

Briefing Note • Zambia

Key points

- ▶ In relation to current coverage and the MDG targets related to water and sanitation, Zambia's main challenge lies with achieving the rural sector targets, where 4.6 million and 4.9 million need to gain access to water and sanitation respectively (based on national figures and not JMP).
- ▶ In 2008, the Ministry of Local Government and Housing was given the overall responsibility for rural water supply and sanitation. It has since approved a new approach for delivery of water and sanitation services that shifts the emphasis away from national line agencies to building the capacity of local authorities. However, the decentralization of responsibilities for rural water supply and sanitation has been delayed due to capacity constraints in terms of staff and funding. Ways should be found to speed up the decentralisation process, with transfer of additional functions – and funds – to local authorities and mechanisms introduced to incentivise staff to work in remote areas.
- ▶ The District Councils' current capacity is estimated to comprise 49 engineers, 657 associated professionals, 146 technicians and 852 skilled workers. But there is difficulty in attracting and retaining qualified staff due to lack of funding, unattractive work conditions, remoteness of the areas and loss of staff due to HIV/AIDS.
- ▶ The Ministry of Community Development and Social Services (MCDSS) provides support to its district and sub-district level staff to participate in the planning, implementation and monitoring of water supply, sanitation and hygiene promotion activities. It has a total of 881 staff out of which the majority (95%) are categorized as associated professionals, including community development workers, social scientists and health staff. NGO staff account for 61 engineers; 122 financial managers, administrative staff and HR staff; 105 social/health staff; 16 technicians and 16 skilled workers. An additional 1357 public workers from the Ministry of Health and the Department of Health Education and Promotion are mainly responsible for the hygiene promotion.
- ▶ Out of the 2732 employees in the ten water and sewerage companies responsible for provision of urban water supply and sanitation, only 448 are qualified with degree or diploma. The private sector is estimated to have a further 626 engineers and technicians, and 233 associated professionals.
- ▶ In general, there is good participation of women in the workforce, with 40–45% in the public sector and 34% in the NGO sector. But there is greatest inequality in private sector where only 9% of the workforce of consulting companies is a woman.
- ▶ There is competition from other sectors for some professionals. In particular, the mining sector attracts the majority of the few hydrogeologists available and social scientists are more attracted to work in programmes for child welfare, HIV/AIDS, education etc. Additionally, the sector faces severe competition from neighbouring and European countries for health staff, the shortage of staff means that many environmental health technicians focus on curative work instead of preventive work such as promotion of improved sanitation, hygiene and water supply.

(continued overleaf)

1 Background

This Briefing Note summarises the findings from a study in Zambia funded by the UK's Department for International Development (DFID) that set out to assess human resource requirements related to the provision of water and sanitation infrastructure in five countries:

Bangladesh, Timor Leste, Mali, South Africa and Zambia. A standardised methodological framework was piloted in each country to collect relevant data and information using institutional surveys, semi-structured interviews and focus group discussions. The methodology used four broad categories to assess staffing requirements:

- Engineer:** a person who is qualified or professionally engaged in any branch of engineering related to the provision of water and sanitation facilities or infrastructure.
- Associated professional:** an occupation related to water, sanitation or hygiene promotion requiring further education

Key points

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- ▶ Theoretically, Zambia would have sufficient diploma engineers and social scientists in 2015 to cover the shortage at district level, but these graduates are mainly located in the Lusaka and Copperbelt province and not in the other 7 provinces.
- ▶ To attract and retain staff, it is essential that public servants, district council staff, university lecturers etc. receive more attractive and competitive remuneration packages. Priority should be given to finalise and implement the envisaged pay reform for public servants.
- ▶ Similar to the mining sector, Government institutions should engage in bonding agreements when offering WASH scholarships and other training opportunities to its staff.
- ▶ Training activities should be institutionalised in relevant training institutions and a Knowledge and Resource Centre for the water and sanitation sector (urban and rural) is needed to share information and strengthen the capacity in the WASH sector.

(usually to degree level) in a non-engineering topic (e.g. geology or social sciences).

