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Statistical Bulletin

Botswana: Sanitation

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August 2010

Measuring Service Delivery in Southern Africa Project

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

Southern AfricaTrust
Influencing Policies To End Poverty

HSRC
Human Sciences Research Council

Progress towards sanitation goals

Key targets and indicators from the Millennium Development Goals (MDG) which are also contained in the Regional Indicative Sustainable Development Programme (RISDP) of the Southern African Development Community (SADC) have been clustered to review progress in the sanitation sector in the four countries included in the study: Tanzania, Botswana, Malawi and South Africa. These include assessments of progress towards improved and basic sanitation.

Goal 7c includes the target of reducing by half the proportion of people without sustainable access to basic sanitation.

Improved sanitation facilities are defined by the Joint Monitoring Project (JMP) to include flush or poor flush toilets, Ventilated Improved Pit (VIP) latrine, pit latrine with slab, and composting toilet (refer to Appendix 2). Since these categories do not all appear in national statistics, a "broad" definition has been adopted, which includes all toilets appearing in these statistics and a "higher level" definition. The latter definition is adopted by a number of countries and includes flush toilets and VIPs.

Since the Botswana government has adopted improved sanitation at a relatively higher minimum standard, which is that of the ventilated pit latrine,[1] two levels of analysis are undertaken. Firstly, the data is presented at the "higher level" definition (ventilated pit latrine and flush toilets) and secondly, at the "broad definition" of sanitation.

Table 1 below, illustrates progress made towards goals related to sanitation drawn from the MDGs.

Table 1. Botswana Sanitation Goals

Target 7.9 Access to improved sanitation (broad)	
Target 7.9 Access to improved sanitation (higher)	

KEY

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)

A method to assess progress towards this goal has been devised in this study. As far as 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

[1] Botswana Millennium Development Goals Status Report 2004, Achievements, Future Challenges and Choices. United Nations and Republic of Botswana, p61.

projects existing trends towards the target. The model provides the year in which the MDG level of access, etc, will be reached.

Projections from available data (presented in Appendix 1 and 3) indicates that at the "broad" definition of sanitation, the MDG target was met in 2008 and at the "higher level" of sanitation the MDG target will be reached in 2012.

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

Country political and socio-economic context

Botswana is a landlocked, semi-arid country with an approximate area of 582, 000 square kilometres with a population of 1.9 million.

The Botswana Democratic Party (BDP) government has been in power since 1966. Over the last three decades diamond mining and tourism have provided considerable economic growth resulting in Botswana being classified as an upper middle income country. Over the last three decades there has been fairly consistent growth in the countries economy. The recent global economic downturn has resulted in the economy entering a considerable decline in Gross Domestic Product (GDP).

Since April 2009, government has adopted MDG-based district development planning in an effort to intensify commitment to achieve the MDGs and the pillars of Vision 2016. This is an important indicator of political will to achieve the MDGs. The National Strategy for Poverty Reduction adopted in 2003 takes account of the MDGs. Since the adoption of the MDGs by the Botswana Government, there has been a MDG Status Report (2004), which concluded that Botswana was on track to achieve many of the MDGs.

Progress toward human development targets

Access to sanitation in MDG and RISDP

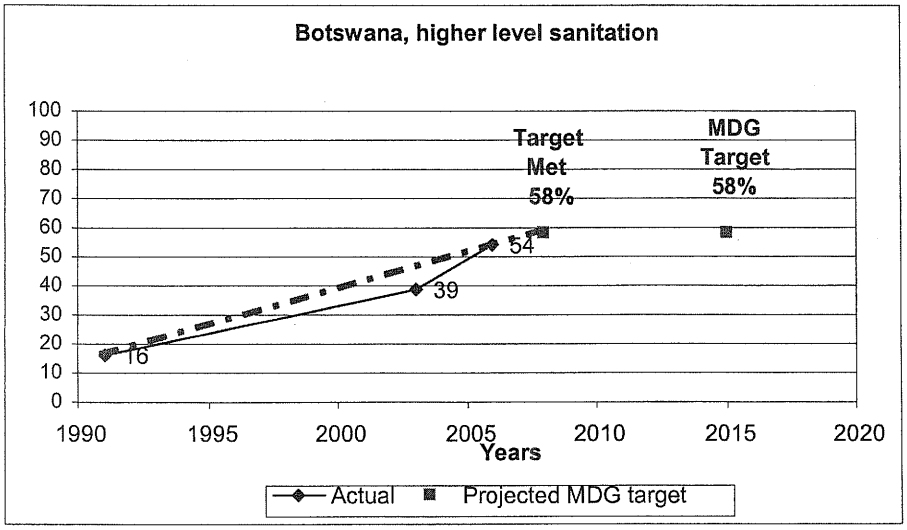
Selected MDG Targets and Indicators
Goal 7: Ensure environmental sustainability: To halve, by 2015, the proportion of people who do not have access to Basic Sanitation.

