

# Malawi Sector Performance Report 2011

Irrigation, Water and Sanitation

---

April 23, 2012

For the Ministry of Agriculture,  
Irrigation and Water Development

## Acknowledgements:

This report has been produced by Delta Partnership ([www.deltapartnership.com](http://www.deltapartnership.com)) for the Ministry of Agriculture, Irrigation, Water and Development with the support of UNICEF. The consultancy team consisted of Aileen Lyon, Kevin Sansom, Joseph DeGabriele, Duncan Mhlanga and Golden Msilimba.

The data was provided from a range of sources including the Ministry, the Water Boards and UNICEF. Of particular support were the Technical Working Groups. These include Institutional Development and Capacity Building, Water Resources, Water Supply, Water for Production, and Sanitation and Hygiene. In particular the TWG on Monitoring and Evaluation provided vital support and advice.

The team would like to thank all those involved in the production of this report.

## Acronyms

ACGF	Africa Catalytic Growth Fund
ADB	African Development Bank
ADD	Agricultural Development Divisions
ADF	African Development Fund
AISP	Agriculture Infrastructure Support Project
AusAID	Australian Aid
BADEA	Arab Bank for Economic Development in Africa
BWB	Blantyre Water Board
CBO	Community-Based Organisation
CCAP	Central Church of Africa Presbyterian
CLTS	Community-Led Total Sanitation
CSO	Civil Society Organisation
DAES	Department of Agricultural Extensions
DHS	Demographic Health Survey
DOI	Department of Irrigation
DWO	District Water Offices
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EIMU	Education Infrastructure Management Unit
EMIS	Education Management Information System
EPA	Environmental Protection Agency
EU	European Union
GDP	Gross Domestic Product
GIZ	Gesellschaft für Internationale Zusammenarbeit
GoM	Government of Malawi
GSF	Global Sanitation Fund
HBC	Home-Based Care
HPI	Headline Performance Indicator
HWF	Health and Water Foundation
IDA	International Development Association
ID&CB	Institutional Development and Capacity building
IFAD	International Fund for Agricultural Development

---

ISD	Irrigation Services Division
ISMs	Institutional Support Mechanisms
IWSS	Irrigation Water and Sanitation Sector
JMP	Joint Monitoring Programme
JSR	Joint Sector Review
KHP	Key Hygiene Practices
KMU	Kiosk Management Unit
LWB	Lilongwe Water Board
MDGs	Millennium Development Goals
MEJN	Malawi Economic Justice Network
MDGs	Millennium Development Goals
MGDS	Malawi Growth and Development Strategy
MIDSUP	Malawi Irrigation Development and Support Programme
MK	Malawi Kwacha
MoAIWD	Ministry of Agriculture, Irrigation, Water and Development
MoEST	Ministry of Education Science and Technology
MoF	Ministry of Finance
MoiWD	Ministry of Irrigation and Water Development
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
NICCO	National Insurance Company limited
NRW	Non-Revenue Water
NSO	National Statistics Office
NSP	National Sanitation Policy
NWDP	National Water Development Programme
ODF	Open Defecation Free
Ofid	OPEC Fund for International Development
ORT	Other Recurrent Transactions
O&M	Operation and Maintenance
RWM	Rural Womens Movement
SANAA	Servicio Autonomo Nacional de Acueductos y Alcantarillados
SCPMP	Smallholder Crop production and Marketing Project
SFIP	Small Firms Irrigation Project
SFPDP	Smallholder Flood Plains Development Programme
SPR	Sector Performance Review
SSB	Sanitation Sector Board
SSID	Smallholder Crop Production Development Study
Stds	Standards
SWAp	Sector Wide Approach
TMO	Tecnico en Operacion y
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
US	United States
VIP	Ventilated Improved Pit latrine
WASH	Water Sanitation and Hygiene
WATSAN	Water and Sanitation
WfP	Water for Production
WMS	Welfare Monitoring Survey
WSS	Water Supply and Sanitation
WUAs	Water User Association

---

## Contents

<b>Executive Summary .....</b>	<b>i</b>
<b>1 Introduction and background .....</b>	<b>7</b>
1.1 Report purpose .....	7
1.2 Report structure .....	7
<b>2 Headline indicators and undertakings .....</b>	<b>8</b>
2.1 Headline indicators .....	8
2.2 Undertakings.....	9
<b>3 Sector financing .....</b>	<b>12</b>
3.1 Headline indicators .....	12
3.2 Overview of financing in the sector .....	12
3.3 Development Partner support.....	14
3.4 Sub sector financing.....	15
3.5 Sub-Sector District level financing through local councils.....	17
3.6 Conclusions and recommendations.....	18
<b>4 Water Resource Management.....</b>	<b>20</b>
4.1 Headline indicators .....	20
4.2 Availability and use of water resources.....	21
4.3 Progress on key sub-sector activities 2010/11 .....	23
4.4 Conclusions and recommendations.....	23
<b>5 Water for production - irrigation .....</b>	<b>26</b>
5.1 Headline indicators .....	26
5.2 Progress on current irrigation schemes.....	26
5.3 Development of irrigated land.....	28
5.4 Conclusions and recommendations.....	31
<b>6 Access to, and use of, water services.....</b>	<b>32</b>
6.1 Headline indicators .....	32
6.2 Access to water supply .....	32
6.3 Conclusions and recommendations.....	38

---

<b>7</b>	<b>Access to, and use of, sanitation services .....</b>	<b>40</b>
7.1	Headline indicators .....	40
7.2	Access to improved sanitation in rural areas.....	41
7.3	Access to improved sanitation in urban areas.....	43
7.4	CLTS and ODF strategy .....	45
7.5	Hand washing.....	45
7.6	Schools WASH .....	48
7.7	Conclusions and recommendations.....	56
<b>8</b>	<b>Equity of water and sanitation services .....</b>	<b>59</b>
8.1	Equity of urban water supply.....	59
8.2	Equity of rural water supplies .....	61
8.3	Equity in access to improved sanitation .....	62
8.4	Conclusions and recommendations.....	62
<b>9</b>	<b>Functionality .....</b>	<b>65</b>
9.1	Functionality of rural piped water schemes .....	65
9.2	Conclusions and recommendations.....	66
<b>10</b>	<b>Management of water services .....</b>	<b>67</b>
10.1	Headline indicators .....	67
10.2	Management of rural water services.....	69
10.3	Conclusions and recommendations.....	72
<b>Annex 1.</b>	<b>Definitions and standards .....</b>	<b>74</b>
<b>Annex 2.</b>	<b>Progress on 2011 undertakings.....</b>	<b>79</b>
<b>Annex 3.</b>	<b>Sub sector objectives .....</b>	<b>88</b>
<b>Annex 4.</b>	<b>Documents consulted .....</b>	<b>90</b>
<b>Annex 5.</b>	<b>Irrigation projects .....</b>	<b>91</b>

---

## Executive Summary

This annual Sector Performance Report (SPR) is a key source of information on the performance of the Irrigation, Water and Sanitation sector (IWSS) in Malawi. The main goal of the 2011 SPR is to inform discussions and decisions of the Joint Sector Review (JSR), which will be held in April 2012. Led by the Ministry of Agriculture, Irrigation, Water and Development (MoAIWD), conclusions and recommendations from the JSR will enable the Government of Malawi (GoM) to set investment priorities that will contribute to national poverty reduction goals. The 2011 SPR is structured in order to achieve the following:

- ✓ Assess overall sector performance
- ✓ Review progress against key indicators
- ✓ Highlight areas where data are lacking
- ✓ Provide a template for future reports

The report covers seven principal areas for discussion: sector financing, Water Resource Management, Water for Production (WfP), access to and use of water and sanitation services, equity, functionality, and the management of water services. Definitions and standards, as agreed by the Technical Working Group (TWG) on Monitoring and Evaluation (M&E), the MoAIWD draft national definitions, Joint Monitoring Programme (JMP) definitions, and WASH standards in school can all be found in Annex one.

This SPR reports on the key indicators and sector undertakings that were discussed in the JSR in 2011. As agreed across the sector in a consultative process led by the TWG M&E, the sixteen headline indicators - described in full in section 2.1 – cover access to and use of water and sanitation services, WfP, functionality, equity and management, sector financing and water supply. Data for the headline indicators were gathered through government and UNICEF reports, independent research, working papers and two key surveys – the Welfare Monitoring Survey (WMS) of 2011 and the Demographic Health Survey (DHS) of 2010 – details of which can be found in Annex one. Seventeen undertakings were agreed in the 2011 JSR, with six working groups assigned to achieve and report back on these actions for the 2012 JSR. The working groups are responsible for Institutional Development and Capacity Building (ID&CB), Water Resources, Water Supply, M&E, WfP, and Sanitation and Hygiene. Performance against these undertakings is summarised in section 2.2, and a full analysis given in Annex two.

### Sector Financing

Chapter three describes the state of IWSS financing in Malawi: how much money the sector receives, where it comes from and how it is managed.

Financing for IWSS in Malawi mostly comes from public funding through the national budget with additional support from development partners. Non-Governmental Organisations (NGO) and the private sector play a complimentary role, although their financial contribution cannot be quantified at this time. The projected trend from 2010 to 2014 is for public funding to increase by 29%, while local development budgets are projected to fall by 33%. The projected contribution from development partners for the fiscal year 2013/2014 is unknown at this time. The public budget estimate for the fiscal year 2011/2012 is at the highest level with MK 7,270.42 million, representing 2.3% of the total national budget. This is an increase of 0.6% from the previous year. Development partner support is the major source of influence on resource growth. Although the sector can

#### Sector Financing

- Increasing resource allocation growth
- High influence of foreign donors
- 0.2% of national budget to districts
- Focus on urban water supply
- Weak financial management
- Overstretched human resources
- Lack of management initiative
- Challenges obtaining sub-sector data

boast an increasing trend in public funding for IWSS, the figures also show that the IWSS commands only 1.72% of the national budget.

The project management arm of the MoAIWD, the National Water Development Programme (NWDP) handles the administrative support for all projects across the districts, irrespective of who manages the funds, to ensure effective and harmonised implementation of all IWS project activities across the country. However, data on disbursement rates and project completion time, as well as data on district vacancies and recurrent budget expenditures, strongly suggest that there are inadequate human resources within MoAIWD therefore limiting effectiveness and efficiency in use of financial resources.

The capacity of the IWSS is not currently able to take advantage of the benefits of decentralised spending. This situation is exacerbated by an absence of district-level senior staff able to influence district-level budgetary allocations towards IWSS needs, and a very low human resource capacity at the district level. Other sectors such as Health (9.208 million MK) and Education (2.157 million MK) continue to enjoy a higher share of the district budget allocation (0.517 million MK). In other countries in the region, sanitation funds are directly under the Health sector, an approach worth considering in future years.

The challenge of obtaining sub-sector data remains in fiscal year 2010/2011. Aggregate data would provide a clear perspective of the sector's performance, allowing sector planning managers to make relatively more accurate decisions and investment plans with the available resources.

### **Water Resource Management**

Chapter four discusses the significant challenges that remain for the Water Resources sub-sector, with many projects failing to reach their targets. This is due to a number of reasons including limited financing, central-level planning, poor monitoring, and accessibility issues.

Malawi is water stressed, with some source estimating that it will become a water scarce country, with less than 1,000m<sup>3</sup> of freshwater available per capita per year by 2015. The majority of demand is for competing agricultural uses rather than domestic use, making the development of effective integrated Water Resource Management (WRM) critical. Under the Vision 2020 medium economic growth scenario, the national total demand for water increases significantly over 70% of the nationally available surface water resource.

#### **Water Resource Management**

- Progress in a number of areas
- Limited and low quality data
- Low human capacity
- Limited financing
- Central-level management
- Poor monitoring

For many Water Resource Areas (WRAs), recent data show that demand is already outstripping supply in 2010. The situation is expected to worsen significantly. For surface water resource availability, the effects of climate change are only predicted to increase in the wet season by 4%, decrease in the dry season by 10%, and decrease by nearly 50% in the drought condition dry season. Estimates suggest that sustainable groundwater resources make up only 2% of the nationally available total water resource. Groundwater resources have limited use due to the expected low yield of new boreholes and wells, with the majority expected to be used for domestic supply and livestock farming. By and large, groundwater resources are unlikely to form a significant part of the overall water resources investment strategy.

Progress on key sub-sector activities, such as dam building, is slow. A major contributing factor is the lack of staff and resources. The Directorate lays claim to a vacancy rate of 75%: of 350 establishment

posts, only 85 are reported as filled. Without human resource capacity, assessments, monitoring and protection of strategically important water resources cannot be carried out. Further challenges described by the Directorate, and listed in section 4.4 include human and financial capacity issues.

### Water for Production

The Department of Irrigation is tasked with the development of irrigated land through publically funded and other stakeholder irrigation schemes and projects. The department has not fully achieved agreed targets, facing major challenges as it works to achieve the national irrigable potential. Despite plans to build the capacity of staff and farmers, chapter five describes many schemes that have not met their targets. For example, for new irrigation schemes in smallholder farms, less than 20% of the 2618.4-hectare target has been achieved.

Key outputs of the directorate include rehabilitation and construction of irrigation schemes, development of farmer organisations, and the promotion of modern irrigation technologies. Malawi has between 400,000 and one million hectares of land that can be potentially irrigated. However, the challenges of inadequate capacity of contractors and consultants, institutional misplacement, water and land issues, and poor financial management, have held back the projects and led to low achievements discussed in this chapter. Notably smallholder farmers play a big role in the majority of the development projects described.

#### Water for Production

- Budget shortfall
- Contractor issues
- Land disputes
- Success of community-based smallholder irrigation projects
- Decline in private estate irrigation
- Lack of human resource capacity
- Management of capital equipment

### Access to, and use of, Water Services

Chapter six considers the time and distance taken to access water and methods of water treatment, and also describes the impact of district-level projects such as the UNICEF WASH project. Time to access water directly affects water consumption, which impacts on health-seeking behaviours around water such as bathing, food hygiene and hand washing. This section considers these issues in more detail.

Access in rural communities is not improving. Since the MDG target of 80% was achieved in 2007, there has been no further progress. A 6% decline in urban dweller access since 2007 is also of concern: the sector will struggle to achieve the MDG target of 95% access. For urban populations, the high population growth rates and infrastructure challenges put more pressure on obtaining these targets. Even those with access suffer frequent supply interruptions, and one study of low-income users shows a shift to low water quality unprotected sources mainly due to these interruptions.

The average number of users per water point is within the national definition of coverage (234 users per water point, with national definition of 250). Point of use treatment such as chlorination or ceramic filters need to be promoted, and new low-cost filtering technologies investigated, as the data show some districts with very low rates of water treatment. Some districts frequently report cholera outbreaks despite high access to improved water.

#### Access to and Use of Water Services

- Urban access decline
- Rural access static
- Supply interruptions
- Low-income users and unprotected, low quality sources
- Low functionality rate
- Investment in new, low-cost technologies



### **Access to, and use of, Sanitation Services**

The importance of improved sanitation is described in Chapter seven. Access to, and use of sanitation services in schools and households are highlighted here. Data were collected through JMP, DHS, WMS and two development projects. Taking TWG M&E recommendations into account, further disaggregated data were collected. Coordination between the TWG M&E and JMP demonstrate the complexity of agreeing clear definitions. Data discrepancies due to differing definitions are also outlined.

The data from JMP, DHS and WMS show an increase in shared toilets in rural areas and decreased access in improved sanitation and open defecation. Data for urban areas demonstrate an increase in open defecation, unimproved and shared toilets, with no change in improved sanitation: this is particularly the case in high density, low-income urban areas.

The impact rate of the UNICEF WASH programme is currently just under 40%, with 54,819 new latrines constructed in 1413 Open Defecation Free (ODF) villages within four years. Through the construction of toilets, trigger villages achieve ODF status with community-led methodology in sanitation related activities. Some of the challenges have included a lack of follow up (specifically in the leading Mchinji district), and low shift rates from trigger village to ODF status.

Attention to the lifespan and benefit cost of the toilets is critical to sustain the results of these programmes. With the data obtained, it is shown that the investment of a toilet costing between \$13.30 and \$33.90, and with a lifespan beyond one or two years, is a good investment with gains of \$30 per person per annum.

#### **Access to and Use of Sanitation Services**

- Clear definitions
- Low cost sanitation technology
- Capacity building and technical assistance
- Operations and maintenance
- Integrate community-led total sanitation (CLTS) methodology projects with district-level activities
- Competitive design necessary
- Private sector business approach
- Need for standardisation and guidelines

For the assessment of water and sanitation access in schools, there is a national survey conducted by the Department of Education Planning. From the 2008 baseline and subsequent 2010 survey, data show that schools have faced an increase in pupil and teacher numbers. This is due to a decrease in school numbers and increase in enrolment. In schools, boreholes remain the most important source of improved water, with a significant reduction in the reported use of unprotected hand dug wells. Districts with low pupil/ drop hole ratios often have many old latrines that are not fully functional. Overall, schools showed a preference for pit latrines, irrelevant of the environmental suitability of that technology.

One project in Blantyre and Mzuzu urban schools uses ecological sanitation solutions to promote resource recycling, and employs the use of school caretakers to clean the sanitation facilities, while rehabilitating toilets using district funds. This project stresses the cost benefit of new technologies.

### **Equity of Water and Sanitation Services**

The most common service option for urban low income areas – water kiosks – is seen to work as a form of water rationing since there is limit to the amount of water people can carry to their homes. Only 31% of households have their own piped water, with 24.3% of households in urban areas taking more than 30 minutes to collect water. Most common in Blantyre and Lilongwe, the performance management and regulation of these water kiosks is examined in chapter eight.

Often critiqued as top heavy and costly, Water User Associations (WUA) achieve cost recovery and reasonably manage the water kiosks. WUA is seen as the preferred management system, which can manage a higher number of kiosks, is established by the community, registered with the Government, and is based on business principles of cost recovery and profit making.

However, the regular water shortages lead to reduced revenues, which affect future capital investment and the WUAs' ability to cover fixed staff costs.

### Functionality

It is critical that facilities must be maintained beyond the life of a project or intervention: if an improved source is not functioning, households will turn to unimproved sources. A study of functioning taps in three regions showed a marked decrease in functionality. From over 90% of functioning taps in the early 1980s, data for the Northern region now shows that only 23% of taps are functioning. Fourteen of the schemes have no functioning taps at all. In Central and Southern regions, 53% and 41% of the taps are functioning respectively. These rural piped water schemes are low cost and can serve households directly or nearby. Only by introducing a dedicated rehabilitation scheme is there an increase in the number of functioning taps. Declining yields at the water sources also account for some of the low figures in functionality. This needs to be investigated better to determine whether yields can be improved, or alternative locations sourced.

### Equity & Functionality

- Performance management and regulation of water kiosks
- Water User Associations
- Community-led business principles in action
- Alternative providers for pipe networks
- Maintenance of facilities is critical
- High performers such as Phalombe

### Management of Water Services

Two main city water boards and three regional water board manage Malawi's urban water supplies. Chapter 10 considers the trends in performance against the headline indicators and other important urban water indicators, and suggests key priorities. All water boards have increased their water production, although the growth in water production has not kept pace with urban population growth. The number of customers has also increased in all regions. However, in regions where the connection fee has increased, the relative increase in customers has been lower (i.e. 74% in Southern and only 13% in Blantyre). The new connection fee deters low-income households to connect.

The Non-Revenue Water (NRW) figure is high against typical targets; even based on international comparisons. The five water boards' NRW range from 26% to 47% against typical targets of 20% to 25%. The lack of funds and human resources to tackle some of the causes of high NRW figures, such as monitoring, equipment rehabilitation and water source management.

### Service Management

- Proposed reorganisation of Water Boards
- Urban population growth
- Electricity costs of pumping and power outages
- Increased connection fees
- High Non-Revenue Water
- Institutional payment delays and cash flow
- Sustainability of improved water services
- Financial and human resource capacity challenges
- Equipment rehabilitation
- Institutional Support Mechanisms (ISM) in Latin America

### Main Recommendations

These recommendations would assist in developing effective proposals as part of the JSR and existing undertakings listed in chapter two and detailed in Annex two.

#### Sector financing

- Improve capacity to improve fund utilisation rates
- Consider funding sanitation initiatives through the health sector
- Improve data availability, encouraging NGOs and the private sector

Water Resource Management	<p>Funding limits achievement of targets</p> <p>Centralised planning and management of borehole construction</p> <p>Greater capacity required to monitor boreholes required</p> <p>Staff recruitment required to assess strategic resources.</p>
Water for Production - irrigation	<p>Improve capacity to lobby for extra resources</p> <p>Improve monitoring of contractor work – quality and timeliness</p> <p>Support and motivate private estates, e.g. using Public/ Private Partnerships</p> <p>Strengthen data and monitoring systems</p>
Access to, and use of, water services	<p>Promote low cost drilling and water supply technologies</p> <p>Increase functionality through rehabilitation, involving the private sector</p> <p>Promote point of use treatment</p>
Access to, and use of, sanitation	<p>Focus on construction of toilets for the 11% of the rural population without toilets – plus address growing population and non-functionality</p> <p>Increase number of ODF villages</p> <p>Explore low-resource CLTS implementation and learn and share lessons</p> <p>Improve data and monitoring</p> <p>Improve sanitation marketing</p> <p>Implement recommendations of recent studies and national workshops (sanitation marketing and school WASH)</p>
Equity	<p>Prioritise local community ‘self-regulation’ such as the WUA</p> <p>Use lessons from other countries in Africa on alternative providers</p>
Functionality	<p>Learn lessons from high-performing districts and water schemes, such as Phalombe district</p> <p>Determine additional resources and support for WUAs, and how best to deliver that support</p>
Management of urban water services	<p>Focus on continuing improvements by Water Boards so that urban water sector can contribute effectively to the health and economic development of Malawi</p> <p>Provide Water Boards with sufficient organisational and financial autonomy in order to move towards self-financing status</p> <p>Clarify medium-term financial objectives of the Water Boards</p> <p>Learn lessons from high performing water utilities elsewhere in Africa</p> <p>Enable government institutions to pay water bills, ensuring Water Board have adequate cash flows</p> <p>Develop appropriate targets for increasing the number of customers and volumes of water produced for each Water Board</p> <p>Develop a more comprehensive strategy for serving the urban poor, working with CBOs and the local private sector, using lessons from other African countries</p>
Management of rural water services	<p>Provide adequate support to community-based management of rural water supplies by working on the undertakings of the TWG ID&amp;CB: develop a Sector Devolution Plan and develop a funding mechanism to support SWAp</p> <p>Develop a good ‘business case’ for increased investment in the water and sanitation sector</p> <p>Develop a medium-term strategy for the supporting WUAs and Water Committees for both piped schemes and point sources</p>

# **1 Introduction and background**

This annual Sector Performance Report (SPR) for the calendar year 2011 has been prepared for the Joint Sector Review (JSR) of April 2012. The JSR enables the Government of Malawi to set priorities for investment in the sector to contribute to national goals of reduced poverty. More specifically, performance in the sector will be reviewed and strategic guidance provided, resulting in recommendations to improve the sector's performance in achieving the sector goal, national and global targets including those stated in the Vision 2020, the Malawi Growth and Development Strategy (MGDS) and in meeting the Millennium Development Goals (MDGs).

This process builds on previous years, particularly the production of SPR 2010 which was used in the JSR in 2011. At that JSR and in follow-up meetings, a discussion was held on agreeing key indicators and sector undertakings. The key indicators have been agreed and are reported on below. The key undertakings will be discussed in further detail in the 2012 JSR.

As the lead institution of the sector, the Ministry of Agriculture, Irrigation, Water and Development (MoAIWD) leads the government as a whole in improving access to irrigation, water and sanitation services for the citizens of Malawi.

## **1.1 Report purpose**

This 2011 SPR provides information on performance to inform discussions and decisions of the JSR. Specifically, this SPR is organised to:

- i. Assess overall sector performance in delivering sustainable services (urban, town and market centres and rural water supply and sanitation, irrigation and regulation)
- ii. Review progress against agreed key indicators
- iii. Highlight areas where data was not available for inclusion in this report
- iv. Provide a template for the production of future reports, to be led by the Department of Planning in the Ministry.

The JSR process will produce agreed Minutes and a report containing an assessment of sector performance and consequent conclusions and recommendations for further action.

## **1.2 Report structure**

The report is split into ten principal chapters. The headline indicators and undertakings from the last Joint Review Meeting are given in chapter two. This is followed by sections on sector financing, Water Resource Management and water for production. Chapters six and seven deal with access to, and use of, water and sanitation services. Chapters eight and nine address equity and functionality and ten looks at the management of water and sanitation services.

## 2 Headline indicators and undertakings

### 2.1 Headline indicators

The following indicators have been agreed across the sector in a process of consultation and discussion led by the Technical Working Group (TWG) on Monitoring and Evaluation (M&E). Performance against these indicators is given and the relevant chapter indicated.

Indicator	2010 <sup>1</sup>	2011	Page #
1. % of households within 500 m (Rural) and 200 m (Urban) of an improved water sources. Disaggregated (urban, rural)	80	Nat 79 Rural 77 Urban 92	32
2. % of people whose average total time to collect drinking water (from the main source) is less than 30 min. Disaggregated (urban, rural)	Rural 78 Urban 94	Nat 57 Rural 54 Urban 76	32
3. % annual increase in total area of land that is developed for irrigation	10.3	2.0	26
4. % of people that use improved Sanitation, Disaggregated by rural, urban, town and market	Nat. 46 Rural 44 Urban 50	Nat 9 Rural 7 Urban 22	40
5. % of Schools with “adequate” WASH facility	23	Water supply 78.2 Av per drop hole 120	40
6. % of household observed to have functioning hand washing facilities with soap or ash besides the toilet	n/a	n/a	40
7. % of improved water point sources that are functional at time of checks	67.6	42.4	32
8. % of total irrigated land developed that is being utilised	n/a	n/a	26
9. % change in average annual water production (m <sup>3</sup> ) on piped water supplies	n/a	n/a	26
10. % of water sample that comply with national stds taken at i. the point of water collection, and ii. wastewater discharge points	n/a	n/a	20
11. Standard deviation of districts access to safe water	10.97	14.9	32
12. vacancy rate for irrigation, water sanitation staff at both district level and national level	48%	n/a	23
13. Water Board Operational Ratio- operating cost/revenues on water board systems	LWB: 0.85 BWB: 1.00 Northern: 0.79 Central: 0.87 Southern: n/a	LWB: n/a BWB: 0.86 Northern: 0.72 Central: 0.82 Southern: 0.81	67
14. % of Non Revenue Water in urban and town water	LWB: 36	LWB: 36	67

<sup>1</sup> As reported on in the 2010 SPR. Refers to latest year data available.

Indicator	2010 <sup>1</sup>	2011	Page #
supply	BWB: 48 Northern: 28 Central: 24 Southern: 31	BWB: 47 Northern: 33 Central: 26 Southern: 28	
15. % contribution of irrigation farming i) to agriculture production (tonnes), (disaggregated into smallholder & estate Farmers) ii) to household income and agriculture GDP	n/a	n/a	26
16. % of national budget allocated to the sector and % of sector funds allocated to districts	n/a	3% 0.2%	12

Headline Indicator 1 measures access to improved water sources within 500m for rural users and 200 m for urban users. Distance serves as a proxy indicator to per capita consumption. The 2010 SPR recommended that the indicator on % of people accessing safe water be either based in distance or time, but argued a strong preference to a time based indicator as it was more easily measured in surveys and was more directly related to consumption (quantity of water used) and therefore hygienic behaviour. The TWG M&E opted to include both indicators as headline indicators. The TWG M&E also worked on defining key terms such as Safe Drinking Water; Improved Water Supply Facility; Access to Improved Water; Improved Water Coverage; Improved water sources and characteristics.

The headline indicators recommended in 2010 SPR included headline 4 on the % of people using improved or basic sanitation, and no toilet, with urban and rural disaggregation. This was accompanied with a recommendation that the definitions and indicators be harmonised. The recommendation by the TWG M&E was to headline only access to improved sanitation, and to disaggregate access by populations in rural areas, market centres, towns and urban areas.

UNICEF has been working with the National Statistics Office (NSO) to harmonise the indicators, in order to make the analysis of the survey questions (Welfare Monitoring Survey –WMS - 2011) more relevant to the requirements of the sector.

## 2.2 Undertakings

A summary of progress reported by the Technical Working Groups against the undertakings is given below. These are taken from presentations given in a review meeting in April of 2012. In cases where they differ to those documented in the JSR of 2011, this is noted. The full analysis of reported progress is given in an annex.

Undertaking	Reported by	Progress
Develop a sector Devolution Plan for increasing financial resources managed by councils <sup>2</sup>	TWG – ID&CB	- Task Force revived. - Rapid Assessment of financial resources managed by the IWS at district councils has been

<sup>2</sup> This differs to the minuted JRM undertaking which is : Develop a sector devolution plan for devolving finances from the centre to the district from 3-30% for financial year 2012/13

Undertaking	Reported by	Progress
Develop a funding mechanism for the sector to support SWAp.		<p>conducted</p> <ul style="list-style-type: none"> <li>- A draft SIP was presented at NWDP Task Force meeting held on 28-03-12</li> </ul>
Create awareness on water abstraction and wastewater discharge.	TWG – Water Resources <sup>3</sup>	<ul style="list-style-type: none"> <li>- on-going work in print and electronic mass media on awareness articles</li> <li>- on-going work on the simplification of Water Rights process</li> <li>- Road map to review the National Water Policy complete including institutional and policy challenges affecting collaboration between the Water Resources Board and the Environmental Affairs Department.</li> <li>- Efforts are being made to bring together data on hydrology, hydrogeology, and water quality through the consultant. Training conducted.</li> <li>- Efforts to clarify the uniqueness of the bill has been drafted in relation to the Water Act and Policies governing the Water Sub Sector.</li> <li>- Reviewing of National Water policy is in progress and this will give the way forward for Water Resources Bill</li> </ul>
Simplify the water rights application process		
Strengthen the relationship between Water Resources Board and the Environmental Affairs Department.		
Follow up on the Water Resources Bill.		
Reduce non-functionality of water supply facilities in rural areas by 5%	TWG – water supply	<ul style="list-style-type: none"> <li>- Data gathered shows water point non-functionality is at about 30%.</li> <li>- Data presented indicate 1 to 2% of losses result from reading mistakes and customers</li> <li>- Updating of customer data base in progress</li> </ul>
Reduce NRW in urban areas to 45-35% in Blantyre and 37-30% in Lilongwe		
Headline Performance Indicator (HPI) Framework - finalise	TWG – M&E	<ul style="list-style-type: none"> <li>- The Indicators were finalised and endorsed.</li> <li>- Water and Sanitation Sector Modules for the WMS were finalised and used in the 2011 Welfare Monitoring Survey (WMS).</li> <li>- Draft booklet for the sector using the existing National Water and Sanitation policies has been developed. Still some gaps in terms of the pictures of some water and sanitation facilities</li> </ul>
definitions used by NSO surveys - finalise		
(developing data collection guidelines/booklet on sector indicators definitions) <sup>4</sup>		
Facilitate the review, updating and harmonisation of existing WfP-related policies.	TWG – water for production	<ul style="list-style-type: none"> <li>- the review established overlaps, gaps, contradictions and synergies plus made recommendations to address problems.</li> </ul>

<sup>3</sup> This differs to the minuted JRM undertaking which is: Increase number of permits for water abstraction and discharge of effluent to 10% of actual users.