- c) **Technicians:** someone who has technical training, a practical understanding of general theoretical principles (but not to graduate degree level) and experience in the application of technologies.
- c) **Skilled worker:** a worker who has acquired technical skills but lacks formal qualifications such as a plumber, mechanic, driller, mason or latrine caster.

The study focussed on identifying gaps where sector institutions or other organisations involved in service provision lack either sufficient number of qualified staff, either because their existing staff were insufficiently qualified or there were an insufficient number of staff in place (or both). The latter were based upon a quantitative estimate of staffing requirements to achieve the MDG targets relevant to water and sanitation coverage whereas gaps were based on a qualitative assessment.

The study in Zambia was commissioned in close cooperation between the Ministry of Local Government and Housing (MLGH), the Royal Danish Embassy, DFID and UNICEF. The study covered two cities, two municipalities and two rural districts in the Middle and

South of Zambia, where 52 institutions (public, private, and NGOs) and 11 training institutions completed a questionnaire and 35 institutions and 9 training institutions were interviewed. These data were complemented by secondary data from a literature review. The biggest limitations of this study were inconsistencies in the data regarding coverage levels and the fact that the study does not incorporate unskilled workers that form an essential part of the current human resources capacity in Zambia's WASH sector.

2 Existing coverage and MDG deficits

Table 1 shows the MDG targets related to water and sanitation (national figures

of coverage and policy decision) and the estimated increased coverage required from 2005-2015 in order to meet these targets. Whilst the percentage figures illustrate a significant challenge in the sanitation sector, the actual numbers (in millions of people) indicate that achieving the rural sector targets requires the largest coverage growth, with 4.6 million that need to gain access to water and 4.9 million people still need to gain access to improved sanitation.

3 Sector context

Overview of institutional framework for service delivery

Rural sector

The Ministry of Local Government

Table 1 Increase in WSS coverage needed to achieve MDG Targets

Indicator	Location	2015 Targets			Increase needed 2005-2015	
		Pop. (mill.)	Access (mill.)	Access (%)	Access (mill.)	Access (%)
Water supply	Rural	9.9	7.4	75	4.6	38
	Urban	4.8	4.4	92.5	1.0	6.5
	Total	14.7	11.8	80	5.6	27
Sanitation	Rural	9.9	5.9	60	4.9	47
	Urban	4.8	3.7	77	2.1	36
	Total	14.7	9.6	65	7.0	42

Sources: National Rural Water Supply and Sanitation Strategy 2006-2015, Draft National Urban Water Supply and Sanitation Programme 2009-2030 and Central Statistics Office's database

and Housing (MLGH), through its Department of Housing and Infrastructure Development (DHID), has the overall responsibility for rural water supply and sanitation. This includes policy guidance, setting of standards, resource mobilisation and monitoring the use of funds transferred to district councils for rural water supply, sanitation and hygiene promotion.

The Ministry of Energy and Water Development (MEWD), through the Department of Planning and Information (DPI) and the Department of Water Affairs (DWA), has the overall leadership on water policy and is responsible for water resource management. MEWD is preparing a revised National Water Policy that gives guidance to all institutions working in the water sector.

Local Authorities are responsible

for the actual implementation and monitoring of water supply, sanitation and hygiene promotion, particularly in rural areas. The National Rural Water Supply, Sanitation (RWSS) Programme recommends that each district council establishes a dedicated RWSS Unit. The District Council Secretary chairs the District WASHE Committee, which in addition to the district council consists of district offices of relevant line ministries, including the Ministry of Health (MoH), the Ministry of Education (MoE) and the Ministry of Community Development and Social Services (MCDSS).

The MoH is responsible for the planning, coordination and monitoring of hygiene promotion at the community level. This includes policy guidance, contribution to the setting of technical standards related to household and school toilets and other sanitation ancillaries and, in

close coordination with MLGH, resource mobilisation for hygiene promotion at community level. The MoH plays a key role in relation to hygiene and sanitation promotion, especially its environmental health technicians stationed at the sub-district health centres.

