

Data reconciliation in Southern Africa

Report on a regional workshop looking at monitoring approaches in the water and sanitation sector



A WaterAid report in collaboration with the World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF).

January 2010

Written by Ian Ross and Kristof Bostoan

The contributions of all workshop participants and the agenda committee are gratefully acknowledged, particularly Didier Allely, Silvia Gaya, Nelson Gomonda, Frédéric Jacot-Guillarmod, John Kandulu, Lovy Rasolofomanana and Tom Slaymaker.

List of acronyms

AfDB	Africa Development Bank
JMP	WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation
WSP	Water and Sanitation Programme of the World Bank
SIMS	Sector Information Management System
MDG	Millennium Development Goal
SADC	Southern Africa Development Community
WHO	World Health Organisation
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene

Background

WaterAid is an international non governmental organisation. Our mission is to transform lives by improving access to safe water, hygiene and sanitation in the world's poorest communities. We currently work in 26 of the world's poorest countries in Africa, Asia and the Pacific region. We work with local partners, who understand local issues, and provide them with the skills and support to help communities set up and manage practical and sustainable projects that meet their real needs. We also work locally and internationally to change policy and practice and ensure water, hygiene and sanitation's vital role in reducing poverty is recognised.

The WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) is the official United Nations mechanism tasked with monitoring progress towards the Millennium Development Goals' (MDGs) drinking water and sanitation target. In fulfilling this mandate, the JMP publishes updated estimates every two years of the various types of drinking water sources and sanitation facilities being used worldwide.

WaterAid and the JMP collaborated in the organisation of the workshop discussed in this report after identifying improved sector monitoring as a shared objective. This collaboration will be strengthened in the future, with further joint activities taking place.

WaterAid has an increasing programme of work on sector performance monitoring, particularly water point mapping. The use of GIS-based maps to monitor water point coverage and functionality has been in place since 2002. The approach was pioneered by the WaterAid country programme in Malawi, and was subsequently taken up elsewhere. The maps plot water sources spatially and overlay sub-district population census data in order to assess prioritisation and handpump functionality. WaterAid is working to institutionalise the water point mapping model into national water supply sector monitoring systems.

Executive summary

In December 2009, a data reconciliation workshop was organised by WaterAid in collaboration with the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP). It aimed to support efforts to improve monitoring in the water supply and sanitation sector in the Southern Africa region. The workshop had the following objectives:

- 1 Develop a common understanding of monitoring carried out at national and international levels through the sharing of methodologies used in data collection and processing.
- 2 Explore the possibility of harmonising monitoring approaches at the national level and ensuring coherence with global monitoring processes.
- 3 Encourage greater collaboration between national level agencies involved in water and sanitation sector monitoring, as well as between those agencies and the JMP.

The workshop brought together senior level representatives of national institutions involved in monitoring from four countries in the region (Madagascar, Malawi, Mozambique and Zambia). Other participants included representatives from Lesotho, the Southern African Development Community (SADC), the African Development Bank (AfDB), and the World Bank's Water and Sanitation Programme (WSP). A full list of participants is available in Appendix one at the end of this report.

The aim of the workshop was to share experiences for strengthening sector monitoring. Discussion over the three days was structured as follows:

- Day one focused on setting the scene, with each country presenting the monitoring approaches they use. The JMP explained how national data is used to produce their estimates and highlighted common problems faced in monitoring the water, sanitation and hygiene (WASH) sector and potential reasons for differences between the estimates of the sector, the statistics office, and the JMP.
- Day two involved breaking down into facilitated country groups, and carrying out a detailed analysis of each country's available data, both from surveys and Sector Information Management Systems (SIMS). Each group identified reasons for discrepancies between different sources and ways of remedying them.
- Day three focused on turning suggested next steps into a coherent plan for each country, with time-bound actions attributed to different actors.

