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Training for real: matching employer needs to training supply

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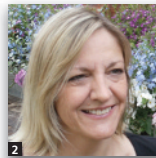
For 40 years, the Water, Engineering and Development Centre of Loughborough University has trained engineers in the practical requirements for infrastructure services in low- and middle-income countries. This was started to rectify a mismatch between what was being taught in universities and what was being done in practice. Often this gap was addressed by ad hoc, uncoordinated, costly and often ineffective training courses. This mismatch is still apparent and so researchers explored why training providers are not meeting employers' needs. The action research went behind training needs analysis to examine the dialogue between the 'suppliers' (universities) and the 'demands' of the employers (local authorities and water utilities), across the water and sanitation sector in Uganda, through a series of forums, interviews, workshop appraisals and case studies, as well as trialling innovative training techniques. The research identified areas for improvement, especially in the area of employer engagement, skill needs and the management of human resource development.

1. Introduction

In 1970, John Pickford, a civil engineering lecturer from Loughborough University, visited West Africa to see how UK universities could respond to the disruption resulting from the Biafran war. A university's role is one of research, teaching and managing knowledge and not one of emergency relief, so he assessed what support could be offered to local universities. The courses being taught were very familiar, with the same curriculum being used in the UK and West Africa. John Pickford had previously worked in pre- and post-independence Ghana as a municipal engineer and knew that the skills and knowledge needed in an African town were not the same as those needed in the UK. This period was when Schumacher was writing *Small is Beautiful* (Schumacher, 1973) and the concept of appropriate technology was evolving. For example, water-borne sewerage is not feasible in a town with no running water, but a pit latrine is adequate, affordable and sustainable. However, this requires engineers to understand the design and management requirements of dry, on-plot sanitation and regard it as an acceptable technology option. Appropriate technology is not just the use of a different technical solution, but involves a wider range of factors, such as the

socioeconomic and environmental context, particularly the state of local institutions and the needs of vulnerable people. This requires engineers to have a wider skill set beyond specific technical expertise. This paper explores the continuing challenge in providing professional staff with the necessary capabilities.

2. The human resource gap

Globally, an estimated 2·6 billion people do not use improved sanitation and 884 million people do not have improved sources of drinking water (JMP, 2010). The number of skilled and professional workers needed to meet the water and sanitation millennium development goals (MDG) is not adequately documented at country or global level, although estimates for sub-Saharan Africa (Cotton *et al.*, 2007) suggest overall an additional 2·5 million sector staff would be needed by 2015 (the MDG deadline), although these figures should be used cautiously.

2.1 Continued capacity gaps

Forty years after John Pickford's visit to West Africa, the picture of universities teaching topics that do not necessarily reflect local conditions continues. Indeed, a forthcoming study

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of five developing countries (DFID and IWA, 'Meeting the water and sanitation MDGs', forthcoming) reports that inappropriate training and ill-equipped training institutions, together with ineffective water, sanitation and hygiene (WSH) sector institutions, rank among the main reasons for insufficient throughput of qualified personnel from higher and vocational education courses.

These findings support personal communications with lecturers in various African countries who indicate that a common teaching resource for lecturers is the notes they took when they studied as undergraduates. Relevant text books and other resources or support are not available. For example in one university, students were graduating without being taught anything about hand pumps, which is the main source of water for many rural areas and is likely to be so for many years. Employees have to learn on the job and employers, very often tied directly to the funding conditions of donors, offer piecemeal training courses (workshops) so their staff can carry out core tasks. Reports from Uganda cite that 33% of expenditure on WSH services was wasted as a result of poor value for money, partly due to 'inadequate orientation of the district staff to effectively supervise the works' (DWD, 2003).

Engineer numbers are limited in developing countries, often working with few resources, poor performance management and reward (Cavill and Saywell, 2009). However, achieving engineer status for the individual is highly prized, demonstrating educational attainment and a position in society. With few professional development opportunities, engineers inevitably refer back to the teaching at university, whether this was 5 years or decades ago. Keeping up to date with advances may come from professional journals (if relevant), informal on-the-job sharing of information and moving location or project. If these are unavailable, knowledge stagnates at the undergraduate level.