The MCDSS provides support to its district and sub-district level staff to participate in the planning, implementation and monitoring of water supply, sanitation and hygiene promotion activities. The Ministry employs community development officers and assistants. The MoE is responsible for the planning, coordination and monitoring of the construction of school water supply and sanitation facilities as well as school hygiene promotion activities.

NGOs play a key role in provision of RWSS and several NGOs have considerable experience from implementing community-based RWSS projects. Some NGOs are also implementing their own projects, while others are providing services to area-based RWSS programmes funded by national government or external development agencies. In December 2009, there were 25 NGOs and civil society organisations registered with the NGO WASH Forum that are involved in water and sanitation activities.

The private sector is also active within both rural and urban water supply and sanitation. There are around 22 consulting engineering companies working in the water and sanitation sector employing mainly engineers and other technical staff. Most companies rely on a pool of free-lance consultants to provide other specialist services. Most consulting companies have their head offices in Lusaka, but most of the drilling companies and other contractors are based in either Lusaka Province or



Table 2: HR capacity in the District Councils

	Engineers	Associated professionals	Technicians	Skilled workers
3 districts	2	27	6	35
Estimation for 73 district councils	49	657	146	852

the Copperbelt Province. The majority of contractors, especially those outside of Lusaka and the Copperbelt, are relatively small.

Urban sector

The Department of Housing and Infrastructure Development of MLGH is responsible for the day-to-day execution of urban water supply and sanitation (UWSS) activities. This includes assessment, planning, budgeting, coordinating, monitoring, reporting and communication. The UWSS and hygiene responsibilities of MEWD, MoH, MoE, MCDSS and the private sector consultants and contractors are similar to those described under the RWSS section above.

The National Water Supply and Sanitation Council (NWASCO) was established by the Water Supply and Sanitation Act No. 28 of 1997 as the regulator of urban water supply and sanitation service providers. In 2009, there were ten operational Water and Sewerage Companies (WSCs), with an additional company being established. Each province has a WSC except for the Copperbelt Province where there are three. These public utilities provide water supply services to urban, including peri-urban areas and also sewerage services to a limited number of customers.

Current human resource capacity

The MLGH approved a new structure in 2008 that shifts the emphasis of DHID from implementation to building local capacity to achieve progress in

the WASH sector in rural areas. This supports decentralization through creating provincial structures with one WATSAN positioned in each of the nine provinces. It created a shift in central level staffing and reduced the number of staffing responsible for both RWSS and UWSS to three. However, the new structure requires an increase in managers for the nine Provincial Support Teams who monitor the RWSS at district level. Delays in the decentralisation of responsibilities to the districts, including those related to the transfer of district-based line ministry positions to the district councils, is still a barrier for increasing the capacity in the district councils (both in terms of number of staff and in terms of funding). The study examined current HR capacity in 3 district councils out of the 73 in Zambia, with the following composition. An attempt has been made in Table 2 to estimate the total number of staff employed at district level throughout the country by multiplying the average per district by the total number of districts (73).

There are currently 1271 environmental health officers/technicians working for the MoH and 86 additional staff in the Department of Health Education and Promotion working on hygiene promotion. Their work should be purely preventive, but the extreme shortage of other staff categories at many health centres means that many do mainly curative work.

MCDSS had a total of 881 staff at

the time of this study. The distribution of these was only examined in the Southern Province, where 106 out of the 111 staff were associated professionals (community development officers, social scientists etc), and 3 technicians and 2 skilled workers. The Department has employed a substantial number of additional staff over the past 2-3 years, but still had a few vacancies at the time that the research was undertaken. This can be explained by the recognized problem of community development assistants abandoning their centres after being posted to remote areas. NWASCO works with 3 engineers and 5 associated professionals. In addition they employ part time inspectors from the private sector when there is demand. NWASCO indicated to have no difficulties in attracting or retaining qualified staff.

In March 2009, the ten WSCs together employed 2732 staff members, 7% of which were degree holders and almost 10% had received college diplomas. The majority of staff had low qualifications with little more than 30% with a college certificate and about half with only basic education. It was found that several WSCs had a surplus of unskilled staff; mainly those which was inherited from the local authorities (when WSCs took over the responsibility for UWSS). At the time of study, it was indicated that this resulted in poor staff efficiency and unqualified staff for their positions. In addition, several WSCs reported that they find it difficult to attract and retain higher educated staff due to the relatively low remuneration packages they are able to offer.

