UNDP-World Bank
Water and Sanitation Program

Lessons from Large-Scale Rural Water and Sanitation Projects:

Transition and Innovation

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These Urban Environmental Sanitation Working Papers have not been formally published and this is an opportunity to share this information more widely to:

- stimulate discussion and to broaden thinking within the sector, and in particular, to encourage dialogue within and among our clients in developing countries; and
- build more awareness of the Program among UES clients.

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Lessons from Large-Scale Rural Water and Sanitation Projects:

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The thinking and practice of providing rural water and sanitation services is undergoing a significant transition in many developing countries. This paper will document the main elements of this transition and assess their significance for improved performance. Case examples from the field will be drawn from past and current large-scale projects, primarily, but not exclusively, World Bank-financed.[1]

What is happening is that centrally planned and implemented rural water supply and sanitation projects and programs are giving way to more adaptable water and sanitation programs which provide choices to users among technical options, based on their local demand (i.e. their willingness to pay) for services.[2] Although the transition is certainly not complete, elements of this transition have been evident for considerable time as people have struggled to overcome specific weaknesses in top-down, supply-driven programs. It is only recently, however, that these efforts have gained a more coherent rationale; an awareness of the necessity for substantial, rather than piecemeal, reform of policies and practice. This has focused attention on the central importance of getting the incentives right to promote informed choice by users and a willing and adaptable response from suppliers. It is this transition which is the subject of this paper.[3]

[1] In many of these cases, the staff of the UNDP/World Bank Water and Sanitation Program (referred to hereafter as the Water and Sanitation Program) has been involved in the design, implementation, and/or supervision of the projects. A partial inventory of such projects include: Bolivia, Rural Water and Sanitation Project (PROSABAR); Ecuador, Second Social Development Project (RWSS component); Indonesia, Water Supply and Sanitation Project for Low Income Communities; Indonesia, Health Project III; Philippines, First Water Supply, Sewerage and Sanitation Sector Project; Eritrea, Eritrea Community Development Fund; Kenya, Kwale Water and Sanitation Project; India, Karnataka Rural Water Supply and Environmental Sanitation Project; India, Uttar Pradesh Rural Water Supply and Sanitation Project, Nepal, Nepal RWSS Testing Project (JAKPAS); Pakistan, Rural Water Supply and Sanitation Project; Sri Lanka, Community Water Supply and Sanitation Project; Mali, Mali PASA (Agricultural Sector Project).

[2] Throughout this paper, "demand" is interpreted in an economic sense. People demonstrate their economic demand for a good or service if they are willing to buy it at the at the price at which it is offered. If they do so it indicates that they attach at least that much value to it compared to other uses of their resources, including paying whatever it costs for other sources of water or other goods. A project is more-or-less demand-responsive to the degree that such user choices and resource commitments determine the decisions actually made.

[3] This is one in a series of papers, seminars, and training activities relating to lessons from large scale rural water supply projects presented by the author of this paper and his colleagues in TWUWS and the Water and Sanitation Program.

What Is Driving The Transition?

Poor performance

The impetus for transition comes from multiple sources. The most obvious one is the performance of "traditional" Bank and Donor-financed projects. It is overly generous to say that performance has been disappointing. It has often been highly unsatisfactory in terms of the waste of scarce investment resources and the failure of supply systems to deliver reliable and sustainable services. Moreover, the unsatisfactory experience has been widespread among external support agencies, not confined to one or two of them. The following quotation from a 1994 evaluation report of a major bilateral is typical of evaluations done by many others:

> "After a period of twenty years and a [significant] investment, assistance to the development of rural water supply programs ... shows very disappointing results. ...Approximately half of the wells constructed in the past are out of order as a result of breakdowns and the incapability of the operations and maintenance system to take appropriate action.
>
> A number of factors account for the disappointing results and the non-sustainability of these rural water sector activities. ... However, the approach followed has also contributed significantly to the problems encountered over the past two decades. The planning and implementation of project activities were characterized by a top down, blueprint-oriented approach. Plans were biased towards water resource and technical issues. They were strictly non-participatory. Assistance was largely channeled through the consultant, by-passing recipient organizations from village to national level with respect to planning and to implementation activities. The [government's] policy of water as a free public service has also contributed to this low effectiveness. If water supplies are given as a free service there is only a limited scope for participation. Involving beneficiaries in project activities will also slow down the implementation rate. Therefore, the donor and consultant practiced only nominal participation, while they vigorously attempted to develop a maintenance-free handpump that could make the project independent of any village involvement in operation and maintenance."

Another example, from the World Bank, further illustrates the point. This comes from a presentation by a Bank task manager at the Water Resource Seminar in 1994, describing what led to the initiation of a new style project:

> "Previous to the current development plan, the government sought to address the [rural water and sanitation] problem by providing communities water supply and sanitation facilities. This WSS program had the following features:
>
> (a) **supply-driven:** government staff alone decided to construct water supply and public sanitation facilities in communities based on prevalence rates of water-borne diseases; demand was not a consideration;
> (b) **top-down decision-making:** intended beneficiary communities had no role in determining design and service level issues; no financial stake; and no sense of ownership;
> (c) **hit and run:** no attempt was made to organize the community and build its capacity for operations and maintenance of WSS facilities and other post-construction activities improving hygiene and sanitation practices.
>
> **Overall result:** The program had limited impact as many of the WSS facilities built did not last very long.
>
> **Lesson learned:** This and similar international experience has led the government and the Bank to conclude that: (a) a supply-driven, top-down and hit-and-run approach to rural water and sanitation does not work; and (b) setting quantitative targets coupled with the predominant use of number of facilities built and rate of disbursement as performance indicators created a bureaucratic mind-set that directly led to neglect of quality of construction and sustainability issues."

The strain on public resources

The emphasis on increasing coverage, without the necessary institutional safeguards at community and government levels to ensure sustainable operation and maintenance of service facilities, has created an unacceptable financial burden on governments utilizing traditional supply driven projects, as facilities

have deteriorated. Whether financed initially from external grants or loans, governments incurred (perhaps unwittingly) a "moral hazard" and were expected by the users to finance needed repairs and maintenance.

These "bills" became due in large numbers in the 1980's and 1990's, a period during which significant declines or slow growth in GDP/capita lead to reduced public resources. This situation had two profound deleterious effects. On the one hand, the experience increased distrust of government on the part of intended beneficiaries. On the other hand, it increased the reluctance of those responsible for generating public revenue to undertake new initiatives in the rural water sector.

Reconsideration of the respective roles of the state, communities, and the market

Similar experiences in other sectors, as well as pressure for both macro-economic and more micro-sectoral reform, has lead to a widespread rethinking of the allocation of responsibilities among the various stakeholders in many developing countries. Although the specifics vary across countries, the general direction of the changes resulting from this broad reassessment are clear. The market model is gaining ascendancy over the central planning model for allocating major shares of investment with more emphasis on demand.. Within government, there is a strong tendency to deconcentrate or decentralize government functions to more local levels. There has also been a move away from autocratic and single-party states toward more democratic forms of governance.

These changes taken together imply an expanded role for the private sector and for communities and households in production decisions and in expressing local demands for goods and services. There is now active investigation and actions in many countries and sectors of new roles for the private sector in investment, production and distribution of goods and services, including water and sanitation services. Similarly, non-governmental and community groups as well as individuals and households are increasingly seen as having a legitimate stake (voice) in decisions that effect them regarding service provision.