<sup>4</sup> Not formally recorded as an undertaking

Undertaking	Reported by	Progress
Facilitate joint monitoring meeting of development and management of WfP infrastructures.		<ul style="list-style-type: none"> <li>- Joint monitoring meeting of development and management of WfP infrastructures - detailed report submitted to Planning Department.</li> </ul>
Facilitate production and dissemination of guidelines and best practices for efficient and effective water utilisation of water resources.		
Facilitate review and consolidation of WfP plans.		
Review and adopt relevant policies, legislation and strategies	TWG – sanitation and hygiene <sup>5</sup>	<ul style="list-style-type: none"> <li>- review of Global Sanitation Fund (GSF) Tools, Procedures and Guidelines completed</li> <li>- review of Open Defecation Free (ODF) Malawi Strategy completed</li> </ul>
Facilitate coordinated implementation of Sanitation and Hygiene Promotion Programmes		<ul style="list-style-type: none"> <li>- Roll out of the Global Sanitation Fund completed</li> <li>- Hand Washing Campaign Document launched</li> </ul>

---

<sup>5</sup> This differs from the JRM undertaking of Reduce open defecation (ODF) by 2%



## 3 Sector financing

### 3.1 Headline indicators

Indicator 16. % of national budget allocated to the sector and % of sector funds allocated to districts

**3%** of the national budget is allocated to the water sector (11% to the Ministry of Agriculture, Irrigation and Water Development, of which 8% relates to agriculture).

At district level, water sector gets **0.2%**

### 3.2 Overview of financing in the sector

IWSS sector financing in Malawi mainly consists of public funding through the national budget plus support from Development Partners. Non-Governmental Organisations and private companies play a complimentary role, which has makes a contribution to the overall financing of the sector, although the data gathering systems currently in place are not able to quantify that contribution. Table 3.1 shows the trend in budget estimates towards the sector from last year for the four years to 2013/14. These figures were obtained from the Ministry of Finance budget estimates of expenditure on recurrent and capital budgets 2010/11.

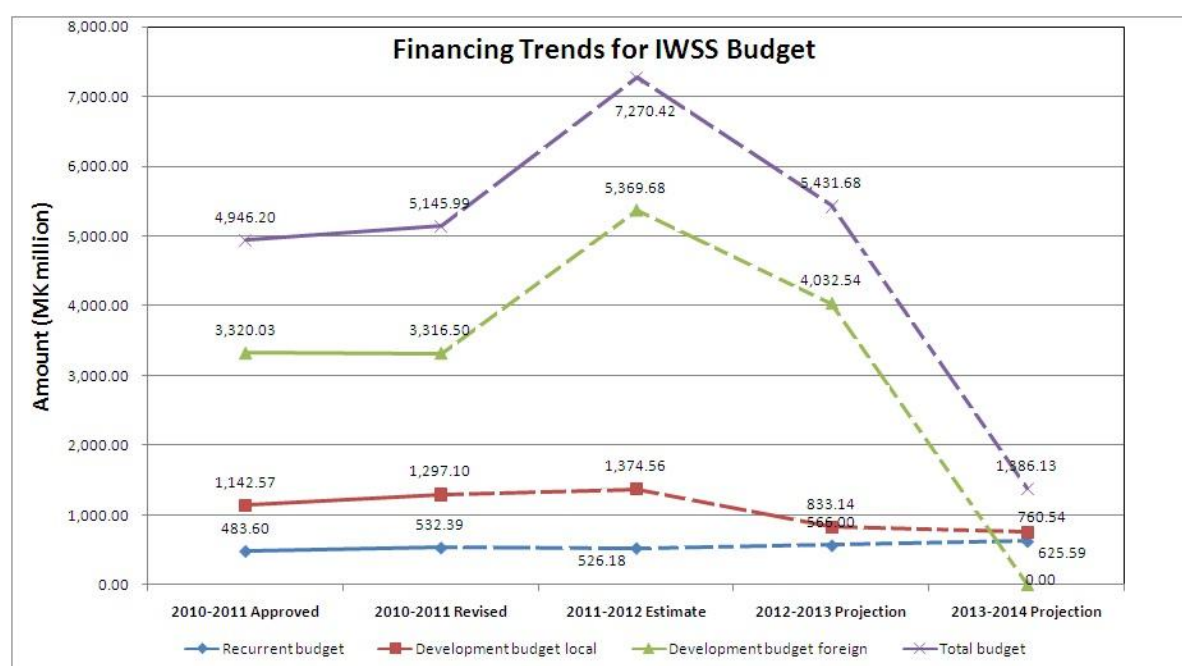
**Table 3.1: Trends in Ministry of Finance budget estimates for IWSS (MK million)**

	MK 000,000s					
	2010-2011 Approved	2010- 2011 Revised	2011- 2012 Estimate	2012- 2013 Projection	2013- 2014 Projection	% change over 4 years
Recurrent budget	483.60	532.39	526.18	566.00	625.59	29%
Development budget local	1,142.57	1,297.10	1,374.56	833.14	760.54	-33%
Development budget foreign	3,320.03	3,316.50	5,369.68	4,032.54	0.00	-100%
<b>Total budget</b>	<b>4,946.20</b>	<b>5,145.99</b>	<b>7,270.42</b>	<b>5,431.68</b>	<b>1,386.13</b>	

Source: Ministry of Finance Approved Estimates of Expenditure on Recurrent and Capital Budget for the Financial Year 2011/2012 (Output based)

The government expenditure shows a significant planned increase of almost 30%. The current planning for Development Partners is not yet finalised and so the figures are not available. The drop in estimated funding reflects the lack of this data at the current time rather than a decision to cease funding. The sector's total budget funding trend line falls sharply from fiscal years 2012/13 to 2013/14 as a result of this drop in development partner capital expenditure. Many projects managed by the NWDP expire or wind up in the fiscal year 2014 funded. The same trend can be seen in the graph overleaf.

**Figure 3.1: Financing trends for IWSS Budget**



The trend line of the total budget in Figure 3.1 reflect progressive funding from fiscal year 2010/2011 and sharply increasing to highest projected funding level of MK7,270.42 Million representing 2.3% of the overall national budget in fiscal year 2011/2012, an increase of 0.6% from the previous year. The influencing trend line is the development budget foreign, largely being donor funding of water resources development projects managed through the NWDP.

Table 3.2, which shows investment and progress on selected Government of Malawi / development partner projects, illustrates this position. Future funding to the sector requires attention by sector players since there are no government budget projections and particularly no donor support commitments beyond fiscal year 2014/15.

The MoIWD budget is compared with other sectors' budgets that make up the GoM's national budget and the share of other countries' IWSS sector budget against their national budgets within the region to draw a parallel analysis of funding status towards the sector. Table 3.2 illustrates that the trend for water sector funding is increasing, however, as presented in Table 3.3, the actual increase is towards water resources development specifically meant for irrigation agriculture under the green belt initiative aiming at rebuilding water irrigation schemes and that such funding increase is not necessarily towards the IWSS. Such low funding level towards the IWS sector presents a major challenge to undertake sector program activities that are key in meeting performance targets under the MGDS I.

**Table 3.2: Trends in budget allocation by selected sectors 2004/05 to 2010/2011**

Ministry	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11 ^
Water	0.98	0.75	0.83	0.92	1.66	2.01	3.1
Education	11.84	10.16	11.28	10.13	8.42	9.17	16.1
Agriculture	7.82	12.7	13.25	12.08	14.04	13.06	8.1
Health	10.17	7.28	7.82	10.54	10.1	8.92	15.5
Other							57.1

Source of data: \*MEJN national budget analysis 2010, ^ Ministry of Finance - Budget Statement 2010/2011

### Country comparison of 2011 National Budgets sector allocations.

Malawi seems to be on track with meeting targets under MDGS I as shows statistics in tables 3.3 and 3.4, however, presenting the aggregate funding of the water sector as being solely towards the IWSS is rather misleading since the water resources development budget code under the national budget combines funding for IWSS specific activities with that of water resources development under irrigation agriculture. Table 3.3 presents IWS sector budgets of Malawi, Zambia and Kenya as taking relatively close proportions of the national budgets, however, Zambia and Kenya programmes IWSS funding specifically under the Health Sector or Water/Sanitation programme. And as presented in Table 3.4, the GoM IWS sector budget shares 1.72% of the national budget as opposed to 3.1% presented as the water sector share of the national budget.

**Table 3.3: Sector finding by country comparison**

Sector Financing by country comparison

Sector and Sub-Sector	Malawi *			Zambia ^			Kenya ~		
	Allocation MK billion	Sector %	Sub- sector %	Allocation MK billion	Sector %	Sub- sector %	Allocation MK billion	Sector %	Sub- sector %
<b>Ministry of Agriculture, Water &amp; Irrigation</b>	<b>32.7</b>	<b>11</b>			<b>8.7</b>				
<b>Agriculture &amp; Food Security</b>	<b>23.62</b>		<b>8.1</b>		<b>6.0</b>			<b>2.3</b>	
Input subsidy programme	19.7								
maize purchase	1.9								
Agricultural research & extension service	1.3								
NFRA chemical purchase	0.62								
Small metallic silo construction	0.1								
<b>Water resources development</b>	<b>9.105</b>		<b>3.1</b>		<b>2.7</b>			<b>3.8</b>	
Greenbelt Irrigation Initiative start-up costs	2								
Greenbelt Irrigation (rehabilitation costs	0.1								
Shire Valley Irrigation project	2								
Water development initiatives (NWDP)	4.9								
Borehole construction	0.105								
<b>Ministry of Health</b>	<b>45.0</b>	<b>15.5</b>			<b>8.6</b>			<b>5.7</b>	
<b>Ministry of Education</b>	<b>46.8</b>	<b>16.1</b>			<b>18.6</b>			<b>14.3</b>	
<b>Other ministries</b>	<b>165.8</b>	<b>57.1</b>			<b>64.1</b>			<b>80.0</b>	
<b>Total recurrent &amp; capital national budget</b>	<b>290.3</b>	<b>100</b>			<b>100</b>			<b>100</b>	

**Source:** \* Ministry of Finance - Budget Statement 2010/2011, ^ Zambian Economist 8th October 2010 analysis of Zambia Budget address by Minister Hon Situmbeko Musokotwane, ~ Kenya National Assembly Official Record (Hansard) 23 June 2010

Total allocation for GoM specific IWSS activities is equivalent to 1.72% of the national budget.

**Table 3.4: Comparative progress in access to water and sanitation, 1990 – 2010**

	Access to improved sanitation RURAL 1990 – 2010	Access to improved sanitation URBAN 1990 – 2010	Access to improved water RURAL 1990 – 2010	Access to improved water URBAN 1990 – 2010
Malawi	41% - 57%	50% - 51%	33% - 77%	90% - 95%
Zambia	36% - 43%	62% - 59%	23% - 46%	89% - 87%
Kenya	27% - 32%	24% - 27%	32% - 52%	91% - 83%

Source: JMP 2010 World Progress Report (Numbers represent percentage population having access)

### 3.3 Development Partner support

The National Water Development Programme (NWDP), a project management arm of the MoAIWD manages all donor supported water resources development projects. Some DPs transfer funds

directly to NWDP while others manage the funds on their own and only delegate NWDP with the administrative role - for example the WASH UNICEF project. Table 3.5 presents the list of joint GoM/Development partner projects which NWDP is currently managing.

Funds allocation to districts for both recurrent and development budgets faces two huge challenges i.e. first, in terms of adverse variances resulting from funds released from treasury being less than the approved budgets and second, the funds released to the districts not being fully utilised. The presentation in Table 3.5 highlights key areas sector players must take note of so that they provide support and suggestions that would optimise financial resource management and utilisation for the benefit of the sector. The three key areas are: the disbursement rate to-date, the project's time frame and the remaining time to completion date. Several of the projects are due for completion around 2014/15, however, the disbursement rate is not fully aligned with to the projects' remaining life. The time remaining on most projects is not enough to fully utilise the remaining funds of projects' committed amounts after disbursements. As the data provided in this report shows (see page 69), there is a significant constraint in terms of vacant positions in the districts. This information strongly supports the view that there is personnel inadequacy within MoAIWD consequently contributing to ineffective and inefficient use of financial resources.

**Table 3.5: Investment and progress on selected GoM / Development partner projects**

Project	Project amount (US\$ million)	Disbursement Amount to-date (US\$ million)	Disbursement rate to-date	Date agreement signed	Expected completion date	Project Time Frame	Period Covered todate	Period Remaining	Project Period remaining as % of project life
WASH (UNICEF) ~	29.0	5.7	20%	Sep-2006	2014	7	5.0	2.0	28%
NWDP II (IDA) *	50.0	31.3	63%	Jul-2007	2013	5	4.0	1.0	20%
NWDP II (ACGF) *	25.0	25.0	100%	Mar-2008	2012	4	3.0	1.0	25%
NWDP (OFID) *	10.0	4.4	44%	Apr-2008	2014	5	2.5	2.5	50%
NWDP (ADF) *	48.2	12.8	27%	Nov-2008	2014/15	5	2.0	3.0	60%
NWDP (AusAID) *	14.0	3.5	25%	Dec-2010	2012/13	3	0.5	2.5	83%
Peri-Urban Water Sanitation (EU/EIB) *	48.5	14.8	31%	Dec-2008	2014/15	5	2.0	3.0	60%
Global Sanitation Fund ^	6.0	0.6	10%	Dec-2010	2015	5	1.25	3.75	75%
<b>Total</b>	<b>230.7</b>								

### 3.4 Sub sector financing

Sub-sector financing analysis brings to light on one hand, aggregate spending towards specific sub-sectors within the water and sanitation sector namely urban water supply, rural water supply, sanitation and hygiene, water for production, water resources management and general spending on issues such as planning and policy formulation and on the other hand, the analysis provides comparative analysis of spending towards the water and sanitation sector with other sectors at district level. Data sourcing for sector spending by NGOs and private sector remain a huge challenge because of the reluctance of most NGOs and private companies to disclose this information.

**Figure 3.2: Estimates of the distribution of sub-sector spending for both recurrent and capital budgets through MoAIWD, NWDP, Water Boards and NGOs**

2010/11 Estimates of distribution of sub-sector spending

Urban water supply	Rural water supply	Sanitation and Hygiene	Water for Production	Water resources management	General
3,091,365,907.00	2,521,358,217.00	468,000,000.00	1,073,876,347.00	1,222,042,921.00	177,013,181.00

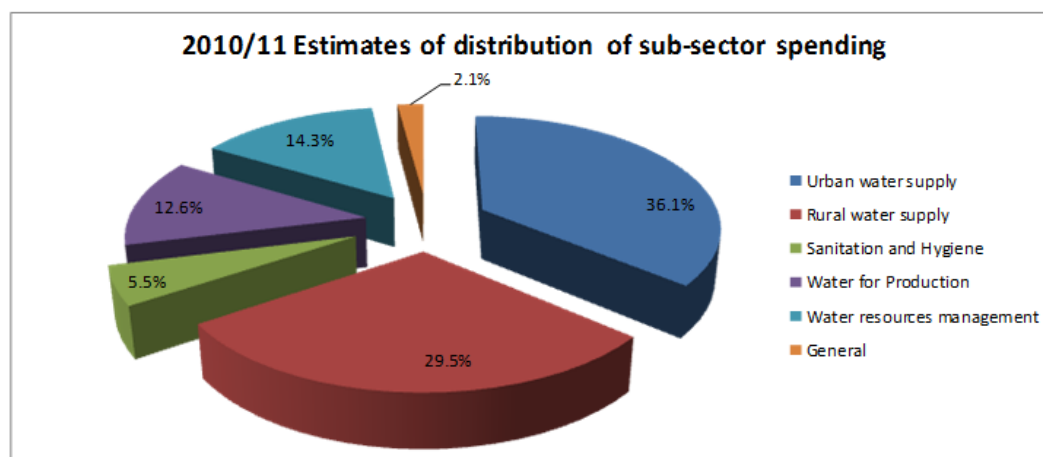


Table 3.6: Spending allocation to across sector

Source of funds towards sub-sector	Spending allocation					
	Urban MK million	Rural MK million	Sanitation MK million	Water for production MK million	Water resources management MK million	General (IWSS Planning & Policy formulation MK million)
GoM (recurrent budgets directly funded by GoM)	16,645,815.00	108,741,431.00	-	124,767,633.00	113,223,946.00	169,013,181.00
GoM (capital projects directly funded by GoM)	61,268,500.00	214,644,000.00	-	329,073,714.00	584,099,815.00	8,000,000.00
Foreign Donors (capital projects funded through NWDP)	875,596,926.00	977,863,885.00	418,000,000.00	620,035,000.00	524,719,160.00	-
Water Boards	2,137,854,666.00	1,120,108,901.00	-	-	-	-
NGOs	-	100,000,000.00	50,000,000.00	-	-	-
Private Sector	-	-	-	-	-	-
<b>Total</b>	<b>3,091,365,907.00</b>	<b>2,521,358,217.00</b>	<b>468,000,000.00</b>	<b>1,073,876,347.00</b>	<b>1,222,042,921.00</b>	<b>177,013,181.00</b>

Sources:

National Water Development Programme Mar-Jun 2011 Quarterly report

Ministry of Finance *Approved Estimates of Expenditure on Recurrent and Capital Budget for the Financial Year 2011/2012 (Detailed estimates)*

Water Boards 2011/12 Annual reports

NGOs' spending on sanitation and rural water is based on estimates provided in the 2009/2010 SPR report which was gathered from informal discussions. Currently, detailed information of aggregate spending towards sub-sectors has been pulled out from MoF 2011/12 detailed estimates of expenditure on recurrent and capital budget and cross-referenced with NWDP 2011/12 report for accuracy of data on water resources development expenditures towards sub-sectors.

Table 3.7 below shows water supply spending per capita at the national, rural and urban levels. The population of the urban - although making up 10% of the national population - enjoys a ten times water supply spending per capita at MK2,208 than the rural water supply spending per capita standing at MK200. This higher spending on urban water supply than rural water supply requires further analysis considering that 90% of the population of Malawi resides in the rural areas which could be assumed to require higher water supply spending per capita than the urban. Future analysis is required to illustrate differences in the nature and types of water supply systems that are being

designed for each of these sectors and also in simple terms why the urban has more allocation of resources than the rural.

**Table 3.7: Water supply spending per capita**

Description	Population	Total Water Supply Spending (MK)	Spending per capita (MK)
National	14,000,000	5,612,724,124.00	400.91
Rural (90% of national population)	12,600,000	2,521,358,217.00	200.11
Urban (10% of national population)	1,400,000	3,091,365,907.00	2,208.12

### 3.5 Sub-Sector District level financing through local councils

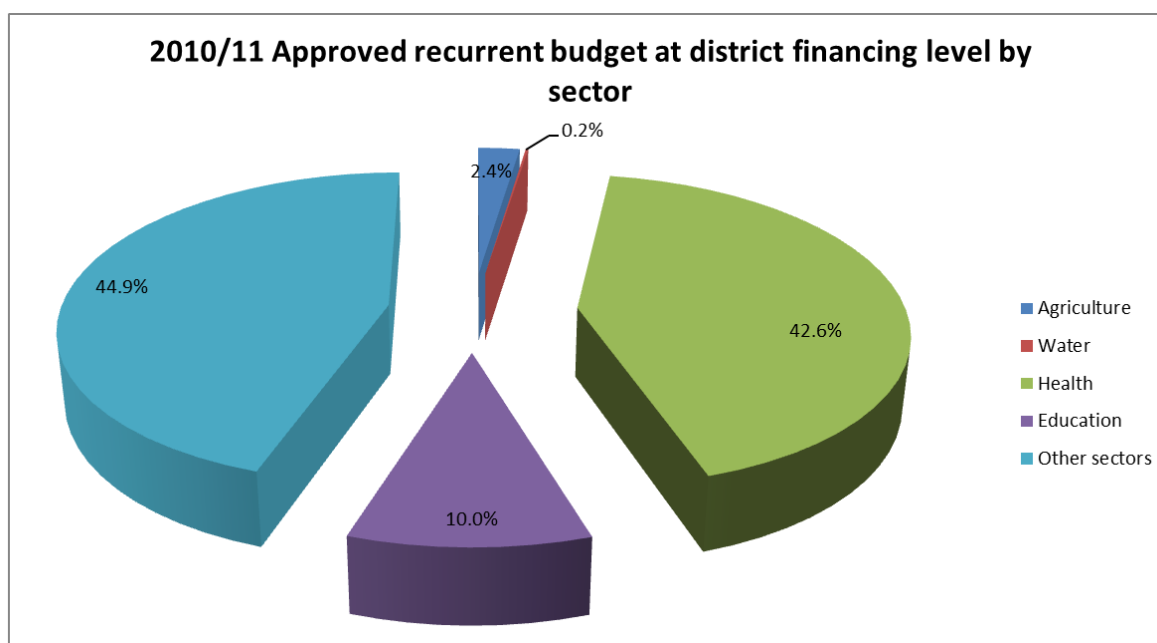
The GoM's recurrent budget for the districts in 2010/11 was MK13.2 billion out of which 0.2% was an allocation directly towards the IWSS. However, the huge sum of travel allowances and motor vehicle running expenses require further analysis in the future to ascertain if relative activities are done within the district supporting GOM's decentralisation initiative and that such travel and motor vehicle running costs are not necessarily incurred by mobility of staff between the centre and the district. The GoM's approach to decentralise spending to district level is good management practice because it promotes the direction of resources towards specific activities at grass-root level where needs are brought bear with more clarity. However, the greatest challenge is on one hand, the inadequacy of resources allocated to the districts and on the other hand, lack financial management capacity to fully utilise the released funds.

**Table 3.8:**  
**Sector financing recurrent budget district level analysis**

	2010/2011			
Sector	Sector approved provision MK billion	Districts total approved provision MK billion	Districts actual total expenditure MK billion	Districts utilisation of approved provision %
Agriculture	0.532	0.517	0.444	86%
Water	0.035	0.033	0.027	82%
Health	22.50	9.208	8.211	89%
Education	19.30	2.157	1.702	79%
Other sect	202.77	9.71	8.58	88%
<b>Total</b>	<b>222.60</b>	<b>12.386</b>	<b>10.729</b>	<b>87%</b>

Source: Local Government Finance Committee 2010/2011 District Budget and Expenditure

**Figure 3.3:**



**Table 3.9: District level key recurrent budget expenditures**

District level analysis - 2010/11 key recurrent budget expenditures

Sector	Total District actual expenditure MK million	Motor Vehicles running expenses MK million	Motor Vehicles running expenses as % of sector recurrent district budget allocation	Internal (local) travel MK million	Internal (local) travel as % of sector recurrent district budget allocation	Training expenses MK million	Training expenses as % of sector recurrent district budget allocation
Water	26,668,355.00	10,102,855.00	38	9,280,553.00	35	239,290.00	0.8
Agric	417,140,793.00	70,582,214.00	17	173,736,315.00	42	40,452,021.00	9.0
Education	1,701,912,028.00	152,526,702.00	9	266,163,677.00	16	25,844,442.00	1.5
Health	8,210,821,809.00	972,841,343.00	12	1,451,620,242.00	18	83,052,979.00	1.0

Source: Local Government Finance Committee 2010/2011 District Budget and Expenditure

### 3.6 Conclusions and recommendations

The analyses provided show an increasing growth in resource allocation towards the IWSS. The major influence of resource growth is the development partner support to the sector through development projects managed by the NDWP. However, a great financial management challenge is evident when financial utilisation rates from funds released through the years are compared with the percentage of time remaining on the project life period. The MoAIWD is experiencing high vacancy rates, implying inadequacies in human resource capacity to effectively provide financial management and administrative support. NDWP has the potential to step up its administrative support role to rectify district level financial management inefficiencies unequal allocation and utilisation of financial resources.

Sector players are vested with the responsibility of influencing planners and policy makers of the MoAIWD to review and incorporate in fiscal year plans and sector investment plans, resource mobilisation efforts of GoM allocations towards the sector and human resource development in terms of filling vacancies and developing competencies. The failure of this effort could have direct

impact in meeting the timebound MDGs, not so much as a result of lack of resources but more through a lack of management initiative and support from sector players.

The expenditure figures for sanitation in 2010/11 are still lower than other sub-sectors as observed and presented in the 2009/10 SPR. An observation from table 3.3 shows that the GoM programmes sanitation funds under the MoAIWD unlike the way other countries in the region such as Zambia and Kenya which programme sanitation funds directly under the health sector. This approach may be worthy considering in future years as it will provide clear guidelines for the indicative balance of water and sanitation activities in a programme.

In terms of indicators, data collection and analysis, the difficulties in obtaining sub-sector data to compile aggregate expenditure for the sector have prevailed in 2010/11. Forums for technical working groups that have vested interest or play important roles in the sector such as the MoAIWD, Foreign Donors e.g. UNICEF, Water boards, NGOs, National Statistics Office and the Private sector are ideal for comparing and collecting aggregate data of all range for the sector as proven from the workshop preparatory to the compilation of the 2010/11 SPR, however, the challenge remains that the MoAIWD requires to be equipped with capacity in terms of resources and consistent planning of such forums in its fiscal year work plans.

Aggregate data for the sector would provide a clear perspective of the sector's performance as aligned with set targets under the MDGs which would in turn assist planning managers in the sector about investment plans and decision making relative to available resources and technologies. The MoAIWD being the central player of the IWSS should create within its planning department, a data collection platform that would capture and consolidate all essential activities and related costs being registered by all players in the sector. This approach should be a key feature clearly highlighted within the yearly work plans of the MoAIWD.



## 4 Water Resource Management

### 4.1 Headline indicators

% of water sample that comply with national standards taken at

- the point of water collection, and
- wastewater discharge points

#### Other key water resource indicators

- Per capita water availability (m<sup>3</sup>/capita/year)
- Number of multi-purpose dams constructed
- Number of boreholes constructed
- % annual decline in surface water and groundwater levels in vulnerable areas.

**Table 4.1: Results of analysis**

Year	Water Quality	Compliance	Pollution	Compliance	Total Sampled and Analysed	Target
2009	659	573	187	10	846	1,800
2010	845	794	166	12	1011	1,800
2011	951	912	227	27	1178	2,000

Note: Compliance rate indicated in the table is based on physical and chemical constituents. Compliance on microbiological parameters and on water quality ranges from 65-72% on average.<sup>6</sup>

Progress on the JSR undertakings is summarised above (see page 9). While progress has been made, the momentum needs to be increased in the future to develop sustainable water resources into the future. The trends in numbers of water abstraction permits are shown in the table below.

**Table 4.2: Numbers of water abstraction permits issued**

Type of water abstraction permits	2009 to 01/ 2011	As at 04/ 2012
New Surface Water abstractions	60	16
Renewal of surface water abstractions	26	42
New Groundwater abstractions	87	32
Renewal groundwater abstractions	50	6

Source: MoAIWD April 2012

Further data related to water abstractions would be beneficial, such as the estimated volumes of water abstracted, which will be valuable for water resource monitoring.

---

<sup>6</sup> The data presented in the above table on water quality needs to be more clearly presented in future analyses and SPRs. For example, it is not clear what is meant by pollution in the table.

## 4.2 Availability and use of water resources

There is growing national demand on water and concern on its availability, particularly during the dry season. This has resulted in calls for better Water Resources Management (WRM) and development to ensure water resources do not limit the social and economic development and poverty reduction in the country. Over the years, Malawi has been facing problems of water scarcity due to climate change, environmental degradation, and lack of storage dams and reservoirs and regulation on its major rivers. The problems of hydropower generation, navigation on the lake and lack of adequate water supply to some towns in the past few years are all related to poor water resources management and development.

Malawi is water stressed, with less than 1,700 m<sup>3</sup> of freshwater available per capita per year. Some sources estimate that this will fall to less than 1,000 m<sup>3</sup> by 2015 – making Malawi a water scarce country<sup>7</sup> - while other estimates suggest this will not happen until 2025.

The majority of the country's water demand is accounted for by agricultural, rather than domestic purposes and uses including irrigation, fish farming, livestock production, recharging groundwater resources as well as sustaining the ecosystem. As there are competing demands for some water sources, developing effective integrated water resource management is vital.

The Government has placed a high priority on irrigation and WRM and development in order to ensure food and water security at the household level, for example through water harvesting, improved catchment protection and management. In line with this, the Department of Water Resources Management in the MoIWD has to date constructed over 25 small and medium multi-purpose dams in 24 districts across the country to make water resources readily available for multiple uses. Citizen's access to portable water supply especially in the rural areas has been increased by the construction over 7,500 boreholes and shallow wells through both government and other stakeholder initiatives in the sector.

### **Evaluation of groundwater supply-demand balance**

Recent data shows (Atkins 2010) that, for many Water Resource Areas (WRAs), demand is already greater than the supply in 2010, with the situation expected to worsen significantly in future. The data for the 17 WRAs shows a deficit of 118 Ml/d in 2010, increasing to 170 in 2020 and worsening to 956 by 2035. However, although this risk can be flagged, there is inadequate reliable data from which to draw any firmer conclusion.