In the private sector, 15 out of the 22 consulting engineering companies were examined and again an attempt was made to estimate the total number of workers on basis of the data collected. Based on this analysis the total number of engineers and technicians was



to estimate the numbers entering the sector, but there is a need for caution because not all of the graduates will enter the WASH sector.

Universities and other training institutions

Degrees related to the WASH fields can be acquired at two main universities in the Copperbelt province, namely University of Zambia and the Copperbelt University. These universities also offer diploma level programmes, similar to college degrees that can be obtained at three other colleges. Examples of relevant programmes are engineering, geology/ hydrogeology, planning and management, social sciences, environmental health etc. According to the assessment, the expected annual supply of engineers is 45, 40 laboratory technicians, 345 associated professionals and 65 skilled workers (of which 40 are diploma social workers and 25 are water supply operators).

Additional funding for institutes of higher education: The newly established Integrated Water Resources Management Centre at the University of Zambia is a good example of how sector funding from international development agencies can support the development of training capacity within specific areas. Universities and other training institutions may in the near future have access to increased funding for research, with the first call for grant applications under the Research and Development Component of the National RWSS Programme launched in 2010. However, in the medium-term, increased overall Government funding to universities, colleges and other training institutions is nonetheless still needed.

While the number of graduates has increased over the years, many water supply and sanitation sector and training institutions indicate that the quality of

estimated to be 418 and 69 associated professionals. The private sector is considered to already have, or be able to recruit, the required staff due to the better employment conditions than the public sector. They may, however, not all have the necessary experience working in the water and sanitation sector. Similarly, there could be difficulties in identifying long-term consultants who are willing to live in remote areas. Many local artisans work on the rehabilitation and construction of dug wells, latrines, maintenance of hand pumps etc., but may need (additional) short-term training. The 107 contractor companies have significant numbers of staff in four categories, which is higher than the observed 164 associated professionals 208 technical staff and 345 skilled workers. Out of the 25 registered NGOs, staff data was collected from 5 NGOs and 61 engineers, 122 financial managers, administrative staff and HR staff; 105 social/health staff; 16 technicians and 16 skilled workers were noted.

The majority of people with good qualifications, both in terms of educational background and sector experience, are concentrated in Lusaka and the Copperbelt region. The shortage of staff with the required

qualifications is greatest at district level due to remoteness of some of the areas. The districts lack transportation and equipment (computers, materials and tools), which in combination with slow pace salary reforms to adjust to the decentralization, creates difficulty in retaining or hiring qualified staff. Adding to that the high prevalence of HIV/AIDS, it will take a long time to fill the posts in the public sector and district /municipal offices unless a suitable mechanism to incentivise staff to move to remote areas is instigated.

Gender participation

Zambia illustrates great women participation in the workforce. The percentages differ for the different agencies, where the public sector takes the lead with 40-45% of the employees being women. The NGO sector follows with 34%. Only the private sector lags behind, with 9% women in the consulting industry.

4

Capacity for human resource development

Based on an assessment of numbers of graduates in the past and student intake figures from 2004-2009, the study estimated the expected number of graduates for 2010. This data was used

the education and research activities at various universities and colleges and professional or sector organizations has deteriorated significantly over the last 20 years. Nearly all training institutions that were interviewed complained of shortage of permanent lecturers, too many students per class, lack of class rooms, equipment and up-to-date teaching resource materials.

Vocational development

There are a number of vocational training institutions that offer both certificate level education as well as short courses, which are used as part of professional development. Annually, 100 students receive an engineering certificate and 15 receive a certificate that falls under the category associated professionals. Programmes at certificate level that are of relevance to the WSS sector include plumbing, bricklaying, carpentry, electrical, fitting etc. The number of technicians receiving a certificate in these areas on a yearly basis is quite a lot higher (682) than for engineering.

