



Identifying policy gaps in development of DRWH

Rajindra de S Ariyabandu, Sri Lanka

DOMESTIC ROOF WATER Harvesting (DRWH) is a common phenomenon in most developed and developing countries where water has to be collected and stored for future use. Rainwater can be used for different purposes - for future use in water scarce periods, to supplement municipality water when the cost of water is exorbitant or to improve household water security in wetter areas like the tropics. One or more of these reasons has caused the recent rapid development of DRWH in Africa and Asia. Essentially, the development of DRWH in the last decade has been as a household water supply option. However, the success of any water supply option will depend on the political commitment and policy of the respective governments.

The Rainwater Harvesting Group¹, which has been actively researching into various rainwater harvesting issues in the humid tropics, has been awarded a DFID funded research contract, to explore the possibilities of establishing affordable technological options to poorer households in the tropics. The countries studied include Uganda, Ethiopia and Sri Lanka, which are characterized by tropical weather patterns. "Information needs and Government policy" is one component of the study, which is expected to look at existing policy gaps in respective country water policies and practices.

This paper highlights the findings of the initial inception phase of the study, which examined the information gaps in the development of DRWH, among water professionals and policy makers. While there were a number of contentious issues, the paper discusses the existing issues under four broad categories, policy, cost benefits, technical aspects and awareness. Finally, the paper presents some outputs from the DFID funded study which is exploring the possibilities of finding solutions to some of the problems and constraints faced by poorer communities in securing their household water security.

Policy Issues

The water policies of the three countries identify water as a basic need for the survival of its people and hence there is a focus on developing sustainable water resources. However, there is no explicit reference to DRWH or RWH for domestic use in any of the national policy documents. While development of water policies in developing countries are mostly as a result of water sector reforms, commodification of water has been at the forefront in their agenda. In this context more effort has been made in the

development of capital intensive water supply options with cost recovery or cost sharing as the paramount slogan. Ethiopian water policy clearly mentions that there should be full cost recovery in all urban water supply and partial or operation and maintenance cost recovery in rural water supply (Woldemariam 2001). In the proposed water policy of Sri Lanka, there is no cost attached to water, whether it is urban or rural but it proposes the allocation of water through an entitlement system which is given only to bulk water users. Small scale or livelihood water users are exempted from holding water entitlements, while their water security is ensured through the proposed policy (Water Resources Secretariat 2001).

Sustainability of rural water sector projects is often justified through cost recovery/cost sharing. This issue is firmly endorsed in the new water policy of Ethiopia (ibid 2001). However, to maintain equity in water allocation for the poorer sectors, the Ethiopian water policy introduces a "social tariff" which is at an affordable level of payment for the poor. However, reports from Uganda indicate that there is a significant failure rate (30%) of rural water supply projects due to ignorance of demand responsive approaches (DRA) (Ddamulira 2001). Lack or ignorance of applying DRA can be attributed to limited success in development of DRWH projects in the countries concerned. In Sri Lanka, the National Water Supply and Drainage Board, implementing the third Asian Development Bank (ADB) supported rural water supply and sanitation project, employs DRA to a limited extent.

Lack of clear policies and action plans in Ethiopia and Uganda appears to be another deterrent to development of DRWH. However, this has not been a hindrance in Sri Lanka, where donor supported projects and development NGOs have taken DRWH as an option for rural water supply. While the National Water Supply and Drainage Board adopts DRWH as an option in their Rural Water Supply and Sanitation policy, the proposed National Water Resources Policy, does not refer to DRWH as an option for water supply. However, the proposed Water Act mentions DRWH as an option under its water resources plans in river basins.

Though there had been varying degree of success in development in DRWH in the three countries concerned, the national governments have largely been passive observers leaving the development to be taken care of by "development NGOs" and special projects. There are a number of reasons for this situation.

Cost Benefits

The experience that exists in the three countries concerned is essentially for individual domestic water supply. In Sri Lanka there are large-scale DRWH programmes in operation, which are targeted at individual households. Each of these systems (5000 litres) costs between US \$ 120-150 (US \$ 24-30/m³). In Uganda the individual systems are mostly informal (drums and barrels) and research is under way to produce storage containers (600-1000 litres) under US \$ 50. In Ethiopia the constructed storage tanks are mostly large capacity ranging from 40m³ to 150m³ where the cost is very high (US \$230/m³) Given the cost consideration and the level of service, respective governments are reluctant/ unable to invest in large scale DRWH projects.

However, most DRWH programmes have failed to inform the policy makers of the benefits that can be accrued from DRWH, whether it is individual household systems or community institutional systems. One reason for this is that DRWH is known more for its social and qualitative benefits, than quantitative or tangible benefits.

