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Malawi water developments: A systems approach

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MALAWI IS WIDELY reported to have made significant progress in the provision of safe water supplies, largely as a result of the successful programme of run-of-river rural piped-water schemes and the development of an integrated approach to ground-water development using a village level operation and maintenance (VLOM) approach. The introduction of an integrated rural ground-water supply programme in Malawi was the major thrust of developments during the International Drinking Water Supply and Sanitation Decade (1981 - 1991). The 'integrated' aspect of this programme brought together the borehole and the dug-wells programmes which had originally been separate programmes administered by different Government ministries.

Another aspect of 'integration' was to attempt a more *systems approach* to projects with socio-economic and technical aspects considered equally and where community participation strategies could be harnessed (as they were in the piped-water and dug-well programmes). The integrated approach would also incorporate sanitation and health education components.

It is instructive to note the historical development of rural water supplies in Malawi as it aptly illustrates the lack of a coherent and integrated systems approach. The responsibility for borehole construction lay with the Department of Geological Survey within the Ministry of Agriculture and Natural Resources. The rural piped-water and the shallow well programmes were implemented by the Ministry of Community Development and Social Welfare.

In order to bring all the agencies responsible for water developments into one organisation the Department of Lands, Valuation and Water (DLVW) was formed in 1980. However, there was still very little opportunity to carry out a detailed hydro-geological investigation. The evaluation of groundwater had traditionally been carried out by geologists rather than hydro-geologists and was based almost entirely on the routine use of geophysics in a very standardised way.

With the borehole programme siting of boreholes had traditionally been carried out with little appreciation of the general occurrence of groundwater and with hardly any reference made to existing geophysical or construction data.

Thus the borehole and dug-well programmes had grown up independently, without coordination and without due consideration for the most appropriate abstraction method for local conditions. Boreholes were sometimes drilled

where water levels were within 2 to 3m of the ground and dug wells were sited where water levels were deep. Furthermore, the construction and maintenance costs had risen and the widely dispersed activities of both programmes were difficult to manage and supervise. The overall result was one of high cost and low technical standards.

The concept of a 'low cost borehole' originated early in 1980, with the objective being to design boreholes which:

- can be rapidly and easily constructed at low cost;
- utilise low-cost casing and screen which is chemically and bacteriologically inert;
- have a relatively high hydraulic efficiency;
- have reduced and simplified maintenance requirements.

Two major and interdependent elements were:

- the design and construction of a handpump that could be manufactured locally and would permit a major contribution to maintenance to be made by the user community;
- the establishment of a largely community-based maintenance organisation for all water points to replace the inefficient and costly system operating in the past.

An important aspect of the integrated programme was the introduction of a village level operation and maintenance (VLOM) system which had both technical and socio-economic aspects. However, VLOM was a concept which seemed to mean different things to different people. (Hyde and Jespersen, 1994) noted:

'The handpump producer utilise the acronym as an addition to their trade mark to indicate that their product is fit for the most remote communities —. Planners see VLOM as a way to privatisation, thereby reducing the burden on government expenditures. Government institutions directly responsible for rural water supply regard VLOM as a means of reducing pressure on already overburdened public maintenance teams.'

In too many cases the VLOM strategy has been considered to be a panacea with too little attention paid to the way it should be implemented to ensure sustainability. There is a need to have a more systemic approach with socio-economic aspects featuring just as prominently as technical ones.

The issue of meaningful community participation at all levels of the integrated water projects in Malawi was not as effective as was hoped. The concept of community

participation focused on VLOM as a dynamic process, needing careful conception, constant monitoring, development and refining was not taken up.

Malawi had long recognised the difficulties of ensuring that maintenance strategies were sustainable. From the start of the integrated projects it was envisaged that the communities involved would be responsible for the operation and maintenance of the water points. However, although this message was communicated at all meetings held in connection with the choice of the water point site and self-help activities related to construction, the message regarding responsibilities for future operation and maintenance was not made concrete. In reality the VLOM system as such was not developed until the end of the execution phase of the project, i.e. at the handover of the water point to the community.

Sustainability of VLOM

Sustainability is dependent on a number of factors: the community's commitment to the project, affordability to the users; viable community institutions, the development of skills, the supply of spare parts, etc. The question of *means* needs to be addressed, i.e. has the community the resources/ finance to take on the long-term operation and maintenance of the project? In Malawi, the biggest problem regarding the community's continued support was related to financial uncertainty due to the floating of the country's currency and rampant inflation.

A basic requirement for the function of the system is user confidence in their own abilities to manage VLOM with respect to organisation, finance and technical aspects. This confidence can only be built up gradually, with the community institutions developed early - if possible even before sites for the water points are identified and drilled. In this way the institutions can be incorporated into the planning process from the very beginning and resistance towards full community responsibility avoided. There needs to be adequate training and sensitive support in place. The appropriate level of support is best introduced through careful monitoring taking into account social and technical factors. This needs attention to process with the user's demand of, and reaction to, the structures and function of the VLOM system taken fully into account.