Cavill and Saywell (2009) contrast the numbers of water professionals required to meet the MDG with sectors such as health and primary education, but the 'water, sanitation and hygiene sector' is not clearly defined, with engineers, scientists, social scientists and other allied professional and technical staff working for a variety of national ministries, local governments, parastatals, public and private utilities, non-governmental organisations (NGOs), consultants, contractors and suppliers. They work on policy, design, construction, operation, regulation and community engagement from rural situations promoting pit latrines to urban contexts with complex water distribution networks.

3. Filling the gap

To increase local training capacity, the Water, Engineering and Development Centre (WEDC) at Loughborough University has carried out several projects to transfer training skills to local educational institutions in India and Uganda, but this requires several years to build up local expertise and a commitment by a donor to fund the project for the whole duration, rather than as a short project. These have varied success, with some thriving courses being established but others have not proved sustainable in the long term. However, small training providers and short courses are never going to be able to provide the quantity of trained staff that is required. Both the quality and the quantity of engineers fall short of the numbers needed to bring basic WSH to people in low-income countries.

A small UK Department for International Development (DFID)-funded scoping study (WEDC, 2003) reviewed the possibility of supporting academics through a 'learning and teaching network' offering to disseminate research outputs to support knowledge and application of new ideas in WSH service delivery. Interviewing key informants in 13 WSH service delivery organisations and ten training institutions, the study examined the reasons for the successes and failures of previous networks (such as the International Training Network for Water and Waste Management) set up by the United Nations Development Program and World Bank during the international drinking water and sanitation decade in the 1980s. It revealed that networks are important forms of organisation, addressing complex and rapidly changing issues. However, a dearth of public knowledge on how to develop effective networking practice undermines the sustainability of new networks (Ruskulis, 2002), particularly with many centralised and overly complex models that tend to avoid external scrutiny. It also found that professional and practitioner associations have an important function of promoting knowledge sharing and learning, as well as directing, validating and disseminating research, setting standards and controlling quality. In the absence of responsive networks or targeted training, country-based professional associations have an important role to play. Significantly, the study underscored the communication gap between those who demand skills (the service providers) and those who supply skills (the training institutions).

3.1 Developing relevant curricula

Deciding what to teach is a dynamic, with new concepts and technologies emerging and a constantly changing context, with urbanisation and climate change requiring new approaches to perennial problems. The lack of a dialogue between 'demand' and 'supply' makes it difficult to match training to meet needs. University researchers have access to conferences and journals to keep up to date, but teaching staff often lack access to current teaching materials and methods. DFID and the United Nations Children's Fund human resource development (HRD) reviews in the WSH sector in India pointed to the fact that arrangements need to be made to bridge the gap between sector service institutions and education institutions to enhance the

quality of implementation, monitoring and research. The review called for 'better and wider dissemination of information to a range of target communities' (Tayler *et al.*, 1999).

3.1.1 Measuring employees' training needs

Identifying the skills and knowledge needed to carry out a task and compiling competency profiles is a critical step towards building capacity. In a changing environment, employers are not always aware of current best practice and so training providers need to be part of this needs assessment process. Interviews undertaken by the authors with service delivery organisations and training suppliers in Uganda and Bangladesh explored this inter-relationship. Although not rigorous due to the acknowledged inherent biases of interviewees and the institutions, the responses did provide a basic gap analysis between what is being taught and the skills required. In India for example higher education institutions (HEIs) offer a wide range of engineering courses but few included public consultation skills that engineers need to determine physical design and financial tariff parameters from the user's perspective. The emphasis on technical skills for the engineer continued with 'management' training often being exclusively about technical management rather than the social, economic or political aspects of management involved in infrastructure provision. Institutions in India that were responding to the shifting skill market included some government administrative colleges – for example, the Administrative Staff College of India in Hyderabad where the starting point was management development.

Interviews with one employer revealed conflicting views about the skills required by the market and those taught on engineering courses. Discussions with the Ugandan National Water and Sanitation Corporation suggested that employers have taken the lead while many education institutions struggle with capacity issues of their own. What is noticeable in Uganda, although not systematically quantified, is the thirst for further education with high demand for evening classes – for example, at the Uganda Management Institute in Kampala. Interviews with Ugandan water sector staff highlighted the need to engage with civil society and the non-governmental sector as they are vital to extending service provision to the poor – skills not covered in technical courses.