In the UWSS sub-sector, the larger WSCs offer some training to their staff, often with support from externally financed training institutions or NGO programmes. However, it is often difficult for the smaller and less well-established WSCs to arrange training courses for their staff because of the costs involved. The regulator, the National Water and Sanitation Council (NWASCO), also provides some training for some WSC staff.

Some programmes have cooperated with training institutions in developing and conducting short-term training courses. However, most short-term training courses (particularly those in the rural water supply and sanitation sub-sector) appear to have been conducted by project and NGO staff as

well as short-term consultants. But this approach towards meeting the gap is not considered to be sustainable in the long term.

5 Assessment of HR needs

The new structure has required all RWSS units to employ one engineer/ water technician and one officer responsible for operation and maintenance. But this support structure will phase out after an expected period of three years. The study made an approximation based on the existing employees of the District Councils and observed that it requires doubling the total number of employees in order to set up the RWSS units within the councils. The private sector is providing an additional twenty consultants to support the capacity of the Provincial Support Teams working at the Districts level.

The study estimated a need for 970 new water points and rehabilitation of 700 water points per year. It is expected that the HR supply in the private sector could cover the need of 15 drillers, but there is a need for an additional two hydrogeologists and two diploma engineers per year. While they should be available throughout the country, especially in the private sector, there is competition from other sectors, especially since it is seasonal work in remote locations. The study indicated that there are insufficient local well diggers and builders to achieve the rural MDGs. This suggests a need for short term training of local craftsman. There will be an additional demand for laboratory technicians, but there is not enough data on current capacity in laboratories to conclude that the current HR supply (40 technicians per year) will not cover the need.

The WSCs may not need to increase

their total number of staff in the near future, although they are expected to expand their service areas to cover additional peri-urban areas. It is expected that this will require a gradual change in their staff composition to include more staff with degrees and diplomas.

The private sector will also need to support the management of the UWSS unit of DHID, where there is an estimated shortage of four technical advisors. It is expected that there are enough water resources to expand coverage by expanding the distribution system, if the systems are managed better focusing on leakage control and installation of water meters. For the construction of the distribution network, the WSCs have under qualified staff and it may be more efficient to enable private sector to do the construction work whilst employing a small group of qualified staff to procure and manage the contracts.



Table 3: Estimates of additional staff required by occupational area

	Engineers		Other Professionals		Technicians	
	Work Area	No.	Work Area	No.	Work Area	No.
RWSS	MLGH/DHID	5	MLGH/DHID	5	Drilling	15
	Local authorities	34	Local authorities	34	Test-pumping	36
	PSTs	9	PSTs	27	Test pump	
	Other consultants	2	Other consultants	2	supervision	12
	Siting	2	Siting	2		
	Drilling supervision	7	Drilling supervision	7		
	sub-total	59	sub-total	77	sub-total	63
UWSS	WSCs	118	WSCs	118	Contractors	90
	MLGH/DHID	1	MLGH/DHID	1		
	Consultants	30	Consultants	12		
	Contractors	22	Contractors	15		
	sub-total	171	sub-total	146	sub-total	90
Totals	230	Totals	223	Totals	153	

MLGH = Ministry of Local Government and Housing; DHID = Department of Housing and Infrastructure Development, LA = Local Authorities, PST = Provincial Support Team, WSC = Water and Sewerage Company, TA = Technical Assistance, APM = Area Pump Minder, CHW = Community Health Worker, V-WASHE = Village WASHE Committee

To ensure the set up of the planned UWSS unit by DHID within the financial budget available, there is a need for 42 consultants, including Watsan engineers, civil engineers, electrical, mechanical engineers, hydro-geologists, sociologists, financial specialists, institutional and HR development specialists and health and hygiene specialists. Additionally, there is a need for 150 fulltime engineers, technicians and other skilled staff each year to be provided by contractors.

The capacity to plan, implement and monitor RWSS units in most districts is weak. There is also generally a lack of financial management and procurement capacity within the public sector, the district councils and the water and sewerage companies. The case study concludes that there is a need for 230 engineers, 223 associated professionals and 153 technicians. In addition there is clearly a need for many skilled workers. The paragraphs below summarise

some of the major findings from the assessment.

