400mUSD needed to achieve the WASH targets for 2017;
- 52% of the total (208mUSD) will be needed to reach the targets of water, sanitation and solid waste management in urban areas;
- 18% of the total (71mUSD) is required for WASH services in rural areas;
- 12% of the total (48mUSD) is needed for water and sanitation services in schools, clinics and public areas; and
- 18% of the total sector investments (74mUSD) is needed for sector capacity building.



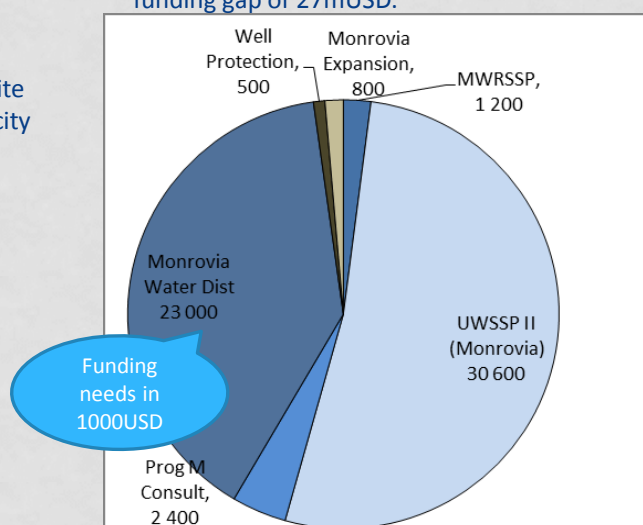
59mUSD needed for investments in water services in Monrovia

Monrovia Water

The SIP will provide access to **water** for 93% of Monrovia's population in 2017 by:

- completion of the ongoing and planned rehabilitation of the White Plains System to its original capacity of 59,000m³/d
- Two new groundwater schemes
- Substantial investments in water distribution
- A programme to ensure potable water quality for the population served by point water sources
- Design of expansion of the White Plains System to double capacity

- The estimated funding needs for the improvements are 59mUSD and 32mUSD is available from the existing funding leaving a funding gap of 27mUSD.



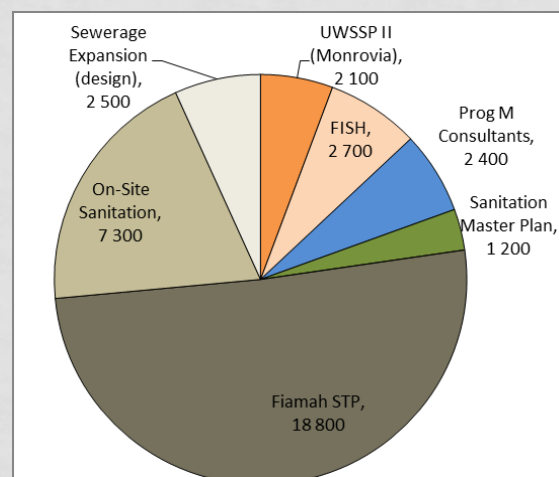
37mUSD needed for investment in sanitation services in Monrovia

Monrovia Sanitation

Access to improved sanitation for 61% of Monrovia's population in 2017 by:

- rehabilitation of the sewerage system
- households improving their toilet facilities
- land lords improving the sanitation facilities for rented accommodation
- MCC implementing communal toilet facilities for dense settlements and public toilet facilities in market places and other public areas
- A sanitation master plan study to bring clarity to the serious hygiene and environmental sanitation issues facing Monrovia - define the approach to sanitation: extent of the future sewerage system and the possible technological alternatives for on-site sanitation solutions

- The estimated funding needs for the improvements are 37mUSD and only 4mUSD is available from the existing funding leaving a funding gap of 33mUSD.



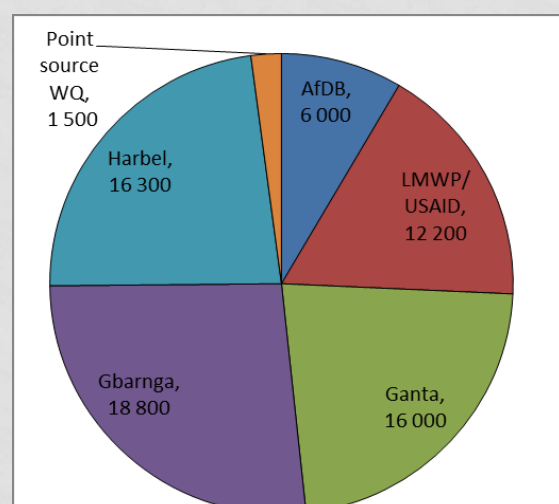
71mUSD needed for investments in water services in 23 other Cities

Cities Water

The SIP 2012-17 for Cities Water Supply will provide access to water for 93% of the urban population by:

- Completing the piped water systems in 6 Cities: Buchanan, Kakata and Zwedru (AfDB) and Sanniquelle, Robertsport and Voinjama (LMWP/USAID)
- Piped systems in additional 3 cities identified to : Gbarnga, Harbel and Ganta.
- Programme of ensuring that existing communal and private point sources provide potable water
- The main challenges are related to sustainability, cost recovery and the management and O&M arrangements i.e. the role of LWSC and the local government authorities in Counties and Municipalities.

- The estimated funding needs for the improvements are 71mUSD and 18mUSD is available from the existing funding leaving a funding gap of 53mUSD.



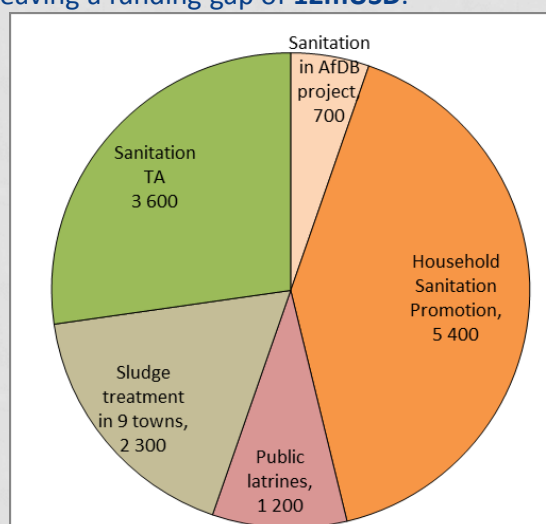
13mUSD needed for sanitation in the 23 Cities

Cities Sanitation

Access to improved sanitation for 61% of the urban population will be achieved by:

- a comprehensive urban sanitation programme for household sanitation including awareness campaign
- construction of public toilets,
- construction of sludge treatment works and collection equipment in cities with water projects
- capacity building of local craftsmen and businesses to construct latrine slabs and septic tanks

- The estimated funding needs for the improvements are **13mUSD**. Only about 1mUSD is available from the existing project funding leaving a funding gap of **12mUSD**.

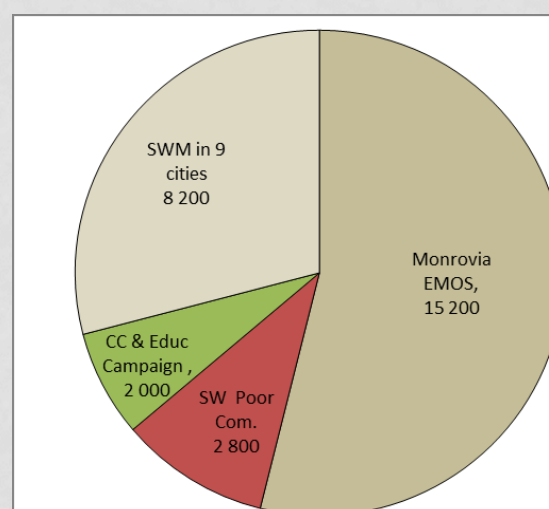


23mUSD needed for investment and O&M of Solid Waste Management in urban areas

Solid Waste Management

- The SIP 2012-17 includes completion of EMUS Phase 1 and implementation of the planned EMUS Phase 2 with a target of collecting 60% of Monrovia's solid waste.
- Solid Waste Management in the 23 Cities includes implementation of solid waste collection and disposal systems in the 9 towns where piped water systems are implemented together with the sludge collection systems and treatment facilities.
- The main challenges in the solid waste management services relate to sustainability and cost recovery for services.

- The estimated funding needs for the solid waste management activities are **20mUSD** in Monrovia and **8mUSD** in the cities. Presently there is a funding gap of **17mUSD**.



51mUSD needed for investments in rural water services until 2017

Rural Domestic Water Supply

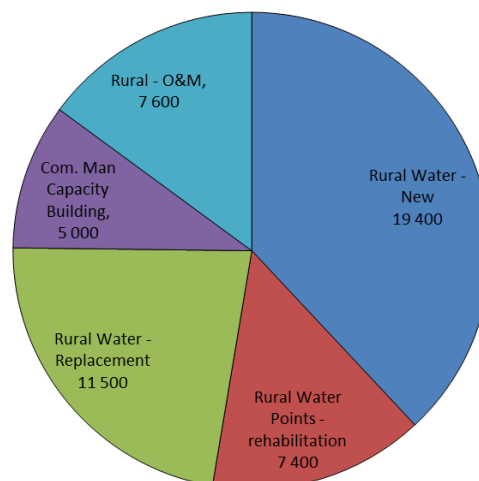
Access to water for 67% of the rural population will be achieved by:

- rehab of non-functioning water points
- implementation of new hand dug wells, boreholes, springs and piped systems.
- Focus on capacitating the County WASH Teams to plan, oversee implementation and monitor, and capacitating the national Departments in MPW and MOHSW to provide guidance and support to the County Teams.

Pilot programmes are proposed:

- Pilot county capacity building programme
- Private sector capacity for hand drilling
- Guidelines for spring catchments
- Capacity building for hand dug wells
- Drilling contract for boreholes

The estimated funding needs for rural water supply are 51mUSD and 41mUSD is available from the existing funding leaving a gap of 10mUSD. Communities will contribute at least 10% of the construction cost and all O&M costs.



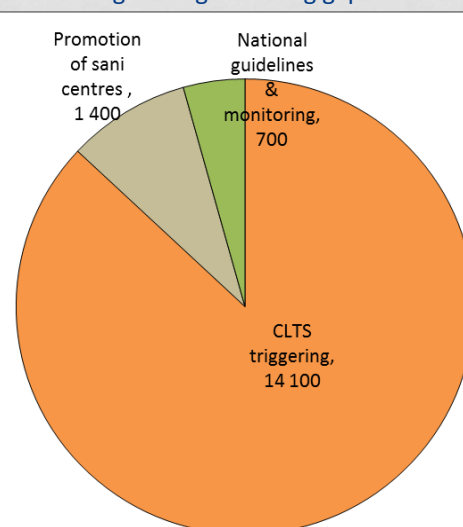
16mUSD needed for Hygiene and Sanitation in Rural Areas

Hygiene and Sanitation

Access to improved sanitation for 52% of the rural population is ambitious in view of the present coverage estimated at 15%. The target will be achieved by:

- a comprehensive programme for implementation of the CLTS approach led by the County WASH teams with support from the MOHSW at national level and supported by the ongoing NGO programmes.
- The private sector will manage Sanitation Centres and distribute and sell SanPlats.
- Public and institutional sanitation for schools and health centres will be an important part of the programme.

- The estimated funding needs for rural sanitation and hygiene are 16mUSD and 6mUSD is available from the existing funding leaving a funding gap of 10mUSD.

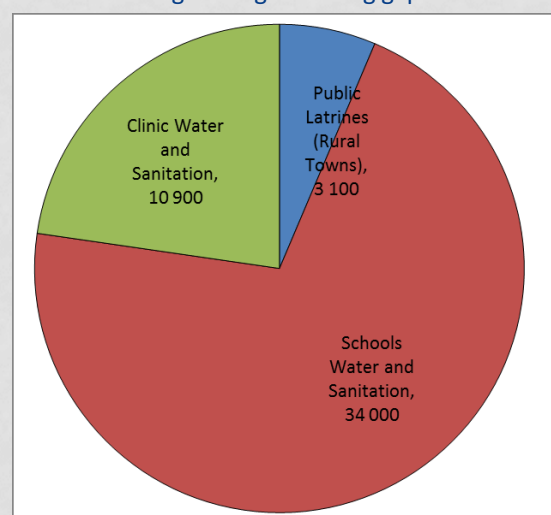


48mUSD needed for investments in water and sanitation for institutions

Institutional Water and Sanitation • The estimated funding needs for Institutional W&S are 48mUSD and 11mUSD is available from the existing funding leaving a funding gap of 37mUSD.

Institutional W&S include:

- Water and sanitation facilities for Schools with a target of full coverage within a 10 year period
- Water and sanitation facilities for Health centres within 10km walking distance serving max 3500 people and 2 new clinics per county per year to be achieved in a 15 year period
- Public sanitation facilities (with water supply) with a minimum of 1 facility per district and a maximum of 3000 persons per facility.
- Cost recovery mechanisms are foreseen for the public facilities

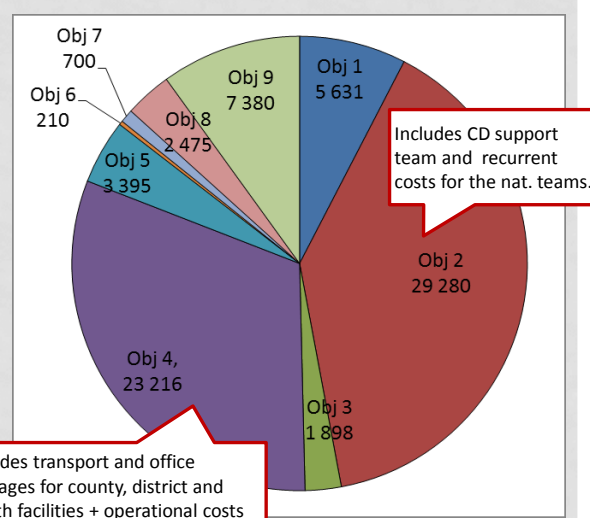


74mUSD needed for implementation of the WASH Sector Capacity Development Plan

The WASH Sector Capacity Development Plan (CDP):

- Obj 1 human capacities of GoL at nat. level
- Obj 2 institutional capacities of GoL at nat. level
- Obj 3 GoL human capacities at sub-nat. level
- Obj 4 institutional capacities at sub-nat. level
- Obj 5 human and institutional capacities through action research / pilot projects
- Obj 6 human capacities of CSOs, the private sector and the media
- Obj 7 institutional capacities of CSOs, the private sector and the media
- Obj 8 the enabling environment
- Obj 9 education and training institutions

- The estimated funding needs for implementing the CDP is 74mUSD with 6mUSD funded through the AfDB Urban programme leaving a funding gap of 68mUSD.



Is it possible to achieve the sector targets?

Challenges related to adequate funding and implementation capacity

- Implementation challenges fall in two groups:

Funding:

- The investment needs are high and the WASH sector is competing for funding with other economic sectors
- Division of WASH activities in four different sectors (in the Medium Term Budgeting Process) presents a challenge in a combined effort to promote the WASH funding
- Private participation possible but private finance is costly in the present situation in Liberia

Capacity to implement:

- Emerging institutional framework with human and institutional capacity gaps at all levels (national – counties – municipalities – private sector)
- Institutional roles for WASH at local level not yet clear e.g. responsibilities in towns and cities outside Monrovia

What to do to achieve the sector targets

Action and pro-active engagement with Government and DPs needed to implement coherent WASH sector programme

- Steps to addressing Implementation challenges:

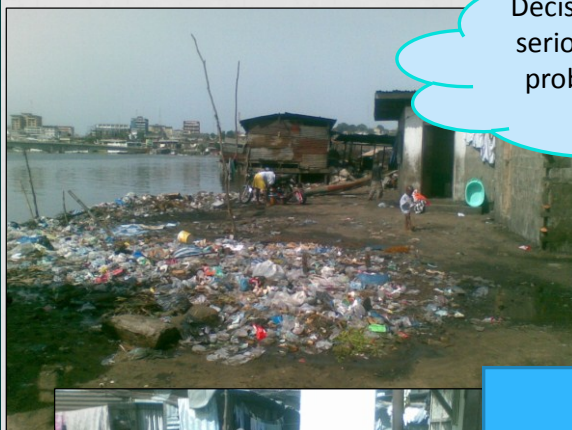
Funding:

- Pro-active participation in the Government Planning and Budgeting (MTEF) process to ensure WASH objectives are well represented;
- Presentation of 'implementable' programmes to financiers;
- Consensus on the institutional roles and focus on cost recovery;
- Ensuring transparency and accountability in procurement, financial management and quality control of implementation.

Capacity to implement:

- Prioritise implementation of the Capacity Development Plan as an integrated part of SIP implementation
- Comprehensive Programme Management Assistance at sector level to avoid fragmented projects without lasting service improvements
- Advocacy for completion of the institutional framework with NWRSB and WSSC
- Active engagement in decentralisation process
- Immediate action by the NWSHPC to develop TORs for the sector support programmes defined in the SIP and Capacity Development Plan

Vision for the SIP



Decisive action needed to go from serious environmental sanitation problems to human dignity in 5 years



Photo Credit: Jens Vad/ PEMconsult



Photo Credit: Chantal Richey/Tearfund

Detailed information on the SIP

The SIP is documented in detail

SIP Documentation:

The detailed background and the SIP estimates are presented in this 'SIP Summary Report' and further details are provided in:

- Volume I: Liberia WASH SIP Final Report, supplemented with
 - Volume II Annexes with Detailed Data
 - Volume III: Annexes with Sector Documentation and SIP Process
 - Volume IV: Planning Tools (SIM, UCET and Appraisal Tool)

Capacity Development Plan:

Comprehensive info on the Capacity Development Plan available in:

- Liberia WASH sector – Capacity Dev. Plan, 2012-17, Final, Nov 2012
- Liberia WASH sector – Capacity Dev. Needs Assessment, Final, Oct 2012

The Documents and planning tools available on the WASH Liberia Web-site: <http://wash-liberia.org> or on the WASH SIP DVD available from the NWSHPC Secretariat.

