20th WEDC Conference Colombo, Sri Lanka, 1994

AFFORDABLE WATER SUPPLY AND SANITATION

Handpump maintenance in a difficult environment

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BOREHOLES EQUIPPED WITH HANDPUMPS has been the prevailing technology for a number of the UNICEF-assisted Water Projects in rural Angola during this extended period of civil war, adverse economic conditions and frequent drought.

As a consequence of the political instability in the country, there is a lack of a uniform community based system to regularly maintain the boreholes and pumps after installation. No information database network exists at the national level for the planning / monitoring of this activity in the provinces. There is no water-rate tariff policy or community ownership of the water sources, no decentralization of technical services, and beneficiaries do not pay for water and repairs. No standard schemes for logistic or local manufacturing (pumps and spares) are in operation.

The consequence of this missing infrastructure is a very short-term service life of newly-installed handpumps. Meanwhile costs are very high since only UNICEF / Government centralized technical / materials bases for drilling equipment exist and these are completely dependent on imported technology / materials. Also, support for rural areas must be mobilized from the capital. For example, in some provinces because of the war we transferred heavy drilling rigs, such as "Ingerssol-Rand" TH-60 or "Halco", as well as trucks, tank-trucks, auxiliary equipment and materials, personnel, etc., by cargo airplanes (though this service was mainly free). Moreover, due to difficult local environments, the appropriate complete baseline / hydrogeological survey is often impeded on the spot resulting in an increased number of negative boreholses. Hence the high borehole costs are underlining the necessity to guarantee adequate levels of handpumps maintenance.

In the middle of 1991, after 15 years of war, when the peace-agreement coincided with launching the new State structure, the National Directorate for Water, the author designed and submitted for approbation the Handpump Maintenance Mechanism originally for the three southern provinces of Angola. These were the most developed of the joint UNICEF / Government rural and peri-urban WES Programme.

The mechanism should then have been extended to all provinces.

On the basis of previous extensive field experience, this mechanism has been interpreted in the graphic image of Community Based Handpump Maintenance Scheme to be established parallel to the 1991-1995 UNICEF / Government WES Programme. This scheme envisages three stages in the step-by-step development of handpump maintenance activities: successive creation of handpump maintenance brigades first at the provincial level, then at the municipal level, formation of the Mechanic's Corps at the municipal and communal levels; and of the Caretaker's Corps at the community / village ('aldeia')level. The scheme was to become the principal document for planning, implementing and managing all permanent maintenance of water points in rural areas.

Stress is laid on improving local capacity; on the promotion of a permanent training system; on social mobilization / motivation of the local population in hygiene, environmental sanitation and primary health; on involving women broadly in the handpump maintenance / sanitation activities.

The Scheme became a part of the existing Authority structure, but we planned to make it adaptable and flexible if the Authority structure should change. Because of the renewed civil war since October 1992, one of the important ultimate aims of our work in respect of the Scheme construction has not been achieved. I mean the attainment of self-reliance: handpump public ownership provides for the self-regulation of all handpump maintenance activities. Although we ensured that the Scheme, with its simple and clear active mechanism, contained only the three basic communication links (provincial, municipal, community / village) both for management and for feedback, these were completely, or almost completely, destroyed in various provinces.

Since the beginning of our work on the Scheme we have placed particular attention on the need to put into practice the standard register / monitoring system, on the basis of the simple model uniting needed water-points' data. We have, conditionally, named this versatile form as APRIM: Accounting / Planning / Responsibility / Information / Monitoring. The form is the size of a normal sheet of paper containing data for 20 water points. The following positions of the form stand in a row for each water point: consecutive number, location, quantity of local beneficiaries pertaining to each water point, some technical field observed data (for boreholes: depth, hydrostatic / dynamic levels, discharge), pump's type, name and address of caretaker, maintenance schedule chart for each year (divided into months) and some space for notes. On the upper part of the form there is some space for approval by responsible administrative and technical persons at the appropriate levels.

Besides acceptance of this single standard register-form in handpump maintenance programmes in all

Figure 1. Caretaker's certificate (front).

