STRENGTHENING CAPACITY IN STRATEGIC FINANCIAL PLANNING FOR THE WATER SUPPLY AND SANITATION SECTOR IN LESOTHO

REFERENCE: 9 ACP RPR 109-2 TD2LESOTHO

Final Report

February 2010

Tsoelopele Consultants & Contractors Pty Ltd.

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Report Number 08

FINAL REPORT

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The documentation from the 'Strategic financial planning Project' consists of:

- **Report Number 01: Inception Report, Final, January 2009**
- **Report Number 02: Baseline report, Final, January 2010 combined with report number 03: Affordability Report (Chapter 4) and report number 04: Development Options Paper (Chapter 5)**
- **Report Number 05: Strategic financial planning report, Final February 2010.**
- **Report Number 06: Capacity development report, Final February 2010 combined with report number 07: Integration Report**
- **Report Number 08: Final report, February 2010 (This Report).**
- Strategic Financial Planning Model for Lesotho.
- Feasible Model with Lesotho water sector data.
- Documentation CD with all data and documentation used in the assignment.

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AWF	African Water Facility
BOS	Bureau of Statistics
Cap-Net	International Network for Capacity Building in IWRM
CC	Community Council (lowest level of local government)
COW	Commissioner of Water
COWI	Consulting Company from Denmark
DIS	District Information System – DRWS data base on RWS
DP	Development Partner
DWA	Department of Water Affairs
DRWS	Department of Rural Water Supply
EC	European Commission
EU	European Union
EUWI	European Union Water Initiative
FEASIBLE	Investment Planning Tool developed by OECD
FWG	Finance Working Group (of the EUWI)
GDP	Gross Domestic Product
GIS	Geographical Information System
GoL	Government of Lesotho
GWP-SA	Global Water Partnership – Southern Africa
IA	Irish Aid
IFIs	International Financial Institutions
IWRM	Integrated Water Resources Management
LHDA	Lesotho Highland Development Authority
LNDC	Lesotho National Development Corporation
LSL	Lesotho Loti (kLSL = 1,000 LSL, mLSL = 1,000,000 LSL)
LWSIMS	Lesotho Water Sector Information Management System
LLWSU	Lesotho Lowlands Water Supply Unit
LLWSP	Lesotho Lowlands Water Supply Project
LWP	Lesotho Water Partnership
MCC	Millennium Challenge Corporation
MDG	Millennium Development Goals
MIS	Management information System
MoFDP	Ministry of Finance and Development Planning
MNR	Ministry of Natural Resources
MDG	Millennium Development Goal
MTEF	Medium term expenditure framework

NGO	Non-governmental organization
NUL	National University of Lesotho
O&M	Operation and Maintenance
OECD	Organization for Economic Cooperation and Development
ORASECOM	Orange-Senqu River Basin Commission
PPSU	Policy Planning and Strategy Unit in the COW's Office
PRS	Poverty reduction strategy
PSC	Project Steering Committee
RIBASIM	water balance model developed as part of the IWRM strategy
RWS	Rural Water Supply
SADC	Southern African Development Community
SFPM	Strategic Financial Planning Model
SSA	Sub-Saharan Africa
SWAP	Sector Wide Approach to Planning
SWIFT	Investment Planning Tool developed by WSP for the Kenyan Water Sector
TOR	Terms of Reference
TWG	Technical working group
UfW	Un-accounted for Water
VIP	Ventilated Improved Pit latrine
WAP	Willingness and Ability to Pay studies
WASA	Water & Sewerage Authority
WB	World bank
WSP	Water Supply and Sanitation Programme
WSS	Water and Sanitation Services
WSSD	World Summit on Sustainable Development
WTP	Water Treatment Plant

0 EXECUTIVE SUMMARY

Purpose and objectives

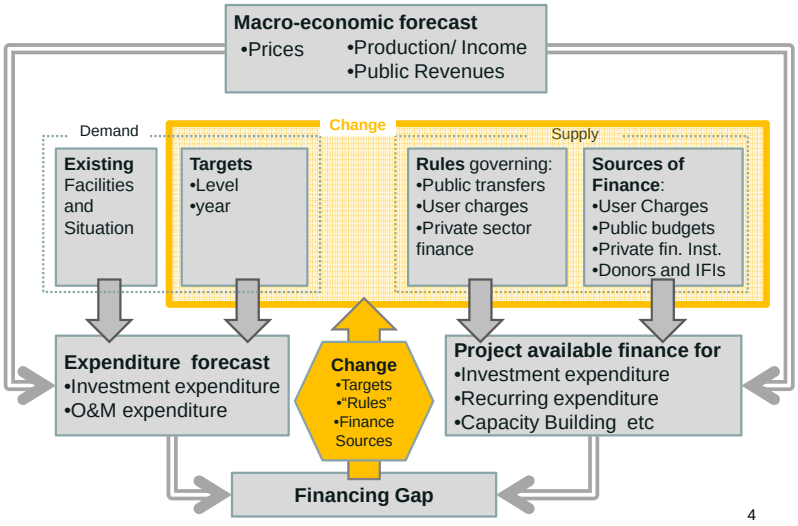
The Ministry of Natural Resources and its office of the Commissioner for Water in partnership with the Ministry of Finance and Development Planning and other stakeholders have launched an initiative to strengthen the strategic financial planning in the water sector. This initiative is supported by the Organization for Economic Cooperation and Development (OECD) and European Union Water Initiative/ Finance Working Group.

A strategic approach to financial planning will strengthen the SWAP in the sector by:

- Providing a transparent and long-term overview of the overall financial needs of the Lesotho water sector to meet targets which will bring Lesotho closer to MDGs
- Developing tools to enable the sector to better manage any financial gaps through policy dialogue on sector strategies
- Embedding the planning tools and methods into the sector financial planning routines closely linked to the MTEF process.

At the same time these efforts will contribute to global efforts to develop generic tools for strategic financial planning by testing tools such as FEASIBLE and will also test paradigms for country specific tools.

The Financing strategy methodology is outline in the diagram below. The existing facilities and the targets combined with overall macro-economic forecast leads to an expenditure forecast. The sources of potential finance and the rules governing public transfers and user charges and the overall macro-economic context/ forecast lead to a projection of available finance. The difference between the expenditure forecast and the available finance results in a financing gap (or surplus) which can be managed by changing the "variables" within the demand side and supply side. This iterative process will allow different scenarios to be developed and provide an evidence based policy decision support.



Findings and implications

To support a better understanding of sector dynamics and bridge gaps in data a number of surveys were done:

- WASA connection survey (to improve understanding of customer behaviour and priorities)
- Peri-urban survey (gain insight in the rapidly changing peri-urban areas)
- Private rural connections (gain insight into assumptions on how rural systems are used)
- Willingness and ability to pay in highland areas (better understanding the poorest users)

The key findings are summarized in the table below:

WASA – urban customers	Peri urban survey
• 26% connections serve rented accommodation (av. 4.1 households) • 20% connections serve neighbours (av 2.8 households) • 6.5 persons served per connection • 52% of connections house installations and 48% yard taps • 8% have alternative water supply from boreholes and 35% collect rainwater • 64% use water storage • The average per capita consumption is 51 l/p/day. Yard taps 42 l/p/day and house connections 67 l/p/day.	• Sanitation - 57% use pit latrines ; 25% VIPs; 4% share; 14% open defecation • In some areas (e.g. Penpena) significant number of households with income > 1000 do not have sanitation • Some areas only those earning less than 1000 are without sanitation (e.g. St Monica) • Affordability is an issue but not the only issue • hygiene promotion is more effective in some areas • Water – 56% public water supply; 19% springs; 18% share supplies; 7% use private supply • 28% of households cannot afford the water tariff according to threshold of 5% of income used for water
Private rural connections	**Willingness and ability to pay**

• Study reveals main perceptions for not making connections:
  • For DRWS - lack of information
  • For communities – cost
  • Local government – standposts are adequate
• In Masana, Matsieng, Tsikoane the users said cost was the dominant constraint.
• In Haschelel and Moholehoa the users said private connections were prohibited or the system was not designed for the purpose
• Vast majority of users see public subsidy as the main means of obtaining private connections in the future
	• The 30% that are only willing to pay less than 30 M/month is important – correspond well to the affordability statistics that about 30% of the households cannot afford water using the 5% of HH income as the threshold for affordable cost of water
	• Compared to urban areas, the number of HHs only willing to pay < 30 M/ month is almost 75% - has implications for the extension of urban systems to the rural communities. Contradicted by the fact that 40% are willing to pay more than 2000 for a connection

The implications of these findings are:

- Tariff design will need to take into account the number of connections (20%) that are shared between households making cross subsidization between rich and poor and between high and low water users more difficult.
- Affordability for sanitation is an issue but it is not the only factor affecting sanitation access, low coverage areas can learn how to better promote sanitation from high coverage areas.
- Nearly 1/3 of householders cannot afford the water tariff which will imply that financing will need to come from taxes as well as tariffs if systems are not to be under maintained.
- Attempts to increase tariffs will need to take into account and perhaps change the consumer attitude that the sector should be subsidized through taxes.
- There are significant differences in the perceptions behind the low connection rate in rural areas.
- Contingent valuation on willingness to pay and to connect give different answer suggesting that such surveys cannot be fully relied upon in water sector strategy and that market observation will also be needed.

Planning scenarios and the outputs of the modelling

The poverty reduction strategies, Vision 2020 and the targets implied in the MDGs define the sector aims. Within the overall scope set out by these documents, there are different development scenarios that can be explored to analyse the possible options for the development of the water services subsector. The policy documents sets the overall targets for the water services in terms of coverage – 75% by 2015 and 100% by 2020 for water and sanitation in both rural and urban areas for both water and sanitation.

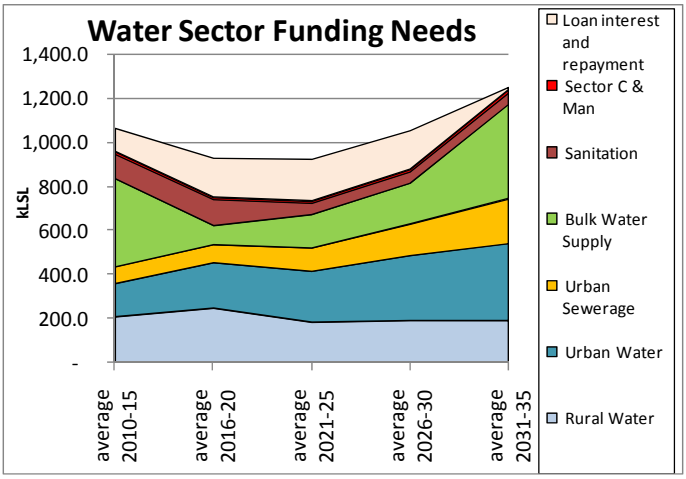
Within the overall frame set by the Vision 2020 – *'by 2020 all Basotho will have access to safe drinking water and basic sanitation'*, the development of water services in Lesotho can be analysed according to the following four scenarios:

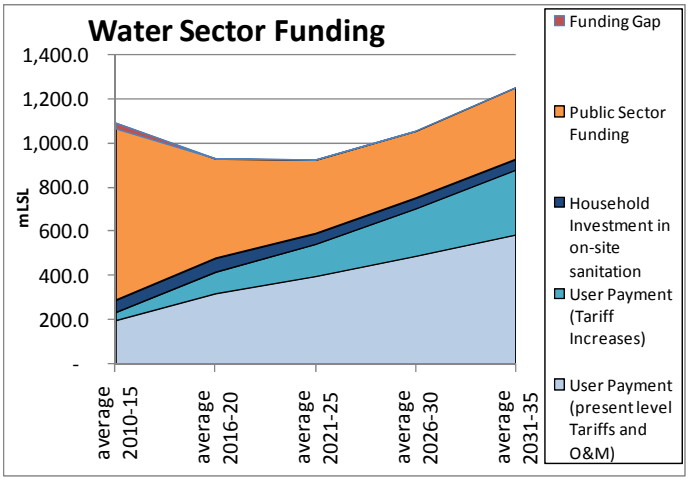
1. Business as usual (growth between 2% and 4%)
2. High Growth with Urban and Industrial Focus (growth > 5%)

3. High Growth with Rural Development Focus (growth > 5%)
4. Low Growth (growth 0%)

All 4 scenarios present the funding needs for water and sanitation to reach the overall target set in the Government Vision 2020 of 100% coverage The 4 scenarios also all aim for full cost recovery for urban water and sewerage services. The financing strategy presented here therefore has a large degree of 'user payment for services' but as we will see, a 'social safety net' will be needed to ensure that services also reach the poorer parts of the population – in line with the water policy's statement on 'free basic water for the vulnerable households'

Scenario 1 – Business as usual: Growth at 2-4%; population growth 3.6%; industry limited to large towns; inadequate attention to environmental management



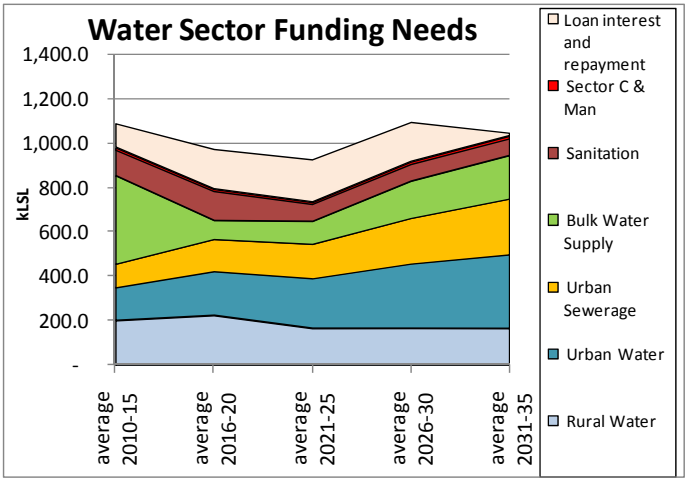


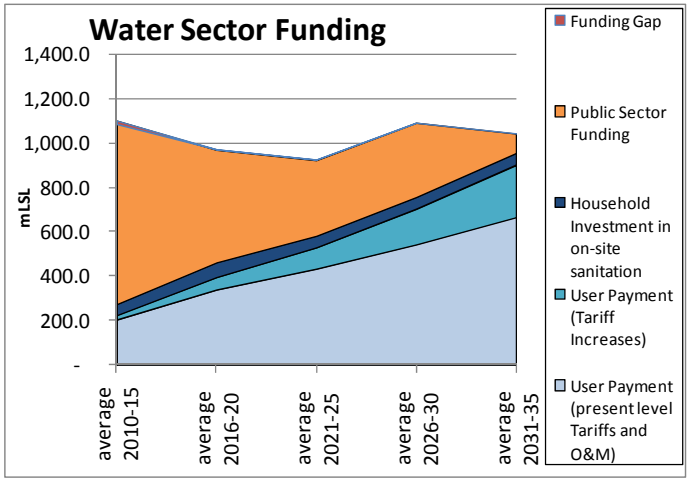
Scenario 1 – Implications

Tariffs unaffordable for 18% of the Maseru and 28% of the other urban area population by 2035

Public funding reduces as user payments are increased (by policy)

Scenario 2 – Urban focus: Growth > 5% ; population growth 1% significant urban migration; sustained industrial growth; improved operational management of water supplies; inadequate attention to environmental management





Scenario 2 – Implications

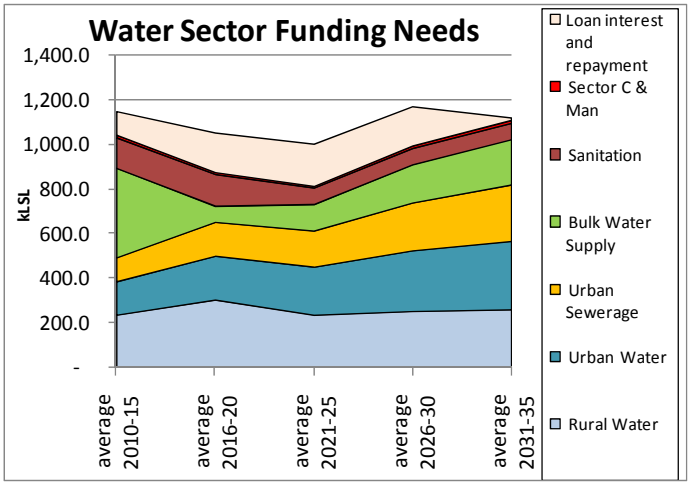
Tariffs unaffordable for 14% of the Maseru and 19% of the other urban area population by 2035

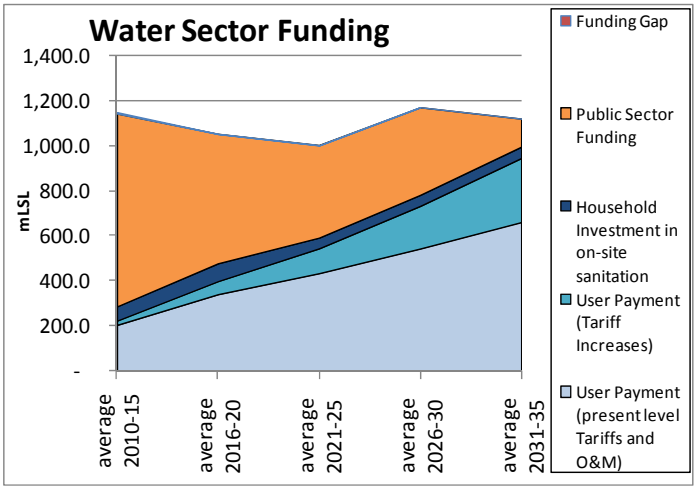
Tariff increase 6% above inflation is needed

Improved operational efficiency is important to maintain supply for high urban and industrial growth

Funding needs are 20% less than for scenario 1 (business as usual) due to more modern management

Scenario 3– Rural focus: Growth > 6%; population growth 1.5% moderate industrial growth; adequate attention to environmental management





Scenario 3 – Implications

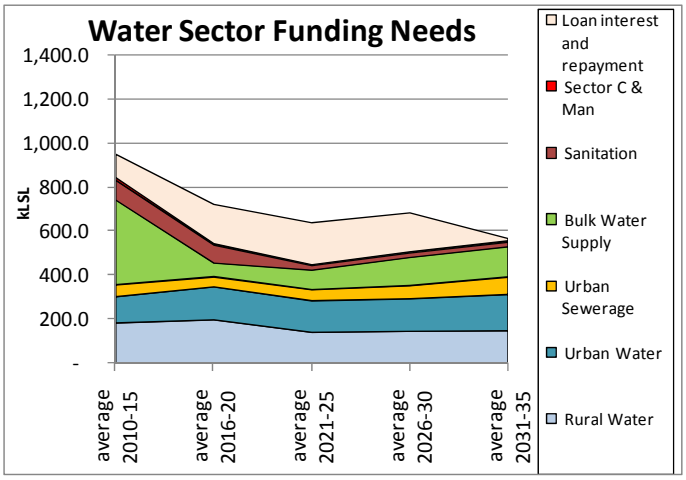
Tariffs unaffordable for 14% of Maseru and 19% of other urban area population by 2035

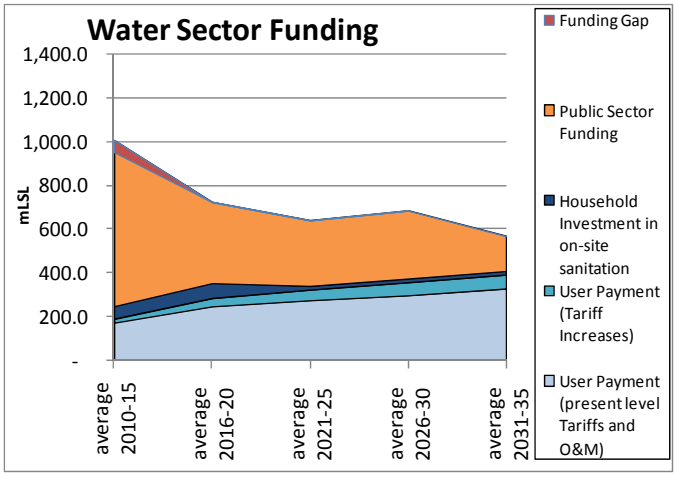
Tariff increase 6% above inflation is needed

Rural O&M subsidy increases to 50%

Very similar profile of water sector funding to scenario 2 (urban focus)

Scenario 4– low growth: Growth 0%; population growth 0%; stagnant industrial growth; inadequate attention to environmental management





Scenario 3 – Implications

Tariffs unaffordable for 17% of the Maseru and 26% of the other Urban area population by 2035

Tariff increase 4% above inflation is needed until 2015 and thereafter dropping to 1%

Sector funding needs reduce sharply compared other scenarios and over time

Public funding is a large proportion of sector funding both in the near and far term

Key issues arising

- Urban water tariffs and 'free basic water': The increase that is needed in the WASA tariffs to provide full cost recovery for urban water services is substantial and this will have an impact on affordability for the poor.

- Urban water operating efficiencies: The improvements in operating efficiencies of the urban water services are crucial to sustain high growth scenarios and to achieve cost effective urban services in the longer term.
- Bulk water supplies: the implementation of the Metolong project is a major investment for the water sector that goes beyond even the 2035 demand.
- Rural Water implementation costs: per capita costs for implementation of rural water systems have increased over the last 10 years for various reasons. Good coordination with the planning in urban areas and the lowlands bulk water systems would be required to avoid investment in production capacity in rural water systems that would later be served by the larger pipe systems.
- Rural Water O&M: The new water policy and the decentralisation provide an opportunity to improve consistency in strategy. A consensus in the sector on the responsibilities of local governments versus DRWS for support to O&M combined with capacity building of the local councils and the village water committees could improve the functionality of the rural water systems and eventually reduce the investments in replacement of systems.
- Sewerage and Cleaner Technologies: the treatment of industrial effluent needs attention as only 10% of the water supplied to industries enters the sewerage systems. Investment in cleaner technologies might reduce the sewerage treatment investment and O&M costs. Low cost sanitation is necessary.
- On-site sanitation: The level of funding for on-site sanitation needs attention. The present subsidy of 90% in rural areas is high and a good sanitation strategy with a mix of social marketing, hygiene education and different low cost technology options could possibly reduce the government's investment requirements. The income levels in rural areas however indicate that substantial subsidies will be needed to reach the sanitation targets.
- Private investments: Private investments in the water sector in Lesotho beyond the investments in self-supply could be considered e.g. irrigation and industrial sewerage treatment could be relevant for private public partnerships.
- Increased funding: The funding gap for achieving the ambitious target of full coverage by 2020 could be closed by lowering the target – or increase the government and donor grant funding to the sector. Loan funding could be considered for the part of the funding that is for the urban water and sewerage and the bulk water supplies where there are prospects of cost recovery

Development options and interventions

Development options that arise from the financial modelling include:

1) Urban water:
- Comprehensive programme on calibration and replacement of old water meters
- Specific programme on zoning and metering supply areas to identify and reduce UfW
- Improved customer registration
- Improved management of groundwater sources
- Increased connection rates in urban areas – high connection fees and low tariffs favour those already supplied.

2) Rural Water and Sanitation:
- Investment in long-term planning of regional water schemes
- Subsidising rainwater harvesting
- Improved planning and coordination with Local Authorities
- More emphasis on developing capacity in Local Authorities and community structures for management, operation and maintenance to reduce the non-functioning supplies
- Options for on-site sanitation technologies other than the VIP latrines

3) Lowlands Bulk Water Supplies:
- Models for supply to rural communities e.g. supply into existing reservoirs, private networks.
- Use of highland water resources for the lowlands when the water sources for the present schemes are inadequate.

4) Free Basic Water
- Clarification is needed on how the vulnerable households are identified
- In the WASA supply areas, vulnerable households could be provided with a pre-paid or post metered connection

- Difficult to administer where connections are shared.
- In community managed rural water systems the Local Authorities could provide contributions to O&M costs for the vulnerable households (welfare)

5) Water Services Planning:

- The planning between WASA, DRWS and the implementation of the lowlands bulk water systems needs to be improved to avoid the present situation with overlapping systems.
- The possibility of establishing the capacity for overall water services planning in the COW's office, possibly in a strengthened PPSU or Lowlands Unit or a combination of the two could be considered.
- The SFPM would be one of the tools that could be further developed together with a GIS system to improve the planning capacities.

Of these 5 interventions the two highest priorities are:

- Improving connections in urban areas
- Developing a workable strategy for the free basic water policy

Capacity Development

The aim of the capacity development activities of the strategic financial planning project is to ensure that the planning tools and methodology will become an integrated part of the planning process in the water sector.

This is achieved by combining practical hands-on participation in the development of the planning tools with specific training sessions on relevant aspects as identified in the process. The Technical Working Group (TWG) has received training in the use of the FEASIBLE tool by COWI, the developers of the tool.

The methodologies and tools developed by this strategic financial planning project are only likely to be sustained if the use of the tools is embedded in the existing/ future planning procedures in the sector institutions. Embedding of the strategic financial planning in the institutional set up of Lesotho will require: explicit allocation of resources and responsibility, clear chains of accountability linked to institutional mandate and adjusted job descriptions where relevant and sustaining of relevant inter-agency communication channels.

The capacity building activities have been regarded as an integrated part of the design of the tools and the planning processes. This has implied that the data requirements for the SFPM are structured according to the existing planning tools such as the WASA Financial Model, the DRWS District Information System (DIS) and the modelling done as part of the Lowlands Bulk Water Supply detailed design.

Integration

The Institutional Responsibilities for water services in Lesotho are described in Chapter 4.1. In line with these responsibilities, the national level responsibilities and institutional anchorage for the planning tools can therefore be summarized as:

- MNR, Planning Unit: coordinate overall planning and budgeting for the water services between the sector institutions in particular the Policy Planning and Strategy Unit (PPSU) and the Ministry of Finance;
- COW's Office PPSU: use of the strategic planning tools to provide input into the MTEF budgeting process in close cooperation with planners in DRWS and WASA and depending on data from the Monitoring Unit;
- COW's Office Monitoring Unit: provide accurate data on the water services for the strategic planning tools based on the monitoring systems in DRWS and WASA;
- COW's Office, LLWSU: contribute to the overall strategic planning by advising the PPSU on the data, plans, costs etc for the implementation of the LLWSP;
- Department of Water Affairs: monitoring of water resources and advice to the COWs office on the availability of water resources for provision of water services;
- DRWS: monitoring of rural water supplies and compilation of plans for water services in rural areas based on data and plans from the local authorities. Provide data to the COW's

Monitoring Unit on rural water and sanitation and information on rural water plans to the PPSU;
- WASA: monitoring of the urban water and sewerage services and preparation of expansion plans for urban services. Provide data to the COW's Monitoring Unit on urban water services and plans for expansion of services to the PPSU
- Bureau of Statistics (BOS): provide population data and data on source of drinking water and sanitation facilities to the water sector institutions. Coordinate national use of Geographical Information Systems (GIS) and provide advice the sector institutions on the use of GIS. BOS is the only source of data on on-site sanitation facilities in both urban and rural areas.