The workshop was considered extremely successful by all parties, particularly because of the detailed preparations that had already taken place at the national level. This meant that participants had a good level of understanding before arriving and enabled more in-depth discussion during the regional workshop. It also helped ensure the participation of key officials who were sufficiently high ranked to make decisions there and then and to ensure action plans were agreed for each country. Key outcomes were as follows:

- 1 Participants understood how different data collection methods can convey different results, and the effect on estimates of applying different definitions and sets of infrastructure categories.
- 2 All four countries drafted an action plan to work towards better coordination of national level monitoring and greater collaboration between national agencies and international monitoring frameworks.

Introduction

Lack of effective monitoring makes it difficult to measure and understand progress towards national targets in the WASH sector, as well as towards the MDGs. It hinders the targeting of sector investments and understanding the impact of different WASH interventions.

Monitoring activities are often conducted by a range of different actors within government, including the different ministries in charge of water, sanitation, health or planning, as well as the national statistics office. Donors, UN agencies and non governmental organisations may also be using their own approaches to data collection.

This lack of coordination can result in the duplication of efforts or contradictions between figures produced by different agencies operating at national level. Furthermore, this can have a knock-on effect on global estimates if they are based on a combination of all the national level surveys and censuses.

This data reconciliation workshop was conceived in order to facilitate better coordination around monitoring in the countries where WaterAid works. WaterAid country programme staff helped facilitate detailed national level preparations in the months running up to the workshop held in Pretoria, South Africa, from 15–17 December 2009.

The workshop mainly looked at monitoring **outcomes** (ie people using facilities), although monitoring **outputs** (ie functioning infrastructure) is another key aspect of sector performance monitoring. It was not within the remit of the workshop to look at output monitoring in detail, but it should be emphasised that it is extremely important for planning sector investments and maintenance. Many countries are currently developing (SIMS) for this reason. In addition, monitoring both outputs and outcomes is complementary; comparing the results can help identify existing problems that can be related to, for example, functionality, willingness to use the infrastructure or to cover the recurrent costs.

Workshop objectives and agenda

The workshop had the following objectives:

- 1 Develop a common understanding of monitoring carried out at national and international levels through the sharing of methodologies used in data collection and processing.
- 2 Explore the possibility of harmonising monitoring approaches at the national level and ensuring coherence with global monitoring processes.
- 3 Encourage greater collaboration between national level agencies involved in water and sanitation sector monitoring, as well as between those agencies and JMP representatives.

The workshop brought together senior level representatives of national institutions involved in monitoring from four countries in the region (Madagascar, Malawi, Mozambique and Zambia). Other participants included representatives from Lesotho, the Southern African Development Community (SADC), the African Development Bank (AfDB), and the World Bank's Water and Sanitation Programme (WSP). A full list of participants is available in Appendix one.

A brief overview of the agenda is as follows: **Day one** aimed to set the scene:

- Each country presented their national monitoring approaches.
- JMP representatives explained how national data is used to produce estimates, and potential reasons for differences between the estimates of different institutions.
- JMP members presented different ways to begin reconciling differences between estimates.

Day two involved breaking down into facilitated country groups and carrying out a detailed analysis of each country's available data, both from surveys and SIMS. Sessions included:

- Group exercise looking at available household surveys, targets and indicators, categories of improved and unimproved infrastructures, definitions of urban/rural/small towns; and discussing them all.
- Group exercise to produce a data reconciliation summary sheet, comparing different sources of national data and JMP estimates, to identify easily resolvable issues and areas that require more work.

Day three focused on turning suggested next steps into a coherent plan for each country, with time-bound actions attributed to different actors. Sessions included:

- WaterAid, WSP and SADC presenting the different regional and global monitoring initiatives, followed by a discussion.
- Group exercise to put together an action plan setting out who was leading on each action and with whom, the time by when it should be achieved, as well as opportunities and constraints.

Overview of some key issues discussed

The following is a brief overview of issues that came up in discussions. It is not intended to be comprehensive but rather to highlight key issues and challenges in a manner which may be instructive for other countries. It should be emphasised that the examples used here could well apply to any country, but only one example is shown for each issue in order to keep the report short.

