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**Statistical Bulletin**

**Malawi: Water**

July 2010  
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***Measuring Service Delivery in Southern Africa Project***

***Study 3: Developing measures and methods for measuring progress towards service delivery targets***

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## Progress towards water goals

Key targets and indicators from the MDG (which are also contained in the RISDP) have been assessed to signify progress within the water sector. MDG Target 7.8 sets out that the backlog in the proportion of the population not receiving improved water should be halved by 2015.

**Table 1. Malawi Water MDGs**

Goal 7: Ensure environmental sustainability	Target 7.8 Access to improved water source		<b>KEY</b>	0 No Progress in meeting target (0/10)
			5	Some progress but will not meet MDG target (5/10)
			10	Target will be met in 2015(10/10)

Projections from the data available (which is presented in full in the Appendices) indicates that the backlog in the population not served with an improved water source was halved in the year 2007. The MDG in water has been reached; a considerable achievement for a poor country.

A key question in assessing the data on access relates to definition. The safety of drinking water may fluctuate appreciably over short periods of time and is difficult to measure. Instead access to an improved drinking source has been adopted<sup>1</sup> as a proxy; this data is more readily available and more stable over time. An improved water source is defined by reference to the type of source by the Joint Monitoring Project (refer to Appendix 1) and is not restricted to a facility at which water is treated, piped within a minimum distance from households or maintains a minimum consistent flow.<sup>2</sup> The standard is, therefore, basic and should be within reach of poor countries.

A method to assess progress towards this goal has been devised in this study. As far as is possible the data is accessed from national statistical sources or alternatively from authoritative international sources. A simple model to assess progress over time has been developed, which provides the quantum of the target, calculates the rate of change, and projects existing trends towards the target. The model provides the year in which the MDG level of access, etc, will be reached.

The supporting data and reflections on the sector are contained in this review.

<sup>1</sup> The international agencies associated in the tracking of progress towards the MDG drinking water and sanitation target are using "improved drinking water source" as a proxy for access to safe drinking water. [mdgs.un.org/unsd/mdg/Metadata.aspx?IndicatorId=0&SeriesId](http://mdgs.un.org/unsd/mdg/Metadata.aspx?IndicatorId=0&SeriesId). This study follows the same procedure.

<sup>2</sup> In some countries there are national standards for the water sector which do e.g. South Africa defines a basic water facility as the "infrastructure necessary to supply 25 litres of potable water per person per day supplied within 200 metres of a household and with a minimum flow of 10 litres per minute".

## ***Water sector: Malawi***

Under MDG 7, Malawi committed itself to ensuring that by 2015 the proportion of people without potable water within a distance of one kilometer will be halved; bringing the population with such access to 73.5%. The trend for meeting this goal is, on average positive, with more water sources in Malawi being developed, a trend accelerated by rising budgetary allocations. Since 1996, Malawi has intensified the drilling of boreholes, sinking some 2,000 boreholes every subsequent year and thereby increasing access by 2%, compared to the 1% increase calculated as necessary to reach the MDG. Assuming that the water sources are maintained, Malawi will exceed the target of halving the proportion of people without access to safe drinking water and sustain access at this level.

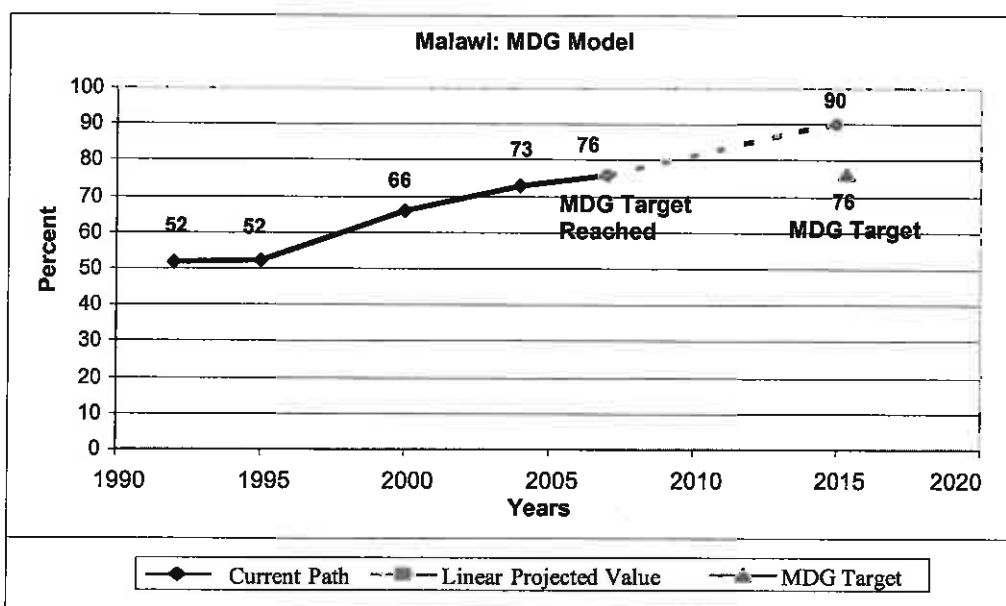
There is, however, an issue in the distribution of water resources. A comprehensive mapping exercise by Water Aid has revealed a grossly unfair distribution of water sources. Some areas that are well connected to politicians have too many boreholes while others do not have any. This runs counter both to national and international plans..

