

CHANGE MANAGEMENT INITIATIVE

Origins: Faced with a growing water crisis and a problem of identity within the water sector, the Tamil Nadu Water Supply and Drainage (TWAD) Board initiated a unique process from January 2004 to critically review its practices and values, its work culture and performance, its vision and achievements.

Process: A series of internal workshops with TWAD engineers, facilitated by a UNICEF-supported consultant, developed the overarching conceptual framework for this entire transformation exercise, known as the democratization of water management. The strategy adopted for this process was attitudinal change, among individuals, the organisation as a whole and among key stakeholders. These Change Management workshops resulted in a Vision, encapsulated in the Maramalai Nagar Declaration, which slowly evolved into a consensus, despite opposition, and was endorsed by administrative heads, policy makers and other opinion makers. Following the growing acceptance of the Declaration, a core group of engineers formed the Change Management Group (CMG) at the state level, committing themselves to developing and spreading the vision and practice of the Change Management Initiative as a voluntary exercise done in addition to their normal work load and without using any extra budgetary resources.

Implementation: The vision was implemented in 5 pilot villages in each of 29 districts of the state. These 145 villages were seen as the experimental workspace within which to test and implement the concepts learnt through the consultative process of the change management initiative. Four major thrust areas were the following:

1. Community involvement in planning and implementation
2. Targeting of poor villages
3. Sustainable and cost-effective investment solutions
4. Conservation and recharge of water

In these pilot villages, TWAD engineers have been working with the community on the following issues:

- Improved systems and system management for better service delivery
- Protecting and improving the sustainability of the source
- Reviving all traditional water bodies for better groundwater recharge and to fulfil domestic water needs
- Ensuring equitable water supply, especially to weaker sections of society
- Creating a clean environment in the village
- Regular disinfecting and periodical water quality testing
- Better operation and maintenance practices to reduce user costs
- Judicious use of scarce water through conservation measures, waste-water reuse and recycling
- Increasing the awareness of the community, and especially children, on water issues

Reported outcomes: Without any investment by the government, and with public participation, the following outcomes have been reported so far:

- Formation of Village Water Supply Committees for self-management of water supply in all 145 villages
- Roof rain water harvesting in 90% of all households with public participation and contribution
- Equitable and regular water supply in 116 villages
- Reduction in O&M expenditure by 10 - 30% by reducing pumping hours and supply hours to match actual requirements

- o Revival of around 140 traditional water bodies
- o Segregation of solid waste into degradable and non-degradable wastes and disposal into common compost yards or at household level in about 80 villages
- o Construction of household soak pits in about 50 villages
- o Tree planting in schools, backyards and along streets by the community (especially children) in 110 villages

EXTERNAL EVALUATION

After nearly two years of the Change Management process, the TWAD Board decided to review the impact on the ground of two specific aspects: (1) the change management training given to engineers; and (2) the user charges required to be paid by rural communities for water through household service connections (HSC) and public fountains (tap stands).

Objective: The overall objective of the assessment was to evaluate the village level interaction and outcomes of various interventions implemented in about 100 Village Panchayats in all the 28 Districts (excluding Chennai and Nilgiris). Two assessments were planned: the first to assess the impact of Change Management training on water management practices and the current status of access to water supplies of different groups in the village, and the second to assess the impact of the package of policy measures to be announced, including user charges, on usage and access of water of different village groups and their water management practices.

Timing of assessment: The first assessment was carried out in December 2005 - January 2006, while the second assessment was carried out from 15 February to 15 March 2006, three months following the announcement of the policy measures in 1 - 15 November 2005.

FIRST ASSESSMENT: IMPACT OF CHANGE MANAGEMENT TRAINING TO ENGINEERS

Methodology: The field-level assessment was carried out using the Quantified Participatory Assessment (QPA), developed from the Methodology for Participatory Assessment (MPA) and used in India in a variety of development projects since 1999. The key steps of the assessment are the following:

- i. Inception Meeting
- ii. Methodology and Planning Workshop
- iii. Field Assessment (Twice)
- iv. Data cleaning and verification
- v. Analysis
- vi. Report Writing

Issues for the Assessment: These were decided jointly with TWAD engineers and staff during the Methodology and Planning Workshop, and the final field format was agreed after a series of iterations and field testing in two villages. The formats were translated into Tamil before being used in the field.