Another issue highlighted in the African study reports was the absence of a comparative cost benefit for different water supply options. DRWH may fail a comparative advantage test where other sources of water are plentiful but in water scarce situations and/or with poor state managed water supply options, DRWH can emerge as a winner, though these achievements are usually ignored

Technology

The dilemma that exists at present with policy makers is the compromise between cost and capacity of storage tanks. Surveys and studies from the three countries have clearly indicated that the demand is for larger storage at lower cost. While there are different structures available for storage tanks, ferro cement technology appears to be gaining ground with respect to cost and structural acceptability. As indicated earlier the cost of a 5m³ ferro cement storage tank in Sri Lanka is way beyond public or private investments. Current research conducted under the DFID supported study has managed to reduce the cost to approximately US \$ 50 for 5m³ for a similar volume of storage but in the form of a partially underground ferro cement tank. Similar research is being conducted in Uganda and Ethiopia to reduce the cost of storage tanks. Hence, in the present context rainwater is often considered as a high delivery cost, low perceived value product but the policy expectation is to make it low delivery cost, high perceived value product. This will have to be dealt with by addressing technology and quality of rainwater.

Technological innovation will not be of any use if it is not targeted properly at the right time. The success of the 'Thai Jar' programme in Thailand is a classic example of how DRWH should be introduced. The 'Thai Jar' programme got off to a rapid growth phase in the development curve due to favourable environmental conditions, affordable prices and an upward turn in the Thai economy. The cost

of storage tanks in Thailand was brought down to under US \$ 15 for 2m³ due to mass production.

While this should be the model to follow, it is not clear whether the environment in the three countries concerned is favourable to the take up of DRWH in a rapid development phase. With respect to Uganda and Ethiopia, DRWH is still in the introductory phase with further research and development supported by the conducive environment necessary before it can approach the rapid growth phase. Sri Lanka on the other hand has achieved rapid growth in development of DRWH but the propagation is through donor/NGO driven subsidies. True rapid growth can be achieved only once the technology meets the market demand. Sri Lanka has yet to reach this stage and with the current state of the economy the full market potential of DRWH is a distant dream. However, what policy makers need is an assurance of the quality of rainwater, its storage life and operation and maintenance costs of the low cost RWH technologies.

Awareness

In developing countries the success of rural development projects depends to a large extent on political will and commitment. To be committed to a cause, one needs to be aware of the impact projects have on the communities. Lack of awareness has been highlighted as one of the primary concerns of all policy makers. Acceptance and promotion of a technology like DRWH, which is still, very much considered as a last option for domestic water supply, needs a concerted effort in awareness creation. Awareness creation should be targeted towards the national governments that are expected to include DRWH in their development agendas.

Reliable information and data are paramount to effective awareness creation. Unfortunately, in all the three countries, only NGOs consider DRWH as an effective means of domestic water supply. Therefore, there is no state authority/institution responsible for information and data collection. Such information can be a powerful tool in convincing policy makers of the opportunities for DRWH. Often the mandate of NGOs is implementation of projects and not so much an ensuring of their sustainability. Also with limited budgets, NGOs will not invest in R&D. Likewise special projects have their development goals, through which the implementers are bound to their donors. Hence, R&D gets a low priority. This means a dearth of R&D information, which affects overall awareness. Lack of reliable cost benefit data, water quality information and criteria for selection of beneficiaries are all part of inadequate R&D. While the two African countries severely lack research information, Sri Lanka has been conducting ad hoc location specific research on DRWH.

Lack of an identified institutional niche for rainwater harvesting is another drawback in the respective countries for effective awareness creation. Presently, three NGOs, Lanka Rainwater Harvesting Forum (Sri Lanka), Water Action (Ethiopia) and ACORD (Uganda) are providing a

temporary niche for DRWH. However, due to their implementation oriented mandate, collection and dissemination of reliable data and information are not one of their priorities.

Role of the DFID project

One of the main thrusts of the DFID project is to produce low cost designs for DRWH which is also reported elsewhere in this conference. The initial surveys have highlighted the existing costs of DRWH storage in the respective countries and in Thailand as a special case. The purpose of new low cost designs are to make them more market friendly so that the up-take of low cost tanks will be at full marginal cost. Research conducted on structural designs in Sri Lanka and Uganda has evolved new low cost designs, which can be on the market for approximately US\$ 40 (excluding family labour) for a 5m³ partially below ground tank. Further cost reductions have been exhibited using local raw material like “anthill soil” as commonly found in Sri Lanka. Use of “anthill soil” is still at experimental level, hence no wider application can be recommended.

The project has experimented with using these designs with water users giving many of the inputs free of cost. It is hoped that the success of these designs will lead to them being adopted by the larger government/donor supported projects.

Conclusions

Though DRWH has been in operation for a number of year in the countries under study, politicians and policy makers have yet to be fully convinced of the potentials of DRWH. While NGOs and special projects have their own limitation in promoting DRWH, their future involvement should

focus on three key aspects; local level awareness creation moving towards the center, effective, locally focused dissemination strategy using electronic and print media and a well formulated research component focused on data and information management

Notes

¹ A small group of researchers from Warwick University, U.K, Lanka Rainwater Harvesting Forum, Sri Lanka, ACORD Uganda, and Water Action, Ethiopia

Reference

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RAJINDRA DE S ARIYABANDU, Director, Policy Planning Water Resources Secretariat, Sri Lanka.