### **Surface Water**

Overall, in an average year, there is estimated to be a national surface water resource availability of approximately 42,500 Ml/d. However, this dominated by the River Shire catchment (WRA 1) downstream of Lake Malawi to such an extent that during an average dry season the catchments draining into Lake Malawi, which constitute 70% of the total land area provide only 20% of the nationally available river flow. There is currently little surface water resource available during the dry season of extreme drought conditions, although some WRAs do retain some limited resource availability.

By 2035, due to the effects of climate change, wet season surface water resource availability is predicted to increase but dry season resources are predicted to decrease. The wet season yields rise

---

<sup>7</sup>USAID, "Malawi, Water and Sanitation Profile," [http://pdf.usaid.gov/pdf\\_docs/PNADO934.pdf](http://pdf.usaid.gov/pdf_docs/PNADO934.pdf)

by approximately 4%, whilst average dry season resources are predicted to reduce by 10% by 2035. Over the same time period, drought condition dry season resources are predicted to reduce by nearly 50% to just over 4,000 MI/d.

### **Ground Water**

Sustainable groundwater resources are estimated to make up only 2% (1,300 MI/d) of the nationally available total water resource. Looking ahead, the groundwater yields are estimated to show minor (1.5-2%) increases between 2010 and 2020 or 2035, largely associated with increased groundwater recharge associated with increased wet season rainfall due to climate change.

The feasible uses of the available groundwater resources in Malawi are estimated to be limited due to the expected low yield of new boreholes and wells. For example, it is estimated that only 6% of the potentially available groundwater resource could be utilized for small-scale domestic systems, although the majority of the available resource could be utilized for domestic supply, through protected wells or BHs.

None of the groundwater resources in Malawi are considered suitable for significant arable agriculture due to the limited yield of the boreholes, but over 50% of the available resources could be utilised to help meet additional demands for water from livestock farming. Thus, although small-scale groundwater abstraction may form an important component of the future rural water supply systems for domestic consumption and livestock farming, groundwater resources are very unlikely to form a material part of the overall water resources investment strategy.

In 2010, the total annual average water demand is estimated at just over 3,000 MI/d. This increases to 4,100 MI/d during an average dry season, an increase of approximately 35%. Water demands across the country are dominated by the demand for arable agriculture (75%) and by the demands from domestic use (15%).

During average dry season conditions in 2010, the national total demand for water is only 10% of the nationally available surface water resource. During an extreme drought event dry season, this percentage increases to 55%.

In all of the analysis it should be noted that there are significant challenges in gathering and maintaining quality data, particularly on groundwater data and water levels and quality. See end note<sup>i</sup>.

### **Impact of Economic Growth on water Demand**

The future projected changes to the demand for water under the different economic growth scenarios can be summarised as:

- Under the 2020 low economic growth scenario, the demands for water will increase by 25% during annual average conditions. Dry season demands are also predicted to increase to 5,250 MI/d.
- Under the 2020 medium economic growth scenario, the demands for water will increase by 450% during annual average conditions. Dry season demands are predicted to increase much more significantly to 29,000 MI/d. The national total demand for water increases more significantly over 70% of the nationally available surface water resource.
- Under the 2020 high economic growth scenario, the demands for water will increase by 730% during annual average conditions in 2020. Dry season demands are predicted to increase very significantly to just over 46,000 MI/d.

### 4.3 Progress on key sub-sector activities 2010/11

The tables below summarise progress on capital projects and departmental activities under the recurrent budget.

**Table 4.3: Progress on water resource development projects 2010/11**

Type of programme	Target	Achievement
Feasibility and detailed design studies completed on two dams	Feasibility studies	Feasibility studies and detailed design completed 2 dams
Number of multi-purpose dams constructed	3 dams	1 medium dam under construction and 1 small dam (Chimvu dam) completed
Construction of small Community Dams (JICA Funded)	Training of communities, construction and catchment improved at Nakhurumutu Dam	Training of communities, construction and catchment improved at Nakhurumutu Dam
Songwe River Basin Development Programme	Undertake detailed design	Preparatory work done for detailed design
SADC – HYCOS	9 new SADC HYCOS stations constructed/rehabilitated and installed with new equipment. 2 boat houses constructed	Completed civil works on 10 new and old stations  1 Boat house constructed
Dispersed Borehole Construction Programme	<ul style="list-style-type: none"> <li>101 boreholes constructed/rehabilitated</li> </ul>	95 boreholes drilled

**Table 4.4: Progress on recurrent budget for Water Resource Development 2010/11**

Type of programme	Target	Achievement
Water Resources Development	3 dam rehabilitation projects 3 communities trained in dam management	1 dam rehabilitated
Hydrological Services	5 hydrological stations maintained 6 borehole rehabilitation supervisory and monitoring visits 35 boreholes monitored	3 hydrological stations maintained 6 borehole rehabilitation supervisory and monitoring visits 35 boreholes monitored
Water resources oversight and board meetings	4 technical meetings 4 Board meetings 12 monitoring visits	2 technical meeting conducted 1 board meeting conducted 10 monitoring visits
Regional Water Development Office main activities (Northern, Central and Southern combined)	97 hydrological stations maintained 60 borehole maintained, 60 borehole committees trained, 2,500 water samples collected and analysed	50 hydrological stations maintained 24 borehole maintained, 24 committees trained, 1,423 water samples collected and analysed

Inadequate funding has been cited as a major reason for the WR department's limited levels of achievement.

### 4.4 Conclusions and recommendations

The Water Resources sub-sector continues to make progress in a number of areas although significant challenges still remain, such as the construction of multi-purpose dams. The Ministry planned to construct 3 large multi-purpose dams of which 2 medium and small dams were constructed. In addition only one community earth dam was constructed. This was due to limited

financing. It should also be noted that the Ministry had planned to rehabilitate 3 dams and only one was rehabilitated due to limited funding

The Ministry continues to construct boreholes under the dispersed borehole programme. The target for 2011 was 105 of which 95 were constructed. However, the challenge of the programme is that they are managed at central level with minimal involvement by the districts

The majority of the rivers remain ungauged which poses a problem in monitoring flows and the prediction of floods. The Ministry planned to develop 9 SAD-HYDRCOS and the target was exceeded by one. If the Ministry could maintain this trend, the most of the rivers will be gauged. However, the major challenge remains vandalism and lack of trained officers to manage the stations. Groundwater monitoring is also a challenge. Considering that the country has approximately 34,000 boreholes and only 34 boreholes were monitored there is significant room for improvement. Extra efforts need to be taken to ensure that recharge/discharge patterns and water quality issues are well documented for reference.

Routine water quality assessments were carried out for both surface water and groundwater with some disparities across regions. For instance, the Water Resources Board through the Central Water laboratory planned to test 2000 of which 1248 water samples and 185 effluents were collected and tested. However, when regions are compared, the north performed badly with only 8 samples tested out of 200; Southern Region tested 174 against a target of 300 while Central Region tested 1241 samples against a target 2000. The Ministry has managed to assess the surface and ground water for suitability for various uses which is a good starting point however several parameters in relation to quality issues are yet to be determined. Water quality also needs to be more clearly presented for future analyses and SPRs.

The lack of staff and resources for the Water Resources sub-sector has undoubtedly contributed to the limited achievements in developing multi-use water sources for the future. As the irrigation and water supply sub-sectors develop their sector investment plans for the coming decade, it will be vitally important that assessments and protection of strategically important water resources be carried out, so as to ensure sustainable supplies for the future. Suitable systems of monitoring water resources need to be developed or enhanced. It is hoped that the African Water Facility supported water sector M&E project that has just started will be effective in developing an appropriate M&E system including monitoring of vulnerable water resources.

The Under performance of the Water Resources Sub-Sector could be attributed partly to high vacancy rate currently at 75%. The Sub sector has 350 establishments of which 85 are filled. This entails increased workload for the available staff as well as staff performing tasks they were not trained for.

While progress has been made on the JSR undertakings, the momentum needs to be increased in the future to develop sustainable water resources into the future.

### **Challenges for the Water Resources Directorate**

The Directorate has analysed their challenges as follows:

- Limited and low quality data
- Out-dated legislation
- Lack of equipment
- Inadequate funding
- Delay in the disbursement of funds from the Treasury
- Delays in internal payment system (between the Ministry and Treasury);
- Lack of accessibility and unfavourable weather
- Lack of transport

- Inadequate staffing;
- Government directive to limit the number of days for local field trips
- Vandalism of equipment.

#### **Recommendations**

- a) Review of the old legislation to make it effective in guiding the management, development and conservation of water resources in the country
- b) Procure new construction equipment (Plant and Machinery) for undertaking construction works such as dams and boreholes, or potentially make more use of contractors
- c) Provide justification and lobby for the provision of adequate funding from Treasury for the Department especially for the Water Resources Board and Water Quality Services
- d) Lobby for the timely disbursement of funds from Treasury for smooth execution of activities
- e) Procure vehicles to enable the smooth execution of activities
- f) Fill vacancies
- g) Enhance local community sensitisation on water resources infrastructures and equipment
- h) Strengthened water resources management and development programmes.

A further key priority is the development of an effective water resources M&E system with sufficient staff and resources, together with development partners.

## 5 Water for production - irrigation

The potential for irrigation in Malawi lies between 400,000 and a million hectares of land. In view of the current government vision of the Greenbelt Programme there is need to engage concerted efforts towards improving irrigated agriculture to achieve the national irrigable potential. Institutionally, plans are underway to develop the Irrigation Master Plan, National Irrigation Policy and Development Strategy, to establish the National Irrigation Fund, to build capacity of staff and farmers, and to implement the recommendations of the recent functional review. The key outputs for the sub-sector are construction of Irrigation schemes, rehabilitation of irrigation schemes, and development of farmer organisations and promotion of modern irrigation technologies. This section highlights the achievements made in the Department from July 2011 to date against the set annual targets. An annex shows progress in irrigation projects (see page 91).

### 5.1 Headline indicators

<b>3. % annual increase in total area of land that is developed for irrigation</b>						
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Annual % increase	3.45%	10.37%	6.16%	4.63%	10.28%	<b>2.0%</b>
<b>8. % of total irrigated land developed that is being utilised</b>						

#### Proposed new indicator

15. % age contribution of irrigation farming
i) to agriculture production (tonnes) (disaggregated into Smallholder farmers & Estate Farmers)
ii) to household income and agriculture GDP*

These indicators are more related to agriculture, so future monitoring against such an indicator needs to carefully planned together with the Agriculture department.

### 5.2 Progress on current irrigation schemes

The total annual area targeted for new irrigation schemes development in the smallholder sub-sector is 2618.4 hectares in 63 schemes (see table 5.1 below). However, less than 20% of this target has been achieved.

**Table 5.1: Summary of newly developed schemes**

Programme /project	Area targeted in 2011/12, ha	Achievement to date, ha	Remark
Operation and Recurrent Transaction (ORT)	624	218	Usually, schemes developed using ORT are in the mini scale category
Malawi Irrigation Development and Support Programme (MIDSUP)	459	63	10 ha completed while 53 ha were under construction.
Smallholder Crop Production Marketing Project (SCPMP)	1241.4	119.9	Most still under construction
Small Farm Irrigation	294	64	Phase I developed 782ha with only

Programme /project	Area targeted in 2011/12, ha	Achievement to date, ha	Remark
Project (SFIP)			leveling outstanding. 44 ha leveled in Nkopola and 20 hectares cleared and ploughed in Lweya scheme.
<b>Total areas developed</b>	<b>2618.4</b>	<b>464.9</b>	<b>17.7%</b>

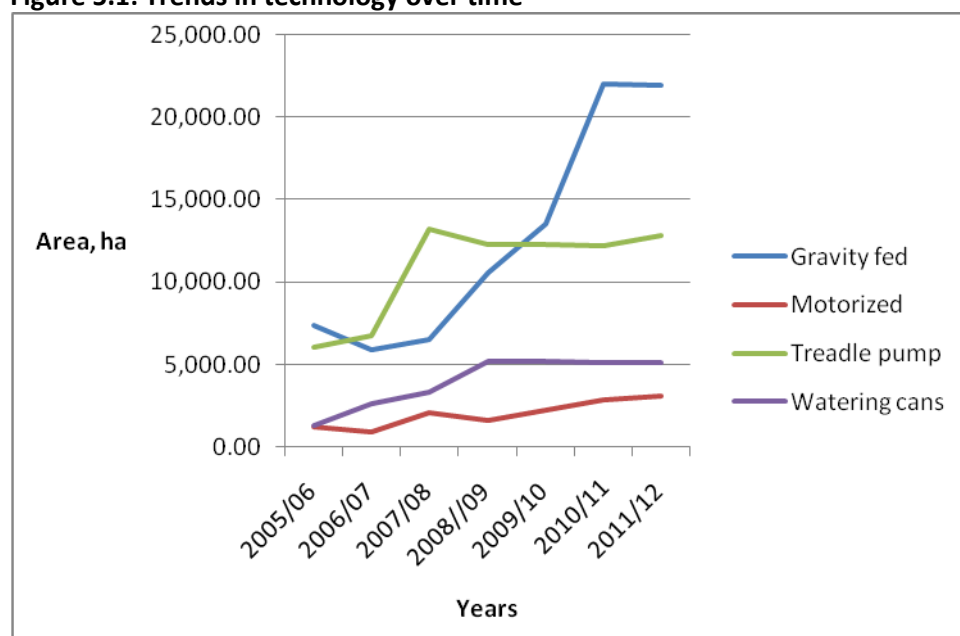
This newly developed area brings the total area developed and utilised under smallholder irrigation to 42,986 hectares for 2011/12 (Table 5.2, below). Out of this cumulative area, 21,987 hectares was under gravity, 3,093 hectares was under motorised pumps, 12,757 hectares was under treadle pumps and 5,149 hectares was under watering can based irrigation (Table 5.2). Construction of irrigation schemes in the smallholder sub sector is being implemented through various development projects, recurrent budget as well as through Civil Society Organisations. Out of the cumulative area utilised for irrigation, 3,472 hectares were developed through CSOs.

**Table 5.2: Summary of the cumulative area under irrigation broken down per technology**

Technology	Number of schemes	Total area utilised for irrigation, ha	Number of beneficiaries		
			Male	Female	Total
Gravity	2,916	21,987	43,898	37,260	86,164
Motorised pump	870	3,093	13,962	11,946	26,039
Treadle pumps	11,106	12,757	71,491	54,050	125,471
Watering can	18,810	5,149	75,769	52,401	128,170
<b>Total</b>	<b>33,702</b>	<b>42,986</b>	<b>205,120</b>	<b>155,657</b>	<b>365,844</b>

The numbers of beneficiaries for each type of smallholder irrigation schemes is summarised in the table above, totally 365,844; this is a notable achievement. The use of relatively simple, low cost irrigation technology meant that the costs of irrigation projects were relatively low on a per hectare basis. Trends in the technology used over the last few years reveal in figure 3.1 that gravity fed irrigation has shown the greatest growth.

**Figure 5.1: Trends in technology over time**





The numbers of beneficiaries for each type of smallholder irrigation schemes is summarised in the table above, totally 365,844; this is a notable achievement. The use of relatively simple, low cost irrigation technology meant that the costs of irrigation projects were relatively low on a per hectare basis.

### Rehabilitation of irrigation schemes

Under rehabilitation of irrigation schemes, the target is to rehabilitate 2946 hectares during the 2011/12 financial year. However, 699 hectares have been rehabilitated to date. In addition to scheme rehabilitation, the Department also rehabilitated one small earth dam in Mzuzu Irrigation Services Division (ISD).

### Development of farmer organisations

During the period under review, the Department also undertook activities aimed at developing farmer organisations as well as farmer empowerment. The Department planned to form 1013 farmer groups during the current year. However, 228 groups have been formed. Activities on farmer empowerment included developing and training Water User Associations, Cooperatives and Water User Groups.

### Irrigation development in the private sector

The private sector is also participating in the irrigation sector. The total area which currently utilised by the private sector stands at 49,340 hectares. The estate sector was mainly in the sugar and tea industry. However, some private irrigation farmers also practices supplemental irrigation especially in the tobacco industry while a few others were growing cereals and vegetables. The technologies used included motorised pumping, drip irrigation, sprinkle and centre pivot systems. Table 3.4 gives area under estates stratified by ISD as well as the overall picture of irrigation development in Malawi for both smallholder farmers and the estates.

## 5.3 Development of irrigated land

The table below shows recent growth in the total development of irrigated land for small holders. During MGDS I up to 2010, the relevant target was to develop 120,000 hectares for irrigation. However, only 90,000 hectares were actually developed. Major constraints faced included inadequate capacity of contractors and consultants in irrigation scheme construction, institutional misplacement of irrigation projects, problematic water and land issues, and inadequate and late disbursement of resources.

**Table 5.3: Trends in area under smallholder irrigation**

Irrigation Technology	Area Under Irrigation, hectares						
	2004/05	2005/06	2006/07	2007//08	2008/09	2009/10	2010/11
Gravity fed	7,365	7,881	8,517	10,551	13,535	17,206	<b>21,987</b>
Motorised	1,280	936	2,080	1,611	2,236	4,004	<b>3,093</b>
Treadle pump	6,052	6,732	11,180	12,254	12,254	13,994	<b>12,757</b>
Watering cans	1,291	2,661	3,337	5,224	5,224	3,796	<b>5,149</b>
<b>Annual Totals</b>	<b>15,988</b>	<b>18,210</b>	<b>25,114</b>	<b>29,640</b>	<b>33,249</b>	<b>39,000</b>	<b>42,986</b>

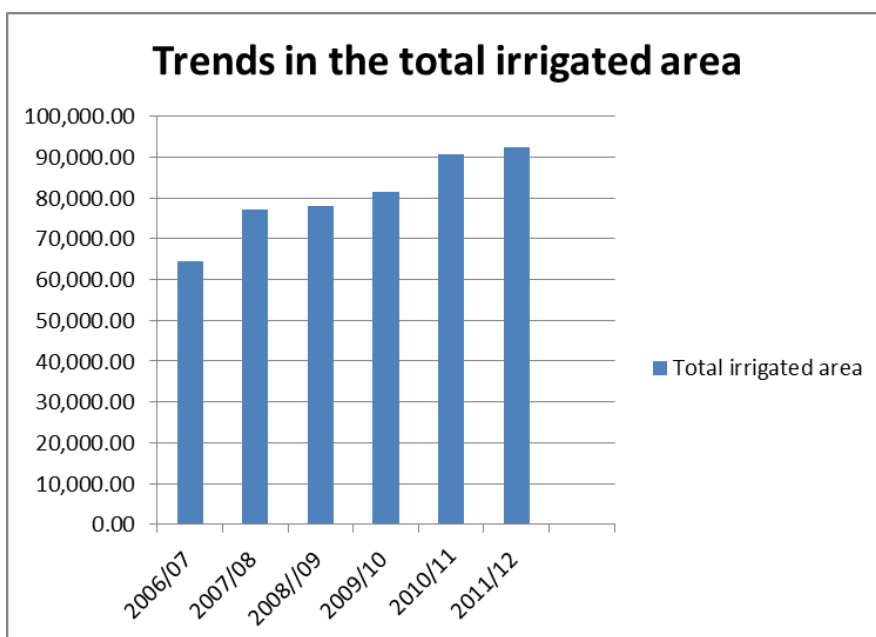
The annual total for 2010/11 (42,986 ha) in Table 3.2 is included in the right hand column of Table 5.4 below. Many of the community based small holder projects have been found to be successful (WSSIP Working paper, 2011).

**Table 5.4: Increases in irrigated area developed**

Year	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
<b>Private estates irrigated area, (hectares)</b>	48,360	48,360	48,360	48,360	48,360	48,382	49,340
<b>Area Under Smallholder Irrigation (hectares)</b>	15,988	16,209	28,723	29,640	33,249	42,181	42,986
<b>Annual totals</b>	64,348	<b>66,570</b>	<b>77,083</b>	<b>78,000</b>	<b>81,609</b>	<b>90,563</b>	<b>92,326</b>
<b>Annual % increase - headline indicator</b>		0.3%	19.4%	1.2%	4.6%	11.0%	2.0%

There have been large increases in small holder irrigation over the years. However both private estate and small holder irrigation only increased marginally (2% overall) in 2010/11. This is less than the government target of 6% per annum. Also see the trends in total irrigated land developed in Figure 5.2. It is important to find out the reasons for the slower growth and consider how Government can support and incentivise the private estates to expand their irrigated land and agricultural production.

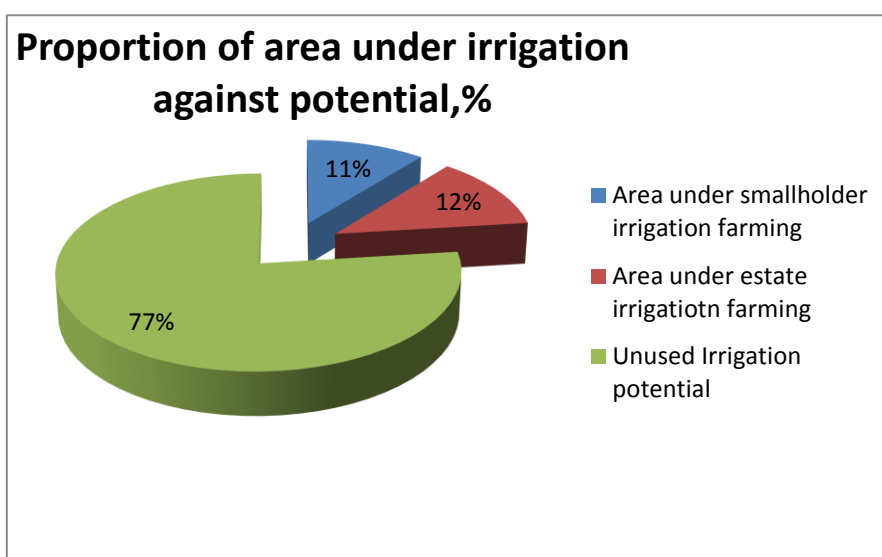
**Figure 5.2 trends in total irrigated land**



The investments in irrigation from 2006 to 2011 were in line with the Government's objectives in the sector. Although the land under irrigation increased, it did not increase as much as the Government targeted. Consistent with a large increase in land under irrigation, agricultural productivity increased over the period. Projects were well designed and many were, ultimately, successfully implemented. The design features that led to successful projects included community orientation and the implementation of low cost technology. The main challenge over the period was an absence of capacity. Projects that required too much capacity from the Government came close to failure<sup>8</sup>.

There is still plenty of potential land that could be developed, as is shown in Figure 5.3. However, the viability of the developing new potential areas needs to be assessed in a systematic manner.

**Figure 5.3 Proportion of area under irrigation against potential**



<sup>8</sup> WSSIP Working paper, 2011

## 5.4 Conclusions and recommendations

In terms of capacity, major challenges have been faced by the Department of Irrigation in achieving the targets set. These include:

- Acute fuel (diesel) shortages have drastically slowed down the construction works and supervision of the works. In addition, at times farmers from motorised pump based schemes were failing to access fuel from filling stations in containers due to the Malawi Energy Regulatory Authority's regulations.
- Budgetary shortfall on the civil works category of expenditure has derailed award of contracts for 14 irrigation schemes under SCPMP.
- Failure by contractors to finish construction of schemes within the agreed timeframe
- Land disputes have derailed completion of construction works and commencement works in Dwangwa (AISP).

The Department should address these challenges, and continue lobbying for additional funds to ensure planned completion of works, ensuring that contractors are closely supervised and reminded of the contracts' execution timelines.

Community based small holder irrigation projects have generally been successful over recent years. It is important to fully understand what has worked well and the remaining constraints so that future community irrigation projects can be even more successful. While there are many competent staff in the Government irrigation department, lack of capacity continues to be a constraint to expanding irrigation, in Malawi.

Private estate irrigation and small holder irrigation have shown slower growth (2% overall) in 2010-11. The reasons for this slower growth are likely to be due to the challenges mentioned above. Consideration should be given to how Government can support and incentivise the private estates to expand their irrigated land and agricultural production. Innovative PPP contracts should be considered and streamlined regulation to develop more viable private estate irrigation and agricultural production. Such contracts would have to be carefully designed so that 'win-win' situations emerged for both the private and public sector.

We also recommend that the data systems are strengthened such that the data for Headline indicators are readily available. For example we do not have data for indicator 8: % of total irrigated land developed that is functioning and being utilised'.

## 6 Access to, and use of, water services

### 6.1 Headline indicators

The following table summarises the performance trends of headline indicators to set targets.

Performance themes and headline indicators		Performance trends (see notes)					Target details
		2006	2007	2008	2009	2010	
1	% of people within 500 metres (rural) and 200 metres (urban) of an improved water source* (disaggregated rural and urban)	75	81	80	80	79	<b>National</b> <ul style="list-style-type: none"> <li>MGDS I: 80% access within 500m by 2011 from 66.5% baseline</li> </ul>
		73	79	77	78	77	<b>Rural</b> <ul style="list-style-type: none"> <li>MDG: 67% by 2015</li> <li>MGDS II: 75% for rural inhabitants and 75% for town and market inhabitants by 2016</li> <li>JSR: 75% by 2011, 85% by 2015</li> </ul>
		94	98	94	94	92	<b>Urban</b> <ul style="list-style-type: none"> <li>MDG: 95% by 2015</li> <li>MGDS II: 80% access for urban and peri-urban inhabitants by 2016</li> </ul>
2	% of people whose average total time to collect drinking water is less than 30 minutes (disaggregated rural and urban)					57	<b>National</b> <ul style="list-style-type: none"> <li>n/a</li> </ul>
						54	<b>Rural</b> <ul style="list-style-type: none"> <li>n/a</li> </ul>
						76	<b>Urban</b> <ul style="list-style-type: none"> <li>n/a</li> </ul>
11	Equity Standard deviation of district access to safe water	10.16	10.24	8.89	10.97	14.9%	To be determined

Data for headline indicator 1 is obtained on an annual basis by NSO surveys (DHS and WMS), but only assuming that the responding household accesses water within the design range. Data for headline indicator 2 has been measured from the DHS 2010.

### 6.2 Access to water supply

Coverage is defined by a household having access to an improved water supply within 500m (rural) or 200 m (urban) with a return trip of less than 30 minutes, and a daily per capita consumption of at least 27 litres.

To date “distance to water point” has not been included as one of the survey questions in National surveys. From 2011 WMS, one of the questions relates to distance i.e. W6: What distance do you

travel to get water (drinking water) [METRES]? Therefore the following data can only assume access by users – until data is available on publication of the WMS 2011 later this year.

**Table 6.1 below summarises progress in access to improved water supply in rural areas (% of households).**

Year	Rural Total, % population	Urban Total, % population
1990	35%	90%
1995	46%	92%
2000	57%	93%
2005	68%	94%
2008	77%	95%
2010	77%	92%
2015 (MDG target)	67%	95%
2016 (MGDS II target)	75%	95%

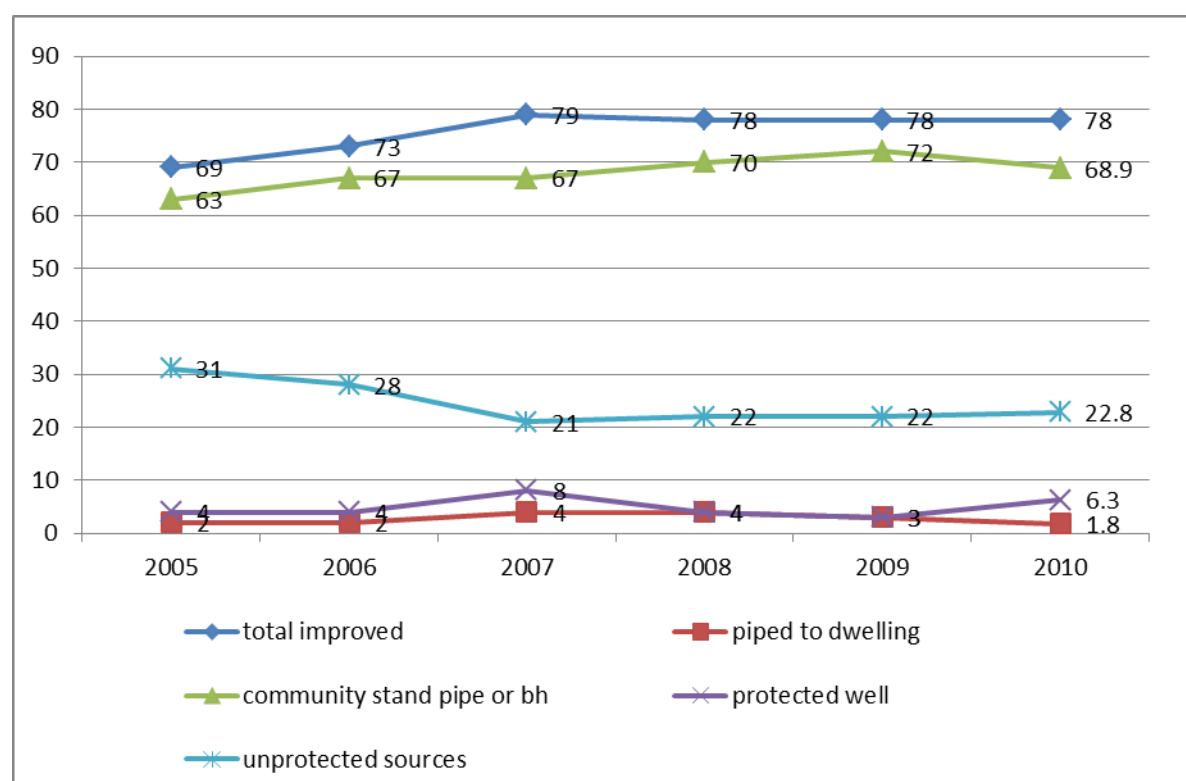
Source: NSO surveys, JMP report 2012

For access to improved water by rural population, both MGD and MDGS targets have already been met. However, no progress seems to have been made between 2008 and 2010. For urban populations both the MDG and MGDS targets are elusive, due to challenges of supply infrastructure and high urban population growth rates. For 2011 data, the sector must wait for the publication of the 2011 WMS report.

### Rural water supply

The graph below summarises data from annual WMS and DHS for the last 5 years.

