

Briefing Note • Mali

Key points

- ▶ Privatisation and decentralisation in the water sector have changed the demand for specific types of human resources (HR) due to changing roles and responsibilities of the main government agencies. This is particularly the case for the new Ministry (of Environment and Health) which was established to take responsibility for sanitation and hygiene promotion.
- ▶ The total number of skilled workers across all sectors related to water and sanitation is estimated to be almost 2600. A considerable majority (77%) are employed in the water sector, compared with 16% in the sanitation sector and only 7% in the hygiene sector.
- ▶ The supply of water and sanitation sector professions and technicians comes from various educational institutions. An estimated 180 graduates enter the WASH sector each year; approximately 43% of these come from WASH sector-specific training courses, 7% from universities and 50% from technology colleges and professional development institutions.
- ▶ Specialist training centres such as CREPA also play an important role in building the capacity of existing workers, helping them to gain specialist knowledge. A total of 450 people took a WASH related short course in 2009.
- ▶ It is predicted that from 2009 an additional 1446 workers (equivalent to 240 professionals per year) are required in the WASH sector to achieve the MDG targets in 2015. The need is highest in the water sector (63% of overall requirements), followed by sanitation (19%) and hygiene (8%).
- ▶ Private companies express dissatisfaction with the capabilities of graduates, stating that they lack the ability to apply theoretical knowledge in practical situations as well as a lack in skills for report writing, communicating in foreign languages, computer modelling and management.

1 Background

This Briefing Note summarises the findings from a study in Mali 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 methodology used four broad categories to assess staffing requirements:

a) **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.

- b) **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).
- 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

Table 1: Coverage of water and sanitation facilities in 2015 compared with 2006

			Pop (millions)	Coverage (millions)	Coverage (%)
2006	Water	Rural	8.3	4.0	48%
		Urban	3.6	3.1	86%
		Total	11.9	7.1	60%
	Sanitation	Rural	8.3	3.2	39%
		Urban	3.6	2.1	59%
		Total	11.9	5.4	45%
2015	Water	Rural	10.0	8.0	80%
		Urban	5.7	4.8	83%
		Total	15.7	12.7	81%
	Sanitation	Rural	10.0	6.5	65%
		Urban	5.7	5.2	90%
		Total	15.7	11.3	72%

based on a qualitative assessment. In Mali the fieldwork was principally performed by one consultant over a period of three weeks. The consultant sourced information from various grey literature and held structured interviews using questionnaires and semi structured discussions with 32 organizations from the public, private

and non-governmental sectors. The limitations of the study were the lack of time and resources of the research team meaning that only Bamako was covered. It was also not possible to use all data collection methods proposed in the methodological framework. Additionally, recent major changes in the sector (see sector context below)



affected the availability of data. It was observed that this research focuses on high level professionals in the sector but was unsuccessful in disaggregating the data into the four proposed categories, which makes it impossible to present the division of capacity.

2 Existing coverage and MDG targets

UNICEF-WHO Joint Monitoring Program (JMP) data from 2006 was used to assess access rates to improved water supply and sanitation in comparison with MDG targets. This data from the JMP enables comparisons to be made between different countries as the definitions for access and the methodology used are standardised. There is no country target related to hygiene, but specific projects and initiatives have targets such as hand washing with soap. Hygiene has therefore been considered as included in the sanitation target.

According to the figures presented by the JMP, 48% of the rural population and 86% of the urban population was using an improved drinking source in 2006. With respect to sanitation these figures were 39% and 59% respectively. Comparing the urban water access figure with the MDG target gives the impression that this target has already been met. However, this study takes into account population growth (an estimated 3.8 million increase from 2006-2015) which clearly illustrates that between 2006 and 2015 large increases of access will be needed.

3 Sector context

Overview of institutional framework for service delivery

The WASH sector in Mali has recently undergone profound changes. The implementation of physical projects