3.1.2 Measuring capacity

The testing of knowledge does not feature highly in employer-based capacity development, even though in professional bodies and academia those who do not have the required level of knowledge are thought not to be able to do the work (Coates, 2007). There are sensitivities about challenging levels of individual knowledge and formal testing but in the context of sector development a debate is needed on 'measured'

knowledge. This lack of objectively measured capacity means that the impact of training cannot be effectively established.

While training is most often the donor's means of addressing performance shortfalls, a report for the World Bank states that training in this context has not proved the optimal tool for capacity strengthening (Nelson, 2006). Conversely, the private sector reports huge return on investment in training. So why does training work in one situation and not another? The evidence suggests that the incentives for change and the environment that private sector firms can create may provide the answers. For example, training within clearly defined organisational structures where an identifiable group of individuals are collectively responsible for demonstrating results is one condition under which training is successful. This implies detailed political and environmental analysis of the conditions under which training is proposed, rather than the practice of isolated, one-off training events that are supposedly correcting organisational weaknesses (Nelson, 2006).

4. Action research in Uganda

The impetus for further study came from DFID's work with the WSH sector in Uganda, where it was estimated that approximately 17% of the national water budget for 2003–2004 was earmarked for 'capacity building' (more than the amount on water for production and water resources information combined), yet measureable goals for this area of activity were not set and expenditure was spread over each subsector, with no professional direction (quoted in Reed *et al.* (2003) based on data provided by the Ugandan Ministry of Finance, Planning and Economic Development). The DFID-funded international study was used as a foundation to provide the Ugandan WSH sector with some strategic direction for capacity building.

4.1 Capacity building

Despite the common use of the term 'capacity building' an agreed understanding is needed if there is to be sustained, cost-effective improvement in the sector's workforce and the capability of its different stakeholders (communities, support agencies, contractors, NGOs, local government representatives, etc.).

While training (often a one-off event or a 'workshop') is the usual activity to increase people's skills and knowledge within a project, capacity building is more than this. It involves a strategic view of people and their institutions, hence HRD. Staff require three factors to be in place if they are to work to their full potential.

- The work environment must be right (such as management structures, institutional arrangements, allocation of responsibilities).

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- The staff need to be motivated to work (adequate rewards (e.g. financial, career paths, recognition) and working. conditions, leadership, social environment and enthusiasm).
- The staff need the correct attitudes, skills, knowledge and experience for the job (which requires the job to be adequately understood and described).

An investment in computing training will thus only be effective if staff also have computers to work on. It will only increase performance if the work requires computers. It will only contribute to reaching the goal if other factors, such as data for analysis or funds for delivery, are also available.

The terms 'capacity strengthening' or 'capacity development' are also referred to. These terms recognise that developing people is an ongoing process if staff and institutions are not to stand still.

The Ugandan project aimed 'to motivate HRD and training providers to be responsive to the demands of employers so that development of water and sanitation sector staff is relevant. This will greatly contribute to the development of a meaningful sector-specific HRD strategy' (Reed *et al.*, 2003). It was not about writing a strategy, but initiating the process, promoting the need for a more strategic, sustainable approach, demonstrating that staff development needs to be part of a wider organisational strategy, moving from a one-off 'training needs analysis' to on-going 'skills analysis' and centring the development of people in their job, the organisation and the sector objectives. The project was called 'training for real' to emphasise the link between theoretical knowledge and practice.

4.2 Inception phase
An inception phase used a variety of methods to gather information and engage with stakeholders (e.g. interviews, meetings, documentation, literature reviews, job analysis, discussions, field visits) as well as other sources of information including direct observation and inspection of outputs (see Table 1). Employers and employees identified a clear need for staff development, specifically

- contract management (for clients, consultants and contractors)
- awareness and understanding of socioeconomic issues by technical staff (and vice versa)
- management and team leadership
- structured professional development to ensure a mix of theory and practical experience
- strategic thinking and planning (for managers in all sectors)
- generic skills across the sector (report writing and analytical skills as examples) that underpin other activities
- customer awareness (particularly in the rural and peri-urban context)
- general capacity building for contractors

- human resource management skills.

The inception report (Reed *et al.*, 2003) recognised that in Uganda, the WSH sector had significant funds for capacity strengthening; however, various factors were immediately apparent.