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List of Abbreviations and Terminology

AfDB	African Development Bank
AWF	African Water Facility
BFP	Budget Framework Paper
BPN	Budget Policy Notes
CBO	Community Based Organisation
CDF	County Development Fund
CLTS	Community Led Total Sanitation
DCMHyP	Directorate of Community Mobilization and Hygiene Promotion in MOHSW (presently functions carried out by DEOH)
DEOH	Division of Environmental and Occupational Health
DPs	Development Partners
EMUS	Emergency Monrovia Urban Sanitation
FISH	Fostering Innovative Sanitation and Hygiene in Monrovia
GIS	Geographical Information System
GOL	Government of Liberia
IWRM	Integrated Water Resources Management
LHS	Liberia Hydrological Survey
LISGIS	Liberia Institute for Statistics and Geo-Information Services
LMWP	Liberia Municipal Water Project (USAID funded)
LWSC	Liberia Water and Sewer Corporation
M&E	Monitoring and Evaluation
MCC	Monrovia City Corporation
MDGs	Millennium Development Goals
MOE	Ministry of Education
MOF	Ministry of Finance
MOHSW	Ministry of Health and Social Welfare
MIA	Ministry of Internal Affairs
MLME	Ministry of Land, Mines, and Energy
MPEA	Ministry of Planning and Economic Affairs
MOPW	Ministry of Public Works
MTEF	Medium Term Expenditure Framework
MWSSP	Monrovia Water Supply and Sanitation Rehabilitation Project
NGO	Non-Governmental Organisation
NRWSSP	National Rural Water Supply and Sanitation programme
NWRSB	National Water Resources and Sanitation Board
NWSHPC	National Water, Sanitation & Hygiene Promotion Committee
NWSSP	National Water Supply and Sanitation Policy
ODF	Open Defecation Free
O&M	Operation & Maintenance
PPP	Public-Private Partnerships
PRS	Poverty Reduction Strategy
PVC	Polyvinyl chloride
RWSSB	Rural Water Supply and Sanitation Bureau
SIM	Sector Investment Model
SIP	Sector Investment Plan
SWM	Solid Waste Management
TA	Technical Assistance
TOR	Terms of Reference
UCET	Unit Cost Estimating Tool
UNDP	United Nations Development Program

UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollars (kUSD = 1000 USD; mUSD = 1,000,000 USD)
UWSSP	Urban Water Supply and Sanitation Project (AfDB funded)
VIP	Ventilated Improved Pit (latrines)
WASH	Water, Sanitation & Hygiene
WB	The World Bank
WHO	World Health Organization
WSP	Water and Sanitation Program, World Bank
WSS	Water Supply and Sanitation
WSSC	Water Supply and Sanitation Commission
PPP	A partnership where the public institution retains the ownership of assets and provided the investment funding. The private partner is a service provider.
Sanitation	The hygienic disposal of human excreta, it does not include solid waste
Urban	The built up areas of the 24 cities listed in the WASH Sector Strategic Plan
Rural	All areas that are not urban
Peri-urban	The areas around towns/ cities which are inside the administrative urban boundaries but outside the 'built-up' area in the core of towns/ cities that are planned to be supplied with piped water systems. Peri-urban areas are included in the Rural SIP
CLTS	Communities are facilitated to conduct their own appraisal and analysis of open defecation (OD) and take their own action to become 'ODF' (open defecation free).
Domestic Sanitation Facilities	Sanitation facilities that people use when they are at home. This includes: - Household facilities used exclusively by one household - Shared facilities owned by a landlord and managed and used by a small group of households - Communal facilities provided by public authorities, the community or a private operator Only domestic sanitation is considered when estimating coverage
Institutional Sanitation Facilities	Sanitation facilities provided: - At institutions such as schools and clinics - At public places such as markets and bus stops for use by the public when they are away from home. Institutional sanitation facilities provide additional sanitation services over and above domestic sanitation for when people are away from home and do not contribute to the coverage calculations
On-site Sanitation Technologies/ facilities	Sanitation facilities such as Pit Latrines, Ventilated Improved Pit (VIP) Latrines, EcoSan Toilets or flush or pour-flush toilets connected to a septic tank that is not connected to a sewer.
Funding Needs	The total need for funding of WASH activities including O&M cost
Public Financing Needs	The need for financing the WASH activities that is not covered by the user contributions e.g. tariffs in urban areas and payment for O&M in rural areas.

1 Introduction and General Approach

This Chapter provides information on the overall policy and institutional framework for the WASH sector in Liberia and a description of the existing situation in relation to water and sanitation services and solid waste management.

Present situation: The present access to water is estimated at 56% in rural areas, 65% in Monrovia and 66% in the other urban areas provided mainly through point sources¹. Access to sanitation is estimated at 15% in rural areas, 57% in Monrovia and 43% in other urban areas provided mainly through on-site sanitation facilities. An estimated 35% of existing clinics and schools do not have adequate water and sanitation facilities. Solid waste management services are only available in Monrovia covering an estimated 55% of the solid waste in the capital.

The main challenges are the water quality and hygiene issues caused by the largely non-functioning piped water and sewerage infrastructure in Monrovia; and the low coverage with adequate facilities in areas outside the capital combined with a low functionality rate of existing point water sources.

General Approach: This 5 year Sector Investment Plan (SIP 2012-17) provides information on investment requirements, current planned investments and investment gaps to reach the targets set in the Sector Strategic Plan. The SIP 2012-17 should be understood as the integral first part of a longer term development plan with a target horizon of 2030. For this reason, this SIP includes basic estimates of longer term requirements to complement the focus on the core planning period of 2012-17.

The SIP 2012-17 is based on existing sector policy and strategy and ongoing and proposed programmes. Where gaps have been identified between sector strategy requirements and current proposed programmes, new projects have been identified, scoped and costed at an overall level to ensure a comprehensive plan that can achieve the targets.

The data analysis and calculation of funding requirements are done using the Sector investment Model (SIM) designed to describe the longer-term funding requirements towards achieving the 2030 goals of water and sanitation services. The SIM enables decision-making on priorities and service level targets by estimating the funding requirements depending on strategic choices to be made.

1.1 Background to the Sector Investment Plan (SIP)

Liberia is in transition from a civil war that ended in 2003 to its goal of becoming a middle income country by 2030. This journey is seen as having three phases.

To move towards mid-income status, it is crucial for Liberia to shift from externally driven, humanitarian



¹ Statistics based on data from the Water point Atlas (MPW 2011), LISGIS and information from sector institutions

emergency assistance, which dominated the first post-war years, towards nationally owned service delivery that can guarantee stable development in the long-term. At this juncture, the 'Sector Investment Plan' (SIP) is a key tool for the Water Sanitation & Hygiene (WASH) sector to complete the shift from phase 2 to phase 3 by providing details on the need for rehabilitation of existing, and the expansion of water and sanitation infrastructure.

The development of the SIP is guided by the policy and strategy documents that the water sector has produced over the last few years to determine the future direction of the WASH sector:

- The National Integrated Water Resources Management (IWRM) Policy, Nov 2007, addresses the overall water management issues and sets the policy and strategies against the Government's overall goals for social and economic development,
- The 'Water Supply and Sanitation Policy' Nov 2009 sets out the future institutional arrangements and provide key policy statements in relation to water and sanitation services,
- The Liberia WASH Compact: Sanitation and Water for All: A Global Framework. May 2011 – sets out a roadmap of themes based on the four commitments and related cross cutting issues. The WASH Compact was signed by the President and the SIP will be one of the key instruments through which the commitment of the Presidency to the WASH sector can be transformed into concrete achievements.
- The 'Water, Sanitation and Hygiene Sector Strategic Plan' 2012-2017. April 2012 – provides detailed guidance to the institutional responsibilities and strategies for implementation of the 'WASH Compact' and the sector policies.

The present SIP document substantiates and details the investment requirements for reaching the water and sanitation services targets set in the Sector Strategic Plan. The existing coverage estimates and the targets per sub-sector are summarised in Table 1-1.

Table 1-1: Targets per sub-sector

Sub-sector	2012 coverage	2017 target	2022 target	2030 target
Water supply Monrovia	65%	93%	96%	100%
Other Urban	66%	93%	96%	100%
Rural	56%	67%	80%	100%
Sanitation Monrovia	57%	61%	80%	100%
Other Urban	43%	61%	75%	100%
Rural	15%	52%	70%	100%
Solid Waste Monrovia	55%	60%	90%	100%
Cities on 5yr plan	0%	25%	50%	100%
Cities not on 5yr plan	0%	0%	25%	100%

The SIP is complemented by the 'WASH Capacity Development Plan' which details the institutional development activities and outcomes that are needed to ensure sustainable and cost effective implementation of the SIP.

1.2 WASH Sector Institutions

Overall coordination and decision making: The decision-making structures for the WASH sector are defined clearly in the WASH Policy and the Sector Strategic Plan with clear mandates for the 'National Water Resources and Sanitation Board' (NWRSB) and the 'National Water, Sanitation and Hygiene Promotion Committee' (NWSHPC) to ensure coordination and coherent decision making

amongst the various agencies involved in the sector. The NWSHPC exists and meets monthly and is supported by the NWSHPC Secretariat. The NWRSB is not yet appointed.

Regulation: The 'Water Supply and Sanitation Commission' (WSSC) will regulate tariffs, licenses, Public-Private-Partnerships (PPPs), Service Standards, Water Laws compliance etc. The WSSC is not yet established however interim arrangements are being put in place awaiting the formal legal establishment.

Service provision in rural areas: The policy documents clarify that at national level, the implementation will be supported by the 'Directorate of Community Mobilization & Hygiene Promotion (DCMHyP) (presently the Division of Environmental and Occupational Health) in the Ministry of Health and Social Welfare (MOHSW) for software and demand generation and by the 'Rural Water Supply and Sanitation Bureau' (RWSSB) (presently the National Rural Water & Sanitation Programme in the Bureau of Community Services) in Ministry of Public Works (MOPW) for support to implementation of rural water and sanitation at County level. The implementation capacity at county level is expected to gradually develop through the de-concentration of the national ministries staff to county level and eventually full decentralisation. The vision is that actual construction of rural water and sanitation will be done by the private sector managed by the County Governments

Service provision in urban areas: The 'Liberia Water and Sewer Corporation' (LWSC) will have responsibilities for the water and sewerage service provision in urban areas. Municipalities and town authorities are envisaged over time to develop capacity and assume responsibilities for WASH services including solid waste management in cities and towns outside Monrovia.

1.3 The Existing Water and Sanitation Situation

Access to water of drinking water quality is a huge challenge in Liberia. The country is blessed with high rainfall however the access to clean water is limited by the lack of functioning infrastructure. The majority of the population collects water from unimproved or partly protected sources such as shallow wells or surface water sources. Worsening water quality is a challenge for the un-protected as well as the protected water sources. Access to sanitation facilities is also a challenge with only about 30% of the population using improved sanitation facilities according to the 2008 population census data.

Urban Water Supply

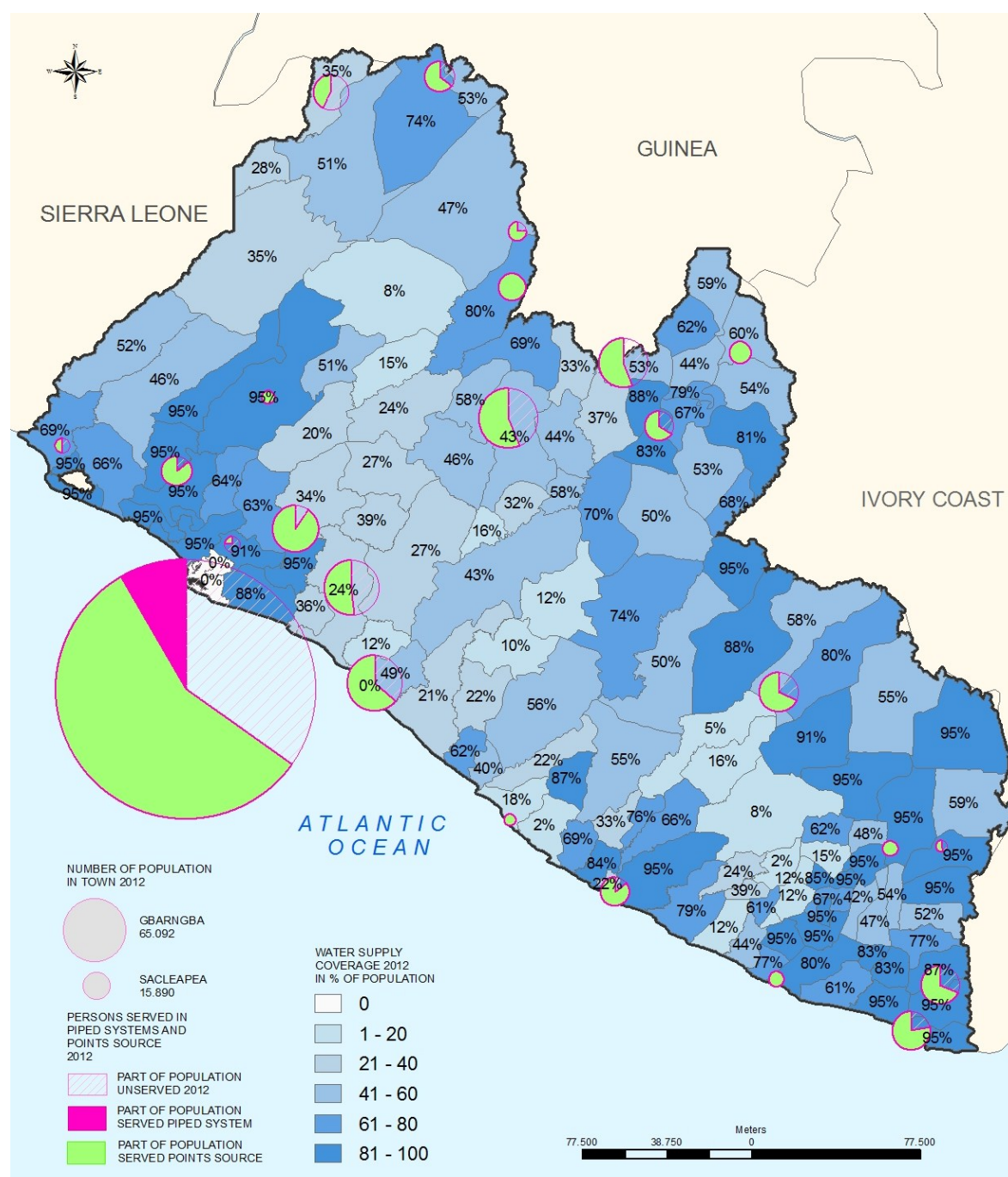
LWSC has traditionally provided water to Monrovia and the "urban" areas outside Monrovia, defined as cities with populations greater than 5000 or cities which are County Capitals, but over the last two decades these systems have not been operating. Currently only Monrovia and Kakata have partly operating water supplies. Bensonville is to a limited extent supplied by an extension from the Monrovia piped system. Non-functioning water infrastructure exists in Buchanan, Gbarnga, Kakata, Voinjama, Zwedru, Harper, Greenville, Sanniquellie and Robertsport. LWSC is in a reform process to adapt its role, vision and structure for the huge increase in responsibilities that the proposed expansion of the water and sanitation systems would require.

To ensure targeted institutional capacity development the SIP supports an assessment of the institutional responsibilities related to piped water services, in particular in the towns outside Monrovia in light of the implementation of the decentralisation policy. Therefore, although in the medium-term the county and/ or city administrations may take on this responsibility as part of the national decen-

tralisation process, we have assumed that piped water supply in urban areas is the responsibility of LWSC in the short term. Non-piped water supply, including within Greater Monrovia, will be the responsibility of MOPW in the short term.

The existing coverage with point sources is important in the present situation; however for future planning it is important to recognise that although the water points provide access to water it is well known that shallow groundwater in densely populated urban areas without good sanitation coverage is most likely to be severely contaminated bacteriologically as documented by the 2010 WSP water quality study in Monrovia. Therefore, and to be able to provide the higher service level of house and yard connections, piped systems are planned in the cities. The access to urban and rural water facilities is illustrated on Figure 1-1.

Figure 1-1: Map showing access to water in rural and urban areas



Rural Water Coverage and Technologies

Data on existing coverage in rural areas is available from the recently completed Water Point Atlas and from the 2008 Population Census by Liberia Institute for Statistics and Geo-Information Services (LISGIS). The estimates of the present coverage that forms the basis for the SIP calculations of the investment requirements to reach the coverage targets are based on:

- 1) the number of persons served in 2008 based on the 2008 population census data
- 2) + the population served by the water points implemented between 2008 and 2011 according to the water point mapping data
- 3) + the water points implemented in the 2011/12 financial year according to the data collected from the implementers as part of the SIP development.

Current rural water supply systems in Liberia are predominantly hand dug wells with some boreholes and a few protected springs and piped systems. Access varies across the country as illustrated on Figure 1-1: Map showing access to water in rural and urban areas.

Urban Sanitation, Hygiene and Solid waste management

Two basic project approaches for sanitation and hygiene have been used in the past and are proposed for the future in the Sector Strategy:

- Piped sewer systems with sewage treatment for the more built up areas of the larger cities and in particular Monrovia.
- Awareness campaigns to promote the construction of household latrines and good personal hygiene practices such as hand washing.

The piped sewer systems clearly fall under the remit of LWSC, and the responsibility for non-piped sanitation appears to fall under the municipalities with policy and strategic guidance by the MOHSW. The SIP assumes that non-piped sanitation will be the responsibility of Monrovia City Corporation (MCC) within Monrovia and of the Municipalities in other urban areas. In addition to the two main methods for access to sanitation facilities, communal facilities are implemented in the densely populated poorer settlements where household facilities are not affordable or technically possible. The communal facilities are operated and maintained by private or community based organisations based on user payments.

There has been an active implementation of solid waste improvements in Monrovia through: the Emergency Rehabilitation Project, the Emergency Monrovia Urban Sanitation (EMUS) Phase 1 Project which is currently about half way through its programme (2009-13) and the planned EMUS Phase 2 project which will extend coverage to virtually all of Greater Monrovia. The SIP has therefore used the EMUS projects as the 2012-17 plan for Monrovia and has used the same model to outline proposed new projects in the 9 Cities.

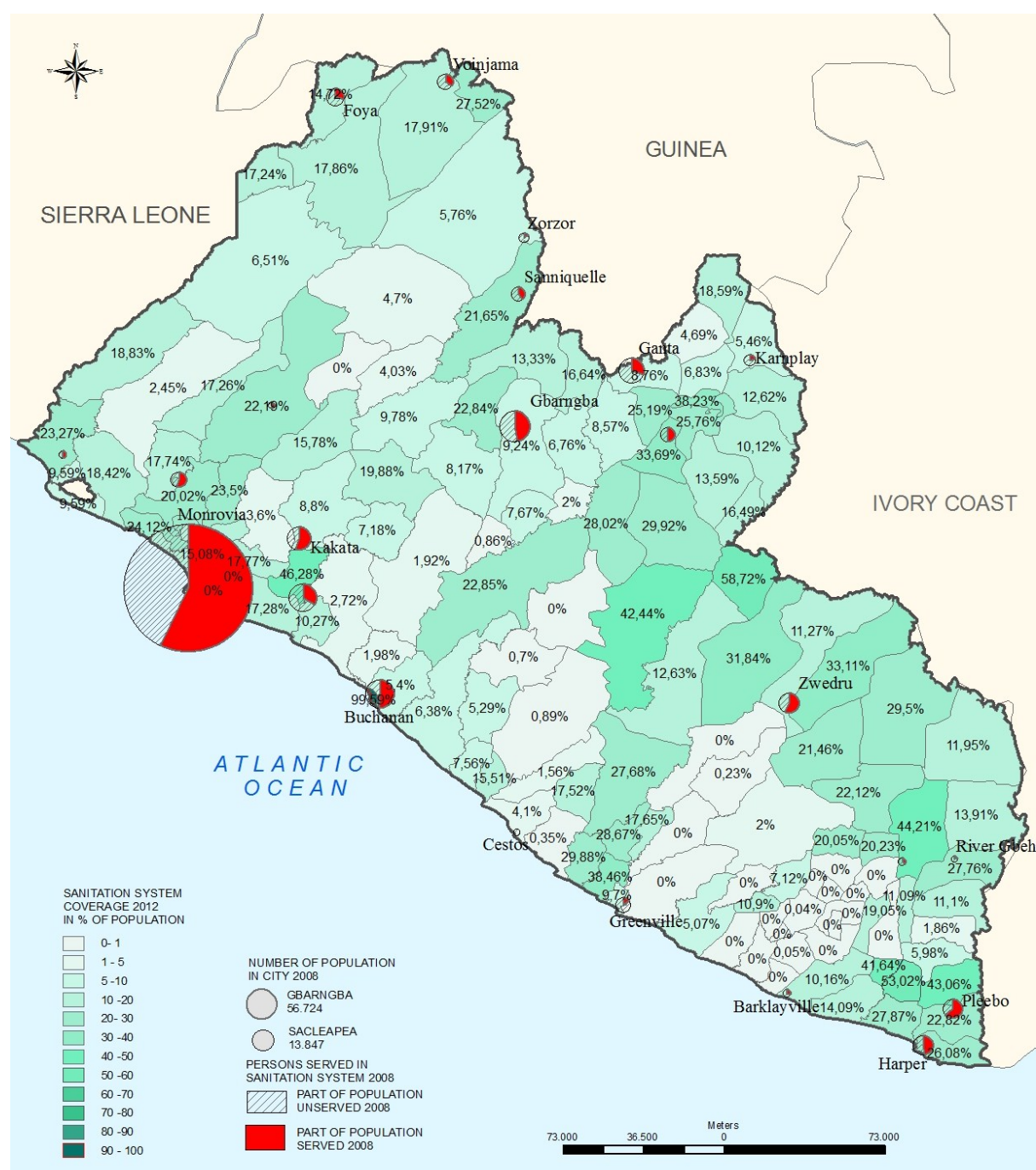
The EMUS Phase 1 project collects approximately 55% of the estimated solid waste generated in greater Monrovia (Oct 2011). There are no formal solid waste collection and disposal arrangements in any of the other Cities and there is no target for coverage in 2017 in the WASH Strategy.