Table 2: Inventory of employment in WASH sector in Mali

	Types of organisation	No. of organisations	Average staff	Total staff	Total skilled workers
NGOs	Small	133	1	-	133
	Large	6	9	37	93
Donor agencies		11	1	11	22
Government organisations	Energie du Mali (EDM)	-	-	240	240
	Government agencies (WASH sector)	-	-	565	565
Private sector	Drilling companies	14	11	33	187
	Consultancy companies	12	17	52	260
Hand pump suppliers and mechanics	Large suppliers	-	-	20	20
	Small suppliers	8	2	-	16
	Hand pump mechanics			-	387
Water operators	Private operations of 'AEP'	533	1	-	533
	Water cooperative enterprises (Groupes d'intÉrÊt Économique)	70	2	-	140
Total					2595

was transferred from government to the private sector in 2000. This led to important changes in the roles and responsibilities of the main public institutions, and hence their demand for human resources. In addition, the public utility EDM (Energie du Mali) has been partly privatised and delegated management of small piped water schemes and other urban water supplies to the private sector is now encouraged. In addition, the decentralisation process that started in 1993 was extended to the WASH sector in 2000, and the transfer of responsibilities to the 703 municipalities started in 2004. This has led to a strong demand for capacity building in the municipalities, and a shift from centralised to decentralised service management. However, the progress of decentralisation is slow-moving and legislation, procedures and processes are not yet fully in place.

The sector remains fragmented and uncoordinated, with donor agencies and NGOs funding projects at all administrative levels, including paying civil servants' salaries. A sector

programme for the water and sanitation sector called PROSEA was initiated in 2005, but the sector is still far from implementing a sector-wide approach (SWAP).

Current human resource capacity

Table 2 presents an estimate of the

current employment in the WASH sector. These are only estimates since Mali lacks any comprehensive data set. Out of the total number of 2596 that work in the WASH sector, 2015 work in the drinking water sector, the sanitation sector employs 406 workers and the hygiene sector employs only





175. Most tend to work for the private sector, including private operators, consultancies or manufacturers. This can be explained by the increased privatisation described above. Donor agencies and NGOs tend to attract most workers with a university degree (57%) due to higher requirements and criteria set for the workers in those organisations and the higher

remuneration and/better conditions of employment.

The water and sanitation sector in general is facing fierce competition from the construction industry. The health and education sectors also tend to attract more employees. However, with increased donor activity, working in the WASH sector is gradually becoming a

more attractive career choice. Interviewees revealed that staff turnover rates differ considerably across the different types of employers. The public sector has no real turnover due to the fact that job security is valued as a motivating factor for employees to remain in their positions. The private sector, however, displays a high turnover, especially due to waves of demand in work. NGOs and donor organizations are valued for their better HR management and remuneration packages. These sectors also demand more specific skills and expertise from their employees and it was found that they are often not satisfied with graduates' technical capacity or practical work experience; nor their skills in report writing, foreign languages, computer skills, management and communication skills.

Gender participation

Mali still has a relatively low level of women participation in the workforce. Women generally work in administrative functions, with the highest amount of female engineers in the public sector. The actual percentages of women in the workforce is 18% in public sector, 28% in private sector (12% consultancy and 16% hand pump suppliers) and 18% in the NGO sector.

4 Capacity for human resource development

Universities and technical Institutions

There are three main types of educational institutions: universities,

Table 3: Number of graduates from universities and technical schools going to the WASH sector

	Total in 2009	% going to WASH sector	Total in WASH sector in 2009
Sector – specific technical professions	77	100%	77
Associated technical professions (higher education)	79	15%	12
Associated technical professions (technology colleges)	910	10%	91
Total	1066		180

Table 4 Calculation of growth rates to achieve the MDGs

	Water supply		Sanitation	
	Rural	Urban	Rural	Urban
Total population	11.9 million			
Population in 2015	15.7 million			
Population covered in 2006 (unit)	4.0	3.1	3.2	2.1
Coverage (JMP 2006) %	48	86	39	59
MDG Coverage targets (2015) %	80	83	65	90
Population to be covered if MDG targets to be achieved (unit)	8.0	4.8	6.5	5.2
Population that needs to be covered from 2006 - 2015 (unit)	4.0	1.7	3.3	3.1
Population that needs to be covered per year (unit)	0.4	0.2	0.4	0.3
Annual growth rate needed (%)	8.1	4.8	8.1	10.2
Average per sector (%)	6.4		9.1	
Overall average (%)	7.8			



technology colleges and professional development institutions. Future supply of HR has been estimated using graduation figures for 2009 provided by the different institutions. Table 3 summarises the number of graduates in technical professions that are closely linked to the WASH sector. It is assumed that water engineers and technicians are all likely to go to the WASH sector. But, out of the other engineers and technicians, it was assumed that only 15% go to the WASH sector. In addition, about 910 students graduate each year from technology colleges with degrees that could lead to a career in WASH (e.g. electricians). Out of these, an estimated 10% enter the WASH sector. It is estimated that in total approximately 180 professionals and technicians entered the WASH sector in 2009.

