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**ACCESS TO SANITATION AND SAFE WATER:
GLOBAL PARTNERSHIPS AND LOCAL ACTIONS**

**Hand pump maintenance training for rural water supply
sustainability in Nigeria**

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One of the major policy thrusts of the Federal Government of Nigeria is the drive to alleviate poverty. Poverty alleviation will not happen until there is significant improvement in access to water supply and sanitation, education, health care delivery, reliable electric power supply, affordable food for all etc, in summary a conducive environment to sustain a balanced development nationwide. This paper's focus is on hand pump maintenance training as one of the key components to safeguard water supply to Nigeria rural communities. 430 Water Supply officers from Local Government Areas (LGA) received training on Installation and Maintenance procedures for India Mark III and Afridev deep well handpumps. The trainees are maintenance staff in their local governments and they will complement hand pump maintenance trainings in their areas under the Federal Rural Water Supply and Sanitation Programme (FRWSSP). The trainees will also help ensure that future rural water supply facilities expansion will remain serviceable. Virtually all the trainees have hands on experience during the practical sessions (about 70% of the two-day training, the rest being classroom instructions and demonstrations) Similar trainings will also be held at the community level nationwide. The National Water Resources Institute, Kaduna is implementing the series of training courses envisaged in the FRWSSP.

Introduction

In the developing world today, poor access to safe water and adequate sanitation continues to be a threat to human health (WHO 2004). The current situation in the water supply sector demands that existing facilities are used and managed well and this can be facilitated by ensuring that more people are empowered to maintain their hand pump water supply systems. The capacity building component of the (FRWSSP) is one of the initiatives to make it achievable.

The FRWSSP (under the 2004 Appropriation Act) aims to improve water supply in Nigeria through the construction of new mini-schemes as well as rehabilitation and expansion of existing ones. A major objective is Capacity Building of the beneficiary communities to strengthen facility ownership, operation and maintenance. The project aims to construct a sustainable number of hand pump equipped boreholes and motorized and solar powered pumps on boreholes as well as rehabilitate dysfunctional ones. These will restore water supply services to about 8,145,000 citizens.

Capacity building component of the FRWSSP

The use of boreholes fitted with hand pumps has been a major means of getting water to rural communities. Maintenance is obviously an inevitable requirement of any system that depends on mechanical equipment however simple that equipment may be (Olatunji, 2003).

The capacity building objective is to develop training materials and methods and disseminate same for the benefit of end users (NWRI, 2007a). Training workshops are to be organized for trainers, LGA/WES and community Water Supply and Sanitation committee (WASCOM) personnel, project consultants and contractors on operation and maintenance of WES facilities with emphasis on community-based participatory techniques.

This will ensure high village level operation and maintenance (VLOM) increasing the potential for reliability and sustainability of the FRWSSP and contribute to attainment of MDGs in Nigeria.

Capacity building of communities

The training will be conducted for 3,000 communities throughout Nigeria with about 500 communities in each of the six (6) geopolitical zones of the Federation. Training at community level shall cover the following topics:

- Pump and borehole System.
- VLOM of water supply facilities
- Pump types, characteristics and components
- Trouble shooting and pump maintenance procedure
- Preventive and curative maintenance

The National Water Resources Institute (NWRI) Kaduna is implementing the capacity building component of the FRWSSP. A component of the FRWSSP capacity building is the training of one Water Supply staff from each of the 774 local governments in Nigeria. The majority of the rural water supply facilities under the FRWSSP are boreholes fitted with hand pumps. Preventive maintenance is essentially aimed at averting complete breakdown of the hand pump and services rendered through restoration and parts replacement based on calendar time or operating hours (NWRI, 2007b). The training courses impressed on the trainees that simple maintenance activities are in some cases enough to restore a broken-down hand pump to service. For instance in some of the cases encountered, the foot valve had become clogged and the pump ceased lifting water. Dismantling such pumps, washing the pump and the foot valve and re-assembling the pump were enough to restore service. In some other cases, replacing a worn out rubber piston cup was enough to improve pump operations. The NWRI conducted the training workshops for the LGA Water Supply staff on 4th and 5th, April 2007 for the North Central and North West Zones (13 training sites); 27th and 28th June for North East and South West Zones (12 training sites); 12th and 13th September 2007 in South South and South East Zones (11 sites).

