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**WATER, SANITATION AND HYGIENE:
SUSTAINABLE DEVELOPMENT AND MULTISECTORAL APPROACHES**

Hybrid distance water learning in Ethiopia

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Ethiopia is among the countries with lowest water and sanitation coverage in Africa. To meet with the countries ambitious Millennium Development Goals there is an urgent need for capacity building in the water sector. This paper describes an innovative project that developed a new approach for practice based self-learning for local staff working at Woreda level. This approach combines conventional paper based Distance Learning with CD-rom and E-based learning, supported by a network of trainers and resource persons. The paper describes the approach and presents a way forward to support large numbers of sector staff learning to apply improved intervention strategies in their job environment.

Introduction

There is an urgent need for capacity building in the water and sanitation sector in Ethiopia. This particularly concerns staff from government, NGOs and the emerging private sector working at Woreda¹ and community level (Engidashet, 2006). Ethiopia is among the countries with lowest water and sanitation coverage in Africa and the highest incidence of waterborne diseases. In 2004 80 percent of the urban and only 11 percent of the rural population had access to improved water supply systems and respectively 42 and 7 percent had access to improved sanitation services (UNICEF/WHO, 2007).

In response to this situation the Ministry of Water Resources (MoWR) with support from different external support agencies (ESA) has set ambitious Millennium Development Goals for the water sector. These efforts require that sector staff is equipped with practical knowledge and tools that enable them to assist local communities to improve and maintain their water and sanitation systems.

Distance Learning may be a potential solution through training 'on the job' (Nekatibeb & Tilson, 2001). Central to distance education is that trainers and students are separated from each other during the process of learning. In many countries mail based systems still exist but these are quickly being replaced by Internet based courses. Yet in Ethiopia Internet connectivity is low which limits an e-based approach.

A consortium of the Environmental Science Program of Addis Ababa University, MetaMeta Communications, Lettinga Associates Foundation (LeAF) and IRC International Water and Sanitation Centre developed an innovative approach called Hybrid Distance Learning (HDL). This approach combines (e-based or physical correspondence based) guided self learning with some 'on the job' support. Two courses were developed and tested in 2008: Water Quality and Water Safety Plans (WQ&WSP) and Urban Sanitation and Introduction to Wastewater Treatment Options (US&WTO). Support was received from Partners for Water, the Horn of Africa Environmental Program (HoAREP) and SNV Ethiopia. This paper presents the approach and the initial results which prove a promising option for decentralized sector capacity building.

Some limitations in capacity building in Ethiopia

The two dominant capacity building approaches applied in Ethiopia are:

- The government supported special Technical Educational Vocational Training Centres (TVETCs) to train water technicians.
- ESA supported short training courses where sector staff is invited away from their place of work.

Some limitations of the TVETCs

In response to the immense need for capacity building, the Government of Ethiopia has taken important steps to develop a special training programme in eight TVETCs for water technicians. A three year curriculum was developed to provide, primarily, practical training to trainees, but a recent review of one of the TVETCs concluded that:

- The training program has far too much theory, deals with too many themes and does not fit practice.
- There is a severe lack of practical training materials and methodologies.
- Selection of trainees is not well established and their apprenticeships are too short.
- There is no link between TVETC staff and the Water Bureau nor the Woreda Water Desks.
- Trainers do not have practical experience nor developed training skills.
- Sanitary conditions at campus involve a high health risk and give a bad example.

These findings suggest that important improvements can be made like shortening the programme and including longer apprenticeships of trainees. The result would be that a larger numbers of trainees will complete the training and will have more practical skills. The MoWR, SNV and the TVETC in Awasa are now in the process of exploring options to take these ideas further.

Important limitations in many externally supported training courses

Many ESA provide support to the development and implementation of training courses. Yet results seem to be modest as sector performance still shows a lot of limitations. The majority of these courses are class room courses with limited field exposure, similar to the training approach that is applied in most universities. Most are short courses for higher and mid-career professionals. Courses for local level Woreda staff are scarce or virtually absent.

Typically, trainees do not pay for the training but receive a daily subsistence allowance (DSA) and travel expenses. Follow up is virtually absent in most cases hence it remains unclear if the learning is applied in practice. The DSA is a major asset for trainees as they usually can partly save it, which is a welcome source of income. This asset even may impede their participation in courses where they do not receive such support.

Many of these efforts are implemented in parallel by different organizations, thus involving a duplication of efforts and/or the introduction of different approaches to similar issues. In response to these difficulties an initiative was taken to develop a capacity building pool fund where funding would be brought together to support the sector. Even if this initiative will materialize, however, it may not be the most effective response to capacity building in the sector if the emphasis remains on short courses away from the place of work.

Hybrid distance learning a feasible alternative?

The approaches indicated above are not geared up to the urgent need for capacity building. It is important to realize that two major groups of trainees exist in Ethiopia:

- Staff already on the job but lacking adequate knowledge and experience.
- Newcomers to the sector.