There has been a considerable effort in an increasing number of projects to encourage community participation in rural water supply and sanitation projects to help overcome some of the deficiencies in traditional supply-driven projects. There are several important lessons which have emerged from these efforts. Perhaps the most well known of these is that increased participation by communities tends to be correlated positively with project performance. This was demonstrated in an important Bank study, directed by Deepa Narayan, based on qualitative analysis of case study reports on over 100 water and sanitation projects with varying degrees and types of participation. That this inference is sound was further demonstrated in an article published in the World Bank journal, Economic Research, entitled "Does Participation Improve Performance? Establishing Causality with Subjective Data" Vol. 9 (2), 1995.[4] Although demonstrated in the same set of studies, it is less well known that participation which includes significant possibilities for community choice and decision-making is the most effective form of participation in improving performance.

A widespread consensus on guiding principles for transition in the water sector

These and related factors had combined by 1992 to point clearly to new directions in the water sector guided by different principles than those which prevailed in earlier projects. The water sector is not alone in this needed reorientation, as has been shown recently in an excellent review of about 800 Bank-supported rural infrastructure projects from the 1970s until now by Louis Pouliquen.[5] In the Summary and Conclusions he says:

> Turning from trends to project content and design, the main lesson that emerged from the review is that there are no blue-prints for success. ... One must therefore look not for blue-prints but for principles. Most of the principles that the review identified are related to "institutions", in the broad sense given to the term in institutional economics; that is, to use Douglass North's words: "the humanly devised constraints that shape human interaction".

He further notes that in most recent projects:

> Far more attention is given to policy issues most directly related to sustainability, more specifically beneficiary participation, decentralization, and financing.

The main principles, which can guide the needed transition in the water sector, were articulated forcibly in the Dublin International Conference on Water and the Environment (The Freshwater Conference) in 1992. This conference, attended by representatives

[4] The authors were Jonathan Isham, Deepa Narayan, and Lant Pritchett.

[5] Louis Pouliquen, "Rural Infrastructure: A Knowledge Management Framework" , Draft, 6/23/97. This paper reviews a portfolio of about $40 billion 1996 US$.

from more than 100 countries and all water using groups as well as most external support agencies active in the sector, provided a concise summary statement of the appropriate principles. Those which have the most significant implications for rural water and sanitation provision were:

- Water development and management should be based on a participatory approach, involving users, planners, and policy-makers at all levels. … It means that decisions are taken at the lowest appropriate level with full public consultation and involvement of users in the planning and implementation of water projects.
- Water has an economic value in all its competing uses and should be recognized as an economic good. … Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as a economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.[6]

The need for a transition guided by these principles is important in the entire water sector; but is nowhere more evident than in the provision of rural water supply and sanitation. As described earlier, the traditional policies and practices in the sector incorporated neither of these principles to the extent required. Rural water and sanitation services were largely treated as if they were solely "social" rather than "economic" goods. The major decisions about service provision tended to be made for, not by, the users in a centralized, supply and technically dominated manner, with little regard for locally expressed demand as distinct from definitions of "need" specified by governments.

The exciting challenge in the rural water and sanitation sector is how to effectively implement these principles in sector policy and practice. The challenge for the World Bank is to determine how best to facilitate this process. The two central features of implementing these principles which require modification in policy and practice are the kind and degree of decentralization of decision-making to be established and the relative weight to be given to demand from users (demand responsiveness) relative to supply considerations in the provision of service.

The Key Elements Of Policy And Practice To Be Changed

Centralization of major decisions

The two cases cited earlier are typical of the degree of centralization in most "traditional" rural programs in the post-World War II period. If government ran the program, the major decisions were usually made by technical staff in a central ministry. If external support agencies ran the program, technical staff of the responsible consultant made the major decisions, sometimes with and sometimes without involvement of the government.

This high degree of centralization in government and in externally financed programs was an anomaly in rural areas. It was created by the large expansion of external support efforts and the predominance of centrally planned development models in many developing countries over this period. In virtually all countries, prior to this period, however, the primary solution to rural water supply provision was much more decentralized. Rural people and rural villages largely provided their own water supply service.