Another issue is the inappropriateness of technology. Malawi has embarked on drilling boreholes across the country when some districts, due to their topography, are not well suited to accessing groundwater. In Chikwawa district, for example, there has been increased expenditure on boreholes but many of these are reported to have dried up. Another example is the Misuku Hills area in Chitipa district, a mountainous area which has been provided boreholes. Women in the area have to climb mountains to fetch water. This is not sustainable as such an area would benefit more from gravity piped water than from boreholes.

There has been criticism of the trend for more boreholes to be drilled every year as the primary means of access to safe drinking water. Issues of equity and appropriateness of technology need to be addressed if safe drinking water levels for the population are to be sustained.

The following tables and graphs present data on progress made toward the goal of access to safe drinking water.

**Figure 1. Malawi MDG Projection: Access to Improved Water Source**



Source Figure 1 is compiled from data provided in Table 2.

*Analysis and comment:*

In Figure 1 access to improved water sources is presented for the years 1992 and projected forward. There has been an increase from 52 percent of the population accessing an improved water source in 1992 to 73 percent in 2004.

The model employed to project both the MDG target and the linear rate of growth is presented in Table 2. On the basis of this model, the MDG target of access to an improved water source to be met in 2015 is 76 percent. The projection indicates that this MDG target will be met in 2007 – ahead of the target year of 2015.

**Table 2: Malawi Water: MDG Projection**

		A	B	c	D	e	f	g
Year	Population	Coverage %	Backlog %	½ Backlog %	MDG Target	Growth rate per Annum	No. of years	MDG Target
1992 <sup>1</sup>	9,459,000	52	49	24	76		15	2007
2004 <sup>2</sup>	12,608,000	73				1.6		

Source <sup>1</sup> Dataset: Malawi Demographic Health Survey, 1992

<sup>2</sup> Data Accessed from Joint Monitoring Programme for Water Supply and Sanitation, July 2008. Joint Monitoring Programme for Water Supply and Sanitation, Coverage Estimates. Improved Drinking Water. Malawi. Updated in July 2008. URL: [http://documents.wssinfo.org/resources/documents.html?type=countrv\\_files](http://documents.wssinfo.org/resources/documents.html?type=countrv_files)

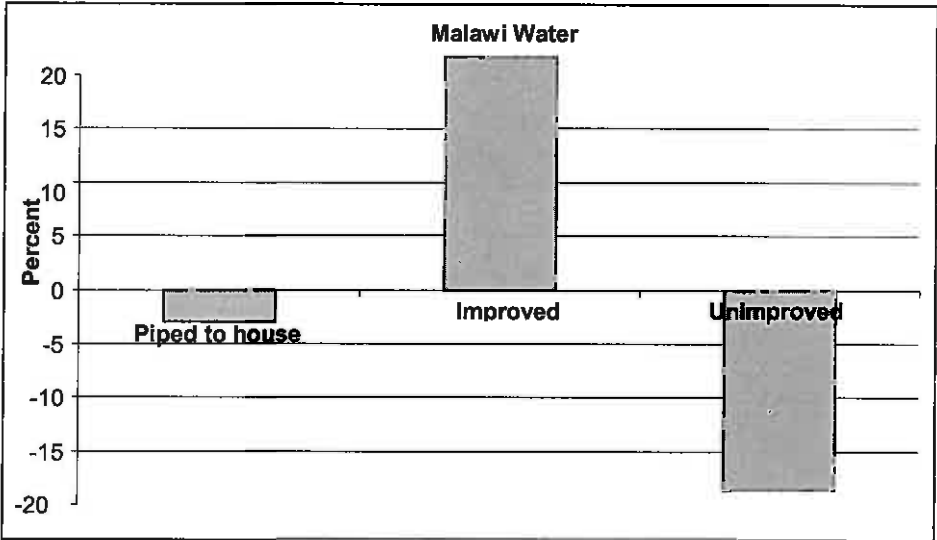
As seen in Table 1 (rounded off), the backlog in 1992 is 49 percent (b). The MDG target requires that the backlog be halved from the original backlog of 49% 24 percent (c). The

MDG target (after this value is added to the baseline figure) is 76 percent (d) the target to be met in 2015. The growth rate from 1990 to 2004 is 1.6 percent (e). The number of years to reach this target is 15 years (f), which was reached in 2007. This target was therefore reached due to 1.6 percent increased access from 1990 to 2004.