In recognition of the sector responsibilities, the project has been carried out in cooperation with the stakeholders as follows:

- DRWS: involvement of the Planning Unit as well as the District Engineers in the update of the DIS and definition of the service areas to assess the population served by rural water systems according to the population data from the 2006 census. Planning of the SFPM with the DRWS Planning Unit to ensure the structure is compatible with the DIS. Involvement of DRWS staff at head office and district offices in the implementation of the sample surveys on the use of private connections and the Willingness and Ability to Pay (WAP) studies in the rural areas in Thaba Tseka and Qacha's Nek districts
- WASA: cooperation on the design of questionnaires and implementation of the WASA connection survey with the WASA Marketing and Billing Departments. Cooperation with the personnel responsible for the WASA Financial Model and personnel responsible for strategic planning (TWG members) in the design of the SFPM to ensure compatibility with the WASA planning tools.
- COW's Office: cooperation with the personnel responsible for overall planning of the bulk water supplies (Technical Coordinator for the project) and the personnel responsible for the water sector monitoring activities (TWG member) in the overall development of the planning tools
- DWA: cooperation with the personnel responsible for monitoring of water resources to ensure familiarity with the planning tools for water services and ensure familiarity with the tools to facilitate the further development of the tools to include water resources and IWRM
- MNR: cooperation with the personnel responsible for planning and budgeting in the Ministry (TWG member) in the design and development of the planning tools
- Ministry of Finance: represented on the Project Steering Committee and involved in the overall discussions and directions for the development of the planning tools
- BOS: involvement of personnel responsible for GIS and providing the detailed village list with population data. The BOS personnel have been providing assistance in the compilation of population data for the water service areas.

The current staffing problems in the PPSU has reduced the role of the PPSU in the project implementation, however the involvement of other parts of the COW's office will ensure that the future personnel in the PPSU will be made familiar with the planning tools.

The specific capacity development activities are described in Chapter 4.2. These activities have ensured that the TWG members are familiar with the strategic financial planning methodology and the design of the planning tools.

The process of involving the TWG members as well as other staff in the sector institutions according to their responsibilities in the project activities have ensured that the project and the methodology are embedded in the sector institutions e.g. defining the need for data and design and carry out surveys to provide the data, use of the planning tools to forecast financing needs in the future etc.

The following action have been identified to enhance the planning tools and ensure the integration of the strategic financial planning methodology into the planning and budgeting processes in the water sector institutions:

Enhancing the Planning Tools:

- Improve WASA network and customer data: carry out GIS mapping of the WASA connections including information on the type of water use and number of persons served by the different connections – the mapping of the WASA network in Maseru has started, but does not so far include the detailed connection mapping.
- Improve the rural water data on existing water and sanitation facilities by carrying out GIS mapping of the water systems and update the data on water source capacity in the DIS – the ongoing RWS Planning Framework project is designed to cover this.
- Integrate the BOS population and socio-economic data in the water sector GISs. The BOS is nominated as the national anchor for development of GIS and will be guiding the development of the GIS in the sector institutions – if approached.
- Coordination between the water sector and BOS for refining the definitions for water and sanitation facilities used by BOS for household budget surveys and census questionnaires to ensure that the BOS information corresponds to the definition of indicators used in the sector performance framework.

Ensuring Integration:

- Capacity building of the new staff in the PPSU in the use of the SFPM tool as estimating tools for the planning and budgeting process in the water sector.
- Capacity building of the new Monitoring and Evaluation (M&E) Unit in the COW's Office as well as the personnel in WASA and DRWS responsible for monitoring activities to ensure that consistent data continues to become available for overall strategic planning in the water sector.
- Development of/ adjusting the job-descriptions for the staff of the PPSU, the M&E Unit and relevant positions in WASA and DRWS to specify clearly the functions related to data management and strategic financial planning. This would be done as an integrated part of the ongoing development of the Performance Assessment Framework for the water sector and development of the Sector Programme.
- Include the strategic financial planning methodology and the findings from the strategic financial planning project in the upcoming development of the strategy for water and sanitation.
- Dissemination of the results to a larger group of sector stakeholders and high level decision makers in government to ensure that the results of the strategic planning project will influence the sector to take rational decision on the future development of the sector

1 INTRODUCTION

This Chapter provides a brief introduction to the Financial Planning Project and the Strategic Financial Planning methodology as well as a summary of the existing situation for water services in Lesotho as a background to the description of the financing needs for the respective development scenarios in Chapter 2. A brief introduction to the planning tools is presented in Chapter 1.4.

1.1 The Financial Planning Project

The Ministry of Natural Resources (MNR) and its office of the Commissioner for Water (COW) in partnership with the Ministry of Finance and Development Planning (MoFDP) and other stakeholders have launched an initiative to strengthen the strategic financial planning in the water sector. This initiative is supported by the Organization for Economic Cooperation and Development (OECD) and European Union Water Initiative/ Finance Working Group (EUWI/FWG).

The strategic financial planning initiative is aimed at providing a transparent and long-term overview of the overall financial needs of the water sector 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 intention is that these tools and methods will become embedded into the sector financial planning routines and link closely to the Medium Term Expenditure Framework (MTEF) process. This effort will also contribute to global efforts to develop generic tools for strategic financial planning. It will do this by testing tools already developed such as FEASIBLE and the Water and Sanitation Programme (WSP) Unit cost tool and it will also test paradigms for country specific tools.

Following extensive discussions between the Government of Lesotho (GoL), the OECD and the EUWI/FWG a set of Terms of Reference (TOR) were developed which envisaged 4 phases of work and a number of reporting outputs. A firm of consultants[1] was selected and the assignment began in October 2008.

According to the TOR the project will be implemented over 4 phases:

i. Data collection (November 2008 – March 2009) ;
ii. Development options (February – May 2009);
iii. Financing strategy (May -July 2009) and,
iv. Integration of findings (August – September 2009).

The reporting outputs will be:

- Report Number 01: Inception Report, Final, January 2009
- Report Number 02: Baseline report, Final, January 2010 incl. report number 03: Affordability Report (Chapter 4) and report number 04: Development options paper (Chapter 5)
- Report Number 05: Financing strategy report, Final, February 2010
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- Report Number 08: Final report (this report).
- Strategic Financial Planning Model for Lesotho.
- Feasible Model with Lesotho water sector data.
- Documentation CD with all data and documentation used in the assignment

This report is titled 'Final Report' and presents a summary of the overall findings of the from the project. More detailed information on the Financial Planning Project is available in Report No 1: Inception Report and detailed information on water services in Lesotho is available in Report No 2:

[1] The consultancy input is provided by PEMconsult a/s, Denmark in cooperation with TCC – Tsoelopele Consultants & Contractors (Pty) Ltd.

Baseline Report. Report No 5: Strategic Financial Planning Report describes the details of the financing needs and available finance for the four scenarios:

i) The Baseline Scenario (Business as Usual)
ii) High Growth Scenario with Urban and Industrial Focus
iii) High Growth Scenario with Rural Development Focus
iv) Low Growth Scenario

1.2 The Strategic Financial Planning Methodology

Strategic guidelines

In line with the TOR, the main approach is guided by:

- A recognition that the institutional embedding of the strategic financial planning and capacity building are crucial to the success of the project. Therefore a combination of a 'learning by doing' approach and seeking means of providing off-the-job professional development type training has been used;
- Contribution to the ongoing policy dialogue and add value to the SWAP process;
- The TWG will be formally responsible for the project execution;
- The consultancy support will be responsible for providing analytical and capacity building inputs.

Strategy financial planning methodology

The strategic financial planning methodology will consist 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 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.

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 1: Strategic Financial Planning Methodology

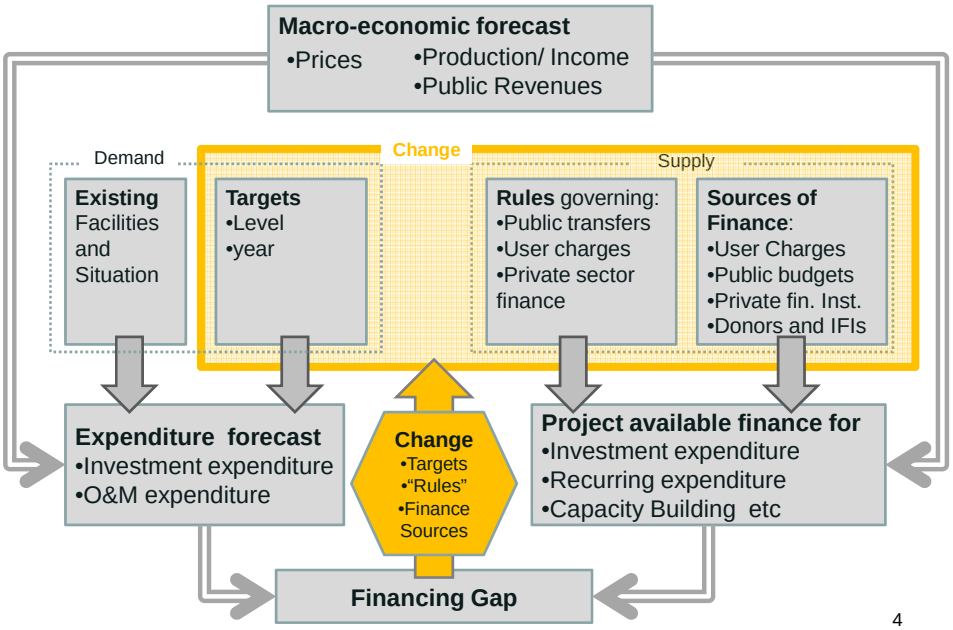
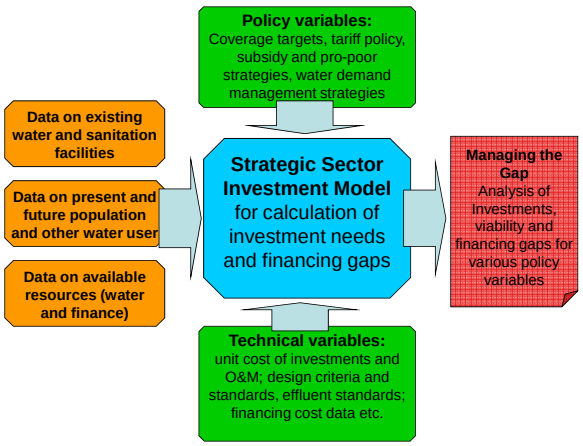


Figure 2: Estimating Model Structure



The overall structure of the model is illustrated on Figure 2.

The strategic financial planning model will in this way rely on the following inputs:

- Data on existing facilities, population and available financial resources;
- Definition of policy variables such as the tariffs, the desired target coverage, subsidy policies and water demand strategies;
- Definition of technical variables such as unit costs (both capital and for O&M), technology mix, design criteria, level of standards, effluent standards, financing cost data.
- These variables can then be changed as part of the managing the financing gap

This combination of data, technical and policy variables will provide the basis for a relatively simply and transparent calculation of the investment needs (expenditure forecast), the projected finance availability and thus the financial gap or surplus. Changes in the variables and available finance will allow the finance gap to be managed.

1.3 The Water Services in Lesotho

The water services sub-sector is described in detail in the 'Baseline Report' and a summary is provided here to set the stage for the development scenarios.

1.3.1 The Institutional Dimension

The institutional dimension describes the framework that provides the overall guidance to planning in the water sector: the Government's Vision 2020, the new 'Lesotho Water and Sanitation Policy' and its guiding principles and the Integrated Water Resources management (IWRM) Strategy based

on guiding strategies from the Vision 2020 Malupe Strategy. The 'After Care Policy' provides additional strategic guidance to the rural water and sanitation sector.

The main components of the existing legal framework for water services include: the Water Act, 2008; the WASA Order of 1991; the Lesotho Environment Act, 2001; and the Local Government Act, 1997 (and Local Government (Amendment) Act, 2004); as well as international legal instruments such as the Lesotho Highlands Treaty, 1986; the SADC Revised Protocol on Shared Water Courses, 2000; the Orange-Senqu River Basin Commission (ORASECOM) agreement, 2000; the Southern African Development Community (SADC) Regional Water Policy,2006; and the SADC Regional Water Strategy,2007.

The ongoing reforms in the water sector include establishment of a regulator for water services combined with electricity. The 'Lesotho Electricity and Water Authority Bill' has approved by the Cabinet during 2008 however the Parliament Portfolio Committee has required some revisions to allow for WASA to become a company. MNR has therefore also prepared the 'WASA Vesting Bill' and the two have now been presented to the Portfolio Committee.

The main institutional responsibilities for water and sanitation services in Lesotho are:

- Water and Sewerage Authority (WASA) responsible for water supply and sewerage services including services for emptying of septic tanks and pit latrines in the gazetted urban areas. Through projects e.g. Maseru Sanitation also involved in supporting the implementation of on-site sanitation facilities such as VIP Latrines.
- Department of Rural Water Supply (DRWS) is responsible for overseeing water and sanitation services in rural areas that are provided through community managed water schemes and support to on-site sanitation. An ongoing decentralisation process will lead to District Councils and Community Councils being responsible for supporting the communities and implementing new water and sanitation facilities.
- Lesotho Lowlands Water Supply Unit (LLWSU) for bulk supply of water to the densely populated areas in the lowlands of Lesotho has been designed and the implementation of the Zone 4 and 5 is ongoing covering Metolong dam, water treatment and transmission to Maseru and nearby centres. The Metolong Authority has been established to oversee the implementation;
- The Lesotho Highlands Development Authority (LHDA) is responsible for the operation and further development of bulk water transfer schemes from the highlands of Lesotho to the Republic of South Africa. The role of LHDA in water services in Lesotho is limited to implementation of rural water and sanitation projects in the catchment areas for the bulk water reservoirs and release of water to lowland rivers in periods of drought to alleviate water shortages in the urban water systems in particular Maseru.
- The Rural Sanitation Programme and the Health Education Unit under the Public Health in the Ministry of Health and Social Welfare has an important role in supporting hygiene education and promotion of sanitation in urban and rural areas.

1.3.2 The socio-economic Dimension

The socio-economic dimensions of the water sector are described by the overall planning frame for the Government of Lesotho as presented annually by the Ministry of Finance in the background to the budget.

The socio-economic development in Lesotho is characterised by gradual changing of the economic basis from the subsistence farming and animal husbandry in rural areas to manufacturing in urban areas resulting in rural-urban migration as well as development of the mining sector. In real terms, Gross Domestic Product (GDP) has grown by 4.4% per annum since 2002, with provisional national accounts data showing growth of 2.9% in 2008.

Over the five years 2008 - 2012, the annual average growth rate is expected to 4.8%. Since this rate of growth significantly exceeds the rate of population growth derived from the 2006 Census data, it signals improvement in GDP per capita and it may be assumed that Lesotho will achieve a

sustained reduction in the incidence of poverty. However, much of this economic growth will be generated by mining, which is a predominantly foreign-owned enclave industry, and the wider economic benefits are likely to be quite limited. Thus, Lesotho needs to explore ways of shifting to a faster and more broadly based economic growth path that creates more employment than currently projected.

Trends in the manufacturing industry are important for water demand projections. The previous growth in high water-demand textile industries is expected to be partly replaced by other types of manufacturing such as electronics with much less water demand.

The historical data on water consumption and the considerations on the industrial development point towards a substantial growth in the industrial demand but far below the growth percentages experienced in the early part of the decade. Possibly a growth at 3 – 5% would be reasonable depending on the scenario for development of industries. The commercial demand seems to follow the same trend as the industrial demand but with reduced fluctuation. Possible a growth of 2 – 3% would be reasonable to expect.

There has been a decline in government demand that is not easily explainable apart from the efforts by WASA to disconnect for non-payment. A future growth in demand of 1% might be applicable. The demand for the other institutional connections needs to be differentiated between Maseru and the other urban centres.

The results of the 2006 population census showed that the population of Lesotho has been stagnating between 1996 and 2006 and this makes the detailed analysis of the census population data in particular important since it will change the previous demand forecasts for the water sector.

Table 1: Population Growth 1996-2006

Av Annual Population Growth 1996-2006	
Lesotho total	**+0.21%**
Urban areas total	**+3.67%**
Rural areas total	**-0.65%**
Lowlands	-0.75%
Foothills	-0.27%
Mountains	+0.46%
Senqu River Valley	-0.34%

In total the annual population growth has been only 0.21% between 1996 and 2006. Rural-urban migration is still prevalent and the urban population has been increasing with 3.67% while in general, the population in rural villages especially in the lowlands has decreased. There have been slight increases in the rural population in the mountains.

The stagnating population in Lesotho is likely to be a combination of i) increased mortality due to the HIV/AIDS pandemic; ii) a high emigration rate of 2.6%[2] mainly to South Africa (93.5%) and; iii) decreasing birth rate

To establish a better planning foundation for the water sector in terms of population data, the project implemented the following activities:

- Printing of large scale maps based on aerial photos from the Geographical Information System (GIS) of the Bureau of Statistic (BOS) covering the WASA supply areas and each of the 120 Community Councils (CCs);
- In cooperation with the WASA Area Managers delineating the areas covered by the existing reticulation networks on the GIS maps;
- In cooperation with the Department of Rural Water Supply (DRWS) District Engineers marking the supply areas for the approximately 5,000 rural water supplies;
- In cooperation with the BOS personnel in the GIS Unit analysing the population covered by the existing rural and urban water supply systems;
- Printing maps showing the gazetted urban boundaries as compared to the existing WASA supply areas;
- Analysing the detailed census data on water and sanitation coverage according to the village list (more than 9000 villages) to provide the coverage data per WASA service area and each of the rural water supply service areas (to be completed by March 2010).

[2] Human Development Report 2009

The DRWS has provided additional resources required for printing of maps and analysis of rural water data to support the implementation of the project.

The demarcation of the urban boundaries compared to the present WASA networks revealed that the new urban boundaries in some of the towns include large areas with typical rural villages outside the present WASA networks. This raises the issue of the willingness to pay for water services in the rural areas and the appropriate/ cost effective technology in rural areas versus the aim of WASA to generate an operating profit.

Coverage The definitions for access to water are described in the Sector Performance Framework. The rural DIS calculates the persons covered per water system as the minimum of i) the present population in the service area, ii) the number of persons that can be supplied with 30 l/person/day, and iii) the number of persons that can be supplied allowing max 150 persons per standpipe.

When the analysis of the BOS census data on water and sanitation facilities have been completed (likely by March 2010), this will provide the baseline for sanitation to be included in the DIS and it will provide a quality check on the DRWS data on rural water systems.

The water coverage in urban areas served by WASA can be determined from the existing data in three different ways:

i. From the BOS: source of drinking water and collection time (<15 min collection time = within 150 m distance and limited queues)
ii. From WASA's data on number of public standpipes and domestic connections x persons per connection
iii. From population covered by the WASA reticulation network

The data from BOS will give a picture of the water sources that people actually use while not providing the data specifically according to the coverage definition since it does not include quantity and quality.

The WASA data on connections will give a number of persons served, by assuming the average number of persons per connection (or the average consumption when also analysing the consumption data). This analysis is complicated by the fact that many households use other water sources such as rainwater to supplement the tap water.

The majority of the population within the areas covered by the WASA networks is likely to get water from the network (through own connections, illegal connections, buying from neighbours etc.) and therefore the population residing within the network area gives some indication of the coverage. This does however, with the available data, not include information on amount of water and collection distance since the network is not mapped accurately in relation to the settlements.

Table 2 below shows data on the:

i) Population covered by the existing reticulation networks according to the service area mapping;
ii) The population served based on 5[3] persons per domestic connection and 150 per public standpipe as earlier used in coverage estimates by WASA; and
iii) The SFPM estimate of the number of persons served.

The three methods give varying estimates for coverage 87%, 47% and 49% respectively.

The wide gap between the coverage figures based on service area and based on connections is an indication of the many households that live in areas covered by the reticulation network but for various reasons are not connected. Some of the variations are also due to recent substantial extension of the reticulation networks in Maseru (Peri-urban Phase II) and Maputsoe (3-Towns Project) that are covering new peri-urban areas with pipelines while it takes time for the households to connect.

[3] 5 persons per connection has been used by WASA in coverage estimates, however the WASA connection survey indicates that the average number of persons per connection is close to 6.5 taking into account the supply to rented accommodation within the compound and sale of water to neighbours.

When the BOS census data on water and sanitation are available, these data will need to be analysed in detail and the baseline coverage determined. The further analysis of financing needs is based on the SFPM estimates for number of persons served.

Table 2: Water Coverage in Urban Areas

WASA Supply Areas	Urban Population/ service area (BOS Data) No of people	Pop covered by network No of people	Pop served with water (connections) No of people	Pop served SFPM estimates No of people	Coverage (service area) %	Coverage (connections) %	Coverage SFPM Estimates %
B. Buthe	26,354	11,704	8,465	8,108	44%	32%	31%
Leribe	15,053	12,828	8,045	10,056	85%	53%	67%
Maputsoe	40,284	31,621	12,255	12,295	78%	30%	31%
Peka	4,698	4,698	4,890	2,627	100%	104%	56%
TY	18,598	17,636	11,780	10,283	95%	63%	55%
Mapoteng	7,829	7,829	4,920	3,541	100%	63%	45%
Maseru	245,410	244,700	131,030	145,417	100%	53%	59%
Roma	10,597	8,542	2,235	2,912	81%	21%	27%
Morija	2,884	2,884	2,315	1,429	100%	80%	50%
Semonkong	5,853	5,853	0	2,562	100%	0%	0%
Mafeteng	30,577	22,905	11,720	13,378	75%	38%	44%
M. Hoek	24,756	14,223	6,405	5,492	57%	26%	22%
Quthing	12,807	8,288	4,915	4,167	65%	38%	33%
Q. Nek	10,528	5,507	3,215	2,942	52%	31%	28%
Mokhotlong	8,515	7,228	4,645	4,321	85%	55%	51%
T. Tseka	6,560	5,046	2,355	2,347	77%	36%	36%
Total	**471,303**	**411,492**	**219,190**	**231,875**	**87%**	**47%**	**49%**

Table 3: Coverage in Rural Areas

	Rural Areas					
	Pop rural areas	Pop covered Community Schemes	Pop Served Community Schemes	Pop Served WASA Schemes	Coverage (WS exists)	Served (WS working)
Lesotho total	**1,454,803**	**851,397**	**666,468**	**17,052**	**60%**	**47%**
Botha Bothe	95,740	49,424	41,174	0	52%	43%
Leribe	229,192	121,978	107,045	2,627	54%	48%
Berea	177,252	129,484	96,538	3,845	75%	57%
Maseru	232,500	133,035	118,813	10,049	62%	55%
Mafeteng	166,252	111,293	60,203	0	67%	36%
Mohale's Hoek	152,481	90,800	75,102	0	60%	49%
Quthing	108,340	57,390	53,170	0	53%	49%
Qacha's Nek	61,984	44,211	36,137	0	71%	58%
Mokhotlong	98,775	55,397	36,157	0	56%	37%
Thaba Tseka	132,288	58,384	42,130	531	45%	32%

The urban and rural coverage statistics needs to combine the DRWS and WASA data since there are 'DRWS Systems' inside the gazetted urban boundaries and there are WASA systems serving rural population, both centres located in rural areas (Peka, Maputsoe, Roma and Morija) and WASA networks extending beyond the urban boundaries e.g. in Maseru.

The analysis of the present data in the DIS and the statistics on the WASA systems gives a coverage in rural areas of 60% in terms of population living in areas where water systems exists and 47% taking into account that some of the rural water systems are not functioning. The details are provided on Table 3.

Table 4: Coverage in Urban Areas

	Urban Areas					
	Pop urban areas	Pop covered Community Schemes	Pop Served Community Schemes	Pop Served WASA Schemes	Coverage (WS exists)	Served (WS working)
Lesotho total	**484,630**	**29,794**	**27,028**	**219,401**	**51%**	**51%**
Botha Bothe	26,483	8,081	7,198	8,108	61%	58%
Leribe	57,074	2,018	1,943	22,365	43%	43%
Berea	19,022	267	267	9,980	54%	54%
Maseru	281,624	5,842	4,632	146,832	54%	54%
Mafeteng	33,483	1,097	940	13,378	43%	43%
Mohale's Hoek	25,947	3,696	3,546	5,492	35%	35%
Quthing	12,724	2,952	2,662	4,167	56%	54%
Qacha's Nek	11,306	3,805	3,805	2,942	60%	60%
Mokhotlong	9,851	878	878	4,321	53%	53%
Thaba Tseka	7,117	1,158	1,158	1,816	42%	42%

The coverage in gazetted urban areas is 51% taking into account existing water infrastructure and 51% for functioning systems as shown on Table 4.

Sanitation: The baseline for sanitation coverage will only be available when the detailed analysis of the BOS data on water and sanitation has been completed according to the village list linked to

the codes for DRWS and WASA service areas (expected April 2010). The present data from BOS on sanitation is from the 2003/03 household budget survey as shown below:

Table 5: Sanitation Coverage

Percentage distribution of households by type of toilet facility and region

Type of toilet	Maseru urban	Other Urban	Rural Lowland	Rural Foothill	Rural Mountain	Rural SRV	Lesotho
No toilet	2.8%	14.2%	40.5%	56.6%	87.6%	67.7%	33.9%
Sewage system	14.4%	5.8%	0.1%	0.2%	0.2%	0.0%	4.4%
Own pit latrine	32.9%	26.3%	40.6%	27.1%	5.5%	11.0%	27.1%
Own VIP	30.7%	39.7%	17.4%	15.4%	6.2%	21.0%	26.2%
Public/ shared	19.0%	13.1%	0.3%	0.3%	0.0%	0.3%	7.8%
Other	0.1%	0.8%	1.1%	0.4%	0.4%	0.0%	0.7%
Total	100%	100%	100%	100%	100%	100%	100%

The coverage with sewerage systems for domestic waste disposal can also be deducted from WASA's data on sewerage connections as presented below showing considerably lower coverage estimates than the BOS data e.g. the coverage with sewerage in Maseru is only 2% as compared to the BOS statistics of 14.4%. The main reason for this is probably that the classification of 'sewage system' in the BOS survey includes the households using septic tanks.