- There was a lack of planning and strategic direction in the training/capacity building subsector. Whereas financial and other resources in the sector were coordinated under the sector-wide approach to planning, this was not the case for HRD. Training initiatives were fragmented between organisations, and sometimes between departments in the same organisations. Skill levels were unbalanced – for example, when client organisations had greater contract management knowledge than the contractors who were party to contracts. The overall project would suffer from poor contract management but the government did not see private sector staff training as their role, even though the lack of capacity hindered progress.
- Employers in the WSH sector were often unable to state clearly what they required in terms of HRD.
- There were no formal interorganisational collaborations between employers and HEIs.
- There were examples of good practice and innovative professional development, which needed to be shared and scaled up.

There was a strong demand from the training institutions such as universities to ensure that their courses were relevant to employers driven by increasing competition for (privately funded) students who wanted to be employable on graduation. Although employers recognised that they were having to provide training to new graduates, there was no appreciation that this could be incorporated into degree programmes. Curricula were seen as being fixed and focused on theory rather than practical application. Lack of strategic direction from the employers to the WSH educational subsector was hampering the ability of the suppliers to provide graduates with relevant skills. Just supporting training providers to improve delivery (by forming a learning and teaching network) would not address this strategic weakness. Universities could only meet the needs of the sector if it knew what those needs were. Three options were identified for the main project.

(*a*) Improve HRD and training coordination, providing focused training content and events (by establishing a practical support network as originally planned).
(*b*) Concentrate on developing a HRD strategy, but not producing any change to immediate training outputs.
(*c*) Provide professional development activities focusing on HRD managers across the sector to increase their skills, knowledge and motivation that would in turn facilitate the wider sector to develop a national HRD plan.

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Interviewees

Government Ministries	**Educational establishments**
Directorate of Water Development × 6	Institute of Public Health, Makerere University
Ministry of Education and Sports	Kyambogo University
Ministry of Finance, Planning and Economic Development	Faculty of Technology, Makerere University
Ministry of Gender, Labour and Social Development	Mbale School of Hygiene
Ministry of Local Government	National Water and Sewerage Corporation Training Centre
Ministry of Public Service	NETWAS-U
Ministry of Water and Environment	St Joseph Technical Institute, Kisubi
National Curriculum Development Centre	
Donor Agencies and International Non-governmental Organisations	**Employers and employees**
DANIDA	M&E Associates (private sector consultants)
UK Department for International Development	National Water and Sewerage Corporation
German Technical Cooperation (GTZ)	Ondeo Services Uganda Limited (OSUL)
Japan International Cooperation Agency	Pearl engineering Company Ltd (private sector contractors)
SNV	District engineer (local government)
	District Water Office
	Busoga Trust

Case studies

The National Council for Higher Education	Resource Centre Development (IRC International Water and Sanitation Centre/SNV)
Training for Decentralisation; District Focused Internship (with Makerere University)	UWASNET Capacity Building Framework
The Uganda Institution of Professional Engineers Development of Training Guidelines and Standards (with ICE)	Private sector support (Cranfield University, UK)
	Water Resources Department, DWD. Recent graduate recruits

DANIDA, Danish Development Cooperation, Ministry of Foreign Affairs of Denmark; DWD, Directorate of Water Development; ICE, Institution of Civil Engineers; NETWAS-U, Network for Water and Sanitation – Uganda; SNV, Stichting Nederlandse Vrijwilligers/Foundation of Netherlands Volunteers; UWASNET, Ugandan Water and Sanitation NGO Network

Table 1. List of interviewees and case studies used in the
inception stage

A round table meeting with key stakeholders selected the third option. This put the employers' HRD managers at the heart of the process, as they were the link between the employers and the training institutions.

5. Project activities

A local learning and teaching network was still a viable objective, but it needed foundations. Various outputs were planned, including:

- working with key national level HRD staff in the sector to improve their own capacity and to take on more strategic roles
- mapping the impact of recent HRD/training practice against stakeholder assessment and sector objectives
- piloting new capacity development approaches and delivery

methods in agreed training areas so that HRD staff could strengthen their own training practices

- supporting information and knowledge management with training institutions
- identifying an organisation to host the initiative in the future
- reporting to stakeholders between organisations from the supply and demand side.