Field formats: Six field formats were developed:

1. **Transect walk** - where participants had to fill in their own observations on the water and sanitation situation in the village
2. **Focus Group Discussion with Village Panchayat and Village Water Supply Committee** - on all major issues concerning water supply before and after January

2004 (when the Change Management Initiative would have begun to have some effect on the ground), the manner in which the VWSC functioned, and the issues it was addressing (such as water conservation, O&M expenditure, etc.).

3. **Tap stand survey** - based on observations and discussions with groups of user households at three tap stand locations in the village: (1) nearest the water tank in any village-level scheme, (2) at tail-end in any habitation and (3) in the Scheduled Caste (SC) colony. In case (2) and (3) were the same, only one tap stand survey would be conducted. The survey asked about the status of water supply (adequacy, reliability, predictability, water quality, etc.), leakage and cleanliness around the water point, and the nature of problems with the tap stand.
4. **Focus Group Discussion with Women's Groups** - with representatives from women's Self Help Groups (SHGs) or from the women in the village (in case there were no SHGs), asking about the nature of water supply problems, participation in maintenance and decision-making, and cross-checking the answers to the FGD with the Village Panchayat and the VWSC.
5. **Focus Group Discussions with SC households** - with male and female representatives and asking about new schemes (if constructed), their participation in decision-making and maintenance as well as their cash contributions to capital costs. Along with the tap stand survey in the SC colony, this is expected to give insights into the social equity issues surrounding access to water supply, and voice and choice in decisions regarding water.
6. **Focus Group Discussions with School Children** - to ascertain their awareness about water issues in general, about water quality and conservation in particular, as well as specific activities carried out in this connection.

Field teams: The 36-member field team was a mix of professional NGO staff and current and former students at the post-graduate level in Social Work from the Madras School of Social Work, Chennai, and the Madurai Institute of Social Sciences, Madurai. They had varied levels of exposure to participatory methods and field work. They were also given intensive training over 5 days in a residential Methodology and Planning Workshop in Chennai, which focussed on the use of participatory methods, the QIA methodology and the TWAD Board's change management initiative. These were then divided into 3-person teams that spent 2-days per village for the assessment, under the guidance of four Field Coordinators.

Sample: Of the total of 145 randomly-chosen Village Panchayats (VPs) where the pilot change management initiative was being implemented, 75 VPs were selected and further sub-divided into 2 groups: (1) 50 'Treatment villages' where there an engineer with the experience of several Change Management workshops had been working and (2) 25 villages where the engineer had not received any training or had been recently trained. A further group of 25 Swajaldhara VPs spread across 25 districts were selected randomly as the control sample.

Quality Control: Five strategies were used to minimise biases in capturing perceptions from the field: (1) Repeated field staff training; (2) Community scoring (3) TWAD engineers thorough review of field formats with field teams, (4) Review of reasons for performance; and (5) Verification of field situation with TWAD Executive Engineers on the ground:

MAIN FINDINGS

The main findings are grouped under five heads: (1) repairing existing infrastructure, (2) local water conservation, (3) engineer's attitudes and actions, (4) community participation in water supply services and (5) operation and maintenance. Findings were compared for the pilot habitations and control habitations, and the differences between these two groups subjected to a chi-square test. All differences were found to be statistically significant at the 95% confidence level.