**Figure 6.1: Trends in rural water supply – improved sources**



Source NSO surveys: WMS, DHS

Since 2008, the reported access to improved water by rural populations has remained at around 78%. The 2008 census gives a rural population of 11,076,000 (i.e. 84.7% of the total population), with an estimated annual growth rate of 2.7%. This represents an annual population increase of 300,000 in 2009 and 310,000 in 2010 people, etc. In order to service only the increase in rural population this need there is need of additional water points. According to design coverage this means at least 1,200 boreholes or 2,400 standpipes per year, increasing at almost 3%.

### **Rural WASH investments**

One of the major investments was under the UNICEF WASH project. Overall in 2011, the UNICEF WASH programme project reached 186,020 people in rural areas in 14 districts through 794 new and rehabilitated water points in 2011. The average number of users per water point is 234, which is within the national definition of coverage (250 persons per borehole).

Since inception in 2007, the programme has reached over 834,000 people through the construction of 1976 new boreholes, the rehabilitation of 1276 boreholes, the construction of 127 shallow wells, and 49 GFS water points. While this achievement is somehow not being reflected in national access figures, there is significant change at district levels (e.g. Chitipa 8.1% increase in access in 2011, Mchinji 6.1% increase, Mzimba 5.8%, and Mwanza 5%).

There has also been a reported improvement in functionality rates in some districts from the 2006/7 mapping exercise. Karonga has seen functionality improve from 65% to 75%, Lilongwe from 59% to 78%, but more needs to be understood how this can be maintained without project support such as rehabilitations.

In terms of costs, the construction of one borehole (March 2012<sup>9</sup>) is MK1,394,060 of which MK 900,000 are construction costs, 277,000 supervision, preparatory, and civil works, and 217,060 as CBM costs for caretakers. There are also separate costs attached to training area mechanics which is over MK3 million for 20 area mechanics, but their coverage (boreholes / mechanic is not specified in the costing).

The average cost per beneficiary (in terms of capital hardware and software costs only) is MK5958 (\$35) – which is called the benefit cost. However, in order to calculate more accurate lifetime costs – including preparatory works, cost of finance, capital, operation, maintenance and other costs, a WASHCost approach is recommended<sup>10</sup>. However as much of the information is not currently available, the sector must commit itself to this accounting practice.

The average sector investment costs in rural areas for a dug well is \$28 per capita, with annual improvement costs of \$2 per capita. For boreholes the investment costs are \$30, with \$2.23 improvement costs. However the benefit costs are estimated as \$36 per capita per year.<sup>11</sup>

---

<sup>9</sup> UNICEF WASH Annual report

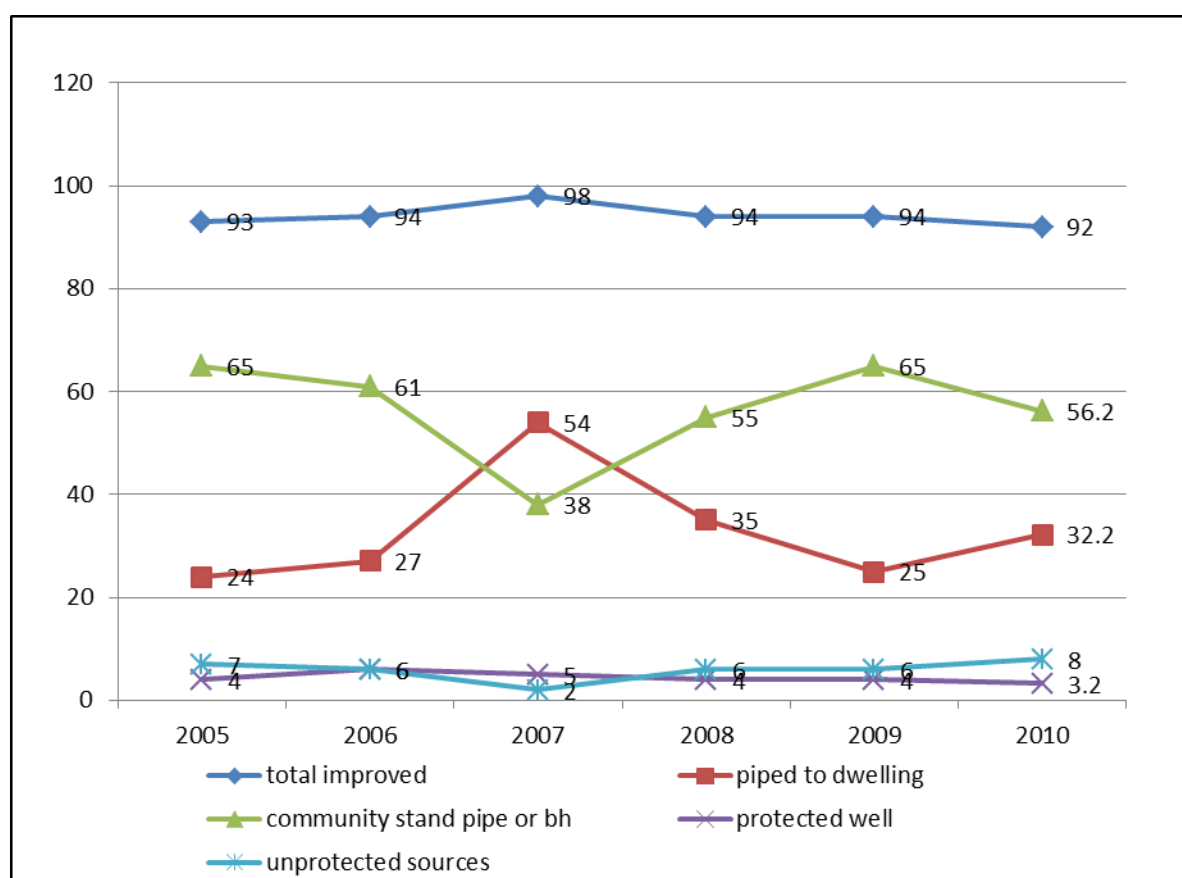
<sup>10</sup> WASHCost project is being implemented by IRC with the objective of establishing lifetime costs – through good accounting practice by taking in the total costs of facilities including capital expenditure for hardware and software, cost of capital, operation and maintenance expenditure, capital maintenance expenditure, expenditure on direct support and expenditure on indirect support. Details are on [www.washcost.info/pubs](http://www.washcost.info/pubs)

<sup>11</sup> Working paper on Water Supply, Sanitation and Irrigation Sector, Malawi. Castalia, Draft, 16 January 2011. Note that dug wells provide less coverage (120 people) than boreholes (250 people) so the lower capital costs are offset by lower coverage.

## Urban Water Supply

The following chart illustrates access to safe water by urban populations from 2005 – 2010.

**Figure 6.2: Trends in urban water supply – improved sources**



From 2007 to 2010 access has decreased from 98% to 92% of the urban population.

### Progress in Urban Water Services.

Section 9 highlights in detail the progress of the Water Boards, this section outlines access issues in the 2 main Cities, Lilongwe and Blantyre.

The Lilongwe peri urban project implemented by Lilongwe Water Board and Water Aid indicates that in 2010/11 2,500 people had access to new or rehabilitated improved water supply facilities. The population of Lilongwe Urban is 680,000 with an annual increase of around 30,000 people. This means that at least 50 new kiosks per annum should be made available, increasing by 4.4%, just to keep up with population growth

The Blantyre peri urban project implemented by Blantyre Water Board and Water for People supplied the following data:

Year	Total number of kiosks	Number of new kiosks constructed	Access to water % population	Persons reached (approx)
2009	320		43 (baseline data)	233,490
2010	368	48	48	260,640
2011	459	90	62	337,000



Year	Total number of kiosks	Number of new kiosks constructed	Access to water % population	Persons reached (approx)
2012 projected	579	120	75	409,000
2013 projected	702	121	90	490,000

Therefore it is anticipated by 2013, 90% of the population in low income areas will have access to improved water supplied by the 702 kiosks. A total of 138 kiosks were constructed in 2010 – 2011, serving an average of 600 persons per kiosk<sup>12</sup>, therefore 82,800 people were served through the new kiosk construction. The population census indicates that Blantyre City had a population of 667,000 with an annual growth rate of 2.8%, or 18,600 people. In order to keep up with this population growth only, an additional 31 kiosks are required, increasing by 3% per annum.

The main issues for the lack of progress include:

- high urban growth rate
  - In 1990 the urban population was 1 million (11.6 % of the total population)
  - In 2011 the urban population had increased to 3.1 million, (20.3% of the total population)
- In spite of 92% respondents claims to use safe water (either piped to dwelling or community points), research in Mzuzu City shows that less than 4% of households from a low income area use tap water exclusively, with the majority using water from shallow wells (see box below). This is mainly because of the unreliable tap water supply due to frequent interruptions.
- The capital per capita costs of supplying water to urban dwellers is estimated at \$41 (standpipe) and \$144 for a household connection, with annual, per capita operating costs of \$3.15 and \$12.73 respectively. However, the benefit cost per capita per year for urban dwellers has been calculated at \$74<sup>13</sup>.

#### Time taken to access water

It is generally accepted that time to access water has a direct bearing on water consumption (i.e. quantity) which impacts behaviour such as hand washing, bathing, food hygiene, etc. The following table lists data from the 2010 DHS which asks respondents to estimate the time it takes to fetch water (round trip) which is a proxy for water quantity consumed.

**Table 6.3: Time taken to access water (round trip) (% population)**

	Urban	Rural	Total
Water on premises	36.1	5.8	10.6
Less than 30 mins round trip	39.9	47.8	46.5
Total less than 30 mins	76	53.6	57.1
30 minutes or longer	24	46.4	42.9

Source DHS 2010

<sup>12</sup> Blantyre Water Board design parameters are that each Kiosk serves 120 households, average of 5 persons per household.

<sup>13</sup> Working paper on Water Supply, Sanitation and Irrigation Sector, Malawi. Castalia, Draft, 16 January 2011.

Note that the 2011 WMS asked respondents for the waiting time at the water point **Q5: On average, how long do you normally wait at the water point (drinking water)?** However, this not the same as the total time (i.e. round trip) that is the intention of the headline indicator. This indicator compounds several variables including distance, waiting time due to queuing, waiting time due to poor water supply or interruptions, etc. But all have a bearing on water consumption – generally the longer the time, the less trips a household can make, less consumption, especially for hygiene such as handwashing, bathing, food hygiene, etc. Using this headline a proxy for consumption, it can be assumed that almost **one quarter of urban households, and almost one half of rural households do not use sufficient quantity of water to maintain hygienic standards.**

### Water quality

Water from so called “improved sources” can only be assumed to be safe. In fact the water quality can be compromised due to environmental factors at source, but also through handling and storage. Point of use treatment is recommended to ensure that drinking water is safe for consumption. For example:

- a baseline study in 2008<sup>14</sup> showed that water from 20% of the so called improved sources was contaminated (H2S tests).
- water quality testing of 24 boreholes, and 9 households per borehole showed that while only 1 borehole tested positive with H2S after 24 hours, 5% of household samples (n = 216) tested positive after 24 hours, and 37% tested positive after 48 hours. This indicates high probability of contamination post source.<sup>15</sup>
- water quality testing (Delagua) of water from 553 newly constructed boreholes shows that 18% indicated faecal coliforms, while 8.9% indicated faecal streptococci.<sup>16</sup>

The DHS 2010 survey asked respondents about appropriate treatment of drinking water:

**Table 6.4: The main methods of appropriate treatment in rural and urban areas include:**

	Urban	Rural	Total
Boiling	6.1	11.4	10.6
Chlorination	26.1	25.0	25.2
<b>Total methods</b>	<b>30.8</b>	<b>33.0</b>	<b>32.6</b>

Note: Respondents reported multiple methods, so results more can indicate more than 100%

On average about one third of households claim to treat water; the most frequent method being application of Water Guard (a quarter of all households). A more detailed household survey in Mzuzu observed that 22% of households treated their water (see box below). It is not surprising that in large surveys, such as the DHS, respondents report not only what they actually do, but also what they know they should do.

The sector needs to understand better how water is handled and stored at household level. During 2011, UNICEF and NSO worked on the 2011 WMS asking the following information from respondents on water quality. Questions included:

- Use of water source: QW 1- 3

<sup>14</sup> A Status Report on WASH in Primary Schools .2008. MoEST.

<sup>15</sup> Mangochi RWSS report, 2002

<sup>16</sup> Mangochi RWSS report, 2002

- Problems with water QW4b – e.g. taste, appears polluted, near a toilet, (as well as functionality problems)
- Treating drinking water QW8, 9 – with chlorine, filtering, boiling etc.
- Transport of water from the source to the dwelling QW10
- Storage of water QW10a
- How drinking water is drawn – eg cup system, tap, QW10b

If the data is accurate, then this information can be used to design better interventions in hygiene messaging and to measure progress in users managing of water in the home.

However the sector needs other studies, such as sampling water at source and point of use. In 2012 a SMART Centre will be set up in Mzuzu and one of its activities is the support of the private sector for the setting up of a supply chain and marketing for point of use treatment, especially the Tulip Filter with a target price of less than \$10.

#### **Water quality**

Mzuzu University / WATSAN Centre of Excellence conducted an urban water quality study in December 2011. The study site included Zolozolo and Chiputula high density areas in Mzuzu City. 49 households were interviewed and water from 27 privately owned wells was tested.

- Of the 49 households, only 3.7% used exclusively tap water, 18.5% used exclusively water from a shallow well, and 77.8% used both water sources. However shallow wells were the most frequently used source of water by households (92.6%).
- None of the 27 sampled sites during entire study period registered a water quality index (WQI) of 100. The results revealed that 100% of sampled sites were not suitable for direct human consumption without treatment as the shallow well waters were slightly polluted (water quality index (WQI) range = 50.16 - 66.04 %, with a uniformly medium water quality (WQ) rating. The observed total coliforms ranged from 129 to 920 colony forming units (cfu) per 100 ml.
- The results of the sanitary risk inspections showed that only 30% of all water sources visited fell into the 'very low risk-to-health' category.
- Only 22% of households treated their drinking water, mainly using water guard, followed by boiling and filtering.

Source: A Report On Assessment Of Drinking Water In High Density (Peri) Urban Areas Of Ching'ambo, Chiputula And Zolozolo, Mzuzu City, Northern Malawi, WATSAN Centre of Excellence, December 2011.

The project also aims to communicate the test results to the users of the well in order for them to take appropriate action.

## **6.3 Conclusions and recommendations**

### **Performance**

While district level projects such as the UNICEF WASH project (in 14 districts) clearly have an impact on access measured in household surveys through increased supply of new and rehabilitated facilities and improved functionality, average access of the rural population has remained almost static between 2007 and 2010 hovering around the 77 – 79% levels for headline indicator 1. So while the MDG target (80%) for rural access was barely achieved in 2007, no progress has been made since. More needs to be understood about how sustainable the gains in districts with investments have been, and to understand the impact on access in those districts with lower levels of investments.

### Reduced access due to poor functionality rates

Functionality rates for the piped water schemes is low in some districts (e.g. only 2% in Karonga). The following table summarises the findings presented in section 9.1 of this report:

Region	Design number of taps	Number of Operational taps	Functionality rate	Design coverage people <sup>17</sup>	Actual coverage people	Lost coverage people
North	2,305	530	23%	276,600	63,618	212,982
Central	1,465	776	53%	175,800	93,174	82,626
South	10,215	4,188	41%	1,225,800	502,578	723,222
Malawi total	13,985	5,494	39%	1,678,200	659,280	1,018,830

Simply put, the low functionality rate of piped water schemes has cost over 1 million people (1,018,830) access to improved water, and the economy over \$41 million in lost investments (assuming an average initial investment cost of \$41 per person<sup>18</sup>), and a loss of \$574 million dollars in potential benefits realised<sup>19</sup>. For urban dweller there has been a decline in access since 2007 from 98% to 92%. The sector is struggling to achieve the MDG target of 95% access. A study of low income users in Mzuzu shows over reliance on unprotected sources of low water quality index, while studies in Blantyre indicate that access to safe water in low income areas in 2010 was only 48%<sup>20</sup>. While a figure has been given for Headline indicator 2, that 53.6% of rural population and 75% of urban population access water within 30 minutes, those who have household connections are subjected to frequent supply interruptions, and the measure for those who use a community supply should also include the round trip as well as the waiting time (as specified in the JMP).

In order to improve access to safe water in rural areas the following measures are recommended:

- To promote low costs drilling and water supply technologies such as “Baptist drilling” in order to maximise coverage with investments. This can be complemented with private sector investment (i.e. self-supply) where investing households can recoup their investments either through “selling” water to neighbours or using the water for some production (livestock, horticulture).
- To increase the functionality rates of both boreholes with hand pumps and GFS not only through project led rehabilitations, but through district led investments informed through monitoring, as well as private sector involvement financed by the water users.
- To promote point of use treatment (especially chlorination or ceramic filters). New low cost filtering technology not only treats water but offers residual protection without the addition of chlorine.

**Point of use treatment:** For the urban dwellers in low income areas, given the problems of interrupted supply of piped water, and the apparent shift to using unprotected sources more emphasis must be placed on appropriate treatment methods at point of use. Population growth: Just in order to keep up with population growth, urban areas must provide new kiosks – around 30 a year for Blantyre and for Lilongwe with its higher growth rate, at least 50 kiosks a year. In the rural areas, the number of new water points to cater for the additional 300,000 people amounts to 1200 boreholes or 2400 standpipes, and this number should increase by almost 3% every year.

---

<sup>17</sup> Assuming defined design coverage of 120 people per tap.

<sup>18</sup> Malawi WSIP Working paper, Castalia, January 2012

<sup>19</sup> Castalia, Malawi WSIP, states that for every dollar spent, rural water has a net benefit of \$14

<sup>20</sup> Source: Water for People communication

## 7 Access to, and use of, sanitation services

### 7.1 Headline indicators

Headline 4 determines the % of households having access to functioning hand washing facilities i.e. with soap and water. Headline 5 determines access to improved facilities for primary schools.

Performance themes and headline indicators		Performance trends (see notes)					Target details
		2006	2007	2008	2009	2010	
4	% of people that use improved Sanitation*	29	47	35	46	9	<b>National</b> <ul style="list-style-type: none"> <li>MGDS II 95% by 2011 from 83% baseline (2005)</li> <li>ODF Strategy paper: 0% by 2015</li> </ul>
	Disaggregated by rural, town and market centres; and Urban	53 18	44 9	59 6	48 7	81 11	
	Note; Figures given as: improved / basic / no toilet	27	43	29	44	7	<b>Rural</b> <ul style="list-style-type: none"> <li>MDG:73%improved by 2015</li> <li>MGDS II: rural 60%, towns and markets 65%, by 2016</li> </ul>
		53 19	47 10	64 7	48 7	82 11	
		45	79	61	50	22	<b>Urban</b> <ul style="list-style-type: none"> <li>MDG : 75% improved by 2015</li> <li>MGDS II: 75% by 2016</li> </ul>
		51 4	21 0.4	38 1	47 3	85 3	
5	Schools with "adequate" WASH facilities": <ul style="list-style-type: none"> <li>% of schools with improved water supply</li> <li>average number of boys and girls per improved toilet drop hole</li> </ul>			81.5 122		78.2 120	<ul style="list-style-type: none"> <li>Target 100% schools with improved water supply</li> <li>Target 60 learners per drop hole</li> </ul>
6	% of household observed to have functioning hand washing facilities with soap or ash besides the toilet*					No data	<ul style="list-style-type: none"> <li>MGDS II: increased awareness of hygiene</li> <li>Targets set by National Handwashing Campaign 2011-12</li> </ul>

Note that the TWG M&E recommended a change to the headline indicators to include access to improved sanitation, and disaggregation by rural, market centre, town and urban.

The above headline indicators reflect the important of improved sanitation for achieving health outcomes. Around 25% of Malawians are at school and hence schools WASH is a critical area both for children and for future adults. There is a lot of evidence surrounding the importance of hand-washing for improved health outcomes. One observer has suggested that a future headline

indicator for the sector might be the reduction in prevalence of diarrhoea reported at district hospitals. This can be given further consideration for future SPRs. Another sector stakeholder has suggested that in future, there is assessment of waste water treatment and emptying of latrines in the SPR.

The importance of clear definitions is discussed further in an annex.

## 7.2 Access to improved sanitation in rural areas

**Table 7.1: Access to improved sanitation in rural areas (% of households)**

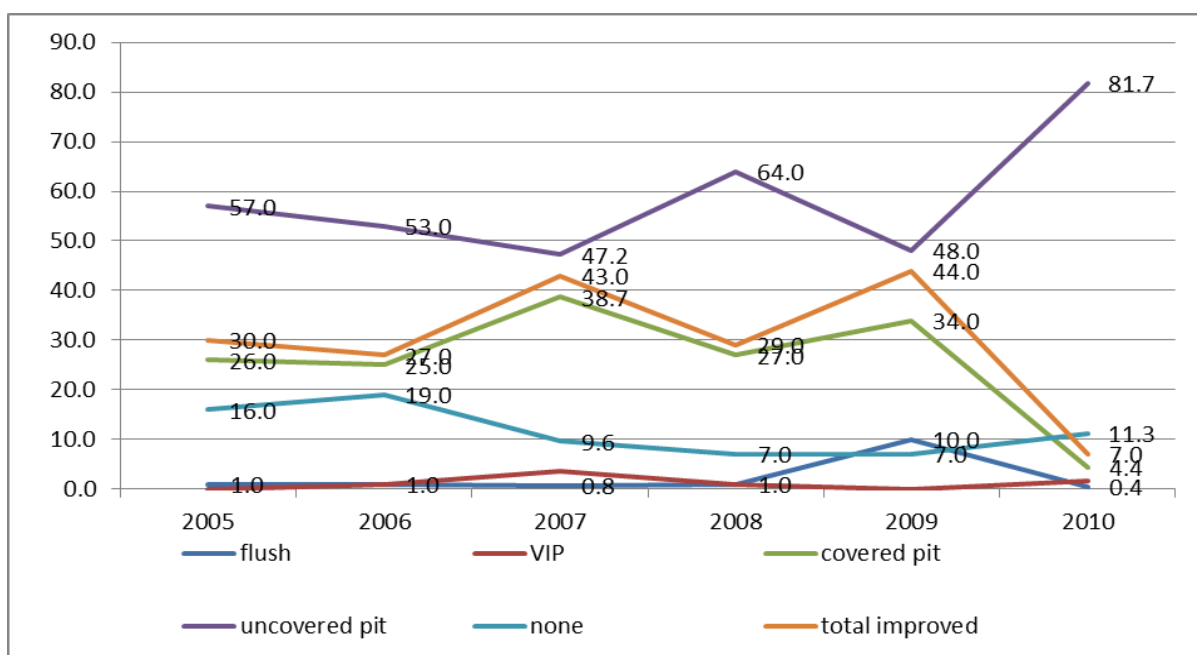
Year	Improved	Shared	Unimproved	Open defecation
1990	41%	17%	7%	35%
1995	46%	19%	7%	28%
2000	50%	21%	7%	22%
2005	55%	23%	7%	15%
2008	57%	24%	8%	11%
2010 (JMP 2012 report)	51%	30%	9%	10%
2010 (DHS report)	8.8%	4.9 %	81%	11%
2011 (JSR target)	-	-	-	5.5.%
2015 (MDG target)	73%	-	-	-
2016 (MGDS II target)	60%	-	-	-

*Source: JMP 2012 report, NSO reports*

For 2010, the above table shows the results from the DHS 2010 report as well as the JMP 2012 progress report. The main discrepancies are in the number of respondent reporting use of improved or non-improved toilets. This is because the DHS survey has identified only toilets with a cement slab as improved and has lumped together toilets without a cement slab (e.g. traditional pit latrines with a mud slab) which can be categorised as basic (NSP) or adequate (JMP) sanitation, with open pits which cannot be classified as either basic or adequate. The JMP 2012 report has adjusted the figures, but it is not clear how these calculations have been made.

The table highlights the increased use of shared toilets from 17% in 1990 to 30% in 2010. While the JMP uses DHS 2010 figures, the large difference is explained by JMP as due to taking a historical average. Respondents with no facilities remain around the 10 – 11% since 2008.

**Figure 7.1: Trends in rural sanitation access by technology type (% population)**



Source: NSO WMS, DHS 2010

The graph above is compiled from WMS data up to 2009 and DHS data for 2010, hence the lack of correspondence. In 2010 the DHS reports 81.7% of the population using toilets with uncovered pits (i.e. even of a slab is made of concrete, and uncovered it does not count as improved).

**Sanitation in rural areas** A recent survey <sup>21</sup> on rural sanitation in Malawi (sample size 222 households) reported the following findings:

- households with improved toilets according to the NSP definitions: Nkhata Bay: 10%, Mangochi: 17%, Dowa: 37%;
- There is a formal or agreed sharing between households – i.e. family and neighbours where maintenance is agreed, and informal sharing where passers-by just use the toilet, often “vandalising” the facility;
- The lifespan of basic toilets in sand soil was 1 year and in clay soils 2 years. The lifespan of improved toilets was 7 – 10 years;
- The cost of basic toilets ranged from 0 to MK3500, and the cost of improved toilets ranged from MK5,550 – MK12,000;
- The amortised costs (i.e. cost. Life span) for basic toilets was MK1900 per year, while for improved toilets it was MK1200 per year.

**Karonga District Council Sanitation and Hygiene Mapping. July 2010**

A district wide study was done in Karonga District, in 2010. Results include:

<sup>21</sup> A Market Assessment of Rural Sanitation in Malawi: Demand, Supply and the Enabling Environment for Sanitation in Dowa, Mangochi and Nkhata Bay. UNICEF, B Cole Nov 2011.

Sample size: 54,854 households in 360 villages and 5 Traditional Authority areas. Households with a toilet- 56%, of which 18.9% are improved (mainly in the urban areas) and 81.1% are basic. The majority of basic toilets are traditional type (83.7%). Hand washing facilities was only in 5.8% of households with toilets. Households without a toilet 44%.

Mapping exercises of this type are extremely useful with the following qualitative and quantitative data:

- Data available at district level, so that interventions can be targeted better
- Mapping of households that while having no toilet, have a formal arrangement to share a toilet
- Research to support sanitation marketing: for example why households have no toilet; the durability of traditional toilets; local solutions; constraints and motivations of having a toilet (basic or improved).

### 7.3 Access to improved sanitation in urban areas

The following table shows trends for urban sanitation, including 2010 results from the DHS 2010 and JMP 2012 report.

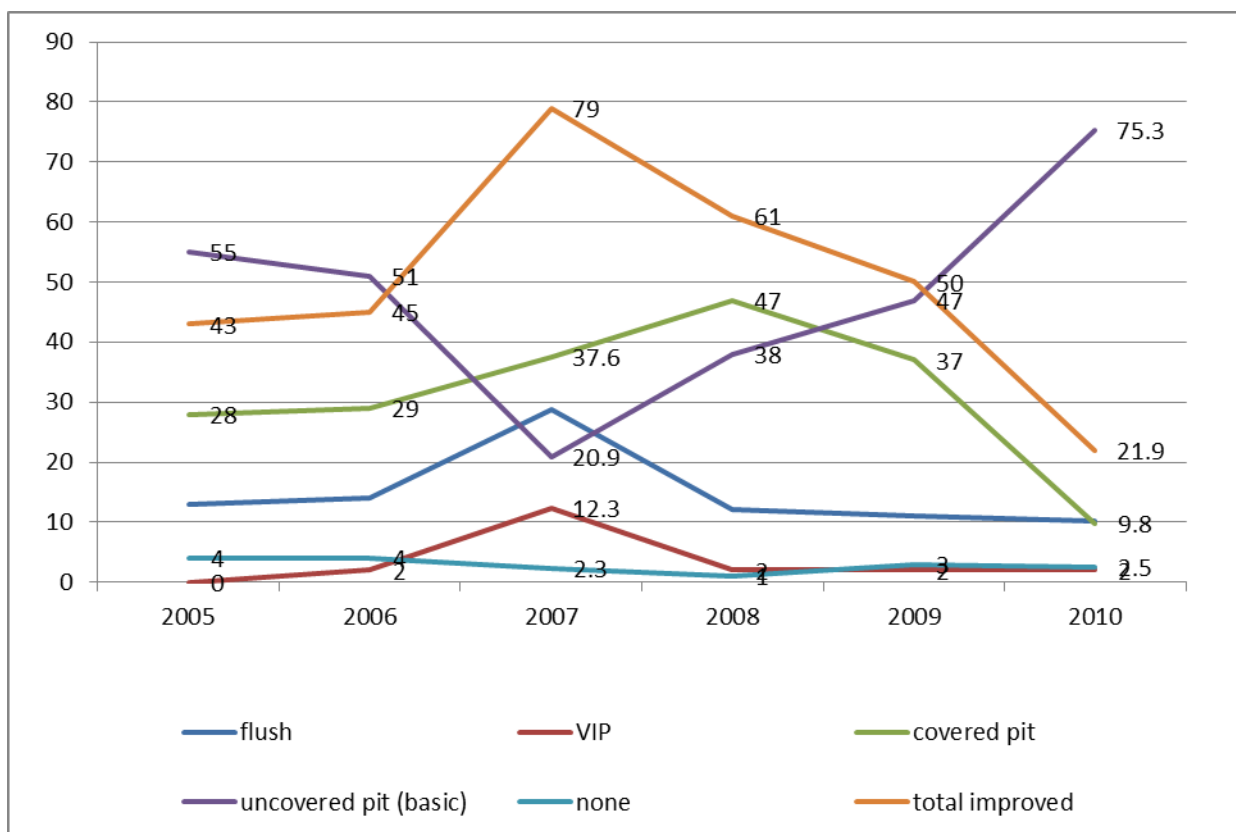
**Table 7.2: Access to improved sanitation in urban areas (% of households)**

Year	Improved	Shared	Unimproved	Open defecation
1990	50%	41%	5%	4%
1995	50%	41%	6%	3%
2000	51%	42%	4%	3%
2005	51%	42%	5%	2%
2008	51%	42%	5%	2%
2010 (JMP 2012 report)	51%	33%	8%	8%
2015 (MDG target)	75%	-	-	-
2010 (DHS report)	21.9%	53.6%	57.1%	2.5%
2016 (MGDS II target)	75%	-	-	-

Source: JMP 2010 report.