5.1 Developing the capacity of HRD managers

The inception phase found gaps in the capacity of HRD staff to identify adequately the training and capacity development needs of the staff in their organisations. Their own development needs were identified through interviews, group discussions and through observing the working environment. Key

staff were engaged in the study to establish their skills, knowledge, experience, attitudes, motivation and enabling environment.

A WSH sector HRD group was set up composed of staff responsible for training in the Directorate of Water Development (DWD), the National Water and Sewerage Corporation, Environmental Health Department of the Ministry of Health, the NGO umbrella organisation (the Ugandan Water and Sanitation Network), the Ministry of Public Service, the Ministry of Water and Environment and the Ministry of Local Government. The objective of this group was to develop the capacity of individuals through course materials supplemented by a series of special interest meetings, leading to improved quality of training and capacity building in the sector, and a better enabling environment for the development of a sector-wide training and capacity building strategy.

Mentoring of the HRD group was achieved through partnership with the Human Resource Managers' Association of Uganda and Partners for Water and Sanitation. Partners for Water and Sanitation was an initiative set up by the UK Department for Environment, Food and Rural Affairs that brought together UK experts from government, the private sector and civil society for the purpose of transferring usable knowledge to low-income countries. Members of the HRD thematic group were sponsored to subscribe to the Human Resource Managers' Association of Uganda and the Uganda management forum.

5.2 Research into impact of capacity building
Several research activities were commissioned to gain a deeper understanding of:

- the current capacity building activities carried out in the sector
- what training courses HEIs offer, with specific reference to the WSH sector organisations, and how such courses were originated, developed, evaluated and modified
- sector staff's perceptions of past training activities.

There were no formalised links between supply and demand institutions, so employer organisations hardly played any role in the development of courses offered by HEIs. There were a few cases in which HEIs had developed tailor-made continuous professional development courses for sector organisations. Academics in the HEIs identified the barriers to being responsive to the sector as mainly inadequate resources, a high student/lecturer ratio, and poor enabling environment.

A survey in five districts found that most training conducted was short-duration workshops, although participants themselves placed more value on longer certificated courses. The respondents thought that some of the training topics covered needed more time to make an impact. The training was not harmonised, with repetitive training for some staff at the expense of others. Training was counterproductive for some staff and there was no corporate memory to keep concepts gained from training.

5.3 Piloting innovative methods of training and capacity building
The inception phase recognised the need to improve the range and delivery of training activities. WEDC already had short distance-learning modules in report writing and consultancy skills, two topics needing development. Local tutors and a mentor were appointed to facilitate these modules. Twenty participants completed the courses. Another innovative professional development method trialled was a panel discussion on the topical issue of transboundary water negotiations under the Nile Basin Authority, which was held during the second forum. These pilots were used to demonstrate that learning did not have to be classroom based and that there were often more appropriate means of delivering continuing professional development than short courses and workshops.

Pairs of staff from supply and demand institutions carried out pilot capacity needs assessments with a view to learning from the process. Five studies were conducted into topics identified as requiring development; these were

(a) negotiation skills in the WSH sector
(b) working with NGO, communities and the private sector
(c) valley tanks and dams
(d) information for decentralised water resource management
(e) wastewater treatment technical management issues.

These were selected to reflect a range of work across the sector. The studies recommended the level of skills and knowledge required, and the mode of delivery of training.

5.4 Information and knowledge management support
The project offered information and knowledge management support to HEIs, to contribute to better curriculum development. The first activity was a baseline survey of the information and knowledge management position of the four main HEIs of Makerere University, Kyambogo University, Uganda Management Institute and Nsamizi Institute of Social Development. The audit revealed the following deficiencies in the libraries and/or resource centres

- a lack of internet access at half the institutions
- lack of effective searching skills
- inadequate pedagogical skills among junior staff

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- the lack of cutting-edge information as serial subscriptions had been suspended.

A three-pronged approach was adopted to alleviate these deficiencies within the available time and resources. First, lectures were presented during the forums. Concepts of knowledge and information management were introduced during the first forum; the second forum covered internet searching and the third forum dealt with quality assurance. Second, information materials were provided to the participating HEIs and resource centres of DWD and the National Water and Sewerage Corporation. Third, pilot projects were carried out with Makerere University and Nsamizi Institute to improve information management. The book bank system at Makerere University was upgraded by providing a searchable on-line database. For Nsamizi Institute, documentation of key procedures and processes was improved, in readiness for the computerisation underway.