Table 6: Sewerage Coverage

WASA Supply Areas	No of Domestic Sewerage Connections	Sewerage Coverage (%)
B. Buthe	39	0.6%
Leribe	3	0.1%
Maputsoe	0	0.2%
Peka	0	0.0%
TY	23	0.5%
Mapoteng	0	0.0%
Maseru	1,268	2.0%
Roma	3	0.1%
Morija	14	2.0%
Semonkong	0	0.0%
Mafeteng	39	0.5%
M. Hoek	4	0.1%
Quthing	15	0.5%
Q. Nek	0	0.0%
Mokhotlong	38	1.5%
T. Tseka	81	4.6%
Total	**1,527**	1.0%

The analysis of the 2006 population census data is vital for providing reasonable accurate statistics and population data per service area in both rural and urban areas. The BOS data also needed for analysis of access to water and sanitation services.

The present water infrastructure data does not provide accurate data on urban coverage. To improve this in the longer-term, it would be needed to carry out GIS mapping of the urban water networks to determine the population within 150 m of the network.

The connection survey started by this project should also be completed in order to provide accurate statistics on the number of persons served per connection and the amount of water used per person.

It needs to be considered whether or not households that buy their water from neighbours at high cost should be regarded as covered.

The African Water Facility (AWF) project on the rural water and sanitation planning framework, when eventually implemented, will provide accurate data on the rural water coverage since the project is expected to include GIS mapping and updating of the capacity and other information on the water infrastructure as well as sanitation facilities. The GIS mapping will enable accurate determination of population data when integrated with the BOS GIS.

1.3.3 The Financial Dimension

The water services sub-sector receives funding from the recurrent and capital government budgets as well as funding from bilateral and multilateral financiers. An overview over the present and estimated future funding is presented in Table 7 based on information from the MTEF, the draft Sector Programme and the Millennium Challenge Corporation (MCC) Compact.

The present level of funding to the water services is approximately 4% of the total GOL budget, a small proportion of 0.5% of the recurrent budget and a considerable proportion of 14% of the capital budget raising to 22% in 2010/11 mainly due to the considerable funding from the World Bank (WB) and European Union (EU) for urban water and sewerage and the coming MCC funding to the water sector.

Table 7: Water Sector Funding

Cost Centre/Project	2009/10	2010/11	2011/12	2012/13
Recurrent Estimates (mLSL)	**27.69**	**29.61**	**31.68**	**33.90**
Water Commission	6.62	6.95	7.44	7.96
Rural Water Supply	21.07	22.66	24.24	25.94
Capital Estimates (mLSL)	**382.00**	**471.56**	**680.45**	**495.11**
GOL	**105.00**	**162.56**	**189.35**	**125.85**
Maseru Peri Urban Water Supply Phase II	6.00	6.17	1.14	-
Lesotho Water Sector Improvement	2.50	6.00	-	-
Village Water Supply	60.00	60.63	55.25	41.00
Metolong Dam Project	27.00	27.00	92.31	54.97
RWS - sanitation shortfall financing	-	30.92	18.00	18.00
Maseru Waste Water	9.50	31.83	22.65	11.87
Donor Grants	**277.00**	**309.00**	**491.10**	**369.27**
Six Towns Water and Sanitation - EDF	80.00	90.00	107.88	28.17
Lesotho Water Sector Improvement - IDA	-	8.00	4.00	3.60
Maseru Waste Water - EDF	40.00	43.37	39.30	33.24
Village Water Supply - Irish	18.00	22.00	-	-
Metolong Dam Project - MCC	89.00	52.06	252.62	227.86
Rural Water Supply and Sanitation - MCC	25.00	68.57	80.50	76.40
Metolong Dam Project - RSA	25.00	25.00	6.80	-
Total 'Water Services' Budget (mLSL)	**277.09**	**358.39**	**522.46**	**456.86**

Table 8: Water Sector Loans

Cost Centre/Project	2009/10	2010/11	2011/12	2012/13
Donor Loans	**151.00**	**232.42**	**940.34**	**772.63**
Maseru Peri Urban Phase II - BADEA	19.00	10.64	6.84	-
Maseru Peri Urban Phase II - OPEC	11.00	7.42	3.42	-
Lesotho Water Sector Improvement - IDA	20.00	40.00	4.00	3.60
Maseru Waste Water - EIB	17.00	53.42	48.90	45.30
Metolong Dam Project Kuwait	20.00	20.00	54.04	51.63
Metolong Dam Project Saudi Fund	13.00	13.00	48.00	50.41
Metolong Dam Project OPEC	4.00	4.00	27.20	28.57
Metolong Dam Project BADEA	18.00	18.00	40.82	39.46
Metolong Dam Project IDA	29.00	29.00	61.82	20.96
Metolong Dam Project EIB	-	36.94	645.30	532.71

The historical data seems to indicate that the GOL is directly contributing approximately 50% to the capital budget however due to the present increased donor funding through MCC and EU, the GOL funding is 20% to 30% of the GOL and Donor Grant budget.

In addition to the estimate above of the available funding Local Authorities contribute an estimated 1.0 mLSL per year to rural water and sanitation services. The Local Authorities are using some of their development funding for rural water systems, both new investments and support to communities for maintenance and major breakdowns.

WASA also generates operating profit of approximately 10 mLSL annually that is utilised for investments in infrastructure such as network extensions and replacement of equipment.

In addition to the 'on-budget' funding there is also some 'off-budget' funding especially to the rural water sector from NGOs. In the DRWS DIS estimated to approximately 1.0 mLSL per year.

The investments by private individuals in 'self supply' should also be taken into account to get a more complete picture of the investment flows for water services. According to the surveys in peri-urban areas 7% have supply from own borehole and from the WASA connection survey indicates that 8% use own borehole water to supplement the WASA supply. A larger proportion of approximately 30% of households supplement the utility water supply with rainwater harvesting. This represents a considerable investment in 'self supply'. It is however complex to take self supply into account when analysing the investment requirements in terms of coverage targets since these investments overlap with the public investments in that it supplements the public water supplies mainly in order to provide higher service level or security of supply.

Private investments in water supplies to serve communities or sections of towns does not seem to be prevalent in Lesotho except on a small scale where one household invests in a borehole supply

and sells water to neighbours. As revealed by the peri-urban survey this is case for 7% of the households serving 11% of households in peri-urban areas. In this case the investment is not done in the community water services as such but more as a by-product of investing in water supply for self supply.

1.3.4 Technical/ Engineering Dimensions

Urban Water: WASA operates piped water systems in 15 major centres using surface or groundwater sources with various levels of treatment. The schemes range from a capacity of 65,000 m^3/day in Maseru to the smaller systems with capacity of approximately 300 m^3/day.

Many of the urban water systems have operational problems as indicated by low capacity utilisation combined with interrupted water service in many of the systems. The reasons for the operational problems are diverse e.g.:

- Natural physical conditions such as large variations in the water flows in many of the rivers and streams that are used as sources for the water systems as well as the very high sediment load in the lowlands rivers that are the sources of the major WASA systems.
- Inadequate replacement of equipment that has outlived its lifespan.
- Many of the existing intake structures with infiltration galleries and well points (e.g. Hlotse, Maputsoe and Teyateyaneng) and borehole sources (e.g. Botha Bothe, Teyateyaneng, Roma, Morija) are no longer fully utilised, possibly due to design issues or inadequate preventative maintenance/ operating procedures.

Levels of Un-accounted for Water (UfW) in the WASA systems are moderate to high ranging from 21% to 44%. The UfW for Maseru is 30%. The recent work by the 3-towns project in Maputsoe, Teyateyaneng and Roma indicates that under registration of consumption due to old water meters is one of the major contributors. The ongoing replacement of old pipelines in Maputsoe, Teyateyaneng and Roma by the 3-towns project and the pipeline rehabilitation under the MCC project in Maseru, Roma, Mohale's Hoek, Qacha's Nek, Botha Bothe, Leribe and Teyateyaneng will considerably reduce the UfW related to leaks.

Urban Sewerage: WASA operates sewage collection systems and treatment plants in most of the urban centres. Only Peka, Semonkong and Qacha's Nek does not have sewage systems. The sewerage systems typically serve the commercial centres of the towns and have little domestic coverage. Only 10% of the sewerage discharge billed by WASA is from domestic sources. The use of coverage (the proportion of the population served for domestic purposes) as a measure for sewerage services is therefore not always appropriate.

The sewerage system in Maseru includes the collection network and 10 pumping stations delivering the sewage to the Ratjomose wastewater treatment plant. The treatment includes some mechanical treatment and oxidation ponds. The design capacity of the plant is 10,000 m^3/day.

In the centres outside Maseru, the sewage systems are based on oxidation ponds in consisting of anaerobic ponds and/or imhoff tanks, one facultative pond and two maturation ponds. Data on the sewerage networks, sewage flows and pond system capacities are not available however approximate capacities can be deduced from the sewage billing data that gives a picture of the amount of sewage entering the systems. WASA is in the process of collecting the data on the existing sewerage systems and treatment plants.

The effluent from industries in Maseru does not all enter the WASA sewerage system. The water supplied to industries is approximately 11,000 m^3/day while the sewerage volume billed from the industries is only 1,200 m^3/day or 10% of the water consumption. Portion of the industrial discharge that does not enter WASA's system is treated on site by the industries but a large proportion flows untreated into the water courses.

Rural Water supplies in Lesotho are typically simple piped water systems serving individual villages. If possible gravity systems are built, using water sources above the village, or if that is not possible pumping systems are installed from either boreholes or springs using diesel, electrical or solar pumps.

These small systems typically serve between 200 and 2000 people. In addition to the piped systems, approximately 25% of the rural population with access to potable water is served by hand pumps. These are mostly located in the lowlands communities.

It is anticipated that in the future DRWS will utilise streams and simple treatment plants to satisfy the water demand in more densely populated areas. The first of such schemes is under implementation in the Pitseng area in Leribe District serving approximately 20,000 people. The bulk water systems planned for the lowland areas of Lesotho will cover some of the rural settlements with populations over 2,500.

The existing water systems in the densely populated lowlands are typically in need of rehabilitation for various reasons:

- Many of the systems were built in the 1980s and are now beyond their design life of 25 years and have critical components that must be replaced.
- The population growth in the lowland villages since implementation has resulted in inadequate capacity of the systems both in terms of the quantity of water provided per capita and the extent of the pipe network.
- A significant proportion of lowland villages were served by hand pumps in the 1980s, but these no longer provide an adequate level of service for the growing population. Increased population pressure has resulted in the reliable hand pumps being overused and suffering damage. As they are expensive and difficult to maintain at community level the ratio of population served to operating hand pumps has risen rapidly. They are also unpopular and difficult to operate by women, children, the aged and the disabled.
- The majority of villages in Lesotho are served by gravity water systems based on spring sources. In many parts of the lowlands the yields of the springs have been affected negatively by reduced recharge of ground water resources due to degradation of the catchment areas. The decline in spring yields coupled with population growth means these systems no longer meet the required standard of 30 litres per capita per day (l/c/d) and will require augmentation from additional springs or from new pumped boreholes.
- Inadequate maintenance, in particular preventive maintenance, has resulted in some systems requiring major rehabilitation. The establishment of the new local government structures and the recently approved rural water supply 'After Care Strategy' is expected to alleviate many of the problem areas that have previously led to lack of clarity in the responsibilities for management of the existing systems.

In addition to improving the service in the lowlands villages, the rural water sub-sector is faced with the task of reaching the un-served villages that are typically in the more remote mountainous areas of Lesotho. Larger communities in easily accessible areas have in the past been given priority, leaving the smaller more remote communities without adequate water and sanitation facilities. Provision of better infrastructure including water and sanitation in these communities will potentially contribute to reducing migration to the urban areas and the resulting high levels of unemployment.

The implementation unit costs in these remote villages are considerably higher than in the lowland villages, due to i) the size of the schemes and ii) the transport costs. All the 10 districts except Mafeteng has mountain areas and typically 10% the 20% of the villages are in-accessible meaning that there is no road access and materials need to be carried on foot or by donkeys or horses.

Lowlands Bulk Water Schemes: Recognising the importance of providing adequate water supplies to the domestic and commercial consumers in the Lowlands of Lesotho, the GOL carried out a feasibility study for the Lesotho Lowlands Water Supply Project (LLWSP) in 2004 and subsequently the design of the five bulk water supply schemes serving eight designated water demand zones. The purpose of the proposed LLWSP to improve water supplies to the lowland settlements with populations in excess of 2500 for domestic, institutional and industrial purposes. The aim of the project is to support the introduction of technically, economically, socially, environmentally and financially viable, bulk-treated water supply systems.

The main project components include intake points, water treatment works, pump stations and reservoirs and transmission pipelines. The bulk water schemes will feed the existing reservoirs and reticulation systems in the urban areas and rural villages.

1.4 Description of the Planning Tools

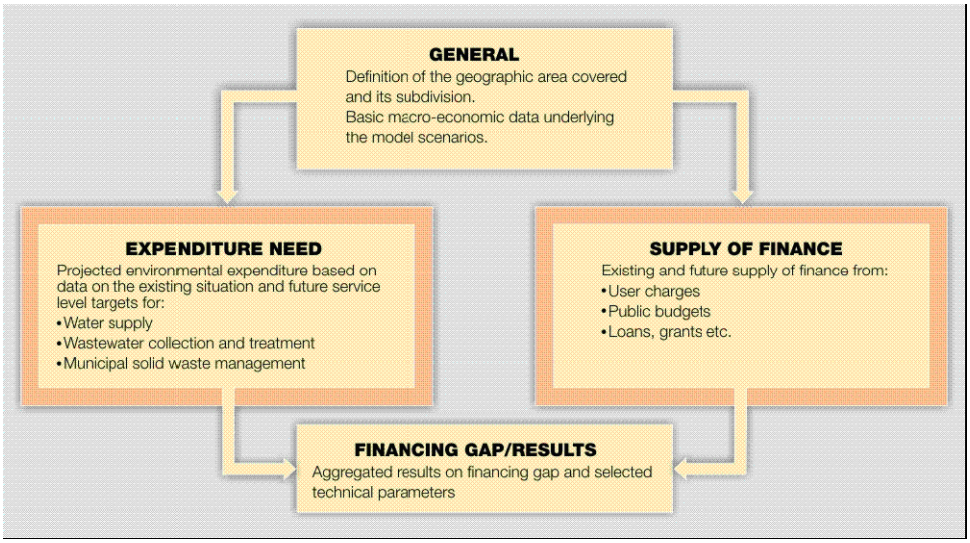
1.4.1 FEASIBLE

The FEASIBLE planning tool is a computerised decision support tool developed by OECD and Denmark. The FEASIBLE Version 2.4 enables analysis of Water supply, Wastewater collection and treatment and Municipal solid waste management.

The model is structured in four main components:

- General, which contains the definition of the geographic area covered with its subdivision into regions, municipalities and groups of municipalities and the basic macro-economic data in the model scenarios.
- Expenditure need, which calculates the projected environmental expenditure (for operation and maintenance, re-investment, renovation and new investments in environmental infrastructure) based on data on the existing situation and service level targets entered by the user.
- Supply of finance, which describes the existing and future supply of finance from user charges, public budgets, loans, grants etc.
- Financing gap/results, in which the aggregated results on financing gap and selected technical parameters are calculated.

Figure 3: Structure of FEASIBLE



In FEASIBLE, data may be entered and scenarios run at various levels.

To describe the water services in Lesotho, the data has been structured according to 'Municipalities'[4] defined as the WASA supply areas individually and for rural areas segmented into the 'accessible villages' and 'in-accessible villages' in each district.

The FEASIBLE can operate with planning periods of 10 or 20 years and enables the user to define and compare scenarios.

The FEASIBLE requires basic macro-economic and demographic data and forecasts in order to estimate the expenditure needs. The user is required to enter data on Population, GDP and Private consumption. The underlying calculations of the model are in international prices, and a set of price correction factors is used by FEASIBLE to convert results from international prices to local prices. The user is therefore required to enter data concerning the local expenditure of key expenditure components such as land, power, fuel, labour, equipment, building materials, etc.

FEASIBLE calculates the projected expenditure need based on data on the existing situation and targets entered by the user. FEASIBLE calculates the expenditure needs based on a number of ge-

[4] Municipality denotes a geographical subsection within a region (may be individual municipalities or groups of municipalities which are categorised according to size)

neric expenditure functions which are incorporated into the model. These generic expenditure functions cover a number of technical development measures in each sector. This means that the existing situation and the target situation are modelled through the selection of specific technical development measures which, in turn, are believed to lead to the fulfilment of a given target.

The key parameters available to describe the service level and set targets for the water supply system are:

- Type of water intake and treatment
- Volume of water production
- Coverage of water supply (percentage of the population covered by central or local water supplies)
- Renovation of distribution network
- Renovation of service connections (the part of the network connecting each house or building - often private property)
- Renovation of intake, treatment and transmission system.

The calculations are done according to different cost functions for urban and rural technologies.

The key parameters available to describe the service level and set targets for the wastewater treatment system are:

- Wastewater collection rate (percentage of the population connected to sewer system)
- The share of the wastewater collection system to be rehabilitated (% of total)
- Renovation and upgrading of pumping stations (increasing energy efficiency)
- The share of the population connected to a wastewater treatment plant1
- Type of wastewater treatment technology

The FEASIBLE does not cover on-site disposal methods in urban areas. In the waste water calculations for Lesotho the urban areas outside Maseru are using the rural cost functions in order to best describe the type of sewerage treatment technologies used in the smaller towns.

A detailed description of the FEASIBLE tool and the cost functions is available in the extensive documentation and guidelines provided with the tool.

1.4.2 Strategic Financial Planning Model

The Strategic Financial Planning Model (SFPM) is a tool for estimating the financing needs versus available funding in the water and sanitation services sub-sector in Lesotho for different development and policy scenarios.

The SFPM is designed to specifically describe the water sector in Lesotho and will be used at national level by the COW's office in cooperation with the sector stakeholders (WASA, DRWS and LLWSU) to guide the development of sector strategies and the preparation of MTEF budgets.

The SFPM results can via the LWSIMS (when fully operational) be used as a tool to provide the information on water sector targets and plans to all stakeholders via the internet.

Use Specification: The users of the SFPM software will primarily be planners in the Policy, Planning and Strategy Unit (PPSU) in the office of the COW in cooperation with planners in WASA, DRWS and the LLWSU that will use the SFPM based on input data from the existing systems in the 3 water sector institutions.

When the LWSIMS is fully operational the PPSU will use the SFPM based on data input from the LWSIMS and will make the resulting investment plans available to stakeholders via the LWSIMS. The use of the SFPM will continue to require close coordination between the PPSU and the 3 water sector institutions and will be a tool to enhance this coordination in a practical manner.

Input specification: The data input to the SFPM will basically be the data from:

- The DIS – the detailed bottom-up planning system for rural water and sanitation;

- The WASA Financial Model with operational and system data on water and sewerage in urban areas;
- The LLWSP design data on bulk water systems;

The existing planning tools (DIS and WASA Financial Model) are based on MS Excel and the links to SFPM is easily established. The SFPM will have facilities for general socio-economic data e.g. general population data, forecasts for economic development in Lesotho, future revenues etc. to facilitate analysis of development scenarios and policies options.

Output specification: The following standard reports are pre-programmed:

- Tables showing the total annual investment requirements, available resources and financing gap for different development scenarios and policy decisions;
- Tables showing the annual investment requirements, available resources and financing gap for different development scenarios and policy decisions for the respective sub-sectors individually;
- Graphs showing the total annual investment requirements, available resources and financing gap for different development scenarios and policy decisions;
- Graphs showing the annual investment requirements, available resources and financing gap for different development scenarios and policy decisions for the respective sub-sectors individually;
- In the future when the LWSIMS including the GIS is fully operational the SFPM results that can be geo-referenced shall be shown on Maps.

The SFPM shall be easily manipulated by users to produce any special reports that might be required.

Quality control specification: The SFPM shall as a minimum automatically indicate errors for data entry mistakes/ inconsistencies. All cells containing formulas shall be locked to prevent data entry mistakes.

Operational specification: the SFPM is available in two formats:

- Version A: the tool for general use – containing one sheet for entry of key variables and presentation of key results
- Version B: complete model with access to all data and technical variables - only for use by the TWG or other persons familiar with the SFPM after training

The SFPM has the following features:

- The SFPM is designed in MS Excel and the data input sheets can receive data automatically from the sub-sector systems in DRWS, WASA and LLWSU;
- The SFPM is designed in a manner that allows for linking to a GIS system for the parts of the results that can be geo-referenced e.g. to districts or towns;
- The SFPM is programmed with appropriate security features and passwords to ensure that users do not by mistake change formulas;
- The users in the PPSU shall ensure back-up procedures.

Figure 4: SFPM Entry of Variables

Targets			Min. Coverage Targets		
Rural Water Services		Present	**2015**	**2020**	**2035**
Targets for minimum coverage			75%	100%	100%
Resulting average national coverage		63%	77%	82%	100%
Average lifespan of facilities	25	years			
Target for Replacement Investments		100%	100%	100%	100%
Capacity Building/support as % of hardware investments		2.4%	10%	7%	5%
Functionality		82%	89%	95%	95%
Government subsidy for rural O&M (free basic water)		19%	50%	50%	50%

Entry of key variables takes place in a format illustrated in Figure 4.

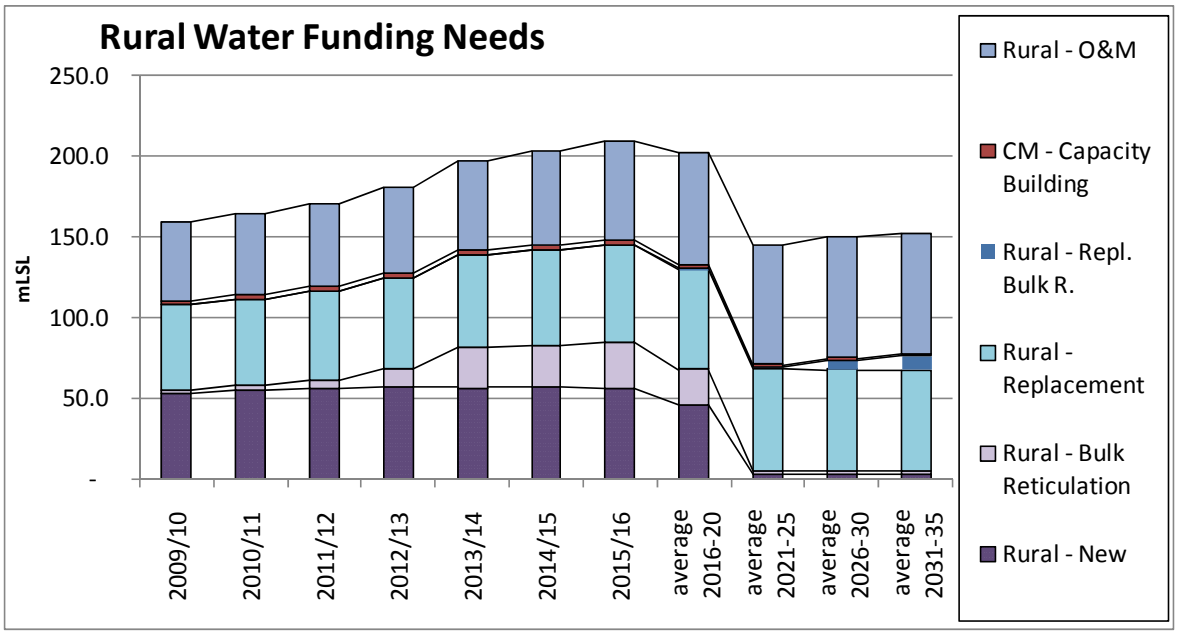
The light green colour identifies the cells that are open for data entry. Targets are set for three targets years: 2015 to represent the MDGs; 2020 to represent the Government's Vision 2020 and 2035 as the end of the planning period.

The outputs are provided in tables and graphs as illustrated in Figure 5.

The operations of the SFPM will be described in detail in the 'User Guidelines'

Figure 5: SFPM Output Tables and Graphs

Water Services Funding Needs (mLSL) - Scenario 4	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	average 2016-20	average 2021-25	average 2026-30	average 2031-35	Total 2010-35
Rural - New	53.3	54.6	55.9	57.1	56.6	56.9	56.6	46.1	2.8	2.8	2.8	**610.5**
Rural - Bulk Reticulation	2.2	3.4	5.7	11.5	24.8	26.1	28.3	21.8	2.2	2.3	2.4	**242.6**
Rural - Replacement	52.5	53.7	54.9	56.1	57.4	58.8	60.1	62.4	63.3	62.8	62.4	**1,595.7**
Rural - Repl. Bulk R.	-	-	-	-	-	-	-	0.0	1.3	6.0	8.6	**79.5**
CM - Capacity Building	2.6	2.6	2.6	2.7	2.9	2.9	2.9	2.6	1.4	1.5	1.5	**51.7**
Total Investment	**110.6**	**114.2**	**119.1**	**127.4**	**141.8**	**144.8**	**147.9**	**132.8**	**71.0**	**75.4**	**77.7**	**2,579.9**
Rural - O&M	48.6	49.9	51.4	53.1	55.2	58.2	61.3	68.8	73.8	74.1	74.3	**1,784.1**
Total	**159.2**	**164.1**	**170.4**	**180.5**	**197.0**	**203.0**	**209.2**	**201.6**	**144.8**	**149.5**	**152.0**	**4,364.0**



Specifications on requirements for extensions: The overall set-up of the SFPM is programmed in manner that the tool can be modified to include additional modules on other aspects of the water sector (e.g. other sub-sectors to describe the IWRM scope of planning) and additional features can be added without major changes to the original programming.

Capacity building specification: The SFPM shall be accompanied with the following capacity building outputs:

- Training of the TWG members as the initial users of the SFPM in the design and operations of the SFPM;
- User Guidelines that describe the use and rational for the SFPM for future users of the system, especially new staff in the PPSU.

Maintenance Specification: The SFPM programmer shall be responsible for providing maintenance services for the first 3 years divided into:

- Fault finding and correction of faults: responsibility of the programmer and the cost shall be included as after sales service in contract for developing the SFPM;
- Assistance on demand to assist in correcting operating and data mistakes – not the programmer's responsibility – cost charged at hourly rates to be agreed.

2 DEVELOPMENT SCENARIOS

2.1 Development Vision

The overall guidance for development scenarios shall be the Government of Lesotho's planning documents such as the poverty reduction strategies (PRSP) and the Vision 2020 and the targets implied in the MDGs. Within the overall scope set out by these documents, there are different development scenarios that can be explored to analyse the possible options for the development of the water services sub-sector.

The planning documents sets the overall targets for the water services in terms of coverage – 75% by 2015 and 100% by 2020 for water and sanitation in both rural and urban areas for both water and sanitation.