Sources of data

Provider-based and user-based monitoring approaches measure fundamentally different things. Generally, SIMS aim to measure outputs (what infrastructure is available to the population), whereas household surveys and censuses aim to measure outcomes (what infrastructure people are actually using). SIMS collect data about water points, such as their functionality and management, which is crucial for planning sector investments and maintenance. Geo-referencing water points through SIMS opens up further possibilities. Household surveys, however, can estimate the actual 'use' of infrastructures, which is what many countries monitor. (see next section for more on this). Both approaches are important and complementary but by their nature can produce different results. (See Box 1 for an example from Madagascar).

Box 1: Madagascar – different sources of data

During an exercise on data reconciliation carried out at the workshop, the Madagascar country team found that in 2001, Madagascar's National Statistics Office (INSTAT) estimated access to water in rural areas to be 12.8%, whereas the Ministry of Water's SIMS found the figure to be 24.0%. Both figures are arguably accurate on their own terms, but they are measuring different things. The Madagascar country team agreed to look into why this is the case, after returning home.

Conclusion

On the issue of different sources of data, many countries did not have recent SIMS data to hand at the workshop and the sector agencies were not necessarily aware of all surveys. Most agreed to share data and compare SIMS data with survey data after returning home, to see what the differences are, and attempt to understand them.

Differences between coverage, access and use

While seemingly similar terms, the various definitions of coverage, access and use were a subject of much debate during the workshop. All three terms are very often used alternatively but the same term may have different meanings for different practitioners. It is therefore important to agree definitions and determine appropriate indicators.

It can be assumed that 'coverage' or 'access' gives the service provider point of view (ie the population is offered services to a certain standard that can be used). However, 'use' gives the user's point of view on what infrastructure they use most of the time, and implies that they have access, though they could have access to other infrastructure but not use it. Each metric involves its own assumptions, and has its own inherent problems.

Coverage often refers to infrastructure coverage based on the principle that a particular type of infrastructure is designed to deliver a service to a certain number of people. Coverage, which is often used in SIMS, is calculated by multiplying the number of each type of infrastructure by the number of people who should get the service from those infrastructures. However, coverage may not give an accurate estimate of access or use, for various reasons. For example, the infrastructure may not be working, the cost might be prohibitive or the person might prefer to use a different facility. Also, the SIMS might assume, for example, that a water point can serve 400 people, but the number actually using it could be very different (see Box 2).

Box 2: Mozambique – average number of people served by water points

The Mozambique water directorate (DNA) assumes that a household connection serves five people while a public tap serves 500. The access figures are then based on multiplying the number of functional water points by the number of people those points are designed to serve. However, the analysis of surveys showed that the average number of people using this type of water point in urban areas was seven instead of five for a household connection and 2400 instead of 500 for a public standpipe. In rural areas, public standpipes served only half the number of people they were designed for, indicating a clear difference between potential access and actual use.

Access often refers to the availability of a particular infrastructure to households. Access is measured in the same way as coverage, using potential population served per type of infrastructure, sometimes taking into account factors such as distance or functionality. Someone may have access to an infrastructure but may choose not to use it, or be able to use it, all of the time. For example, it may function only at certain times of the year, the cost might be too high, or they may use the river closer to their home.

'Use' often refers to the actual usage of infrastructure by households, and is best measured by censuses and household surveys. In fact, the JMP only uses national data from household surveys and censuses, considering them to provide the most accurate measure of infrastructure usage. In 2007, the MDG definition was amended to refer to use of infrastructure and reflect what is actually measured through surveys and censuses. However, there are limitations to this method. Censuses are usually only conducted every ten years and surveys, which are conducted every two to five years, only measure a sample of the population which can vary in size. In addition, respondents may tell the survey enumerator that they or their family use an infrastructure, when in fact they don't. Direct observation is usually impossible.