Rural people still provide their own water supply and sanitation to an uncertain extent and of uneven quality in developing countries. A recent review of rural water services in Bangladesh found that, in spite of a large set of government and donor supported programs, over half of the rural population are supplied through private provision. These private facilities have a better record of sustained performance than those supported through the other programs.

It is unfortunate that official statistics on water supply and sanitation access to services in developing countries are not adequate to judge the extent, quality, or cost (monetary and social cost in the form of adverse health effects and time collecting water) of such private provision. It may well be the case that a significant portion of these existing private supplies are both adequate and safe.

The changes which are underway in the sector, nevertheless, are clearly in the direction of less centralization of decision-making in central government ministries. In many cases, however,

[6] From "The Dublin Statement on Water and Sustainable Development.

central government ministries (or in federal systems, such as India, state government ministries) retain some degree of overall responsibility. Implementation and operational responsibilities are shared in diverse ways by such centralized ministries, deconcentrated ministries, local governments, NGOs, private contractors, beneficiary communities, and households and individuals.

There have been several key lessons learned from recent experience with this element of transition. First, deconcentration or decentralization does not, by itself, necessarily improve rural water and sanitation services or make them more sustainable. Although most rural supply systems are technically relatively simple, they are institutionally complex. The nature of the interactions and the way responsibilities are shared have a strong influence on the outcomes. In the Rusafiya project in Nigeria, for example, the project was decentralized to the local government level, but the local project staff was not integrated with the local government and also had strong incentives to enroll as many villages as possible, regardless of their demand for the service. The result was a lack of necessary local government support as well as a disavowal of the responsibilities of the villagers in many of the enrolled villages. In the Jakpas project in Nepal, most of the implementation responsibilities were decentralized to NGO's who operated outside the government framework and also had strong incentives to be responsible for as many villages as possible. The result was that many of the NGOs were overstretched and had to be trained and provided additional technical support from other support organizations (other NGOs) at project expense in order to be able to fulfill the roles they were originally contracted to perform. A further result was that in the attempt to scale the program up to the national level, the government further blunted the efforts Jakpas had made to enlarge the beneficiary stake in the services.

Second, the rules and assigned roles of the various participants will be supplanted by informal rules and roles if the incentives facing the participants are incompatible with the incentives provided by the formal rules and roles. This is not a new lesson. It confirms findings which have been made in other sectors as well and demonstrates their applicability to the rural water and sanitation sector. In fact, it has particular relevance to the sector because of the normal multiplicity of ministries, operating units, and external support agencies involved with the sector. This increases the probability of incompatible and even contradictory incentive structures for the participants. Consequently, there are significant potential gains from efforts to achieve agreement on widely applied policies, rules, and definitions of roles in this sector.

Third, as noted by Pouliqen, "Decentralization, when it comes to rural infrastructure, is not a matter of 'ideology' but of necessity." However, it does matter how it is done. Unless the mode of change includes provisions for active community choice of whether or not to participate, the levels of service to be provided, and awareness of the price to them of their choices, decentralization is unlikely to lead to more sustainable services. On the other hand, when communities believe that they have such option–that service provision is genuinely demand-driven to a large extent–there is mounting evidence of greater sustainability of services. This proposition is undergoing an empirical test in a global study of recent large scale rural water projects in Latin America, Africa, South and East Asia. The study is under the direction of Jennifer Sara and Travis Katz of TWUWS and the Water and Sanitation Program and is based on user surveys. Preliminary results show a significant correlation between the degree of demand-orientation and the expected level of sustainability. The full results of the study will be available by the fall of this year.

The problem seen as a supply problem to satisfy a "need", not as an institutional problem to manage water as an "economic good" responsive to user demand

The bilateral and World Bank assessment cited above, both call attention to the supply imperatives implicit in the traditional approach. The aim of traditional projects was to provide technical solutions to a 'need' defined by central authorities. As the bilateral assessment states:

> "The planning and implementation of project activities were characterized by a top down, blueprint-oriented approach. Plans were biased towards water resource and technical issues. They were strictly non-participatory."