The Water and Sanitation Policy (2007) provides specific and clear guidance to the water and sanitation services as outlined in the box below:

Policy Statement 2: Water Supply and Sanitation Services

Ensure access to a sustainable supply of potable water and basic sanitation services for all Basotho

Objectives

1. To accelerate the delivery of water and sanitation services to all Basotho in line with national development goals;
2. To promote increased investment in infrastructure development (reservoirs, conveyance structures, etc) to meet the water demand in urban and rural areas for socio-economic development and for meeting basic consumption and hygiene needs;
3. To devolve provision of water supply and sanitation services to relevant institutions at National, District and Community Council levels;
4. To promote equity in access to water supply and sanitation services taking into account vulnerable and marginalized groups including women, girls and all those affected by HIV/AIDS; and
5. To ensure that the tariffs charged by water and sanitation service providers cover the actual cost, including the capital costs as well as the cost of overheads, of providing water and sanitation services.

Strategies:

a) Reconstitute water committees as a mechanism for sustainable service delivery at local level;

b) Empower district and community councils in the effective implementation of water supply and sanitation programmes, including the development of all relevant by-laws;

c) Establish long term water demands and water supply options for urban and rural areas beyond 2035;

d) Formulate water supply and sanitation services programmes for the medium (10-15 years) and long term (20-25 years) in order to facilitate the determination of, and access to, funding mechanisms;

e) Develop and implement principles and guidelines for various forms of Public-Private Partnerships to facilitate sustainable provision of adequate water supply and sanitation services to rural, peri-urban and urban areas;

f) Develop and implement management systems for existing and planned bulk water storage structures (reservoirs, dams, etc);

g) Develop and implement programmes aimed at creating public awareness on linkages between water supply, sanitation, health and hygiene;

h) Establish and implement standards for provision of water supply and sanitation services;

i) Establish and put into effect tariff structures and cost recovery mechanisms for water supply and sanitation services which ensure that water service providers recover the actual cost, including capital costs, of providing water services;

j) Introduce a cross-subsidy tariff mechanism to reflect water for basic human needs only (30 litres per capita per day) in the case where customers are unable to afford the cost of lowest service;

k) Tariffs for non-domestic water supply shall be flat rate and shall not be less than the marginal cost of the water supplied while tariffs for domestic consumers shall be banded, but nevertheless its weighted average shall not be less than the marginal cost of the water supplied;

l) As a way of promoting equity, the Government shall endeavour to ensure that the maximum expenditure on water shall not exceed 5% of disposable income, and that the water service providers apply a uniform tariff in all areas as opposed to regional tariffs;

m) Put in place mechanisms to ensure that a proportion of the revenues from the Lesotho Highlands water is utilized to increase coverage of water supply systems in underserved areas;

n) Implement the Aftercare Strategy for rural water supply systems in order to improve sustainability of access to potable water; and

o) Introduce systems for monitoring and evaluating the performance of water supply and sanitation systems at community level.

2.2 Development Scenarios

Within the overall frame set by the Vision 2020 – *'by 2020 all Basotho will have access to safe drinking water and basic sanitation'*, the development of water services in Lesotho could be analysed according to the following four scenarios:

1. Business as usual
2. High Growth with Urban and Industrial Focus
3. High Growth with Rural Development Focus
4. Low Growth

The intention of the scenarios is not to choose *'one winner'* as the best representative of future development, but to allow the planning tools to show the consequences for the water sector investments and financial requirements depending on the different development possibilities.

These development options are intended to guide the development of the SFPM to include the appropriate technical and policy variables. Eventually, when the water sector continues to work with the planning tools, the analysis might result in the development of a most likely compromise scenario that can be presented as a possible picture for the development of the water services.

Some of the aspects such as irrigation and catchment management investments would only be possible to describe when possibly in the future the water sector would further develop the planning tools to cover the full IWRM scope.

The 'Business as Usual' scenario is intended to show the investment requirements and development in the sector should the development indicators that have been prevalent in the past continue.

The high growth scenarios (number 2 and 3) will show the water services sector requirements should Lesotho succeed to achieve high growth of above 5% annually with a focus on urban development and industrialisation in a few urban centres (scenario 2) and with a rural development focus (scenario 3) where the population development and industrial development and therefore the water demand is distributed more evenly in rural and urban areas.

Scenario 4 describes the unfortunate situation where Lesotho would experience low economic development and the consequences this would have on the water demand development and financing needs in the water services sector.

The main targets are the coverage for water and sanitation and in the investment estimates presented below, these have remained constant in accordance with the MDGs and the Vision 2020 at approximately 75% by 2015 and 100% by 2020 in order to compare the scenarios at a similar overall target level. Common for all the scenarios is also the aim of the GOL to achieve full cost recovery for urban water and sewerage services. The tariff adjustments and other variables for the various scenarios to achieve this by 2030 are described under the urban sub-sector in the presentation below.

All 4 scenarios present the funding needs for water and sanitation to reach the overall target set in the Government Vision 2020 of 100% coverage. The 4 scenarios also all aim for full cost recovery for urban water and sewerage services. The financing strategy presented here therefore has a large degree of 'user payment for services' but as we will see, a 'social safety net' will be needed to ensure that services also reach the poorer parts of the population – in line with the water policy's statement on 'free basic water for the vulnerable households'.

The estimates are based on the calculations in the SFPM since the FEASIBLE tool as a generic tool does not describe the investments in bulk water supplies and the on-site sanitation aspects that dominate the Lesotho water services sector during the planning period. Examples of the estimates made with the FEASIBLE tool and comparison with the SFPM estimates are included in Annex A.

2.2.1 Scenario 1 – Business as Usual

The 'Business as Usual' scenario is intended to show the investment requirements and development in the sector should the development indicators that have been prevalent over the last years continue in the future. This would imply:

- Economic growth similar to recent levels of approximately 2% - 4%.
- Total population stabilising with continued moderate population growth in urban areas of 3.6% and general decrease of population in the rural areas especially in the lowlands and foothills of -0.65%. The population development is affected by: i) continued migration to South Africa and ii) high mortality rates due to the HIV/AIDS pandemic. Prevalence of HIV infections would stabilise at the present levels of 29% in urban areas and 22% in rural areas. Impact will continue to be serious possibly impacted by urbanisation and inadequate resources for fighting the disease.
- Some growth in industries in urban areas, limited to Maseru, Maputsoe and Mafeteng – however the development over the last couple of years indicates that the new industries will be less water demanding than the present textile industries. Little emphasis on water demand management in the existing textile industries.
- Continued inadequate effort in adaptation to climate change and improved natural resource management in rural areas.

Scenario 1 Financing Needs to Reach Targets

The results are presented in Report No 5: Strategic Financial Planning Report for the sub-sectors: Rural Water; Urban Water; Urban Sewerage; Bulk Water Supply; and Sanitation. Estimates are also included in the total funding needs for Sector Coordination and Management.

Only the total sector funding requirements are shown in summary below. All costs are presented in LSL Millions and as 'present costs' using the 2009 as the basis year for the cost estimates.

Table 9: Scenario 1 – Water Sector Funding Needs

Sector Funding Needs (mLSL)	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	Total 2010-35
Rural Water	211.3	250.8	186.7	194.4	194.1	**5,398.0**
Urban Water	149.3	205.7	230.0	294.5	349.9	**6,296.2**
Urban Sewerage	77.7	82.8	107.4	144.7	205.3	**3,167.2**
Bulk Water Supply	400.3	85.5	151.0	184.5	427.7	**6,645.4**
Sanitation	112.9	120.4	53.3	53.3	53.3	**2,079.4**
Sector C & Man	11.2	8.7	8.5	10.2	14.4	**276.7**
Loan interest and repayment	105.0	177.0	189.1	175.3	10.4	**3,389.2**
Total	**1,067.7**	**931.0**	**926.1**	**1,057.0**	**1,255.2**	**27,252.1**

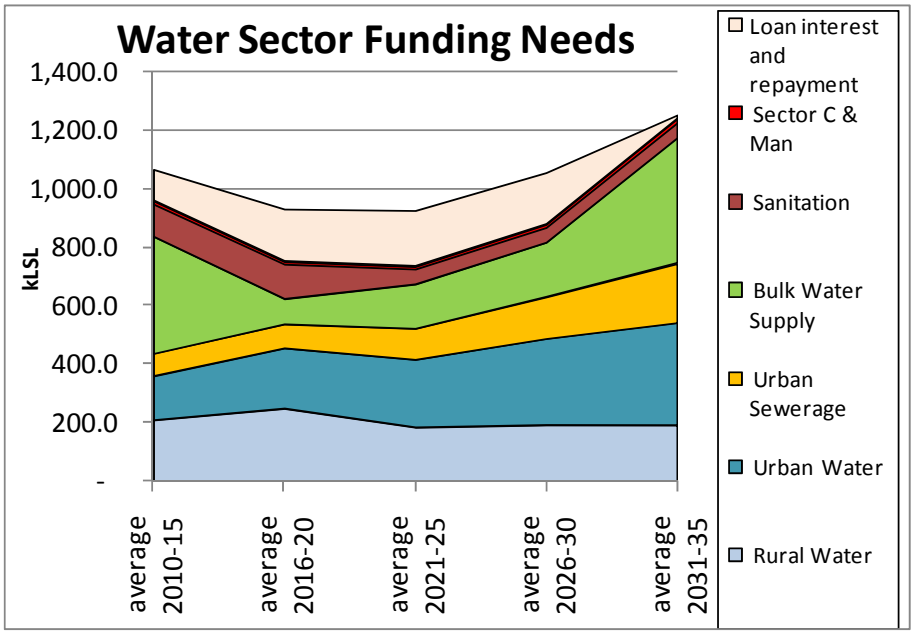
The total financing needs for the water and sanitation services under Scenario 1 are presented in Table 9 and in Figure 6. The tables present the average annual funding needs in the respective 5-year periods.

The estimates are presented as the total costs including the O&M costs in order to show the total financial flows in the sector and present not only the funding for investment requirements but also the users contributions to the sector in terms of payment of tariffs and part of the O&M costs for rural water supplies.

In Scenario 1, the present level of government subsidy for rural O&M is assumed to continue. The water demand estimates take price elasticity into account as a 1.7% decrease in domestic demand for every 10% tariff increase above inflation[5].

[5] The elasticity factor is based on 'Estimation of the Residential Price Elasticity of Demand for Water by Means of a Contingent Valuation Approach' Report No 790/1/00, Water Research Commission Report, South Africa. The factor is a variable that can be adjusted if better data on Lesotho becomes available.

Figure 6: Scenario 1 – Water Sector Funding Needs



The sector financing needs are dominated by the investments in bulk water supplies in particular the ongoing Metolong project and the transmission to Zone 5&6 in year 2010-15 and in other zones towards the end of the planning period.

The funding needs for rural water are declining after full coverage is achieved in 2020 and are thereafter replacement investments and O&M costs.

The investments in urban sewerage are for all the scenarios based on targets for domestic sewerage coverage in Maseru of 6% in 2015, 10% in 2020 and 25% in 2035. The proportion of industrial effluent entering the sewerage system is expected to increase to 50% in Scenario 1.

The government subsidy for rural sanitation is assumed to remain unchanged at 90% in this 'business as usual' scenario.

Scenario 1 - Available Finance and Funding Gap

Estimates of the available funding for water services are shown in Table 10 and Figure 7.

Table 10: Scenario 1 – Sector Funding

Total Sector Funding (mLSL)	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	**Total 2010-35**
User Payment (present level Tariffs and O&M)	201.8	323.4	400.7	492.0	587.8	**10,230.4**
User Payment (Tariff Increases)	36.4	97.3	146.4	215.3	295.6	**3,991.6**
Household Investment in on-site sanitation	53.8	61.8	47.3	47.3	47.3	**1,340.9**
Public Sector Funding	801.9	448.5	331.7	302.4	324.5	**11,847.1**
Total Sector Funding	**1,094.0**	**931.0**	**926.1**	**1,057.0**	**1,255.2**	**27,410.0**
Sector Financing Needs incl loan repayment	1,067.7	931.0	926.1	1,057.0	1,255.2	**27,252.1**
Funding Gap	**(26.3)**	**-**	**-**	**-**	**-**	**(157.8)**

The 'user payments' include user payment of WASA tariffs in the urban areas and estimates of the Bulk Water Charges for water supplied to rural communities as well as the payments by the rural communities for O&M costs.

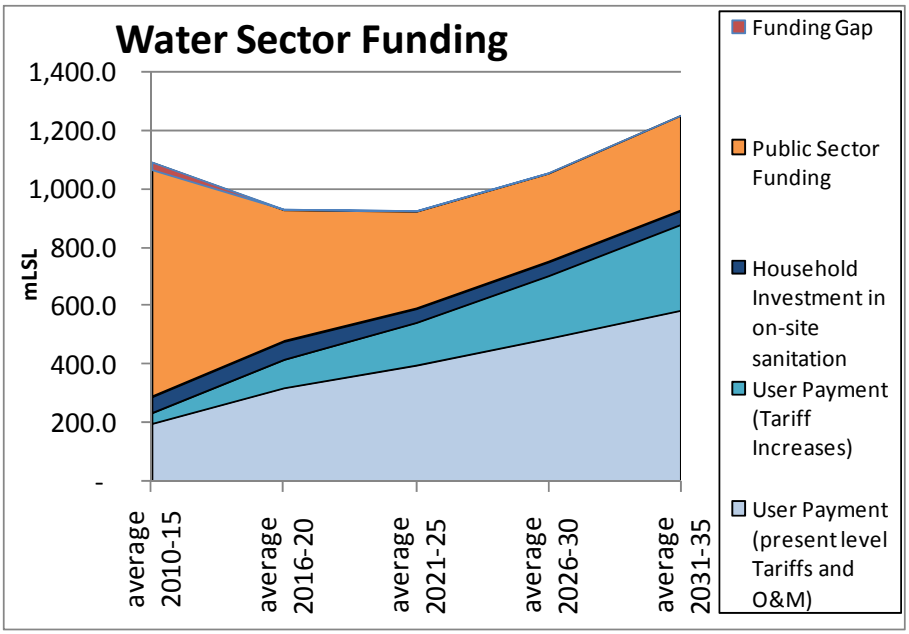
The user payments are shown separately according to the existing tariff rates/ government subsidies for rural O&M and the additional amounts for the suggested increases in user payments to achieve full cost recovery for the urban services.

In scenario 1, annual tariff increases above inflation of 7% until 2015, 4% from 2015 to 2020 and 2% thereafter would be required for urban water services to achieve full cost recovery.

The 'public sector funding' includes the government/ donor funding as well as loans taken by government for water sector investments. The table/ graph indicates the funding gap for the 2010-2015 planning period where the level of public funding is known and a funding gap can be estimated. For the remaining part of the planning period, the table/ graph indicates the level of 'public sector funding' that will be required to reach the sector targets.

Depending on the level of tariff increases, the 'User Payment (tariff increases)' part of the funding requirements can be interpreted as the additional public sector funding that would be required if the suggested tariff increases were not implemented.

Figure 7: Scenario 1 – Sector Funding



The estimated 'public sector funding' also includes minor contributions from Local Government Councils for rural water and sanitation activities. The exact amount is not available but is here assumed to be LSL 1.0 million annually. This is likely to increase as the decentralisation takes root and might in the future include all the rural water funding, however for the present estimates, this 'outside water sector' funding is assumed to increase with 5% annually.

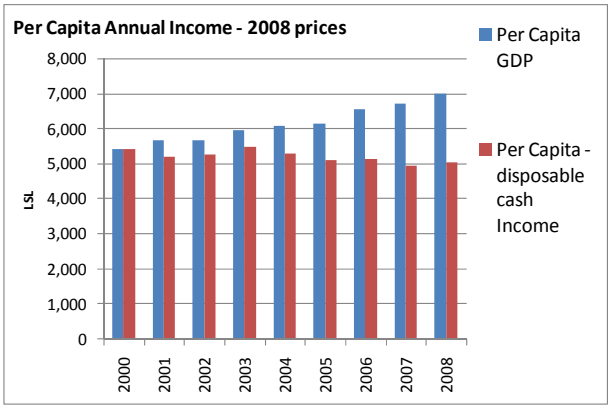
The rural water and sanitation sector also gets some funding from different NGOs that is not 'on-budget' and this has been included as estimated in the DRWS DIS, at approximately LSL 1.0 million annually assumed to be increasing with 2% annually.

The estimates illustrated above show that the present funding is close to estimated funding needs using the SFPM to estimate the requirements to meet the 2015 and 2020 targets. The estimates include repayment of loans and interest on the current loans, however these estimates will need to be improved in future versions of the SFPM with more detailed information on the interest, repayment and grace periods for the various water sector loans.

The assumptions and technical variables used to estimate the expenditures and available funding are described in detail in Report No 5: Strategic Financial Planning Report.

Scenario 1 – Affordability

Figure 8: Per Capita Annual Income 2000 - 2008



The poor households' ability to pay for water supply at different tariff levels have been assessed based on the household income statistics from the BOS and using a threshold of 5%[6] of disposable income as the limit for affordable expenditure for water services.

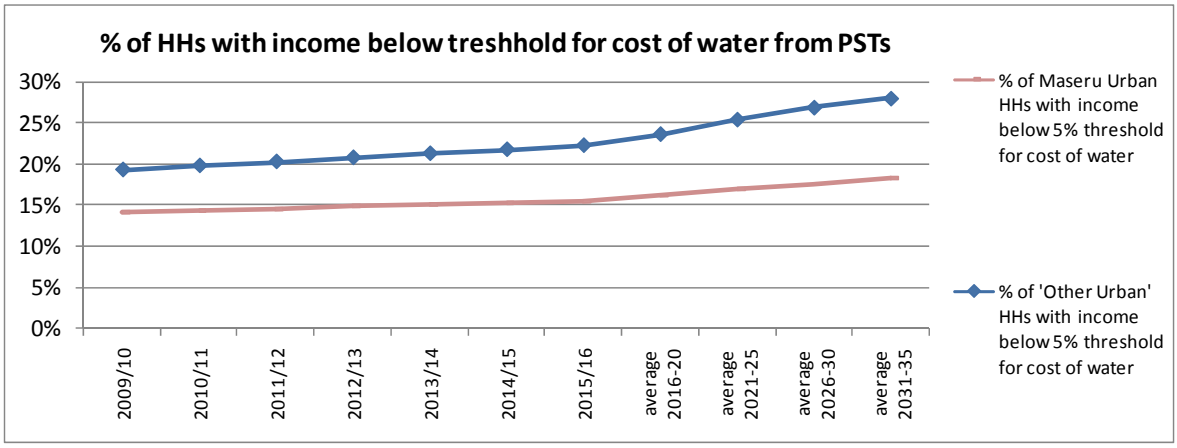
The per capita GDP in Lesotho has been growing with approximately 3% over the last 8 years however the household incomes have been declining as illustrated on the graph mainly due to declining transfers from Basotho working outside Lesotho.

The affordability analysis for scenario 1 is based on GDP growth of 3% and no growth in disposable income in accordance with the present trend. As indicated on the graph below the present cost of water from public standpipes is un-affordable for 19% of the households in urban areas outside Maseru and 14% of the households in Maseru. With the suggested tariff increases to achieve cost

[6] The 5 % threshold has been used by the World Health Organisation and is generally adopted as the basic affordability criterion for water supply and sanitation projects. The 5% threshold is enshrined in the Lesotho water policy to define affordability.

recovery for urban services the public standpipe tariffs become unaffordable for 28% of the urban households outside Maseru and 18% of the Maseru households by 2035.

Figure 9: Scenario 1 – Affordability



2.2.2 Scenario 2: High Growth with Urban and Industrial Focus

The 'High Growth with Urban and Industrial Focus' scenario is intended to show the investment requirements and development in the water services sector should the drive to further industrialise the Lesotho economy succeed. This would imply:

- Higher economic growth at 6% or above
- Total population growing moderately but with higher rates of rural-urban migration due to industrial development in the urban centres. Population growth in urban areas could be as high as 5% and the general decrease of population in the rural areas continuing at higher rates in lowlands at -1%. The rural population in the mountains stabilising at present level.
- The population development is affected by continued high mortality rates due to the HIV/AIDS pandemic but the migration to South Africa reduced due to more job opportunities in the urban areas in Lesotho.
- Prevalence of HIV infections stabilising and possibly reducing but affected negatively by the urbanisation and positively by more adequate resources available for fighting the disease.
- Sustained growth in industries in urban areas, also in the other urban centres presently without industries focussing on the LNDC plans for industrial parks in Botha Bothe, Mohale's Hoek and Teyateyaneng.
- Continued water demand in textile industries with some emphasis on recycling and water demand management. New industries will be less water demanding than the present textile industries.
- Continued inadequate effort in adaptation to climate change and improved natural resource management in rural areas.

Scenario 2 – Financing Needs to reach Targets

The total financing needs for the water and sanitation services under Scenario 2 are presented in Table 11 and Figure 10.

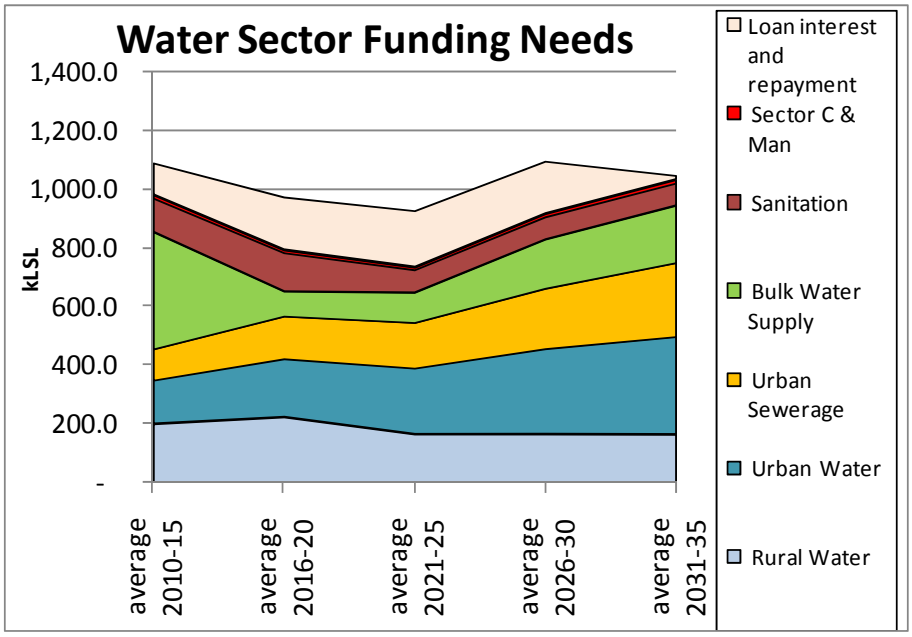
The investments required for bulk water supplies towards the end of the planning period

Table 11: Scenario 2 – Sector Funding Needs

Sector Funding Needs (mLSL) - Scenario 2	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	Total 2010-35
Rural Water	203.9	227.3	168.5	169.1	167.9	**4,887.5**
Urban Water	148.8	197.8	224.9	290.2	332.4	**6,119.1**
Urban Sewerage	106.2	145.0	155.0	205.2	251.2	**4,419.1**
Bulk Water Supply	397.6	84.7	102.5	166.9	194.8	**5,130.1**
Sanitation	117.8	133.6	79.4	79.4	79.4	**2,565.1**
Sector C & Man	11.4	9.2	8.5	10.6	12.0	**270.0**
Loan interest and repayment	105.0	177.0	189.1	175.3	10.4	**3,389.2**
Total	**1,090.7**	**974.6**	**927.8**	**1,096.7**	**1,048.0**	**26,780.1**

are reduced compared to Scenario 1. This is a result of improvements in Water Demand Management (WDM) by industrial and commercial water users as well as substantial improvements in the rates of UfW. The UfW is assumed to be reduced to 20% in Maseru and to 15% in the smaller urban systems.

Figure 10: Scenario 2 – Sector Funding Needs



In scenario 2, annual tariff increases above inflation of 6% until 2015, 3% from 2015 to 2020 and 2% thereafter would be required for urban water services to achieve full cost recovery.

The lower increases compared to scenario 1 are due to assumed improvements in operating efficiencies.

In Scenario 2, the level of government subsidy for rural O&M is assumed to increase to 50% in 2015 due to implementation of the policy of free basic water.

The investments in urban sewerage are based on targets for domestic sewerage coverage in Maseru of 6% in 2015, 10% in 2020 and 25% in 2035. The proportion of industrial effluent entering the sewerage system is expected to increase to 100% in this high growth scenario.

The sewerage treatment costs have been based on the sewage treatment technologies (mechanical/ biological treatment) presently used in Lesotho and the cost of advanced treatment of effluent from industries has not been adequately modelled in the present version of the SFPM.

The government subsidy for rural sanitation is assumed to remain unchanged at 90% until 2015 and thereafter reduce to 50% in 2020 and 25% in 2035. A subsidy, gradually increasing to 25%, for on-site sanitation for the urban poor is assumed to be introduced in order to adopt a consistent sanitation strategy in rural and urban areas. The rationale for the reducing rural subsidy could be that the envisaged economic development will make sanitation more affordable for a larger population group.

Scenario 2 - Available Finance and Funding Gap

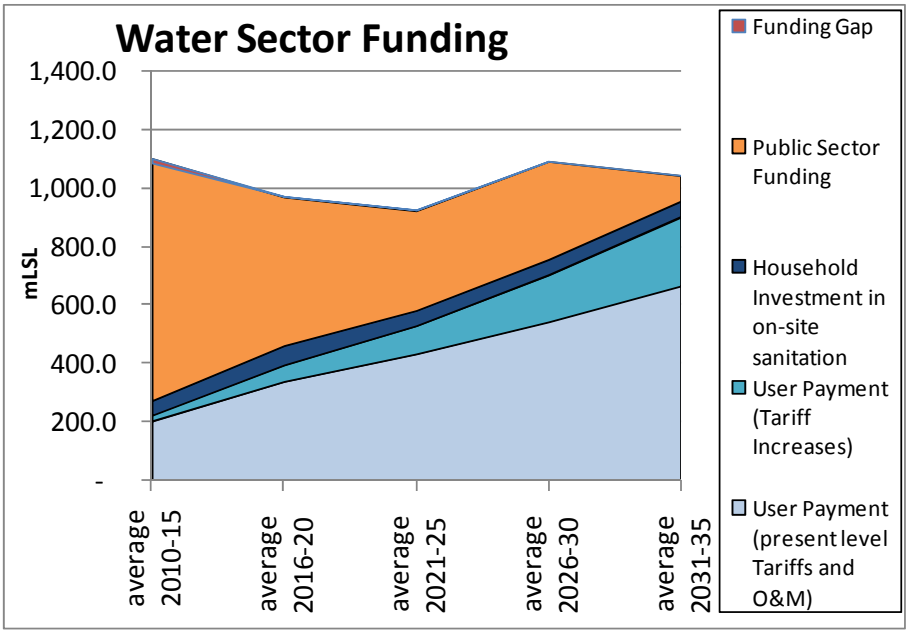
Table 12: Scenario 2 – Sector Funding

Total Sector Funding (mLSL) - Scenario 2	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	**Total 2010-35**
User Payment (present level Tariffs and O&M)	205.5	341.2	435.8	545.9	669.2	**11,193.6**
User Payment (Tariff Increases)	21.3	57.5	97.4	161.4	237.0	**2,893.7**
Household Investment in on-site sanitation	51.7	68.1	53.6	53.8	54.0	**1,457.8**
Public Sector Funding	827.9	507.9	341.1	335.6	87.8	**11,329.3**
Total Sector Funding	**1,106.4**	**974.6**	**927.8**	**1,096.7**	**1,048.0**	**26,874.5**
Sector Financing Needs incl loan repayment	1,090.7	974.6	927.8	1,096.7	1,048.0	**26,780.1**
Funding Gap	**(15.7)**	**-**	**-**	**-**	**-**	**(94.4)**

The available funding in Scenario 2 is shown in Table 12 and in Figure 11.