Rural Sanitation

The general approach used in rural areas in Liberia is that domestic sanitation and hygiene improvements will be delivered using the Community Led Total Sanitation (CLTS) approach. This approach is based on raising demand for sanitation in households so that households construct their

CLTS has been used for some time in Liberia and uses the concept of villages being recognised as Open Defecation Free (ODF) as part of the incentive mechanism for households and communities.

Figure 1-2: Map showing access to sanitation in rural and urban areas



Institutional Water and Sanitation

The SIP addresses institutional water and sanitation facilities under three headings:

- Public Facilities: access to toilet and water facilities in public areas such as market places, bus-stops, public offices etc. in urban areas and rural towns,
- Facilities for pupils and teachers in schools,
- Facilities for staff and patients in health clinics.

Data is not readily available on the existing public facilities. The water point mapping identified the schools without water facilities and the infrastructure division in the MOHSW has provided the data on clinics and the number of existing clinics without water supply. There is no precise data available on the existing sanitation facilities at schools and clinics; however it is estimated that 35% of the existing health facilities do not have adequate water and sanitation facilities.

The options for water supply sources for institutions are similar to rural water, however the construction programme for rural clinics in the MOHSW is implementing water facilities consisting of a well or borehole with a submersible pump and overhead tanks that will supply the clinic as well as provide water for the toilet facilities and hand washing. The technologies used for institutional and public sanitation facilities are double pit VIP latrines or flush toilets.

1.4 General approach and prioritisation

The SIP 2012-17 is intended to provide information on investment needs, current planned investments and investment gaps to reach the targets set in the Sector Strategic Plan. The SIP is based on existing sector policy and strategy and ongoing and proposed programmes. Where gaps have been identified between sector strategy requirements and current proposed programmes, new projects have been identified, scoped and costed at an overall level to ensure a comprehensive plan that can achieve the targets.

The SIP 2012-17 does not, however, develop or expand sector strategy nor does it present detailed design and costing and implementation plans for the proposed new projects included in the SIP for the sake of completeness; these will need further work to develop them properly.

The prioritisation between the sub-sectors (urban/ rural and water/ sanitation) is therefore according to the priorities set in the Sector Strategic Plan for the SIP 2012-17.

Cost Estimates: The data analysis and calculation of funding requirements are done using the Sector Investment Model (SIM). The SIM is designed to describe the longer-term funding requirements towards achieving the 2030 goals for water and sanitation services according to four different scenarios: i) Baseline Scenario; ii) High Growth Scenario with Urban Development Focus; iii) High Growth Scenario with Rural Development Focus; and iv) Low Growth Scenario. (Described further in 2.3) The objective of the SIM is to inform decision-making on priorities and service level targets by estimating the funding requirements depending on strategic choices to be made.

The unit cost inputs to the SIM are provided by the Unit Cost Estimating Tool (UCET) that provides estimates on different components of water and sanitation facilities according to country specific input costs and area variables. There are big variations in unit costs depending on implementation methods, competition levels, and these will change over time. The changing global environment and more open trade, changes in construction prices e.g. due to Chinese contractors and more effective and mature client practice in Africa with reduced corruption and general more effective procure-

ment and contract management will all change the investment requirements. It is therefore important to regularly monitor the unit prices and update the planning tools to continuously provide good financial estimates for the sector budgeting and planning.

Sources of Data: the main sources of data for the SIP are:

- i. The numerous studies and reports that have been produced over recent years on the water supply, sanitation and solid waste arrangements in Monrovia and the Cities
- ii. The 2008 LISGIS Population census data with information on population and use of different types of improved water sources and sanitation facilities in approximately 17,000 locations;
- iii. The 2011 water point atlas with detailed information on the type, installation year and operational status of approximately 10,000 point sources;
- iv. Data collection from implementers (Non-Governmental Organisations (NGOs) and MOPW) on their activities in the 2011/12 financial year and plans for the coming 5 years
- v. Data from the Ministry of Education (MOE)/ LISGIS on approximately 5000 schools;
- vi. Data from the MOHSW on health institutions

There are gaps and limitation in data quality e.g. complete sanitation data is only available from the 2008 census, there is inadequate data on water and sanitation facilities in schools, clinics and public areas and LISGIS location codes are not used consistently in the sector surveys. The various data sources have been harmonised using the LISGIS location coding and incorporated in an expanded Geographical Information System (GIS) based on the water atlas GIS that allows for analysis of the key aspects of the water and sanitation planning such as technology mix and location of population compared to water sources.

Rural – urban demarcations: the SIP uses the following division between the Rural SIP and the Urban SIP:

- Only the 24 cities listed in the Sector Strategic Plan are included in the **Urban SIP** and the Urban SIP only covers the built up area in each of these 24 cities and this area is defined as “the city” for SIP purposes
- Where the built up area is significantly smaller than the city boundary, piped systems will be limited to the built up area. The areas between the built up area and the city boundary will be served by point sources and covered by the Rural SIP.
- Where the built up area extends beyond the city boundary the piped system will cover the built up area and this built up area will be included in the Urban SIP. The area which extends beyond the city boundary will be removed from the Rural SIP.
- The **Rural SIP** covers all areas except the built up area of each of the 24 cities (including Monrovia) covered in the Urban SIP and therefore includes all small towns and the peri-urban areas around the cities.

Population Projections: The population projections in the SIP are based on the 2008 population census data and a district by district assessment of population growth. The population dynamics are not well known; however the assumed trend is that population growth is largest in the towns and in areas with economic growth and therefore the map of economic development-corridors has been used to ‘score’ the districts. The average overall population growth in Liberia according to these estimates is 2.2% which is in line with the LISGIS medium growth scenario.

2 Strategic Investment Plan 2030

This Chapter provides information on the Strategic Investment Plan with a planning horizon until 2030. These longer-term estimates for 2030 provide the context for the subsequent, detailed sub-sector estimates of this SIP's core-planning period 2012-17. The Sector Investment Model (SIM) describes the funding needs and the available funding in the WASH sector in Liberia. The structure of the SIM is described and the results are presented for Rural, Urban and Institutional water and sanitation respectively for reaching full coverage by 2030.

The total funding requirement (including O&M) is estimated at **3.4 billion USD** to reach the 2030 targets and there is a substantial funding gap of about **450mUSD** for the first five years and in total a gap of **1.5 billion USD** to reach the sector targets in 2030. The annual public financing needs for WASH are expected to increase from a present level of about 50mUSD to 200mUSD in 2017/18 and thereafter decrease to less than 50mUSD in 2030 as the cost recovery for urban services is expected to contribute substantially to sector funding.

Urban water: the investment requirements are based on the target of piped water to the urban population in 2030 – a dramatic shift from the present supply from mainly point sources. The analysis shows that the policy goal of full cost recovery can be achieved by 2030 provided annual tariff increases of 10% above inflation are implemented and operating efficiencies are improved. The annual funding requirements are around **75 to 100m USD**.

Urban Sewerage: the funding requirements for sewerage are presented for: Scenario 1 aiming at 50% of the population in Monrovia being connected to the sewerage system and 2% of the population in the other urban areas by 2030; and Scenario 2 aiming at 100% of the urban population covered by sewerage services in 2030. The annual funding requirements are approximately **40mUSD** for Scenario 1 and **80 to 100m USD** for Scenario 2. The analysis indicates that cost recovery can be achieved provided tariff increases of around 7% annually above inflation are implemented.

Solid Waste Management: The annual funding requirements for solid waste services in all urban areas are estimated to increase from **10mUSD to about 30mUSD** in 2030 with users paying an increasing part.

Rural water: the funding requirements include the cost of: providing new facilities; replacing existing infrastructure that outlives its lifespan; rehabilitating the existing water points that are broken down; O&M and capacity building for community management. The annual funding requirement is approximately **10mUSD**.

Domestic sanitation: the funding requirements for rural areas are based on the CLTS strategy and cover the cost of triggering the CLTS process and follow-up hygiene education and M&E. The sanitation targets in urban areas will be achieved by a combination of access to the sewerage systems and promotion of different on-site technologies. The annual funding requirements for hygiene and sanitation promotion are in the range of **6 to 8m USD**.

Institutional W&S: the estimates include public toilet facilities and water and sanitation facilities in schools and in health centres in rural and urban areas. The investment requirements are in the range of **10mUSD** annually.

Sector Capacity Development: annual funding for implementation of the Capacity Development Plan and overall sector coordination and management ranges from an initial high of about **20mUSD** decreasing to about **5mUSD** towards 2030.

2.1 The Strategic Financial Planning Methodology

The planning tools developed for preparing the WASH Strategic Investment Plan 2030 aim at providing a transparent and long-term overview of the overall financial needs of the WASH sector in Liberia in order to meet its targets. The tools developed will enable the sector to better manage any financial gaps through policy dialogue on sector strategies (how to increase sector efficiency and effectiveness) and through enhanced fund-raising and revenue generation.

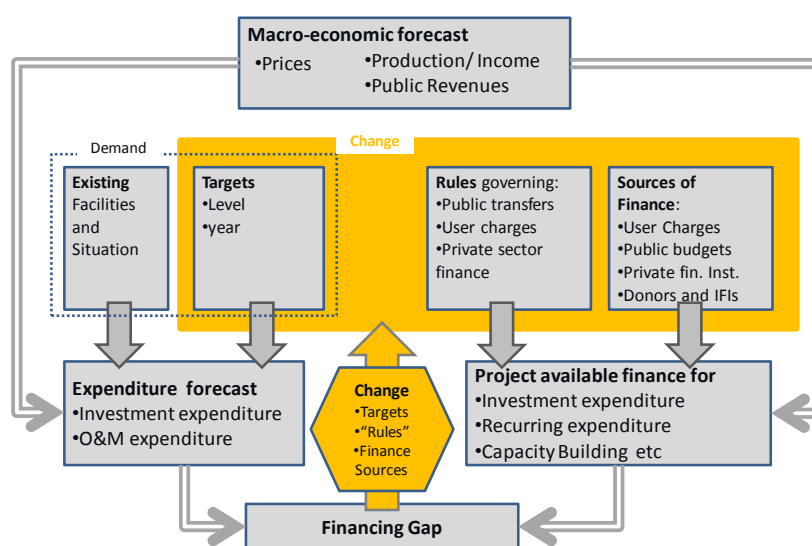
The strategic financial planning methodology consists of 3 interrelated processes:

- Derivation of an expenditure forecast based on macro-economic forecasts and characteristics of sector demand;
- Derivation of available sector finance based on macro-economic forecasts and characteristics of sector supply;
- Derivation of financing gap and a process for adjusting demand and supply factors to manage the gap in financing.

This methodology is outlined in Figure 2-1. The existing coverage and facilities (data) when combined with considerations of coverage targets over time (policy and technical variables) and the overall macro-economic context will provide the basis for an expenditure forecast, both capital and recurrent. The sources of potential finance combined with the rules governing public transfers and user charges (technical and policy variables) and the overall macro-economic context will provide the basis for a projection of available finance, both capital and recurrent.

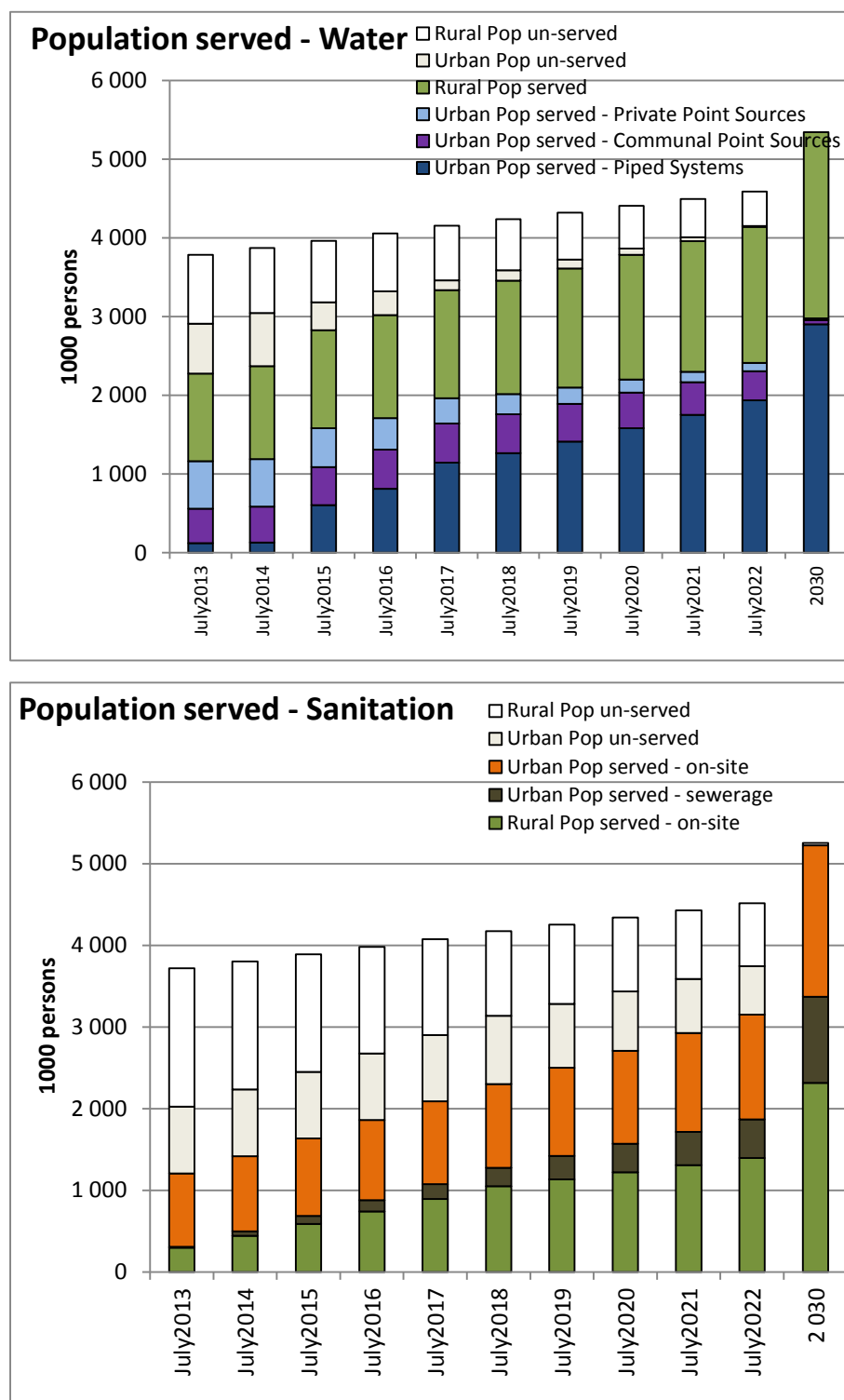
Figure 2-1: Strategic Financial Planning Methodology

The projection of available finance is based on the funding from different sources such as the Government's budgets, Development Partners (DPs), existing and pipeline development loans as well as the rules that govern tariffs and subsidies. Some of the funding sources are likely to be earmarked for investment expenditures (loans and grants), recurrent expenditures (tariffs and government funding) and capacity building (grants)



The difference between the expenditure forecast to meet targets and the projection of available finance arising from the rules and sources of finance result in a financing gap (or surplus) – this can then be managed by changing the “variables” within the demand side and supply side. These variables will be both policy variables e.g. coverage targets and tariffs and technical variables e.g. specifications, technology mix, unit costs. This iterative process will allow different scenarios to be developed and provide an evidence based policy decision support.

Figure 2-2: Water and Sanitation Access Targets



The Sector Investment Model (SIM) has been developed to analyse the expenditures and available finance for the WASH sector in Liberia. The results presented below are based on the targets illustrated in Figure 2-2. The targets for 2017 are according to the MDG targets outlined in the Sector Strategic Plan and the target for 2030 is access to water and sanitation services for all Liberians in accordance with the Government's Vision for Liberia as a middle income country.

The SIM is based on various policy variables, some of the most important for WASH sector financing are the tariffs paid by urban consumers and the operating efficiencies of the urban utilities due to the large portion of the sector investments that are need-

ed for urban services. The results shown below are assuming that substantial tariff increases (in the scale of 10% annual increases above inflation) and improvements in operating efficiencies will make it possible, in line with the sector policies, for the urban services to be self-financing at the end of the planning period.