**Figure 7.2: Trends in urban sanitation access by technology type (% population)**





Source: NSO WMS, DHS 2010

The above graph, once again shows wide fluctuations due to lack of consistent definitions that can be easily used during survey enumeration (either questionnaire or observation). However, what is clear is that the percentage of households have no toilet is around the 2% level, and this is also borne out by more detailed surveys (see box below). The DHS 2010 reports 53.6% of urban households share toilets, while the JMP estimate is 33%. More detailed surveys indicate that while 70% of households own a toilet, 27% of Bangwe households “formally share” a toilet – i.e. there is a formal arrangement with neighbours meaning that 54% of all toilets are shared (see box below), while a similar study in Mzuzu (2011) indicated that on average 47% of households in Mzuzu low income areas of Zolozolo and Chiputula share a toilet.

#### Sanitation in high density, low income urban areas

A recent survey conducted in the low income area of Bangwe township in Blantyre City, included the following findings:

- 70% of respondents own a toilet, 27% share at a formal level, and 3% have no toilet. Those who have no toilet use a community latrine (78%), share with a neighbour (16%) or defecate openly (2%).
- 65% of toilets are constructed of traditional materials, while 31% have a cement floor.
- 21% of respondents claimed that open defecation happens “often” while 19% reported that it happens “sometimes”. Similarly 25% of respondents said that overflow of pit latrines “sometimes” happens and 24% said that flooding with human excrement “sometimes” happens.
- 54% of respondents use a chamber pot at night (bucket) and 2% use a plastic bag. The contents of the chamber pots are disposed into a pit latrine (94%) or to a garbage site (2%).
- Infants faces is mostly disposed of into a pit latrine (91%), buried (4%) or in the garbage site (1%).

- Although toilets are shared, 83% are cleaned once a day
- Functioning hand washing facilities were observed in 47% of households

### Disaggregation of data

NSO report that while the current report (DHS 2010 and WMS 2011) disaggregate rural and urban data, they have data fields that are coded for rural, market centres, towns and urban areas based on information given by the District and City Councils.

## 7.4 CLTS and ODF strategy

2011 saw the production of an ODF strategy for 2011 – 2015. The objective is to achieve an open defecation free Malawi by 2015 through the following means:

1. Scaling up CLTS through
  - Training and capacity building especially in achieving a critical mass of CLTS facilitators
  - Budgeting for the scale up of CLTS through routine HSA work. This is critical as triggering and follow ups are still dependant on donor funding
  - Traditional Authority teams are to be set up as vertical structures to alleviate the burden of District Teams.
  - The involvement of Natural Leader, especially in village level activities such as planning, triggering and identification of vulnerable households.
  - School Led Total Sanitation to be piloted in order to assess its effectiveness
  - Quality assurance, meaning that that lessons are learnt and implemented
  - Pre- triggering activities – namely to prioritise those villages that have more chance of responding
  - Triggering more effectively through division of labour by setting up teams, effective use of the minimum of tools and use of children as change agents.
  - Post triggering, including an information management system
  - ODF verification including criteria, methodology and certification.
2. Sanitation Marketing approach is enhanced through the following strategies:
  - Training of masons in both toilet construction, marketing, and then certification.
  - Development of low cost latrine technologies for different situations such as high water table
  - Financing systems should be explored
  - Links with CLTS i.e. masons to be involved during the triggering in order to market products
3. Involvement of traditional leaders in order to motivate lagging villages, identify champions, enact by laws, and identify vulnerable households
4. Publicity through a Launch, competitions, recognition ceremonies, communication material, links with other campaigns such as the National Hand washing Campaign
5. Networking, integration and coordination at national and local level, including resource mobilisation, and information management

The calculated projected cost of this activity is MK440 million. The largest expenses are for training of extension staff (MK204 million), recognition ceremonies (MK167 million) and exchange visits (MK 44 million). Barely MK7 million is spend on the Sanitation Marketing component.

## 7.5 Hand washing

While the DHS asks informants about hand washing facilities and practices, the data is not currently reported. It is expected that the WMS 2011 will have a report on hand washing.

In October 2011 a National Handwashing Campaign for 2011 – 12 was launched by the Ministry of Health Preventive Diseases. The justification of the campaign was that handwashing with soap was one of the most cost effective ways of improving health and saving lives. The objective of the campaign is to accelerate handwashing with soap especially amongst vulnerable groups.

Specific targets for the campaign period include

- the increase in school children practicing handwashing with soap. Target 35% of schools, from 4.2% baseline (2008)
- increase in mothers and care givers practicing handwashing with soap targeting 150 care givers in every district
- messaging the general public targeting 3 million people
- involvement of the private sector in the promotion of hand washing with soap

Evaluation of the campaign impact will be through the following means:

- proxy indicators such as the presence of hand washing facilities and soap –
- Disease prevalence, incidence and mortality indicators to achieve the goal by targeting a 25% reduction in prevalence of diarrhoea in the last 2 weeks, and reduction of cholera to less than 1%
- Process indicators – i.e. measure message saturation by the media i.e. how many of the 3 million people reached

It is hoped that the results of the campaign can be reported in the next Sector Performance Report.

The projected costs for the campaign is estimated as MK62 million, (\$414,000) for one year. The largest budget is for mini campaigns in 196 schools in 28 Districts costing MK25 million, followed by MK13 on training 400 extension workers on Handwashing.

### Major Investments in sanitation and hygiene

The UNICEF WASH programme operates in rural areas of 14 districts. Its sanitation related activities include the triggering of villages using Community-Led Total Sanitation (CLTS) methodology to achieve Open Defecation Free (ODF) status through the construction of toilets.

The following table lists the number of villages triggered, and impact of ODF<sup>22</sup>.

Year	Triggered villages	ODF villages	New latrines built in ODF villages	New latrines constructed in the district
2008	106	36	1115	18,643
2009	773	310	12762	38,237
2010	1266	495	20265	47,935
2011	1319	572	22901	64,538
Total	3464	1328	57143	172,068

Source UNICEF 2011 WASH report

From 2008 to 2011 a total of 343464 villages in 14 districts have been triggered through CLTS, with 1328 reaching ODF status, meaning an impact rate of just under 40%. As a result of the triggering

<sup>22</sup> Ideally through stopping open defecation, sharing of toilets is acceptable, not necessarily building new toilets, but UNICEF has focused on toilets as the tangible indicator because shared toilets are often not accepted as stopping open defecation

22901 new latrines were constructed in ODF villages in 2011 alone, with a total of 57143 in 4 years. The average number of toilets constructed per triggered village is 16.5. If the total number of new toilets in the whole district is considered then the average is about 50 toilets per triggered village. However, this may not be a reasonable assumption to assume that all new toilets in a district are constructed as a direct or indirect result of the triggering. This has yet to be proved.

Most of the toilets reported to have been constructed in 2009 are in Mchinji District (25,528 toilets) but this success has not been followed through in 2010-11 (no toilets reported built despite triggering and ODF status in 39 villages).

Most of the triggering in 2011 was done in Chitipa (200 villages), Lilongwe (200), Nkhata Bay (209) and Salima (395), however the greatest outcomes in villages declared ODF was in Lilongwe (140 villages), Salima (133), and Nkhata Bay (90). However, the biggest results in toilet construction were recorded in Lilongwe (3150 toilets), Nkhata Bay (3116) and Salima (1913). Thus Lilongwe district has the best ratio of toilets constructed / villages triggered.

### Costing of 2011 CLTS activities

This section measures the cost effectiveness the CLTS. UNICEF has quantified the cost of rolling out CLTS activities:

Costs per districts (15 districts)

- Total capacity costs per district MK3515600

Costs per village:

- Triggering MK 36,250
- Follow up MK 13175
- ODF verification MK22700
- ODF recognition MK300422
- Total cost per ODF verified village MK372547

In 2011 the following activities were reported:

- Preparatory activities in 15 districts MK52,734,000
- 1340 villages triggered – trigger and follow up costs MK66,229,500
- 527 villages declared ODF – verification and recognition costs MK170,285,294
- Total cost for 2011 was MK 289,248,794

The outcome of this was the construction of 22901 new toilets by households in ODF villages. The average “software” cost of each toilet was MK12630. Even if all the toilets can be directly attributed to CLTS triggering, then the average cost per toilet is MK4,484 per toilet. However as explained above, this is not a reasonable assumption unless proven.

A recent study in Sanitation marketing in 3 rural districts<sup>23</sup> suggested that the lifespan of most “traditionally built toilets” (see box) is one year for pits in sandy soil and 2 years for pits in clay soils. The typical cost of a basic toilet was in the range of 0 to Mk3,500.

---

<sup>23</sup> A Market Assessment of Rural Sanitation in Malawi: Demand, Supply and the Enabling Environment for Sanitation in Dowa, Mangochi and Nkhata Bay. UNICEF, B Cole Nov 2011.

This means that (as WASHCost recommends) the costs of a basic toilet (including CLTS software and hardware) is in the range of MK2,257 and MK5,757.

No reported post ODF evaluations have been conducted in previously declared ODF villages, meaning that it is not known if latrines built in 2009 or last year are still standing. It may be concluded that unless the construction of toilets is sustained, then the situation will revert back to the status quo. This is because at least some of the households who do not have a toilet experience frequently collapsing toilets anyway. So unless suitable technologies are developed at a suitable price, then it is difficult to see how the results can be sustained.

### Investments in Urban and Peri Urban sanitation.

The National Sanitation Policy recommends a Sanitation Marketing approach, using private sector partnerships, in order to promote sustainable sanitation. The main investments are in support of the private sector development:

- Lilongwe: Lilongwe Water Board and WaterAid: in 2010/11 8475 additional people have been served with improved sanitation.
- Blantyre:
  - Blantyre Water Board and Water for People – the following data was provided by Water for People on access to sanitation in Blantyre City;

Year	Number of toilets	New toilets constricted <sup>24</sup>	% access (improved +unimproved)	% improved (population)	increase in improved latrines
2009	65000		60	13	14200
2010	66800	1300	62	15	16290
2011	69500	2700	65	17	20790
2012 (projected)	74500	5000	69	22	25790
2013 (projected)	79500	5000	73	26	30790

Blantyre City Council and AYISE – market users have improved Solid Waste Management and public toilets in Bangwe / Namiyango areas. no data on new people served. Mzuzu: Mzuzu City Council and ADAY Associates – no data on new people served

### Benefit - Costs for sanitation

The benefit costs for improved sanitation are quoted<sup>25</sup> as:

- Rural – improved sanitation \$30 / per beneficiary / year
- Urban improved sanitation \$65 / beneficiary / year

This means that an investment of between MK2,257 and MK5,757 (i.e. \$13.30 and \$33.90) in attaining a toilet – if it is sustained beyond 1 or 2 years – is a good investment as the gains are \$30/person / annum.

## 7.6 Schools WASH

The Ministry of Education Science and Technology, Department of Education Planning have set up an Education management Information System. This is an annual publication containing information

<sup>24</sup> Data provided by entrepreneurs to Water for People

<sup>25</sup> Working paper on Water Supply, Sanitation and Irrigation Sector, Malawi. Castalia, Draft, 16 January 2011

about educational establishments in Malawi. The purpose of the data is to provide a basis for evidence based policy formulation and decision making, as well as a basis for research, monitoring and evaluation of the education system.

Data collected on water, sanitation and hygiene facilities in schools includes:

- School population – enrolled pupils and teachers, disaggregated by sex;
- Number of toilets and hand washing facilities by condition and type (separate data for boys, girls, male and female teachers);
- Main water source by type (improved and non-improved).

In 2008, a comprehensive baseline was conducted in 5379 of Malawi's 5460 primary schools using a self-reporting form. In 2009/2010 the second survey was conducted.

### School WASH standards

A document (*"National Norms and Guidelines for Primary School Construction, Rehabilitation and Maintenance in Malawi"*. 2010, draft) is currently being drafted by the Ministry of Education Science and Technology. This report includes recommendations on the following:

- Drinking water standards
- Sanitation and hygiene standards, including the number of boys, girls, male and female teachers per toilet, per urinal and per hand washing facility, as well as special hygiene facilities for girls.

In the Sector Performance Report, one of the headline indicators is: **Headline indicator # 5: % of Schools with "adequate" WASH facilities**

The following table highlights the main indicators disaggregated to boys, girls, male and female teachers.

**Table 7.3: Water supply and sanitation in schools**

Indicator 5: Schools with "adequate" WASH facilities	2008 EMIS	2010 EMIS	Projected 2011 <sup>26</sup>
% of Schools with improved water source as main supply	81.5%	78.2 %	80.2%
Average number of boys per improved drop hole (target 60 for schools with urinals)	122 average (boys and girls)	126 (120 average boys and girls)	114 (average 107 for boys and girls )
Average number of girls per improved drop hole (target 60 for schools with urinals)	122 average boys and girls)	114	102
% of schools with improved urinals for boys	17%	27%	31.4%
% of schools with improved urinals for girls	12.6%	21%	24.7 %
% of schools with adequate, improved, functioning hand washing facilities	4.2% with soap and water 14.7% with water	25% for boys, 28% for girls	29% for boys, 31.8% for girls

<sup>26</sup> Based on facilities reported to be under construction

Indicator 5: Schools with "adequate" WASH facilities	2008 EMIS	2010 EMIS	Projected 2011 <sup>26</sup>
	only		
% of Schools with improved toilet facilities for teachers	n/a	60% for male teachers; 54% for female teachers	62.6% for males teachers; 58.7% for female teachers

(Note that the 2010 EMIS bulletin does not specify pupil / drop hole ratios for individual schools so the indicator should be average number of pupils per improved toilet drop hole).

The data also gives projections for 2011 as the 2010 data collection also details facilities under construction.

**Table 7.4: Enrolment and number of primary schools**

	2008	2010
Number of primary schools (public and private)	5,461	5,392
Number of primary students enrolled	3,600,000	3,868,643
Average enrolment per school	660	717
Number of primary school teachers	45,925	48,170
Average number of teachers per school	8.4	8.9

The table above shows that while enrolment has increased, the number of schools has decreased, meaning that the average enrolment has gone up from 660 children per school to 717, an average increase of nearly 9% in 2 years. The consequence is that schools must start to increase construction to meet this growth rate. There has also been a corresponding increase in the number of teachers, with the average number per school increasing by 6% over the time period.

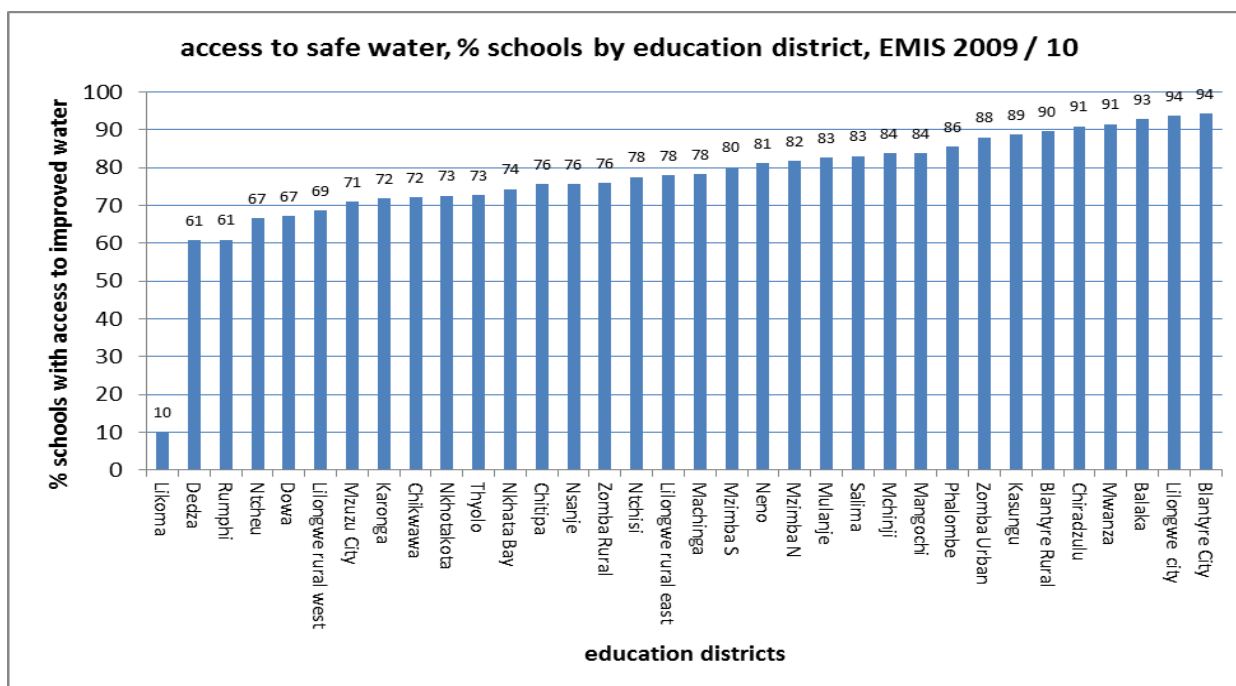
### Water in schools

The percentage of schools reported to have access to an improved source of water in 2010 is 78.2% compared to the baseline of 81.6% in 2008. Boreholes remain the most significant source of improved water 64.6% (down from 66.4% in 2008) – although a hand pump presents a challenge to providing sufficient access to children for drinking and hand washing.

The most significant change is the reduction of reported use of unprotected hand dug wells – from 10.9% in 2008 to 1.6% in 2010 but this could be attributed to the number of school data sheets reporting no water or unknown water source.

The following graph represents access to an improved water source by education district and education divisions.

**Figure 7.5: Access of safe water in schools, by district**



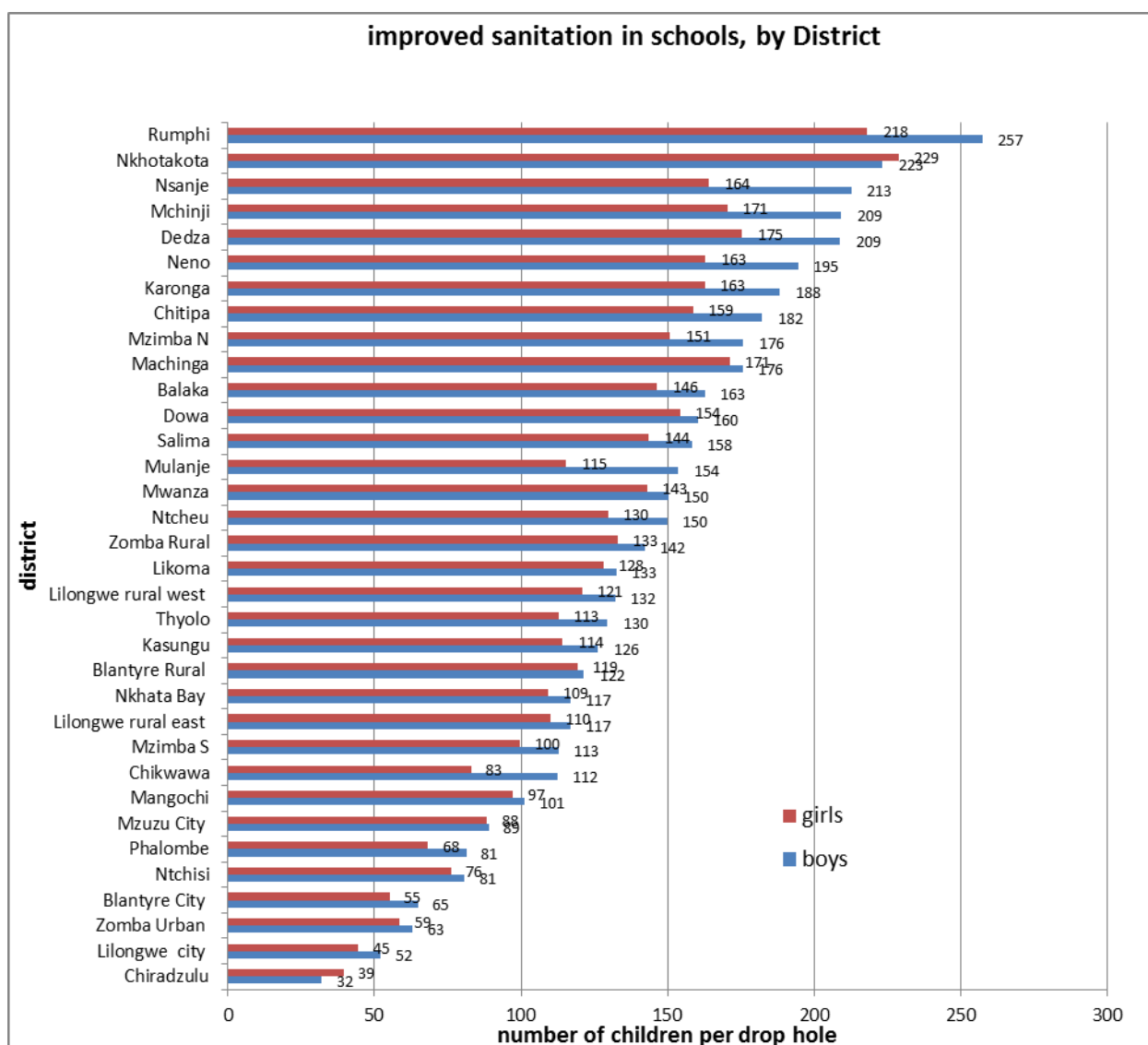
Education Districts with coverage of more than 90% schools having improved water include Chiradzulu, Balaka, Blantyre Rural and Mwanza. Of the Cities (Blantyre and Lilongwe with 94% coverage and Zomba with 88%), Mzuzu City schools have a low coverage of 71%. Dowa, Lilongwe Rural West, Ntcheu, Dedza, Likoma and Rumphi stand out as having low access to improved sources – less than 70% access.

### Sanitation in schools

Guidelines for schools indicate that there should be one improved latrine drop hole per 60 learners when urinals are available. The following graphs show the status of districts for both boys and girls. An improved latrine is defined as having “an impermeable (concrete) floor”.

**Figure 7.6: Improved sanitation in schools, by district**





The 2010 survey shows a total of 30,203 improved latrines are in use (15,227 for boys and 16,976 for girls) which is up only 2.5% from 29,500 improved toilets reported in 2008.

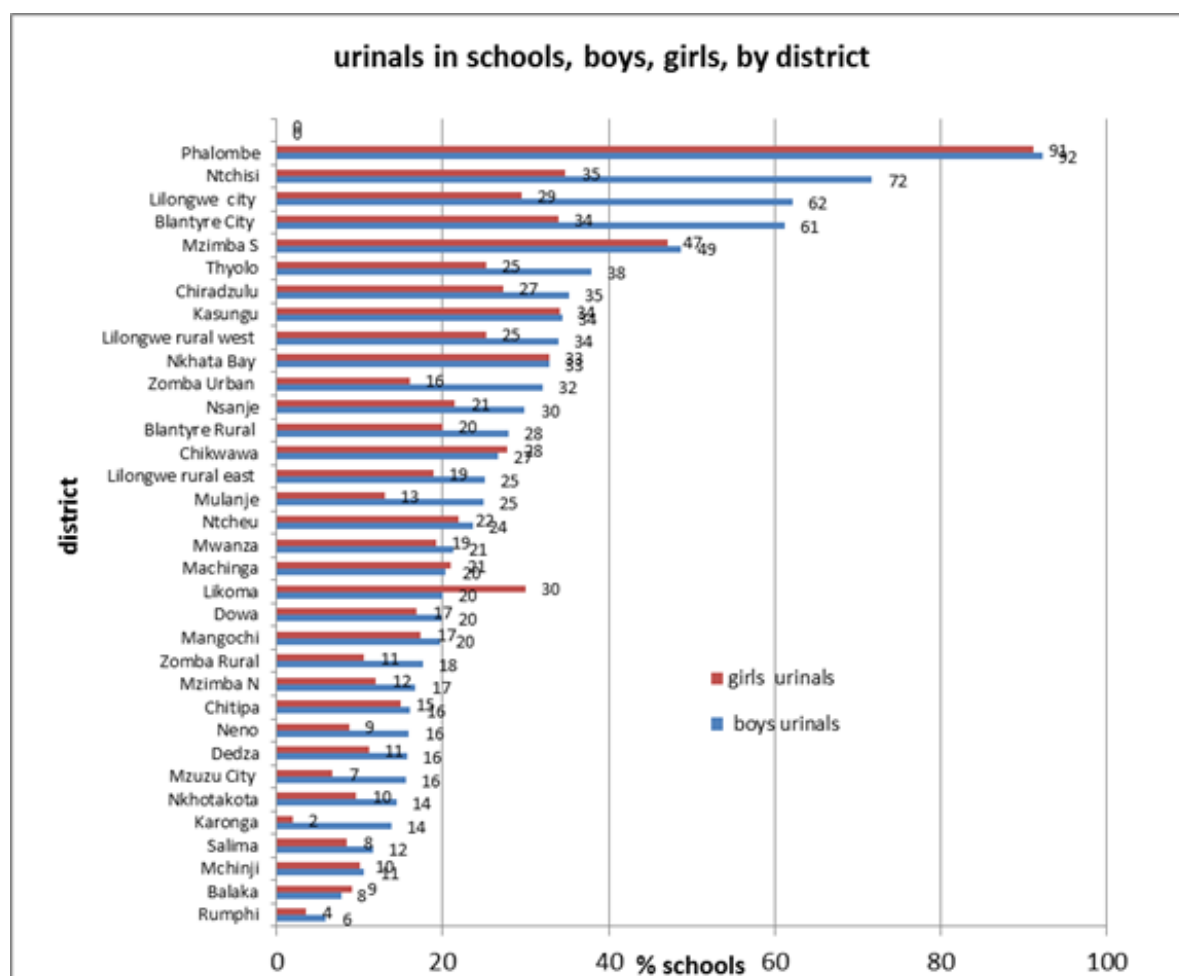
The graph shows that Lilongwe, Mzuzu, Blantyre and Zomba Cities appear to have low pupil / drop hole ratios, but the reality is that many of the latrines are old, and not fully functional. The best performing division is Shire Highlands, with an average of 88 and 80 boys and girls per drop hole, respectively, whilst the poorest performer is the Northern Division with 149 boys and 132 girls per drop hole.

Surprisingly, girls generally have better access than boys (national average of 114 girls per drop hole, while 126 boys share one drop hole). Some districts have attained equality, or near equality between boys and girls (eg Dowa, Nkhotakota, Mangochi) and some districts such as Mchinji favour girls (150 girls per drop holes compared to 209 boys per drop hole).

### Improved urinals in schools

The following graph highlights the percentage of schools with improved urinals for boys and girls, by education district and division. An improved urinal is defined as having “a concrete floor and with urine drainage”.

**Figure 7.7: % of schools with improved urinal facilities**

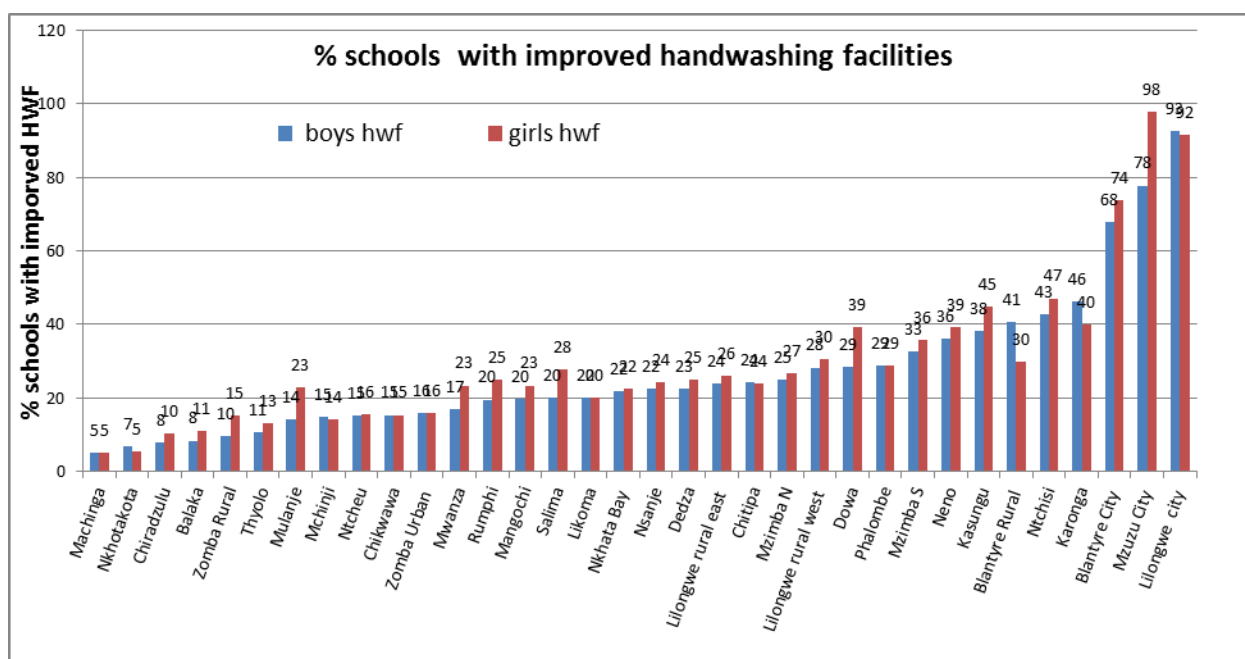


The 2010 survey shows that there are 1472 schools with improved urinal blocks for boys and 1153 schools with improved urinal block for girls. This represents a national average of 27% of schools which have improved urinals for boys and only 21% of schools have improved urinals for girls. Highest coverage is in Shire Highlands Division whilst lowest coverage of improved urinals is in the South eastern Division.

This is up from a baseline in 2008 of 17% and 13.6% for boys and girls respectively. While this is a significant improvement, there is still need of faster rate of implementation. A national workshop on school sanitation stipulated that every school should have as a matter of priority improved urinals before construction of new toilets is considered.

UNICEF (2011 annual WASH review) reported that 348 improved toilets were constructed.

**Figure 7.8: % of schools with improved hand washing facilities**



Lilongwe, Blantyre and Mzuzu Urban schools have the highest coverage of hand washing facilities, but Zomba urban is lagging far behind (with 16% of schools). Several districts have significantly higher rates of HWF for girls than boys (eg Mulanje, Dowa and Mzuzu) – and this is in keeping with providing better hygiene facilities for girls.