The presentation of progress towards improved sanitation reflects the two definitions employed; firstly that of **higher level of access** and secondly that of **sanitation broadly defined**. The distinction is made to ensure comparability between countries in the study and to surmount the problem that the different definitions of improved sanitation are not reflected in the national statistics.

The levels of access providing improved sanitation are defined in Appendix 2. Unfortunately the surveys in all countries do not distinguish between "traditional" or "simple" pit latrines, which have a slab and superstructure and pit latrines, which do not. This means that it is not possible to make the distinction in the presentation. Instead presentation is made at two levels; at the "higher level" of access, which includes Ventilated Pit Privies and flush toilets; and at the level termed "broad definition" which includes all forms of pit latrine.

The procedure adopted is to present the data on the higher level of access, which can be measured and follow with that of the broad definition. Two projections are made of progress towards the MDG, one at each of these levels.

Figure 1. Sanitation, higher level of access



Source: Data is accessed from table 1 to produce figure 1

Figure 1 is compiled from data provided in Table 2, below. As shown above, access to improved sanitation at the "higher level" of access improved from 16 percent in 1991 to 54 percent in 2006.

On the basis of the model developed in Table 2 the target access to improved sanitation at the "higher level" of access to be met in 2015 is 58 percent. The model employed to project both the MDG target and the linear rate of growth is presented in Table 2.

Table 2. Higher level of Access: MDG Projection

		a	b	c	d	e	f	g
Year	Population	Coverage %	Backlog %	1/2 Backlog %	MDG Target	Growth rate per anum	No. of years	MDG Target Met
1991	1,429,000	16	84	42	58	2.5	17	2008
2006	1,769,000	54						

Source: [1]Botswana Census, 1991
[2]Botswana Demographic Health Survey, 2006

Table 2 shows that there was a backlog of 84 percent in 1991 (b). The MDG target requires that the backlog be halved, which is 42 percent (c) and after this value is added to the baseline figure the target to be met by 2015 is 58 percent (d). The growth rate from 1990 to 2006 is 2.5 percent (e). The number of years to reach this target is 17 years (f), which will be met in 2008 (g).

This indicates an unusual development in Southern Africa. Botswana shows significant advancement in sanitation at the "higher level" of Ventilated Pit Privies and flush toilets.

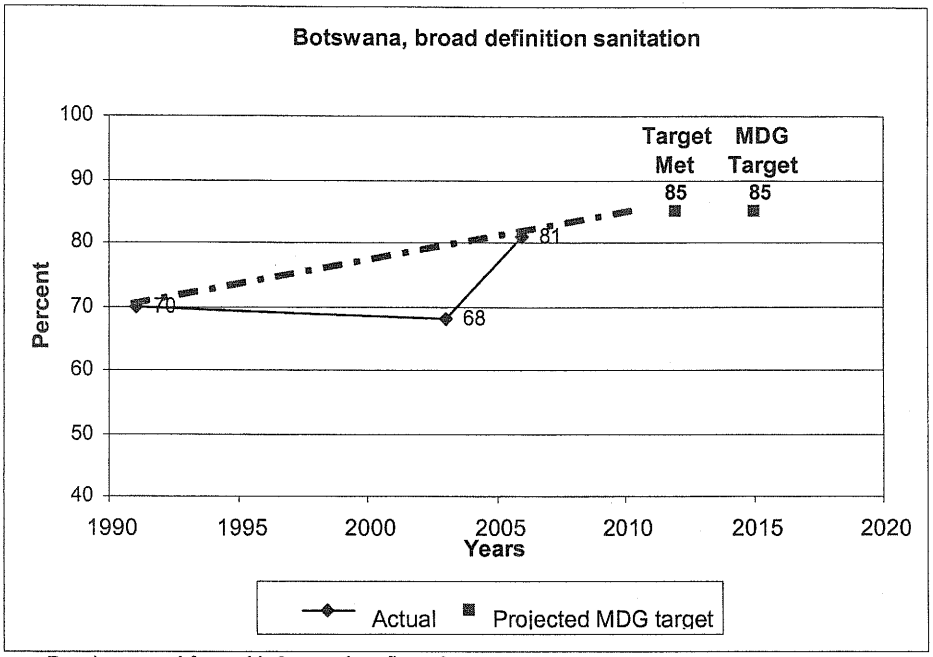
It can be concluded that as indicated by the above model, the "higher level" of access to sanitation (that of the Ventilated Pit Privy) has been halved by 2008 and the MDG reached.