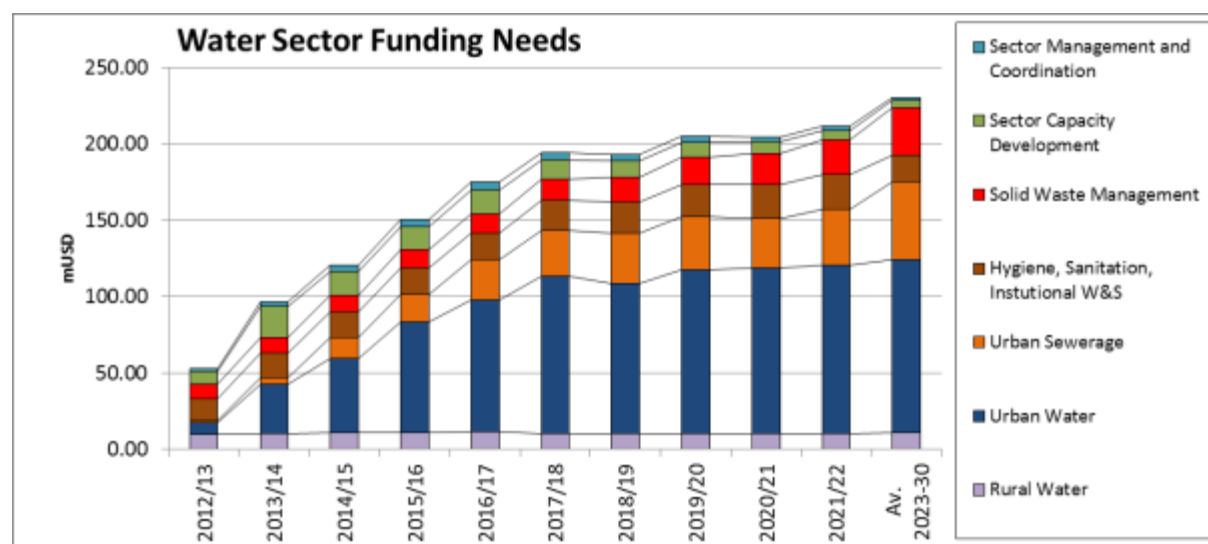
2.2 Total WASH Sector Funding Needs

The total WASH sector funding needs are shown in Table 2-1² and Figure 2-3 based on detailed calculations per subsectors³ as presented below. The funding needs are dominated by the investments for water and sewerage services in urban areas (even with the lower scenario 1 coverage target for sewerage services). The urban investment calculations in the SIM are based on modules for the 24 Cities and the variations in urban funding needs for the different years are due to the timing of when major urban projects in the specific cities are scheduled to start. The rural investments calculations are based on coverage targets for the districts in the target years of 2017, 2022 and 2030 and therefore the funding requirements show a more even distribution over the planning period.

Table 2-1: Total WASH Sector Funding needs

Funding Needs												
Sector Funding Needs (mUSD) - Scenario 1	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Av. 2023-30	Total 2012-30
Rural Water	9.8	10.6	11.4	11.2	11.5	10.8	10.7	10.6	10.5	10.4	10.9	194.8
Urban Water	8.0	32.4	48.4	72.1	86.2	102.9	97.6	107.0	107.8	106.3	102.4	1 587.9
Urban Sewerage	1.2	4.0	13.5	18.3	26.5	29.6	33.0	34.5	32.7	36.8	50.6	634.7
Hygiene, Sanitation, Institutional W&S	14.1	16.3	16.6	17.1	17.4	19.8	20.6	21.1	21.7	22.4	17.4	326.5
Solid Waste Management	9.5	10.2	11.0	11.8	12.7	13.8	15.9	18.2	20.5	23.0	31.3	397.3
Sector Capacity Development	8.3	19.9	15.4	15.3	15.3	12.3	10.7	9.2	7.7	6.1	4.6	156.9
Sector Management and Coordination	2.1	3.4	4.2	5.0	5.2	5.3	4.6	4.2	3.5	2.8	2.1	57.4
Total	53.1	96.8	120.5	150.8	174.9	194.5	193.2	204.8	204.4	207.9	219.3	3 355.5

Figure 2-3: Total WASH Sector Funding needs



The funding needs are the totals and include the O&M costs and therefore it becomes important to look at the part of the funding that is provided by the users directly as payment of tariffs or payment

² The total column on this and all subsequent tables calculates the totals for 2012 to 2030 and is therefore the sum of the annual totals + 8 x the average for 2022 to 2030 in the second last column

³ Water and Sanitation for schools and clinics are included in row 4 'Hygiene, Sanitation and Institutional W&S'

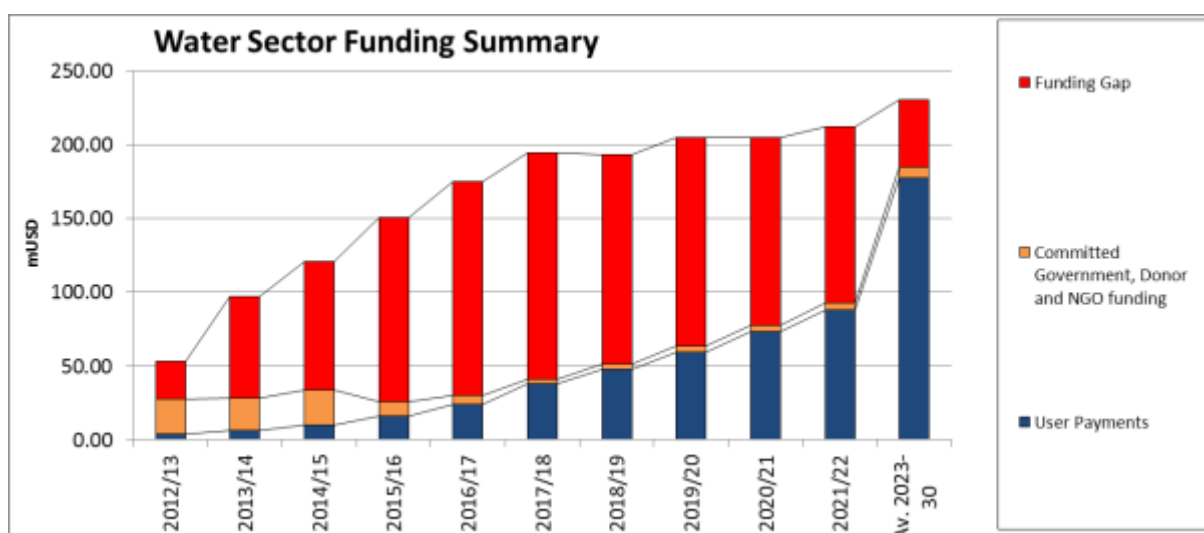
for O&M of rural water systems. The estimates of funding from users (tariffs, rural O&M and contribution to capital cost, user payment for solid waste) and the information on funding from government budgets and various donors for the immediate 5 year period as well as the estimated funding available from revenues paid by the extractive industry concessions for WASH in counties are shown on Table 2-2 and Figure 2-4.

It is obvious that there is a huge funding gap in the short- to medium-term, while over time the anticipated user payments will assist in closing the gap in the longer term.

Table 2-2: WASH Sector Funding Sources and Funding Gap

Sector Funding												
Total Sector Funding (mUSD) - Scenario 1	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Av. 2023-30	Total 2012-30
User Payments	3.9	6.3	10.0	15.5	23.4	37.1	46.2	57.0	69.3	82.9	166.7	1 685.1
Committed Government, Donor and NGO funding	23.6	21.8	23.7	9.8	5.9	3.2	3.6	3.9	4.3	4.7	6.9	160.1
Total Sector Funding	27.5	28.1	33.7	25.3	29.3	40.3	49.8	60.9	73.6	87.6	173.6	1 845.2
WASH Sector Funding Needs (average)	53.1	96.8	120.5	150.8	174.9	194.5	193.2	204.8	204.4	207.9	219.3	3 355.5
Funding Gap	25.6	68.7	86.8	125.5	145.6	154.2	143.4	143.9	130.7	120.3	45.7	1 510.4

Figure 2-4: WASH Sector Funding Sources and Funding Gap



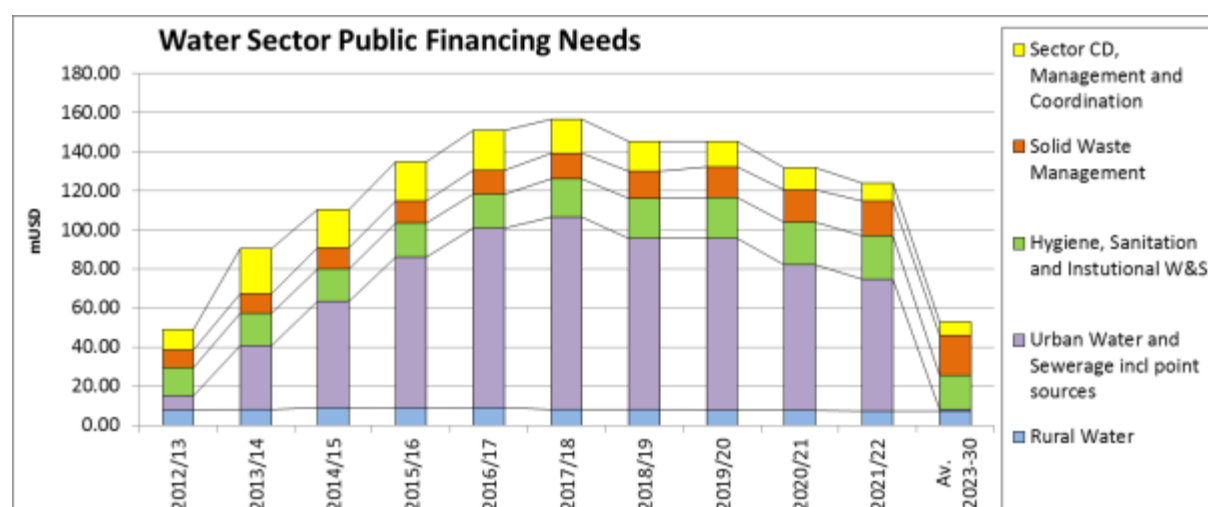
In analysing the funding gap it is important to look at the 'public' financing needs for the WASH sector – here understood to mean the funding needed for WASH activities that are not coming directly from the users. The public financing needs per subsector are shown on Table 2-3 and Figure 2-5.

It is clear that the main financing need in the short and medium term is from the urban water and sewerage services while these towards 2030 can be self-financing as implied by the minimal public financing needs for urban services in the 2023-30 period – naturally assuming that the substantial tariff increases are implemented and operating efficiencies are improved.

Table 2-3: Public financing needs for WASH Activities

Public Financing Needs												
Total Public Financing Needs (mUSD) - Scenario 1	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Av. 2023-30	Total 2012-30
Rural Water	7.8	8.4	9.0	8.8	9.0	8.2	8.0	7.8	7.6	7.4	7.4	141.4
Urban Water and Sewerage incl point sources	7.5	32.5	54.5	77.8	92.4	99.1	89.0	90.1	77.9	68.5	0.5	693.2
Hygiene, Sanitation and Institutional W&S	14.1	16.3	16.6	17.1	17.4	19.8	20.6	21.1	21.7	22.4	17.4	326.5
Solid Waste Management	9.4	10.0	10.7	11.4	12.1	12.7	14.0	15.3	16.6	17.7	20.7	295.1
Sector CD, Management and Coordination	10.4	23.3	19.6	20.3	20.6	17.6	15.4	13.4	11.1	8.9	6.7	214.3
Total	49.2	90.5	110.5	135.3	151.5	157.4	147.0	147.8	135.0	125.0	52.7	1 670.4

Figure 2-5: Public Financing needs for WASH Activities



2.3 Scenarios for the Strategic Investment Plan

The SIM is programmed to prepare estimates for funding needs for 4 scenarios:

- The Baseline Scenario – used as the most likely scenario and used in the presentation of results above.
- High Growth Scenario with Urban Development Focus – presents the results for economic development focussing on urban development and related high population growth in urban areas and focus of investments on urban services and reduced targets for rural areas
- High Growth Scenario with Rural Development Focus– presents the results for economic development focussing on rural development and related higher population growth in rural areas and focus of investments on rural services and reduced targets for urban areas
- Low Growth Scenario – with reduced targets in both rural and urban areas.

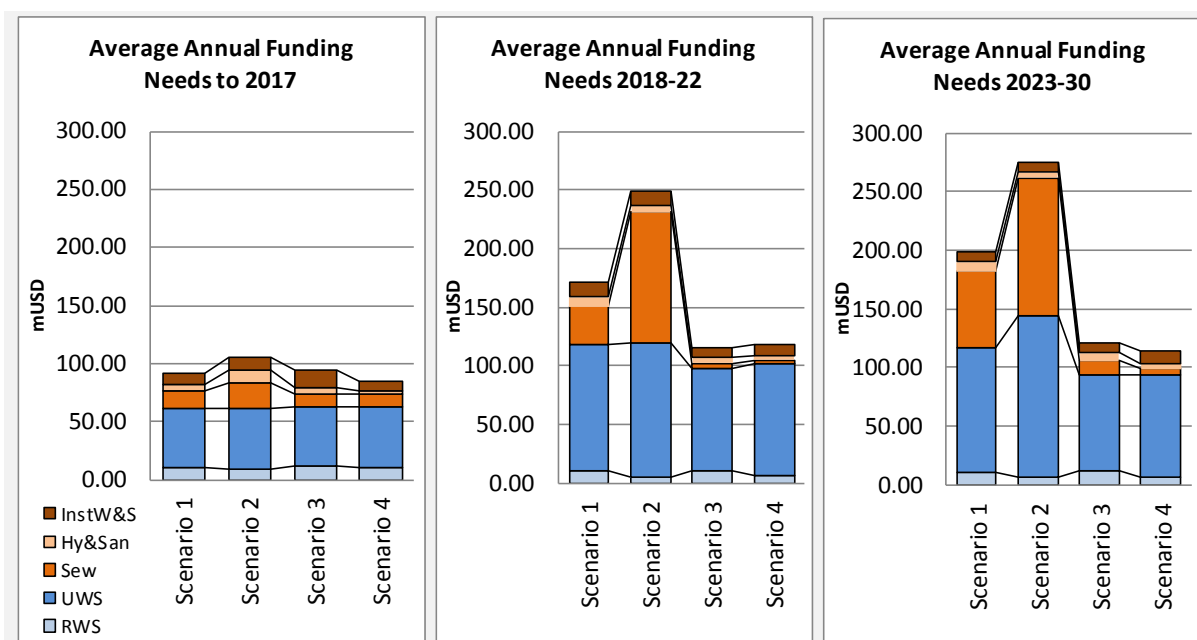
The SIM is intended as an interactive tool that can be used by the planners in the water sector to analyse the consequences of changing targets and other policy variables. The following summary results of the scenario analysis is therefore only included here to show the differences in the water sector investment needs based on the different variables and is not intended as a comprehensive presentation of the outputs from the analysis that is possible in the SIM. The key variables (targets) used in the SIM for the results presented below for the four scenarios are shown in Table 2-4.

Table 2-4: Key variables for the four Scenarios

Policy Variables	Scenario 1 Baseline - Business as usual			Scenario 2 High growth with urban focus			Scenario 3 High growth with rural focus			Scenario 4 Low growth		
	2017	2022	2030	2017	2022	2030	2017	2022	2030	2017	2022	2030
Coverage												
Rural Water Services	67%	80%	100%	67%	72%	80%	67%	80%	100%	67%	72%	80%
Urban WS (Pipe & Point Sources)	93%	96%	100%	93%	95%	100%	30%	38%	50%	30%	38%	50%
Annual tariff increases	10%	8%	7%	10%	6%	4%	5%	3%	2%	0%	0%	0%
Domestic Sewerage												
Monrovia	15%	30%	50%	38%	75%	100%	6%	10%	15%	3%	5%	10%
Other Cities	0%	1%	2%	25%	50%	100%	4%	7%	15%	0%	0%	0%
Sanitation Coverage												
Monrovia	61%	80%	100%	90%	100%	100%	60%	65%	75%	60%	65%	70%
Other Cities	61%	75%	100%	61%	75%	100%	61%	75%	75%	61%	75%	75%
Rural Sanitation Coverage	52%	70%	100%	52%	70%	100%	52%	70%	100%	25%	35%	50%
Schools W&S	10 years to cover all			10 years to cover all			5 years to cover all			20 years to cover all		
Clinics W&S	2 clinics/county/yr			2 clinics/county/yr			3 clinics/county/yr			1 clinics/county/yr		

The summary results are illustrated on Figure 2-6 for the different planning periods.

Figure 2-6: Average Annual funding needs to 2017, 2022 and 2030



The differences between the four scenarios obviously become more pronounced in the later planning periods. The target of full sewerage coverage in urban areas in scenario 2 shows how this will dominate the sector funding needs.

The presentation of the detailed 2012-17 Sector Investment Plan is based on the variables presented above for Scenario 1.

3 Urban SIP 2012-17

The Urban SIP 2012-17 aims at providing access to water for 93% and to sanitation for 61% of the urban population by 2017. The SIP includes a description of the key issues facing service delivery in urban areas related to capacity for implementation; sustainability, cost recovery and O&M; and the cost estimates for investments. This is followed by detailed information on:

- Monrovia Water Supply – describing the existing situation, planned projects and the investment plans for water supply in Monrovia
- Monrovia Sanitation and Hygiene – describing the sewerage, sanitation and hygiene issues and existing and planned projects and investment requirements for sanitation and hygiene
- Cities Water Supply – describing the existing situation, planned projects and the investment plans for water services in the 23 Cities that are regarded as urban
- Cities Sanitation and Hygiene – describing the sanitation and hygiene issues and existing and planned projects and investment requirements for sanitation and hygiene in the 23 Cities
- Solid Waste, Monrovia – describing the existing situation with solid waste in Monrovia and the plans for solid waste management in the greater Monrovia area
- Solid Waste Cities – describing the plans for providing solid waste management services in the 23 Cities

The investment funding requirements to achieve the targets are estimated to 207mUSD and the presently available project funding amounts to 65mUSD leaving a substantial funding gap of **142mUSD** to achieve the 2017 targets in urban areas. The funding gap is mainly in relation to water services in Cities. In case adequate funding is not mobilised, the following needs to be considered:

1. Focus on the urban water investments on Monrovia and the already planned 6 Cities and on ensuring that the many existing point sources in the towns are delivering safe water
2. Place emphasis on the substantive issues around how best to address the urban sanitation issues in Monrovia and also in the Cities
3. Clarify the responsibilities for supporting the Municipalities and County administrations in the provision of services in the Cities
4. The streamlining and fast tracking of service delivery – especially in relation to the urgently needed improvements in services in Monrovia – and the proposed programme management assistance to LWSC

Implementation capacity: It is clear from the review of existing documents that the urban water and sanitation sector suffers from serious constraints in managing implementation with problems in programme management, project management and contract management. When analysing the implementation of the urban water projects in Monrovia over the past 5 years it is evident that the delays in implementation are caused by i) internal capacity constraints in LWSC and difficulties in coordinating and managing funding from different financing agencies with different procurement and reporting requirements and ii) external delays from the financing agencies in disbursements and providing the required approvals. This needs to be allowed for in some way in the SIP 2012-17 and therefore

programme management support is suggested. The programme management support would provide overall project planning, procurement and implementation support to ensure effective planning and achievement of targets.

Cost recovery: The Sector Strategic Plan is clear that users must pay at least all of the Operation and Maintenance (O&M) costs but that tariffs can be designed to allow cross subsidies from the richer consumers to the poorer. The current water supply in Monrovia suffers from severe restriction on income to LWSC, not only because tariffs are too low, but because:

- The distribution system does not reach most consumers partly because customer connections are not made but also because with only 200km of distribution system for 1 million people, the network is not very dense and many people are too far away from the system.
- Only a very small proportion of the population has a water connection and it is likely that a huge number of people are connected to the system illegally.
- Customer records are poor and few household connections have working meters.
- The billing and collection system is weak, which when combined with the above technical problems leads to a very high level of Non-Revenue Water.