The author participated in the training of LGA Water Supply staff in Kaduna, Osun and Rivers States with the total number of participants being 12, 26 and 20 in all the three states respectively. Some of the hand pumps that were out of service were restored to service.

The level of participation in the trainings in all the six geopolitical zones of Nigeria is impressive.

However it is instructive to note that part of the capacity building component of FRWSSP, as envisaged by National Water Resources Institute (NWRI) Kaduna is to raise and train a corps. of trainers at the community level (40 for each of the six geopolitical zones of Nigeria). These trainers will be resident at the community level and they will be given a complement of maintenance tools and spares; to enable them earn a living from maintaining India Mark III and Afridev hand pumps in their immediate communities.

Lessons learnt

- Learning by doing is a very effective way of acquiring maintenance skills as participants took turns to have hands on experience. From the training evaluation, the trainees rated the workshop relevant to their jobs.
- Maintenance tools and pump spare parts were not available at most of the local governments headquarters that were used as training venues. However some of the participants were able to locate private people who accepted payment in offering their tools for training.
- The community arrangement for maintenance of hand pumps was weak. In places where the trainees were able to repair pumps, the communities were neither able to provide spare parts nor fund to source for parts. However they were quite accommodating.
- Spare parts and working tools are not readily available in the open market.
- It was evident that lack of tools and spare parts at the LGA's already limits the usefulness of existing LGA knowledgeable maintenance staff who could have assisted in repairing many of the pumps that we saw were broken down.

Output

A total of 430 Local government Water and Environmental Sanitation (WES) staff received training on Water Supply and Sanitation facilities maintenance; in the series of trainings conducted by NWRI in April, June and September 2007. There was a 56% coverage nationwide when the total attendance is compared with 774 LGA personnel that were expected to participate in the trainings.

However as NWRI learnt from each set of trainings, there was a remarkable improvement in attendance in subsequent trainings as the local governments were given more time to send nominations for the training courses.

The capacity of the LGA WES staff trained has been upgraded through hands on practical exercises at selected sites nationwide. This group of trainees will become part of the NWRI database that will help in the monitoring and evaluation of the capacity building of community Water and Environmental Sanitation Committee(WESCOM) personnel which is another major component of the FRWSSP capacity building.

In effect the hub of a national network of trained personnel to help in the improvement of sustainability of handpump borehole rural water supply through facilities maintenance in Nigeria is taking shape. A few of the practical sessions photographs from the author's field work in Oshogbo, Osun state are as follows.



Photograph 1. Dismantling an India Mark III hand pump



Photograph 2 Emphasizing some maintenance procedures to the trainees



Photograph 3. Maintenance function of some of the pump parts



Photograph 4. Pump restored to service

Conclusion

Investing in capacity building for hand pump maintenance is good business for national economies. The recent trainings conducted by the National Water Resources Institute, Kaduna for Nigeria LGA Water Supply staff is a salutary effort towards improving the access to water supply and sanitation. A total of 430 Water Supply staff of local governments in Nigeria have been trained in water supply facilities maintenance.

As the capacity building component of the FRWSSP unfolds, more people will be empowered technically to help restore to service many of the hand pumps that are not working nationwide. As more hand pumps, currently sitting idle on boreholes, are brought back to service through maintenance there should be a discernible improvement in the sustainability of rural water supply in Nigeria.

A by-product of the planning for implementing the trainings is the synergy between NWRI, the Federal Ministry of Agriculture and Water Resources, Local government commission and the 774 local governments in Nigeria. Undoubtedly the current effort at NWRI will help in developing a national network to facilitate better coordination of effort towards achieving the MDG for water supply in Nigeria. The Federal Ministry of Agriculture and Water Resources should lead all stakeholders in the rural water supply sector to develop a reliable chain of spare parts supply nationwide.

It is noteworthy that the enthusiasm of the trainees and the cooperation received from community leaders at the various practical training sites was heartwarming.

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