5.5 Forums
The most prominent activity of the training for real project was a series of forums bringing stakeholders together to share experiences. The first forum introduced the project to a wide audience and presented the inception phase findings. A case study from the private sector showed how skills development could be managed, and a lecture on information and knowledge management was delivered. The forum was closed by the Hon. Minister of Water and Environment, who led the stakeholders in signing a large board to demonstrate their commitment to the 'training for real' values (see Figure 1).

At the second forum, the results of the research activities were presented, and Nsamizi Institute of Social Development provided

Figure 1. The Hon. Minster for Water and Environment, Maria Mutagamba, reviewing the pledges to work together

a case study of training needs analysis. Experiences on the pilot distance learning modules on report writing and consultancy skills were presented by the participants. In the next forum, all the participating HEIs presented good practices on matching demand with supply, followed by presentations on accreditation by the Ugandan Institution of Professional Engineers and from a visitor from the UK Chartered Institution of Water and Environmental Management. The second day of the third forum had presentations and discussions from both the demand and supply sides on how the supply institutions could become more responsive to the needs of the sector.

The latter stages of the project coincided with the 31st International WEDC Conference, held in Kampala, at which there was a specialist session on capacity building. Thirteen papers were presented on the aspects of training and capacity building in the WSH sector. A discussion session covered

- how capacity building activities could be coordinated
- how minimum criteria could be set for the management of workshops
- how innovative capacity building methods could be scaled up
- what mechanisms could be set up to increase involvement of HEIs in sector training activities
- what mechanisms can enhance information and knowledge.

6. Recommendations from training for real
Strategies for HRD will only be effective, cost-efficient and meaningful if the relevant HEIs are fully engaged in its formulation and implementation. Collaboration between the relevant HEI and sector organisations needs to be strong. The following actions were specifically recommended to strengthen partnerships.

- The Uganda WSH sector needs to co-opt representatives of HEIs to sit on its sector working group, the highest policy-making body in the sector. Yet in 2009 and 2010, there were no representatives from HEIs listed as attending the annual joint sector review (the annual general meeting of the sector) (MWE, 2009a, 2010).
- The sector should use part of its training and capacity-building budget to strengthen collaboration between HEI and sector institutions, encompassing various activities, for example

  o more participation by HEIs in continuous professional development for sector staff
  o joint ventures in applied research
  o more involvement of sector staff in development and assessment of university curricula, and subsequent accreditation of the courses for the sector staff.

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However, at the 2009 joint sector review, it was a group of NGOs (whose main role is not education) that led a learning forum, rather than the HEIs.

It was also recommended that the HRD group set up under the project should take a lead role in developing sector-wide HRD, with support to facilitate the process, aiming to produce guidelines for value for money and effective training, good practice in holding workshops, and on the development of indicators for training and capacity building. However, in the 2009 strategic sector investment plan for water and sanitation in Uganda, while limited capacity was mentioned in all subsectors (water resources, rural and urban water supply and sanitation), there were no strategic plans to address this (MWE, 2009b). Capacity building was still ad hoc and lacked engagement with educational suppliers. The Ministry of Education contribution to the sector was seen as ensuring there was sanitation in schools rather than trained professionals.

The Uganda water and sanitation sector performance report 2008 (MWE, 2008) recognised capacity building as a key component in the implementation and sustainability of WSH activities. In 2007–2008, national capacity building expenditure was divided up into: 21% on a review of job descriptions; 35% on training of central government staff in monitoring and planning; 14% on training other sector persons (e.g. in local government and NGOs); 21% on postgraduate training and 9% on short courses within Africa. Less than 1% of expenditure went on supporting training institutions and conferences. Emphasis was on performance-related short tailor-made courses for staff in central government (167 participants), local government (87) and the private sector (84). Short courses were used for 33 central government staff and 19 local government staff, and six government employees were supported through post- and undergraduate degrees. Some internships for students and fresh graduates of engineering and social sciences were given within the ministry. Training manuals were written (covering non-revenue water and commercial and customer care), which were used by 84 staff from water service providers.