In addition to this formal education, there are a number of short courses offered by specialised institutions such as CREPA. They play an important role by building existing workers' capacity on specialised topics, such as low-cost sanitation technologies or hygiene promotion strategies. In total, about 450 people took WASH-related short courses in 2008.

Table 5: Human resources needed to achieve the MDGs

	Types of organisation	Total skilled workers	Annual growth rate needed for MDGs (%)	HR needed for MDGs per year	HR needed for MDGs in Total
NGOs	Small	133	7.8	13	76
	Large	93	7.8	9	53
Donor agencies		22	7.8	2	12
Government organisations	Energie du Mali (EDM)	240	4.8	13	77
	Government agencies (WASH sector)	565	7.8	53	321
Private sector	Drilling companies	187	8.1	2	9
	Consultancy companies	260	6.4	17	118
Hand pump suppliers and mechanics	Large suppliers	20	8.1	2	12
	Small suppliers	16	8.1	2	9
Water operators	Hand pump mechanics	387	8.1	38	229
	Private operations of 'AEP'	533	8.1	53	316
	Water cooperative enterprises (Groupes d'intÉrît Économique)	140	10.2	18	111
Total		2595		241	1446

5 Assessment existing and future HR needs

The annual growth rate needed to achieve the MDGs was calculated for each sub-sector (Table 4). Since some employers work in several sectors, average growth rates were calculated.

The growth rates were used to calculate the need for human resources to achieve the MDG targets (see Table 5), assuming that an increased number of workers generates the same increase in output. Workforce efficiency was not been taken into consideration in this calculation.

Results showed about 240 new professionals, technicians and skilled workers are needed by the WASH sector each year from 2009 until 2015, with a total of about 1500 workers needed to achieve the MDG targets. The need is highest in the water sector (63% of overall requirement), followed by sanitation (19%) and hygiene (8%).

Using the current average percentage of workers with higher education (57%), this means that a total of 627 professionals with university degrees is needed from now until 2015 in order for the MDG targets to be achieved.

In addition to a quantitative gap, there is a significant qualitative gap. Employers complain that graduates do not have adequate skills to work effectively, especially in the private sector. There is a lack of technical skills, but also management skills and basic skills such as computer knowledge. In addition, there is a shortage of experts in sanitation and hygiene, because currently almost no courses are taught in these subjects in Mali. The largest qualitative HR gap is observed at lower administrative levels and in rural areas.

6 Recommendations for meeting human resource needs

In the short-term:

The following recommendations are

identified as those considered to have most potential to result in an immediate quantitative HR output:

1. Attract workers to the WASH sector through better management and increased financial resources allocated for remuneration of staff.
2. Continued professional development of existing and new employees entering the sector is required to increase their efficiency. Improved HR management will have an important impact; certain tools from the private sector (such as performance targets) may play a role in improving management capabilities.

Over the medium-long term:

In the longer term, the focus should be on the reform and strengthening of capacity of educational institutions, especially the National School for Engineers (Ecole Nationale d'Ingénieurs) in Bamako.

- ▶ New courses (both for educational

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degrees and vocational training) in sanitation and hygiene should be created in areas where there are currently none, using foreign expertise from other recognised international learning institutions. A library or resource centre on hygiene and sanitation would also be useful to new workers entering the sector.

- ▶ The main employers should maintain links with educational institutions in order to organise internships, improve the practical dimension of curricula and respond to the evolving demand of the labour market.
- ▶ The WASH sector should be promoted to prospective students through information campaigns and cooperation with secondary schools.
- ▶ In addition, non-technical skills such as management, computer and communication skills can be reinforced through short term training, but they should ideally be included in all future educational courses. These short courses should be accredited by a central institution in order to ensure quality.

In addition to the development of the training institutions are the following requirements:

- ▶ There is need for more funding for the educational system in order to attract lecturers and to improve learning facilities, provide additional equipment (computers, etc).
- ▶ Improved HR management and an HR strategy for the WASH sector would have a strong impact on the quality of HR, through recruitment strategies, putting the right staff in the right position, improving job descriptions



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and ensuring relevant continued professional development courses.

- ▶ Capacity building needs at municipal level have to be carefully assessed and initiatives such as learning centres

and short courses supported. Curricula should be developed and funding must be made available in order to train municipal staff. ■