1. **REPAIRING EXISTING INFRASTRUCTURE:** Overhead tanks (OHTs) comprise the bulk of expenditure in water supply infrastructure provision in villages. The findings are:
 - **Fewer new OHTs constructed:** in pilot habitations.
 - **More existing OHTs repaired:** in pilot habitations.
2. **LOCAL WATER CONSERVATION:** The findings on local water conservation are summarised to cover two key aspects: whether or not the village water supply committee (VWSC) has implemented the conservation suggestions made by the Engineer and what steps have been taken to implement these decisions of the VWSC. The findings are that:
 - **More Pilot VP VWSCs agreed to conserve water:** The VWSC has decided to act on the suggestions of the Engineer in a significantly larger proportion of pilot settlements (82%) as compared to control settlements (12%).
 - **More Pilot VPs took active steps to conserve water:** The VWSC has taken active steps to implement specific suggestions of the Engineer in a larger proportion of pilot settlements (84%) than Swajaldhara settlements (8%).
3. **ENGINEER'S ATTITUDES AND ACTIONS:** Questions on the attitudes and actions of TWAD Board Engineers were put to both the women's groups and SC households in separate Focus Group Discussions (FGDs). Both sets of FGDs revealed the following:
 - **Pilot VP Engineers made efforts to discuss with women and SC households:** Women and SC households in a larger proportion of pilot habitations (66-76%) felt that CMG engineers made greater efforts to meet with them separately and discuss water-related issues, than was the case in control habitations (25-33%).
 - **More Pilot VP Engineers behaved as part of the community:** Women in more pilot habitations (85%) felt that engineers behaved as part of the community and did not display the normal officious behaviour associated with government officials while visiting rural communities and participating in community meetings. This perception was shared by a significantly lower proportion of control habitations (8%). Also, SC households shared this view in a larger proportion of pilot habitations (45%) than control habitations (11%).
 - **More Pilot VP Engineers discussed water supply improvements with community:** Women in a greater proportion of pilot habitations (61%) than control habitations (8%) felt that CMG engineers made it a point to discuss water supply improvements with their groups, before actually carrying them out. SC households shared this view in a larger proportion of pilot habitations (34%) than control habitations (22%).
4. **COMMUNITY PARTICIPATION IN WATER SUPPLY SERVICES:** FGDs were conducted with VWSC members on a range of issues connected with the functioning, representativeness and effectiveness of the VWSC with regard to decision-making. The main findings on community participation, based on the responses of VWSC members in focus group discussions, are the following:

- **More Pilot VP VWSCs are functioning:** VWSCs meet more regularly and take decisions in the case of pilot VPs (72%) than in Swajaldhara VPs (12%).
 - **More Pilot VP VWSCs consult women and SC representatives:** More VWSCs in pilot VPs (80%) consult women and SC representatives and other community to identify problems and solutions concerning water supply than in VPs where Swajaldhara has been implemented (12%).
 - **Decision-making is democratic in more Pilot VP VWSCs:** Democratic decision-making, without domination by office bearers, takes place in a larger proportion of pilot VPs (76%) than in control VPs (12%).
 - **More women and SCs participate in VWSC decision-making in Pilot VPs:** The participation of women and SC representatives in VWSC decision-making is significantly higher in pilot VPs (54-56%) than in control VPs (4%).
 - **Women representatives inform other women in more Pilot VPs:** The main finding is that even women's groups felt that their representatives in the VWSC attend meetings and inform them about the proceedings, including tariff setting, in a larger proportion of pilot VPs (40-50%) than in Swajaldhara VPs (4-8%).
5. **OPERATION AND MAINTENANCE:** FGDs with women's groups in the surveyed villages addressed the issues of maintenance and repair status of tap stands and pipelines as well as the extent of their awareness about water tariffs. The main findings are:
- **Women resolve tap stand problems in more pilot VPs:** Women's groups complain to the VP President of VWSC and resolve local-level problems with tap stands and pipelines in a greater proportion of pilot habitations (79%) than control habitations (39%).
 - **Women more aware of tariffs in pilot VPs:** Women in more pilot habitations (50%) were aware of water tariffs than in control habitations (8%).
 - **SC households resolve their water problems in more pilot VPs:** complain to the VP President of VWSC and resolve local-level problems with tap stands and pipelines in a greater proportion of pilot habitations (45%) than control habitations (22%).
 - **More SC households aware of tariffs in pilot VPs:** SC households in more pilot habitations (40%) were aware of water tariffs than in control habitations (22%).

Concluding Observations: There are clear, statistically-significant differences between pilot villages where engineers with Change Management Training implemented the pilot programme since January 2004, and in control villages where engineers without Change Management Training had been implementing the national Swajaldhara programme.