Hydrogeologists/geologists – There is competition from other sectors for some professionals. The mining sector attracts the majority of the few hydrogeologists available. The increased intake of geology students at the University of Zambia (UNZA) in 2009 (nearly three times as many as annually in the period 2005- 2008) - and an expected even higher student intake in 2010 - may in the longer-term reduce the shortage of hydrogeologists. Although once the mining sector has fully recovered from the financial crisis, it may require an even higher number of hydrogeologists. UNZA's expected diploma programme in hydrogeology will also be very useful, but is only planned to start in 2011. Also the diploma programme in hydrogeology at the Integrated Water Resources Management Centre should assist in alleviating the problems. It should, however, be closely monitored whether

the shortage in the water sector actually reduces.

Social scientists - Although Zambia appears to have sufficient social scientists with either a degree or a diploma, there is a shortage of social scientists with vocational experience working in the water and sanitation sector. This is partly due to the fact that social scientists are more attracted to work in programmes for child welfare, HIV/ AIDS, education etc. than in the water and sanitation sector. However, a positive development is the recent establishment of a BSc. programme on environmental health at UNZA, with the first graduates expected in 2010.

Diploma engineers - There are sufficient diploma engineers (45 per year) over the period 2009-2015 to cater for the requirements in the water and sanitation sector, but too few degree engineers with specialisations in water and sanitation.

Environmental health technologists/ technicians at the health centres are mandated to play a key role in connection with hygiene, sanitation and water supply promotion and monitoring, but they are often overburdened with curative work because of extreme shortage of other health staff.

6 Recommendations for meeting human resource needs

General recommendations

Decentralisation is anticipated to solve some of the capacity challenges in the district councils. But the lack of progress towards decentralisation to local authorities is one of the challenges in meeting the MDG targets for water supply and sanitation. Ways should be found to speed up the decentralisation process, with transfer

of additional functions – and funds – to local authorities.

- ▶ In order to attract and retain staff, it is essential that public servants, district council staff, university lecturers receive more attractive and competitive remuneration packages; particularly to encourage staff to work in rural and remote areas. Priority should be given to finalise and implement the envisaged pay reform for public servants. It is understood this may cover or guide the remuneration of district council staff and potentially grant aided institutions like universities.
- ▶ Additional funding should be identified for universities, colleges and other training institutions to enable them to upgrade the quality of their education and research activities. Similar to the mining sector, Government institutions should consider engaging in bonding agreements when offering WASH scholarships and other training opportunities to its staff.
- ▶ The shortage of hydrogeologists in the water sector following the increased student intake should be closely monitored to identify the reasons for this trend.
- ▶ Attempts should be made to change the public image of the water and sanitation sector; at present it is considered to be a very technical sector. For example, it should be ensured that water and sanitation is included in the curricula of degree and diploma programmes on sociology, development studies, social work etc.
- ▶ Training activities should be institutionalised in relevant training institutions and a Knowledge and Resource Centre for the water and



Credit: DFID

sanitation sector (urban and rural) is needed to share information and strengthen the capacity in the WASH sector.

Specific sector recommendations

Rural sector

- ▶ Funding should be secured for the recruitment of additional water supply and sanitation officers for MLGH's Department of Housing and Infrastructure Development. The option of transferring staff from MEWD to MLGH should also be explored.
- ▶ It may be difficult for many district councils to recruit staff with RWSS experience. On-the-job training and support from the provincial support teams is therefore essential. As a supplement, relevant short training courses in WASH should be arranged for district staff involved in RWSS.

- ▶ As environmental health technicians are often overburdened with curative work, community development staff and other extension workers should also be provided with WASH training.

Urban sector

- ▶ The National Urban Water Supply and Sanitation Programme should be finalised as soon as possible and an agreement reached on the management of the Programme, so the necessary human resources can be put in place.
- ▶ Considering the significant investments planned for urban and peri-urban, water supply and sanitation, it is essential that the capacity of WSCs is strengthened – especially the smaller organisations. This could be done by employing more staff with diplomas (or degrees) and/or upgrading the skills of existing staff. ■