The World Bank assessment put it this way:

> **"supply-driven:** government staff alone decided to construct water supply and public sanitation facilities in communities based on prevalence rates of water-borne diseases; demand was not a consideration."

There were two key premises underlying this approach, both of which turned out to be more wrong than right. The first was that planning assumptions about what people need are good measures of the

value which villages should and would attach to the improvements. The second was that all that was required to achieve these values was to build technically sound facilities. A third premise was sometimes added to justify a "social marketing" approach in the project. That premise was that if the village did not value the improvement, even though they needed it, it was because they needed more training in how to get value out of it. If these premises had not been wrong, it would have been possible to correctly assert that there was no need for beneficiary participation (except in training events) or consideration of demand.

The design and implementation of traditional projects, on the basis of these premises, generally created incentives through the institutional "rules of the game" that discouraged decentralization, extensive local and beneficiary involvement, and attention to demand relative to supply concerns. It is slowly being realized that improvement in performance, particularly with respect to user satisfaction and sustainability, will require much more attention to institutional issues (at the level of changing the "rules of the game" and their implied incentive structures) and a serious effort to better understand local demand (in the sense of what kind of services people want and are willing to pay for). Transitions of both kinds are happening in the design, implementation, and operation of recent large-scale rural water supply and sanitation programs and learning is taking place in these projects. The progress to date, however, has been partial and relatively slow, as current case studies show. The primary reasons for the slow pace, that have begun to be analyzed in these cases, appear to be:

> *A reluctance to acknowledge the evidence of weak performance, from the point of view of the users.*
>
> *The strength of existing institutional incentives to retain traditional practices, for those non-user stakeholders who benefit most.*
>
> *A government preference for continuing to treat water as a social rather than economic good; coupled with the (mistaken) view that equity concerns are best addressed in this way.*
>
> *There is too little experience yet with the many facets of moving to a more demand-driven approach to offer comprehensive guidance about what works best and how to do it. Most of the case studies to date have been inconclusive in the analysis of these issues and the experience is too recent to be able to demonstrate conclusively the impacts on sustainable performance.*[7]

Managing Water as an Economic Good: Gaining Knowledge to Make a Productive Transition from Supply-Oriented to Demand-Responsive Services

Creating market-like incentives and competition in the rural water sector

Managing water as an economic good implies that it has a use value and that water development should be steered toward uses which are valued more highly than their development costs. The surest test that this is the case is that prospective users are willing to pay at least as much as the economic cost of the water provided. The traditional supply dominated approach to the provision of rural water services seldom came close to passing this test.

For some, the reason given for this was that the test was irrelevant because the social value of extending government services always exceeded the economic costs regardless of how high they were. It is relatively easy to see, however, that such a view severely biases the approach to service delivery choices and service financing of the supply increases some public officials and donors deemed to be necessary.

Even those who took the view that the market test and pricing were irrelevant had to address the questions of development cost and financing. One consequence of this was the drive to create "appropriate low cost technologies", where "appropriate" was defined as the minimal cost to provide a minimal level of services. These were adopted whether or not such services were seen by the users to be a significant improvement over their existing water source. Moreover, most projects did not offer different levels of service to the users because that would generally have increased the cost of services in circumstances where users were not faced with a price depending on the service level used. At least capital costs were generally fully subsidized by the government or the external support agency, so there was an incentive to keep control of costs at the

[7] Although this is being addressed systematically in the global study underway. Further aspects will be explored through research proposals from TWUWS and ARIS at the University of Maryland being considered by the Bank's Research Committee, Social Action Fund, and OED.

expense of reducing or eliminating user choices of service levels.