DISCUSSION OF FINDINGS

Key Differences in Implementation Approaches: There are three key differences between the pilot and control group (Swajaladaara) approaches to community-based management of local water supply in rural Tamil Nadu since January 2004.

- **The VWSC 'system' versus strong individuals:** In a majority of Swajaldhara VWSCs were not functional. VWSC members had stopped meeting and taking decisions to resolve water supply issues and in some cases the community was not even aware of the existence of such a committee. VWSCs were far more functional in pilot programme habitation, in contrast, and were meeting more regularly and taking decisions on a range of water supply related issues.

Also, although many Swajaldhara habitations reported an ability to resolve tap stand level problems, this is done directly and not through the institution of the VWSC. Their lack of effective VWSCs suggests institutional unsustainability, where effective maintenance and repair of local tap stand problems is left to 'strong' women leaders, who may be quite effective in the short run, but may lead to problems of continuity.

There are three main reasons why these differences between CMG and Swajaldhara habitations are not as stark as in earlier cases.

- Pre-selection bias: Swajaldhara habitations were selected on the basis of a call to come forward and participate, and pay the 10% contribution that was required. Most, if not all, habitations that responded were, consequently, not only those that were progressive and strongly motivated, but also those that had strong leaders who undertook to carry the scheme in their habitations.
- More SC habitations: The Swajaldhara programme was implemented in only 1 habitation in a VP and a large proportion of these Swajaldhara habitations are SC habitations, and a large proportion of these VPs had SC Presidents. This ensured not only better communication between SC habitations and the VP, but also ensured that remedial action on water supply problems was taken promptly in these habitations.
- Spill over effect: Engineers working in control habitations worked with the community are also partly due to the fact that some trained CMG engineers were later deputed to work in these villages or received Change Management training while in charge of these villages.
- **Change from 'within'**: While the Change Management approach deliberately did not set down a 'blueprint' for community mobilization and participation, a few common elements are visible on the ground:
 - **Engineer behaviour**: Trained engineers' interacted with village communities in pilot habitations differently from untrained engineers in Swajaldhara habitations: They more willing to behave as part of the community and also involved them in discussions on possible solutions to specific water supply problems.
 - **Involvement and awareness creation among target groups**: Trained engineers also made a special effort to spread awareness among women and SC households. Also, their insistence on maintaining records of water pumping hours, water supply hours and electricity meter readings, and their efforts to discuss water costs and tariffs and link these to costs of water supply, served to spread the awareness of these important aspects of water supply.
 - **Water conservation and tariffs**: Detailed discussions by trained engineers of costs and tariffs helped raise awareness of the need for water conservation and to collect water tariffs. Trained engineers also motivated communities to agree to pay a monthly charge of Rs. 10 for the use of public tap stands, and to remove 'pit taps', which is not paralleled in the Swajaldhara habitations.

FUTURE CHALLENGES

There are several challenges faced by trained engineers on the ground, which need to be addressed for further replication of the results of Change Management.

- **Relative neglect of SC Households**: Since the political situation in the habitations colour the interactions of VP Presidents and the VWSC with the SC households and since the engineers have to work through the VP Presidents and the VWSC in each village, it is inevitable that existing political biases affect the nature of the interaction. Still, a greater effort is probably required by trained engineers to

overcome these political biases and sensitize VP Presidents and VWSC to the need for integrating SC households more closely into the community-based water supply management in the habitations.

- **VP Presidents versus VWSC:** While most VP Presidents are enthusiastic about the increased accessibility and receptivity of TWAD engineers, there is a perceptible gap between the enthusiasm and support from the VP Presidents and the VWSC. Much more community support, not just from the VWSC but also from the SHGs and Youth Groups is needed to complement the efforts of the VP President and to ensure that community management principles are institutionalized sustainably within the VP. Engineers could play a support role here by sensitizing local politicians to lend their support to community-based water supply management.
- **SHG Leaders versus others:** While there is increased awareness and interest among women's SHGs, there is a perceptible difference between the SHG leader and the rest of the group, in terms of awareness, access to information and dynamism. More effort to spread awareness and interest *among* the rest of the women in the SHG is vital to sustain the work done so far.
- **Institutional and policy support for TWAD Engineers:** Trained engineers are enthusiastic and serious about implementing the lessons of Change Management, but there is a need for much more support for these engineers, who were doing this work in addition to their normal duties and without any extra remuneration. Official instructions to depute a certain number of (junior) engineers to this task of implementing Change Management principles during intensive field implementation, or to allow such engineers some time off from regular duties to attend to this work, would go a long way to enabling a significant scaling up of this pioneering effort.