**Changes in access**

In this section changes in access to various levels of water sources; at household connection, improved, unimproved, and none are mapped.

**Figure 2. Changes in access to improved water sources, 1995-2004**



**Table 3: Change in access at all levels**

Source	Year	Piped to house	Improved	Unimproved
Malawi Demographic Health Survey	1992	5	44	51
Malawi Integrated Household Survey	2004	2	65	32
% Change		-3	22	-19

*Analysis and comment:*

Figure 2 illustrates graphically the changes in access over the period 1992-2004. As shown in Table 3, above, there has been the most rapid change in the sector “improved” which has increased by 22 percent over the period 1992-2004; while there has been a decline in “piped to house” of 3 percent. The decline in access to “piped to house” indicates that there appear difficulties in extending a higher level of service during high levels of population growth.

***Towards improved access***

In this section of the report access to improved water source is computed in terms of the following:

- Numbers in the household;
- Place of residence; and
- Age Group

This analysis will determine whether there have been improvements in access to those who are most vulnerable to poor quality water.

It also provides indications of where the backlog by regions is greatest and serves as a basis for prioritization and monitoring.

Firstly, the data on children’s access to improved sources is presented.

**Table 4: No access to improved water source, households**

	1992	2000
No children under 5 in household	47.6%	31.8%
Only one child under 5 in household	46.8%	33.7%
More than one child under five in household	50.0%	34.7%

Source: MDHS 1992 and MDHS 2000 (HSRC Analysis)

*Analysis and comment:*

The above table presents data on households without access to improved water. The declining percentage of households without access from 1992-2000 indicates that there has been a general improvement in access to improved water sources for all categories. The increased access in households where having more than one child under five is an indication of increasing equity as households in shacks and unplanned settlements and rural areas are regarded as more likely to have more younger children.

**Table 5: No access to improved sources of water by household size**

	1992	2004	Change %
Less than or equal to six members	50.0%	32.3%	17.7%
Greater than 6 members	46.2%	33.0%	13.2%

Source: 1992 and 2000 and 2004 IHS (*HSRC Analysis*)

*Analysis and comment:*

Table 5 above presents the data on household size that have no access to improved sources of water. Over the period 1992-2004 there has been overall a decline in those households without access to improved sources of drinking water. The decline in the proportion of households with less than or equal to six members is 17.7% while that of households having greater than 6 members is 13.2%.

It can be concluded on this basis that large families have somewhat less benefit than smaller families from improving access to a water source.

No access to improved water source by region is presented below.

**Table 6: No access to improved water source by region**

	1992	2004	Diff
Northern Region	52.9%	33.0%	19.90%
Central Region	47.0%	42.3%	4.70%
Southern Region	46.3%	24.2%	22.10%

Source: Malawi Demographic Health Survey 1992 and Malawi Integrated Household Survey 2004 (*FISRC Analysis*)

*Analysis and comment:*

Comparisons between 1992 and 2004 as presented above indicate that in all regions of the country there has been a decline in households not having access to an improved water source. This change is most marked in the Southern region which shows a decline of 22.1% and decline is the least noticeable in the Central region with a decline of 4.7%.

The uneven changes in access to water may be due to the adoption of government policy on drilling boreholes after 1994 that came at a time when the new political party decided

to drill more boreholes in the Southern region. The central region being the stronghold of the previous one party state was not a priority area for the drilling of boreholes.