3.1 Monrovia Water Supply

The highlights of the SIP 2012-17 for Monrovia Water Supply are:

The 2017 target of access to water for 93% of Monrovia's population will be achieved by completion of the ongoing projects and the planned rehabilitation of the White Plains System to its original capacity of 59,000m³/d complemented by two new groundwater schemes and substantial investments in water distribution as well as a programme to ensure potable water quality for the population served by point water sources.

The proposed projects are:

1. Programme management covering the water and sanitation projects that are to be undertaken in Monrovia, ensuring coordination and preparing the outline designs for the new projects: water distribution extension project; dug well improvement project; water supply expansion project and also covering the sewerage and on-site sanitation activities (estimated cost 2.4mUSD).
2. Monrovia Water Distribution Project – covering full rehabilitation of the existing distribution system and extension of the system to cover 77% of Greater Monrovia as well as a comprehensive leakage reduction programme and installation of new consumer connections (estimated cost 23.0mUSD).
3. Monrovia Well Protection Project – covering improvements to 1032 existing communal wells in order to improve the water quality serving 250,000 people and hygiene promotion to ensure potable water from private wells (estimated cost 0.5mUSD).
4. Monrovia Water Supply Expansion Project – covering the design of the extension of the Monrovia piped water supply system to meet the needs of Greater Monrovia in 2022 by doubling the capacity of the White Plains production to 118,000m³/d. (estimated cost 0.8mUSD).

The estimated funding requirements for the improvements are 59mUSD and 32mUSD is available from the existing funding leaving a funding gap of **27mUSD**.

The sector strategy is based on achieving the coverage target of 93% by 2017. This will be achieved in Monrovia by the outline projects proposed in the strategy i.e. rehabilitating the White Plains System to its original capacity of 59,000 m³/d, two supplementary groundwater based systems and improvements to the distribution system, with the remainder of the population served by non-piped protected sources.

Technologies: The main technologies for the Monrovia piped systems have already been decided in the Urban Water Supply and Sanitation Project (UWSSP) II and are primarily rehabilitation of the White Plains water treatment plant using rapid gravity filters and standard pumping and transmission arrangements. The two new groundwater schemes also use conventional technologies. The proposed new scheme to expand and rehabilitate the distribution system should use conventional technologies such as Polyvinyl chloride (PVC) pipes and standard valves and meters for new and replacement works. The project to upgrade the non-piped sources is limited to providing a regular well chlorination programme to try to mitigate the inevitable contamination from polluted groundwater.

Time Scales: Recent water supply and solid waste projects have taken significantly longer than planned to construct and longer delays have been experienced in starting up projects, particularly getting Development Partner's approvals and doing procurement. The SIP has therefore used realistic but not overgenerous timescales: achieving the proposed timescales will need a new approach and sustained effort from all parties.

Ongoing Projects: Monrovia has two ongoing water supply projects: i) **MWSSRP:** the Monrovia Water Supply and Sanitation Rehabilitation Project which is the emergency rehabilitation of the White Plains System to 15,000 m³/d 25% of its original capacity. The project is substantially completed; ii) **UWSSP II – Monrovia Element:** Rehabilitate the White Plains piped system to its original capacity of 59,000 m³/d and construct two new groundwater systems of 7000 m³/d each. Provide various capacity building inputs.

Proposed Projects: The 4 new projects that are needed to supplement the existing projects in order to achieve the sector targets for 2017 are described in outline below.

Project 1: Programme Management Consultancy - the function of these consultants will be programme managing and coordinating all of the water and sanitation projects that are to be undertaken in Monrovia, this function includes: scheduling, quality control, cost control, reporting to LWSC, tendering and contract management of all of the delivery contracts; preparing a Sanitation Master Plan for the city; preparing the outline designs for the new projects: Water distribution extension project; Dug well improvement project; Water supply expansion project; Fiamah Sewage Treatment Plant; On-site sanitation project; Sewerage expansion project (if this is what is agreed from the master plan)

The consultancy would not include the various consultancy assignments already identified in the current African Development Bank (AfDB) funded project, including: design review and construction supervision of the AfDB funded project and the various Technical Assistance (TA) and capacity development assignments.

Project 2: Monrovia Water Distribution Project: full rehabilitation of the existing distribution system and extension of the system to cover 77% of Greater Monrovia as well as a

comprehensive leakage reduction programme and installation of new consumer connections.

Project 3: Monrovia Well Protection Project: Improvements to 1032 existing communal wells in order to improve the water quality serving 250,000 people and hygiene promotion to ensure potable water from private wells

Project 4: Monrovia Water Supply Expansion Project: design of the extension to the Monrovia piped water supply system to meet the needs of Greater Monrovia in 2022 by doubling the capacity of the White Plains production to 118,000 m³/d. The Sector Strategy aims to have the design completed during the 2012-17 SIP

Summary of Expenditure and Funding for Monrovia Water Supply: The funding needs and the available funding for water supply in Monrovia is summarised in Table 3-1 below. There is a substantial funding gap to reach the targets implied in the Sector Strategic Plan targets of more than USD 25 million – mainly on the improvements and expansion of the distribution network to actually reach the users and fulfil the coverage targets as described above.

Table 3-1: Funding Needs and Available Funding for Monrovia Water

Funding Needs (kUSD)	Status	2012/13	2013/14	2014/15	2015/16	2016/17	TOTAL
MWRSSP	Contract	1 200	0	0	0	0	1 200
URWSSP II (Monrovia)	Planned	2 024	7 866	9 293	7 750	3 620	30 553
Programme Mmt Consultants	Proposed	0	610	610	610	610	2 440
Monrovia Water Distribution	Proposed	0	518	2 045	10 225	10 225	23 013
Well Protection	Proposed	0	27	323	119	0	469
Monrovia Expansion	Proposed	0	0	0	0	832	832
Total Funding Needs		3 224	9 021	12 271	18 704	15 287	58 507
Available funding(kUSD)							
MWRSSP	AfDB	1 200	0	0	0	0	1 200
UWSSP White Plains & Other Rehab	AfDB	2 024	7 866	9 293	7 750	3 620	30 553
GOL Subsidy to LWSC	GOL	0	0	0	0	0	0
Total Available Funding		3 224	7 866	9 293	7 750	3 620	31 753
Funding Gap (kUSD)		0	1 155	2 978	10 954	11 667	26 754

3.2 Monrovia Sanitation & Hygiene

The highlights of the SIP 2012-17 for Monrovia Sanitation & Hygiene are:

The 2017 target of access to improved sanitation for 61% of Monrovia's population will be achieved by a combination of:

- i) rehabilitation and extension of the sewerage system so that the present discharge of untreated sewage is reduced;
- ii) households improving their toilet facilities up the sanitation ladder: connecting to the sewerage system, constructing septic tanks, constructing improved on-site latrines;
- iii) land lords improving the sanitation facilities for rented accommodation;
- iv) MCC implementing communal toilet facilities for the population in dense settlements where on-site facilities are not possible and
- v) MCC implementing public toilet facilities in market places and other public areas

A sanitation master plan study is urgently needed to bring clarity to the serious hygiene and environmental sanitation issues facing Monrovia. It will define the overall approach to sanitation in Monrovia and in particular the extent of the future sewerage system and the possible technological alternatives for temporary or permanent on-site sanitation solutions, addressing the complex financial, institutional, socio-economic, environmental and technical issues related to sanitation.

The estimated funding requirements for the improvements are 37mUSD and only 4mUSD is available from the existing funding leaving a funding gap of **33mUSD**.

The WASH Sector Strategy has set a target of 61% coverage of improved sanitation facilities in urban areas by 2017 and the plan assumes that piped sewer systems will be the main way that sanitation will be achieved in Monrovia. The existing sewer system covers only 14% of Greater Monrovia so to achieve 61% coverage through piped sewerage by 2017 is not realistically possible, and therefore although the long term strategy for sanitation in Monrovia is to provide an extensive piped sewer system, for the SIP 2012-17 the coverage targets will be achieved as a combination of sewerage and on-site solutions.

The sanitation interventions described in this SIP will thus be a combination of i) rehabilitation and extension of the sewerage network and treatment plant so that the present discharge of untreated sewage is reduced; ii) households improving their toilet facilities up the sanitation ladder: connecting to the sewerage system, constructing septic tanks, constructing improved on-site latrines; iii) landlords improving the sanitation facilities for rented accommodation; iv) MCC implementing communal toilet facilities for the population in dense settlements where on-site facilities are not possible and v) MCC implementing public toilet facilities in market places and other public areas.

The SIP includes the preparation of a 'sanitation master plan' to guide the sanitation activities. The master plan will assess the possibilities for sanitation solutions that fulfil the service level requirements and are environmentally safe, technologically appropriate and economically feasible.

Ongoing Sanitation Projects: Monrovia has 2 major ongoing projects: i) **UWSSP II:** which covers Monrovia and three Cities has a small sanitation component for rehabilitation of sewer lines in central Monrovia and Sinkor and construction of 16 Ecosan systems and 27 VIP latrines in markets and schools; ii) **FISH** - in 2011 MCC presented a proposal to the African Water Facility (AWF) of the AfDB for the Fostering Innovative Sanitation and Hygiene in Monrovia (FISH) Project. This project has been included under ongoing projects since funding is likely to be approved. It is a 36 month project focussing on improved facilities for handling the sludge from septic tanks and improved communal sanitation facilities for about 6000 persons.

Proposed Sanitation Projects: the following 4 projects are proposed to reach the targets for sanitation in Monrovia in addition to the Project 1: Programme Management Consultancy as described in the water section of the report that will also address sanitation:

Project 2: Sanitation Master Plan for Monrovia: needed urgently and the work could be done by the Programme Management Consultants to avoid time consuming separate procurement processes and for the master plan study to lead directly into formulation and implementation of investment programmes. This high level master plan concentrates on i) the overall approach to sanitation in Monrovia and in particular the extent of the future

sewerage system and the possible technological alternatives for temporary or permanent on-site sanitation solutions; ii) financial sustainability and consumers' ability and willingness to pay for piped sewerage; iii) the future institutional arrangements, including responsibilities for piped sewer systems and non-piped sanitation and tariff requirements for a financially sustainable sewerage system; iv) Technical issues such as sewage treatment options and a deep sea outfall, different sewage treatment processes and the sludge implications, septic tank options including how to dispose of the effluent if this is not connected to a sewer, options for public toilets.

Project 3: Fiamah Sewage Treatment Plant has a scope of constructing a new sewerage treatment plant at Fiamah with a capacity of 23,000 m³/d to serve the rehabilitated existing sewer system. This can only start once the master plan has confirmed that a sewerage treatment plant at Fiamah is appropriate but planning and securing funding for the project should start as soon as possible. This is the part of the sanitation projects that would require most funding in the 2012-17 period as it includes the complete renovation of the existing system. The project plan assumes that a traditional approach with detailed design by a consultant is used, but this is one project where a design and build approach should be seriously considered.

Project 4: Monrovia On-Site Sanitation Project: The improvements to the central sewerage system and treatment plant will improve the environmental conditions in Monrovia, but since the households using flush toilets, either connected to the working parts of the sewerage system (discharging mainly untreated to the surface drains and wetlands) or connected to septic tanks, are already considered as covered in the statistics, the improvements to the sewerage system will not in itself contribute to reaching the coverage targets.

The hygiene education and improvements to the sewerage system and septic tank emptying is likely to result in households 'moving up the sanitation ladder' – getting connected to the sewerage network, building flush toilets to replace pit latrines etc. and although this is important for improved hygiene and living conditions, it also does not in itself contribute to the numerical count for reaching the coverage targets.

The main increase in coverage to achieve the target coverage of 61% by 2017 will therefore need to come from households presently using unlined and uncovered pit latrines or open defecation that will invest in improved pit latrines or other toilet facilities. A substantial increase could also be achieved by enforcing the bylaws that oblige landlords to make toilet facilities available for rented accommodation.

These improvements will need to come from the households' and the landlords' own investment in sanitation facilities in accordance with the policy of no subsidy for household sanitation facilities. A comprehensive hygiene education and sanitation promotion campaign is therefore needed to ensure that this takes place.

Improvements in access to water and sanitation facilities in public places (like markets) are also important to achieve a general improvement in the environmental sanitation conditions in Monrovia. Private or community organisations will operate the facilities on a cost recovery basis with the users paying for the use of the facility.

These considerations should be regarded as preliminary and only for the purpose of the SIP attempting to quantify the investments in sanitation promotion and public toilets in Monrovia – the sanitation master plan will be able to provide a better and a more substantive plan for the sanitation investments.

Project 5: Monrovia Sewerage and treatment Expansion Project: For the purpose of the SIP the extension assumes that the existing system which drains to Fiamah cannot be extended due to limitations of the Fiamah site area. Three new satellite systems will be constructed as proposed in the Sector Strategic Plan (and in the NCL Study⁴) and the design of those are included in the 5 year plan.

Summary of Expenditure and Funding for Monrovia Sanitation & Hygiene

The estimated funding needs for the hygiene and sanitation activities in Monrovia are presented in the table below.

Table 3-2: Funding Needs and Available Funding for Monrovia Sanitation and Hygiene

Funding Needs (kUSD)	Status	2012/13	2013/14	2014/15	2015/16	2016/17	Total
URWSSP II (Monrovia)	Planned	200	732	732	434	41	2 139
FISH	Planned	0	900	900	898	0	2 698
Programme Mmt Consultants	Planned	0	610	610	610	610	2 440
Sanitation Master Plan	Proposed	0	1 150	0	0	0	1 150
Fiamah STP	Proposed	0	303	838	8 838	8 838	18 817
On-Site Sanitation	Proposed	0	728	2 183	2 183	2 183	7 276
Sewerage Expansion (design)	Proposed	0	0	0	0	2 500	2 500
Total Funding Needs		200	4 423	5 263	12 963	14 172	37 020
Available funding(kUSD)							
UWSSP		200	732	732	434	41	2 139
FISH		0	600	600	600	0	1 800
Total Available Funding		200	1 332	1 332	1 034	41	3 939
Funding Gap (kUSD)		0	3 091	3 931	11 929	14 131	33 081

The funding gap as well as the implementation challenges for reaching the sanitation targets implied in the Sector Strategic Plan are very substantial –in Monrovia alone, additional funding of more than 30 million USD will be required.

⁴ Monrovia Expansion & Rehabilitation of Three County Capitals Water Supply & Sanitation Project Feasibility study, August 2009, NCL Engineering Services Ltd and

3.3 Cities Water Supply

The highlights of the SIP 2012-17 for Cities Water Supply are:

The 2017 target of access to water for 93% of the urban population will be achieved by implementing piped water systems in 9 Cities as targeted in the Strategic Plan: Buchanan, Kakata and Zwedru funded by AfDB and the Liberia Municipal Water Project (LMWP) in Sanniquelle, Robertsport and Voinjama funded by USAID. The last 3 cities were identified using the 'Prioritisation Tool' to be: Gbarnga, Harbel and Ganta. To reach the coverage target, it must be ensured that the existing communal and private point sources provide potable water in the Cities that have not been prioritised for piped systems.

The main challenges in relation to water services in the Cities are related to sustainability, cost recovery and the management, operation and maintenance arrangements i.e. the role of LWSC and the local government authorities in Counties and Municipalities.

The estimated funding requirements for the improvements are 71mUSD and 18mUSD is available from the existing funding leaving a funding gap of 53mUSD.

Targets and Assumptions: the target for urban water supply coverage in 2007 is 93%. The Sector Strategic Plan allows for a total of 9 Cities to be supplied in the 2012-17 programme and it is clear that supplying 9 out of 23 cities will not achieve the target coverage, actually 15 of the largest Cities would need to be covered by piped systems if the coverage target should be reached by only considering piped water. The SIP therefore includes costing for all 23 Cities and nine prioritised cities (including the ongoing projects in 6 cities) would be included in the budget. A Prioritisation Tool has been developed that considers the four factors: i) the need for the project in a particular city; ii) unit costs and design status; iii) institutional and financial aspects; and iv) risks. The scoring using the Prioritisation Tool was done in collaboration with the SIP Task Force and later adjusted according to updated coverage figures and cost estimates. The results are shown in Table 3-3.

Table 3-3: Prioritising Cities Water Supply Facilities

Priority	Cities	Total Score	The Need for the Project	Project Design & Costs	Institutional & Financial	Risks	Project Funding	Existing WS
1	Buchanan	81.20	47.00	18.15	8.40	7.65	AfDB	Yes
2	Gbarnga	81.10	48.00	16.75	8.65	7.70		Yes
3	Kakata	71.70	41.00	15.15	7.65	7.90	AfDB	Yes
4	Bensonville	69.20	38.00	16.75	5.40	9.05		Yes
5	Harbel	65.40	31.00	17.40	7.95	9.05		No
6	Ganta	65.30	37.00	13.90	6.70	7.70		No
7	Sanniquelle	64.70	37.00	11.65	7.75	8.30	USAID	Yes
8	Greenville	63.40	37.00	11.00	8.00	7.40		Yes
9	Harper	62.25	37.00	11.00	7.20	7.05		Yes
10	Zwedru	62.15	35.00	11.90	7.70	7.55	AfDB	Yes
11	Robertsport	59.35	31.00	11.50	8.05	8.80	USAID	Yes
12	Tubmanburg	58.20	32.00	11.00	6.90	8.30		Yes
13	Voinjama	57.20	34.00	11.50	4.80	6.90	USAID	Yes

14	Foya	52.55	27.00	10.90	7.40	7.25		No
15	Sacleapea	51.80	25.00	10.75	7.40	8.65		No
16	Cestos City	50.35	23.00	10.65	8.80	7.90		No
17	Pleebo	49.00	24.00	10.75	6.95	7.30		No
18	ZorZor	47.60	20.00	10.75	8.65	8.20		No
19	River Gbeh	46.95	23.00	7.65	7.90	8.40		No
20	Bopolu	44.83	18.00	10.38	8.30	8.15		No
21	Barclayville	44.30	21.00	7.75	7.75	7.80		No
22	Fish Town	43.55	23.00	4.75	7.75	8.05		No
23	Kamplay	40.15	18.00	7.50	6.90	7.75		No

The 6 ongoing projects are not in the six top ranked cities because the selection was based on cities with existing water infrastructure rather than considering the needs in all 23 cities as done in the prioritisation tool. Bensonville was earlier served by an extension of the Monrovia piped system and the need for rehabilitation and extension could most effectively be carried out as an integrated part of the Monrovia water system development. This means that the three additional cities to be funded within the initial SIP five year period are: Gbarnga, Harbel and Ganta.

Ongoing Projects: there are two ongoing projects covering 6 towns ongoing: i) The AfDB Funded Three Towns (Kakata, Buchanan and Zwedru) restoring piped water supply to the majority of the city areas and the SIP has included the coverage and the costs as given by the project for the water supplies. ii) The Liberia Municipal Water Project (LMWP) funded by the United States Agency for International Development (USAID) (Sanniquelle; Robertsport and Voinjama) are at a much earlier stage of development than the AfDB funded projects and have a very different philosophy with focus on financial and institutional sustainability and are considering low cost solutions such as mini piped schemes or boreholes with handpumps. The LMWP do not include sanitation or hygiene but include capacity building for the transfer of responsibilities from LWSC to the municipalities and/or communities.