It doesn't matter so much which word is used, as long as all actors are clear on the definitions. Of the countries at the workshop, Zambia and Madagascar talk of access only, whereas Mozambique consider that access equals use. Malawi's National Statistical Office measures use, but the Ministry of Irrigation and Water Development reports on access, and both agreed not to refer to coverage to avoid confusion.

The definition of any of the terms may contain certain clauses. For example, a definition of 'access' may or may not include a maximum distance/time to the source. Furthermore, it may or may not contain criteria around water quality, quantity or seasonality – all of which can affect the data and the ease with which it can be collected. For example, it may be useful to know if the same source can be used in all seasons, or if the source is less than 500 metres away, but it is also useful to know which people are using improved sources which do not meet these criteria. Above all, it is necessary to remember that criteria need to be simple enough to be reliably measured and definitions need not be perfect but should be commonly agreed. (See Boxes 3 and 4 for examples).

Box 3: Zambia – definition of access to water in rural areas

The Ministry of Local Government and Housing's definition of access to water in rural areas includes criteria on people being able to: collect water all year round, collect 25 litres per person per day for domestic purposes, and walk less than 500 metres to the water point. This was agreed to be a good definition, but some raised the issue that queuing at the water point can sometimes take time. The Mozambique definition, for example, refers to a 30 minute round trip including going to the water point, queuing, fetching the water, and returning home.

Conclusion

On the issue of coverage, access and use, participants agreed that there was a need for clarity on which one each national institution is measuring. Most countries had agreed definitions and wanted to keep on using the same ones that they had been monitoring, to compare progress over time.

Box 4: Madagascar – 'washable' slabs or 'clean' slabs?

Madagascar decided in 2003 that the definition of improved sanitation required the latrine slab to be 'washable' in order to capture environmental safety. However, in 2006 this was not deemed enough, as the slab also needed to be 'clean'. Others argued that while these factors are important, they cannot always be measured objectively at the household level. A working group was established to look into the problem of definitions, and in 2008 it was decided to keep the word 'washable'. This was defined by certain criteria (eg smooth, made with concrete or fibre glass etc), and it was agreed that 'clean' would be very difficult to monitor through surveys.

Infrastructure categories

Generally, national policies stipulate a list of infrastructure categories that are considered 'improved'. Ideally, it is also useful to have an agreed list of categories that are 'unimproved'. This is because some people's answers to the household survey question 'what sanitation facility do you use?' will be sanitation options that are not on the improved list (eg pit without slab/open pit). This may not be improved, but is nevertheless a first step on the 'sanitation ladder', and it is useful to know about people not practicing open defecation. Furthermore, the same categorisation of improved/unimproved infrastructures is not used by all actors, and is not always harmonised across surveys – this makes comparison between estimates very difficult.

Country classification for the different categories of improved/unimproved infrastructures does not always match with the JMP classification. This is not a problem, but it is crucial to establish **correspondence** between categories in order to reconstruct estimates based on different definitions (eg national or MDG definitions). To facilitate this process, the JMP has published some suggested core questions and response categories for household surveys (available at www.wssinfo.org).

The JMP website also contains country files showing the household survey data used to produce national estimates. These files were looked at in detail during the workshop. It was a useful exercise to download the file for a particular country and compare the response categories used across different surveys. In Zambia, for example, several different types of latrine were referred to in different surveys between 2006-2007, many of which are not described in the policy, meaning the results are not comparable. The Mozambique group had discussions regarding whether latrines should have a roof (see Box 5), and the Zambia country group decided to resolve issues around categories (see Box 6).

Box 5: Mozambique – roofs on latrines

In Mozambique there is a distinction between traditional improved (built using mud/clay) and improved latrines (built using cement). The national policy states that any latrine is only considered improved if it has a roof. However, recent survey response categories do not stipulate this, which essentially means that it is not measured. The JMP definition of improved sanitation does not require a roof, however. There was consensus that the response categories need to be improved to take into account the definition, but that comparability should still be kept for the purposes of the JMP.