A further reflection on the concept of sustainability needs to be stressed. It should not be interpreted as some search for the perfect equilibrium situation. Change is inevitable and unforeseen circumstances are bound to arise. So what sustainability is really about is the capacity to respond, to adapt and, if necessary, to invent new solutions. The challenge here is to absorb this outlook into a VLOM approach with a real community development focus being an essential objective of any project. VLOM needs to be seen to be a *dynamic process*, calling for constant development and refinement to cater for the increased skills obtained by the communities. This increases the possibility of having the users take further

responsibilities within the system and, ideally, taking ultimate charge of it all, possibly through private business structures.

The possibility of establishing genuine consumer co-operatives to cater for projects should be investigated. This would enhance community participation in all aspects of operation and maintenance including spare parts and continued training. A co-operative based project in which organisation and resources/ finance were worked out by the community at the start of the project would probably further the VLOM and sustainability objectives.

In a specific project in Malawi serving an area with a population of about 60,000 the introduction of a maintenance system for a new technology was a demanding task which could not be rushed. Besides training, support is an essential part of the maintenance phase. This is needed to ensure that when problems arise they are immediately discovered, explained, discussed and appropriate action taken. In this way the community not only builds up confidence in its own ability to cater for the technology introduced, but also, and perhaps more importantly, develops an awareness of its ability to become more self-reliant. This is a fundamental requirement in taking seriously the challenge of the concept of 'sustainability as a dynamic process'.

Outcome of a typical project in Malawi

The Karonga Lakeshore Integrated Rural Groundwater Supply Project in the Northern Region of Malawi completed its execution phase in March 1991, with the installation of 300 water points, 295 of which were fitted with Afridev deep well hand-pumps. This marked the actual commencement of the operation and maintenance phase, of which the first four years were to be financed by DANIDA on a declining scale.

Organisational structure

The Karonga VLOM structure is based on existing structures within the district. Ultimate responsibility lies with the District Development Committee, the coordinating body of all development activities in the district. Its membership consisted of the District Commissioner (chairman), district party chairpersons of all political parties, chiefs, heads of government departments, religious leaders and representatives of the business communities.

Since the Karonga project area covers two Traditional Authorities, each has an Area Action Committee. Each of the villages covered by the project was expected to have a Village Water Health Committee (VWHC) consisting of ten members, of which half should be women. For each water point there is an elected Pump Committee (PC) consisting of ten members, with the stipulation that at least 50 per cent should be women. The Pump Committee is responsible for the election of two pump attendants (PAs) for the repair and maintenance of its water points. It was recommended that at least one should be a women.

Support for the functioning of the VWHCs, PCs and PAs is given by the extension workers of the four ministries co-operating in the field, i.e. the Ministry of Women and Children Affairs and Community Service, Ministry of Health, Ministry of Local Government, and the Water Department of the Ministry of Works.

Project review findings

A sociological and technical review of the Karonga Lakeshore Integrated Rural Groundwater Supply Project was carried out. (Hyde and Jespersen, 1994) Among its findings were:

- Urgent action should be taken to educate the committees and the communities about the need to prepare for and meet future increased maintenance costs. Unfortunately, the use of water point maintenance funds no longer appears to be the answer to this problem because of the changed economic environment.' (The latter point referring to the floating of Malawi's currency and the resulting sharp increase in inflation.)
- An emphasis on reactivating district institutions and maintaining links with the Area Action Committees and the District Development Committees to ensure that a wider forum remains open to the communities for the discussion of major problems that may arise.
- A systematic health education system still needs to be established in the area. What little development materialised in this area was largely due to the project's training of the committees and a drama experiment put on by students. This was clearly not sustainable and once again showed how the 'integrated project' did not encompass a systemic approach.
- One of the major failings of the project was the timing of the VLOM phase of the project.

The concept of VLOM had been communicated to the communities during the execution phase of the project. However, a comprehensive VLOM framework was not presented to the communities before the actual handover. This was a major oversight and clearly showed that a project which had as its emphasis the development of a community-based sustainable system was confounded by the lack of the necessary community awareness/ involvement throughout the early stages of the project. It was

ironic that the emphasis with the VLOM approach was on technical aspects to the detriment of the community participation strategies so vital to the overall goal.

The implementation model that had been adopted followed the sequence:

Project Preparation - mobilisation - construction - handover to users - operation and maintenance (VLOM).

With this model users were not involved in the construction of the water points, but were simply taught how to maintain them after they had been constructed. The vital element of ownership of the water points was not properly addressed. The review already mentioned recommended a different strategy:

Preparation - technical and social mobilisation - establishment of operation and maintenance (VLOM) system - construction and simultaneous handover to users.

In other words, a great deal of effort should be put in at the start of the project to mobilise communities to prepare and train them for their role in VLOM. Before the water points exist it should be clear to the communities that ownership and responsibility for the water points rests with them. Although this will slow down construction activities it will ensure community participation throughout and help to develop sustainability.

What is needed in the area of VLOM is to appreciate advances in the new ways of thinking about system. System evolution includes a participative learning process which partly shapes the dynamics of social system development. It is crucial for policymakers to accept that policy formation is a dynamic process with the necessity to adapt to changing circumstances *at the policy implementation stage*. This crucial aspect of development is still ignored by policymakers to the detriment of any real advance in community participation.

References

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