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The capacity gap in the water and sanitation sector

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In 2006, WHO estimated that 4.3 million additional health workers are needed worldwide – 1.5 million health workers for Africa alone – to alleviate the current human resource crisis. UNESCO (2008) estimates that 18 million new teachers are needed to meet the Millennium Development Goal (MDG) of achieving universal primary education - sub-Saharan Africa alone needs to increase the number of its teachers by 1.6 million or 68 per cent. It is also expected that adequate quantity and quality of service providers is one of the preconditions to making progress towards the MDG targets for safe water and basic sanitation. Yet the human resource gap in this sector is relatively unknown. This paper outlines a piece of research that is being conducted to provide reliable data on the extent of the capacity gap in the water and sanitation sector.

Introduction

Adequate human resource development for the water and sanitation sector has long been recognized as a priority issue, as illustrated by Mar del Plata United Nations Water Conference in 1977, International Water Supply and Sanitation Decade (1981-1990) and the UNDP Symposium on Capacity Building for the Water Sector (Delft, 1991). More recently, a number of influential reports have again highlighted the urgent need for adequate human resources in the sector (UN, 2006; UNDP, 2006 and the UK Government's International Development Select Committee Report, 2007).

The need for adequate human resources in the sector is an increasingly important priority given the water and sanitation target for Millennium Development Goal (MDG) 7. Progress in many countries against these targets is seriously off-track, particularly in relation to sanitation and in sub-Saharan Africa. At current rates of progress the MDG target for water will not be met in sub-Saharan Africa until 2035 and the sanitation target not until 2108 (WaterAid and Tearfund, 2008). Meeting MDG 7 targets necessitates ensuring that the right number of people, with the right skills, are at the right place at the right time to deliver services to the poor, at an affordable cost. Yet key reviews of progress towards the sanitation and drinking-water MDG target recognise that even if funding and political willingness were available, there is a capacity gap at all levels (financial systems capacity, public institutions, local government staff capacity, private operator and civil society) to deliver the facilities and services required to reach the sanitation MDG target (WSP, EUWI, UNDP, 2006; WSP, 2008; UN-Water Global Annual Assessment of Sanitation and Drinking-Water (GLAAS) Report, 2008).

To date, little systematic attention has been paid to actually quantifying whether there are sufficient human resources to meet the MDGs in the water and sanitation sector. There is unanimous agreement about the severity of shortfalls in the health and education workforce, and high level commitment to tackling the perceived crisis. In 2006, the WHO World Health Report estimated that 4.3 million additional health workers are needed worldwide and UNESCO (2008) estimates that 18 million new teachers are needed to meet the MDG of achieving universal primary education.

Current estimates of the extent of the capacity gap in the water and sanitation sector vary widely; moreover, the different methodologies and approaches employed to produce these estimates makes comparison problematic. For instance, one report (Mathew, 2005; 37) estimates that 161,000 extra workers

are needed globally to achieve the MDGs in water. Concerns with this estimate include the representativity of using figures from two WaterAid projects to make global projections.

Another approximation for sub-Saharan Africa (Cotton, Odhiambo and Coates, 2007) calculated that an additional 250,000 water and sanitation sector staff would be required to be in post each year up to 2015 to reach the MDG target. Thus, overall an additional 2.5 million sector staff would be needed to be in post by 2015. This estimate is based on the staffing ratios set out in Ethiopia's Universal Access Plan and the figures from the Joint Monitoring Programme 2006. However, caution must also be applied to these figures; since the representativity of Ethiopia of sub Saharan Africa as a whole is questionable.

In relation to the Universal Access Plan, Ethiopia estimates that there is a national capacity gap of approximately 8000 graduate and 18000 technicians; there are plans to increase the number of government health extension workers from 17,000 to 30,000. The sector capacity-building strategy is framed around three themes: education and training; continued professional development; and the enabling environment for service delivery.

An estimate for Uganda found that, assuming inter alia (a) the resources to recruit new staff, and (b) money to pay for the work itself, water professionals and technicians must increase 3-fold and sanitation professionals and technicians 5-fold (DFID, 2008).

A study aimed at providing more reliable evidence on the perceived human resource gap in the water and sanitation sector, with particular focus on sub-Saharan Africa, has been initiated by the Water and Sanitation Team of the Department for International Development (DFID), UK. The objective of the research is to provide accurate data and knowledge on global and national human resource shortfalls in the sector (formal and informal) so that approaches and recommendations can be engineered to address the problem. A range of organisations are actively involved in supporting and guiding the research including academics, NGOs, the International Water Association, the World Bank, and the African Development Bank.

The literature review: emerging themes to the research

To date, the research has comprised a desk based study, literature review and interviews with key informants (including the Reference Group). The purpose of Phase 1 of the research is to understand current thinking and approaches to estimating and addressing human resource shortfalls both within and outside the sector.

A review of the literature revealed that while many countries face challenges of supply, problems are also reported with the relative distribution of workers for instance there may be a rural/urban imbalances exist in the distribution of public sector workers or else certain services, particularly those tailored to the rich (i.e. households connections for water and sewerage), are typically better staffed than service providers catering for the poor.

The following table summarises some of the emerging themes, issues and potential capacity building activities appropriate to address this challenge, arising from the literature review.

Table 1.