The estimates show that the present funding level is close to the estimated funding needs. The level of public funding is high in the period until 2020 to reach the coverage targets and thereafter decreasing as the sector becomes more self-financing with increasing user payment for services and improved operating efficiencies.

Figure 11: Scenario 2 – Sector Funding



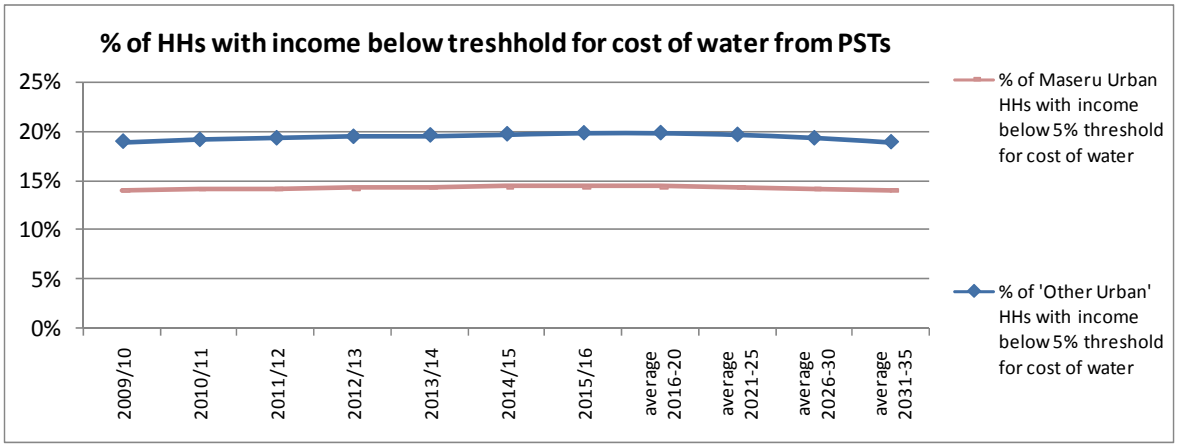
The assumptions and technical variables to reach this scenario are described in detail in Chapter 2.4 of Report No 5.

Scenario 2 – Affordability

The affordability analysis for scenario 2 is based on GDP growth of 6% and 3% growth in disposable household income, assuming that the sustained GDP growth will result in household income growth.

As indicated on Figure 12 below the present cost of water from public standpipes is un-affordable for 19% of the households in urban areas outside Maseru and 14% of the households in Maseru. With the suggested tariff increases to achieve cost recovery for urban services the level of affordability for water from public standpipes remains almost constant during the planning period with the tariffs increases corresponding to the development in household incomes.

Figure 12: Scenario 2 - Affordability



2.2.3 Scenario 3: High Growth with Rural Development Focus

The 'High Growth with Rural Development Focus' scenario is intended to show the investment requirements and development in the water services sector should development be more balanced between the rural and urban areas. This would imply:

- Higher economic growth at 6% or above spurred by improved economic activities in rural areas promoted by programmes targeting agricultural production and small scale processing industries adding value to the agricultural products and creating jobs in both rural and urban areas.
- Total population growing moderately but with reduced rates of rural-urban migration due to better possibilities for economic activities in rural areas. Population growth in urban areas might continue close to the present about 3.5% and the general decrease of population in the rural areas would stop and the population in the lowlands as well as the mountains grow at 1% to 2%.

- The population development is affected by reduced mortality rates due to the HIV/AIDS pandemic and reduction of migration to South Africa due to more job opportunities in the general in Lesotho
- Prevalence of HIV infections reducing, affected positively by the reduced urbanisation and more adequate resources available for fighting the disease.
- Moderate growth in industries in all urban centres and growth in demand for water for productive purposes in rural areas.
- Improved water demand management in the existing textile industries. New industries could be water demanding since the processing of agricultural produce is likely to be more water demanding than the present growth in manufacturing of e.g. electrical products

Scenario 3 is describing development in Lesotho based on utilisation of natural resources in the rural areas. Sustained effort in adaptation to climate change and large investments in management of water resources and catchment management are likely to be required to provide the basis for the improved economic activities and improved livelihood in rural areas. At the same time it would be expected that there will be a need for increased investments in water for productive uses such as irrigation.

The present version of the SFPM focuses on the water services provided by WASA and DRWS and does not adequately cover the investments in water for productive purposes in rural areas such as small dams and water for irrigation and livestock. Increasing the scope of the SFPM to cover the full IWRM scope would eventually cover all the investments that would be required under scenario 3 to improve the availability of water in rural areas and the catchment management activities that would be needed.

Scenario 3 – Financing Needs to reach Targets

The total financing needs for the water and sanitation services under Scenario 3 are presented in Table 13 and Figure 13 below.

Table 13: Scenario 3 – Sector Funding Needs

Sector Funding Needs (mLSL) - Scenario 3	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	**Total 2010-35**
Rural Water	241.3	308.2	241.0	257.6	264.9	**6,805.7**
Urban Water	147.2	194.4	212.7	269.2	303.8	**5,784.1**
Urban Sewerage	109.2	153.1	163.3	215.1	253.0	**4,578.2**
Bulk Water Supply	399.4	70.9	117.3	171.6	205.2	**5,220.8**
Sanitation	138.0	142.8	73.7	73.7	73.7	**2,648.1**
Sector C & Man	11.2	9.4	8.8	10.7	12.0	**272.1**
Loan interest and repayment	105.0	177.0	189.1	175.3	10.4	**3,389.2**
Total	**1,151.4**	**1,055.8**	**1,005.8**	**1,173.3**	**1,123.1**	**28,698.2**

The sector financing needs are dominated by the investments in bulk water supplies initially the ongoing Metolong project and the transmission to Zone 4&5 in the period from 2010 to 2015. Towards the end of the planning period expansion of the capacity in bulk water supplies in all the zones is required.

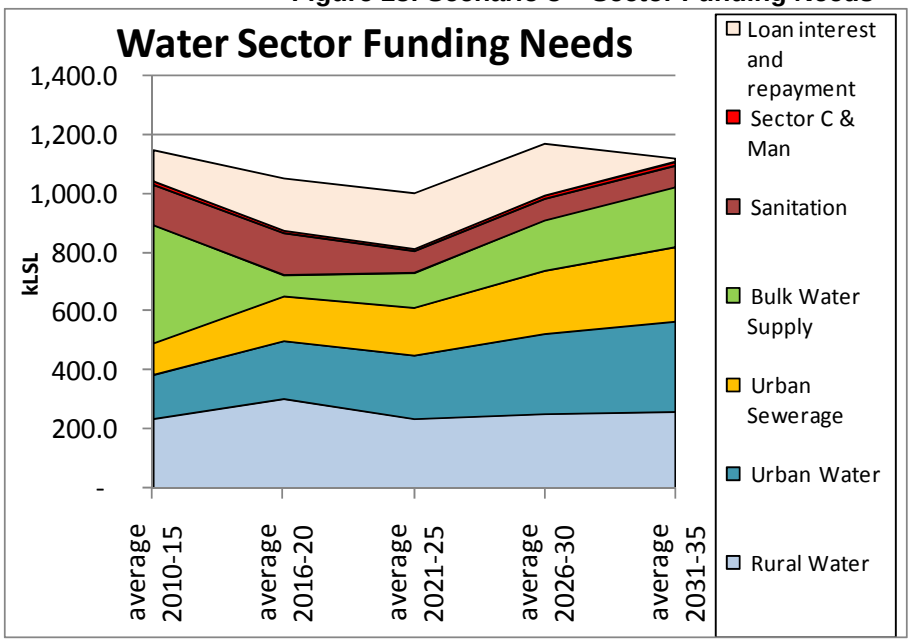
The investmetns in rural water are higher in Scenario 3 than in the other scenarios due to the envisaged population growth in rural areas.

The urban water sector investments are at a level similar to Scenario 2. Although Scenario 3 focusses on rural development it is anticipated that the activities in rural areas result in growth in all the urban areas, where in Scenario 2, the urban growth was focused in the towns with industrial development.

In scenario 3, annual tariff increases above inflation of 6% until 2015, 3% from 2015 to 2020 and 2% thereafter would be required for urban water services to achieve full cost recovery.

Figure 13: Scenario 3 – Sector Funding Needs

In Scenario 3, the level of government subsidy for rural O&M is assumed to increase to 50% in 2015 due to implementation of the policy of free basic water. Thereafter the subsidy is assumed to decrease to 20% due to the envisaged economic development in rural areas making water more affordable.



Scenario 3 – Available Finance and Funding Gap

Estimates of the available funding for water services are shown on Table 14 and Figure 14 below.

Table 14: Scenario 3 – Sector Funding

The estimates show that the present funding is close to estimated funding needs and that substantial additional funding is needed in the period until 2020 to reach the targets of full coverage.

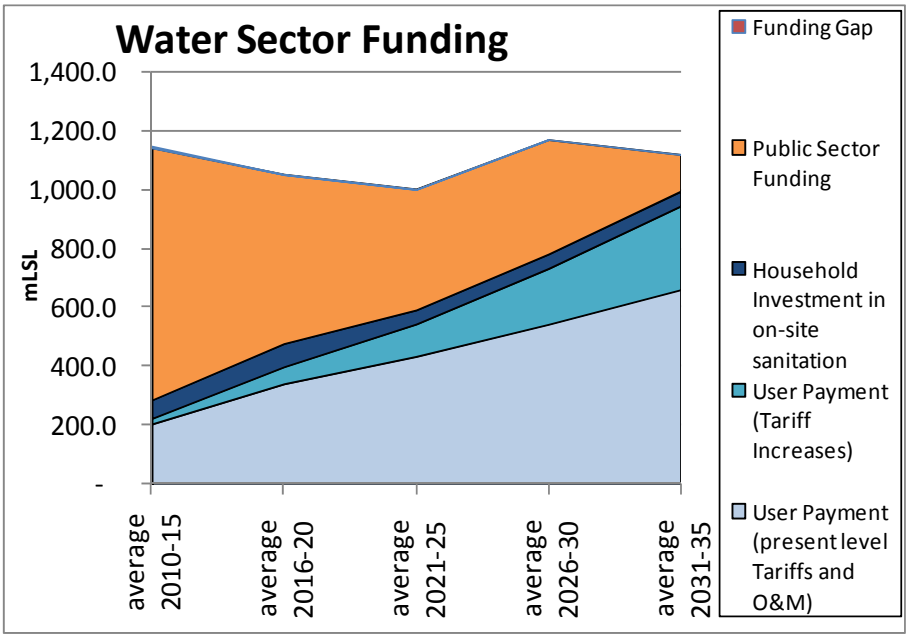
Total Sector Funding (mLSL) - Scenario 3	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	**Total 2010-35**
User Payment (present level Tariffs and O&M)	206.2	343.0	436.3	545.9	663.5	**11,180.1**
User Payment (Tariff Increases)	20.2	59.0	111.0	190.2	285.1	**3,347.7**
Household Investment in on-site sanitation	63.6	79.6	48.1	49.0	49.9	**1,514.9**
Public Sector Funding	855.4	574.2	410.4	388.2	124.6	**12,619.8**
Total Sector Funding	**1,145.5**	**1,055.8**	**1,005.8**	**1,173.3**	**1,123.1**	**28,662.5**
Sector Financing Needs incl loan repayment	1,151.4	1,055.8	1,005.8	1,173.3	1,123.1	**28,698.2**
Funding Gap	**5.9**	**-**	**-**	**-**	**-**	**35.6**

Figure 14: Scenario 3 – Sector Funding

This is mainly due to the increased investment needs in rural water in this scenario.

The substantial investments foreseen in capacity expansion of bulk water supplies towards the end of the planning period will be partly covered by the increasing cost recovery in the urban water and sewerage sector.

This is different from the investments in the Metolong project in



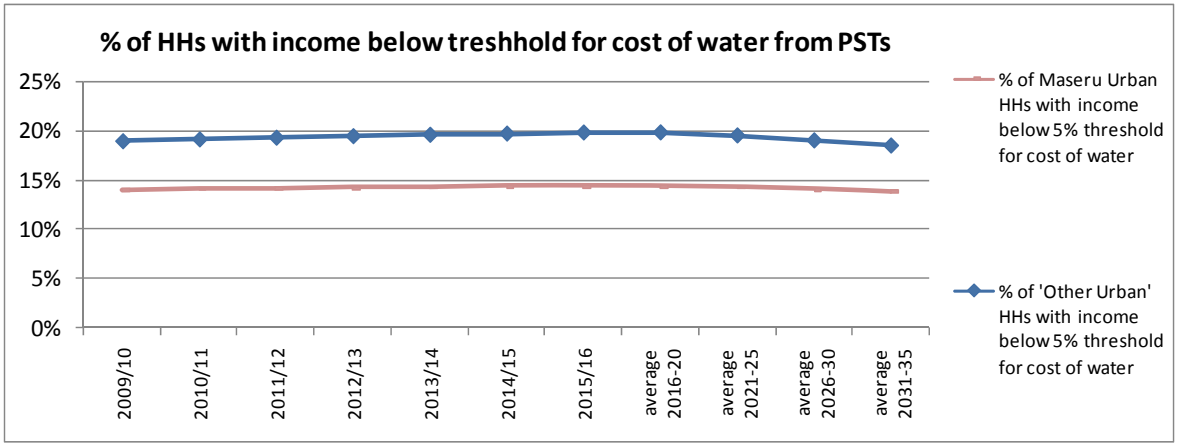
the beginning of the planning period that is totally financed by public funding and loans.

The assumptions and technical variables to reach this scenario are described in detail in Report No 5, Chapter 2.5.

Scenario 3 – Affordability

The affordability analysis for scenario 3 is also based on GDP growth of 6% and 3% growth in disposable household income. With the income growth and the suggested tariff increases to achieve cost recovery for urban services the affordability levels remain almost unchanged during the planning period.

Figure 15: Scenario 3 - Affordability



2.2.4 Scenario 4: Low Growth

The 'Low Growth' scenario is intended to show the investment requirements and development in the water services sector should the unfortunate situation arise where the Lesotho economy for various reasons does not achieve the desired economic development targets to reduce poverty. This could occur for internal reasons such as political instability or for external reasons such as pronounced impact on the world economy of climate change; continued or prolonged economic recession, reduced stability and development in the Southern African region, increased impact of the HIV/AIDS pandemic etc. This scenario would imply:

- No economic growth
- No population growth due to continued high mortality rates due to the HIV/AIDS pandemic and high levels of migration to South Africa due to less job opportunities in the general in Lesotho. Continued rural-urban migration due to less job opportunities in rural areas
- Prevalence of HIV/AIDS affected negatively by urbanisation and inadequate resources available for fighting the disease.
- Stagnation in industrial growth
- Resources not available for a sustained effort in adaptation to climate change and improvements in management of water resources and catchment management

Scenario 4 – Total Sector Financing Needs

Table 15: Scenario 4 – Sector Funding Needs

Sector Funding Needs (mLSL) - Scenario 4	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	Total 2010-35
Rural Water	187.4	201.6	144.8	149.5	152.0	**4,364.1**
Urban Water	118.3	150.1	142.5	146.9	164.3	**3,729.2**
Urban Sewerage	55.2	46.2	51.0	60.7	80.3	**1,522.2**
Bulk Water Supply	386.3	62.6	89.9	128.7	137.8	**4,412.4**
Sanitation	89.3	81.9	20.6	20.6	20.6	**1,254.9**
Sector C & Man	10.7	6.9	5.7	6.5	7.1	**195.5**
Loan interest and repayment	105.0	177.0	189.1	175.3	10.4	**3,389.2**
Total	**952.2**	**726.4**	**643.6**	**688.2**	**572.6**	**18,867.4**

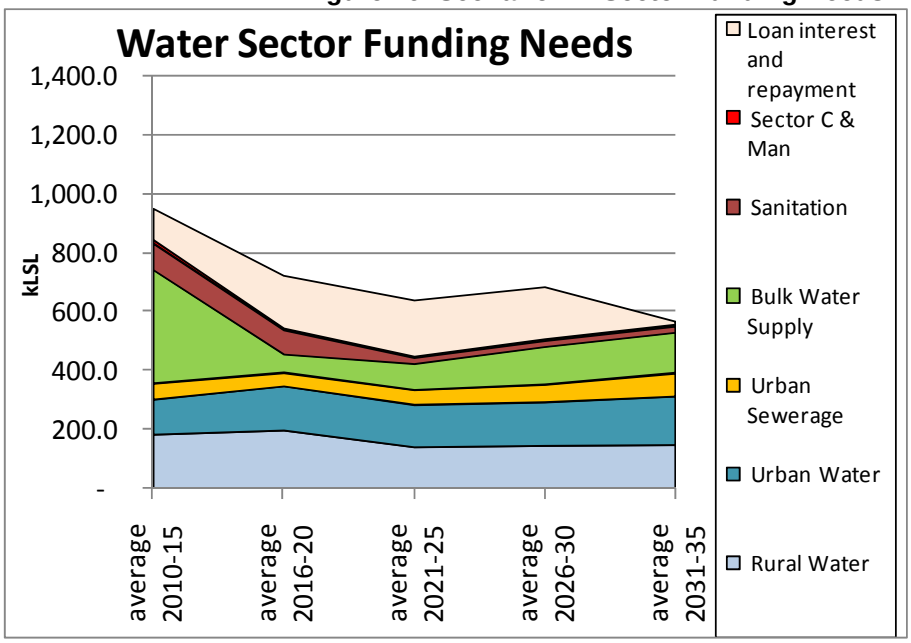
The total financing needs for the water and sanitation services under Scenario 4 are presented on Table 15 and Figure 16.

The sector financing needs are considerably lower than in the other

scenarios due to the lesser demand for water services.

The investments are still dominated by the investments in bulk water supplies in Zone 4&5 in 2010 to 2015. The investments in the Metolong project have been considered as a fait-accompli in the SFPM since the project is already in an advanced stage preparing for implementation. Other investments in water system capacity have been determined according to the demand for water services.

Figure 16: Scenario 4 – Sector Funding Needs



In scenario 4, annual tariff increases above inflation of 4% until 2015, 2% from 2015 to 2020 and 1% thereafter would be required for urban water services to achieve full cost recovery.

The lower tariff increases compared to the high growth scenarios are due to the reduced need for investments in new infrastructure.

The government subsidy for rural O&M is assumed to continue at the present level.

The investments in urban sewerage are based on the same targets for domestic sewerage coverage in Maseru of 6% in 2015, 10% in 2020 and 25% in 2035. The proportion of industrial effluent entering the sewerage system is expected only to increase to 50% in this low growth scenario.

The government subsidy for rural sanitation is assumed to decrease to 25% in 2015 and thereafter reduce to 0% as public finance will be scarce.

Scenario 4 - Available Finance and Funding Gap

Estimates of the available funding for water services are shown on Table 16 and Figure 17 below.

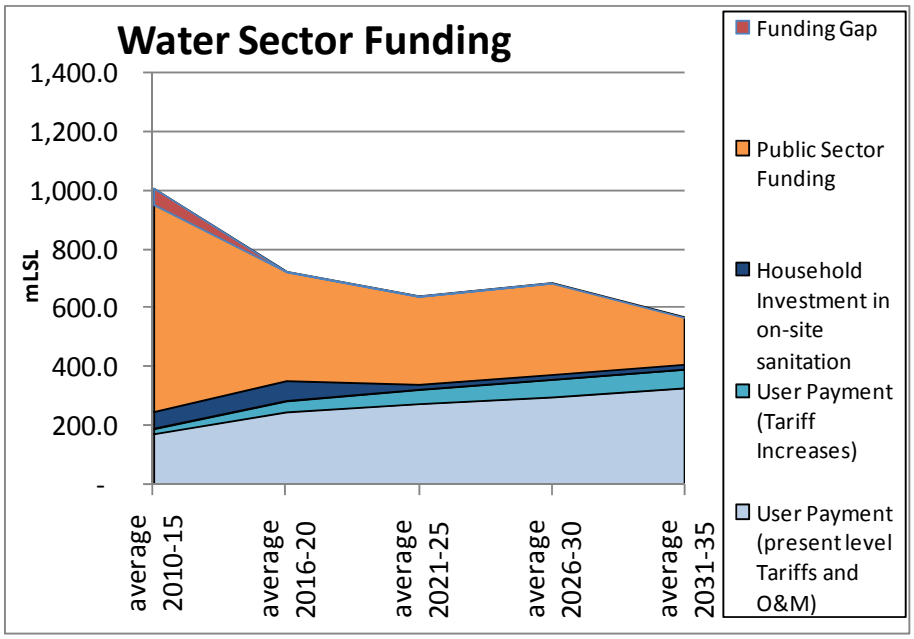
Table 16: Scenario 4 – Sector Funding

Total Sector Funding (mLSL) - Scenario 4	average 2010-15	average 2016-20	average 2021-25	average 2026-30	average 2031-35	**Total 2010-35**
User Payment (present level Tariffs and O&M)	177.2	250.2	277.7	300.0	330.6	**6,855.6**
User Payment (Tariff Increases)	16.7	36.9	47.5	58.7	62.6	**1,128.3**
Household Investment in on-site sanitation	58.1	69.3	18.7	18.7	18.7	**976.1**
Public Sector Funding	755.2	370.0	299.7	310.8	160.7	**10,237.6**
Total Sector Funding	**1,007.2**	**726.4**	**643.6**	**688.2**	**572.6**	**19,197.5**
Sector Financing Needs incl loan repayment	952.2	726.4	643.6	688.2	572.6	**18,867.4**
Funding Gap	**(55.0)**	**-**	**-**	**-**	**-**	**(330.1)**

The estimates indicate that the present level of government and donor funding for water services can be reduced while still achieving the coverage targets due to the lower demand and reduced investment needs.

The assumptions and technical variables to reach this scenario are described in detail in Report No 5, Chapter 2.6.

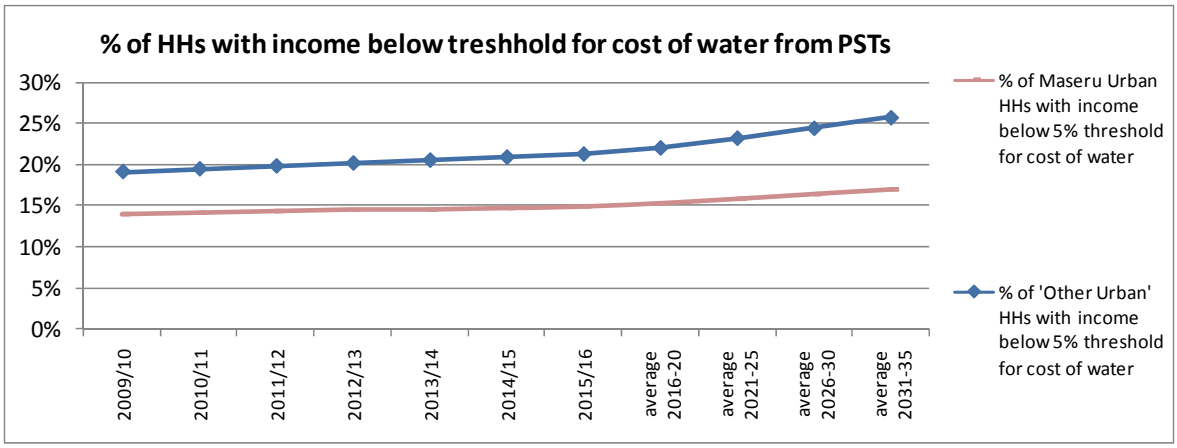
Figure 17: Scenario 4 – Sector Funding



Scenario 4 – Affordability

The affordability analysis for the low growth scenario 4 is based on GDP growth of 0% and declining disposable household income of 1% annually. This income scenario and the suggested tariff increases to achieve cost recovery for urban services, will have the effect that the public standpipe tariffs become unaffordable for 26% (up from 19% in 2009) of the households in urban areas outside Maseru and for 17% (up from 14% in 2009) of the Maseru households by 2035.