7. Wider conclusions for future skill development

7.1 Training for real
In Uganda the concept of training for real captured the imagination and expressed the need of the WSH sector at the highest ministerial level and in the offices of engineers and semi-skilled workers. Although it raised awareness of the issues and provided insight into some solutions, it lacked sustainability. The model of dialogue worked well but the move to a more strategic approach to ensure a workforce fit to deliver WSH services has not resulted. The process of overcoming resistance and achieving change (which training for real aimed to do) involves three stages

(a) frozen in place – the status quo between demand and supply (business as normal)
(b) unfreezing – motivating people to allow necessary changes to happen
(c) refreezing – dialogue, negotiation and coming together so a new system stays in place (based on Lewin (1951)).

While the first stage was recognised, the motivation for change was not successful within the project period and did not become part of established sector practices.

7.2 Facilitating dialogue
Poor communication between training suppliers and WSH service delivery organisations is not surprising. Both have generally poor networking capacity although the educational side is broadly better placed. Demand for skill development and knowledge enhancement through access to up-to-date knowledge does exist but it is latent. Stimulating this demand requires active facilitation to ensure that both educational priorities and engineering needs are discussed and understood. An innate conservatism seems to hamper curriculum development, as seen from both employers and training providers.

7.3 Articulating demands
One of the challenges faced with asking employers what skills they need is that they are often unaware of new and emerging ideas and concepts and how to apply them, and therefore will not request support in these areas. The 'demand' side may not know what it does not know and therefore cannot request support. Even if it does recognise capacity problems, it may not be able to articulate them to the educational establishment unless there are opportunities for dialogue. Donor projects may pilot new approaches but these can remain as islands of excellence and not influence day-to-day practice. Research outputs may promote the latest thoughts but the gap between these and current practice may be too large so staff require basic introductions in order to bridge the conceptual barrier and overcome the jargon that accompanies some research. This need for basic skills and knowledge in topics outside the current curriculum may not be recognised by some educational suppliers who operate at the forefront of specialist knowledge, leaving other sector professionals behind. This gap may be filled by new entrants to the education market rather than being addressed by core educational institutions.

7.4 Motives
Just as with investments in physical infrastructure, money spent on staff training should be planned, designed, implemented and evaluated as standard practice and not subject to one-off initiatives. Just as with infrastructure, maintaining the value of a resource requires continued attention and support. However, the long-term value of investments in professional development are difficult to quantify and therefore justify to

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employers and donors. The continued use of short-term, unassessed, workshops demonstrates a response to immediate skills gaps rather than an investment in a key resource for the sector. Strategic approaches to training and sector-wide coordination networks require budget support, but individual employers may be unwilling to increase overheads to invest when they may not see any direct return, as the benefits would be spread over the whole sector and may not be apparent for many years. The challenge for HRD managers and education providers is to quantify the benefits of sustainable approaches to capacity development and compare the costs to the present unplanned and scattered approach to HRD, within the context of the organisation and sector (Ogiogio, 2005).

8. Challenge for the future

The wider challenge for those working in capacity development is to make it part of standard management practice rather than a series of ad hoc, add-on activities. Capacity building needs to be seen as a leading indicator of institutional sustainability (rather than financial indicators) as it demonstrates a commit-ment to maintaining a quality workforce, which in turn is a prerequisite for all dimensions of sustainability (Brinkerhoff and Goldsmith, 1992; Brown, 1998). Educational establish-ments have to understand the wider, longer-term needs of employers, not just the expressed human resource demands, if training is going to be sustainable and sustained, to provide people with the capacity to create and maintain successful institutions. Understanding and quantifying these extensive and poorly defined capacity requirements necessitates training organisations to initiate a continuing and wide-ranging dialogue between the supply and demand sides, creating a partnership that a short-term training needs assessment will never produce.

However, the supply side is not dealing with a unified demand side. A wide range of employers from policy makers to field practitioners all draw on the same limited pool of professional staff being trained, leading to conflicting requests and an increasing dilution of curricula. Providing narrow, specialist courses increases costs for suppliers and reduces the employ-ment options for students. The challenge for the whole, amorphous, WSH sector is to think strategically about its capacity needs, consider the career-long costs and benefits of adequate professional development and to avoid short-term, unsustainable, reactive actions.

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