For the newcomers longer term training is needed for which an improved programme at the TVETC seems to be the best option. Staff already on the job however cannot leave their job for longer periods of time. So on the job training seems more attractive and more cost effective. E-based distance learning would be a very good option but would meet with major limitations in most of Ethiopia, due to low connectivity. Whereas in the future this will change an interim solution is needed. The consortium developed an innovative approach of HDL combining Internet, CDROM based and traditional paper format courses using different

communication channels (internet, email and 'snail mail'). This approach primarily embraces guided joint learning. Participants with different backgrounds typically work in small groups with other participants from their own or adjacent Woredas. The training provides with access to training modules, resource materials and resource persons. The basic course material is available in Amharic and resource persons operate in the local language. Trainees obtain 'self-learning modules' which include sections for self-evaluation and some assignments to be submitted to their trainer. For the final assignment trainers will visit the student groups to review the field assignment. The major advantage of this approach is that trainees learn to apply improved intervention strategies in a community as part of their daily routine. Subsequently they can continue to apply the same approach in other communities.

The HDL project

The project followed an interactive phased approach. Ethiopian and International partners worked together in 4 phases: 1) course development, 2) train trainers, 3) implement and 4) evaluate the courses.

1. Design and development phase

This phase included consultation with different stakeholders to assess the training needs and local conditions to support the development of course approach and content. Two main themes were identified for two quite different target groups: one with a more rural focus (WQ&WSP) and one with a more urban focus (US&WTO) (Box 1). Both courses benefited from existing experience with e-based learning from project partners. Trainers and resource persons were identified for future coordination and implementation of the courses. Key persons were involved in the development of the training materials and the translation to Amharic. This implied matching international experience with local experience thus facilitating the development of courses that reflect local conditions. Both courses follow a modular approach combining theory and practice. A lot of emphasis is put on field assignments where trainees learn to assess the situation and to identify together with community members possible solutions to prevailing problems.

2. Preparation phase

For each course a Training of Trainers (ToT) was given to participants from a range of organizations. This training combined learning about the content and training methodology, review of the training material and carrying out the field assignments included in the HDL courses. The participatory approach that was adopted was very helpful, Practical field work proved to be very useful to complement the practical experience of several trainers. On the last day of each TOT the trainers were introduced to the first group of HDL students.

3. Implementation phase

In both courses trainers and resource persons were elected from among the participants of the TOT to implement the HDL course. Each trainer or resource person guided a small group of 2-3 students through the ten week course. Their tasks included:

- answering questions of the students (by email, postal mail, telephone calls);
- checking the assignments;
- visiting the students for meetings and discussions;
- evaluating the whole process with overall coordinator.

The course design emphasizes self learning and includes a section for self evaluation adopting a multiple choice approach. Answers are included in the same module to check if they grasped the contents. It requires some self-discipline from trainees not to review the answers before looking at the questions, but even if they do so they still learn because the answers summarize the reason for being correct or wrong. Trainees also need to do a number of practical assignments with colleagues from the same or adjacent Woredas and require interaction with local communities.

4. Evaluation phase

The innovative project is about to be completed and will be evaluated early in 2009. Some initial results are quite promising:

- Some 15 trainees completing the US&WTO course.
- Some 20 trainees completing the WQ&WSP course.
- The HOAREC programme is including HDL in their 2009 programme.
- Practical improvements have been initiated in several communities in response to the water safety plans.

So far we identified also a number of difficulties:

- The concept is very different from conventional training in Ethiopia and several trainers were less comfortable with the concept of self-evaluation.
- Participants remain at their place of work. This implies that they do not receive allowances which makes participation less attractive to them.
- Trainers need incentives and time to come to grips with the practical and more participatory approach and have to learn themselves what solutions are feasible under the different local conditions.
- Communication between coordinators and trainers and trainers and trainees still requires occasional face to face contact and organizational support.
- Financing of new courses will require sector support as there is no real environment for self-paid training.
- The time frame of the course was tight mainly because of communication problems.

Box 1: Outlines of HDL courses

Water Quality and Water Safety Plans

- *Community water supply* which introduces the complexity of water supply in small and medium size communities and presents an overview of systems that are applied in Ethiopia.
- *Water quality* introduces both chemical and microbial water quality including an overview of key water quality parameters and their measurement. It also discusses sanitary inspections in different types of water supply systems.
- *Management of water quality hazards* presents an overview of hazard categories and options to manage these hazards at community level.
- *Water safety plans* introduces the key elements of a water safety plan and presents a structured plan for water supply improvement and control.

At the end of the course participants will be able to assess the water supply situation in a community, will be able to identify the water quality hazards and will have made water safety plans for two communities together with the water users in these communities.

Urban Sanitation and Introduction to Wastewater Treatment Options

- Introduction to sanitation introduces the complex relation between water, sanitation and health.
- Sources of wastewater introduces differences between various types of wastewater and gives an overview of existing sanitation facilities in Addis Ababa.
- Appropriate technologies for urban sanitation introduces basics of various on-site and off-site wastewater treatment options.
- Urban planning and technology selection presents urban planning aspects in sanitation. Also criteria for technology selection are introduced for selecting an appropriate wastewater treatment option and for developing a local sanitation plan.

At the end of the course participants will be able to assess the local situation regarding sanitation and suggest different wastewater treatment options for their municipality while undertaking a strategic urban planning approach.

Conclusion

We trust that at the time of the WEDC conference more details will be available of the evaluation, but initial results are sufficiently positive to proceed with and expand the concept of HDL. The concept seems to have considerable potential particularly for refresher training of existing water sector and health staff. We

therefore are interested to share our experience with others and explore options to work together in support of the water and sanitation sector in Ethiopia and possibly other countries.

Note

1. Administrative division of Ethiopia, equivalent to a district.
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