The presentation of a disaggregated analysis of the JMP data allowed participants to reconstruct estimates using JMP data but following national definitions. This further disaggregation of the JMP data in the country files helped to better understand the possibilities for comparing estimates following national or international definitions and helped to understand differences between national and JMP estimates.

Conclusion

On the issue of infrastructure categories, most countries agreed to develop and use a harmonised set of response categories in all future surveys, based on the national definitions. In addition, tables of correspondence between national categories and JMP categories will be developed to facilitate comparability. This agreement was only possible because the right people from the national agencies, especially the statistics offices, were present.

Box 6: Zambia – appropriate lifting devices

The Zambia National Rural Water Supply and Sanitation Programme only considers a well to be improved when it is protected and has an appropriate lifting device (all of which are listed in the document) such as a handpump or dedicated bucket with windlass. Wells are not considered improved if people use their own buckets and ropes because these can contaminate the well. The JMP definition does not specify lifting devices and is therefore less stringent than Zambia's definition, which could be one reason for discrepancies between national data and the JMP. The Zambia country team agreed a set of response categories for water and sanitation based on the national policy that would be used in all future surveys to ensure better comparability between the SIMS and surveys, between different surveys and between national and JMP monitoring.

Other issues discussed

Many other important issues were covered during the discussions, but unfortunately there is not enough space to cover them all here. They included, but were not limited to:

- **Definitions of urban/rural.** In the WASH sector, urban areas are often, for practical reasons, defined as those served by water utilities, even if they serve areas defined as rural by the National Statistics Office in the census. Similarly, some small towns might be considered administratively as urban but they are not covered by the national utility. Participants also raised the issue of peri-urban areas which are effectively urban areas with some rural characteristics or vice versa.
- **Population numbers used.** Different agencies often use different sources for estimating population numbers. This can cause discrepancies in estimates if different definitions of urban/rural are used or if small towns are not adequately defined.
- **Shared facilities.** Countries had different policies on shared water sources (eg neighbour's tap) and shared sanitation (eg neighbour's pit latrine or public pit latrine), which often differed to the JMP policies on shared facilities.
- **Water quality and quantity.** Many definitions refer to sustainability and water quality/quantity data which cannot be collected from household surveys. Ideally, future SIMS will contain this kind of data as well as geo-referencing. This kind of water point mapping approach has been used by WaterAid in Southern Africa.
- **Using information for planning.** Several countries raised the issue of making sure that information is available at each level where it is needed. Survey data is irregular and can only measure outcomes. As such, it is not useful for planning district level investment. This is where an effective SIMS is crucial, as it can measure local outputs regularly if data collection is well managed. The difficulty is in making sure that the data is updated regularly enough to reflect water point functionality and other variables.
- **Other relevant global and regional monitoring initiatives.** The JMP methodology was discussed in detail throughout the workshop, but time was also set aside to discuss other regional and global monitoring initiatives, including: WSP's Country Status Overviews (CSO), UN-WATER's Global Annual Assessment of Sanitation and Drinking Water (GLAAS), WaterAid's water point mapping, SADC's Regional Framework for Planning and Implementation, and AfDB's Pan-African Water Sector Monitoring and Evaluation Assessment.

Participants felt that better communication was needed between these different initiatives and existing national frameworks in order to avoid duplication and additional reporting for national agencies. It was thought that more emphasis should be placed on exchanges with the relevant national stakeholders before estimates are published, and there was a need to ensure that country focal points share this information across the sector.

Next steps and action plans

A key outcome of the workshop was an agreed action plan for each country, in order to take forward the issues discussed. All country action plans are available on request, but below are some action points common to most:

- 1 Ensure the definitions of coverage, access and use are agreed.
- 2 Agree and distribute/make available the list of improved/unimproved infrastructure categories and ensure that the sector is consulted before future surveys and censuses.
- 3 Hold follow-up meetings at national level, involving sub-national actors as much as possible, in order to disseminate learning from the workshop.
- 4 Ensure that the sector is involved in training survey enumerators before a survey is carried out, so they understand the sensitivities in the definitions of infrastructure categories.
- 5 Convene a working group on sector monitoring that includes all relevant actors and meets regularly to share information and perspectives, and ensures that all sector data is collated in one place and shared regularly.
- 6 Share relevant household surveys and censuses between the national agencies and send data to the JMP that they do not already have.

