

Briefing Note • South Africa

Key points

- ▶ Even today, the legacy of Apartheid has a direct impact on how organisations involved in the administration and delivery of water and sanitation services operate. This is particularly noticeable in relation to the level of institutional capacity and the skills, knowledge and competencies of those working in such organisations.
- ▶ Greater capacity constraints exist in the water sector than the sanitation sector – this might be explained by policy commitments to improve the operation and maintenance of water supply systems that have created an increased demand for more skilled personnel.
- ▶ A significant number of infrastructure projects have been commissioned in response to the historical backlog and the increased demand for public sector housing and services; including water supply and sanitation. Over the next ten years, this is expected to result in a large demand for semi-skilled and un-skilled jobs, as well as professional managers to oversee such operations.
- ▶ In the past, government policy for human resource development has focused on technical skills, especially with regard to increasing the number of qualified engineers. However, the study found most serious shortages in human resources to be in middle level skilled technicians and managers - especially for financial management. More attention should therefore be given to increasing the availability of staff in these areas.
- ▶ Over 40% of technical positions in local government are vacant; suggesting a very high demand for science and management based occupations. Yet there are also a significant number of engineering graduates unable to find employment. This apparent contradiction occurs because many graduate engineers are not considered employable due to lack of practical skills.
- ▶ To recruit and retain qualified staff in rural areas is particularly difficult. The research found vacant senior positions in rural areas being filled with people who have less than the appropriate qualifications and skills required. The reason for this is due to the extreme shortage of qualified people and their lack of willingness to work in rural locations.
- ▶ The poor situation surrounding the capacity of institutions involved in water provision and delivery will act as a severe constraint on the sustainability of future services. One of the constraints that municipalities continue to face is the lack of institutional capacity and the absence of appropriate structures, systems, incentives and policies to enable institutions to provide effective water, sanitation and hygiene services.
- ▶ There is a real danger of the country slipping backward and failing to maintain existing MDG targets, particularly if it does not significantly invest in people and skills to maintain the new infrastructure being built. To operate and maintain the existing infrastructure at least 1100 civil engineers are needed, effectively doubling the current supply of engineers.

1 Background

This Briefing Note summarises the findings from a study in South Africa funded by the UK's Department for International Development (DFID) that set out to assess human resource requirements for 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 study took place between August 2009 and October 2009 and focussed on identifying gaps where sector institutions or other organisations involved in service provision lack either sufficient number



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of qualified staff, either because their existing staff were insufficiently qualified

Table 1: Percentage access to water and sanitation at Reconstruction and Development Programme (RDP) standards¹

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
% Households with access to water infrastructure at or above RDP standards	64.3	65.8	68.8	71.0	73.6	78.2	76.3	79.8	82.7	84.7	88. ²
% Households with access to basic sanitation facilities	53.2	54.4	56.2	57.6	59.2	62.5	64.1	66.1	69.1	70.7	71.1 ³

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 methodology proposed 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 (usually to degree level) in a non-engineering topic (e.g. geology or social sciences).
- Technician:** 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.
- Skilled worker:** a worker who has acquired technical skills but lacks formal qualifications such as a plumber, mechanic, driller, mason or latrine caster.

However, in the case study, this categorisation was not applied partly due to the fact that this approach does not take into account multitasking of staff which creates a difficulty in separating

workers that perform both unskilled and skilled tasks. But in addition, reorganization within government departments made data collection difficult and the lack of time and resources meant that the consultants were unable to establish contact with all of the bodies that operate in the WASH sector in South Africa.

2 Existing coverage and MDG deficits

As shown in Table 1, there have been dramatic improvements since the end of the Apartheid in 1994 resulting in 84.7% of the population having access to basic water service levels in 2006, leaving an MDG target deficit of less than 1%. The provision of improved sanitation services to all has persistently lagged behind the provision of improved water services in South Africa. The access to improved sanitation reached 70.7% in 2006, leaving an MDG target deficit of 8.1%; equivalent to approximately million households.

Progress is being made towards achieving MDG targets for access to improved services but the sustainability of services for both water and sanitation is the biggest obstacle to development in South Africa. Consequently there is a real danger of the country slipping backward if the government does not invest in people and skills to maintain the new infrastructure being built.

3 Sector context

Change within the water and sanitation sector is driven by a multitude of factors. But of particular significance are the legislation and policy frameworks implemented by the government to redress the imbalances of the past and to improve service delivery. These have affected the way in which local government is organised and the recent construction boom has directly increased demand for water infrastructure and skilled personnel to work in the sector.

Overview of institutional framework for service delivery

At the national level the Department of Water and Environment (DWEA) is the institution primarily responsible for water and sanitation sector policy, support and regulation. The Department of Cooperative Governance and Traditional Affairs (DCGTA) regulates, oversees and supports the activities of local authorities, which is critical as it is the local governments and municipalities that are responsible for the provision of water services.