Analysis and comment:

From the presentation above, Botswana is on course to achieving the MDG at the "higher level" of sanitation. The Government of Botswana aims to raise access to improved sanitation to75 percent by 2030 through initiatives that aim to provide the population without access with sanitation and by replacing unventilated pit latrines with VIPs.[2] However, caution must be taken in the long term. The fiscal constraints imposed by the international economic crisis will have a negative impact on the further development of sanitation coverage and this may already have been experienced.

[2] Botswana Millennium Development Goals Status Report 2004, Achievements, Future Challenges and Choices. United Nations and Republic of Botswana, p61.

Figure 2. Botswana sanitation, broad definition



Source: Data is accessed from table 2 to produce figure 2

Figure 2 above, presents data provided in Table 3, below. Access to improved sanitation at the higher level of access improved from 70 percent in 1991 to 81 percent in 2006.

The model employed to project both the MDG target and the linear rate of growth is presented in Table 3.

Table 3. Broad definition: MDG Projection

		a	B	c	d	e	f	g
Year	Population	Coverage %	Backlog %	1/2 Backlog %	MDG Target	Growth rate per annum	No. of years	MDG Target Met
1991	1,429,000	70	30	15	85	0.73	21	2012
2006	1,769,000	81						

Source: [1]Household and Income Expenditure Survey, 2003
[2]Botswana Demographic Health Survey, 2006

Table 3 shows that the backlog in 1991 is 30 percent (b). The MDG target requires that the backlog of 30 percent be halved, which is 15 percent (c) and after this value is added to the baseline figure, the target to be met by 2015 is 85 percent (d). The growth rate per annum from 1990 to 2004 is 0.73 percent (e). The number of years to reach this target from 1991 is 21 years (f), which will be met in the year 2012 (g).

This indicates that access at the broad definition of sanitation (including all pit latrines since a distinction is not made in the statistics between households pit latrines with a slab

and superstructure and those without) Botswana will reach the MDG target by 2012. The conclusion is thus that the MDG will be reached in sanitation at this level before 2015.

Analysis and comment:

At both levels of definition the trends are in the right direction. At the higher level it is projected that the MDG target has already been achieved. At the lower level there is a slower pace of growth and the MDG target is projected to be reached in 2012.

Government has demonstrated resolve, commitment to setting higher standards, and applied financial resources towards attainment of sanitation for all.

However, the current rate of change may not be sustained as it will be affected by the international economy. The budget deficit, the global warming, and increase in demand of water are key factors in this regard. The implementation of flush water borne toilet system would be jeopardized and may pose a threat in delaying the achievement of the MDG.

A review of key *constraints* and *drivers* of trends has been undertaken. This finds that the key possible constraints are:

- resource availability especially in view of the budgetary deficit being experienced;
- the constant increase in demand;
- climate vagaries; and
- failure to involve all stakeholders could influence progress.

The key *drivers* of achieving access to improved sanitation are as follows:

- political will;
- public commitment; and
- transparency in resource application.

Botswana has comparatively generally performed better to make it a benchmark in SADC.

Unique challenges in delivery in sanitation sector

Despite the harsh climatologically conditions, especially the availability of water, there is commitment to budget allocation and the will to carry out the plan and reforms. The current leadership has shown determination to improve the lives of the people by devoting substantial resources to the improvement of sanitation service.