Another consequence was a preference for grant financing of rural service improvements and a truncated view of the financing problem. The focus of financing concern was predominantly to obtain greater sources of funds, without fully accounting for the obligations incurred in accepting the funds. As indicated earlier in this paper, the pressure when the "bills" began to fall due and grant financing became scarcer, were traumatic in many countries and lead to cutbacks in supply programs. The question then became how to ration the reduced funds.

A possible response to this question, that is responsive to the call to manage water as an economic good, is to ration funds on the basis of demand for services, offering users alternative levels of services at a known price to them. The lessons that have been learned from the downside of traditional supply-driven approaches strongly support this approach.

Competition for funds becomes important at two levels of decision-making: (1) the decision to provide support to particular localities and (2) the decision about the particular type of system and service level to construct. In many past programs, the localities to support were entirely pre-selected by authorities, often on the basis of need criteria. To be eligible for support was equivalent to being selected to receive an improved system–the only issue was where one was in the queue. Greater competition for funds can be achieved by shifting to self-selection by localities which apply under known rules about service options and cost-sharing requirements. Incentives for demand-based selection from service level options at the local level can be provided by negotiated agreements between the supply organization and the locality regarding payment of costs under the established cost-sharing rules.

There is also scope for introducing arrangements for the introduction of private sector and/or NGO involvement in the implementation of rural projects. There are numerous recent examples of NGO involvement in implementation of projects. In the Nepal project NGOs were contracted to provide support to localities interested in participating in the pilot project. This was also true of the pilot project in Bolivia. In other projects, such as the Malawi project, the private sector was involved in the construction of the facilities to provide an agreed level of service.

What is known about demand for rural water and sanitation services?[8]

Until very recently there had been very little systematic investigation of the demand for water and sanitation services in rural areas. With most traditional donor and government programs based on "need" criteria for determining who, among the rural population, would receive improved services and what kinds of service they would receive, it was thought unnecessary to do so.

However, it has now been established that demand (willingness to pay for level and amount of services used) for improved water services in rural areas is often positive enough to support levels of service above the minimums often prescribed. Demand is not well correlated with need-based estimates of affordability, and cannot be predicted well on the basis of income alone. The practical significance of these findings is enormous. they mean, for example, that a project targeting only the poor does not require extensive government subsidies, as had been assumed in many past donor and government projects. It means that a project which anticipates that people will pay 3-5 percent of their income for services (the "rule of thumb" affordability criterion often used), if provided, may well be surprised–some will be willing to pay less and, possibly some will be willing to pay more. Which outcome will occur depends on the interaction of the joint effects of a number of key factors in addition to income. The Water Demand study found that:

> "household income, though often important, is not the overriding determinant of demand for improved services."[9]

There are three sets of factors which together influence demand:

1. The socioeconomic and demographic characteristics of the household, which include income as well as such characteristics as gender, education, occupation, and assets.

2. The characteristics of the existing or traditional source *relative* to those of the improved supply, including differences in

[8] This section draws primarily on the work of the World Bank Water Demand Research Team, headed by John Briscoe, as summarized in "The Demand for Water in Rural Areas: Determinants and Policy Implications", *The World Bank Research Observer, January, 1993.* The demand for rural water was investigated in Latin America, Africa, and South Asia during 1987-1990.

[9] Ibid. p51.

cost or price, quantity, quality, and reliability.

3. Households attitudes toward government policy in the sector, toward other organizational representatives with whom they deal, and their sense of entitlement to government services (for water and other services). If households feel entitled by right their willingness-to-pay tends to be low. On the other hand, if they do not have to make payment to non-local governments their willingness to pay is increased.

The fact that all of these factors can influence whether people want and are willing to pay for a particular "improvement" means that user input is crucial in order to determine demand, not just a nice participatory gesture, in designing programs and selecting the kinds of systems, levels of service offered, and the conditions under which they are offered.