Water Services Authorities (WSAs)

are legally mandated bodies responsible for ensuring provision of water services to people. A WSA can be a metropolitan, district or local municipality responsible for a specific geographic area. The WSAs designate publicly or privately owned companies who are the organizations that provide the actual services to the consumer. Thus, the

most important role for the WSAs is to manage and oversee the supply of water and sanitation services to consumers (households, businesses and industries) and operate wastewater collection and treatment systems. In some situations WSAs operate some local water resource infrastructure (such as dams and boreholes), bulk water supply schemes. Often they are designated as the primary hygiene promotion institutions at the municipal level.

Water boards operate some water resource infrastructure, bulk potable water supply schemes, some retail water infrastructure and some waste water systems. Their primary role is to sell water to municipalities and industries.

Current human resource capacity

The research found that, particularly in rural areas, highly skilled jobs are filled with people without the appropriate

skills. Since the decentralization of tasks, the public sector, especially in rural areas, is having difficulty recruiting and retaining staff with the appropriate skills due to lack of good remuneration packages. A serious gender imbalance was found, with women occupying 35% of highly skilled positions against a figure of 65% for men.

The decentralization of WASH responsibilities to local authorities did not take into account the available capacity to handle those responsibilities. Besides shortages in human resources for operation and maintenance of water supplies, the research also found deficiencies in the institutional capacities of municipalities, especially with regard to the development of appropriate systems and procedures to support career development and provide employees with the motivation and commitment to carry out their

work. These point towards systemic problems in which the lack of institutional capacity acts as a disincentive for human resource development, and correspondingly the low level of human resource development prevents any capacity building from taking place.

4

Capacity for human resource development

There are a number of actors directly involved in capacity development within the water and sanitation sector. The main formal capacity building institutions are the Sector Education and Training Authorities (SETAs), the universities and **technikons** (technical institutions), and employers through formal workplace-based capacity building programmes.

Schooling

In secondary schools there has been



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a push to improve enrolment levels and mathematics and science based subjects have been prioritized. The government is committed to improving the number of school leavers who gain a senior school certificate in mathematics at the higher grade. This is evident in the massive increase in the number of students taking this examination, but unfortunately the numbers obtaining the certificate are not increasing at the same rate – pointing to serious inefficiencies in the system.

Higher education

Universities and Technikons are central to the education and training of qualified technicians, graduate

engineers, scientists and management professionals. In higher education, the emphasis is given to the merger of these institutions and to the introduction of systems to improve quality. This is expected to result in improved quality of education, an increased number of graduates with science based qualifications, a more equitable higher education system, and an increased number studying mathematics and science based subjects necessary for jobs in the water and sanitation sector.

Rates of enrolment in engineering and business management have grown by over 70% from 2000-2007 and over 225% in personnel management.

Over the same time period, enrolment rates in civil, electrical and mechanical engineering have risen by 80%, 50% and 88% respectively.

The enrolment levels correspond to a high demand in the water sector, especially in the areas of accounting, civil engineering and public administration. However, enrolment levels in engineering based subjects remain very low for women and have not changed significantly over the past 7 or 8 years.

The rise in enrolment levels are welcomed, but of greater importance are the pass rates. The number of graduates qualifying has increased, but this has been at a much slower rate than the rise in enrolment levels, which raises serious questions about the efficiency of the present educational system.

The statistics imply that institutions are systematically allowing for increased entry to meet Government quotas but with less concern to see these students successfully graduate.

Vocational education

Under the direction of the Department of Labour, the primary SETAs working on capacity building in the sector are the Local Government SETA (LGSETA) and the Energy SETA (ESETA). It is through these programmes that employers often become involved in capacity building by sponsoring the learner within their workplace. ESETA supports training and capacity development for process controllers⁴, but their work has been limited due to a lack of funds. LGSETA mainly supports training and capacity development through learnership programs, which are workplace programmes in which a person's competencies are assessed according to a national framework. The main focus of LGSETA's activities is in the following areas:

- ▶ Management and finance training has

Table 2: Proposed key objectives of DWEA's Education and Training Strategy

Key Objectives	Means	Scope
Achieve water literacy in South Africa	A comprehensive water education programme aimed at schools A comprehensive public awareness programme E-learning	All education institutions The general public
Sufficient skilled water professionals to meet current and future needs to achieve water for growth and development	Designated water focused Further Education and Training (FET) academies Higher Education and Training (HET) programmes Work-place skills Research and innovation	Selected water focus schools HET institutions Unemployed and unprepared graduates Water sector

Ref: DWAF (2008) A Draft Education and Training Strategy – A response to water and growth for development

enabled municipalities to ensure that the qualifications of managers comply with Municipalities Finance Act.

- Infrastructure and service delivery due to the retirement of older workers and the need for municipalities to construct their own asset registers.
- Communication and participative planning focuses on improving the skills of councillors and community leaders.