#### Sanitation facilities for teachers

The EMIS report states that there are a total of 48,170 teachers of whom 28,882 are male and 19,288 are female. The following facilities are available and currently in use:

	Male teachers			Female teachers		
	Number of facilities	% schools	Teachers / facility	Number of facilities	% schools	Teachers / facility
Improved toilets	3081	60%	9	2893	54%	6.7
Improved urinals	99	1.8%	291	57	1%	338
Improved handwashing	316	6%	91	322	6%	60

The figures show that on average the access to improved sanitation for male and female teachers is better than the stated standard of 15 teachers to one toilet, however the data shows that of 5392 schools less than 60% have improved toilets for males (3080 out of 5392 schools) and only 54% of schools have improved toilets for female teachers (2893 schools).

#### Investments in school facilities

##### UNICEF WASH programme in 14 districts:

A total of 83 new water points were constructed and 42 water points rehabilitated in primary schools, giving a total of 125 water points serving a total of 69,369 children. A district break down is given in the table below:

**Table 7.5: Summary Results on Water and Sanitation in Schools**

Year	No of Pupils reached (Water)	Sanitation Access (pupils)
2007	48,000	48,000
2008	68,000	68,000

Year	No of Pupils reached (Water)	Sanitation Access (pupils)
2009	42,000	73,620
2010	65,000	130,000
2011	69,369	98,150

Overall 98,150 children were reached with new latrines in schools, 64,480 were reached with new urinals, 66,400, were reached with new hand washing facilities and 33,150 were reached with messages on the three key hygiene practices.

### Productive school sanitation in Blantyre and Mzuzu Urban Schools

This project targets:

1. “Self supply” whereby schools invest in ecological sanitation (skyloos and urinals) in order to promote resource recycling in school gardens and links to the education curriculum.
2. Maintenance of existing facilities through the employment of school caretakers to clean the sanitation facilities using recurrent budget and rehabilitation of toilets using district funds

### Value for money

The following table summarises amortised costs for the different designs and technologies for toilets and urinals<sup>27</sup>

**Table 7.6: Amortised costs of facilities (March 2011 costs)**

Description of facility	Approximate Cost range for facility (MK) -	Amortised costs MK / drop hole / year
<b>EIMU / UNICEF Education</b> • 4 VIPs with integrated urinal • Estimated lifespan 20 years	1,278,979	16,000
<b>EU – Mzimba</b> • 4 VIPs • Estimated lifespan 10 years	293,900	7,300
<b>UNICEF – WASH / CCAP / PLAN double pit latrine</b> • Twin VIPs • Estimated lifespan 10 years	80,000- 160,000	4,000-8,000
<b>Skyloos (CCAP, NICCO, GIZ, WaterAid)</b> • Single eco toilet • Estimated lifespan 10 years	42,000 – 133,000	4,300 – 13,300
<b>Fossa alterna (Water for People)</b> • Single eco toilet • Estimated lifespan 10 years	69,900	6,990
<b>Urinal (UNICEF – WASH)</b> • Estimated lifespan 10 years	71,400	890 for boys, 1190 for girls

**Mzuzu University – WATSAN Centre of Excellence** productive sanitation (March 2012 costs).

<sup>27</sup> From toilet building in schools to a more comprehensive approach in school sanitation: “a presentation of the findings of a review of school toilets and deliberations towards the development of national standards and guidelines”. MoEST / UNICEF. December 2011

Description of facility	Approximate Cost range for facility (MK)	Amortised costs MK / drop hole / year
Skyloos At least 10 year life span	43,000	4,300
Urinals At least 10 year life span	Boys: MK 89,321 Girls : MK94,306	8,931 9,431

Estimated lifespan without major rehabilitation or pit emptying and do not include any maintenance costs (eg to roofs and doors)

The Centre of Excellence has developed low cost sanitation for schools and households, and urinals for schools. The toilets are double chamber “skyloos” with passive solar heating and black water infiltration. Costs for a turnkey product, including landscaping, contractor’s fees and supervision are MK43,000 (April 2012). Most of the cost savings are realised through reduction in use of cement, and accurate Bills of Quantities with strict adherence.

## 7.7 Conclusions and recommendations

### CLTS & ODF

In order to achieve the goal of becoming ODF by 2015 (ODF Malawi 2015 Strategy), changes to current ways of implementing CLTS should be made<sup>28</sup>. The number of new toilets needs to be constructed include:

- For the 11% of the rural population currently without toilets to have a toilet – approximately 220,000 toilets should be built
- To meet the growing population estimated at 330,000 per year, and additional 66,000 new toilets need to be built. So over the 4 year period of the ODF strategy, more than 260,000 new toilets are to be constructed just to meet the growing population.
- This is in addition to the toilets that become non functional (due to collapse, etc) every year.

To put this in perspective in 2011, only 64,000 new toilets were recorded as constructed in the 15 WASH programme districts (i.e. only half the districts in Malawi), and at a software support cost of about MK290 million.

### Strategic Recommendations:

1. Focus should shift from triggered villages to increasing the percentage of ODF villages.
2. Funding should be directed towards capacity building and technical assistance for district and government extension staff to work on CLTS as part of their government owned, routine work for sanitation promotion instead of a donor or NGO project for sustainability and cost-effective scaling.
3. Explore innovative methods of implementing CLTS in a low-resource ways and disseminate findings to all implementers. This can include rewarding Districts that achieve the greatest proven impact at the lowest cost.
4. Assess each village separately to determine their specific sanitation needs, some may not need ODF triggering but support in building cost-effective, improved latrines which do not collapse each year.
5. Create a simple monitoring system for all districts to gather sanitation data periodically (at least twice a year, which includes CLTS data) for national analysis and district performance management.

<sup>28</sup> Thanks to Ms Jolly Ann Maulit for her contribution to this section.

6. Monitor villages previously declared ODF to ensure they sustain their ODF status, and move up the sanitation ladder.
7. Include issues of handwashing to stop faecal oral route transmission and increase hygiene promotion.
8. Ensure no-subsidy approach for non-vulnerable people is clear to implementers and enforced by the government, so as not to undermine CLTS activities.

### **Sanitation Marketing**

As mentioned above, in order for everyone in Malawi to have a toilet by 2015, at least 500,000 toilets should be constructed. These, as well as the toilets that need upgrading, rehabilitation and reconstruction is a large market.

The following recommendations were highlighted in a study on sanitation marketing<sup>29</sup>:

#### **Strategic recommendations:**

1. National coordination should be managed by a multi-- stakeholder taskforce including government, academia and NGO representatives
2. New and innovative latrine designs should be developed in a competitive environment
3. Product design teams include rural community members
4. Simple monitoring systems are built into program development
5. Program design must support evidence--based decisions
6. Entrepreneurs make mandatory contributions to attend training
7. Entrepreneurs with good performance are rewarded with additional training/support

While it recognises the importance of sanitation marketing as an integral part of the goal of achieving universal sanitation, the ODF 2015 strategy paper is very light on sanitation marketing, both in terms of content as well as budget. The Sanitation Marketing budget for the ODF strategy is only 1.5% of the total budget. The sector needs to understand better lessons learnt and research results.

### **Schools WASH**

A recent study on school sanitation<sup>30</sup> observed that school sanitation programmes focused on the construction of toilets, with a preference for pit latrines even if the environment was not conducive to that technology. The recommendations of the study and a National workshop included:

#### **Strategic recommendations:**

- 1) The Ministry of Education should finalise the : *“National Norms and Guidelines for Primary School Construction, Rehabilitation and Maintenance in Malawi”* in order that there are clear instructions on the minimum standards to be achieved
- 2) A school toilet standards manual should be developed promoting the 3 different toilet technology options (i.e. pit latrines, skyloos and fossa alterna), as well as designs for

---

<sup>29</sup> A Market Assessment of Rural Sanitation in Malawi: Demand, Supply and the Enabling Environment for Sanitation in Dowa, Mangochi and Nkhata Bay. UNICEF, B Cole Nov 2011.

<sup>30</sup> From toilet building in schools to a more comprehensive approach in school sanitation: “a presentation of the findings of a review of school toilets and deliberations towards the development of national standards and guidelines”. MoEST / UNICEF. .December 2011

urinals, Hand Washing Facilities, specify materials for construction, and promote lower construction costs. Promotion of VIPs, toilets slabs with urine diversion and concrete handwashing tanks are to be discontinued.

- 3) School sanitation construction guidelines are needed and the information needs to be disseminated to all levels, including schools
- 4) Both the Sanitation Services Delivery Approach and the Decision Support Tool are recommended useful instruments to be included in the manual in a user friendly format.
- 5) Resource recycling is to be practiced at school level – especially waste water management and linking school gardens, woodlots and orchards to urinals and waste water management.
- 6) Guidelines and standards should be enforced through the Primary Education Advisors, School Health and Nutrition Coordinators and District Education Managers
- 7) Partners should consult with the District Education Managers' office, including Primary Education Advisors and School Health and Nutrition Coordinators, school and community when implementing school WASH projects
- 8) Schools which are demonstrably well managed should be first targeted for interventions in order to ensure that facilities are well used and maintained
- 9) It is essential to build capacity and leadership of school management through district institutions such as school inspectors and the PEA's. (i.e. through motivation and sanctions, accountability, sharing of the guidelines and management skills)

## 8 Equity of water and sanitation services

### 8.1 Equity of urban water supply

Most households in urban areas of Malawi obtain their water from water kiosks or public taps (45.3%) or boreholes (12.8%), while only 31% of households have their own piped water into dwelling or plot (DHS, 2010). 24.3% of households in urban areas take 30 minutes or longer to collect (round trip). If they have to make more than one trip then clearly the total daily time spent on collecting household water is considerably more. The most common urban water source in Blantyre and Lilongwe is water kiosks. The section below examines the performance management and regulation of these water kiosks.

#### Management of water kiosks in Lilongwe and Blantyre<sup>31</sup>

Communal water points have been established by the Water Boards since the 1980s to improve services in low-income settlements of Malawian cities. From the start, management for many of these standposts was handed over to alternative providers, e.g. water committees or local leaders. However bill payment problems arose and in response both Water Boards established Kiosk Management Units (KMU) and introduced Water Users' Associations (WUAs) to manage the kiosks.

The KMU in each Water Board is responsible for managing the kiosks and cooperating with the kiosk operators, ensuring that all kiosks are operated by legally recognised entities. The KMU also monitors their performance and reselling prices, records bill payments, provides technical assistance and conducts repairs and maintenance to the meters, which are situated next to the kiosks. WaterAid in Lilongwe and Water for People in Blantyre provide assistance to the KMUs. Although there has been a shift of kiosk management to Water Users' Associations in recent years, a range of kiosk management models still exist in both cities

**Table 8.1: Types of operators of Water Kiosks in Blantyre and Lilongwe**

Lilongwe		Blantyre	
Operator	Kiosk No	Operator	Kiosk No
LWB	106	BWB	25
Private individuals	90	Private individuals	>21
CBOs	10	Water committees	>100
WUAs	303	WUAs	159
Total	566	Total	315

Source: WaterAid (2008), plus key informant interviews

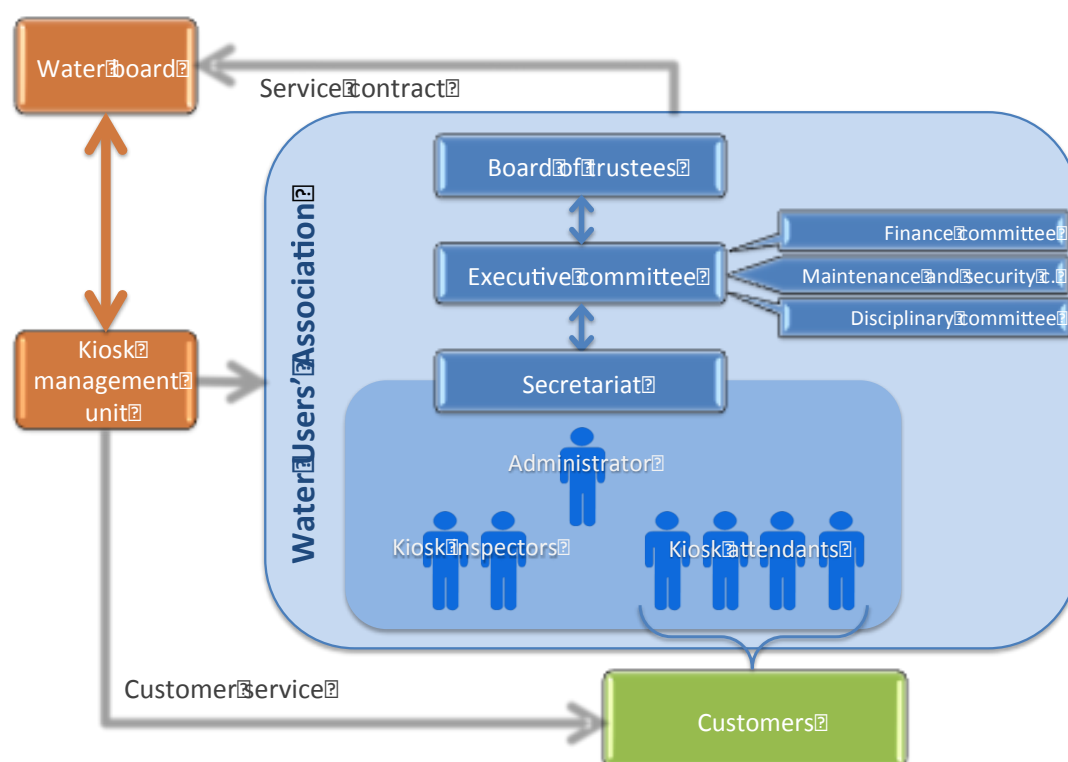
With most of these provider types, the relationship with the utility company is fairly loose and based only on bill payment by the operators and monthly meter readings by the KMU. A WUA, in contrast, is a cooperative water society where the community establishes a legal business entity registered with the Government. The management system is based on a business principle of cost recovery and profit-making, however many of their members are elected from the community. It is thus a combination of a community based and a private organisation. Compared to other operators, WUAs manage a much higher number of kiosks, which at present can be as many as 90.

<sup>31</sup> Edited case study prepared by Klaus Sattler and Kevin Sansom based on field research in 2011, with the assistance of WaterAid, Water for People and the Water Boards.



The structure of WUAs consists of 3 tiers, namely a board of trustees, an executive committee and a secretariat as shown below. Members of the board of trustees, usually about three to ten, are not elected but representatives or leaders of the local community. They oversee the work of the WUA and take any final decisions. The members of the executive committee are local inhabitants elected by the community and are meant to represent the users' interests. At the lowest hierarchical level, the secretariat comprises of one administrator, kiosk inspectors and the kiosk attendants who sell water at the kiosks. The administrator is responsible for daily operations and budgeting. Kiosk inspectors, mostly about two or three per WUA, conduct daily meter readings, monitor the water prices, report breakdowns and forward the daily revenues to the administrator. Members of the secretariat are the only members of WUAs who receive a regular salary, which is derived from the water sales.

**Figure 8.1: WUA: Organisational structure of Water Users' Associations**



This WUA management structure has been critiqued as top heavy and costly. However, WUAs achieve reasonably good kiosk management and cost recovery. The local community management 'self-regulation' of the water kiosk management is delivering regular bill payment, reasonable cost recovery and reductions of arrears, adequate kiosk maintenance and relatively low reselling prices.

The water utilities are responsible for regulation and monitoring of all kiosk operators, which are visited by the KMU once per month to check the overall conditions and do the meter readings. In both cities, the major problem of low water pressure leads to regular water shortages and consequently reduced water sales and revenues for the operators. WUAs, with their fixed staff and salaries, suffer particularly from this problem.

In Lilongwe the utility company faces problems in supervising the high number of private single-kiosk operators. WUAs in both cities usually pay their bills in time and are generally viable businesses and achieve cost recovery. For all operators, however, revenues are hardly sufficient to invest in service extension, such as construction of new kiosks or water tanks to store water.

### Alternatives to water kiosks

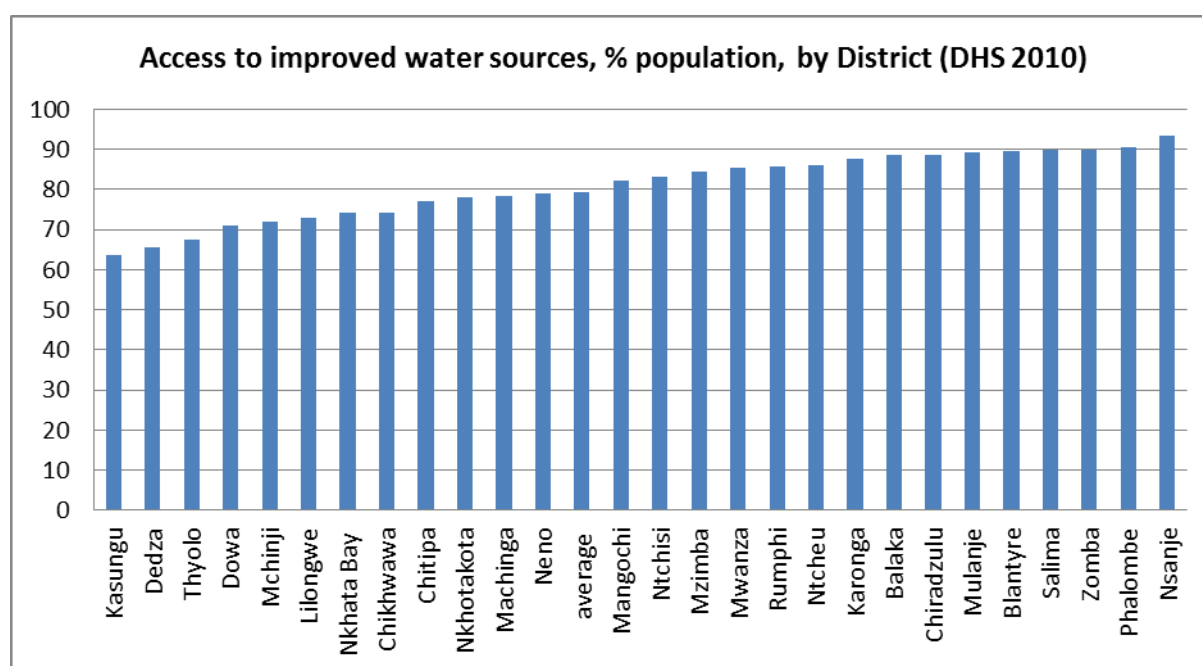
Water Kiosks are a very basic form of urban water supply service, in that users often have to walk considerable distances to collect and carry their heavy daily household water, which can be time-consuming and inconvenient. People prefer to have their own pipe connections or at least be able to obtain water from pipe connections close to their home. New innovative ways of serving lower income areas are emerging in various parts of Africa, where the local private sector or CBOs manage small water distribution networks and provide house connections to consumers.

In Maputo, Mozambique there are approximately 450 private operators who have their own boreholes and pipe networks serving inhabitants through house connections and stand pipes. All their investment is totally private<sup>32</sup>. In Kisumu, Kenya and in Ouagadougou, Burkina Faso, small scale private providers are contracted by the utility company and provided with bulk water to supply certain areas at the outskirts of the city. The private operators manage pipe networks then sell water to local residents, either through house or yard connections. These small scale providers pay the utility for their bulk water supplies based on meter readings.

## 8.2 Equity of rural water supplies

### District access and equity of access

Figure 8.2: Access to improved water sources by district (by % population)



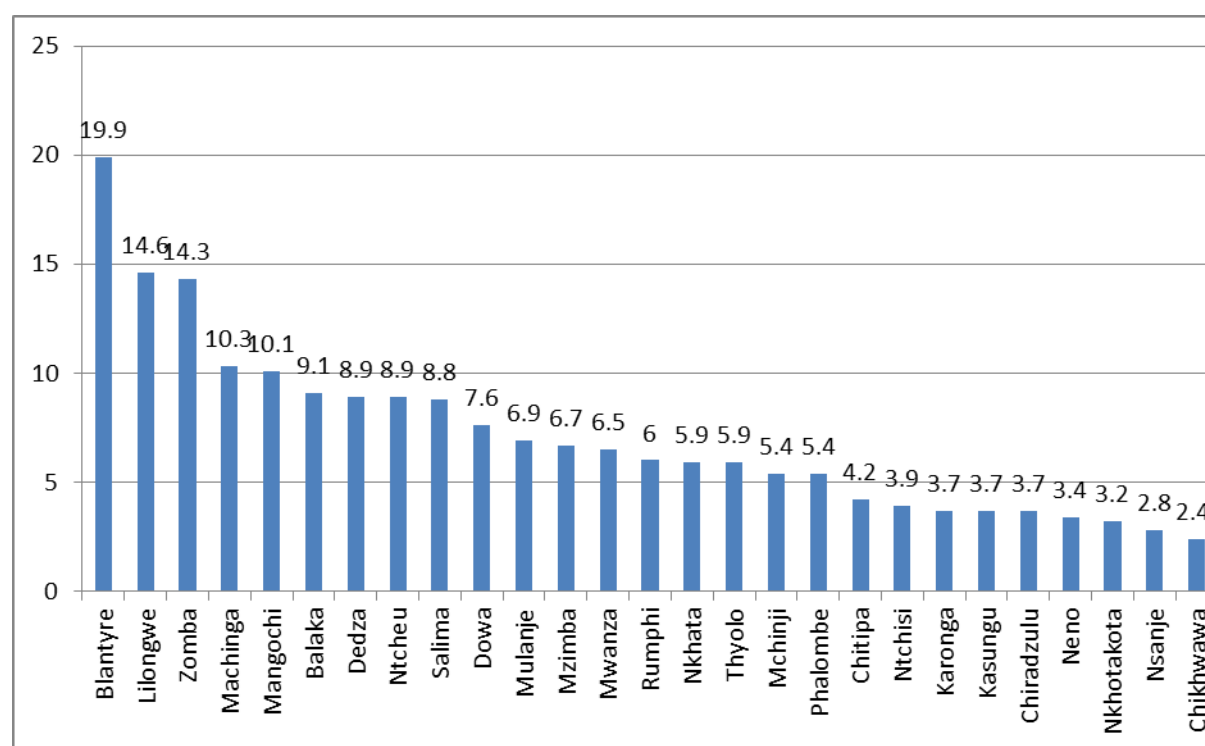
The standard deviation is 14.9% for Headline indicator 11. The standard deviation test highlights those districts that are lagging behind in performance in access to improved water supplies to the population.

<sup>32</sup> Chaponniere and Collignon, 2011

### 8.3 Equity in access to improved sanitation

The following graph illustrates the access to improved sanitation as measured by the DHS 2010 survey, as % population of a district.

**Figure 8.3: access to improved sanitation, by district (% population)**



Source DHS 2010

It should be noted that the survey only asked respondents about the toilets (i.e. not observation) and defined improved as having a concrete slab. NSO also admit that water and sanitation are not the prime focus of the DHS. The relatively higher rates of coverage in Lilongwe and Blantyre districts are probably due to the large urban population that has higher rates on improved sanitation than rural households.

### 8.4 Conclusions and recommendations

#### Urban equity

Water kiosks are the main service option for serving urban low income areas in Malawi. But they effectively work as a form of water rationing because there is a limit to the amount of water people can carry back to their homes. Where there are adequate bulk water supplies, Water Boards in Malawi can explore working with alternative providers who are willing and able to manage small pipe networks serving consumers in lower income areas who wish to have house connections. Lessons can be learnt from other countries in Africa about how to set up, manage and regulate such systems.

The WUA management structure for managing urban water kiosks in Lilongwe and Blantyre is rather top heavy and costly in terms of people time. However, WUAs achieve reasonably good kiosk management and cost recovery. The local community 'self-regulation' of the water kiosk management is delivering regular bill payment, reasonable cost recovery and reductions of arrears, adequate kiosk maintenance and relatively low reselling prices.

### Access to drinking water - rural equity

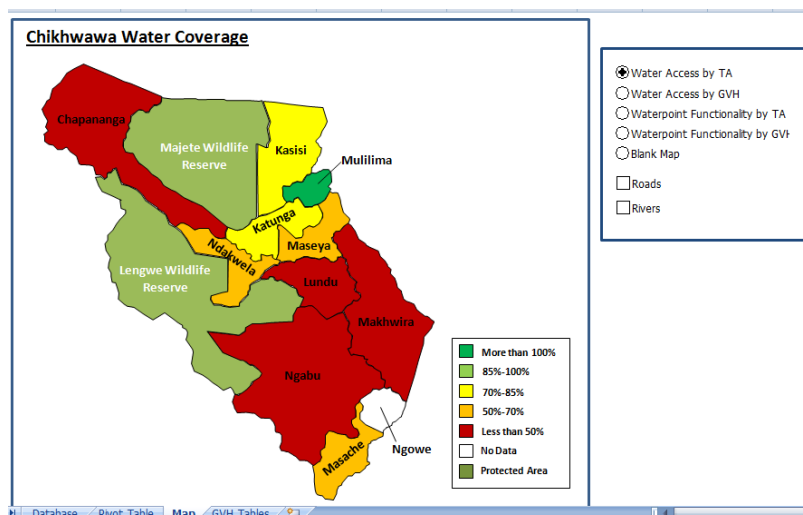
The sector needs to get clearer picture of the status of different water technologies that are used (e.g. shallow well, boreholes, gravity). Further investigation should also look at equity (distribution of water points per population), the reasons for declining coverage in some districts in order to understand how much investment needed to improve coverage and how investments can be more effectively used. A District may be performing well on average, but the coverage may be inequitable with some areas having better services than others. A useful tool has been developed and piloted in several districts (with assistance from Water for People and Engineers without Borders) . This was described in the 2010 SPR, and it has been shown to be financially and technically sustainable in at least some districts (eg Chikhwawa).

**Figure 8.4: example of district based monitoring form with village level coverage**

	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	Village Name	GVH	TA	F BH	NF BH	AB BH	F Ta	NF Ta	AB Ta	F SW	NF SW	AB SW	F PS	NF PS	AB PS	VH Pop	# of HHs
2	Agustu	Chikuse	Makhwira	0	0	0	0	0	0	0	0	0	0	0	0	813	119
3	Allan	Sekeni	Lundu	0	0	0	18	0	0	0	0	0	1	0	0	830	164
4	Alufandika	Chizenga	Ngabu	1	2	3	0	0	0	0	1	0	0	0	0	445	82
5	Alumenda	Mvula	Ndakwera	2	0	0	0	0	0	0	0	0	0	0	0	352	64
6	Anansi	Savala	Makhwira	1	0	0	0	1	0	0	0	0	0	0	0	266	54
7	Andiseni	Chaonanji	Ngabu	1	1	0	0	0	0	0	0	0	0	0	0	430	117
8	Andrea I	M'bande	Maseya	2	0	0	0	0	0	0	0	0	0	0	0	535	111
9	Antonyo	Kajawo	Mulilima	0	0	0	0	0	0	2	0	0	0	0	0	253	42
10	Bapton	Mphungu	Ngabu	1	0	0	0	0	0	0	0	0	0	0	0	676	122
11	Bauleni	William	Katunga	0	1	0	0	0	0	0	0	0	0	0	0	194	57
12	Bauleni	Kajawo	Mulilima	0	0	0	0	0	0	2	0	0	0	0	0	157	34
13	Bauti	Maluwa	Ngabu	1	0	0	0	0	0	0	0	0	0	0	0	288	94
14	Belo I	Belo	Mulilima	2	1	0	0	0	0	0	0	0	0	0	0	279	72
15	Beloli	Belo	Mulilima	0	1	0	0	0	0	0	0	0	0	0	0	199	46
16	Benito	Patalawo	Katunga	1	0	0	0	0	0	0	0	0	0	0	0	284	66

Such a table allows a transparent analysis of the data at village level: listing the village population, functioning, non functioning and abandoned water points by technology type, and the coverage deficit. The above table can also be linked to a map.

**Figure 8.5: District Map showing coverage of improved water supplies**



### Access to improved sanitation: rural equity:

NSO surveys can indicate which districts are on average performing better than others, but data is required at sub-district level – and this data can be available from the monthly health centre reports which indicate the households in a village that have access to improved, basic, or no sanitation. This data can be used to plan interventions targeting villages with the lowest coverage with CLTS or sanitation marketing. The 2010 SPR recommended that the headline indicator for sanitation reads as access to basic or improved sanitation. The reason for this is that disaggregated data can determine which intervention a village requires, i.e. CLTS or marketing.

## 9 Functionality

**Headline indicator 7:** % of improved water point sources that are functional at time of checks

**42.4%** (see tables 9.1, 9.2 and 9.3 below)

Functionality of water points is a key factor which affects the actual use of an improved water source. If an improved source is not working, is not working well or is not accessible at certain times of the day, then households will turn to unimproved sources.

### 9.1 Functionality of rural piped water schemes

Malawi has approximately 80 rural piped water schemes serving a design population of almost two million in both rural and urban areas, including gravity-fed schemes that potentially provide good water services at a low price. Most schemes are designed to serve less than 50,000 people. These schemes are important assets for Malawi because they can provide convenient water supplies in or near people's houses, thus enabling people to consume adequate quantities of water to achieve health benefits with good time savings for economic benefits. A survey of the water schemes in the early 1980s showed over 90% of taps were functioning. They originally had strong government support but now the quality of their water services has been affected by the declining government budget for rural piped schemes<sup>33</sup>. A recent study of the functioning of taps on these piped water schemes has been conducted in the three regions and the results are presented in the three tables below.

**Table 9.1: Functionality of Gravity Piped Water Schemes in Malawi 2011 – Northern Region**

District	No of taps	Total operational	%
Rumphi	580	218	38
Nkhata Bay	274	42	15
Mzimba	620	233	38
Karonga	357	7	2
Chitipa	474	99	21
Total	2305	599	26%

The table shows generally low levels of functioning taps in the region. Some piped schemes such as the Nkhamanga scheme in Rumphi district have managed to increase the numbers of functioning taps from 168 to 193, following a rehabilitation project. However 14 other schemes have no functioning taps and many others have low percentages of taps functioning. Source: MoAIWD, 2012

The percentage of functioning taps on water schemes in Central region are shown in the table below. There are wide variations in the performance of the schemes. The Dwambazi scheme in KK/NB district has increased the numbers of working taps from 250 to 385, while many other water schemes have low levels of tap functionality.