Figure 18: Scenario 4 - Affordability



2.3 Financing Gap and possible Policy Measures to Bridge the Gap

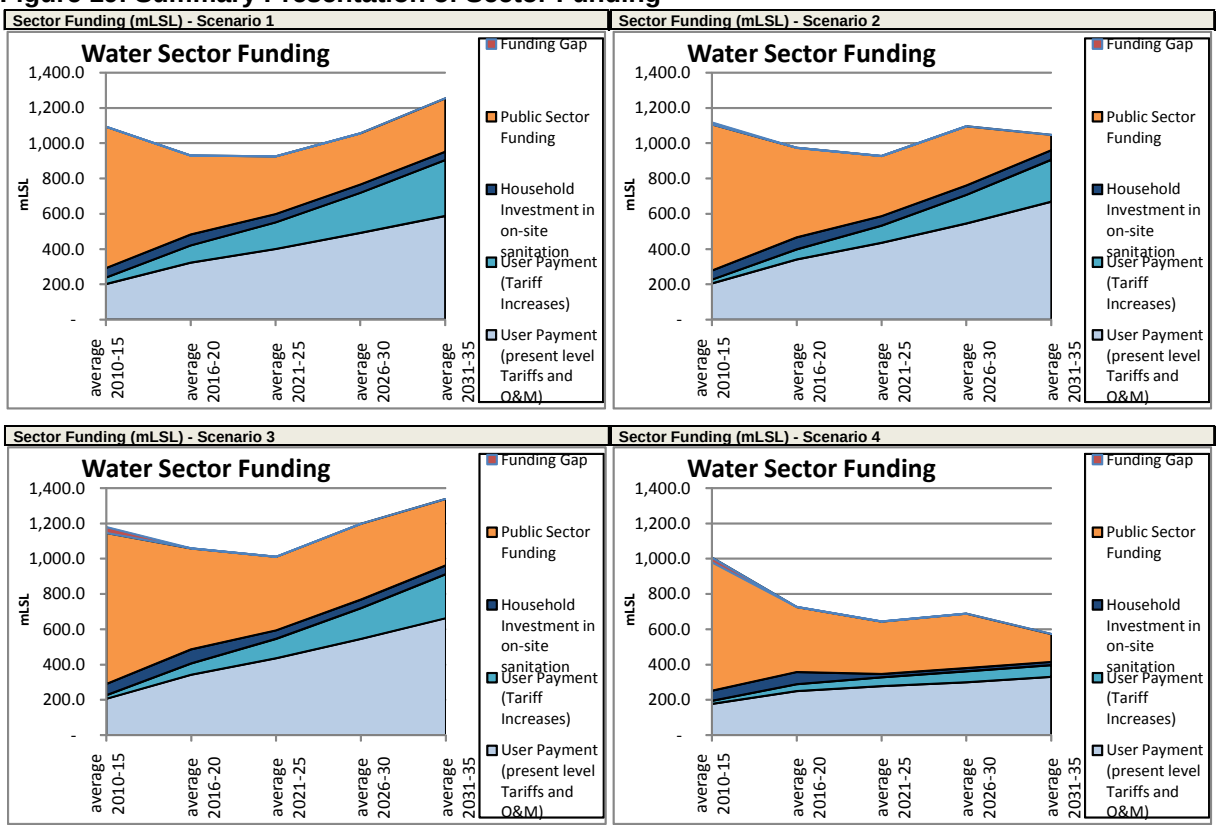
The present high level of government/ donor and loan funding to water services in Lesotho is unlikely to be sustained as the funding is due to specific projects such as the Metolong dam and substantial grant funding through the Millennium Challenge Corporation.

The estimates for the respective scenarios indicate that a high level of public funding is required to reach the 2020 targets of full coverage. After 2020 substantial public funding is still required for the rural water and sanitation sub-sector. The affordability analysis is showing that water services are unaffordable for at least 20% of the households in urban areas and subsidies would be needed to address this until income levels rises substantially.

These subsidies could be provided through i) taxes: subsidy through public funding to WASA or ii) tariffs: cross-subsidies for the poorer households from commercial/ industrial and well-off domestic water users. The water policy specifically mentions cross subsidies as the strategy for making water affordable for households that cannot afford the lowest level of service.

The urban water and sewerage services are expected to be achieving cost recovery towards the end of the planning period and this result in reduced need for government funding after 2020 for all the scenarios. The summary estimates presented in Figure 19 for user payments are divided in i) the user payment according to the present level of tariffs and subsidies to rural O&M and ii) the user payments arising from the suggested tariff increases needed to achieve full cost recovery in urban areas. Should these tariff increases not materialise, then the amounts shown under ii) are an indication of the public subsidies that the urban sector would require.

Figure 19: Summary Presentation of Sector Funding



The measures that will affect the public funding to the water services sector can be summarised as:

- **Urban water tariffs and 'free basic water':** The increase that is needed in the WASA tariffs to provide full cost recovery for urban water services is substantial and this will have an impact on affordability for the poor. Developing and implementing a strategy for implementing the Water Policy's aim of free basic water for the vulnerable households is

therefore important to accommodate the tariff increases that are needed to achieve cost recovery. Failing to do this will likely result in the tariff increases being unacceptable for the public – or that the urban coverage targets will not be achieved since the poor households will not connect and will find alternative unsafe water sources.

- **Urban water operating efficiencies:** The improvements in operating efficiencies of the urban water services by investing more aggressively in replacement of old pumps, reducing the UfW and use of efficiency measures such as pre-paid metering as envisaged in scenario 2 and 3 are important to achieve cost effective urban services in the longer term. This would need to be accommodated by network mapping and customer data base improvements to ensure that the administrative UfW water is kept to a minimum. As shown above, the improvements in operating efficiencies in Scenario 2 and 3 reduce the need for tariff increases as compared to Scenario 1.
- **Bulk water supplies:** the implementation of the Metolong project is a major investment for the water sector and capacity of 75,000m^3/day is likely to sustain the supply area beyond the planning period until 2035. The demand assessments that formed the basis for the lowlands design have changed with the new population census figures and the changing prospects for industrial demand. It might be prudent to reassess the designs and the zoning based on the new demand forecasts taking into account the continued operation of some of the existing production plants and borehole sources. This might reduce the foreseen immediate bulk water investments and make it possible to target the investments effectively.
- **Rural Water implementation costs:** per capita costs for implementation of rural water systems have increased over the last 10 years for various reasons. The easy villages have been covered with gravity systems and hand pumps and the investments are now predominantly in small systems for the inaccessible villages and in the more expensive pumping systems that are replacing the hand pumps in the larger communities in the lowlands. Grouping the investment projects in inaccessible areas could reduce the implementation costs and the experiences from implementation of projects by NGOs in specific mountain areas by the CHAL hospitals in Mantsunyane and Tebellong could be considered as options to reduce the cost of providing water to the inaccessible villages. Good coordination with the planning in urban areas and the lowlands bulk water systems would be required to avoid investment in production capacity in rural water systems that would later be served by the larger pipe systems. The SFPM estimates takes into account that there are no investments in production capacity in the villages where the lowlands projects are implemented and to achieve this in practice will require good planning and coordination procedures.
- **Rural Water O&M:** the operation of the rural water systems have in the past been affected by lack of legal status of the village water committees and lack of consistency in the government's approach to the responsibility for paying for maintenance. The new water policy and the decentralisation provides an opportunity to improve this and a consensus in the sector on the responsibilities of local governments versus DRWS for support to O&M combined with capacity building of the local councils and the village water committees could improve the functionality of the rural water systems and eventually reduce the investments in replacement of systems. In connection with this, a clear strategy would be needed for the implementation of the water policy's aim of 'free basic water' for the vulnerable households.
- **Sewerage and Cleaner Technologies**: the treatment of industrial effluent needs attention as only 10% of the water supplied to industries enters the sewerage systems. The composition of the industrial effluent makes it ineffective to include together with household waste water with the present treatment technologies and a strategy for how the industries treat and/ or pre-treat the effluent is needed to reduce the public investments in sewerage systems. The conditions for industries are sensitive issues politically that needs to be balanced with the aim of attracting investments. Investment in cleaner technologies might reduce the sewerage treatment investment and O&M costs. Introduction of other on-site technologies than VIPs e.g. Eco-San or pour-flush toilets could be considered to provide a high level of service to households without investing in expensive sewerage systems.

- **On-site sanitation:** The level of funding for on-site sanitation needs attention. The scenarios are presenting the investment requirements for continuing or reducing the government subsidy for rural sanitation. While recognising that the investment in sanitation is a preventive measure that will result in better health and reduced health sector costs, the present subsidy of 90% in rural areas is high. A good sanitation strategy with a mix of social marketing, hygiene education and different low cost technology options could possibly reduce the government's investment requirements and still achieve the desired goals for sanitation coverage and health and economic benefits. The experiences from the on-site sanitation activities in the Maseru Waste Water Project could guide the strategy development for urban areas.
- **Private investments:** The prospects for private investments in the water sector in Lesotho beyond the investments in self-supply (that to some degree is overlapping with the public water supplies) could be considered. Areas of relevance could be for productive uses in areas outside the areas supplied by the bulk water schemes. Investment in industrial sewerage treatment is another area where private public partnerships could be appropriate for the sector. Presently the scope does not seem very significant compared to the overall sector funding requirements and the government led investments are likely to dominate the sector until 2035.
- **Increased funding:** The funding requirements for achieving the ambitious target of full coverage by 2020 could naturally be closed by lowering the target – or increase the government and donor grant funding to the sector. Loan funding could be considered for the part of the funding that is for the urban water and sewerage and the bulk water supplies where there are prospects of cost recovery. The SFPM would need to be improved to identify the funding per sub-sector to provide better analysis of this. The government predicts considerable increases in the GDP and this should make more funding available from the government revenues to water sector improvements. On the other hand, presently the water services are allocated close to 20% of the government's capital budget and this is probably more that what can be expected in the longer term.

Annex A contains a comparison of the parts of the sector investments that are possible in the FEASIBLE with the analysis in the SFPM.

3 DEVELOPMENT OPTIONS

3.1 Development Options

Within the four development scenarios there can be specific development options to be considered to improve the water services and/or the financing of the sector. The analysis and discussions in the TWG has identified some measures that could improve the sector performance and increase the likelihood of achieving targets. Some of these are:

Urban water:

- Comprehensive programme on calibration and replacement of old water meters
- Specific programme on zoning and metering supply areas to identify and reduce UfW[7]
- Improved customer registration by e.g. GIS mapping of connections and collection of information on the use of water to reduce illegal connections and improve the data foundation for planning
- Improved management of groundwater sources – especially important with the substantial new investments in borehole sources in Maputsoe, Teyateyaneng and Roma
- Increased connection rates by e.g. making it less expensive or free to connect and collect the cost of connections over the tariff (the prepaid cell-phone model). Connections in urban areas: the substantial investments in primary reticulation systems (through the Peri-urban projects in Maseru and the 3-towns projects in Maputsoe, TY and Roma together with the planned renovation and extension of the networks in many of the remaining towns through the MCC funding) have made it possible to significantly increase the coverage with small investments in the tertiary networks and water connections. One of the bottlenecks seems to be the connection fees and it could be considered to subsidise the connections in order to ensure that people are served and that the investments in the reticulation systems are profitable. This should also be considered in light of the free basic water policy since only providing free water to persons that have access to water supplies would be very ineffective in reaching the poor when approximately 50% of the urban population still do not have access to water services

Rural Water and Sanitation:

- Investment in long-term planning of regional water schemes in the foothills including systematic monitoring of possible water sources
- Subsidising rainwater harvesting as supplements to community water supplies to provide higher level of service or compensate for inadequate water sources
- Improved planning and coordination with Local Authorities and development of a common financing mechanism for supporting rural water and sanitation
- More emphasis on developing capacity in Local Authorities and community structures for management, operation and maintenance to reduce the non-functioning supplies
- Options for on-site sanitation technologies other than the VIP latrines

Lowlands Bulk Water Supplies:

- Models for supply to rural communities – supply into existing reservoirs using the existing distribution systems and community management of the payment for water or development of separate distribution networks for private connections
- Use of highland water resources for the lowlands when the water sources for the present schemes are inadequate.

[7] There are various sources of finance that could be explored by WASA for these e.g. commercial finance supported by the WDM initiative administered by the Development Bank of Southern Africa or WSP-AF in Nairobi, the African Water Facility, the EU Water Facility etc.

Free Basic Water

In addition, there are options to be considered for how to implement the policy principle of free basic water for households that cannot afford. Some of the issues to consider include:

- In the WASA supply areas, vulnerable households could be provided with a pre-paid or post metered connection (paid by Government or through cross-subsidy for high-consuming customers) and receive a free allocation each month
- It does not make an impact to provide free basic water for the households that are already connected and receive water at a subsidised rate of the households that do not have a connection have to pay far more for a lower standard of service – e.g. by buying from neighbours
- In community managed rural water systems the Local Authorities could provide contributions to O&M costs for the vulnerable households
- Clarification is needed on how the vulnerable households are identified

Water Services Planning:

The planning between WASA, DRWS and the implementation of the lowlands bulk water systems needs to be improved to avoid the present situation with overlapping systems. The possibility of establishing the capacity for overall water services planning in the COW's office, possibly in a strengthened PPSU or Lowlands Unit or a combination of the two could be considered. The SFPM would be one of the tools that could be further developed together with a GIS system to improve the planning capacities.

3.2 Priority Projects

Based on the long list of possible improvements in the water sector, the TWG has identified the following two priority projects to be considered:

1. **Connections in urban areas:** Action for improving WASA metering and connection rates that could include calibration/ replacement of meters; strategy on pre-paid meters; connection fees and tariffs and improving the customer data base and network mapping.

2. **Free Basic Water:** develop a strategy for how to implement the free basic water policy principle in rural and urban areas including developing methodology for how to identify the vulnerable households

Brief project descriptions for these two actions are included in Annex C.

3.3 Conclusions

The development of the planning tools have been valued in the water sector since it has for the first time combined the data from WASA, DRWS and the lowlands projects in a consistent format and developed the methodology and procedures for providing good baseline data for water and sanitation coverage.

The considerations for the financing of the water sector as described in the four scenarios and the development options are used by the water sector and will form an important input into the ongoing formulation of the interim strategy for water services. The COW's office will continue to use the planning tools for determining the coverage estimates and for guiding the annual preparation of Budget Framework Papers for soliciting funding for the sector as well as in high level discussions on tariff increases and subsidies to the water and sanitation sector.

The analysis using the planning tools has indicated that:

1. **Funding:** The present level of funding for water and sanitation services is unusually high due to the Metolong Project and the substantial grant funding from the Millennium Challenge Corporation. Concerted efforts by the water sector are needed to maintain this level of funding in order to reach the MDGs and the targets of full coverage by 2020.
2. **Cost recovery in urban systems:** Achieving full cost recovery for urban services is possible provided substantial tariff increases are implemented accompanied by social safeguards as provided for in the Water Policy for free basic water for vulnerable households. This is needed to make the tariff increases acceptable for the majority of the urban poor. The tariff increases can be reduced by substantial improvements in WASA's operating efficiencies including reduction of un-accounted for water.
3. **Access to urban water:** Action is needed on improving the access to water in urban areas by i) improving access to public standpipes (not in line with the trend implemented by WASA of reducing the public standpipes) or ii) improving the affordability of domestic connections for poor households.
4. **Functionality of Rural Water**: functionality rates for rural water systems needs to be improved to increase the effectiveness of investments in the rural water sector. The recent revision of the legal framework in the water sector combined with the establishment of local government authorities in rural areas provide an opportunity for the sector to develop effective strategies in cooperation with the local governments for the rural water sector.
5. **Planning of bulk water systems:** The demand forecasts for the lowlands bulk water systems need to be updated based on the revised population data from the 2006 census and changes in the industrial water demand as well as the recently completed and ongoing capacity expansions in the urban water systems to be served by the bulk water systems. These changes might warrant a review of the service areas and priorities for the bulk water systems
6. **On-site sanitation:** full scale implementation of the present rural sanitation strategy of providing 90% subsidy for on-site sanitation facilities is costly and the sector would benefit from development of effective strategies for both rural and urban areas for how to increase the sanitation coverage. Due to the income levels in rural areas, a substantial level of subsidy is likely to be needed to reach the sanitation targets.
7. **Sewerage:** the existing sewerage systems serve mainly commercial and industrial users and domestic coverage is very low at less than 2%. At the same time only a fraction of the industrial effluent is treated and combined public-private efforts are needed to improve the situation and reduce the environmental impact of discharging untreated sewage. The treatment of industrial effluent needs special attention including promotion of cleaner production technologies and water demand management. The presently used sewage treatment technologies cannot handle the industrial effluent.
8. **Water service planning:** the demarcation of WASA and rural water supply service areas revealed that improvements are needed in the coordination of planning in the sector, especially in light of the implementation of the bulk water systems that will serve both rural and urban areas. The office of the Commissioner of Water need to develop capacity to under-

take the national water services planning and coordinate between rural, urban and bulk water planning and implementation.

The possible steps for improving the SFPM that have been identified include:

- Update water and sanitation baseline coverage estimates when the analysis of the 2006 population census data on access to water and sanitation has been completed in April 2010;
- Provide funding estimates per sub-sector to better analyse the urban and bulk water loan funding and repayment and thereby improve the cost recovery module in the SFPM. The ongoing improvements in the government MTEF budgeting framework together with the improvements in the water sector performance assessment framework would be expected to provide consistent financial data on available funding and loans that will make the SFPM estimates more accurate and relevant for the sector planning;
- Improve the sewerage and sanitation modules when better information becomes available after completion of the sanitation master planning for the urban areas. The improvements would include better estimates for the future treatment costs including the industrial waste water and implementation of regulations for effluent standards. Estimates for operation, maintenance and replacement costs for on-site sanitation can also be included when better information is available on technology options etc.
- Increasing the scope of the SFPM to include other water sector aspects such as water resources management and irrigation consistent with the IWRM strategies for the sector.

4 CAPACITY DEVELOPMENT

4.1 Institutional Responsibilities

4.1.1 Water Services

The main institutional responsibilities for water and sanitation services in Lesotho are:

- Water and Sewerage Authority (WASA) responsible for water supply and sewerage services including services for emptying of septic tanks and pit latrines in the gazetted urban areas. Through projects e.g. Maseru Sanitation also involved in supporting the implementation of on-site sanitation facilities such as VIP Latrines. WASA is present in all the districts of Lesotho as shown on **Error! Reference source not found.**
- Department of Rural Water Supply (DRWS) is responsible for overseeing water and sanitation services in rural areas that are provided through community managed water schemes and support to on-site sanitation. An ongoing decentralisation process will lead to District Councils and Community Councils being responsible for supporting the communities and implementing new water and sanitation facilities. The location of the DRWS district offices is shown on **Error! Reference source not found.**;
- Lesotho Lowlands Water Supply Unit (LLWSU) for bulk supply of water to the densely populated areas in the lowlands of Lesotho has been designed and the implementation of the Zone 4 and 5 is ongoing covering Metolong dam, water treatment and transmission to Maseru and nearby centres. The Metolong Authority has been established to oversee the implementation;
- The Lesotho Highlands Development Authority (LHDA) is responsible for the operation and further development of bulk water transfer schemes from the highlands of Lesotho to the Republic of South Africa. The role of LHDA in water services in Lesotho is limited to implementation of rural water and sanitation projects in the catchment areas for the bulk water reservoirs and release of water to lowland rivers in periods of drought to alleviate water shortages in the urban water systems in particular Maseru.
- The Rural Sanitation Programme and the Health Education Unit under the Public Health in the Ministry of Health and Social Welfare has an important role in supporting hygiene education and promotion of sanitation in urban and rural areas.
- The roles of the local authorities in water services are evolving since the decentralisation process has only been ongoing for 5 years. The local authorities are likely to play a major role in the planning, implementation and management of the rural water systems while it is likely that the management of urban water services will remain in the hands of the water utility.

The Institutional, Financial and Economic Analysis as part of the final design of the LLWSP for the long-term ownership, operation and maintenance of assets developed under the LLWSP recommend the creation of an Asset Management Agency. The Assets Management Agency would be responsible for ownership of the infrastructure and oversight of management and maintenance, as well as for future financing for large water supply infrastructure. The study recommends that WASA assume responsibility for operation and maintenance of bulk water supply infrastructure.

Planning and coordination in the water sector takes place through quarterly coordination meetings chaired by the Permanent Secretary of MNR with the sector stakeholders and donors. A process for gradually arriving at a sector wide approach to planning is ongoing and a Sector Programme is being prepared by the COW's office to facilitate the process and prepare for budget support for the water sector, initially by the EU. The major donors to the sector include:

- EU (Lowlands design, Maseru sewerage, 3-towns water and sanitation, planning for sector programme support);
- WB (supporting the policy process and WASA through the Water Sector Improvement Project and planning to support part of Metolong project);

- Irish Aid (capacity building in the sector and over 20 years support to rural water and sanitation);
- BADEA (Maseru reticulation);
- MCC (rural water and sanitation; WASA and part of Metolong project).

4.1.2 Overall Sector Planning

Strategic planning for water services depends on reliable information on existing services and tools for predicting the future demands for water services. Planning will therefore always need to be integrated with and will depend on Monitoring and Evaluation (M&E) activities. Within the overall responsibilities for water services as outlined above, the overall planning and M&E responsibilities can be described as:

Rural water and sanitation services:

Bottom-up planning process from the Community Councils (CCs) to the District Planning Units, which includes the District Engineer responsible for rural water. The district plans, together with data on the existing infrastructure and its functioning, are captured village by village in the District Information System and eventually aggregated at national level by the DRWS.

Urban water and sewerage:

The water utility WASA provides data on the existing infrastructure and plans for its expansion in cooperation with the local government structures in the respective towns

Overall water services and bulk water supplies:

The office of the Commissioner of Water (COW) with the Lesotho Lowlands Water Supply Unit (LLWSU), the Policy Planning and Strategy Unit (PPSU) and the newly established Monitoring Unit is responsible for overall planning for water services in the country in cooperation with WASA and DRWS.

The national level responsibilities and institutional anchorage for the planning tools can therefore be summarized as:

- MNR, Planning Unit: coordinate overall planning and budgeting for the water services between the sector institutions in particular the PPSU and the Ministry of Finance;
- COW's Office PPSU: use of the strategic planning tools to provide input into the MTEF budgeting process in close cooperation with planners in DRWS and WASA and depending on data from the Monitoring Unit;
- COW's Office Monitoring Unit: provide accurate data on the water services for the strategic planning tools based on the monitoring systems in DRWS and WASA;
- COW's Office, LLWSU: contribute to the overall strategic planning be advising the PPSU on the data, plans, costs etc for the implementation of the LLWSP;
- Department of Water Affairs: monitoring of water resources and advice to the COWs office on the availability of water resources for provision of water services;
- DRWS: monitoring of rural water supplies and compilation of plans for water services in rural areas based on data and plans from the local authorities. Provide data to the COW's Monitoring Unit on rural water and sanitation and information on rural water plans to the PPSU;
- WASA: monitoring of the urban water and sewerage services and preparation of expansion plans for urban services. Provide data to the COW's Monitoring Unit on urban water services and plans for expansion of services to the PPSU
- Bureau of Statistics (BOS): provide population data and data on source of drinking water and sanitation facilities to the water sector institutions. Coordinate national use of Geographical Information Systems (GIS) and provide advice the sector institutions on the use of GIS. BOS is the only source of data on on-site sanitation facilities in both urban and rural areas.

4.1.3 Involvement of Sector Institutions

In recognition of the sector responsibilities, the project has been carried out in cooperation with the stakeholders as follows:

DRWS: involvement of the Planning Unit as well as the District Engineers in the update of the DIS and definition of the service areas to assess the population served by rural water systems according to the population data from the 2006 census. Planning of the SFPM with the DRWS Planning Unit to ensure the structure is compatible with the DIS. Involvement of DRWS staff at head office and district offices in the implementation of the sample surveys on the use of private connections and the Willingness and Ability to Pay (WAP) studies in the rural areas in Thaba Tseka and Qacha's Nek districts

WASA: cooperation on the design of questionnaires and implementation of the WASA connection survey with the WASA Marketing and Billing Departments. Cooperation with the personnel responsible for the WASA Financial Model and personnel responsible for strategic planning (TWG members) in the design of the SFPM to ensure compatibility with the WASA planning tools.

COW's Office: cooperation with the personnel responsible for overall planning of the bulk water supplies (Technical Coordinator for the project) and the personnel responsible for the water sector monitoring activities (TWG member) in the overall development of the planning tools

DWA: cooperation with the personnel responsible for monitoring of water resources to ensure familiarity with the planning tools for water services and ensure familiarity with the tools to facilitate **the further development of the tools to include water resources and IWRM**

MNR: cooperation with the personnel responsible for planning and budgeting in the Ministry (TWG member) in the design and development of the planning tools

Ministry of Finance: represented on the Project Steering Committee and involved in the overall discussions and directions for the development of the planning tools

BOS: involvement of personnel responsible for GIS and providing the detailed village list with population data. The BOS personnel has been providing assistance in the compilation of population data for the water service areas.

The current staffing problems in the PPSU has reduced the role of the PPSU in the project implementation, however the involvement of other parts of the COW's office will ensure that the future personnel in the PPSU will be made familiar with the planning tools.

4.2 Specific Capacity Development Activities

The capacity development activities have included:

A. On-the-job training activities as part of implementing the data collection and studies to provide the foundation for the planning tools;
B. Specific workshops and training sessions on the design and use of the planning tools.

The specific training activities have included:

1. Start-up Meeting with the Technical Working Group on the 13th of November 2008. The meeting included familiarization with the methodology to be used on the project and the roles of the TWG members and the consultants. The presentation as included in Report No 6/7 Annex A illustrates the content of the discussions at the meeting.
2. Meeting with the Technical Working Group on the 24th of November 2008. The meeting further discussed the methodology and focused on the preparation of the Inception Report. The presentation as included in Report No 6/7 Annex B illustrates the content of the discussions at the meeting.
3. Presentation of the project to the larger Water Sector Coordination Group Meeting on the 13th of November 2008. The objective of the presentation was to ensure that all the water sector stakeholders are aware of the project and the methodology to be followed in order to facilitate that the project becomes integrated into the efforts of establishing SWAP in the

sector. The presentation as included in Report No 6/7 Annex C illustrates the content of the discussions at the meeting.

4. Project Steering Committee (PSC) Meeting on the 17th of December 2008. The objective of the meeting was to inform the PSC about the project, their roles in the project and ensure that the PSC is familiar with the methodology to be used on the project. The presentation as included in Report No 6/7 Annex D illustrates the content of the discussions at the meeting.
5. Data Analysis Workshop on the 14th of May 2009 for the TWG and other staff from the sector institutions that have been involved in the data collection studies. The objective of the workshop was to analyse the results of the data collection studies and train the TWG members in the use of excel formulas for compiling statistics from the surveys. The presentation as included in Report No 6/7 Annex E illustrates the content of the discussions at the workshop.
6. FEASIBLE workshop on the 3rd and 4th of June conducted by COWI. The objective of the workshop was to ensure that the TWG understands the capabilities of the FEASIBLE tool and are able to use the tool. The workshop included familiarization with steps that are needed in order to customize the FEASIBLE tool to the Lesotho Water Sector and identify the aspects that would require clarification and re-programming by the developers of the tool. The outcome of the workshop in terms of the list of the challenges in describing the Lesotho Water Sector well using the FEASIBLE tool as identified by the participants in the FEASIBLE training working as included in Report No 6/7 Annex F.
7. The Technical Coordinator and one more member of the TWG participated in annual meeting of the Finance Working Group at the World Water Week in Stockholm in August 2009. The meeting and the participation in the World Water Week in general exposed the Technical Coordinator/ TWG member to the overall financing issues in the water sector globally. The Technical Coordinator presented the Lesotho Project on the FWG Meeting. The presentation is included as Report No 6/7 Annex G.
8. Modelling Workshop on the 24th of September 2009 for the TWG. The workshop focussed on the development of the SFPM and the programming of the model to provide investment estimates as well as the data inputs to the FEASIBLE Tool. The presentation as included in Report No 6/7 Annex H provides the agenda and illustrates the content of the discussions at the meeting.
9. Modelling Workshop on the 26th of September 2009 for the TWG to follow-up on the work done at the September workshop and continue the development of the SFPM. The presentation as included in Report No 6/7 Annex I provides the agenda and illustrates the content of the discussions at the meeting.
10. The Technical Coordinator and the Ministry of Finance personnel responsible for budgeting in the sectors under Natural Resources as well as the COW and the PS of MNR participated in the Africa Water Week in Johannesburg in November 2009. The Technical Coordinator made the presentation at a side event of the methodology and progress of the Lesotho Project on strategic financial planning. The discussions at the side-event and the participation in the Africa Water Week in general exposed the Technical Coordinator and other participants from the Lesotho water sector to the financing issues in the water sector in African countries. The presentation from the side-event is included as Report No 6/7 Annex J.
11. 3-day workshop on the development of the modelling tools held from the 24th to the 26th of November at the Blue Mountain Inn in Teyateyaneng. The 3-day workshop was arranged in order for the TWG to have time to explore the details of the modelling tools and concentrated on the Unit Cost Estimating Tool and the SFPM as well as how these relate to the FEASIBLE. The programme for the workshop is included in the presentation included in Report No 6/7 Annex K. The sector institutions provided the resources for accommodation and food for the 3-day workshop. This is an indication of the commitment and interest of the sector institutions in the project.
12. Discussion with the WASA management on the 30th of November 2009 on the issues emerging from the strategic planning project. The meeting was arranged to discuss some of the findings from the project with the WASA management before documenting them in the

Baseline report and presenting them to the PSC. The WASA management was briefed on the methodology followed to ensure that the planning tools are understood and will become embedded into the work in the water utility. The presentation as included in Report No 6/7 Annex L illustrates the content of the discussions at the meeting.