Important roles are also played by South African Local Government Association (SALGA), which focuses on councillor training and technical training as well as bringing together municipalities with other departments and stakeholders to facilitate knowledge sharing. A



further major capacity building initiative within the water and sanitation sector is the Development Bank of Southern Africa's Siyenza Manje project. This project places retired engineers and other technical staff in municipalities to help overcome technical obstacles and mentor newly hired technical and engineering staff that lack practical experience. There is also a key role for the South African engineering and research Institutions, which are of very high calibre, to support capacity building.

Future developments

There are a number of initiatives supporting capacity building in the workplace in the planning stages. The Department of Cooperative Governance and Traditional Affairs (DCGTA formerly DPLG) has developed a comprehensive capacity building plan, including extensive guidelines on supporting implementation. DWEA (formerly DWAF) has also produced a draft Strategy for Education and Training Strategy, primarily focused on national level staff that work at their head office. The production of this strategy involved a review of the recent shift in the Department's strategic activities, the changing functions of

municipalities and the implications of the reforms that have taken place in the country's education system. The strategy identifies specific capacity constraints facing the water sector, particularly in relation to skill shortages and the lack of a coordinated, comprehensive and coherent education, training and public awareness strategy. In response to this situation, a two-fold strategy has been proposed (see Table 2).

5

Assessment of human resource needs to meet the MDGs

Table 3 provides an overview of the estimated number of required workers to deliver sustainable services in 2015 to an estimated number of households of 15,275,000. The data is separated into low employment growth and high employment growth scenarios. The difference is that low employment growth narrowly focuses only on WASH specific jobs, but does not take into account the employees working at districts, municipalities etc. The high employment growth is based on the public sector, and includes civil servants working on areas relating to the WASH sector.



Table 3: Predicted occupational structure of the labour force in the WASH sector required to meet the MDGs goals in 2015 and provide **sustainable services**

Occupations in the water, sanitation and hygiene sector	Estimated number of workers required to deliver sustainable services	
	High employment growth scenario in 2015	Low employment growth scenario in 2015
Leadership and governance	20,874	2,211
Senior officials and managers	13,336	2,731
Professionals	19,958	6,142
Technician and Associate professional	23,680	5,828
Service workers	30,200	2,024
Craft and related	13,661	4,421
Plant and machine operators	15,771	8,035
Elementary occupations	89,875	4,975
Others	50,711	3,851
	278,066	40,218

It is concluded that the middle level skilled technicians and managerial areas (especially those relating to the area of finance and industrial relations) face the largest shortage in the WASH sector. Specifically management skills are lacking in rural areas and recruiting qualified staff in these areas has proven to be hard. With respect to the shortage in technicians at middle skilled levels, there is a specific shortage in electricians and plumbers. Additionally, there are 1100 engineers needed to fulfil the tasks of operation and maintenance of systems in order to achieve sustainability.

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6 Recommendations for meeting human resource needs

While South Africa has increased enrolment levels of WASH related education, this has not yet resulted in actual higher pass rates and hence into additional supply of adequately skilled staff. Additionally, the research has shown that graduates lack employability skills.

Short term goals to increase capacity in the sector

Within organizations, the following recommendations are made:

- ▶ Introduce good remuneration packages to attract skilled personnel
- ▶ Detailed job descriptions
- ▶ Clearly defined career advancement and promotion routes,
- ▶ Clear roles and responsibilities
- ▶ Assigning the competencies needed to fulfil a certain position.

In order to tackle the sustainability challenge that South Africa is facing, the study identifies the important role of the private sector as well as NGOs and community groups in the operation and maintenance of systems. The research found that there is a considerable amount of information, knowledge and research about developments that are occurring in the water, sanitation and hygiene sector, but more attention is required to a dissemination strategy to ensure that the knowledge reaches the targeted audience.

The practical skills of graduates need to be tackled through the designed mentorship programme which links



retired professionals with graduates to mentor graduates for a period of three years. This will assist in increasing the employability of graduates to fulfil needed position as well as decrease the unemployment amongst graduates. Another suggestion is to keep a database of HR data, such as employment levels, gender dimension, educational levels of employees, and both quantitative and qualitative HR needs.

Longer term goals

For the longer term, the case study found that there is a need to focus on educating new potential employees in the sector and upgrading the skills of current employees, as well as investing in build up of institutional capacity to support this. It is noted that it may take several years to gain ground in

achieving these goals. More specifically, the gender dimension in education must be addressed and there is a need to increase the pass rates of WASH education and stimulate women's participation. ■

FOOTNOTES

¹ South Africa Millennium Development Goals Mid-Term Country Report. September 2007

² http://www.statssa.gov.za/community_new/content.asp?link=basicresults.asp

³ Author's estimate based Stat SA published data including chemical and bucket toilet systems.

⁴ type of job that relates primarily to machine operation but also includes process design elements