Summary of Expenditure and Funding for Cities Water Supply: The funding needs for water supply to Cities are presented in Table 3-4. The funding needs are based on the existing budgets for the AfDB funded projects (although likely to be exceeded if the 3 towns are to be covered entirely by piped systems); the Unit Cost Estimating Tool (UCET) investment cost estimates for the LMWP since the cost estimates and budgets from USAID are not available. In the available funding part of the table it has been assumed that the funding for these 3 cities will be made available in full by USAID. The estimates also include an estimate of the water quality testing and well chlorination programme that would be required to regard the existing wells in the towns without water systems as safe water sources.

Table 3-4: Funding needs and available funding for water supplies to Cities

Funding Needs (kUSD)	Status	2012/13	2013/14	2014/15	2015/16	2016/17	TOTAL
Buchanan	AfDB	0	285	1 425	1 140	0	2 850
Kakata	AfDB	0	165	825	660	0	1 650
Zwedru	AfDB	0	151	754	603	0	1 508
Voinjama	USAID	0	0	1 580	2 106	1 580	5 266
Sanniquellie	USAID	0	0	1 606	2 142	1 606	5 355
Robertsport	USAID	0	0	488	650	488	1 626
Ganta	SIP	0	802	3 206	9 618	2 405	16 031
Gbarnga	SIP	0	942	3 766	11 299	2 825	18 832
Harbel	SIP	0	815	3 260	9 780	2 445	16 299
WQ Testing and chlorination programme for point sources	SIP	148	370	370	370	222	1 481
Total Funding Needs		148	3 529	17 280	38 369	11 570	70 897
Available funding(kUSD)							
URWSSP II (3 cities)	AfDB	0	601	3 004	2 403	0	6 008
3- cities	USAID	0	0	3 674	4 899	3 674	12 246
Total Available Funding		0	601	6 678	7 302	3 674	18 254
Funding Gap (kUSD)		148	2 928	10 603	31 067	7 896	52 643

The estimates presented in Table 3-4 reveals that there is a considerable funding gap of close to USD 50 million to reach the targets set in the Sector Strategic Plan.

3.4 Cities Sanitation & Hygiene

The highlights of the SIP 2012-17 for Cities Sanitation & Hygiene are:

The 2017 target of access to improved sanitation for 61% of the urban population will be achieved by developing and starting the implementation of a comprehensive urban sanitation strategy. This will include awareness and communication campaign, construction of public toilets in market places and other public areas, capacity building of local craftsmen and businesses to construct latrine slabs and septic tanks and to provide a septic tank emptying service and construction of a simple sludge treatment works and collection equipment in each city to treat septic tank and pit latrine sludge in cities where water projects are implemented.

The sanitation and hygiene project would be implemented by the Municipalities in close cooperation with the MOHSW and the WASH Implementation Teams in the Counties.

The estimated funding needs for the improvements are 13mUSD. Only about 1mUSD is available from the existing project funding leaving a funding gap of **12mUSD**.

Targets: The Sector Strategy has a target of 61% coverage of improved sanitation by 2017 and includes a project to construct sewer systems in “six cities including Monrovia” and it is assumed that this implies treatment plants for these sewer systems. The sector now seems to have concerns about piped sewerage in the Cities, with uncertainty about future responsibility for water and sanitation in Cities and large questions over the viability of piped water supplies in these cities. For the purposes of the draft SIP it has been assumed that non piped sanitation will be provided and that facilities for septic tank emptying and sludge treatment will be established in cities where water systems are implemented.

Ongoing Projects: UWSSP II is the only ongoing sanitation project in the Cities and includes only a very limited number of institutional and public toilets.

Proposed Projects: Cities Sanitation and Hygiene Project - is proposed to start as soon as possible to supplement the AfDB funded project in those three towns and to provide sanitation in the LMWP/ USAID supported town and the remaining towns. The sanitation and hygiene project would be implemented by the Municipalities in close cooperation with the MOHSW and the WASH implementation Teams in the Counties. The methodology, promotional techniques and the use of private sector sanitation centres would be similar to the approach described for the CLTS programme in rural areas. The scope of the work would be: i) Development of a comprehensive and long term urban sanitation strategy; ii) long term awareness and communication campaign; iii) construction of hygienic latrines or toilets in all schools, health centres and hospitals; iv) Construction of public toilets in market places and other public areas; v) Construction of simple sludge treatment works and collection equipment in each city to treat septic tank and pit latrine sludge in cities where water projects are implemented. The programme will include capacity building of local craftsmen and businesses to construct latrine slabs and septic tanks and to provide a septic tank emptying service. The budgets for institutional facilities are included in the Institutional SIP.

Summary of Expenditure and Funding for Cities Sanitation and Hygiene: The Implementation would be led by the municipality in each of the cities with support from the County WASH Teams and consultants. The estimated funding needs and the available funding is shown in Table 3-5.

Table 3-5: Funding needs and available funding for Sanitation and Hygiene in Cities

Funding Needs (kUSD)	Status	2012/13	2013/14	2014/15	2015/16	2016/17	Total
Sanitation in AfDB project	Planned	0	67	333	266	0	666
Household Sanitation Promotion	Proposed	0	269	1 077	3 232	808	5 386
Public latrines	Proposed	0	58	232	696	174	1 161
Sludge treatment in 9 towns	Proposed	0	114	454	1 362	341	2 271
Sanitation TA	Proposed	0	180	720	2 160	540	3 600
Total Funding Needs		0	687	2 817	7 717	1 863	13 084
Available funding(kUSD)							
Sanitation in 3 cities	AfDB	0	67	333	266	0	666
Total Available Funding		0	67	333	266	0	666
Funding Gap (kUSD)		0	621	2 484	7 451	1 863	12 418

3.5 Solid Waste – Monrovia and Cities

The SIP 2012-17 for Solid Waste Management in Monrovia is based on completion of the ongoing EMUS Phase 1 Project and implementation of the planned EMUS Phase 2 Project with a target of collecting 60% of Monrovia's solid waste. The estimated funding needs for the solid waste management activities are **15mUSD** for which funding is yet to be secured.

The SIP 2012-17 for Solid Waste Management in the 23 Cities is proposed to include implementation of solid waste collection and disposal systems in the 9 towns where piped water systems are implemented together with the sludge collection systems and treatment facilities. The estimated funding needs for the solid waste management activities are **8mUSD** for which funding is yet to be secured.

The main challenges in the solid waste management services relate to sustainability and cost recovery for services.

Targets: The Sector Strategy does not give targets for solid waste however the EMUS Phase 2 Project has set a target of collecting 60% of Monrovia's solid waste and this has been taken as the target in

the SIP for Monrovia. In addition to the EMUS project there are two ongoing projects targeting solid waste in Monrovia: the 'Primary Solid Waste Collection in Poor Communities' and the 'Collection Centres & Educational Campaign' projects.

It is proposed to implement solid waste management systems in the cities where water piped water systems and sludge collection and treatment facilities are implemented. These will be implemented in collaboration with the Municipalities and it could be advantageous to combine the sludge collection investments with setting up parallel systems for solid waste management. The TA consultant proposed for the sanitation activities could be given responsibilities also for the solid waste since the technological challenges and the clients (Municipalities and Counties) are the same. There are no ongoing projects in the cities and the proposed project is based on the approach being used in Monrovia.

The budget for the combined programmes for solid waste in Monrovia and the 9 cities and the available funding according to the information collected from the Government of Liberia (GOL) budgets and DPs are presented in Table 3-6. The figures indicate a substantial funding gap, since the continuation of the EMUS project and the implementation of the proposed programme for solid waste in the 9 cities are new and unfunded activities.

Table 3-6: Funding needs and available funding for Solid Waste

Funding Needs (kUSD)	Status	2012/13	2013/14	2014/15	2015/16	2016/17	Total
Monrovia EMOS Project implementation	Ongoing	2 780	2 100	2 150	3 150	5 050	15 230
Primary SW Collection in Poor Communities	Ongoing	1 484	804	471	0	0	2 759
Collection Centers & Educational Campaign	Ongoing	500	720	730	31	0	1 981
Solid waste management in 9 cities (Invest)	Proposed	0	118	470	1 410	353	2 350
Solid waste management in 9 cities (O&M)	Proposed	1 170	1 170	1 170	1 170	1 170	5 850
Total Funding Needs		5 934	4 912	4 991	5 761	6 573	28 170
Available funding(kUSD)	Funder						
Landfill	GOL	1 120	0	0	0	0	1 120
Collection Centers & Educational Campaign	GOL	500	720	730	31	0	1 981
EMUS Project	LRTF	2 780	2 000	0	0	0	4 780
Primary SW Collection in Poor Communities	BMGF	1 484	804	471	0	0	2 759
Total Available Funding		5 884	3 524	1 201	31	0	10 640
Funding Gap (kUSD)		50	1 388	3 790	5 730	6 573	17 530

3.6 Urban SIP – Summary and Conclusions

The Urban SIP has been prepared on the basis of the targets set in the Sector Strategic Plan (as described under Scenario 1) and the interactions with the Task Force and stakeholders on the draft SIP. It is obvious that the targets and the funding requirements are very ambitious. The funding needs and available funding is summarised in Table 3-7 and Figure 3-1 below. The Urban SIP and the scenario analysis in the SIM will form the basis for discussions on realistic ambition levels and for example if:

1. The urban water investments should focus on Monrovia and the already planned Cities and focus on ensuring that the many existing point sources in the towns are delivering safe water – and not include additional cities.
2. The substantive issues around how best to address the urban sanitation issues in Monrovia and also in the Cities
3. The responsibilities for supporting the Municipalities and County administrations in the provision of services in the Cities – and how the water sector can best support the decentralisation

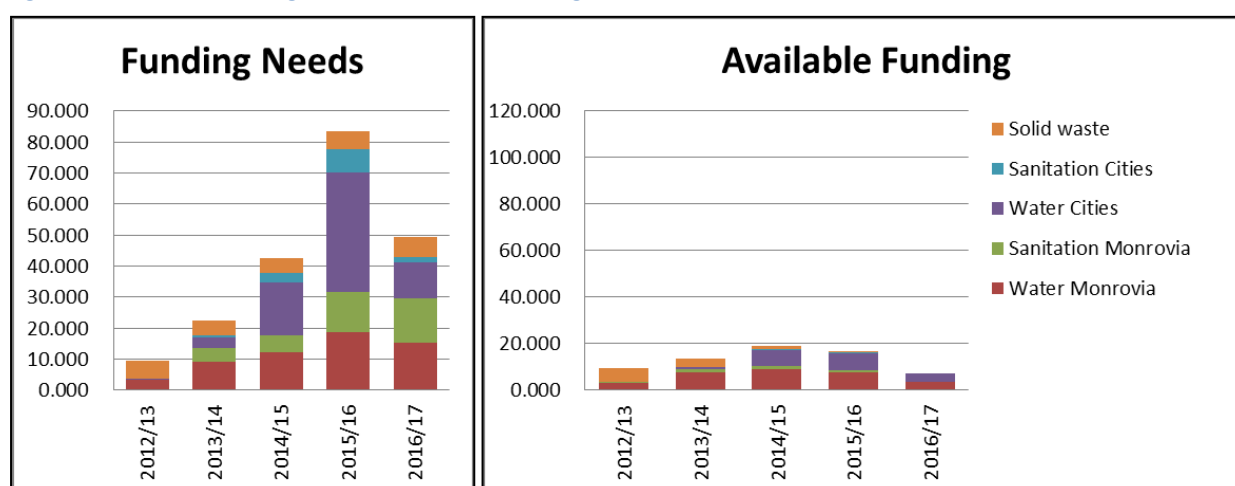
without being critically dependent on general capacity building and implementation managed by other sectors.

4. The streamlining and fast tracking of service delivery – especially in relation to the urgently needed improvements in services in Monrovia – and the proposed programme management assistance to the urban sector.

Table 3-7: Urban SIP funding needs and available funding

Funding Needs (kUSD)	2012/13	2013/14	2014/15	2015/16	2016/17	Total
Water Monrovia	3 224	9 021	12 271	18 704	15 287	58 507
Sanitation Monrovia	200	4 423	5 263	12 963	14 172	37 020
Water Cities	148	3 529	17 280	38 369	11 570	70 897
Sanitation Cities	0	687	2 817	7 717	1 863	13 084
Solid waste	5 934	4 912	4 991	5 761	6 573	28 170
Total Urban SIP Funding Needs	9 506	22 572	42 621	83 514	49 464	207 678
Available funding	2012/13	2013/14	2014/15	2015/16	2016/17	Total
Water Monrovia	3 224	7 866	9 293	7 750	3 620	31 753
Sanitation Monrovia	200	1 332	1 332	1 034	41	3 939
Water Cities	0	601	6 678	7 302	3 674	18 254
Sanitation Cities	0	67	333	266	0	666
Solid waste	5 884	3 524	1 201	31	0	10 640
Total Urban SIP Available Funding	9 308	13 390	18 836	16 383	7 335	65 252
Funding Gap	198	9 182	23 785	67 131	42 130	142 426

Figure 3-1: Urban SIP funding needs and available funding



4 Rural SIP 2012-17

The Rural SIP 2012-17 aims at providing access to water for 67% and to improved sanitation for 52% of the rural population by 2017. The SIP includes a description of the key issues facing water and sanitation services in rural areas related to capacity for implementation; demand driven approach and household implementation; sustainability, cost recovery and operation and maintenance, private sector involvement and cost estimates.

Current implementation is characterised by NGO driven programmes and significant implementation by households for systems such as shallow wells, rainwater harvesting and latrines. The implementation capacity exists in the ongoing NGO-programmes, however a major shift in implementation capacity between the counties is needed to implement a coherent national programme. A key issue for the future implementation capacity is thus how to best utilise the present NGO implementation capacity and gradually change the mode of operation to achieve the longer term vision of Counties planning and managing water and sanitation implementation and implementation through the local private sector contractors and NGOs.

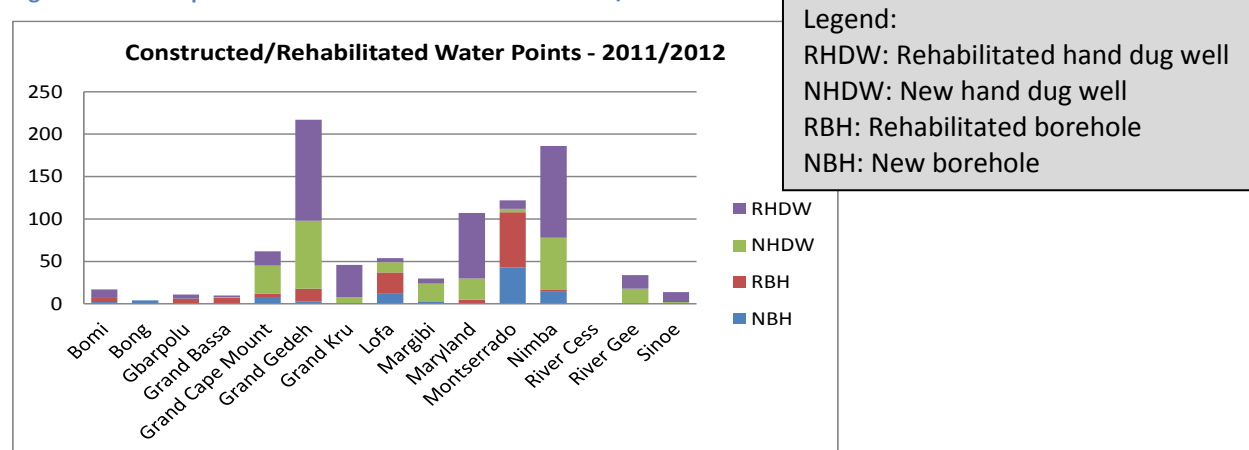
The clarification of the issues is followed by a detailed description of the implementation modalities and investment plans for 'Domestic Water Supply' and 'Domestic Sanitation and Hygiene'.

The estimated funding requirements for the improvements are 67mUSD and 47mUSD is available from the existing funding leaving a funding gap of **20mUSD**.

Implementation Capacity: Current implementation is characterised by NGO driven programmes with funding from DPs (90%) or own funding (10%) and very minor implementation by central government (<10% of water points) and significant implementation by households for systems such as shallow wells, rainwater harvesting and latrines.

The NGO programmes have grown out of previous emergency programmes in internally displaced camps. The process of decentralising WASH responsibilities to Counties is ongoing and presently there is limited implementation capacity for rural WASH in the Country administrations. The present level of implementation based on the data collected from implementers is shown in Figure 4-1.

Figure 4-1: Water points constructed or rehabilitated in 2011/12



The implementation capacity needed to achieve the targets for the 5yr planning period is similar to the existing implementation capacity; however the present implementation is concentrated in the counties with a large emergency response for the 2011 Cote d'Ivoire emergency and the future implementation aiming for equity between the counties is very different. A major shift is needed e.g. increase in Bong, Grand Bassa and River Cess and a substantial decrease in Grand Gedeh, River Gee, Maryland and Grand Kru.

A key issue for the future implementation capacity is thus how to best utilise the present NGO implementation capacity and gradually change the mode of operation to achieve the longer term vision of: i) Counties planning and managing water and sanitation implementation; ii) Funding for county implementation through an appropriate financing mechanism and other sources e.g. contributions to counties from concessions; and iii) Implementation through the local county or district based private sector contractors and NGOs.

Sustainability is perhaps the most important single consideration in rural WASH since facilities that quickly fall into disrepair represent a significant waste of funding, destroy user morale and make achieving the Millennium Development Goals (MDGs) a distant dream. There are many dimensions to sustainability including technical, environmental, social, economic and financial sustainability. In particular gender issues are important for sustainability of individual schemes and sustainable schemes lead to reduced poverty with increased ability to fund O&M. In the context of the SIP, sustainability is, however, primarily an issue about financial sustainability for O&M and ensuring clear ownership and management of the facilities. It is assumed that the vast majority of the facilities will be non-piped and will be owned and managed by communities or households.

Private Sector Involvement in rural WASH is foreseen to be the usual one of design and construction through contracts as well as to provide installation and maintenance services for hand pumps. The private sector will not be used for commercially driven concession investments; however they may have a role to play in the management, operation and maintenance of any piped schemes that are identified.

Cost Estimates are based on forecasts for the future technology mix (proportion of population served by wells/ boreholes/ protected springs/ piped systems) and the unit cost per installation or per person. The future technology mix is estimated based on the available hydrogeological information on potential for shallow groundwater (wells) or deeper groundwater (boreholes); estimates on the availability of springs and data on town settlements in the rural areas where piped systems might be the most appropriate technology. The unit costs are based on the UCET that provide cost estimates per technology in different areas of the country depending on groundwater potential, and distances etc.

4.1 Domestic water supply

The highlights of the SIP 2012-17 for Domestic Water Supply in rural areas are:

The 2017 target of access to water for 67% of the rural population will be achieved by a programme of repair and rehabilitation of existing non-functioning water points and implementation of new hand dug wells, boreholes, spring protections and pipe systems. The rural water programme will focus on capacitating the County WASH Teams to plan, oversee the implementation and monitor the provision of rural water services, and capacitating the national Departments in MPW and MOHSW to provide guidance and support to the County Teams.