13. PSC Meeting on the 10th of December 2009 to present the Baseline Report and get direction from the PSC for the way forward. The PSC was briefed on the outcomes of the project to data and the issues of providing a good baseline for the water and sanitation coverage in Lesotho was discussed in detail. The PSC found the project achievements very important for the development of the sector programme and for the process of developing the water and sanitation strategy. The presentation as included in Report No 6/7 Annex M illustrates the content of the discussions at the meeting.
14. Performance Assessment Framework on the 27th of January 2010 presenting the methodology and results of the Strategic Financial Planning project on establishing the baseline for water and sanitation in Lesotho.
15. Stakeholder workshop on the 28th of January 2010 to present the findings of the project and get input from stakeholders on four thematic issues: i) Connection rates in urban areas; ii) Overall Water Service Planning - rural/ urban service areas, review of LLWSP implementation plans; iii) Free basic water and iv) DRWS/ Local government responsibilities in rural water. Report No 6/7 Annex N include the presentation that was used at the workshop and notes on the discussions and outcome of the group work on the four thematic issues.
16. Several consultations with Ministry of Finance, MNR at PS level, the Commissioner of Water and management of the water sector institutions to brief on the outcome of the strategic financial planning project in January 2010. Notes from these meetings are included in Report No 6/7 Annex O.

4.3 Outcome of the Capacity Development Activities

The activities as described in 4.2 above have ensured that the TWG members are familiar with the strategic financial planning methodology and the design of the planning tools.

The process of involving the TWG members as well as other staff in the sector institutions according to their responsibilities in the project activities have ensured that the project and the methodology e.g. defining the need for data and design and carry out surveys to provide the data are embedded in the sector institutions.

Follow-up activities needed to ensure sustainability of the project's achievements include:

1. Capacity building of the staff in the PPSU and institutionalising the SFPM and the FEASIBLE as tools used regularly in the planning and budgeting process in the water sector
2. Capacity building of the new Monitoring Unit as well as the personnel in WASA and DRWS responsible for monitoring activities to ensure that consistent data continues to become available for overall strategic planning in the water sector
3. Development of/ adjusting the job-descriptions for the staff of the PPSU, the Monitoring Unit and relevant positions in WASA and DRWS to specify clearly the functions related to data management and strategic financial planning. This would be done as an integrated part of the ongoing development of the Performance Assessment Framework for the water sector and development of the sector programme.
4. Dissemination of the results to a larger group of sector stakeholders and high level decision makers in government to ensure that the results of the strategic planning project will influence the sector to take rational decision on the future development of the sector

5 INTEGRATION

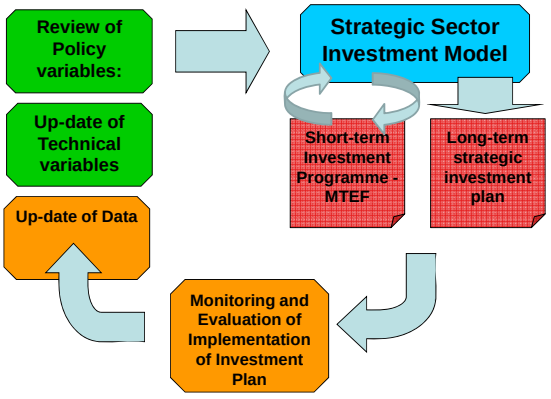
5.1 Concept of strategic planning and links to the MTEF

The overall aim of the capacity development activities is to ensure continued use of the planning tools that can improve the long-term planning in the water sector. The tools developed for the strategic financial planning are therefore tailored to the planning needs of the sector institutions and towards improving the MTEF budgeting process.

This project is focussing on the water and sanitation services and other aspects under MNR such as energy and mining would require other or similar tools to provide a common platform for assessing financing needs.

Figure 20: Updating and using the SFPM in MTEF Process

The process for updating and making use of the strategic financial planning model is shown in Figure 20.



The SFPM presents estimates for the investment needs and financing gap based on inputs of data (on existing water and sanitation systems, population and water demand, and available water and financial resources), technical variables (such as unit costs and design standards) and policy variables (such as targets, tariff policies etc). The SFPM can thus be used to predict the investment needs and determine the effect of changing policy variables such as the coverage targets, tariff and subsidy policies.

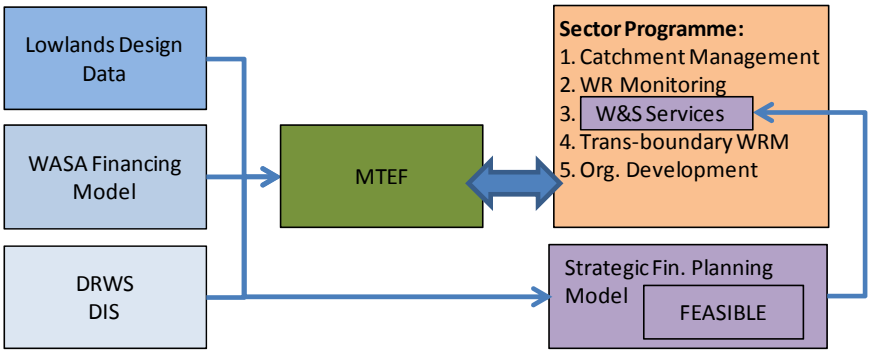
The SFPM is a tool for determining the medium- and long-term investment needs to fulfil targets is a tool for analysing the funding needs in the different sub-sectors and allocation between e.g. urban and rural water and between water and sanitation. The SFPM will therefore over subsequent years guide the MTEF process so that budgets gradually will be in line with the requirements for fulfilling the long-term targets.

With this in mind, the capacity development activities have therefore focussed on the continued use of the planning tools and ensuring that the water sector institutions have the capacity to update the planning tools and use the tools to provide input to the MTEF process in subsequent years.

This defines the scope of the capacity building activities to ensure that the TWG members have adequate knowledge of the planning tools to be able to use these – and this is a different scope from having the capacity to develop and modify the planning tools. Consistent with this, the development of the SFPM has been carried out by the Consultants while the TWG members have been introduced to the tool at various intervals during the process to ensure familiarity with the design and programming of the tool.

Figure 21: SFPM in relation to other planning tools

The SFPM estimates can be updated whenever the data foundation changes or if subsequent years implementation for various reasons has not been in accordance with the estimates in the SFPM.



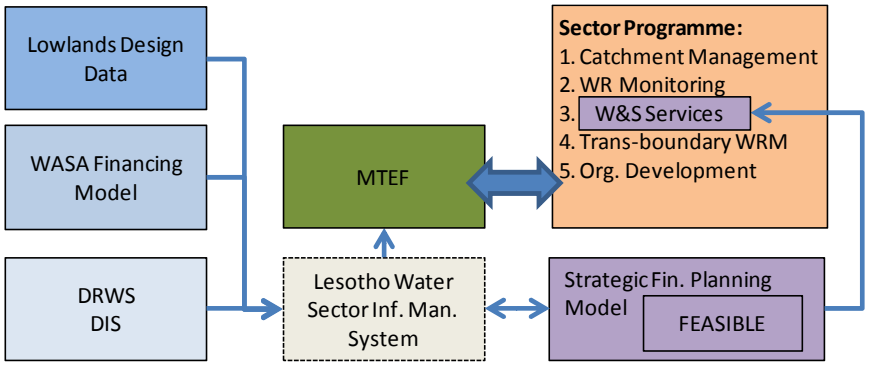
This could typically happen every 3 years and one would evaluate the implementation of the investment plan and update the data and technical variables and review the policy variables to provide a new set of estimates for investment needs to guide the MTEF process. The MTEF process will therefore remain a bottom-up process where the sector institutions from local level upwards prepare the plans and budgets based on guidance from the SFPM on the overall allocation.

DRWS prepares MTEF budgets and plans using the DIS a detailed information and planning systems based on individual modules for each district that contains the information and plans for each rural community. The SFPM shall not attempt to duplicate or replace the DIS, but utilise the data from the DIS and combine with information from other sources such as the lowlands design.

WASA uses the Financial Model to analyse the income, operating costs and financing needs for the respective systems. The WASA Financial Model focuses on the financial aspects of WASA's business where the SFPM focuses on determining the future demand and estimating the consequences in terms of investment costs and operating profits. The SFPM links to the Financial Model data and combine with the information from the LLWSP on the supply of bulk water, supplementing or replacing the existing water sources and treatment facilities.

The water sector is preparing a Sector Programme covering all activities in the water sector where Water Supply and Sanitation (W&S) is one of 5 aspects. The Sector Programme will be guided by the outputs from the SFPM for the W&S aspects. The relationship between the existing planning and information systems, the SFPM and the Sector Programme is illustrated in Figure 21.

Figure 22: SFPM in relation to LWSIMS



The SFPM will be based on data directly from the DIS, the WASA Financial Model and the LLWSP Design and will provide input to the cost estimates for the water and sanitation services part of the Sector Programme. The COW has designed the 'Lesotho Water Sector Information Management System' (LWSIMS) as a common information system for the water sector. The LWSIMS is a comprehensive system that combines the information from all the sub-sectors in one internet based platform. In the future the SFPM can be linked directly to the LWSIMS as illustrated on Figure 22 however as the LWSIMS is not yet fully populated with data, initially the SFPM will get the data directly from the existing sub-sector systems.

The SFPM provides estimates of the present coverage and the back-lock in terms of coverage and could possibly be further developed to be an integrated part of the LWSIMS to provide easily accessible information on these aspects.

5.2 The MTEF Reform in Lesotho

The following description of the process in Lesotho for introducing the MTEF budgeting process is in accordance with information provided by the Ministry of Finance and Development Planning (MOFDP):

The MTEF budgeting process is the recognized best practice approach to dealing with the most serious problem in public financial management in the developing world, i.e. the failure to translate national and community priorities (as agreed in documents such as the poverty reduction strategy or PRS) into funding priorities in budget documents and budget implementation.

A PRS or any other national development plan (NDP) can only be effective if two key conditions are met:

1. The Vision 2020, PRS or NDP has accurately captured the key policy priorities of the people, the nation and of government

2. Those key policy priorities receive adequate funding through the budget allocation process

Shifting the priority of budget spending to agreed PRS or NDP priorities cannot happen in the short term. A medium term approach must be adopted, (i.e. three years or more), to direct new revenues to high priority programmes or to reallocate between sectors and programmes. An MTEF approach does this by using two critical processes and documents – the Medium Term Fiscal Framework (MTFF) and the Budget Framework Paper (BFP):

Budget Framework Papers (BFP)

The role of the BFP in the MTEF is critical:

1. Line ministries prepare a BFP to summarise past years' performance, and to justify their bids for increased funding for new initiatives or expanded programmes, and to demonstrate they have the capacity to implement new initiatives or expand existing successful programmes. In doing so, they must prove strong links between their BFP and the PRS or NDP. Funds available as per the medium term fiscal framework are limited, so ministries must compete for a share of any new funds.
2. The Ministry of Finance will use the BFP to analyse bids from ministries, evaluate past performance of ministries, and carry our sector hearings with ministries as part of the process of deciding what ceilings should be allocated to each ministry for the next year's MTEF budget. "Contestability" of bidding for budget resources means that ministries must be able to defend and justify their claims in their BFPs for increased funding of their programs against the claims of other ministries in their BFPs
3. Cabinet will use a summary of the BFPs (the National Budget Framework, NBF) to evaluate the recommended ceilings for each ministry as provided by the MOFDP, and to assess this against their own policies and platform

If all three of these major stakeholders (ministries, MOFDP & Cabinet) have access to the same information in the BFPs, the Budget preparation process under MTEF becomes much more transparent and coherent.

The MTEF approach using BFPs involves a major shift away from the old way of preparing budgets, i.e. one year at a time where all programmes in all ministries received roughly same incremental increase in funding each year, regardless of national planning priorities. It also signifies a shift from line item based budgets to budget documents with information about programmes and outcomes (as well as expenditure item information).

Using the MTEF approach, Cabinet's role in budget allocations is also strengthened, because they can make better decisions with better quality information.

The strategic financial planning tools fits into the process of preparing the BFP for the water sector since the tools can be used to substantiate the financing needs of the sector to reach the targets.

Implementation of MTEF

The MTEF approach to budgeting marks a significant shift away from earlier budget preparation and implementation processes. New procedures and forms have been developed, and the budget classification system has been expanded to accommodate new information about programmes, objectives, outputs and activities. Several hundred officials from all ministries have also been trained in the new approach. Six ministries have been used to pilot different stages of the MTEF implementation. The following MTEF stages of reform have been completed:

1. All ministries have been trained in the key concepts and processes the comprise the MTEF approach
2. All ministries now prepare their budgets using a three year rolling forward estimates approach
3. All ministries now prepare annual Budget Framework Papers containing details of their vision, mission, objectives, cost centres, programmes, outputs, activities, programme and project performance, and proposed additional funding requirements

4. A consolidated National Budget Framework is prepared for Cabinet summarising the competing priorities and bids of the various ministries. This is used by MOFDP and Cabinet to decide on budget ceilings for each ministry
5. All ministries now prepare their MTEF budgets using the budget module of the Integrated Financial Management Information System (IFMIS), using the new chart of accounts, and using the new budget classification system
6. The MTEF budget books and budget speech appendices are now prepared using the IFMIS budget module, and over 70 separate budget reports are available from the IFMIS
7. The six pilot ministries prepare their budgets on the IFMIS budget module using a detailed 'bottom up' approach, whereby they build their budget estimates up by applying unit costs of inputs to each planned activity in each sub cost centre, whilst remaining within the overall ceiling given to them by Cabinet
8. The remaining ministries prepare their budgets using the IFMIS budget module, inputting each Item of expenditure at Sub Cost Centre level (i.e. without detailed costing of activities)

There are several further stages of the MTEF reform that will continue to be implemented over future budget cycles. Another important component of the MTEF approach to budget management is the development and maintenance of key performance indicators and the collection of performance data by each line ministry. The ministries must be able to demonstrate to Cabinet and Parliament and other stakeholders how effectively and efficiently they have used the funding that was made available to them through the budget process.

From the description of the aspirations of the MTEF reform in Lesotho it is evident that the use of the strategic financial planning methodology and the planning tools will provide valuable input into the development of the Budget Framework Papers for the water sector by enabling the sector to justify the financial needs to reach the targets.

5.3 Action plan for integration

The following action have been identified to enhance the planning tools and ensure the integration of the strategic financial planning methodology into the planning and budgeting processes in the water sector institutions:

Enhancing the Planning Tools:

- Improve WASA network and customer data: carry out GIS mapping of the WASA connections including information on the type of water use and number of persons served by the different connections – the mapping of the WASA network in Maseru has started, but does not so far include the detailed connection mapping.
- Improve the rural water data on existing water and sanitation facilities by carrying out GIS mapping of the water systems and update the data on water source capacity in the DIS – the ongoing RWS Planning Framework project is designed to cover this.
- Integrate the BOS population and socio-economic data in the water sector GISs. The BOS is nominated as the national anchor for development of GIS and will be guiding the development of the GIS in the sector institutions – if approached.
- Coordination between the water sector and BOS for refining the definitions for water and sanitation facilities used by BOS for household budget surveys and census questionnaires to ensure that the BOS information corresponds to the definition of indicators used in the sector performance framework.

Ensuring Integration:

- Capacity building of the new staff in the PPSU in the use of the SFPM and the FEASIBLE tools as estimating tools for the planning and budgeting process in the water sector.
- Capacity building of the new Monitoring Unit as well as the personnel in WASA and DRWS responsible for monitoring activities to ensure that consistent data continues to become available for overall strategic planning in the water sector.

- Development of/ adjusting the job-descriptions for the staff of the PPSU, the Monitoring Unit and relevant positions in WASA and DRWS to specify clearly the functions related to data management and strategic financial planning. This would be done as an integrated part of the ongoing development of the Performance Assessment Framework for the water sector and development of the Sector Programme.
- Include the strategic financial planning methodology and the findings from the strategic financial planning project in the upcoming development of the strategy for water and sanitation.
- Dissemination of the results to a larger group of sector stakeholders and high level decision makers in government to ensure that the results of the strategic planning project will influence the sector to take rational decision on the future development of the sector

Annex A: FEASIBLE – SFPM Comparison

The FEASIBLE Model has been used for the strategic financial planning for the water sector in Lesotho in two ways: i) the model and the methodology described in the model has been used as inspiration for the process in Lesotho and for the development of the SFPM tailored to the Lesotho water sector; and ii) data has been entered in the FEASIBLE describing the Lesotho water sector and the model outputs analysed and compared to the SFPM outputs.

COWI, the developers of the FEASIBLE model has provided valuable support to the process, first in undertaking a on-site training course for the Technical Working Group in the design of the FEASIBLE and in the use of the model and secondly, as backstopping on several occasions during the project period when difficulties demanded or when explanations were needed. Without this extensive support, it would have been difficult to use the FEASIBLE tool.

This Annex contains:

A. Examples of outputs from the use of the FEASIBLE model for the water services sector in Lesotho and comparison of these with the estimates done using the SFPM; and
B. Comments on the experiences from using the FEASIBLE model in for the Lesotho water sector.

A. FEASIBLE and SFPM Outputs

Regional structure: The outputs presented below from the FEASIBLE Model are based on the data set 'Lesotho 1a' that is structured according to two regions – Rural and Urban.

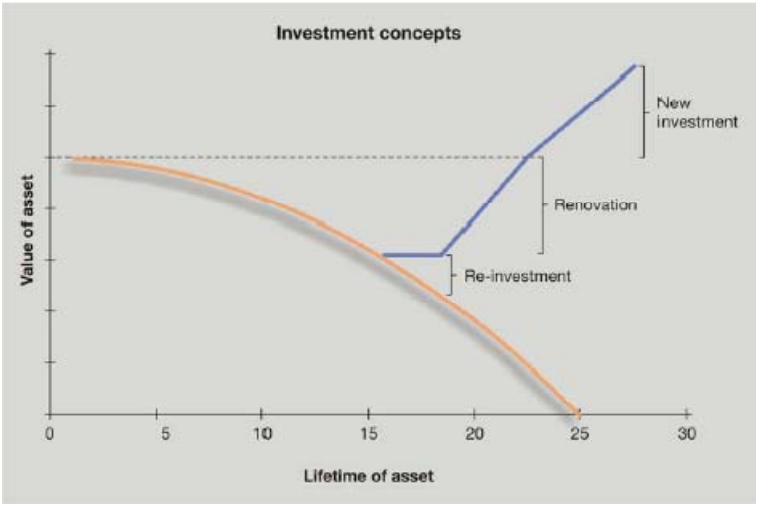
The initial use of the FEASIBLE was based on data set 'Lesotho1' structured according to the geographical division of Lesotho in 10 districts, however, since analysis in the FEASIBLE is done either nationally, regionally or per municipality this meant that it would not be possible to analyse the urban sector separately from the rural sector except at an individual municipal water systems basis and this would not work since funding for urban services is not specific per municipality.

It would be important to analyse the urban and rural sub-sectors separately since these are very different in the manner they operate. The urban sub-sector is dominated by utility water services with users paying tariffs for services and the rural sub-sector is dominated by community managed water systems where there is some degree of user contribution to O&M costs and also a substantial degree of government subsidies for maintenance.

Planning period: a 20 year planning period was used in the FEASIBLE estimates with 2009 as the based year and with targets set at 2020 corresponding to the targets for the water sector in Lesotho.

Investment estimates: The investment estimates in the FEASIBLE Model are classified according to the concepts described in Figure A.

Figure A: FEASIBLE Investment Concepts[8]



The reinvestments and the renovation investments are investments to maintain the capacity of the existing water systems. In the SFPM, the 're-investments' are covered by the estimates for maintenance while the 'renovation investments' are described as 'replacement costs' calculated

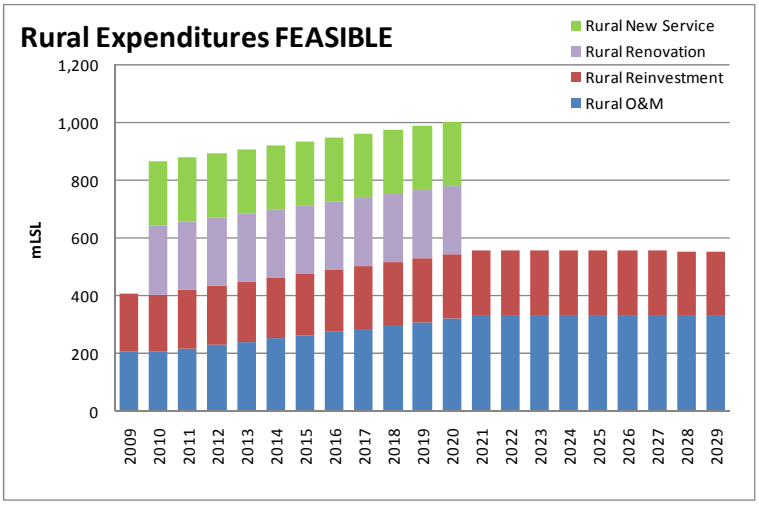
[8] source FEASIBLE User Manual

according to an average lifespan of the infrastructure.

Expenditure Estimates for Rural Water

The expenditure estimates for rural water using the FEASIBLE model are shown on Figure B and the estimates using the SFPM are shown on Figure C.

Figure B: FEASIBLE Expenditure Estimates for Rural Water



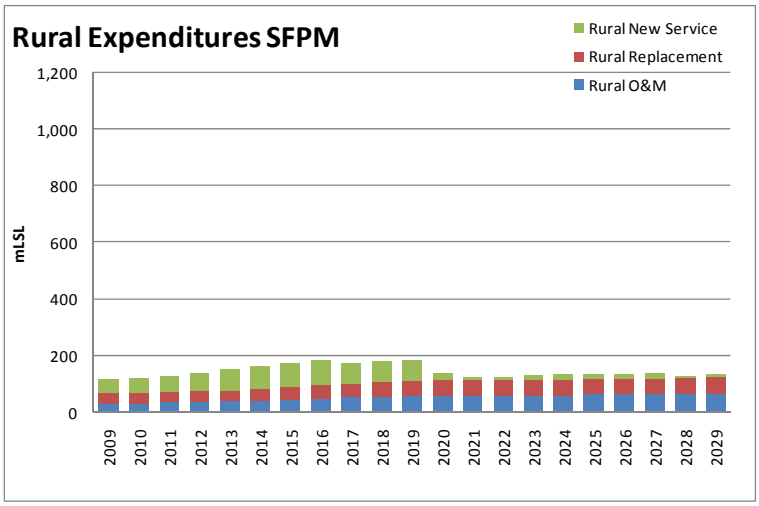
The FEASIBLE cost estimates are distributed evenly over the planning period e.g. the investment in new water services until the coverage target is reached by 2020 after which there are no investments foreseen in new services. In reality there would be investments in new service for the population growth.

The investments in 'rural renovation' are the investment costs for maintaining the systems and these would be expected to continue after the target year which is not the case in the FEASIBLE Model. The rural renovation costs seem to be disproportionate to the other costs e.g. when compared to the urban renovation costs as shown in D below.

The 'rural reinvestments', which are the replacement of existing infrastructure that has outlived its lifespan are continuing for the 20 year planning period at a constant rate. In reality the replacement would be expected to increase over time as the value of the existing infrastructure increases with water services expanding.

The FEASIBLE estimates are very high compared to the SFPM estimates and high compared to the situations in the rural water sector in Lesotho. The rural water systems in Lesotho are typically small piped systems serving only 200 – 300 persons and this fairly unusual situation might not be covered adequately by the rural cost functions in FEASIBLE.

Figure C: SFPM Expenditure for Rural Water



The FEASIBLE O&M costs correspond to more than LSL 100 per household per month which is not in-line with the actual costs in Lesotho. The average monthly income for more than 50% of the population in rural areas is less than LSL 500 per month and thus O&M costs in the range of LSL 100 per month would be unaffordable.

The O&M costs are approximately 5 x the estimates in the SFPM. This is likely to be the consequence of the cost functions assuming larger pipe systems with a more elaborate operational organisation than is the case in Lesotho. The maintenance costs are probably calculated in the FEASIBLE in proportion to the assets values and since the implementation costs are high as shown below, this will affect the maintenance estimates.

The renovation and re-investment cost estimates in the FEASIBLE are high compared to the maintenance and replacement estimates in the SFPM and in the period where renovations costs are shown, up to 10 x the SFPM estimates.

The FEASIBLE estimates for new water systems are also high compared to the SFPM estimates. The FEASIBLE estimates corresponds to average per capita unit costs of above LSL 3,000 while the costs experienced in the rural water sector in Lesotho are more in the range of LSL 1,000 per capita.