One of the broad conclusions was that there needs to be more dialogue between actors at national and global levels. An example of this came from the Madagascar country group who have built up a strong collaboration with the JMP over the last few years which has helped to build understanding of the issues around monitoring. (See Box 7).

Box 7: Collaboration between Madagascar and the JMP

A data reconciliation initiative started in Madagascar in 2003 when stakeholders from the water and sanitation sector (including WaterAid and UNICEF) started discussions with the National Statistics Bureau (INSTAT) and the ministry in charge of water. Differences had been noticed between mapping data and household survey data, and stakeholders sat together to formulate an agreed definitions document to take into account national policies.

At the AfricaSan conference in 2008, a Malagasy delegation attended a session on monitoring the water and sanitation sector arranged by the JMP and Senegal. Discrepancies between the JMP data and national data were discussed, and the delegation agreed to work with the JMP to resolve these. Later in 2008, sector stakeholders reviewed the 2003 definitions paper. After comparing those definitions with those of the JMP, they decided to make some changes to ensure coherence. The relationship with the JMP was cemented during further discussions at a workshop in Mali at the end of 2008. The Madagascar stakeholders and the JMP are looking to publish a joint paper later in 2010 to outline the successful collaboration.

This experience provides a useful example of fruitful collaboration between sector actors at the national level, and then between those actors and the JMP. In fact, it provided the basis for this workshop organised in South Africa in 2009.

Conclusions

The data reconciliation workshop was considered extremely successful, particularly because of the detailed preparations that had already taken place at national level. This meant participants had a good level of understanding before arriving and enabled more in-depth discussion on the analysis of their own monitoring processes when compared with the JMP approach. It also helped ensure the participation of key officials who were sufficiently high ranking to make decisions there and then, and ensure action plans were agreed for each country.

Key outcomes were as follows:

- 1 Participants understood how different data collection methods can deliver different results and the effect of definitions and infrastructure categories on estimates.
- 2 Participants understood the different monitoring methods at national and global level (particularly the JMP) and that these methods can be complementary and not contradictory, as they sometimes monitor different indicators.
- 3 Participants recognised the importance of agreeing national monitoring frameworks involving all stakeholders, and of developing links with global monitoring initiatives.
- 4 All four countries drafted an action plan to work towards better coordination of national level monitoring, especially to ensure harmonisation of definitions, sharing of data development and collaboration between national agencies and the JMP.

A common challenge across all countries is the fragmentation of institutional responsibility for monitoring. There is a need to bring together a range of different actors in order to effectively measure both outputs (through SIMS) and outcomes (through surveys) in a coherent and consistent manner. It was generally agreed that the various stakeholders involved in sector monitoring at a national level need to meet together more often in order to ensure the viewpoints of actors within and beyond the sector are understood and taken into account.

The workshop represented an important first step in this direction and it was generally agreed that the opportunity for cross-country learning had been very useful as many of the issues faced were common to several countries. The next step is to ensure that country action plans are implemented and followed up in order to contribute to further strengthening of sector monitoring at national and sub-national levels.