Figure 2. Caretaker's certificate (reverse).

regions (at the moment they are being used in eight provinces), we have been given the green light to go ahead with an initial database with targeting the well-grounded standardization of the handpump type to be applied in the country and possibly the local manufacture of handpumps and spare parts in the foreseeable future.

The fact that a model of the register-form is applicable everywhere with the framework of the Scheme appears to be very important at the diverse levels. It can be used by "low-downs" such as local handpump caretakers and community persons as well as by "high-ups" at all the Scheme's intermediate levels.

So far handpump maintenance teams in nine provinces have been formed and trained and besides that municipal level mechanics have been trained in a futher four provinces.

At the same time, Handpump Caretaker's ("Zeladores") Seminars were held with an agenda including elements of environmental sanitation, personal hygiene and health education in water-borne deseases. Depending on the location and the literacy level of the local population, the composition of the seminar personnel changes to include combination of teachers, administration, public health, religious or sanitary staff, local activists etc and the motivation method applied was also different ranging from classical lessons and practical studies to drama lessons based on traditional forms.

During the selection of caretakers, the methods used were approved by the local authorities and traditional village elders ("Sobas") and community customs were also taken into account.

Each seminar participant receives the Certificate of Caretaker. We used a new Caretaker's Certificate filled in on both sides of a normal sheet of paper which is also a caretaker's personal manual containing a summary, in pictures, of the seminar. (Figures 1 and 2)

That type of certificate-manual gives an idea of the simple self-help appropriate solution for improving local water points and local sanitation, with maximum inputs from local people.

For example, while Caretaker's Seminars were often held in peri-urban districts and provisional camps, overcrowded by displaced persons from different locations, even from other provinces, where various kinds of water sources are on the spot available. Then, a displaced seminar participant can, relative to the manual, choose which system to apply in order to improve the native water source near by a place of his permanent residence left temporary by now.

Thus in the case of present Angola, there is, on the one hand, the absence of any elements of the handpump owner self-reliance as well as, on the other hand, the absence of a strong National Directorate of Water network (while it took on the role of the central executive Government's body for the water management, most of local WES sector units in provinces are not subordinated organizationally to it) and, as a consequence, the absence of something like a Maintenance Scheme communication links both to and fro.

Hence it follows, consistent registration procedures, already introduced on the basis of APRIM's uniformity, and the successive social mobilization / motivation / training process are the key features of continuing handpump maintenance activity in the country.

Why are these very important not only currently but for the future too? The current organizational status of the Water and Sanitation Sector reflects the previous administrative and institutional steps taken by the State. Although up to now we do not have a clear idea as to future provincial Government hierarchy and likewise, possible WES Rural Administration Structure following a near peace-agreement, it is implied that the proposed model of a uniform versatile register-form, as well as the already partially-created provincial level handpump maintenance teams, mechanics and caretakers corps, should serve in any case as the basic initial elements for the Community Based Handpump Maintenance Scheme which has to correspond to any coming provincial Administration structure.

Therefore the mechanism of this Scheme could begin to run in peace conditions (after the permanent Administration structure has been established) in those areas where reliable stock of unified data of the properly registed water points has already been collected and human resources locally trained.

This would permit more effective water supply and environmental sanitation sector approaches, with primary health care, to maximize the impact of socially integrated programmes in rural areas of the country.

In fact we are here using a variety of other appropriate technologies in rural areas, peri-urban locations, refugees camps etc., such as:

- construction of borehholes equipped with submersible pump / generator and piped distribution systems;
- river or spring water intakes equipped with electric / motopumps, elevated water tanks, gravity distribution water supply network and public water fountain distribution ('chafazizes');
- rainwater harvesting schemes including traditional ground pools ('chimpacas');
- hand dug shallow wells ('cacimbas').

All of them could be placed within the scope of the described Scheme, also applying the standard register-form and specific training programmes, thus creating a truly flexible and adaptable working model of the water source maintenance mechanism for all rural areas of the country.