It would stretch what is known to select any one of these broad categories or a few elements of them as universally the most important; although that is implicitly what happens when "need" criteria are used to decide who should be served and what levels of service are appropriate, rather than criteria based on user demand. It is worthwhile, however, to say a few more words here about the second category of determinants; since this category has not been given the attention it deserves in traditional projects. The demand studies show that the cost (price), perceived quality, reliability, and level of service *differences* between existing supplies and improvements all have significant impacts on demand. For a given level of service, the willingness to pay declines as the price increases as economic theory predicts. People are willing to pay more if they perceive the improved service to provide higher quantity or better quality than existing sources and to be more reliable. They are also willing to pay more for higher levels of service–house connectiions, yard taps rather than handpumps and standposts. The failure to take these factors adequately into account in traditional programs goes a long way toward an explanation of the lack of sustainability in provided facilities.

Is it reasonable to assume that greater demand-orientation in projects and programs will result in more sustainable services? How can the idea of a demand-orientation be made operational?

These are the most critical questions to answer in judging the value of the transition which is underway from a top-down, supply-oriented approach toward an approach featuring more demand-orientation. Evidently, many in the Bank have concluded that "demand-orientation" is a good thing; given the frequency with which claims are made, in Bank documents, that activities which are being promoted (ranging from any kind of participatory activity, social action program, or decentralized activity) are, without qualification, "demand-oriented". We believe the term is in the process of being seriously devalued, due to imprecise specification and consequent overuse. Before answering the critical questions cited above it will be necessary, therefore, to attempt to be more precise.

One difficulty in doing so is that both supply and demand orientation are relative, not absolute, terms. That is, activities, projects, and programs can be more or less supply or demand oriented. The degree is a function of two main variables: (1) the locus of decision-making regarding the service and (2) the range of critical decisions which must be made by users and by others. If the decisions are made locally to participate or not and if other decisions regarding the level of service and the period over which the system will be built are perceived to be based on user preferences, a program or project is likely to be more demand-oriented. It is also the case that negotiated arrangements for cost-sharing based on transparent rules tend to be more demand-oriented. There is no magic ratio of user cost sharing to total cost that is demand-based; but it is possible to assert that the higher the ratio the more demand-oriented the program is likely to be.

Can there be subsidies in demand-oriented programs? The answer is yes, with qualifications. There is fairly widespread agreement that the users must be responsible for operation and maintenance costs and pay for them with cash and/or labor to have a chance of sustainably delivering service. The critical

question is whether on not that is sufficient. On the whole our project experience shows that it is not. Paying for O and M only has a tendency to limit the range of technical option that will be considered, although there is a considerable range of capital costs of feasible options. In some projects (e.g. Indonesia) the program rules specify a maximum project cost that is eligible for a subsidy, with the community being responsible for any costs that exceed this maximum. This creates pressure to raise the maximum and tends to lead to greater subsidies. In many projects, cost sharing arrangements are stated in terms of a percentage of cost to be borne by the users. This is confusing to users when they have to make a choice among options without an assurance of the total cost. It also creates an unknown liability in the form of the amount of subsidies for which the government will be responsible. It appears to be preferable, if there are to be subsidies, that they are stated in terms of a per capita or per household amount, with the users being responsible for all additional costs. In this case, the government's fiscal responsibility can be fixed in terms of number of people which can be served for a given budget allocation and the users can get a relatively clear picture of what the price to them will be for alternative levels of service. Such a system was proposed in the case of the Malawi project.

Recommendations

Project experience confirms that predominantly supply-oriented and centrally directed approaches to rural sector services have very little chance of sustainable improvement.
An important transition is taking place in the sector toward a more locally controlled and demand-oriented approach. TWUWS and the Water and Sanitation Program are actively involved in this transition. At the sectoral level, this approach is similar to the approach recommended at more macro levels in the latest World Development Report, "From Plan to Market. The main elements of this approach are:

1. The development of rules which provide incentives for users to reveal their demand and supply agencies to act on this information.