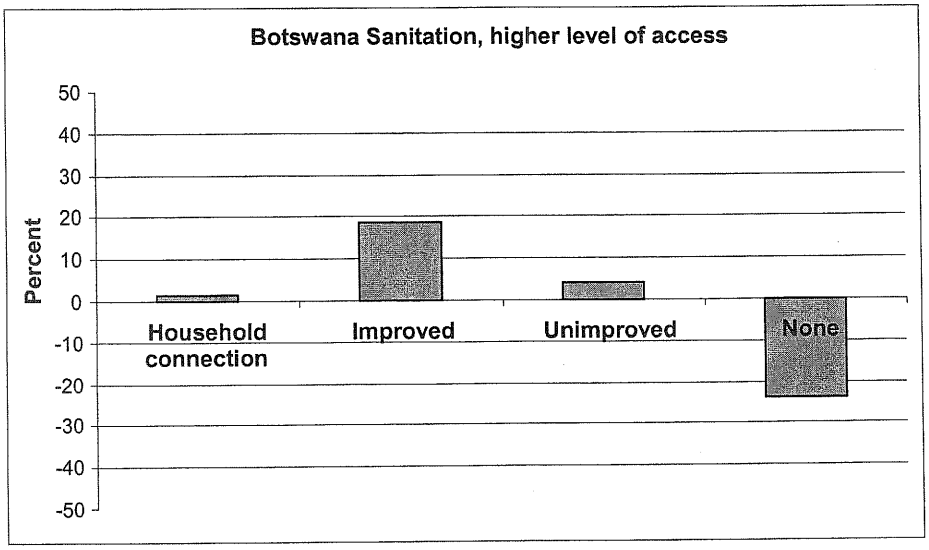
Issues of quality services range from a lack of communication, mindset, sustainability, environmental conservation issues and rapid demographic growth. The rapid increase in population places even further pressure on resources, especially in view of the deficit being experienced.

Changes in access

This section presents changes in access at various levels of sanitation; at household connection, improved, unimproved, and none.

Over the period 1991-2003 there has been the most rapid change in the sector "none", which has declined by 24 percent. Improved sanitation increased as shown in Table 4, with a change of 19 percent, followed by unimproved sanitation that increased by four percent. The increase in household connections over this period has been modest at one percent.

Figure 3. Access to sanitation, 1991-2003



Source: Data is accessed from table 3 to produce figure 2

Table 4. Change in Access at all levels

Source	Year	Household connection	Improved	Unimproved	None
Census	1991	16	33	27	24
Household and Income Expenditure Survey	2003	17	52	31	0
% Change		1	19	4	-24

It appears that the most rapid advance has been at the level of Ventilated Improved Privies rather than flush toilets, which are represented here as household connections.

Towards improved access

This section focuses on whether more equitable access is being achieved in terms of the following:

- Numbers in the household;
- Number of under five year olds; and
- Regions.

This analysis will probe particularly whether there have been improvements in access to those 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.

Equity: Household size and number of children

Table 5. Access to Unimproved Sanitation by Household size

	Improved Sanitation	Unimproved sanitation
Less than and equal to 6 members	71%	29%
Greater than 6 members	67%	34%

Source: Botswana Income and Expenditure Household Survey 2002/2003

Analysis and comment:

The data presented above indicates that larger families (greater than six members) are less likely to have improved sanitation and more likely to have unimproved sanitation as compared to families with less than and equal to six members. It appears that despite good intentions, planning and the determination by the leadership, Botswana continues to experience inequities in sanitation services with the worst serviced areas being rural, followed by urban villages and then Self-Help Housing Agency (SHAA) areas in urban towns and cities.

The status shown by this data will continue in the short and long term due to resource in-availability and the rapid increase in population.

Table 6. Access to sanitation by number of children in household

	Improved sanitation facilities	Unimproved sanitation facilities
No children in household	75%	25%
Only one child in household	75%	25%
More than one child in household	67%	33%

Source: Botswana Income and Expenditure Household Survey 2002/

Analysis and comment:

In relation to numbers of children in households and access to sanitation, there is also a tendency for those families with more than one child to have less access to improved sanitation than those with one or more child. Like water, most affected without access to improved sanitation are likely to be in rural areas, followed by those in urban villages, and in Self-Help Housing Agency areas (which are poor areas of urban towns and cities). The usual inequities between rural and urban areas continue to manifest in sanitation as well as within class sectors in urban areas.

Botswana has made considerable progress in access to improved sanitation from a small base of infrastructure in the early 1990s. However, the advances do not appear to be progressively resolving some important equity issues.