Appendix one: List of participants

Country	Name	Position	Institution	Email
Madagascar	Randriamaherisoa Alain Joeliniaina	General Director	Ministry of Water	alainjoeliniaina@yahoo.fr
Madagascar	Jean Herivelo Rakotondrainibe	National Coordinator	Diorano-WASH coalition	rjherivelo@yahoo.fr
Madagascar	Randrianjanaka Niaina Ravelomanana	Director of Publications	National Statistique Bureau (INSTAT)	niainarr@yahoo.fr
Madagascar	Tata Venance	Head of Environment	Ministry of Health	minsansags@moov.mg
Madagascar	Dina rakotoharifetra	WASH Project Officer	UNICEF	drakotoharifetra@unicef.org
Madagascar	Lovy Rasolofomanana	Senior Manager	WaterAid	lovyrasolofomanana@wateraid.org
Malawi	Amos Chigwenembe	Policy and Advocacy Manager	WaterAid	amoschigwenembe@wateraid.org
Malawi	Dr Hannock Kumwenda	Director (M&E)	Ministry of Development, Planning and Cooperation	muliska@yahoo.com
Malawi	Noah Silungwe	Environmental Health Officer	Ministry of Health	noahsilungwe@yahoo.com
Malawi	Geoffrey Mamba	Deputy Director, Operations and Maintenance, M&E	Ministry of Irrigation and Water Development	mamba.geoffery5@gmail.com
Malawi	Richard Malata	Chief Economist - Planning	Ministry of Irrigation and Water Development	malatarichard@yahoo.co.uk
Malawi	Benjanmin Banda	Principal Statistician	National Statistics Office	bisa1banda@yahoo.com
Malawi	Nelson Gomonda	Regional Advocacy	WaterAid	nelsongomonda@wateraid.org
Malawi	Benson Nkhoma	Infrastructure Specialist	AfDB	b.nkhoma@afdb.org
Mozambique	Artur Valente Matavele	Advocacy Manager	WaterAid	arturmatavele@wateraid.org
Mozambique	Messias Macie	Head of SINAS - National Information System	National Directorate of Water (DNA)	mmjmacie@gmail.com
Mozambique	Borge da Silva	Head of Planing, Monitoring and Statistics	National Directorate of Water (DNA)	borgedasilva@dnaguas.gov.mz
Mozambique	Olimpio Michael Zavale	Methodology and Sampling Technician	National Statistic Bureau (INE)	olimpio77@hotmail.com
Zambia	Davy Ngoma	Head of Rural Water Supply and Sanitation Unit	Ministry of Local Government and Housing	davyngoma@mlgh.gov.zm
Zambia	Peter Mukuka	Deputy Director of Econ. Stats.	Central Statistics Office	pmmukuka@zamstats.gov.zm
Zambia	Nancy Mukumbuta	Advocacy and Communications	WaterAid	nancymukumbuta@wateraid.org
Zambia	Peter Lubambo	Director - Department of Housing and Infrastructure	Ministry of Local Government and Housing	lubambop@mlgh.gov.zm
Zambia	Paulos S Workneh	WES Specialist	UNICEF	pworkneh@unicef.org
Lestho	Maieane M Khaketla	Chief Public Relations Officer	Ministry of National Resources	maieanekhaketla@yahoo.co.uk
Switzerland	Didier Allely	Technical Officer	WHO	allelyd@who.int
Congo	Thebe Aaron Pule	Technical Officer	WHO	pulet@afro.who.int
Switzerland	Frederic Jacot-Guillarmod	Consultant	WHO	fred@geonaute.org
Canada	Kristof Bostoan	Consultant	IRC	bostoan@irc.nl
USA	Silvia Gaya	Technical Officer	UNICEF	sgaya@unicef.org
Kenya	Max Hirn	Technical Officer	WSP	mhirn@worldbank.org
Botswana	Obonetse Masedi	WSS Expert	SADC	omasedi@sadc.int
United Kingdom	John Kandulu	Head of Region	WaterAid	johnkandulu@wateraid.org
United Kingdom	Ian Ross	Policy Researcher	WaterAid	ianross@wateraid.org
United Kingdom	Tom Slaymaker	Policy Officer	WaterAid	tomslymaker@wateraid.org

WaterAid
47-49 Durham Street
London, SE11 5JD
T: +44 (0)20 7793 4500
E: wateraid@wateraid.org
www.wateraid.org

WaterAid transforms lives by improving access to safe water, hygiene and sanitation in the world's poorest communities. We work with partners and influence decision makers to maximise our impact.