<sup>33</sup> WSP, 2002

**Table 9.2: Functionality of Gravity Piped Water Schemes in Malawi 2011 – Central Region**

District	No of taps	Total operational	%
Salima	249	48	19
KK/ Ntchisi	238	0	0
Ntcheu	558	208	37
Dedza	10	10	100
KK/ NB	250	385	154
Mchinji	160	13	8
Total	1465	664	45

In some districts of the Southern region the piped water schemes are performing well such as Phalombe and Bakala districts with 1192 and 1625 working taps respectively, both with high percentages of taps functioning.

**Table 9.3: Functionality of Gravity Piped Water Schemes in Malawi 2011 – Southern Region**

District	No of taps	Total operational	%
Zomba	1384	726	52
Thyolo	338	167	49
Phalombe	1589	1192	75
Mwanza	534	165	31
Mulanje	2218	442	20
Machinga	1591	175	11
Mangochi	210	35	17
Chikwawa	501	134	27
Balaka	1850	1625	88
Total	10215	4661	45

## 9.2 Conclusions and recommendations

The low average figures of tap functionality are a matter of concern as are the number of water schemes with no functioning taps. It should be acknowledged that managing such large rural regional or multi-village water schemes has proved to be a big challenge in many countries. It is important to learn lessons from those districts and water schemes that are performing well, such as in Phalombe district.

Some water schemes are known to have suffered from declining yields at the water sources. Detailed investigations are required to determine if the yields can be improved through watershed management activities such as tree planting, or whether it is better to seek alternative water sources. Efforts have been made to strengthen the Water User Associations (WUAs) who manage these schemes through developing MoUs for the WUAs and some capacity building. But clearly they require more resources and support. Further studies are required to determine what additional resources and support the WUAs require and how best to deliver that support.

## 10 Management of water services

### 10.1 Headline indicators

Urban water supplies in Malawi are managed by the two main city water boards and the three regional water boards (Southern, Northern and Central). Trends in performance against headline indicators and other important urban water indicators are examined in this section, to determine key priorities going forward. Table 10.1 shows trends in the production of water by the Water Boards.

**Table 10.1: Annual piped water production (Headline indicator)**

Water Boards	2006/07	2007/08	2008/09	2009/10	2010/11
Northern (NRWB)	7.64	8.32	8.35	8.56	9.26
Central (CRWB)	5.91	6.48	6.56	6.69	7.09
Southern (SRWB)	-	-	-	-	11.4
Blantyre (BWB)	29.3	28.6	29.9	30.0	30.9
Lilongwe (LWB)	28.9	30.7	33.8	36.8	-

Source of data: Water board reports.

Figures refer to water production in millions of cubic metres per year.

All water boards have increased their water production, with NRWB increasing theirs by a total of 21% over the last 5 years. But Blantyre Water Board's overall water production has increased by only 5.4% over the same period. The high pumping head and large electricity bills has clearly been a constraining factor in Blantyre. The Malawi urban population increased overall by a faster rate at an average of about 5% per year<sup>34</sup>, more than 25% in total, particularly in per-urban areas. The growth in water production has not kept pace with population growth.

The numbers of customers or active pipe connections have increase by 74% for the SRWB over the last 5 years (see table 10.2), whereas BWB has only increased its connections by 13% over the same period. CRWB acknowledged that they have increased the new water connection fee from about MK6,000 per standard connection to average MK17,000. This is a deterrent to most of the aspiring low income earners to connect.

**Table 10.2: Numbers of customers (active connections)**

Water Boards	2006/07	2007/08	2008/09	2009/10	2010/11
Northern (NRWB)	18,236	22,160	26,474	29,566	31,765
Central (CRWB)	12,540	13,378	14,407	15,766	16,880
Southern (SRWB)	-	-	-	-	-
Blantyre (BWB)	35,470	37,613	38,968	37,741	40,000
Lilongwe (LWB)	28,881	30,740	33,845	36,822	39,626

Source of data: Water board reports.

---

<sup>34</sup> WSSIP, 2012



The Malawi Water and Sanitation Sector Investment Plan (WSSIP) of March 2012 presents a convincing case for increased investment in the urban water sector, including increasing bulk water supply production for Blantyre, Lilongwe, Mzuzu and Mzimba. Only 32% of urban households have piped water<sup>35</sup>; by increasing this percentage greater health and economic benefits can be expected.

Non-Revenue Water (NRW) is the percentage of the total water produced for which no revenues have been received. A high proportion of NRW is due to factors such as physical leakages, non-payment of water bills and inaccurate billing or meter reading. NRW has been selected as a headline indicator because NRW reduction is one of the best means of assessing Water Board or utility efficiency, in terms of reducing leaks and achieving higher percentages of water bills paid. So by reducing NRW it means more water is available to be sold to customers and increased revenues are achieved. The NRW trends for the five Water Boards are shown in Table 10.3. Typical targets are 20 to 25%, which none of the Water Boards have achieved. The main reported reasons for high NRW include:

- Major pipe bursts
- Leaking pipes (not always visible)
- Stuck/inefficient water meters;
- Pipeline flushes to take out debris; and
- Illegal or unauthorised connections

**Table 10.3: NRW: Non-Revenue Water (Headline indicator)**

	2006/07	2007/08	2008/09	2009/10	2010/11
<b>Northern</b>	36%	33%	30%	28%	33%
<b>Central</b>	22%	24%	25%	24%	26%
<b>Southern</b>	-	-	-	31%	28%
<b>Blantyre</b>	53%	45%	49%	48%	47%
<b>Lilongwe</b>	28%	30%	36%	36%	36%

Based on international comparisons, these NRW figures are high - the Water Boards are not receiving revenues for high proportions of water produced.

Both Blantyre and Lilongwe Water Boards have high non-revenue water figures (47% for Blantyre and 36% for Lilongwe in 2010/11), based on international comparisons. Blantyre has particular problems with many leaking pipes that need to be replaced.

The operating ratios (total operating costs/total revenues) of the five utilities are shown in Table 10.4. Most Water Boards have shown some limited improvements in recent years, but are some way from the usual target of 0.5; hence they lack funds for sufficient investment in rehabilitation and service extensions.

---

<sup>35</sup> DHS, 2010

**Table 10.4: Cost recovery - operating ratio (Headline indicator)**

Water Boards	2006/07	2007/08	2008/09	2009/10	2010/11
Northern	-	-	-	0.79	0.72
Central	-	-	0.84	0.87	0.82
Southern	-	-	-	-	0.81
Lilongwe	0.87	0.86	0.87	0.85	-
Blantyre	1.05	0.95	0.97	1.00	0.86

To increase revenues it is important to have a good bill collection efficiency (amount collected/amount billed X 100). The Water Boards need to make more efforts on this aspect. For customers to be willing to pay their bills regularly, it has been found important to provide good and reliable services. However, a number of Water Boards have reported power outages to be common, which makes it more difficult to provide reliable services. The average time for bills to be paid for two of the Regional Water Boards is increasing as is shown in the table below.

**Table 10.5: Average number of days for bills to be paid**

	2006/07	2007/08	2008/09	2009/10	2010/11
Northern	44	52	46	72	77
Central	39	47	77	70	93
Southern	-	-	-	-	-
Blantyre	-	-	-	-	-
Lilongwe	-	-	-	-	-

A number of Water Boards report that public institutions are taking longer to pay their water bills, for example see the average bill payment for different customers of NRW, in Table 7.6. This has an adverse effect on the Board's cash flow, which in turn limits to organisation's ability to make improvements and undertake its day to day business.

**Table 10.6: NRD: NRW average bill payment period**

Customer Category	2010 Debtor's Days	2011 Debtor's Days
Communal Water Points	108	121
Average Individual Customers	56	59
Commercial	52	51
Major Government Institutions	97	132

## 10.2 Management of rural water services

The percentage of rural people in Malawi who have access to and use improved water sources has increased from 57% in 2000 to 80% in 2010 (JMP, 2012). This is a good achievement, but there is a question of the sustainability of the arrangements. Considerable efforts have been made by Government and its Development Partners to develop more sustainable rural water services including:

- Water point monitoring and mapping together with development partners
- Strengthening WUAs and water point committees, particularly with UNICEF, ADB, NGOs and Government's own initiatives

- Developing standard MoUs and contracts for WUAs
- Developing infrastructure and accommodation for future District Water Office staff
- Developing water sector M&E across the country
- Developing the capacity of District Water Office staff, where they are in post
- Developing plans for a SWAp.

Further work is required in all these aspects in many Districts, particularly in developing the capacity of WUAs and water point committees, as well as strengthening the District Assemblies so that they can provide adequate ongoing support to communities, who are managing their water systems. There are already signs that WUAs are struggling to provide sustainable piped water services: in the Northern Region the average % of taps functioning on piped water schemes is 23%. The figure is 41% in the Southern Region.

Judging by experience in other similar countries, potential areas of support in the medium term for community rural water supplies that is needed for WUAs and water committees include:

- the management of piped water systems and point sources, including O&M and repairs
- support to supply chains for spare parts and area mechanics
- rehabilitation and extension of water systems when required
- cost recovery and financial management
- water system monitoring and reporting
- source sustainability and water resource management
- water quality monitoring
- liaison with other key stakeholders
- ensuring proper representation in the community organisations
- safeguarding to limit elite capture and resolving social conflicts if they arise
- developing and maintaining functioning WUAs and Water Committees so that they can fulfill their agreed roles in the short and medium term.

The precise areas of support required needs to be agreed and assessed in the Malawi context, for the different types of water schemes. The capacity of community based organisations managing rural water supplies can often diminish over time as key trained people move away from the area, so support becomes more important after the water system operating for some time.

District local government including the District Water Offices are best placed to coordinate/ provide such support to the WUAs and water committees, although some of the support can be provided by other organizations such as Regional Water Boards. Other important roles for District Water Offices include are District WASH M&E, linked to planning of future investments, plus the co-ordination of local WASH partners and stakeholders. However, the recurrent budgets for water services at district level are currently very low, only 0.2% of 2010/11 district budget allocation as set out in the section on Sector Financing.

The level of recurrent expenditure on water supply at district level is also lower than other countries e.g. in Zambia. The lack of capacity in the water sector at District level in Malawi is also evident from the level of vacancies, as was reported in last year's SPR.

If the water sector funding and staffing at district level is not improved significantly, there are clear risks that some of the gains made in terms of access to water services and local water point monitoring will be lost, as local staff are unable to respond to problems that emerge. One further aspect that needs consideration is the best mechanisms or modalities for providing support to WUAs and water committees, that is, Institutional Support Mechanisms (ISMs).

### **Institutional support mechanisms for community water services**

Various forms of Institutional Support Mechanisms (ISM) have been tried in different countries to support community managed water services over the long term to achieve effective and sustainable water schemes. ISMs are a means whereby government can fulfil its enabling role in supporting the work of other stakeholders such as CBOs. The ISM type of support is common in Latin America and often focuses on operation and maintenance, but can include finance, health and environmental issues. A summary of an ISM example in Honduras is provided below.

#### **Institutional support to community managed water services in Honduras**

The National Rural Water Association in Honduras adapted the 'circuit rider' concept for and renamed it the *Tecnico en Operacion y Mantenimiento* (TOM). After initial piloting by the National Water Supply Company (SANAA) from 1993 to 1995, the programme has been scaled up nationally to provide back-up support to over 4,000 rural water systems serving more than two million people of a total rural population of 3.2 million.

The TOMs are employees of SANAA and have substantial authority to make decisions. Each is responsible for an average of 50 communities and is expected to visit each at least twice a year. The principal role of the TOMs is to support community water boards in all aspects of O&M, administration, training, advice and encouragement. They receive a 12-week training programme to enable them to fulfil this role, which includes community development and technical aspects. The TOMs are not intended to replace community management but rather to support it.

One of the main tools used by the TOMs is a water system classification table which charts the progress of water systems according to four categories ranging from non-functioning systems to self-sustaining systems which require only periodic visits. Such a management information system based on this table provides incentives for the TOMs and other stakeholders to improve services.

There is an increasing level of collaboration at the local level with both municipal authorities and NGOs requesting assistance from the regional TOMs as part of their own programmes.

*Source: based on 'Lockwood (2002)*

Perhaps the DWOs or the Regional Water Boards could adapt and use the ideas of TOMs from experiences in Honduras or elsewhere. In developing appropriate support mechanisms, a balance needs to be struck between providing adequate support, while still encouraging the WUAs and water point committees to be as self-reliant as possible. One way of encouraging WUAs to develop their capacity and confidence is through developing WUA Federations, so that they can share valuable lessons in managing their water services with other WUAs. The local private sector or NGOs could also provide support on certain aspects to community groups. In deciding the best means of providing support to the WUAs and water committees, it is important to consider which organisations are best placed to provide which aspects of the support required, and how best resources can be channelled to enable the support to be provided. If some form of SWAp is underway, it should be easier to fund support out of recurrent budgets. Some piloting of different

approaches is likely to be worthwhile, although ultimately there needs to be a clear distribution of roles for community management and the complimentary support that will be required.

### 10.3 Conclusions and recommendations

#### Rural Water Services

The Technical Working Group (TWG) for Institutional Development and Capacity Building has commenced work on two undertakings from the last Joint Sector Review that are important for providing adequate support to community based management of rural water supplies which are:

- a) Develop a Sector Devolution Plan for increasing financial resources managed by district councils.*
- b) Develop a funding mechanism for the sector to support SWAp.*

Work on these undertakings should be given a high priority. But given the low levels of recurrent budget funding to the water sector at the local level and the lack of clarity about the best modalities for supporting WUAs and water committees in the medium term, two further potential undertakings could be considered for the coming year.

- 1) Develop a good 'business case' for increased investment in the water and sanitation sector), in the Malawi context, building on evidence from other nearby countries, This could be used to argue for greater sector funding.
- 2) Develop a medium term strategy for the most appropriate means of supporting WUAs and Water Committees in their management of rural community water services for both piped schemes and point sources. The strategy should include a review of potential support options used elsewhere and any piloting that is considered necessary.

Such undertakings would assist in developing effective proposals as part of the existing undertakings a) and b) listed above.

#### Urban Water Services

Some limited improvements against key indicators have been achieved by the Water Boards over recent years, which is encouraging given the economic environment. However, it is important to focus on continuing improvements so that the urban water sector can contribute effectively to the health improvements and economic development of Malawi.

The proposed reorganisation of 5 Water Boards into 4 Water Boards will need to be carefully managed, so as not to disrupt the improvements in the management of urban water services in Malawi. An important consideration is how best to reorganise the Water Boards and provide appropriate incentives for their staff to enable them to move towards being self-financing utilities who can meet all their own costs including debts on capital projects and depreciation costs. Better clarity is also required for the financial objectives of the Water Boards in the medium term. For example what are the target operating ratios for each Water Boards over the next 3 to 5 years? Providing the Water Boards with sufficient organisational and financial autonomy to make the necessary changes will be important, as will providing appropriate regulation of the Water Boards activities. Lessons can be drawn from good performing water utilities elsewhere in Africa.

Reduction of Non Revenue Water (NRW) remains a concern particularly in Blantyre and Lilongwe, and should continue to be a priority. This is because it is one of the best means of reducing water losses so that more water can be sold to customers, whilst increasing revenues. Enabling

government institutions to pay their water bills in a reasonable period will be important for ensuring the Water Boards have adequate cash flows.

In agreeing and developing the Water Sector Investment Plan for urban water supplies, it will be necessary to develop appropriate targets over the coming years for increasing volume of water produced and increases in the number of customers (active connections) for each Water Board.

People living in lower income urban areas and informal settlements mainly receive very basic water services that are not very convenient, such as water kiosks and tube wells (Refer to the Equity section). Some Water Boards have increased their connections fees, thereby making it more difficult for lower income households to improve their household water services. A more comprehensive strategy for serving the urban poor is required that utilises lessons from other African countries where utilities have worked with the local private sector and CBOs to provide more innovative water service arrangements that provide better piped water services closer to people's homes. Increasing the total water production will make it easier for this to be achieved.

## Annex 1. Definitions and standards

The TWG M&E has drafted an M&E Handbook, based on the NSP definitions and the ODF strategy. MoAIWD (2012, draft) including the following descriptions (see annex for detailed descriptions):

- *Basic Sanitation Facility and accompanying features*
- *Improved Sanitation Facility and features such as an impermeable latrine floor, a drop hole cover*
- *A hand washing facility*
- *Open Defecation Free (ODF):*
- *Open Defecation Free++ (ODF++)*

There was also an exercise in establishing correspondence between the National Sanitation Policy (NSP) and JMP. The JMP acknowledges the complexity of arriving at clear definitions of adequate sanitation, and of reaching correspondence with national definitions. As such it has published definitions of *an improved sanitation facility as one that hygienically separates human excreta from human contact*. It also gives descriptions of the following toilet options:

- A ventilated improved pit latrine
- A pit latrine with slab
- A composting toilet
- A pit latrine without slab
- An open pit

A summary is presented below.

The main difference between the above definitions are that the TWG M&E defines improved sanitation as including an impermeable floor that is ordinarily cement or concrete (although the inclusion of a mud slab is being discussed) while the JMP mere states a firmly placed squatting slab that is easy to clean and raised above the ground.

The TWG M&E has worked to standardise the definitions of improved water supply to include the following:

### Definitions:

- **Safe Drinking Water:** Water which meets the Government of Malawi's Water Quality Standards for chemical and bacteriological content.
- **Improved Water Supply Facility:** A drinking water facility which provides a community or household with water which is considered likely to be safe to drink, free from risk of contamination, economically affordable, and reliable over a long time period.  
Any water facility for which a water quality test has been conducted cannot be counted as an improved water source unless the water quality results meet the Government of Malawi standards, regardless of other characteristics.
- **Access to Improved Water:** The government of Malawi defines a household as having access to an improved water source if that household has access to a minimum of 27L of water per person per day, from an improved water source (as outlined in this guide), at a maximum one-way distance from the household of 500m in rural areas and 200m in urban areas. Further, to be considered having access to an improved water source, the maximum round-trip time for that household to collect water should be less than 30 minutes. Access rates to improved water can only be determined using household surveys.

- **Improved Water Coverage:** Improved water coverage is the ratio of people served with improved water facilities (according to the design population of facilities) in a given area to the total number of people in that area. Coverage estimates are useful for planning but are not to be used as official figures. Official figures should use access rates; determined using rigorously conducted household surveys.

#### Improved water sources and characteristics:

- A **borehole with a hand pump** is considered an improved water source if it has a soak away pit, apron, and a drain, and if it is located at least 67m from the closest toilet or latrine.
- A **communal tap** is considered an improved water source if it has a soak away pit, apron, and a drain
- A **protected shallow well with a hand pump** is considered an improved water source if it has a soak away pit, apron, and a drain, and if it is located at least 67m from the closest toilet or latrine.
- A **protected spring** is considered an improved water source if it has a soak away pit, apron, and a drain, is located at least 67m from the closest toilet or latrine, and if it has a water-tight concrete cover to protect from runoff.
- A **private or household piped connection** is considered an improved water source if it has a soak away pit, apron, and drain

#### Household Survey questionnaires

NSO, with support from UNICEF has expanded its questions in the WMS (commencing from 2011) to include questions on the following in the section on household characteristics:

##### WMS questionnaire format

- W1 What is the main source of drinking?
- W2 Do you use the same source for other domestic activities such as cleaning etc?
- W3 What is the main source of water used by members of your household for other domestic purposes?
- W4, 4b Are there any problems with that main drinking water source? If so what problems?
- W5 On average, how long do you normally wait at the water point (drinking water)?
- W6 What distance do you travel to get water (drinking water) [METRES]?
- W7 Who usually go to draw drinking water?
- W8, 9 Do you treat your drinking water in any way? How ?
- W10 How do you carry drinking water from the water point to the house?
- W10a How do you use to store water?
- W10b How do you serve drinking water?
- W11, 12 Do you pay for your drinking water? If so, how much did you pay last month?
- W13 Does your water point have a water point committee?
- W14, 15 Do you make a financial contribution to a water point committee? Is it trained?

Note that the household survey measures the following to assess household access to an improved water supply from the above definition):

- Type of water source
- distance to source

but does not measure the following:

- Total time of return journey (only measures waiting time)
- Water consumption , per capita



### National definitions:

Definitions from the M&E Handbook, MoAIWD (2012, draft) (based on the NSP and the ODF strategy):

- **Basic Sanitation Facility:** Refers to a facility without any hygienic features such as a tight fitting drop hole cover, key-hole shaped drop hole and foot rests that guide the appropriate positioning on the drop hole. The facility should also contain the following elements:
  - *should allow for the safe disposal of faeces into a pit or other receptacle where it may be safely stored, composted or removed and disposed of safely elsewhere;*
  - *should offer privacy for the user;*
  - *should be safe for the user to use, for example not in a dangerous state, liable to imminent collapse or dangerously unhygienic;*
  - *the latrine pit or receptacle should be functional i.e. not full or overflowing; and*
  - *the latrine should be at least 30 meters from a ground water source or surface watercourse.*
- **Improved Sanitation Facility:** *is defined similar to basic excreta sanitation with the addition that there should be an impermeable floor and a tight fitting lid to the latrine, or in the case of ecological sanitation (ecosan) where no lid is needed, the ecosan latrine should be properly looked after with the regular addition of soil, ash and other organic material.*
- **An impermeable latrine floor** *may be made from either cement plaster, concrete, plastic, or other materials (not mud) that allow the floor to be washed repeatedly. An impermeable floor must be smooth and solid, have no cracks, perforations, or openings other than the drop hole.*
- **A drophole cover** *should be tight fitting and cover the entire latrine drophole. No gaps should be present that would allow flies to escape the latrine. A drophole cover should be fitted with a handle for easy removal and replacement.*
- **A hand washing facility** *should have a container that will allow free flowing water to be released over hands and will not allow for recontamination of hands after washing.*
- **Open Defecation Free (ODF):** *Every household uses a latrine with privacy, there is no excreta in the bush (100% latrine coverage, sharing is acceptable)*
- **Open Defecation Free++ (ODF++)** *Every household has a latrine with cover and hand washing facility (100% coverage, sharing is acceptable); all religious institutions, market centres and health centres in the catchment area have latrines with covers and hand washing facilities (100% coverage)*

### JMP Definitions:

An **improved sanitation facility** is one that hygienically separates human excreta from human contact.

### Toilet options:

- A **ventilated improved pit latrine (VIP)** is a dry pit latrine ventilated by a pipe that extends above the latrine roof. The open end of the vent pipe is covered with gauze mesh or fly-proof netting and the inside of the superstructure is kept dark.
- A **pit latrine with slab** is a dry pit latrine that uses a hole in the ground to collect the excreta and a squatting slab or platform that is firmly supported on all sides, easy to clean and raised above the surrounding ground level to prevent surface water from entering the pit. The platform has a squatting hole, or is fitted with a seat.
- A **composting toilet** is a dry toilet into which carbon-rich material (vegetable wastes, straw, grass, sawdust, ash) are added to the excreta and special conditions maintained to produce inoffensive compost. A composting latrine may or may not have a urine separation device.

- A **pit latrine without slab** uses a hole in the ground for excreta collection and does not have a squatting slab, platform or seat. An **open pit** is a rudimentary hole in the ground where excreta is collected.

#### DHS 2010:

The 2010 Demographic health survey follows the JMP 2004 definitions of improved sanitation. Respondents, with a pit latrine were asked if the slab was concrete (marked as pit latrine with a slab) or not (marked pit latrine without a slab, and therefore not improved). This has resulted in a low incidence of recorded “improved” toilets. From the JMP definition, it is clear that a pit latrine without a slab resembles the picture on the right:



Respondents were also asked if the facilities are shared, and by how many households.

#### WMS 2011

W16	<i>Do you have toilet facility for your household?</i>
W16b	<i>What kind of toilet facility does your household usually use? Flush to sewer/ Flush to septic tank /Improved latrine /VIP Eco-san /Basic Latrine /Other (specify)</i>
W17	<i>If it is a latrine, does it include the following features/standards? Tight Fitting Lid /Impermeable floor /Safe disposal /Offer privacy /Safe condition (free from danger) /30 m from water tap /Pit full Other (specify)</i>
W18	<i>Does it have visible signs of being used/not used? (OBSERVE) Footsteps/pathway /If composting, is there ash?/ Full pit</i>
W19	<i>If it is a latrine, Is it hygienic? [OBSERVE] 1 Yes (Clean) 2 No (e.g. Smells like urine, Visible faeces)</i>
Q20	<i>Do you share the toilet facility with other households?</i>
Q21	<i>When do you usually wash your hands? (Do not prompt answers) And how do you usually wash hands? (water / soap / ash)</i>
Q 22	<i>What sort of hand washing facility do you usually use? Tap/homemade facility / basin / pour water over basin / other</i>

The WMS 2011 report is expected to be published shortly.

#### WASH standards in school

Adequate refers both to technology and construction materials, as well as the number of users per facility.

A recent document (“*National Norms and Guidelines for Primary School Construction, Rehabilitation and Maintenance in Malawi*”. Ministry of Education Science and Technology, 2010, draft.) recommends the following specifications:

#### Drinking water standards

1. Water: **safe drinking water in schools** can be achieved through (1) ensuring that the water comes from a protected water source; (2) is safely handled, (3) is treated at the point of use, (4) through a combination of the above.
2. A school must offer adequate access to safe drinking water: **A minimum of one safe drinking water point must be installed at each school, ideally on school premises, or at least within**

**200 meters of the school.** In addition, provisions must be made for safe consumption, eg through covered buckets with taps, in all classrooms.

3. For schools with piped water, a series of taps with basins must be provided within the school premises at a ratio of **1 tap per 100 pupils**.

#### ***Sanitation and hygiene standards***

1. Girls and Boys must have equal access to adequate sanitation facilities, which must be separate with their own hand washing facilities. There should be at least one sanitation facility for boys and one for girls at a ratio of 1:30 if no urinal blocks are provided. If urinal blocks are provided, a ratio of **1:60** will suffice.
2. A school should offer **one urinal block for girls and one urinal block for boys** per school
3. A school must offer adequate access to water for hygiene practice: A minimum **1 hand washing point per 100 pupils** with soap and with an adequate drainage channel must be available
4. **A personal hygiene compartment** or a washing facility with water must be provided in at least one girl's latrine where girls are able to wash during menstruation.
5. A school must offer at least single improved latrine for male teachers and 1 single improved latrine for female teachers with adequate privacy. It is recommended to have a maximum of **15 teachers to 1 latrine**.

## Annex 2. Progress on 2011 undertakings

### Technical Working Group – ID&CB

- Develop a sector Devolution Plan for increasing financial resources managed by councils
- Develop a funding mechanism for the sector to support SWAp.

Activity	Measure	Progress
Revive devolution Task Force	Functioning Task Force	The Task Force which has been defunct for a certain period has been revived.
Review and revise devolution plan	Report	The revived Task Force will review the 2002 Devolution Plan with the officials of the MLGRD.
Assess IWS funds currently managed by councils	Revised Devolution Plan	Rapid Assessment of financial resources managed by the IWS at district councils has been conducted.
Facilitate review of funding options of the IWS Sector	Report	TORs for the consultant to carry out the exercise are in place however resources to carry out the exercise have not been identified.
Devolve the Dispersed Borehole Program	Dispersed Borehole Program managed by councils	To be discussed during the budget hearings
Devolve recruitment of water personnel	Establishment transferred to local authorities	Staff positions already created and submitted to MLGRD. I&W to assist during recruitment process.
Devolution of Salary Administration for water personnel	Pay roll for IWS personnel administered by LAs	Process to start after communication has been done to MLGRD and MoFP during 2012/2013 FY
Lobby Treasury Approval to fill critical vacant positions		Authority to fill was given , Treasury provided MK6m which was exhausted and MoAIWD has provided MK21m which is being used
Facilitate the development of SIP	Developed SIP	A draft SIP was presented at NWDP Task Force meeting held on 28-03-12
Facilitate negotiations with Treasury for increased funding to IWS	Treasury feedback	To be done before the start of budget preparation exercise
Update IWS Training Plan	Updated Training Plan	Training Plan was updated and is available.
Facilitate curriculum review of training institutions to match with current and future sector requirements	Report	A survey tool has been developed and is available.

### Technical Working Group - Water Resources

- Create awareness on water abstraction and wastewater discharge.
- Simplify the water rights application process.
- Strengthen the relationship between Water Resources Board and the Environmental Affairs Department.
- Follow up on the Water Resources Bill.