Appendix 1

Sanitation data: tables from various sources

In this section the most comprehensive set of data which is available is presented in the following sequence:

As computed from original datasets for the higher level of access;
In terms of the broad definition of sanitation; and

Improved Sanitation (Complete data, broad definition)

				URBAN			RURAL		
Source	Year	Population	Total access	Urban Population	HC	Urban Access	Rural Population	HC	Rural Access
JMP Data[1]	1990	1,429,000	38.0%	600,180	29.0%	61.0%	828,820	1.0%	21.0%
Botswana census 1991[2]	1991	1,326,796	70.0%	606,328	34.0%	39.5%	720,468	0.6%	28.2%
JMP Data[1]	1995	1,616,000	40.0%	775,680	28.0%	59.0%	840,320	1.0%	23.0%
JMP Data[1]	2000	1,754,000	41.0%	877,000	28.0%	57.0%	877,000	1.0%	24.0%
Botswana Household and Income Expenditure Survey 2002/2003[3]	2003	1,632,922	68.2%	915,065	28.4%	55.6%	717,857	3.4%	17.9%
JMP Data[1]	2004	1,769,000	42.0%	919,880	27.0%	57.0%	849,120	1.0%	25.0%

Source [1]Data Accessed from Joint Monitoring Programme for Water Supply and Sanitation, WHO and UNICEF. Coverage Estimates. Improved Sanitation Updated in July 2008.Botswana URL: http://documents.wssinfo.org/resources/documents.html?type=country_files
[2]Joint Monitoring Programme for Water Supply and Sanitation, WHO and UNICEF. Coverage Estimates. Improved Sanitation Updated in July 2008.Botswana URL:http://documents.wssinfo.org/resources/documents.html?type=country_files
[3] Dataset: Botswana Household and Income Expenditure Survey, 2003.

Note: The JMP data has been selected for the following reasons:

1. There are inconsistencies evident in the tables constructed from analysis of the original country datasets, for example, showing wide fluctuations upwards or downwards in a manner unlikely to represent the actual direction of change in a fairly stable service. These datasets are, however, very useful in conducting analysis of the more qualitative aspects of sanitation such as coverage by district, etc.
2. The JMP data takes into consideration, particularly in the early datasets, the lack of distinction within the category "pit latrines" between those which could be classified as improved or unimproved. The numbers in this category are reduced by a factor agreed between the JMP itself and country statistical bodies to reflect the necessary distinction.

Improved Sanitation (Compiled from selected datasets, broader definition)

				URBAN			RURAL		
Source	Year	Population	Total access	Urban Population	HC	Urban Access	Rural Population	HC	Rural Access
Botswana census 1991[1]	1991	1,326,796	70.0%	606,328	34.0%	39.5%	720,468	0.6%	28.2%
Botswana Household and Income Expenditure Survey 2002/2003[2]	2003	1,632,922	68.2%	915,065	28.4%	55.6%	717,857	3.4%	17.9%
Botswana Demographic and Health survey[3]	2006	1,858,163	81.0%	1,078,849	24.4%	80.2%	779,314	54.9%	90.1%

Source [1]Joint Monitoring Programme for Water Supply and Sanitation, WHO and UNICEF. Coverage Estimates. Improved Sanitation Updated in July 2008.Botswana
URL:http://documents.wssinfo.org/resources/documents.html?type=country_files
[2] Dataset: Botswana Household and Income Expenditure Survey, 2003.
[3]Dataset: Botswana Demographic Health Survey, 2006

Appendix 2

Definition of improved / unimproved sanitation

1. **Improved sanitation facilities are:**

Flush/pour flush to:
- Piped sewer system
- Septic tank
- Pit latrine

Ventilated improved pit (VIP) latrine
Pit latrine with slab
Composting toilet

2. **Unimproved sanitation facilities are:**

Flush/Pour flush to elsewhere
Pit latrine without slab/open pit bucket
Hanging toilet/hanging latrine
No facilities bush or field
None

Source: The Joint Monitoring Programme: Definitions
URL: http://www.wssinfo.org/en/122_definitions.html

Appendix 3

Original Tables from Survey

Botswana 1991 Census

Type of toilet	Percent
Pit latrine	54
Private connection	16
Septic Tank	6
Other	24

Botswana Household Income and Expenditure Survey 2002/2003

Type of toilet	Percent
Own flush toilet	17.4
Own VIP latrine	21.8
Own pit latrine for office use	29.0
Communal flush toilet	.4
Communal VIP	.2
Neighbour's toilet	2.2

Botswana Demographic and Health Survey 2006

Type of toilet	Percent
Flush toilet	24.4
Ventilated Improved Pit Latrine(VIP)	29.4
Pit Latrine	19.9
Enviro-loo Communal	0.1
Flush toilet	0.7
VIP	0.4
Pit Latrine	1.7
Neighbours toilet	4.4
None	0.1
10	18.3
11	0
20	0.6
Total	100

Note: in the time available it has not been possible to resolve with the Central Statistics Office the description of categories included here as 10, 11, and 20.