SECOND ASSESSMENT: IMPACT OF USER CHARGES

Specific study objective: The main objective of the survey was to assess the impact of user charges on water use and water conservation. As the Village Panchayats have been divided randomly into three groups and given targets of collecting 0%, 25% and 100% of O&M charges, the analysis focuses on the impacts of user charges on these three groups of VPs regarding three parameters: (1) the amount of water used at household level; (2) the amount of water pumped through the system; and (3) the extent of O&M cost recovery. It is difficult, however, to relate *causally* the imposition of user charges and any immediate impact on water supply service levels and the only relevant question that can be asked and answered with this data is whether or not there is better service quality in villages with a higher O&M collection target, and thereby to infer whether or not the imposition of user charges has made a difference.

Field formats: Seven field formats were developed Poverty Lab of the Massachusetts Institute of Technology (MIT), USA, Institute for Financial and Management Research (IFMR), Chennai and Pragmatix Research & Advisory Services, Gurgaon, in close consultation with the TWAD Board, Chennai. These aimed to elicit information from: (1) Households; (2) VP Presidents; (3) VP Clerks; (4) Pump Operators; (5) Public fountains (from a street walk) (6) OHT Meters; (7) Village Panchayat Register.

Field teams: The 36-member field team was a mix of professional NGO staff and current and former students at the post-graduate level in Social Work from the Madras School of Social Work, Chennai, and the Madurai Institute of Social Sciences, Madurai. They had previous experience and training with participatory data collection methods, having done the first assessment earlier. A field training workshop was held at IFMR, Chennai, on 16 February 2006 to familiarize field teams with the survey and the questionnaire. The field

staff were then divided into 3-person teams that spent 2-days per village for the assessment, under the guidance of four Field Coordinators.

Sample: Of the total of 145 randomly-chosen Village Panchayats (VPs) where the pilot change management initiative was being implemented, 105 VPs were selected and further sub-divided into 3 groups: these 105 villages had been randomly assigned user charge collection targets fixed at 0% of O&M costs, 25% of O&M costs and 100% of O&M costs. Within each village, field staff were given a list of 12 randomly-chosen households, out of which they were to interview 8. They were also given a list of replacement households, in case households in the original list were unavailable. The assessment was carried out in 1,234 households in 105 Village Panchayats during February - March 2006.

Quality control: Three strategies were used to minimise biases in capturing perceptions from the field: (1) Repeated field staff training; (2) TWAD engineers thorough review of field formats with field teams, and (3) Verification of field situation with TWAD Executive Engineers on the ground. The extensive data entering and checking process took 8 months.

MAIN FINDINGS

O&M Costs: The three key findings concerning O&M costs are:

1. O&M costs have begun to fall across the three groups of Village Panchayats (VPs): O&M costs per capita per month fell by 26% for VPs with 0% targets, followed by 23% for VPs with 100% targets and 21% for VPs with a 25% target.
2. The largest component of O&M costs, electricity charges, has declined across all three groups of VPs.
3. VPs with 0% collection targets have greater declines in O&M costs and greater increases in collection proportions: VPs with 100% targets have not performed better than VPs with 0% collection targets.