The vision is that implementation will be funded mainly from a common financing mechanism; that NGOs will continue to play a significant part in delivering projects; that counties will lead on delivery and that private companies will carry out much of the actual construction. Communities will contribute at least 10% of the construction cost and be responsible for all operation and maintenance costs.

The AfDB funded design of the rural programme is expected to define the detailed implementation strategies and funding mechanisms and to facilitate continued activities and progress in rural WASH, it is suggested to implement a number of pilot activities that can, on one hand provide valuable experiences that will inform the formulation of the comprehensive rural programme and, on the other hand continue to provide the much needed improved facilities to the rural population. The following specific programmes are proposed:

1. Pilot county capacity building programme
2. Development of private sector capacity for hand drilling of shallow wells
3. Development of guidelines for implementation of spring catchments
4. Capacity building programme for hand dug well construction
5. Tendering of drilling contract for 50 boreholes

The estimated funding needs for rural water supply are 54mUSD and 43mUSD is available from the existing funding leaving a funding gap of 10mUSD.

Ongoing Projects: the planned NGO activities are declining compared to the present implementation level according to the data collected from NGOs; however this is only a reflection of the planning horizon for most of the organisations and not that necessarily the activity level will be declining. The National Rural Water and Sanitation Programme in the MOPW is implementing a limited number of dug wells and institutional latrines in cooperation with the Counties.

Proposed pilot activities The start of the AfDB funded design of the rural water programme has been long delayed compared to the original schedule and to facilitate continued activities and progress in rural WASH, it is suggested to implement a number of pilot activities that can, on one hand provide valuable experiences that will inform the formulation of the comprehensive programme and, on the other hand continue to provide the much needed improved facilities to the rural population. The following specific programmes are proposed:

1. Pilot county capacity building programme
2. Development of private sector capacity for hand drilling of shallow wells

3. Development of guidelines for implementation of spring catchments
4. Capacity building programme for hand dug well construction
5. Tendering of drilling contract for 50 boreholes

Summary of Expenditure and Funding for rural water: The SIM is used for estimating the investments that are needed in new water facilities and rehabilitation and replacement of existing systems. The funding for rural O&M is included in Table 4-1 according to the estimates from the UCET and the O&M costs are assumed to be covered by the communities. The available funding include the user payment for O&M and the community contributions of 10% to the investment costs as well as data from the GOL budgets and from the DPs and NGOs on the capital and donor budgets. Information is also included on the concession funding for County development activities assuming that the Counties will use 10% of the funding for rural water. The estimates indicate that there is a considerable funding gap of about 25% for rural water – it should be noticed that the data does not indicate any GOL capital budget for rural water, after the 2012/13 FY.

Table 4-1: Rural Water Investments

Investment in Rural Water (kUSD)	2012/13	2013/14	2014/15	2015/16	2016/17	Total 5yr
Investment in new water points	3 672	3 784	3 888	3 985	4 074	19 404
Investment in rehabilitation of water points	1 117	1 490	1 862	1 490	1 490	7 449
Investment in replacement of water points	2 097	2 198	2 301	2 404	2 507	11 506
Investment in Community Capacity Building	816	932	1 055	1 082	1 160	5 046
Funding for emergency projects	770	756	729	627	554	3 436
Rural O&M	1 349	1 432	1 518	1 607	1 699	7 604
Total Rural Water Funding needs	9 821	10 593	11 353	11 195	11 483	54 445
Available funding						
User Payment for O&M in rural areas	1 349	1 432	1 518	1 607	1 699	7 604
User Contribution to Capital Cost	689	747	805	788	807	3 836
Government Capital and Recurrent	287	0	0	0	0	287
Donor Grants	4 774	2 325	5 100	4 163	0	16 362
County Funding (concessions)	1 550	1 938	2 325	2 674	2 941	11 427
NGO Funding	806	806	806	806	806	4 028
Total Sector Funding	9 454	7 247	10 554	10 037	6 253	43 544
Funding Gap	367	3 346	799	1 158	5 230	10 901

4.2 Domestic Sanitation and Hygiene

The highlights of the SIP 2012-17 for Domestic Sanitation and Hygiene in rural areas are:

The 2017 target of access to improved sanitation for 52% of the rural population is ambitious in view of the present coverage estimated at 15%.

The target will be achieved by a comprehensive programme for implementation of the CLTS approach led by the County WASH teams with support from the MOHSW at national level and supported by the ongoing NGO programmes. The private sector will manage Sanitation Centres and distribute and sell SanPlats. The demand driven CLTS approach implies that subsidies will not be provided for household or shared domestic sanitation. Communal facilities for domestic sanitation will not be provided however public and institutional sanitation for schools and health centres will be an important part of the programme.

The estimated funding needs for rural sanitation and hygiene are 16mUSD and 6mUSD is available from the existing funding leaving a funding gap of 10mUSD.

Targets and Assumptions: the Sector Strategy has set a target-coverage of 52% by 2017 for improved sanitation facilities in rural areas and this target has been used in the SIP. The strategy assumes that a demand driven CLTS approach will work in a relatively short timescale and this is a very BIG assumption and the sanitation coverage targets are very ambitious.

Ongoing Projects: there are considerable sanitation and hygiene activities ongoing in Liberia mainly through the cooperation with NGOs

Proposed Projects: the planned AfDB design of the rural water supply and sanitation programme is the main planned project that will develop the detailed strategy for the implementation of hygiene and sanitation promotion in rural areas. The programme is expected to result in guidelines for an enhanced WASH county team programme and a 'Sanitation strategy' that will be assessing the relevant technologies and community acceptance of different technologies – development of guidelines and methodologies for CLTS and hygiene education; customising international tool kits for hygiene and sanitation promotion to Liberian context. Since the start of the AfDB programme has been delayed compared to the original schedule, it is proposed (in-line with the suggestions for rural water) that a pilot programme for two to three counties should be implemented to test and gain experience in how the counties can be leading the water, sanitation and hygiene activities in an integrated manner.

The **Pilot Project no 1: county capacity building programme** as described above should include all the aspects of sanitation and hygiene promotion including the establishment of sanitation centres and monitoring the progress of the CLTS approach. The MOHSW/ Division of Environmental and Occupational Health (DEOH) would play a lead role in developing the guidelines and supporting the NGO tasked with carrying out the pilot programme.

Summary of Expenditure and Funding: the funding needs and the available funding for rural hygiene and sanitation are shown in Table 4-2. The estimates are based on the budget estimate for CLTS triggering and monitoring per community and estimates on the number of communities to be covered in order to reach the targets

The available funding is based on the information from GOL budgets and the data collection from DPs and NGOs. The main part of the NGO funding originates from DP grants (listed under Donor Grants) and only the NGO funding from own sources are shown in the line with 'NGOs'.

Table 4-2: Funding needs and available funding for rural hygiene and sanitation

Investment in Rural Hygiene and San (kUSD)	2012/13	2013/14	2014/15	2015/16	2016/17	Total 5yr
Investment in CLTS triggering	2 912	2 857	2 807	2 763	2 723	14 062
County/ district level promotion of sanitation centres	291	286	281	276	272	1 406
National level development of guidelines and monitoring	146	143	140	138	136	703
Total Rural Sanitation Funding needs	3 348	3 285	3 229	3 177	3 131	16 171
Available funding						
GOL	71	0	0	0	0	71
Donor Grants	1 670	688	1 700	1 388	600	6 045
NGOs	0	0	0	0	3	3
Loans	0	0	0	0	0	0
Total available funding	1 741	688	1 700	1 388	603	6 119
Funding Gap	1 608	2 598	1 529	1 790	2 528	10 052

The funding gap is approximately 70% and discussions are needed on the feasibility of the sanitation and hygiene plan considering the comments above on the ambition level for the hygiene and sanitation activities.

4.3 Summary and Conclusions – Rural SIP

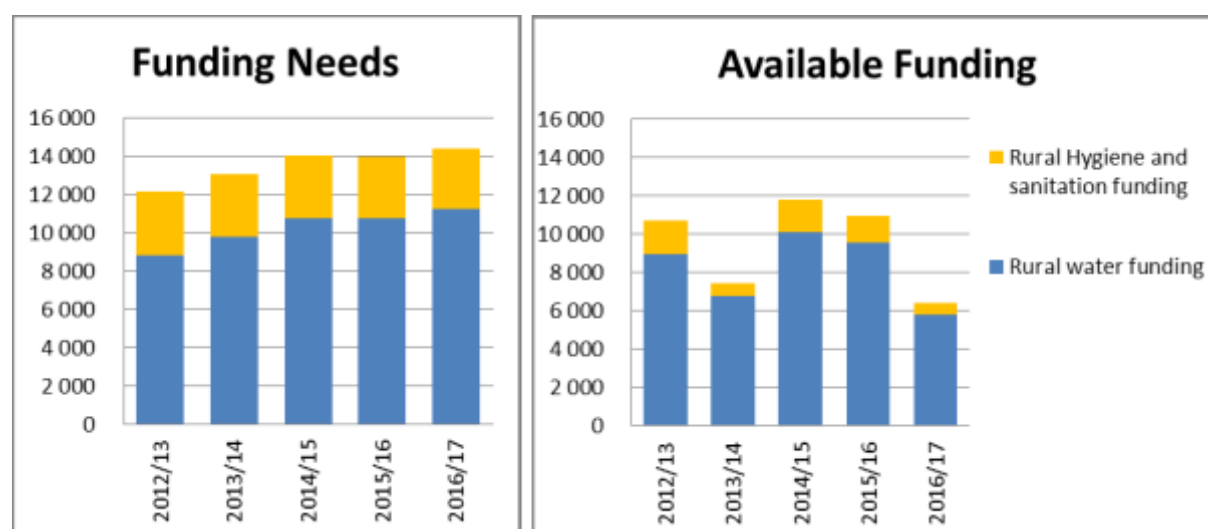
The summary of the funding needs and available funding is shown in Table 4-3 and in Figure 4-2. There is an obvious funding gap and the main issues for discussion and clarification are:

1. The implementation issues and the programmes for capacity building at national and county level. The issues around the responsibilities for water and sanitation services in the Cities are linked to the responsibilities for piped systems to the rural towns.
2. How best to bridge the gap in timing of the formulation of the rural water and sanitation programme under the AfDB support and the feasibility of the proposed programmes in rural water (pilot projects for NGO facilitation of continued implementation and capacity building at county level; hand drilling; spring catchments; borehole drilling).
3. The ambition level for rural sanitation – achieving the very high increase in coverage will be a miracle – how best to present the programme balancing between a realistic programme and paying adequate attention to sanitation and hygiene

Table 4-3: Rural WASH Funding Needs and Available Funding

Rural WASH (kUSD)	2012/13	2013/14	2014/15	2015/16	2016/17	Total 5yr
Rural Water	9 821	10 593	11 353	11 195	11 483	54 445
Rural Hygiene and Sanitation	3 348	3 285	3 229	3 177	3 131	16 171
Total Rural WASH Funding needs	13 170	13 878	14 581	14 372	14 615	70 616
Available funding	2012/13	2013/14	2014/15	2015/16	2016/17	Total 5yr
Rural water funding	9 454	7 247	10 554	10 037	6 253	43 544
Rural Hygiene and sanitation funding	1 741	688	1 700	1 388	603	6 119
Total available funding	11 195	7 935	12 254	11 424	6 856	49 663
Funding Gap	1 975	5 943	2 328	2 948	7 759	20 953

Figure 4-2: Rural WASH Funding Needs and Available Funding



5 Institutional Water Supply & Sanitation

The SIP 2012-17 for Institutional Water and Sanitation include investments in water and sanitation facilities in schools and health centres in rural and urban areas as well as public toilet facilities in public places such as market places, bus-stops, official buildings in the rural towns (public facilities in Cities are included in the Urban SIP).

The targets aim at full coverage for schools within a 10 year period and implementation of 2 new clinics per county per year in accordance with the MOHSW infrastructure plans, implying a 15 year period to reach a coverage with health centres level 1 within 10km walking distance serving max 3500 people. The target for public facilities is to have a minimum of 1 facility per district and a maximum of 3000 persons per facility.

The general approach is to provide these services in a similar way to the water points, i.e. the common Fund together with the infrastructure budgets in MOHSW for clinics and MoE for schools will contribute to the capital cost but the beneficiary institution/ users will pay all of the operation and maintenance costs. Cost recovery mechanisms with user payment are expected to be established for the public facilities at markets and bus-stops.

The estimated funding needs for Institutional Water and Sanitation are 48mUSD and 11mUSD is available from the existing funding leaving a funding gap of **37mUSD**.

Targets: institutional water supply and sanitation include i) public facilities in markets and public places; school facilities for pupils and teachers and facilities at health centres for patients and staff.

In the absence of data on public facilities in rural areas, it is assumed that there are no facilities at the market places, bus-stops and official buildings in the rural towns and communities. The targets are variables in the SIM and the investment estimates presented below are based on the target of at least one public facility per district in 2017 with a maximum of 3000 persons per public facility using the population in the rural towns only as the target population.

The water point mapping identified the schools without water facilities and the investment estimates presented below assumes that these schools also do not have sanitation facilities. 10 years has been used as the target for achieving full coverage with water and sanitation facilities in all schools. The investment estimates include new facilities in all schools identified without facilities and replacement of the existing facilities in all schools according to the normal lifespan for water and sanitation facilities.

The MOHSW aim at clinics within a walking distance of 10 km and 3,500 persons for Clinics level 1 as identified in the 'Essential Package for Health'. These targets have been used to estimate the requirements for new health facilities combined with the MOHSW data on existing facilities without water facilities. The Ministry aims at implementing 2 new clinics per county per year and this implies a 15 years implementation programme to achieve the targets for walking distance and maximum persons per facility.

Summary of Expenditure and Funding: the estimates of the investment requirements for institutional facilities are presented in Table 5-1. Data for clinics and schools is not segregated into the ru-

ral and urban areas, so the investments in facilities for schools and clinics are for all institutions in both urban and rural areas while the public facilities are only for the rural towns and investment requirements in the 24 cities is included in the urban SIP document.

Table 5-1: investment requirements for institutional facilities

Investment in Institutional Facilities (kUSD)	2012/13	2013/14	2014/15	2015/16	2016/17	Total 5yr
Public Latrines (Rural Towns)	130	708	686	737	789	3 050
Schools Water and Sanitation	6 286	6 538	6 791	7 043	7 295	33 953
Clinic Water and Sanitation	2 006	2 086	2 170	2 257	2 347	10 866
Total Institutional Funding needs	8 422	9 332	9 647	10 036	10 431	47 868
Available funding						
Ministry of Health funding for Clinics	2 006	2 086	2 170	2 257	2 347	10 866
Total available funding	2 006	2 086	2 170	2 257	2 347	10 866
Funding Gap	6 416	7 246	7 477	7 780	8 084	37 003

6 Capacity Development Plan

The SIP 2012-17 includes the funding needed for implementation of the WASH Sector Capacity Development Plan (CDP). The CDP covers the strengthening of human and institutional capacities at national and sub-national levels as well as in the private sector, media and education and training institutions to ensure capacity and a conducive enabling environment for WASH implementation. The CDP is designed to be an integrated part of the implementation of investment programmes for improved service provision as well as including parts with a longer term focus such as capacitating the education sector to provide for the WASH sector human resource needs.

The estimated funding needs for implementing the CDP is 74mUSD with 6mUSD funded through the AfDB Urban programme leaving a funding gap of **68mUSD**.

The WASH Sector Capacity Development Plan was developed with support from United Nations Children's Fund (UNICEF) and support from Japan for the Capacity Needs Assessment in parallel with the formulation of the SIP. The resulting plan and costing is presented below.

Table 6-1: Summary of the costs of the CD plan

	Major Activities	Total costs (USD)
1	To strengthen human capacities of GoL at national level	5,631,250
2	To strengthen institutional capacities of GoL at national level	29,279,712
3	To strengthen human capacities of GoL at sub-national level	1,898,000
4	To strengthen institutional capacities of GoL at sub-national level	23,215,700
5	To strengthen GoL human and institutional capacities through pilot projects	3,395,000
6	To strengthen human capacities of CSOs, the private sector and the media	210,000
7	To strengthen institutional capacities of CSOs, the private sector and the media	700,000
8	To strengthen the enabling environment (laws, regulations, policies, strategies, guidelines, advocacy)	2,475,000
9	To strengthen education and training institutions and develop new or improved courses	7,380,000
	Grand total	74,184,622

Please refer to the WASH Sector CD Plan, 2012-17 for full details

7 Sector Financing

This chapter presents first the Government of Liberia procedures for preparation of the Medium Term Expenditure Framework (MTEF) and the annual budgets and thereafter the modalities in place for funding from concessions for County development activities since these are expected to present an increasing source for financing the Counties' WASH activities. The information available on the current budgets for the next 5 years from the Government and Development Partners for WASH activities are presented. The present funding is approximately 25mUSD per year and the identified funding for the 5 year period from the 2012/13 to the 2016/17 Financial Year is approximately 70mUSD.

Lastly this chapter presents the fundraising possibilities for financing the SIP with information on the global donor environment, the different aid modalities and techniques for mobilising finance as well as some guiding remarks for Liberia WASH finance seekers. The pertinent issues for financing the SIP include:

1. Pro-active participation in the MTEF planning and budgeting process to ensure that the WASH objectives are well represented;
2. Presentation of 'implementable' programmes to potential financiers;
3. Consensus on the institutional roles and responsibilities and focus on sustainability and prospects for cost recovery;
4. Ensuring transparency and accountability in management of procurement, financial management and quality control of implementation.

7.1 Budget Preparation in the context of a MTEF

The Medium Term Expenditure Framework (MTEF) approach to planning and budgeting links the budget preparation activities to the objectives defined in development policies and reforms. To improve likelihood of success of reforms, MTEF includes extensive and intensive consultations (and consensus building) among the Ministry of Finance (MOF) (Budget Office) and the various ministries and agencies. It is therefore said that MTEF marries a top down approach beginning with the announcement of the MOF of its medium term macro-economic and fiscal projections and the response by the activity based planning done by the various ministries and agencies. The result of this process is the compilation, by the MOF, of a Draft Medium Term Budget Framework Paper (BFP) with inputs from all ministries and agencies, which becomes a key reference for the preparation of the Annual Budget.

7.1.1 Linking Policies and Strategies to Sector Budget Formulation

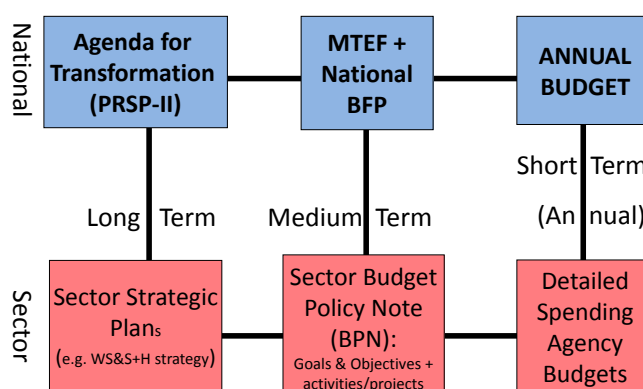
At the core of MTEF is the need to link long, medium and short term policies, goals and objectives, at the national and sector levels. Likewise, links should also be explicit between national and sector priorities at each period in time.