**Table 7: Access to water by districts 2004 IHS**

	Access to improved water source	No access to improved water source
Mchinji	37%	63%
Kasungu	38%	62%
Ntchisi	38%	62%
Lilongwe, non-city	49%	51%
Mzimba	54%	46%
Machinga	56%	44%
Nkhotakota	58%	43%
Thyolo	60%	40%
Dowa	62%	38%
Nkhata Bay	64%	36%
Chitipa	65%	35%
Dedza	66%	34%
Ntcheu	69%	32%
Chikwawa	69%	32%
Mwanza	72%	28%
Mangochi	73%	27%
Karonga	74%	26%
Blantyre, non-city	75%	25%
Mzuzu City	76%	24%
Salima	77%	23%
Zomba, non-city	80%	20%
Phalombe	80%	20%
Nsanje	81%	19%
Chiradzulu	81%	19%
Rumphi	82%	18%
Lilongwe City	82%	18%
Mulanje	84%	17%
Balaka	85%	15%
Zomba City	87%	13%
Blantyre City	96%	4%

Source: IHS 2004 (*HSRC Analysis*)

The Integrated Household Survey of 2004 has been analysed to assess equity in relation to districts; evenness in access throughout all districts would indicate equitable distribution of resources. The districts with the lowest level of access are Mchinji, 63%, Kasungu, 62%, Ntchisi, 62%, and Lilongwe, non-city, with 51%. The three districts of Mchinji, Kasungu and Ntchisi have access to improved water sources below 50% and are located in the central region, which is thus likely to be affected by government post-1994 policy on drilling boreholes.



The districts with the highest level of access to improved water include urban centres such as Blantyre, Lilongwe and Zomba. Other districts with higher levels of access include Balaka, Mulanje and Rumphi, which are benefitting from gravity fed water schemes.

## **Appendix 1**

### **Definitions:**

In this report, drinking water coverage is presented as

#### **1. Improved drinking water sources:**

1. Piped household water connection located inside the user's dwelling, plot or yard
2. Public taps or standpipes
3. Tube wells or boreholes,
4. Protected dug wells, protected springs
5. Rainwater collection.

#### **2. Unimproved drinking water sources:**

1. Unprotected dug well
2. Unprotected spring
3. Cart with small tank/drum
4. Tanker truck
5. Surface water (river, dam, lake, pond, stream, canal, irrigation channels)
6. Bottled water.

#### **Source:**

World Health Organization and United Nations Children's Fund Joint Monitoring Programme for Water Supply and Sanitation (JMP). Progress on Drinking Water and Sanitation: Special Focus on Sanitation. UNICEF, New York and WHO, Geneva, 2008. page22

## Appendix 2

### Original Tables from Survey

**Table 8: Malawi 1992 DHS**

Source of Water	1992 MDHS
Piped into residence	3.57
Public tap	27.95
Piped into Yard/Plot	33.60
Public well	65.92
Protect. Well/Borehole	85.69
Spring	86.66
River, stream	98.10
Pond, lake	98.88
Dam	100.00
Total	

**Table 9: Malawi 2000 DHS**

Source of Water	2000 MDHS
Piped into dwelling	3.23
Piped into yard/plot	7.59
Community stand pipe	24.92
Unprotected well	47.05
Protected well	53.02
Borehole	86.96
Spring	87.89
River/stream	96.51
Pond/lake	97.52
Dam	97.85
Rainwater	97.87
Tanker truck/bowser	97.89
Not in de jure sample	100.00

**Table 10: 2004 Malawi IHS**

<b>Source of Water</b>	<b>2004 MDHS</b>
Piped into dwelling	2.53
Piped into yard/plot	5.53
Public Tap	16.86
Open well in yard/plot	19.03
Open public well	42.49
Protected well in yard/plot	47.31
Protected public well	88.01
Spring	90.75
River, stream	99.02
Pond, lake	99.64
Dam	99.91
Tanker truck	100.00
Total	

## Appendix 3

**Table 11: Improved Water Source (Joint Monitoring Programme Data)**

Source	Year	Drinking Water							
		National population	National Access	URBAN			RURAL		
				Urban Population	HC	Urban Access	Rural Population	HC	Rural Access
JMP Data <sup>1</sup>	1990	9,459,000	40	1,135,080	44.0%	90.0%	8,323,920	2.0%	33.0%
Malawi Demographic Health Survey 1992 <sup>2</sup>	1992	--	--	--	34.0%	94.1%	--	2.0%	42.0%
Survey of the State of Health, Nutrition, Water, Sanitation and Education in Malawi <sup>2</sup>	1995	--	--	--	44.0%	92.0%	--	2.0%	47.0%
JMP Data <sup>1</sup>	1995	10,111,000	52.0%	1,314,430	39.0%	93.0%	8,796,570	2.0%	46.0%
Malawi Demographic Health Survey 2000 <sup>2</sup>	2000	--	--	--	42.0%	95.0%	--	2.0%	61.0%
JMP Data <sup>1</sup>	2000	11,512,000	64.0%	1,726,800	34.0%	96.0%	9,785,200	2.0%	58.0%
WHO Survey 2003 <sup>2</sup>	2003	--	--	--	23.0%	99.0%	--	2.0%	77.0%
Malawi Demographic Health Survey 2004 <sup>2</sup>	2004	--	--	--	29.0%	91.0%	--	2.0%	58.0%
JMP Data <sup>1</sup>	2004	12,608,000	73.0%	2,143,360	29.0%	98.0%	10,464,640	2.0%	68.0%
Malawi, Multiple Cluster Indicators Survey, 2006 <sup>2</sup>	2006	--	--	--	32.0%	96.0%	--	1.0%	71.0%