O&M Collection: The targets randomly assigned to the three sets of VPs pertain to the proportion of O&M costs that can be covered by user charges. The main findings are the following:

1. A greater proportion of collection demand for both HSCs and PFs is being collected across all three groups of VPs. This proportion (maximum of 44%), however, is still far short of that required to cover all O&M costs in the village.
2. VPs with the lowest collection target (0%) collected the highest proportion of O&M costs. VPs with O&M collection targets collected around 44% of O&M costs on average across the period November 2005 to February 2006, followed by VPs with targets of 25% and 100% (27% and 29% respectively).
3. The increase in O&M collection vis-à-vis demand is highest for VPs with the lower collection targets: The improvement in collection was most striking in VPs with 100% collection targets (73%) across the period November 2005 to February 2006, followed by VPs with 0% targets (57%).
4. VPs with 0% targets are collecting a far larger proportion of the mandatory HSC collection than other VPs: The proportion of HSC and PF user charges actually collected is highest in VPs with 0% collection targets, with HSC collection being nearly 100% of demand.

Thus, overall, there is an appreciable improvement in collection of the amount on account of user charges, and the improvement is not largest for VPs with 100% collection targets.

Water Conservation: The ultimate focus of all these actions at village level is water conservation. If wastage of water can be reduced, then the total volume of water used in the village can be reduced, thus preserving water for future generations. If this can be

done with the full cooperation of village officials and the village community, as reflected in greater user satisfaction, then the TWAD Change Management engineers can be said to have moved significantly closer to their goal of better water management. The data shows the following main trends:

1. Water consumption per person has reduced for some: Water consumption per day per person reduced by 10% in VPs with 0% targets across the period November 2005 to February 2006, but increased for VPs in the two other groups.
2. More than half the households surveyed are conserving water: Roughly 50% of all surveyed households are storing less water at home, reporting leaky taps or using other sources for non-drinking water.
3. VPs with higher collection targets do not have more households conserving water: The proportion of households undertaking water conservation activities is almost the same across VPs with collection targets of 0%, 25% and 100% of O&M costs (being 48%, 54% and 48% respectively).
4. A large majority of user households are satisfied with water supply: The data shows that around 80% of all user households surveyed are satisfied with the quality of water supply, with only a small minority of 5% being dissatisfied, and the rest giving no response.
5. Some discrimination against SC households: Water consumed per person per day is lower for SC households than for non-SC households, and user satisfaction levels are also lower for SC households than non-SC-households. This is an area of concern.

The findings that water consumption has reduced at village level for VPs with 0% targets over the period November 2005 to February 2006, while user satisfaction is quite high, suggests that the message of water conservation has been begun to be transmitted by the Engineers and adopted voluntarily by the village community.

User charges for PFs: Although not mandated by the Government, several VPs have imposed user charges for PFs on their own and have also started collecting these charges. The largest proportion of VPs (35%) that imposed user charges are those without a collection target, followed by VPs with a 25% target (29%).

Overall: There does not appear to be any straightforward statistical relationship between the O&M collection targets randomly assigned to VPs and the performance of the water supply system in the villages, either in terms of service quality, water conservation or user satisfaction. There is a striking improvement across all three groups of VPs in the proportion of user charges collected, but the performance is consistently higher in VPs with 0% collection targets. Further, nearly 100% of HSC charges are being collected in VPs with 0% collection targets, although the proportion in the other VPs is also quite high at around 60-65%.

There thus seems to be a better performance of the VPs with a 0% collection target, not only in terms of decreasing water use, reducing O&M costs and increasing user charge collection to over O&M costs, but also in terms of voluntary payments of user charges for the hitherto freely-supplied public fountains.

ANALYSIS

Testing Traditional Wisdom on User Charges and Service Delivery: The randomization experiment, where VPs were randomly divided into three groups and assigned a collection target based on the proportion of O&M costs to be covered, tested the traditional wisdom is that (higher) user charges leads to greater efficiency of service

delivery, hence better collection, and consequently greater proportion of O&M charges covered by collection, and overall greater user satisfaction. The analysis shows five key trends from November 2005 to February 2006:

1. **Daily water consumption:** VPs assigned a 0% target decreased per capita consumption of water by 10%, while it increased for VPs with other targets.
2. **Monthly O&M costs:** In VPs with 0% targets average monthly O&M costs decreased the most (-26%) compared to VPs with a 100% target (-23%) and VPs with 25% targets (-21%). Average per capita O&M costs were lowest for the VPs with a 25% target.
3. **O&M costs covered by user charges:** Collections in VPs with a 0% target increased from 28% to 44% of expenditure (i.e., an increase of 57%), compared to collections in VPs with 100% target, which increased from 17% to 29% (an increase of 73%).
4. **HSC Collection versus demand:** The collection of user charges for HSCs was 97% of the demand in January 2006 in VPs assigned a target of 0%, and 62% in VPs with a target of 100%.
5. **User satisfaction:** More than 90% of households surveyed in VPs of all three categories reported greater user satisfaction after user charge targets were introduced.