- (i) **Long Term** – At the national level, Poverty Reduction Strategy (PRS) II (the Agenda for Transformation - a five year national strategy for development) is aimed at setting the stage to

achieve the Liberia Rising 2030 vision through three very explicit strategies: i) Investment in infrastructure, ii) Investing in people; and iii) Investing in institutions, especially to promote private sector development and foster economic growth. At the sector level, the WASH sector strategy sets the strategy for the next five years, and the SIM as described above can assist in assessing the investments that are needed to achieve the Liberia Rising 2030 vision. The detailed SIP 2012-17 plans and funding needs should inform the MTEF planning and budgeting process.

Figure 7-1: Linking Policies, goals and objectives to budget formulation

- (ii) **Medium Term** – Once long term issues are clarified or solved in relation with the water and sanitation sector, focus has to be placed on the medium term, which in the context of MTEF is the next three fiscal years. At the national level, the MOF compiles a draft National Medium Term BFP based on the review of the performance of the last two fiscal

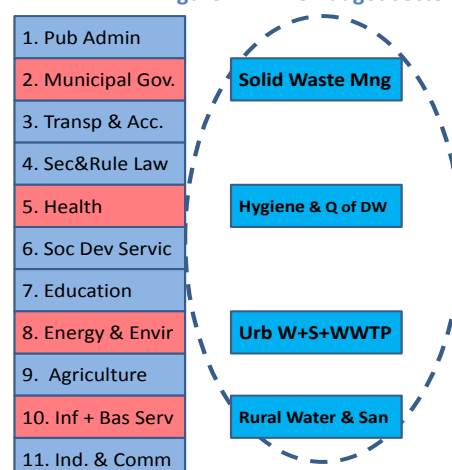


periods and the expected outturns of the current Financial Year (FY). The draft BFP contains proposed budget for the next fiscal and projections for the next two following years. This draft national BFP includes funding for activities/ projects to be implemented in the next three years and which have to be aligned with achieving long term national development goals and objectives. The BFP is compiled based on the Budget Policy Notes (BPNs) prepared by each sector; i.e., each sector prepares its own BPN, where it reviews the performance of last two years and expected outturns of current year and proposes activities/ projects to achieve sector goal and objectives.

- (iii) **Short Term** – The Annual Budget is prepared using the MTEF. As a result, we have the Draft Annual Budget that reflects the annual budget allocations of all ministries and agencies for the new Fiscal Year taking into account long and medium term goal and objectives. In the case of Liberia the Draft Annual Budget is complemented with a Public Sector Investment Plan. It is based on this documents that Liberian ministries and agencies will get the funding for their recurrent and investment activities.

Figure 7-2: The Budget Sectors

The WASH sector appears in four different budget sectors and since this is not very rational for consistent sector planning, consideration for a WASH budget sector could be presented to Government. Solid Waste Management is under the Municipal Government Sector, Hygiene and Quality of Drinking Water is under the Health Sector (MOHSW), Urban Water Supply, Sewerage, and Waste Water Treatment Plants (LWSC) as well as Liberia Hydrological Services (LHS) is in the Energy and Environment Sector, Rural Water Supply is in the Infrastructure and Basic Service Sector (MOPW).



7.2 Implementation Capacity Issues

The WASH Sector budget can be increased, provided it contributes to PRS-II (agenda for Transformation), but capacity to implement budgets is a major issue. At present, the Government Investment Projects to be implemented during the current Fiscal Year amount to USD 249 million and in general implementation capacity is regarded as a constraint for effective implementation. The use of PPPs in a pragmatic way to deliver results e.g. the use of ‘System-Planning – System-Design-Procure and Supervise’ contracts or ‘Design-Build-Operate’ contracts. The options of involving the private sector in overall implementation management combined with design and build contracts is proposed in the SIP 2012-17 as an option to ensure that adequate implementation capacity is available for realising the sector investment plans.

7.3 Funding Modalities

Urban: the likely funding sources for investments in urban water and sewerage infrastructure will be the Government capital budget supplemented with loans from development banks. With the present development stage in Liberia, it is possible for the Government to attract financing with concessional terms from development banks such as the World Bank, AfDB, KfW and the Arab Banks. Comparatively commercial loans and private sector finance will be expensive and financing the major investments that are needed in Monrovia and the Cities from commercial sources will have the effect of either postponing the aim of cost recovery for urban services or result in higher tariff increases⁵.

Rural Funding for project implementation in rural areas is envisaged to be available in two main modalities:

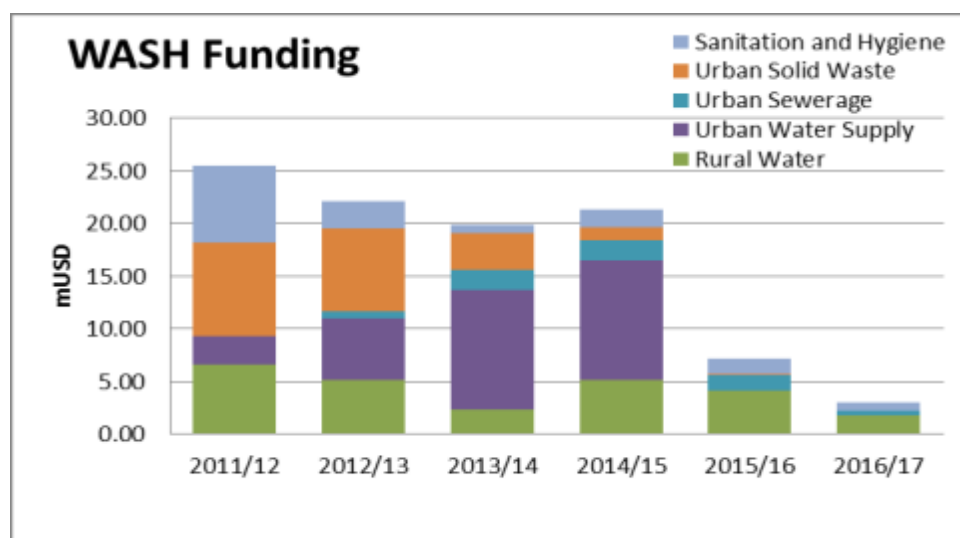
- **Government/ County Management of Funding:** Funds provided from the common Fund channelled to the Counties through the County Development Fund (CDF) or the funding mechanism established for the development funds available from concessions. Funding and implementation managed by the County WASH Team
- **NGO Management of Funding:** Funds provided directly to (or by) an NGO – projects planned and implemented in cooperation with the County WASH Team but funding and implementation managed by the NGOs.

7.4 Available Funding for WASH

Information on available budgets for the 2011/12 Financial Year and the immediate 5yr planning period was collected from the Government of Liberia and Development Partners as illustrated in Figure 7-3. The diminishing funding in the later years only reflects the limited planning horizon for the respective funding agencies and should not be taken as an indication of reduced sector funding. The chapters describing the 2012-17 SIP (5 Urban and 6 Rural) compare the available funding to the requirements for meeting the sector targets for the medium term until 2017.

⁵ The financing module in the SIM can be used for detailing the analysis of different financing options (grants, loans, bonds etc.) for urban water services

Figure 7-3: Available Funding for WASH



7.5 Fundraising Possibilities

The global donor environment: Concessional bi- and multi-lateral donor assistance to the water and sanitation sector has been US\$ 2.7 billion per year worldwide and 85% of bilateral assistance is under the control of just 10 countries and these same countries are members of and have influence on the major multi-lateral donor agencies. The following characterises the assistance from the top donor countries:

- France champions private sector participation in the water and sanitation sector.
- Japan champions concessional support for sanitation and waste water treatment plants.
- Germany champions concessional support for urban water supply, sewerage, and waste water treatment plants and urban solid waste management.
- The USA can bring support in any area. Particular advantage are the consultant services and project management expertise.
- The Netherlands have developed advanced low cost waste water treatment technologies and drinking water production technologies.
- Nordic countries have championed donor alignment with host countries initiatives.

Donor aid modalities: most donor aid agencies offer grants and loans to developing countries that can be channelled using the following modalities.

- **Project based finance** – With a clear project development objective and based on feasibility studies, a project is funded and implemented as a separate (from the government) “corporate” entity with full financial management autonomy and subject to well defined financial management and auditing rules.
- **Basket funding** – Suitable for the implementation of many small town projects, for which a group of donors can constitute a Basket Funding mechanism.
- **Program based funding** – A “new” development aid modality being introduced by the World Bank under the name of Program for Results (P4R) or Sector Budget Support or as practiced in some countries by the EU and some bilateral donors.

Techniques for mobilizing finance: from a development aid mobilization perspective, the major hurdles will be building donor confidence and complying with donor financing criteria for the sector. The techniques to build up donor confidence and to comply with financing criteria include:

- *Strategic sector investment planning and financing techniques* – presentation of big picture sector investment needs and credible financing options, will be a good starting point.
- *Project identification and preparation techniques* – Donor agencies will need to have tangible projects for finance to be committed. Project preparation techniques include the development of logical framework.
- *Project financial management techniques* – Which show how the project will be managed to comply with fiduciary conditions to the satisfaction of donor agencies.
- *Project implementation plan and project management techniques* – Project implementation is at the core of successful donor funding.
- *Public financing management techniques* – Project implementation in most cases will need country financial contributions – integration in the Public Financial Management/ MTEF planning cycle is important.

Guide to the Liberian WASH finance seekers: In general, World Bank practices are highly regarded by all donors. Hence, preparation of projects according to Bank Practices can be a guarantee of successful seeking of most donors finance. Moreover, sound projects can only be prepared as part of programs which in turn should be part of National Sector Policies and Strategic Planning exercises. Steps needed by the water sector to facilitate finance for achieving the WASH SIP will include:

1. Pro-active participation in the MTEF planning and budgeting process to ensure that the WASH objectives are well represented in a coherent manner towards the GOL/ Ministry of Finance.
2. Presentation of 'implementable' programmes to potential financiers. This SIP and the Capacity Development Plan (CDP) is a starting point defining what needs to be done to achieve the targets but a clear coordinated sector programme management support to address the capacity constraints in the sector is needed as further described in Chapter 8.
3. Consensus on the institutional roles and responsibilities. All financiers place emphasis on the sustainability and clear long-term institutional responsibilities and prospects for cost recovery are important – especially related to decentralisation and the roles of local government authorities in management of services. The cost recovery issues and payment for services are also pertinent when exploring the prospects of private sector participation in the WASH sector.
4. Financiers place emphasis on transparency and accountability and therefore ability of the GOL to ensure transparent management of procurement, financial management and quality control of implementation will be of great importance in the quest to ensure adequate finance for implementation of the SIP and the CDP.

8 Comments on Action Plan for Implementation

The final chapter of the SIP 2012-17 includes remarks on the implementation arrangements to achieve the two closely interlinked objectives: i) capacity development and ii) implementation. The overarching and longer term objective is to capacitate the Liberian institutions in the WASH sector to fulfil their future mandates (as these may evolve in the sector reform process) while ensuring that implementation takes place so that the Liberian people get much needed improvements to water and sanitation services fast.

It is recommended that immediate steps are taken by the NWSHPC and specifically the 'Capacity Development Task Force' and the 'SIP Task Force' to carry out a facilitated process of developing the TORs for the different aspects of the programme management support that is defined in the SIP and the CDP. The aim should be to reach consensus on a coherent approach to development of the WASH sector.

The other and equally important aspect of the implementation of the SIP is the prioritisation and allocation of budgets by the Government of Liberia and here the water sector institutions need to take advantage of the MTEF procedures and present the Government with well-developed and documented plans for the WASH activities. The division of WASH in four different MTEF sectors presents a challenge in a combined effort to promote the WASH funding.

The implementation challenges are many and simplified they can be grouped into two: i) implementation capacity and ii) budgets.

Implementation Capacity: The implementation of the rural and urban water and sanitation sub-sector investment plans as described in the SIP includes i) TA as part of the planned programmes; and ii) various suggestions for TA for the additional projects proposed in the SIP for Implementation Management such as:

- A Consultancy to form a WASH Sector Capacity Development Support Team
- The Urban/ Monrovia Water and Sanitation 'Programme Management Consultancy' include sanitation master plan and implementation management of the different water and sanitation projects in Monrovia
- The TA/ Consultancy assistance to manage the implementation of the Cities Hygiene and Sanitation Activities covering hygiene education, promotion of household latrines, communal and public latrines, septic tank emptying facilities and sludge treatment and solid waste.
- The proposed County WASH Capacity Development programme for piloting the roles of central and county governments in WASH and continued implementation of water facilities and CLTS
- The planned AfDB funded design of the Rural Water Supply and Sanitation Programme Study and subsequently the TA required for full implementation of a rural programme
- A number of other smaller TA assignments e.g. as needed to implement the Capacity Development Plan and the pilot projects suggested for the rural water programme.

The possibility of combining all or some of these into one comprehensive Umbrella WASH Support Team needs to be assessed. There are obvious synergies and savings in one programme and there

might be advantages such as specific institutions as home for the individual programme and increased focus and specialised assistance in separating some of the aspects.

There are two closely interlinked objectives: i) capacity development and ii) implementation. The overarching and longer term objective is to capacitate the Liberian institutions in the WASH sector to fulfil their future mandates (as these may evolve in the sector reform process) while ensuring that implementation takes place so that the Liberian people get much needed improvements to water and sanitation services fast.

Some of the pros and cons of different options are outlined in Table 8-1.

Table 8-1: Pros and Cons of Combining TA Programmes

Option	Pros	Cons
One Combined Umbrella WASH Support Team – in essence a WASH programme with different TA inputs to support the implementation of the CDP and the various sub-sector programmes coordinated by one Programme Support Unit referring to the NWSHPC	- Well-coordinated TA with clearly defined responsibilities - Capacity Development integrated in implementation activities - Coordination between the different national and local level institutions would benefit from an overarching TA programme that promotes the future institutional roles - Clear anchor as a support programme to the NWSHP Committee and the Board to promote the envisaged roles of the sector institutions - Potentially could be more cost effective than having separate entities - The experience has shown that it is extremely difficult for the WASH sector to ensure timely coordination of the different programmes funded by different DPs (e.g. the SIP in relation to the Sector Reform Study, the AfDB rural programme study, the Capacity Development Plan etc.)	- Too many different professional aspects to be addressed - Capacity Development in WASH will be overshadowed by the magnitude of the investments needed in urban infrastructure and the focus on programme implementation - A combined programme will overpower/ dominate the national institutions - Can funding be accessed for one comprehensive programme? - It would mean that all 'eggs would be in one basket' – If the consultancy team have high capacity and appropriate broad skills then it will not be a problem, but if they do not have adequate skills for the broad nature of the task, then this could have negative implications on all elements
Separate Capacity Development Support Team – this option would have a separate team for supporting the CDP and another programme management support team for implementation of the sub-sector investment programmes	- The skill base of the team is more likely to be stronger in capacity development for WASH, rather than urban implementation - The capacity building of the higher education establishments and training is more likely to gain adequate attention - The capacity development for human resource development, institutional development, enabling environment and the higher education and training institutions; as well as the softer aspects (sanitation and hygiene promotion) and the rural programme will not be overshadowed by the major urban focus of the investments	- The capacity development activities are most effective when well-coordinated with implementation - It could potentially be less cost effective to have several teams and several teams would need efficient coordination to be effective
Separate Rural and Urban Support Programmes – this option would have separate TA support teams for the sub-sectors	- The TA can be targeting the specific institutions responsible for rural and urban services - The technologies and the size of investments are different and urban can easily overshadow rural if combined - The process for the planned AfDB assistance to the rural water and sanitation programme could be separated from the rest	- There are overlaps in institutional responsibilities – e.g. the supports to cities and rural towns - Uncertainties in the role of LWSC in support to Cities outside Monrovia - It could potentially be less cost effective to have several teams and several teams would need efficient coordination to be effective

These options need to be discussed by the NWSHPC, the 'Capacity Development Task Force' and the 'SIP Task Force'. A facilitated process of developing the TORs for the different aspects of the pro-

gramme management support and discussing the pros and cons of combining or keeping the programmes separate would clarify the issues and enable the sector to arrive at the best solution.

The unifying and coordinating role the 'Umbrella' could play is particularly important in the complex situation in the WASH sector in Liberia where different institutions in different ministries need to work in a coordinated manner and align to the decentralisation efforts of government, while at the same time reforms are going on and all the sector institutions are in need of capacity development.

Some characteristics/ elements of a combined support programme could be:

1. A centrally located WASH Support Unit attached closely to the NWSHPC Secretariat and responsible to the Board
2. Specific TA placed in sector institutions e.g. MOHSW on CLTS implementation; MOPW on rural water technologies and implementation management; MCC on sanitation in Monrovia (working closely with EMUS II and FISH) etc.
3. Urban Programme Implementation Management unit responsible for procurement and implementation management of the major urban water and sanitation projects and high level supervision of design, build and operate or other appropriate PPP implementation arrangements
4. Specific TA responsible for driving the capacity development interventions including all elements (human resource development, institutional development, the enabling environment and the development of the education and training institutions) as described in the Capacity Development Plan
5. Specific programme for County Development activities supporting water and sanitation in rural and urban areas outside Monrovia

Budgets: The other and equally important aspect of the implementation of the SIP is the prioritisation and allocation of budgets by the Government of Liberia and here the water sector institutions need to take advantage of the MTEF procedures and present the Government with well-developed and documented plans for the WASH activities. The division of WASH in four different MTEF sectors presents a challenge in a combined effort to promote the WASH funding and this will need to be discussed with the MOF.

9 Detailed Information on the Liberia WASH SIP

The details of the background and the estimates presented in summary above are contained in the SIP Documents and planning tools available on the WASH Liberia Web-site: <http://wash-liberia.org> or on the WASH SIP DVD available from the NWSHPC Secretariat.

The main SIP documents are structured as follows:

Volume I: Liberia WASH SIP Final Report

1. Introduction and General Approach
2. The Strategic Investment Plan 2030
3. Sector Financing
4. Urban SIP 2012-17
5. Rural SIP 2012-17
6. Institutional Water Supply & Sanitation
7. Summary of Capacity Development Plan

Volume II Annexes with Detailed Data

- Annex II-A: County Profiles
- Annex II-B: City Profiles
- Annex II-C: Options for PPPs
- Annex II-D: Detailed Tables for 2030 SIP
- Annex II-E: Detailed Financial Flow Data
- Annex II-F: Detailed Data on Urban SIP
- Annex II-G: Detailed Data on Rural SIP
- Annex II-H: Detailed Data on Institutional W&S
- Annex II-I: Detailed Data on Capacity Development

Volume III: Annexes with Sector Documentation and SIP Process

- Annex III-A: Sector Documentation
- Annex III-B: SIP Process

Volume IV: Planning Tools

- Annex IV-A: SIM and UCET Description and User Guidelines
- Annex IV-B: Appraisal Tool and User Guidelines

Capacity Development Plan: comprehensive information is available in:

- Liberia WASH sector – Capacity Development Plan, 2012-17, Final, Nov 2012; and
- Liberia WASH sector – Capacity Development Needs Assessment, Final, July-Oct 2012