**Source** <sup>1</sup> Data Accessed from Joint Monitoring Programme for Water Supply and Sanitation, July 2008.

<sup>2</sup> Joint Monitoring Programme for Water Supply and Sanitation, Coverage Estimates. Improved Drinking Water. Malawi. Updated in July 2008. URL: [http://documents.wssinfo.org/resources/documents.html?type=country\\_files](http://documents.wssinfo.org/resources/documents.html?type=country_files)

**Note: -- Missing Data**

This data is closest to an "official" set of data on the water and sanitation as it is accessed from national surveys and discussed between the JMP and statistical bodies. This data is reconciled by liaising with national authorities in collaboration with regional bodies.

Source: Rifat Hossain. 2008. Current Developments in JMP, How does the JMP monitor progress towards the MDG drinking-water and sanitation target? Slide 30.

World Health Organization [www.unecce.org/stats/documents/ece/ces/qe.31/2009/mtg2/zip.9.e.ppt](http://www.unecce.org/stats/documents/ece/ces/qe.31/2009/mtg2/zip.9.e.ppt)

**Table 12: Access to Improved water Source**

Drinking Water									
				URBAN			RURAL		
Source	Year	Population	National Access	Urban Population	HC	Urban Access	Rural Population	HC	Rural Access
Malawi Demographic Health Survey 1992 <sup>1</sup>	1992	9,794,556	51.6%	1,202,771	34.0% <sup>3</sup>	94.1% <sup>3</sup>	8,591,785	2.0% <sup>3</sup>	42.0% <sup>3</sup>
JMP Data <sup>3</sup>	1995	10,111,000	52.0%	1,314,430	39.0%	93.0%	8,796,570	2.0%	46.0%
Malawi Demographic Health Survey 2000 <sup>2</sup>	2000	11,623,368 <sup>1</sup>	66.3%	1,766,752	42.0% <sup>3</sup>	95.0% <sup>3</sup>	9,856,616	2.0% <sup>3</sup>	61.0% <sup>3</sup>
JMP Data <sup>3</sup>	2004	12,608,000	73.0%	2,143,360	29.0%	98.0%	10,464,640	2.0%	68.0%

This table selected from different data sources which can be found in the Appendix table 13 and 14)

**Source** <sup>1</sup> Dataset: Malawi Demographic Health Survey, 1992

<sup>2</sup> Dataset: Malawi Demographic Health Survey, 2000

<sup>3</sup> Data Accessed from Joint Monitoring Programme for Water Supply and Sanitation, July 2008. Joint Monitoring Programme for Water Supply and Sanitation, Coverage Estimates. Improved Drinking Water. Malawi. Updated in July 2008. URL: [http://documents.wssinfo.org/resources/documents.html?type=country\\_files](http://documents.wssinfo.org/resources/documents.html?type=country_files)

**Table 13. Improved Water Source (Analysis from Original Data Sets)**

Improved Drinking Water									
				Urban			Rural		
Source	Year	Population	National Access	Urban Population	HC	Urban Access	Rural Population	HC	Rural Access
Malawi Demographic Health Survey 1992 <sup>1</sup>	1992	9,794,556	51.6%	1,202,771	14.1%	88.7%	8,591,785	1.1%	41.1%
Malawi Demographic Health Survey 2000 <sup>2</sup>	2000	11,623,368	66.3%	1,766,752	16.4%	94.1%	9,856,616	0.7%	60.6%
Malawi Integrated Household Survey 2004 <sup>3</sup>	2004	12,893,865	61.3%	1,340,962	12.0%	95.0%	11,552,903	0.4%	58.7%

**Source:** <sup>1</sup> Dataset: Malawi Demographic Health Survey, 1992

<sup>2</sup> Dataset: Malawi Demographic Health Survey, 2000

<sup>3</sup> Dataset: Malawi Integrated Household Survey, 2004

This analysis from country datasets is conducted to present data directly from datasets and to undertake more comprehensive analysis in terms of equity and other considerations.