Since the fixing of user charges collection targets has not induced either greater collection of user charges or greater declines of O&M costs, it is apparent that the conventional wisdom is not working in this present case, i.e., the imposition of (higher) targets for user charge collection will lead to improved performance on the ground. Clearly, there are some other factors at work.

Alternative Hypothesis: Community Involvement and User Charges: The alternative view is that when the community understands the importance of water as a resource, there is greater participation in conservation and management and consequently greater responsibility and ownership over the water supply system and decisions concerning the use of water as a scarce resource requiring conservation. As a consequence, performance and service delivery improves. This turns the conventional hypothesis on its head: a greater community desire for more efficient and cost-effective operations may also *lead* to the imposition (or increase) of tariffs. The study shows that, *after* the drive for improved collection began, 12 out of 30 (or 40%) VPs with 0% targets voluntarily imposed a tariff for public fountains (PFs), while the corresponding proportion for VPs with 25% targets was 32% (10 out of 31) and only 28% (8 out of 29) for VPs with 100% targets.

Policy Implications: The critical finding of the study is that the key to successful community participation in water supply management is to make the community understand the scarcity of water and invite them to participate in managing this scarce resource. There are three major policy implications of the findings of this study.

1. **Focus on community management for better service delivery:** Structural measures of community participation (such as imposition of user charges, forming Village Water Committees and handing over responsibility to communities) do not work on their own, and need to be actively supplemented by 'non-structural' measures such as community mobilization, participation (especially by women) and capacity building, in order to build community ownership and responsibility for water service delivery. Only when field-level and other officers of government water supply departments understand this difference clearly will there be better and sustained service delivery. Policy support for the sensitization and training of line department staff to enable them to understand and carry out this important and difficult facilitating role is, therefore, vital.

2. **Fixed versus flexible O&M collection targets:** There is little rationale for the imposition of a target of 100% collection of O&M costs from the outset as is done in all government and donor-assisted programmes. It is perhaps better to start flexibly with a target decided by the local community and to provide incentives (e.g., phased matching grants from government) to increase collection to cover annual O&M costs. The key message of the pilot study is that the best way to improve management and conservation, is not to approach it as a financial problem requiring user charges, but as a water resource scarcity problem that requires community awareness, understanding and hence involvement for its resolution. Charges imposed and collected by the community, out of its understanding of the scarcity problem and the need to improve financial performance, will lead to efficient utilization. Collecting user charges to cover O&M costs are only a means of supplementing short-term financial viability of the water supply system, and not a means of ensuring either replacement or community ownership of the water supply system. There are other and better ways of getting the community to take responsibility for its water supply other than mandating communities to pay 100% of O&M costs.
3. **Non-prescriptive policy:** The TWAD pilot was non-prescriptive in that engineers did not work to a fixed target or plan, but instead strove to inform the community and to involve them in addressing the water supply issues in pilot villages. The emphasis on raising community awareness of the importance of managing water as a scarce resource, and on providing sufficient space for community action and decision-making, were key ingredients to evolving successful and sustainable community-managed water supply systems. This non-prescriptive approach emphasizing community awareness, understanding and involvement helped carry out a smooth transition - without acrimony and protests from villagers - to reduced and regulated water pumping and water supply hours, reduced O&M costs, enhanced tariff collection and even imposition of tariffs. But rural water supply engineers will have to first understand and accept the need to involve the community and this takes time and effort. The main finding from the TWAD pilot, however, is that rural water supply engineers can indeed mobilize effective community action, and now policy support is vital to replicate these lessons across the country.