Theme	Issue/s	Potential capacity building activities to address these issues
Too few staff	• Ghost workers • Retirement • Disability/death • Emigration • No incentives to work in remote/ less attractive areas • Vacant posts • Lack of HR policies	• *Eliminate ghost workers and absenteeism by conducting wide-ranging audit of individual records of public servants employed together with audit of the Government Payroll* • *Recruit and add staff* • *Better pay and working conditions* • *Increase attractiveness of career choice* • *Improve workplace safety* • *Donation by communities of free labour* • *Shifting tasks assigned to engineers to less skilled support staff.*
Too many staff	• Over-staffing might be due to political interference in operational decision-making • Labour intensive working methods • No work load analysis /staff analysis	• *Determine shortages and surpluses* • *Adjust staffing levels e.g. through redeployment, recruitment or early retirement, etc.* • *Increase work load*

Staff have wrong kinds of skills	• Capacity exists (numbers), but wrong skills • Capacity exists, but not across the whole organization	• *Recruitment of workers who are already qualified e.g. through immigration* • *Producing appropriately skilled personnel - improve curriculum design in education/training institute, improve training standards* • *Develop job descriptions specifying skills and competency levels required for the job* • *Conduct skills' surveys among employees to determine the skills gaps; then develop and carry out training programs* • *Capacity-building networks can be used to support continued professional development.* • *Professional associations can build technical capacity, setting standards, and developing good practice based on a strong and positive professional identity.* • *Water Operators Partnerships where utilities share expertise with countries experiencing similar technical problems in their water systems on a not-for-profit, cost-covering basis*
Staff unproductive	• Inefficient work processes and procedures • Staff deployment not based on operational requirements • Responsibilities for functions/tasks are not clear	• *Improve workforce productivity through better incentives, safer working conditions, written job descriptions, standards, necessary tools, equipment and supplies available, salaries adequate and paid* • *Develop policies and strategies for provision, deployment* • *Link the allocation and deployment of staff to operational requirements* • *Review work loads and operational requirements – set minimum standards* • *Analyze work processes and procedures and improve them* • *Increase transparency - move decisions to local/community level* • *Clarify the division of labour, change it where necessary to fill in the gaps.*
Staff unable to perform	*Apart from human resources, a number of other system components need to function properly for better services and better outcomes i.e. material and equipment in the right quantities and specifications, in good condition, and at the right time*	• *Introduce asset management systems* • *Ensure and earmark maintenance budgets* • *Monitor utilization of resources* • *Long-term plans for training and staff* • *Pay workers on time* • *Ensures supplies of materials, tools and functioning equipment* • *Staff have transport available* • *Funds dispersed for public works*

Synthesis of issues arising from the literature review

Numbers or quality: It is important both to have the numbers required (quantity) as well as ensuring that staff are well trained (quality) to meet the MDG targets: deficiencies in one aspect cannot be remedied by substituting improvements in another i.e. overstaffing with under qualified people to try and increase access to safe water and improved sanitation.

New infrastructure versus Operation and Maintenance: Superficially the MDG targets could provide the incentives for installing new facilities to increase access to the un-served rather than the operation and maintenance of existing facilities to ensure that access is maintained for those already connected.

Public or private capacity: The primary focus of capacity building strategies should be on improving the performance of public operators, which are responsible for serving more than 90% of the population. However, lack of capacity in the private sector (such as drilling contractors, hand-dug well & spring

development contractors, spare parts suppliers, latrine artisans, pump mechanics, suppliers of equipment such as pipes and fittings and so on) to provide materials, equipment, works and services to communities will also be a bottleneck to achieving the MDGs. Informal or alternative providers could also be considered since collectively they have a big share of the water and sanitation markets in many countries.

The individual or the organization: Whilst it is acknowledged that effective organisations and an enabling environment are vital to ensuring long-term sustainable progress on sanitation and water, this research focuses on the numbers of individuals needed in the sector to meet the MDGs. Individual capacity building includes the pre-service education and in-service training of the various staff involved in service delivery. It may be long-term studies for a qualification (diploma, B.Eng or M.Eng) or short-term, on-the-job training to develop specific skills. Nevertheless, training courses that create personal capacity should also be matched by growing organisational capacity otherwise there is a risk that newly trained individuals may then choose to work for other organizations.

Efficiency or effectiveness: Improvements in Human Resources can be seen as an important component of broader reforms and service improvements. Reform of public sector service providers have been characterized by a focus on increasing efficiency - achieving the same outputs with fewer resources or more outputs for the same amount of resources – as a means to improve effectiveness through broader reforms, effective utility business planning, customer focus and sustained change management. Examples of which include NWSC in Uganda, Durban Metro Water and Phnom Penh water authority. High staffing levels per thousand water connections is thought to indicate over-manning and inefficient use of personnel, as well as low level of automation. The general advice is that the lower the number of staff, the better the performance including:

- 5 or fewer staff per 1,000 connections,
- working ratio of about 0.7 staff per 1,000 served.

Financing: Meeting the Millennium Development Goals will require higher government spending on human resources: yet governments, guided by macroeconomic considerations, may be unwilling to make long-term expenditure commitments to hiring workers. Wage bill ceilings have been used as part of reforms of public sector employment aimed to control wage spending and prevent budget overruns. Such caps can prevent developing countries from using donor resources for expanding employment in key poverty-reducing sectors. The water and sanitation sector tends to be characterised by both low levels of financing and priority: increasing capacity in this sector will require guarantee of long-term and sustainable financing, flexible wage bill ceilings that can accommodate additional recruitment, civil service reform and strengthened budget and payroll management.

Next steps for the research

The next phase of the research is to refine a methodology that has been developed to measure capacity needs at the national level. The methodology will enable researchers to make lower, median and upper estimates of capacity needs at the national level in addition to providing absolute figures and indicate how capacity can come on stream. A number of indicator-country case studies will be conducted this year with the intention to collate these into an Atlas of Professional Capacity.

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