2. The development of implementation procedures which encourage adherence to the rules and transparency in their application.

3. The active monitoring of performance and hypothesis testing.

4. Feedback of the results to users and supply agencies for needed modifications of the rules and implementation procedures indicated by the monitoring.

Rules

The rules enable the transition through their incentive effects. Applying the principle of keeping the rules as simple as possible, the following are recommended:

1. Eligibility Criteria: Eligibility rules for participation should be broad enough so that eligibility does not, by itself, guarantee that every eligible community will receive service during a given time period. Service commitments should follow, not precede, community initiative in seeking the improvement.

2. Technical Options and Service Levels: Communities should be actively involved in selecting service levels. A range of technical options and service levels should be offered to communities, and their related cost implications made clear.

3. Cost-sharing arrangements: The basic principles of cost sharing should be specified and community responsibility for meeting the costs (capital and operation and maintenance cost) made clear from the outset. These principles should aim at negotiated cost-sharing arrangements in which the local community chooses the levels of service for which it is willing to pay.

4. Responsibility for investment support: Particular Emphasis should be placed on responsibility for the sustainability of investments. Rules should be set regarding asset ownership, operations and maintenance, and the on-going recovery of system costs.

This set of rules is sufficient to operated a demand-oriented sector program or project.

Implementation Procedures

The second element–implementation procedures–will play a major role, however in the performance. The roles that must be performed are numerous and include information transmission to potential user groups as well as a variety of technical, training, and listening tasks. For the rule on eligibility criteria to have the desired effect of eliciting positive responses from communities which have a high demand for services, information about the program and its rules must be transmitted to all eligible communities clearly.

The objective is to create a level playing field among those eligible.

The determination of possible technical options and their costs call for skill and openness in the process of system design. It is not up to the technical support group to determine which technical options will be chosen in a particular community. The chief difficulty here might be for the technical support personnel to make "a premature closure of alternatives" based on their judgment of what is appropriate. Much will depend on how the options are presented to the community and the realism of the cost estimates.

For the cost-sharing rules to convey the right signals, it is necessary for the rules to be applied consistently. Pricing of rural sector services is a delicate issue everywhere, so the burden on support groups is expected to be significant on this topic. Special treatment of some communities relative to others with respect to the application of the rules is likely to distort the demand information the program is attempting to elicit

Preliminary results from the Global Study cited above indicate that knowledge of operation and maintenance requirements by the community is an important determinant of sustainability. Thus, the team supporting the community must be able to transmit the necessary information to those who will be involved in these categories.

There is no particular recommendation about who should perform these support functions. In many projects it has been found appropriate to utilize NGOs for these functions; but in other cases decentralized of deconcentrated government units have been appropriate.

Monitoring and Hypothesis Testing

It is intended that these projects be self-consciously utilized to learn. Although this is often said about most activities, it is particularly important in these cases because current experience is limited and it is expected that local cultural and other patterns will have somewhat varied effects on performance. TWUWS is initiating external research on these issues; but it is still necessary to review projects in their individual and country contexts. The reason for emphasizing hypothesis testing is that the kind of monitoring required goes beyond normal monitoring for project supervision purposes–different kinds of data will likely be required and provision should be made for analysis of the data in a systematic manner.

Feedback and Adaptation

While the transition underway in the sector–toward economic management of services and increased emphasis on demand–is based on sound intellectual grounds and a wide and growing consensus about the way forward, much remains to be learned about how to go about many aspects of the transition. It is certainly not possible to construct and authoritative "how to" manual of the basis of current experience. Nor do we believe that this approach will ever lend itself to a "blueprint" approach. That is one reason this paper concentrated attention on a few key principles, which are emerging as being particularly relevant ones. Nevertheless, it is reasonable to expect that additional lessons will be learned that it would be beneficial to apply. To help ensure that outcome mechanisms for feedback and possible adaptation need to be built-in at the start.

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