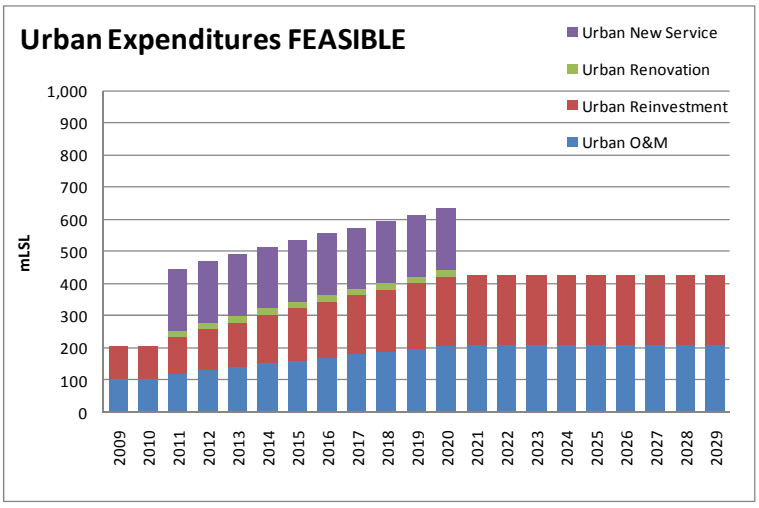
The cost corrections used for the FEASIBLE estimates for Lesotho reduces the cost estimates compared to the international costs, e.g. the labour cost is only 10% and the professional cost about 30% of the international costs. Energy costs are similarly reduced to the level experienced in Lesotho of about 50% of the international costs. The same cost correction factors have been used for rural and urban areas and as show below the urban estimates are comparable with the other estimates made for the Lesotho Water Sector, indicating that possibly the FEASIBLE cost functions do not capture the rural water situation in Lesotho adequately.

In summary, the FEASIBEL presents estimates for rural water that are much higher than the cost levels experienced in Lesotho. The reason for this could be that the situation in the rural water sector in Lesotho with many small piped systems covering typically 2-300 persons each is not typical for the rural water sector elsewhere and therefore not adequately covered by the FEASIBLE cost functions.

Expenditure Estimates for Urban Water

The expenditure estimates for urban water using the FEASIBLE model are shown on Figure D and the estimates using the SFPM are shown on Figure E.

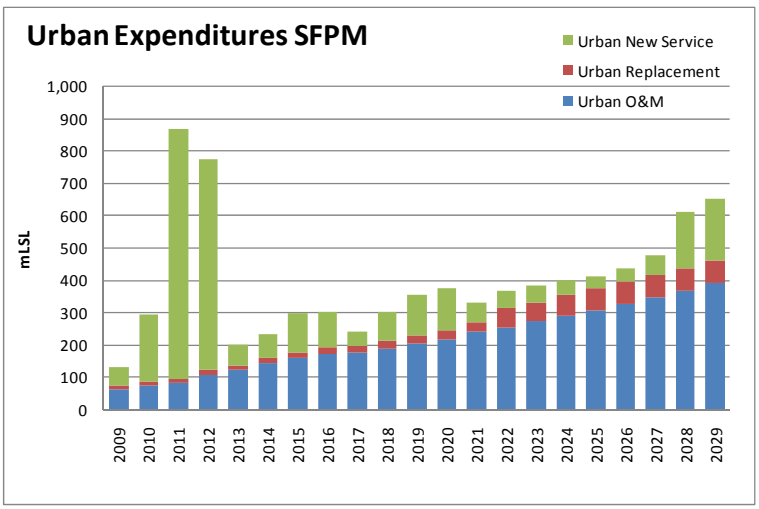
Figure D: FEASIBLE Expenditure Estimates for Urban Water



The main difference for urban water between the FEASIBLE and the SFPM is i) the even distribution of the FEASIBLE cost estimates over the planning period for investment in new water services and ii) the level of investment in replacement costs.

i) Distribution of costs: the Lesotho water sector is dominated by large investments in bulk water supplies and this is not possible to capture in generic planning models such as the FEASIBLE. This results in the large peak investments in the beginning of the planning period.

Figure E: SFPM Expenditure for Urban Water



The SFPM is based on estimating models for each of the urban systems that trigger investment in capacity expansion when the demand exceeds the existing capacity – therefore the different investment levels during different years of the planning period. The FEASIBLE, as a strategic planning model distributes the

investment needs evenly over the planning period

ii) Replacement cost estimates: the SFPM estimates of replacement costs are based on the asset values as recorded in the WASA Financial Model and these are historical values that are likely to be underestimated compared to replacement costs. The FEASIBLE estimates are likely to show a better estimate of the financing needs for replacements and the SFPM should be updated as soon as the WASA assets register has been updated. This is likely to happen in connection with the establishment of WASA as a company in the near future.

The O&M cost estimated in the FEASIBLE and the SFPM are at a similar level. This is reassuring as it is indicating that the general cost level and price corrections entered for Lesotho in the FEASIBLE are at the right level.

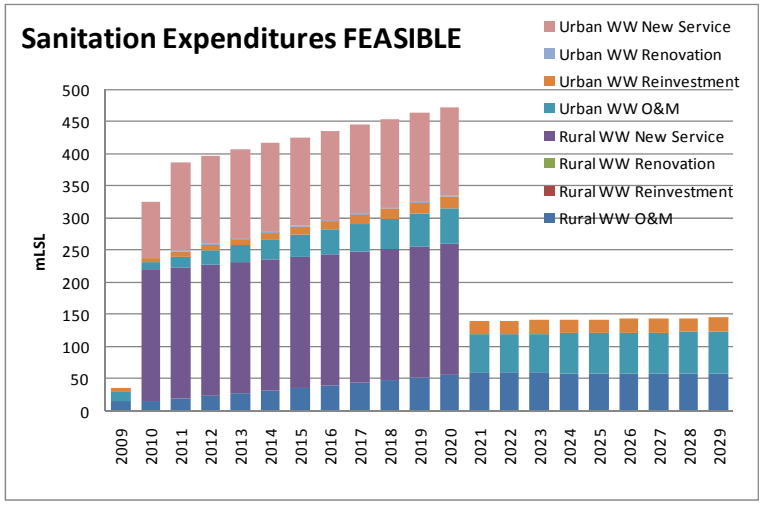
The overall average magnitude of investments in new services is also at a similar level in the SFPM and the FEASIBLE despite the big annual variations caused by the bulk water investments.

In summary the FEASIBEL model show similar estimates as the SFPM for the urban water sector, however it is difficult to describe the special developments in urban water in Lesotho in a generic model since there are specific investments in bulk water that overshadow the general investments in water services.

Expenditure Estimates for Sanitation

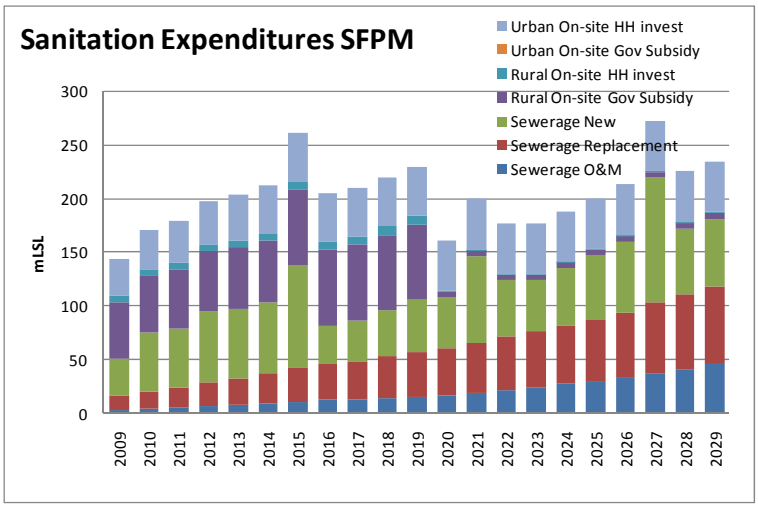
The expenditure estimates for waste water and sanitation the FEASIBLE model are shown on Figure F and the estimates using the SFPM are shown on Figure G.

Figure F: FEASIBLE Expenditure Estimates for Sanitation



The sanitation sector in Lesotho is dominated by on-site sanitation solutions such as pit latrines with very low coverage for domestic sewerage. On-site sanitation is also predominant in the urban areas and since the urban cost functions in FEASIBLE only describes sewerage systems, the rural cost functions were used for all the towns outside Maseru. The sewerage systems in these towns were classified as 'simplified sewerage' in the technology mix data entry. The urban cost functions were used for Maseru and thus the estimates do not include the investments in on-site sanitation in Maseru.

Figure G: SFPM Expenditure for Sanitation



The existing sewerage services serve mainly the urban commercial centres and the main part of sewage is non-domestic.

Detailed comparison between the FEASIBLE and SFPM estimates is difficult since the FEASIBLE estimates combine the on-site sanitation with the sewerage systems.

There are no sewerage systems foreseen in rural areas during the planning period and the 'Rural

WW New Service' indicated on Figure F is the estimate of investments in latrines in rural areas.

This estimate seems to be approximately 4 times the estimates in the SFPM based on a cost of approximately LSL 5,000 for a VIP Latrine and lower cost for other types of latrines. The FEASIBLE show the total investment in on-site sanitation and the situation is typically that this investment is done by the households, in some cases with subsidies from government. In Lesotho, the government is providing a 90% subsidy in rural areas and no subsidy in urban areas. To be useful for analysing the public budgets to sanitation, FEASIBLE would need to be modified to include possibility for entering subsidies for on-site sanitation.

The investments in new urban waste water services are of a similar magnitude in the FEASIBLE and the SFPM confirming the conclusion from the urban water sector that the urban cost functions in FEASIBLE seem to describe the sector well and that the cost corrections in the Lesotho FEASIBEL data set are at the correct level.

In summary the cost estimating formulas in the FEASIBEL model for urban water and sewerage seems to fit reasonably well with the SFPM estimates however the cost estimating formulas for the rural water and for on-site sanitation does not seem to describe the Lesotho water sector well. The rural estimates are much too high in the FEASIBLE.

Funding Estimates

The estimates of the available funding in the FEASIBLE are based on data entry of the present water sector funding from public revenues (adjusted according to development in the GDP) and from grants and loans as well as estimates of the user payments.

The level of funding in the Lesotho water sector is during the present MTEF planning period unusually high due to the implementation of the MCC grant funding to the water sector as well as the implementation of the Metolong bulk water supply project. Using the present level of funding to forecast the future funding might therefore give too optimistic a view of the funding levels. Due to the inadequacies described above in providing the expenditure estimates that are realistic for the water sector in Lesotho, the FEASIBLE was not used to its full capability for analysing the financing gap.

Although the FEASIBLE has not been used for the analysis of funding gaps it can still be useful to compare the FEASIBLE estimates of user charges with the estimates generated by the SFPM. The FEASIBLE estimates are shown on Figure H and the SFPM estimates on Figure I.

Figure H: FEASIBLE Estimates of User Charges

The FEASIBLE estimates for user charges for water at approximately mLSL 300 at the end of the target period in 2020 corresponds well with the SFPM estimates for 2020. The lower level of user charges during the period up till 2020 is probably due to the affordability calculations that are embedded in the FEASIBLE since the 'maximum household affordable level' in the dataset presented here is set to be reached within a 10 year period.

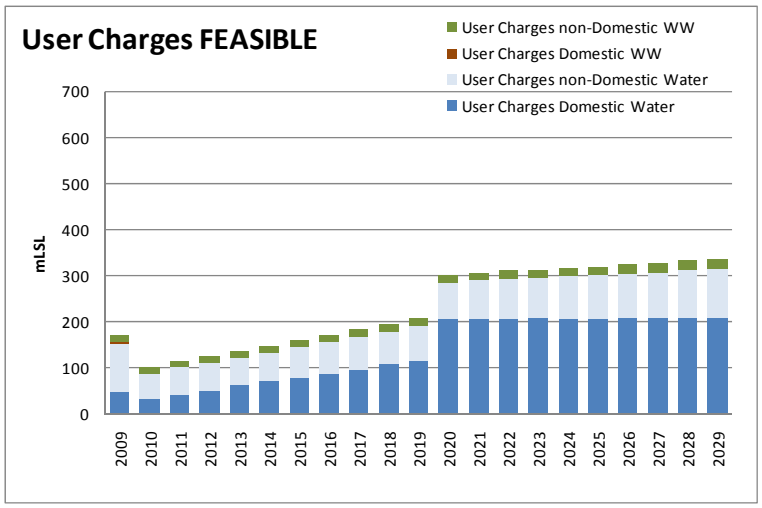
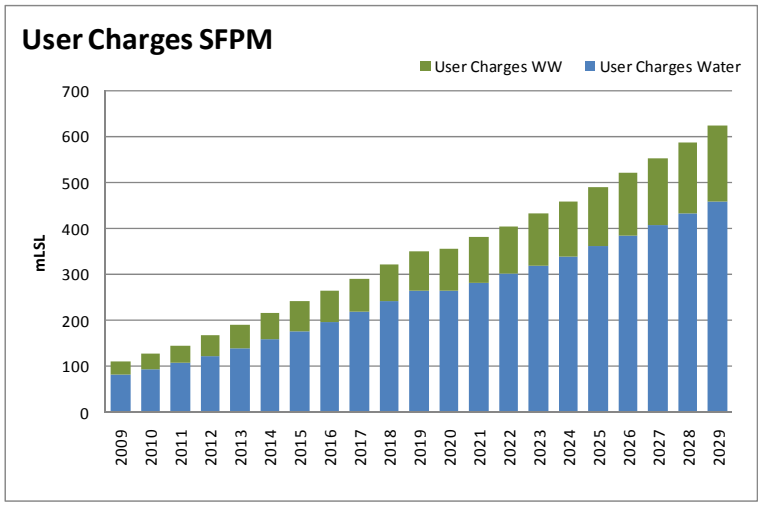


Figure I: SFPM Estimates of User Charges

The user charges for sewerage estimated in the FEASIBLE are very low compared to the SFPM estimates. This might be due to the uncharacteristic nature of the sewerage systems in Lesotho - serving mainly non-domestic users and due to the use of the rural cost functions for the towns outside Maseru.



C. Comments on the use of the FEASIBLE for the Lesotho Water Sector

The approach and work plan for the strategic financial planning project in Lesotho described the use of two planning tools: the FEASIBLE and the SFPM. The reason for using the two was i) that the FEASIBLE needs substantive pre-modelling of data input such as demand; and ii) that the FEASIBLE as a generic tool might not be able to describe the water sector in Lesotho especially in terms of the proportionally large investments in bulk water supplies and the many dispersed small rural water systems.

The following points describe some of the experiences in the financial planning in Lesotho concerning the use of the FEASIBLE model and also touches on the use of generic tools versus purpose build models.

1. Pre-modelling of data input: the estimates for expenditures are mainly depending on two aspects: i) the demand forecasts – describing the future need for services and ii) the unit cost of providing these services[9].

Modelling of demand forecasts is a complicated issue involving demographics and socio-economic development indicators such as industrial and commercial growth. The FEASIBLE model requires demand forecasts as data entry such as connected population in the target year; water production in the target year (estimates for leaks and administrative un-accounted for water, demand from domestic users, industries and other etc.) and to provide this at a reasonable level of accuracy, a fairly sophisticated demand model is needed.

The implication of this is that for strategic financial planning in any other country, demand estimating models are needed whether the FEASIBLE model is used or not.

2. Structure of FEASIBLE and the sector planning and budgeting needs: the FEASIBLE covers solid waste, water supply and wastewater. In many countries this 'environmental sector' is not a sector in the MTEF planning and budgeting process and the ministries responsible for water and sanitation are often required to budget for related activities such as water for productive uses (e.g. livestock and irrigation) and water resources management.

The continued use of planning tools such as the FEASIBLE and the SFPM depends on i) trained staff in the right position in the planning process to use the tools and ii) that the tools are providing valuable and transparent input to the planning and budgeting process. Ideally the planning tools

[9] In the Lesotho project, the WSP Unit Cost model was further developed with Lesotho input costs to provide the unit cost estimates.

should therefore cover the scope of planning for a sector in the MTEF planning frame to be appreciated and used in the planning and budgeting process. This poses a difficulty in the use of generic tools such as FEASIBLE since these cannot be tailored to the structure of different 'water sectors' in different countries.

In Lesotho, it was in particular the issue of bulk water supplies covering both urban and rural areas that limited the application of the FEASIBLE model for analysis in the urban sector. The bulk water supplies influences the investment needs since they change the need for investment in productive capacity in the towns and they change the O&M cost calculations.

3. Planning period and target period: the planning period in the FEASIBLE model can be set at 10 or 20 year and one target year can be set within the planning period. In Lesotho the planning period of 20 years was chosen and the target year of 2020 to correspond to the target year in the government's vision document. As illustrated on the graphs above, the investment estimates e.g. for new services only cover the time until the target year and therefore the planning period effectively is the period until the target year and not the 10 or 20 year planning period.

In Lesotho, the bulk water systems and other investments have been planned with a horizon until 2035 and therefore it was important to use this longer outlook for the strategic financial planning as well as the possibility of setting targets for the MDGs in 2015 and the government's targets in 2020.

4. Geographical versus analytical regions: initially the districts in Lesotho were chosen as the natural geographical regions. Each district (region) would therefore have one or more urban municipalities and two different kind of rural municipalities: the accessible and the inaccessible villages. It was later realised that this choice of regions limited the analysis that were possible in the FEASIBLE since it would not be possible to analyse the urban areas together and separately from the rural areas. This could only be done for the individual municipalities and not for the urban areas as a group. Since the characteristics of the urban areas (utility water supply and payment of tariffs) is different from the rural (community managed water systems with come contribution by users to O&M costs and also government subsidies for O&M) it would be important to analyse the two areas separately.

The data was therefore restructured so that the urban and rural was specified as the 'regions' rather than the geographical regions. This facilitates the analysis on a regional basis however it poses other problems as statistics such as GPD are not available per for urban areas separately from the rural areas.

The experience is that when using the FEASIBLE one needs to consider the regional structure versus analytical possibilities as well as availability of data.

5. Pipe network data – default pipe lengths: the FEASIBLE model has the possibility of entering water and wastewater network data – for the existing networks and the networks that would be expected in the target year. The model has default network data that can be used however since the default pipe lengths and sizes do not correspond well to typical pipe systems in Lesotho[10] it was decided to enter the network data.

The availability of the network data became a problem since WASA did not have assets register over the below ground assets. The only source of network data was the existing engineering drawings over the pipe systems and the pipe data was measured manually on these and from network models made available by different consulting engineers that had worked for WASA in the past on network design.

The lesson from this is that i) it can be time consuming and difficult to get reasonable accurate data for financial planning; and ii) to be cost effective, water utilities need to manage the use of consultant better and ensure that there is in-house capacity for e.g. network modelling so that the vital data does not end being held by different consulting companies.

[10] Use of FEASIBLE also tested in Uganda where the pipe lengths also were a problem.

6. Data requirements: the data requirements for the FEASIBLE model are extensive and in some cases it can be difficult to assess the value of variables e.g. remaining value of assets, renovation %; efficiency after renovation; number of pumping stations for sewerage required in the target year; size of pipe network in the target year etc.

The FEASIBLE is nicely designed with data entry formats however it is rather time consuming to enter the data since it is done for one municipality at a time and one need to go back and select region and municipality for entering the next. If many of the municipalities have similar characteristics it would be easier if the data entry was done in the table format where all the municipalities were available. It would also be easier to compare the entries and identify entry mistakes if the data for different municipalities would be visible at the same time.

The FEASIBLE needs the data in a specific format and this requires some effort also if the tool was to be used on a continuous basis. Use of tools that link to existing data systems in the water sector institutions seems to be a way to reduce the specific work on updating the financial estimates.

In conclusion, the experiences from using the FEASIBLE tool in Lesotho indicate that:

- the model is well suited for the urban areas and the conventional water and sewerage technologies;
- The model seems to be more difficult to use and does not seem to respond adequately to the rural water supply situation in Lesotho and does not easily capture sanitation aspects that differ from the conventional sewerage systems;
- The tool is well designed and offers a number of options for level of data entry e.g. using default values for pipe network data. However the validity of the results obviously depends on the accuracy of the data;
- Substantive pre-modelling is needed e.g. of demand forecasts to provide credible data inputs to the FEASIBLE tool;
- Rather than attempting to design a generic tool that can cover all the diverse situation for water and sanitation in African countries, it might probably be more fruitful to focus the tool on the analysis of financing for the conventional utility water and sewerage service provision since this sector has a number similarities across countries – as opposed to the rural sector that is more diverse and often country specific.

Annex B: Priority Project Descriptions

1. Connections in Urban Areas

Objective: Improve access to water in urban areas and financial viability of WASA

Outputs:

1. Strategy for increasing the domestic connection rates including meter calibration and replacement, pre-paid meters etc
2. Improved consumer data base and network mapping
3. 10% of water meters calibrated per year and y number of meters replaced
4. X number of new connections

Scope of Work:

The activities are envisaged to include but not be limited to the following:

Output 1: Strategy for increasing the domestic connection rates

1.1 Consultations with WASA on existing strategies for management of the reticulation systems and metering as well as previous studies and pilot projects on different approaches to increase the connection rates and improvements on metering. Desk study on previous willingness and ability to pay studies and socio-economic/ poverty studies on the population in urban areas in Lesotho

1.2 Carry out market research on water meter technologies including but not limited to 'smart meters' and different types of telemetric reading of meters. Assess the relevance in the urban water sector in Lesotho and the experiences elsewhere in the region with new metering technoloties

1.3 Carry out field studies/ sample surveys if the need is identified under 1.1 for additional studies e.g. on the social acceptability of pre-paid meters

1.4 Assess the existing facilities and staff for meter calibration and replacement as well as the requirements in terms of work load and other resources to implement new connections and improved management of meters

1.5 Discuss with stakeholders and WASA management and staff and document a strategy for increasing the domestic connection rates and for management of the metering systems including calibration and replacement. The strategy shall include a monitoring plan.

1.6 Present the strategy to water sector stakeholders and finalise

Output 2: Improved consumer data base and network mapping

1.1 Analyse the existing data on consumers and the WASA billing data base as well as the ongoing work on establishing a GIS for WASA systems and network mapping activities

1.2 Analyse the need for information on consumers for planning and communication with the consumers

1.3 Document proposed improvements to the data base and network mapping activities

1.4 Present to WASA Management and sector stakeholders

1.5 Implement the proposed improvements – could include GPS measurements of all existing customers and collection of characteristics on households and commercial/ industrial use

Output 3: Z % of water meters calibrated per year and Y number of meters replaced

3.1 Implement the improvements to calibration tools and assignment and training of staff etc as identified in the strategy

3.2 Carry out calibration of the target number of water meters per year

3.3 Monitor the meter calibration and replacement activities and analyse the effect on water billing

3.4 Prepare report documenting the experiences and outcome of the calibration and meter replacement programme

Output 4: X number of new connections

4.1 Implement the pre-requisites for the strategy for increasing the connection rates in urban areas as developed under output 1 including assignment of adequate resources for implementing the connections

4.2 Implement the new connections in accordance with the applications from customers

4.3 Monitor the connection rates and the consumption patterns from the new connections to provide information for assessing the financial viability of the connection strategy and possible need for subsidies for continued implementation of the strategy

4.4 Prepare report on the new connections and the effect on the financial viability for WASA and present to sector stakeholders and the regulator

Time frame: 2 years

Implementation Responsibility: WASA with assistance from consultants.

Resources:

Output 1: 2 person months of WASA professional input and 2 person months of consultancy input + approximately 100,000 for research assistants etc for field studies

Output 2: 1 person month of WASA professional input and 2 person months of consultancy input for analysing and developing the customer data base and GIS + approximately M 1,000,000 for survey assistants, GPS equipment etc for implementing the surveys

Output 3: Assignment of WASA workshop staff and field staff for calibration of 5000 water meters per year (equivalent to 25 meters per day). Approximately M 1,000,000 for workshop and field tools, transport etc. M 1,200,000 per year for replacement of meters – assuming 50% needs

Output 2: Capital cost of 5,000 new connections per year approximately M 20,000,000 less the contribution from the customers as determined by the strategy

Total budget approximately M 35,000,000.- + water sector staff input

2. Free Basic Water

Objective: Operationalise the water policy on free basic water

Outputs:

1. Definition and data on vulnerable households (BOS)
2. Strategy for implementing free basic water for urban water services including connections, water tariffs and who pays (taxes or tariffs)
3. Strategy for implementing free basic water for rural water services including the institutional and budget responsibilities

Scope of Work:

The activities are envisaged to include but not be limited to the following:

Output 1: Definition and data on vulnerable households

1.1 Consultations with the Bureau of Statistics and other stakeholders on the definition of vulnerable households in the context of provision of free basic water

1.2 Assessment in cooperation with the Bureau of Statistics of the data requirements and links to the ongoing work of the Bureau for providing data on vulnerable households

1.3 Document the definition and data availability on vulnerable households and present the baseline data

Output 2: Strategy for implementing free basic water for urban water services including connections, water tariffs and who pays (taxes or tariffs)

2.1 Analyse the existing data on WASA consumers and the data on vulnerable households and assess the scope/ magnitude of the free basic water provision in urban areas

2.2 Discuss with WASA and other stakeholders on the possibilities for implementing free basic water and document the options for provision of free basic water and the pros and cons in terms of fairness, ease of administration and monitoring and loyalty to the policy principles

2.3 Present the options and pros and cons to stakeholders

2.4 Estimate the cost of the preferred option and prepare a policy paper for presentation to high level decision makers for approval

2.5 Prepare implementation guidelines for operationalising the free basic water in urban areas including monitoring and evaluation plane

Output 3: Strategy for implementing free basic water for rural water services including the institutional and budget responsibilities

3.1 Analyse the existing data on rural water consumers and the data on vulnerable households and assess the scope/ magnitude of the free basic water provision in rural areas

3.2 Discuss with DRWS, District and Community Councils and other stakeholders on the possibilities for implementing free basic water and document the options for provision of free basic water and the pros and cons in terms of fairness, ease of administration and monitoring and loyalty to the policy principles

3.3 Present the options and pros and cons to stakeholders

2.4 Estimate the cost of the preferred option and prepare a policy paper for presentation to high level decision makers for approval

2.5 Prepare implementation guidelines for operationalising the free basic water in rural areas including monitoring and evaluation plan

Time frame: 6 months after data on vulnerable households are available from Bureau of Statistics

Implementation Responsibility: COW's Office in cooperation with WASA and DRWS and with assistance from consultants.

Resources:

Output 1: 1 person months of COW's Office professional input and 1 person months of consultancy input + cost for Bureau of Statistics of providing data if the requirements are in addition to the Bureau's normal surveys

Output 2: 2 person month of COW's Office and WASA professional input and 4 person months of consultancy input for analysing and documenting the options, presenting, estimating the cost and preparing operational guidelines. Expenses for transport and workshops approximately M 50,000.

Output 3: 2 person month of COW's Office and DRWS professional input and 4 person months of consultancy input for analysing and documenting the options, presenting, estimating the cost and preparing operational guidelines. Expenses for transport and workshops approximately M 50,000.

Total budget approximately M 1,000,000.- + water sector staff input