Tasks	Activity	Responsibility	Time frame
Create awareness on water abstraction and wastewater discharge	Posting press release for surface and ground water abstraction in the newspapers	Water Resources Board	Continuous
	Placing press release in the media on guidelines for application for consent to discharge wastewater	Water Resources Board	Done and will continue
	Contacting the print and electronic mass media for collaboration to feature awareness articles	Water Resources Board	Ongoing
	Continuation of inclusion of articles in the Water Resources Department newsletter	Water Resources Department	Ongoing
Simplify the water rights application process	Work with the consultant-AUREON on the simplification of Water Rights process	Water Resources Department	Administration Department, Water Resources Board
Strengthen the relationship between Water Resources Board and Environmental Affairs Department	Resolving issues in the National Water Policy which conflict with other water related policies.	Administration Department, Water Resources Board	Ongoing & desk officer assigned (Mr. E. Chiundira)
	Water Resources Department bringing data together for hydrology, hydrogeology and Water quality.	Water Resources Department	On going
Follow up on the Water Resources Bill	Seeking audience to brief the new minister and parliamentarians on the uniqueness of Water Resources Bill	Water Resources Department (DWR's Office)	November, 2011
	Continuing with stakeholder meetings to iron out the conflicting clauses in the policies.	Planning Department	On going

## Technical Working Group - Water Supply

Tasks	Time frame
Reduce non-functionality of water supply facilities in rural areas by 5%	Action: Design the template to all the district water offices to collect data from all stakeholders in each district. – <i>The members also agreed to request the availability of data from WES NGO NETWORK.</i>
	<b>Progress</b> -Draft template sent to the districts for collecting data. Districts have sent the data to the TWG, and water point non-functionality is at about 30%. Members of the WES NGO network template have also been looked into by the TWG members.
	Follow up O&M JICA pilot project in Mchinji – <i>It was also agreed that after the TWG should visit The JICA pilot project for recommendation.</i>
	<b>Timeframe:</b> Get data from districts by 30 <sup>th</sup> November for presentation at December 2011 JSR
	<b>Progress:</b> The reviewing process has started but awaiting input from JICA Expert who is on holiday recommendations will be done.
	<b>Timeframe:</b> Mid-December 2011
	Looking at spare parts supply chain models and reports. – <i>The members agreed to review the existing models and reports for example one done by Mandowa on supply chain models report.</i>
	<b>Timeframe:</b> 15 <sup>th</sup> December, 2011
	Strengthen the community managed rural water supply systems. – <i>Members agreed to encourage the Ministry and stakeholders to allocate the specific budget for the capacity building and monitoring of the management on rural water supply system.</i>
	<b>Action:</b> WES NGO network template is available and needs to be monitored in all distributed Districts. (The TWG members will make sure these are in line with minimum standards and instruments for the water users on all the manuals and guidelines be encouraged for implementation and management on water supply
Reduce NRW in urban areas to 45-35% in Blantyre and 37-30% in Lilongwe	<b>Action:</b> Reduce administrative water losses.
	<ul style="list-style-type: none"> <li>• <i>Develop a sanction scheme which may include a fine for illegal use and a connection fee</i></li> <li>• Quantify unbilled authorised consumption</li> </ul>
	<b>Progress:</b> Data presented indicate 1 to 2% of losses result from reading mistakes and customers
	Updating of customer data base in progress
	Timeframe: Long term Mid December, 2011

Tasks	Time frame
	<b>Progress:</b> <i>Procurement of measuring equipment and repair material, detect leaks and repair leaks done in BWB but in progress in LWB</i> BWB and LWB developing Geographic Information System (GIS) for mapping and updating of distribution system
	<b>Action:</b> Care taker Principle- <i>Subdivide supply districts into care taker areas and one care taker per area fully equipped to carry out small leaks.</i>
	<b>Progress:</b> Done. BWB has 12 care taker areas and all the necessary equipment already procured. 8 care taker areas defined in LWB and equipment being procured
	<b>Timeframe:</b> Long term Mid December, 2011
	<b>Action:</b> Encourage Customer services.
	<b>Progress:</b> <i>Procurement of measuring equipment and repair material, detect leaks and repair leaks done in BWB but in progress in LWB</i> BWB and LWB developing Geographic Information System (GIS) for mapping and updating of distribution system
	<b>Action:</b> Care taker Principle- <i>Subdivide supply districts into care taker areas and one care taker per area fully equipped to carry out small leaks.</i>
	<b>Progress:</b> Done. BWB has 12 care taker areas and all the necessary equipment already procured. 8 care taker areas defined in LWB and equipment being procured
	<b>Timeframe:</b> Long term Mid December, 2011
	<b>Action:</b> Encourage Customer services.
	<b>Timeframe:</b> Long term Mid December, 2011
	<b>Progress:</b> BWB getting latest information from customers through emails, phones and physical addresses
	LWB is updating customer data base and ensuring all customers are placed in appropriate category.

## Technical Working Group - M & E

### Undertaking:

- **Headline Performance Indicator (HPI) Framework:** The Indicators were finalised and endorsed by the Sector Working group. These are currently being used to review the sector performance in the Sector Performance Review Exercise.

### Actions

- **On definitions used by NSO surveys;** Water and Sanitation Sector Modules for the WMS were finalized and used 2011 Welfare Monitoring Survey (WMS).
- **On developing data collection guidelines/booklet on sector indicators definitions;** a draft booklet for the sector using the existing National Water and Sanitation policies has been developed. However there still some gaps in terms of the pictures of some water and sanitation facilities.

The TWG didn't reach a consensus on which definition to use on improved sanitation especially on the definition of impermeable floor. The TWG therefore proposes a national workshop for the sector that will draw participation from experts on issues pertaining to water, sanitation and irrigation to look at the definitions critically before being adopted by the sector.

- ***Participate in the Development of SIP:*** TWG participated in a training workshop where the consultant oriented the members on the development of SIP. 2012.
- **Facilitate the production of JSR Reports:** TWG has been working with the SPR consultant on the SPR production to institutionalise the process. A training workshop has also been organised in May to train the TWG on the same. The TWG will also consolidate the TWG reports on undertakings in preparation for the JSR.



## Technical Working Group - WfP

Undertaking	Progress	Challenge
<ul style="list-style-type: none"> <li>Facilitate the review, updating and harmonization of existing WfP-related policies.</li> <li>Facilitate joint monitoring meeting of development and management of WfP infrastructures.</li> <li>Coordinate the review of progress and challenges of the sub-sector.</li> <li>Facilitate production and dissemination of guidelines and best practices for efficient and effective water utilization of water resources.</li> <li>Facilitate review and consolidation of WfP plans.</li> </ul>	<p><b>Facilitate the review, updating and harmonization of existing WfP-related policies</b></p> <ul style="list-style-type: none"> <li>The Technical Working Group managed to facilitate / coordinate the review of existing policies and regulations related with Water for Production issues.</li> <li>The review was aimed at establishing overlaps, gaps, contradictions and synergies. In addition, the review also came up with recommendations to address the identified problematic areas.</li> <li>The report was circulated to members for comments. The plan was to further disseminate the report to all stakeholders of the TWG in readiness for a stakeholder consultation workshop. The stakeholders include Development Partners, Civil Society Organizations, private institutions and Government Departments.</li> </ul> <p>The TWG also coordinated the following activities in the Month of March, 2012;</p> <ul style="list-style-type: none"> <li>✓ Joint monitoring meeting of development and management of WfP infrastructures by visiting the Domasi Irrigation scheme and the National Aquaculture Centre.</li> <li>✓ Review of progress and challenges of the sub-sector</li> <li>✓ Based on the noted issues and challenges the TWG came up with strategies for the forthcoming fiscal year. The details regarding these have been presented in the detailed report submitted to Planning Department.</li> </ul> <p>The TWG did not manage to implement one of the planned undertakings, i.e. facilitating the production and dissemination of guidelines and best practices for efficient and effective water utilization of water resources.</p>	<ul style="list-style-type: none"> <li>❖ Poor participation /coordination among the TWG members</li> <li>❖ Financing of the undertakings not very clear</li> </ul>

### Water for Production progress Report April 2011

1. Coordinate joint monitoring on development and management of WfP infrastructure
2. Coordinate a review of progress and challenges for the sub-sector
3. Facilitate the production, compilation and dissemination of guidelines and best practices for efficient and effective utilization of water resources
4. Prepare TWG plans and budgets for 2012/13 and management of WfP infrastructure
5. Coordinate a review of progress and challenges for the sub-sector
6. Facilitate the production, compilation and dissemination of guidelines and best practices for efficient and effective utilization of water resources
7. Prepare TWG plans and budgets for 2012/13

### Technical Working Group - Sanitation and Hygiene

		Deliverables	Status and Comment
1		Review and adopt relevant policies, legislation and strategies such as:	
	1.1	Global Sanitation Fund (GSF) Tools, Procedures and Guidelines	Completed. These are the tools that have enabled the Executing Agency to procure the services of Sub-Grantees.
	1.2	ODF Malawi Strategy	Completed. Scheduled for launch on 7 <sup>th</sup> of December, 2011
2		Facilitate coordinated implementation of Sanitation and Hygiene Promotion Programmes	
	2.1	Roll out of the Global Sanitation Fund	Completed. 7 Sub Grantees are now working in all the program districts; Rumphi, Chikhwawa, Balaka, Phalombe, Ntchisi, Nkotakota
	2.2	Sanitation Marketing and Hygiene Promotion in Rural Areas	In progress. Consultant hired (UNICEF Funding) and has submitted Draft Report which has been reviewed. Submission of final Report awaited
	2.3	National 10 Year Sanitation and Hygiene Promotion Investment Plan and Strategy	In Progress. Inception report reviewed and adopted. Further progress by consultant presented to TWG for Input (9/11/2011)
3		Hand Washing Campaign Document	Completed. Launched on 10 <sup>th</sup> of November, 2011
4		Stakeholder Meeting to discuss the need for Unified Sanitation and Hygiene Indicators, Coordinated Reporting Mechanism and Information/Data Management System	Meeting resolved that this be undertaken by M&E TWG. Co-option of Members from the Sanitation & Hygiene TWG very critical

Objective	Progress	Challenges	Way forward	Responsible institution
To recommend policy direction and guidance for the sub-sector;	Ongoing: Reviewed WfP related policies.	Poor coordination.	Extend the report to other line ministries	WfP TWG
To promote development of multi-purpose dams and similar water structures to enhance availability of water resources.	It is a continuous process: promotion is being done through the new projects e.g. Songwe River Basin Development Projects, new LWB dam & BWB dam.	<ul style="list-style-type: none"> <li>Lack of proper coordination amongst different stakeholders;</li> <li>Inadequate financial resources</li> </ul>	<ul style="list-style-type: none"> <li>There should be deliberate policy to enforce /promote development of dams that are multi-purpose in nature.</li> <li>Strengthen coordination</li> </ul>	All Departments concerned with Water Development
To promote development of water for production infrastructure.	Ongoing.	Inadequate capacity (technical, and equipment). And inadequate financing.	<ul style="list-style-type: none"> <li>There should be a deliberate move of addressing capacity building issues.</li> <li>Mobilize resources</li> </ul>	Wfp TWG and stakeholders.
To enhance collaboration amongst key stakeholders in mobilization and harmonization of investments	It is ongoing: Government has already adopted the issue of collaboration. e.g. Initiated the development of the National Irrigation Fund, PPP arrangements are being followed and preparation of Sector Investment Plan (SIP) started	Lack of proper coordination amongst different stakeholders; It's a new concept and hence it is meeting a lot of resistance	<ul style="list-style-type: none"> <li>Put mechanism to enhance collaboration among stakeholders through SWAP.</li> <li>Create a forum for data sharing</li> </ul>	All Departments concerned with Water Development, including the development partners and the private sector.
To encourage strengthening of capacity of service providers	It's on going, e.g. DIS facilitated the development of contractor's construction manuals.	<ul style="list-style-type: none"> <li>Inadequate operating resources for TWG members</li> </ul>	To assess the capacity gaps for the service providers. To develop training manuals to address the gap.	WfP TWG and stakeholders

To promote integrated agriculture encompassing crop & livestock production, aquaculture (fish farming) and agro-forestry;	Limited integration.	mindset. Each line department is focusing on its core responsibility.	There should be deliberate policy to enforce integration.	Development planning. And all gvt concerned departments including the forestry department and MCCI.
To promote applied research and studies in WfP related technologies.	Limited progress.	funding is inadequate.	<ul style="list-style-type: none"> <li>• There should be deliberate effort to fund research activities.</li> <li>• Improve linkages with research institutions</li> </ul>	All Departments concerned with Water Development, including the development partners, the private sector and training institutions.
Prepare sub-sector performance reports.	nothing has been done	Coordination is a problem.	TWG should annually provide the information.	Wfp TWG members

### Annex 3. Sub sector objectives

#### Water for production - irrigation

The overall objective for the water for production sector is to develop and enhance the productivity of water so that it can effectively contribute to economic development and poverty reduction as enshrined in the MGDS in order to achieve the MDGs. The key outputs for the Department as enshrined in the MGDS are construction of Irrigation schemes, rehabilitation of irrigation schemes, and development of farmer organizations and promotion of modern irrigation technologies.

#### Specific Objectives

- To provide policy and guidance for the sub-sector
- To promote development of multi-purpose dams and similar water structures to store water for crop and livestock production, fisheries, energy (hydro-power) generation, eco-tourism, environment and navigation services.
- To promote development of irrigation schemes, in a sustainable manner, to enhance food and cash crop production, in line with the Green Belt Programme
- To enhance collaboration amongst key stakeholders, mobilization and harmonization of investments including establishment of the Irrigation Fund, public-private-partnership arrangement, and joint sector reviews.
- To enhance capacity of the service providers (institutional development) such as contractors, consultants, NGOs and Government staff, education and training institutions, and beneficiaries.
- To facilitate the promotion of integrated agriculture
- To facilitate the promotion of integrated agriculture
- To facilitate the promotion of sustainable fisheries resources production and management
- To facilitate the promotion of applied research and studies in crop production, irrigation and fisheries.

#### Water Resource Management

The general purpose of the Water Resources Department in the MoAIWD is to achieve sustainable and integrated water resources management and development that make water readily available and equitably accessible to and used by all Malawians in pursuit of their human development and socio-economic advancement of the country's natural ecosystems. While the immediate objectives are to:

- Provide accurate and reliable information on the condition and trend of the country's water resources for economic and social development as well as for maintenance of environmental quality;
- Plan, develop, and manage the utilization of surface water resources in the country;
- Plan, develop and manage the utilization of groundwater resources in the country;
- Ensure water of acceptable quality for all the needs in Malawi; and
- Ensure equitable allocation and apportionment of water resources to all sectors for socio-economic production and services.

#### Water for production - irrigation

The overall goal of the sub-sector is to contribute to sustainable economic growth and development by enhancing irrigated agricultural production. The broad objectives of the irrigation sub sector include;

- Increase land under sustainable irrigation farming;
- Extend cropping opportunities and facilitate crop diversification under both total and supplemental irrigation;
- Create an enabling environment for irrigated agriculture;
- Optimise government investment in irrigation development;
- Enhance capacity for irrigated agriculture in the public and private sectors; and

- Promote a business culture in the small-scale irrigated agriculture sector.

### **Access to, and use of, water services**

The goal of the National Water Policy (2005) is sustainable management and utilisation of water resources in order to provide water of acceptable quality and sufficient quantity, and ensure availability of efficient and effective water and sanitation services that meet basic needs of Malawians and the enhancement of the natural ecosystems. Key features include the concept of demand management to meet increasing demand, equitable access of services, and services linked to socio-economic growth. The draft MGDS II echoes this goal, and includes developing institutional capacity of the sector.

### **Specific objectives – urban, peri-urban and market centres water services**

- To advocate effective and efficient development, management and utilisation of water supply systems
- To develop strategic and contingency water supply reserves
- To strengthen water pollution control to contribute to public health and hygiene
- To encourage private public partnerships
- To promote appropriate management arrangements

### **Specific objectives – rural water services**

- To promote demand responsive approaches and demand driven approaches for services
- To encourage user participation in catchment protection, water conservation, and sanitation activities
- To promote water pollution control
- To promote appropriate community based management in local WASH programmes in consultation with local government
- To promote integrated approaches in WASH services
- To promote active participation of youth, women, persons with disabilities, and vulnerable persons in planning and implementation of activities
- To ensure smooth transfer of all devolved functions

## Annex 4. Documents consulted

- Malawi Government, Ministry of Education, Science and Technology, Malawi Schools WASH 2008, Jan 2009.
- Malawi Government, Population and Housing Census 2008 (Main Report), NSO, Zomba, September 2009.
- Malawi Government, District Investment Strategy Plans (various districts), Zomba, 2007
- Malawi Government, MGDS Review, 2009
- Malawi Government, National Sanitation Policy, December 2008.
- Malawi Government (Min of Irrigation and Water Dev). The Current Status of Water Supply in Malawi (ed. Mamba G and Gondwe BNC), May 2010.
- UNICEF, Monitoring the Situation of Children and Women (MICS 2006), NSO/UNICEF, June 2008.
- Water Aid, Water and Sanitation Mapping: A Synthesis of Findings, ODI, 2007. (<http://www.odi.org.uk/resources/download/2950.pdf>)
- Ministry for Development Planning and Cooperation. Annual Economic Report 2011.
- Malawi Government. 2011/12 Budget Statement.
- Malawi Government. Financial Statement from 2008 – 2011.
- Collins Magalasi and Milward Tobias. Analysis of the Water Supply and Sanitation Sector Financing in Malawi, 2009.
- Africa Interactive: Sanitation and Media Assessment Study in Blantyre, March 2012
- IRC Netherlands: WASHCost project, [www.washcost.info/pubs](http://www.washcost.info/pubs)
- JMP: Estimates for the use of improved drinking water: updates 2012, Malawi
- JMP: Estimates for the use of improved sanitation: updates 2012, Malawi
- Malawi Government: Education Statistics 2010, MoEST Education management information system
- Malawi Government: *“National Norms and Guidelines for Primary School Construction, Rehabilitation and Maintenance in Malawi”*. Ministry of Education Science and Technology, 2010, draft.)
- Malawi Government: Demographic Health Survey, NSO, 2010
- Malawi Government: Welfare Monitoring Survey 2011: Survey Questionnaire, NSO
- MoAIWD: M&E Results handbook for IWS departments, Draft Paper, March 2012
- MoAIWD: Working paper on Water Supply, Sanitation and Irrigation Sector, Malawi. Castalia, Draft, 16 January 2011.
- MoEST, UNICEF: From toilet building in schools to a more comprehensive approach in school sanitation: “a presentation of the findings of a review of school toilets and deliberations towards the development of national standards and guidelines”. MoEST / UNICEF. December 2011
- Mzuzu University WatSan Centre of Excellence: A Report On Assessment Of Drinking Water In High Density (Peri) Urban Areas Of Ching’ambo, Chiputula And Zolozolo, Mzuzu City, Northern Malawi, December 2011
- UNICEF / WHO : Progress on sanitation and drinking water: 2010 update
- UNICEF : Consolidated BoQs on WASH, March 2012
- UNICEF: A Market Assessment of Rural Sanitation in Malawi: Demand, Supply and the Enabling Environment for Sanitation in Dowa, Mangochi and Nkhata Bay. UNICEF, B Cole Nov 2011.
- UNICEF: WASH draft 2011 annual review report, 2012
- Karonga District Council Sanitation and Hygiene Mapping. October 2010

## Annex 5. Irrigation projects

This annex highlights progress made under the development projects undertaken in the Department;

### Small Farms Irrigation Project

The Government of Malawi (GoM) obtained a loan from the Arab Bank for Economic Development in Africa (BADEA) amounting to US\$8 million to implement the Small Farms Irrigation Project (SFIP). There was counterpart funding from Government of Malawi amounting to US\$2.04 million making a total project funding of US\$10.04 million. Phase 1 of the project will be completed in June 2012 and phase 2 is expected to commence in July 2012. The target area for development is 1,600 ha covering two sites namely, Lweya in Nkhatabay and Nkopola in Mangochi and expected to benefit about 4,000 farm families.

During phase 1, the project managed to develop 340.08ha and 442.9ha at Lweya and Nkopola respectively but the pumping stations were designed and built for the entire 1,600 ha. In view of the area developed, there is outstanding area to develop of 357.10 ha and 459.92 ha for Lweya and Nkopola sites respectively. Therefore, the Government of Malawi requested BADEA to fund phase 2 of the project so that the designed area could be developed to accommodate all the beneficiaries. BADEA has thus allocated resources to implement phase two of the project and hence the need for counterpart funding to cover operational costs as was the case with phase 1

### Smallholder Crop Production and Marketing Project

The overall goal of the project is to contribute to poverty reduction and food security in rural Malawi. The specific objective of the project is to increase productivity and income of rural households in the project area. This will be achieved through promoting intensification and diversification of the existing cropping system and improvement of the marketing system which will significantly increase production, productivity and incomes of the smallholder farmer whilst improving household nutrition and natural resources management at the same time.

This project is being implemented with a grant from the African Development Bank following the Smallholder Crop Production Development Study (SSIDS) undertaken in 2004. The study was aimed at identifying potential irrigation sites for the country. The study was financed through a grant from the ADF. This is a six (6) years project from 2007 to 2012 and is being implemented in nineteen (19) districts of Chitipa, Karonga, Mzimba, Nkhata-Bay and Rumphi in the North; Dedza, Dowa, Kasungu, Lilongwe, Mchinji, Nkhatakota, Ntcheu and Ntchisi in the Centre; and Balaka, Chikwawa, Machinga, Mangochi, Nsanje and Zomba in the South.

The original design of the project targeted the development of 39 irrigation schemes covering an aggregate of 3,055 hectares, in two phases. Phase I intended to develop 28 schemes with a total of 1,550 hectares; whilst Phase II targeted 11 schemes covering 1,505 hectares. The initial technologies earmarked for the project were treadle pump and gravity-fed based irrigation. Staff and farmer capacity building, farmer group development, marketing and environmental management were integral to the project design. However, at the commencement of the project's implementation in the first quarter of 2008, new developments emerged that changed the total number of schemes from 39 to 49. The area targeted for development was also reduced by 45% over the period to 1,671 hectares; and ten (10) motorised pump based schemes were also embraced by the project. The changes originated largely from the deteriorated water resource availability since the original design (2004), and to some lesser extent farmers rejection of the project in their areas and other development partners taking over schemes originally earmarked for the project.

To date, the project has developed 426.9 hectares out of the overall project target of 1671hectares summarised below;



- Completed all the 16 treadle pump based schemes covering 310.4 hectares. Out of this 39.9 hectares was completed within the 2011/12 reporting period
- Completed 4 motorised pump based schemes covering 83.5 hectares out of the targeted 307 hectares in 10 schemes. Out of this 63 ha was completed within the period under review. Two motorised pump based schemes could not be awarded contracts due to budgetary constraints.
- Completed 2 gravity fed irrigation schemes covering 33ha. The target under gravity is 1044 ha in 19 schemes. However, due to 12 schemes could not be awarded contracts due to budgetary constraints.
- 23 Water User Associations were registered while 1054 farmers were trained in various fields.

### **Malawi Irrigation Development and Support Programme**

The Malawi Irrigation Development Support Programme focuses on poverty reduction and sustainable irrigation development and management in order to ensure food security and improve the living standards of the people. These are to be achieved through implementation of two projects i.e. Capacity building and Institutional Enhancement for Irrigation development and Agricultural Productivity Improvement and Marketing.

The main objective of the programme is to increase productivity and income of rural households in the programme area. This will be achieved through enhancing technical and institutional capacity at all levels for sustainable irrigation development and management, provision of dependable water supply for improved and intensified agricultural production.

Specifically, the programme aims at enhancing the administrative and technical capacity in irrigation development; providing timely, reliable and dependable water supply for improved and intensified agricultural production; increasing smallholder farmers' food security and household incomes; empowering the small holder farmers to participate in sustainable irrigation development. The programme is to be implemented over a period of 84 months with funding from Government of Malawi and potential development partners. Implementation of the programme started in July 2009 to close in June 2015. The Total estimated cost of the programme is US\$ 135 million. However, currently the programme is funded solely by Malawi Government.

The project targets to develop 900 hectares by the end of the programme, establish 15 Water User Associations and train about 2000 farmers. So far, 10 hectares were developed while 43 hectares were under construction. About 210 hectares were designed awaiting procurement of materials and one Water User Association has been formed under the project. 240 hectares were rehabilitated at Hara irrigation scheme.

### **Rural Infrastructure Development Programme**

The project is being implemented with financial assistance from the European Union starting from July, 2011 to June, 2015 (4 years) in Nkhatabay, Rumphi, Dedza, Nkhota-kota, Salima, Balaka and Chikhwawa districts. The total estimated cost for the Project is MK1, 158,000,000. The major project purpose is to enhance capacity for irrigation development through carrying out feasibility studies and production of irrigation scheme designs, formulation of the National Irrigational Fund Guidelines, enhancing the technical capacity of the Department of Irrigation, and developing the administrative and management capacity of Department of Irrigation

By the end of the programme, the following outputs will be realized; 5 large scale and 15 medium scale irrigation schemes designed, National Irrigation Fund guidelines formulated, Irrigation staff trained in conducting feasibility studies and preparing designs, irrigation staff with equipped with capacity to

implement EU funded programmes. In addition, the project will develop two large scale schemes out of the 5 designed.

To date the project, has carried out sensitization meetings at all implementing levels, i.e. headquarters district and community levels. Currently, perimeter surveys have been completed in most sites. The Technical Assistance for the project was procured and is in place and site demarcation exercise is currently in process.

#### **Development of Medium Scale Irrigation Project**

The overall goal of the project is to enhance nationwide capabilities of irrigation engineers, extension officers and operation systems for development and rehabilitation of small/medium scale smallholder irrigation schemes through dissemination of monitoring and evaluation system and technical manuals. The project outputs include the following;

- Enhanced monitoring and evaluation system of irrigation schemes at Department of Irrigation, ISDs and district level.
- Capabilities of district irrigation engineers in survey, planning, EIA, design, construction and O&M are enhanced
- Capabilities of extension officers in mobilizing and training smallholder farmers for O&M of irrigation facilities and water development are enhanced

The project outputs are disseminated and shared among the stakeholders of irrigation development sector. The target areas for the project are Mulanje District in Blantyre ISD/AD and Machinga District in Machinga ISD/ADD. The target groups are the Irrigation Engineers at Districts, ISDs and DOI, Extension Officers at EPAs, Districts, ADDs and DAES, three (3) farmers groups/irrigation schemes under the jurisdiction of Blantyre & Machinga ISD/ADD (11 districts). The implementing agencies are the Department of Irrigation, the Department of agricultural Extension. The project duration is 3 years (2011-2014).

To date, the project has all the Technical Assistance in place, equipment has been procured and several trainings have already been conducted.

The Department of Irrigation is also actively involved in the implementation of the following projects;

#### **Agriculture Infrastructure Development Project**

This is a 5-year project (July 2010 to December 2015) which is being implemented with financial assistance from the ADB. The project is aimed at increasing agricultural productivity and to strengthen food security in the country. Its specific objectives are to increase the extent and efficiency of agricultural water management, increase yield and output of major crops and enhance the participation of smallholder farmers in agricultural marketing. The Infrastructure Development is divided into two categories namely: Scheme Development and Market Infrastructure Development. Perimeter and topographical surveys were conducted in Blantyre ADD at Mtengula site. A total of 568 hectares have been surveyed and topographic maps for the area have been produced. From the 568 hectare a net area of about 500 hectares is expected to be under irrigation. Surveys were conducted in three sites in the Shire Valley ADD because the initial agreement with the bank during the project appraisal was to use the sites which were already designed under the Smallholder Irrigation Project. However, in the course of implementation some sites were found not suitable for implementation and alternative sites had to be submitted to the Bank for approval. The other site is for sugar cane farming in Dwangwa totalling 1220 hectares.

Under market infrastructure development, land for construction of a market depot in Lilongwe was allocated and the process for preparation of all necessary documents for land acquisition and preparation of the title deed is in progress. The total area allocated to the project is 3.17 hectares. Site for development of market

platforms were identified in Blantyre and Shire Valley ADD. Designs for the Blantyre and Shire Valley ADDs are being finalised. In Dwangwa, land disputes have delayed the commencement of works as the site had to be replaced.

### **Irrigation Rural Livelihoods and Agriculture Development Project**

The Project is aimed at raising the agricultural productivity and net incomes of approximately 196,550 (net) poor rural households in 11 target districts of Malawi in a sustainable manner. It is also aimed at strengthening recipient institutional capacity for long-term irrigation development.

The project is financed by a World Bank grant of US\$40 million, IFAD loan of US\$8 million, Malawi Government contributes US\$2.8 million while the beneficiaries contribute S\$1.7 million. The total project cost is US\$52.5 million (MK 7.6 billion) with an additional financing of US\$12.7 million. The Project Implementation Period is from March 2006 - June 30, 2012.

Project supports smallholder farmers in 11 (out of a total of 28) districts in Malawi, namely; Blantyre, Chikwawa, Nsanje, Phalombe, Zomba, Dedza, Lilongwe, Salima, Chitipa, Nkhata-bay, and Rumphi. The projects also support the formerly IFAD funded SFPDP districts of Balaka, Machinga, Nkhosvota and Karonga through Water Users Association Training.

Under Irrigation rehabilitation and Development, the project is involved in Selective Rehabilitation of 4 government schemes, development of small scale irrigation schemes, development of mini irrigation schemes, as well as rainwater harvesting and catchment conservation.

Generally, the activities under selective rehabilitation included; improvement of headworks, rehabilitation of irrigation network and structures, rehabilitation of drainage network and structures, spot improvement of scheme roads, rehabilitation of flood protection bunds, selective renovation of scheme buildings and improvement of irrigation blocks. Four schemes totalling 1797 hectares have been rehabilitated.

The activities undertaken in the new small scale irrigation schemes included; headworks/ intake structure, night storage reservoirs, main canal and structures, pipeline from the night storage reservoir, secondary canals and structures, tertiary canals and road works (partial). Twenty small scale irrigation schemes have been developed totalling 522.92 hectares.

Under the mini-scale irrigation scheme a total of 18 schemes have been developed, covering 112 hectares.

---

### **<sup>i</sup> Quality of groundwater data**

Up to 1984 government installed the majority of groundwater abstraction boreholes for rural water supply. With the advent of World Water Decade, large numbers of boreholes were installed initially by government contractors, but subsequently by contracts with NGOs and development partners. Only basic data were collected during siting, drilling, construction and testing of boreholes, usually enough to complete certificates. This data were largely collected by drillers, few supervising hydro-geologists being available. During the period of Mozambique civil war, a large number of boreholes were drilled for refugee supply and many of these went unrecorded. Hence the quality of data produced post 1984 is often poor, inaccurate, lacking the required detail if they have been recorded at all. A sustained programme of groundwater monitoring is therefore required for aquifers where there are potential doubts about the longer term sustainability of valuable water sources.

---

### **Water level monitoring**

The recently completed WaterAid led survey of all water source points indicates the presence of more than 34,000 boreholes (including 12,000 hand drilled boreholes) in Malawi and yet the database produced by Atkins can only mentions 12,000. During the WaterAid survey, water source location was accurately located using GPS and water quality determined using SEC metres. Unfortunately, post-1984, most boreholes were completed using small diameter boreholes to minimise costs. This construction practice meant that water levels could not be measured with a hand pump equipped boreholes as there was insufficient annular space for a dipper to pass between the pump rising and the casing

The absence of reliable long term water level measurement from non-production boreholes in various aquifers has a significant drawback with respect to the evaluation of groundwater recharge as well as the impact of cyclic wet/dry periods. Therefore, reliable, consistent monitoring records are essential in quantitative evaluation of groundwater resources in the future.

### **Water quality issues**

Water quality testing still remains a challenge especially in Northern and Southern Regions of the country due to the absence of Water Testing Quality laboratories. For instance, in Northern Region only 8 samples were analysed against a target of 200; in the Southern Region 300 samples were analysed against a target of 300 while Central Region 1241 samples were analysed against a target of 2000.