

CHAPTER 12

COMMUNITY-LEVEL LESSONS



The situation for MUS in Maharashtra most likely reflects the reality of future MUS upscaling: attempting to use a state drinking water project as a vehicle for integrating multiple uses at the village level. As such, these two cases instruct the implementation of MUS globally. While it is much more difficult to work within the confines of a preestablished state drinking water project than being the direct implementing organization of MUS-by-design projects from the onset, it is still possible to achieve multiple uses of the system given creativity and a motivated community. The most effective way to incorporate MUS into a statewide project is to be part of overall program planning from the onset. But unless productive water use is truly encapsulated in design, incorporation of MUS must be done on a village-by-village basis. And if contact has to be made at the community level, upscaling will be a slow and painstaking effort and have varying results from community to community. Just looking at the differences between the achievements of Kikwari and Samundi, despite the fact that they are both motivated “model” communities, shows this variation. However, the net effect of adding MUS information and options to what the leadership of a community is already doing with their water resources is of significant benefit.

The organization of this chapter, like chapter 6, is based on the 14 principles outlined in the CP-MUS Project Action Research Framework. (See Van Koppen et al. 2006 for more information on the MUS principles.) Information from partner MUS work, other than the Kikwari and Samundi cases, is used here to enhance the lessons from those cases.

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LIVELIHOODS-BASED SERVICES

As identified in the Project Implementation Plan for Jalswarajya, the overall aim of the project was not simply to complete water supply schemes, but to “build the capacity of the communities to be able to link different water supply projects from various sources.” By looking at the cases in Maharashtra, this project is simply lining up with what communities have already been attempting on their own.

COMMUNITY INGENUITY

Integrating multiple uses of water resources is something that Maharashtra residents have to do to maximize use of the very scarce resources they have. Kikwari and Samundi cases show that given the right resources, some motivated communities will creatively meet their water resource needs. The Kikwari case illustrates how a village community, with initiative from a dynamic community leader, has taken water resource management into their own hands and shown a great deal of creativity in project design and implementation throughout the past few decades. They used four successive proj-

ects over the past twenty years to: (1) gain village access to groundwater for domestic use through a “drinking water project (1982)”; (2) augment groundwater capture by constructing runoff barriers through the “Soil and Water Conservation Program (2003–2005)”; (3) capture greywater and recycle it for productive use through the “Village Sanitation Campaign (2003–2005)”; (4) further augment the water supply through the “Jalswarajya project (2005–)” to which MUS is attached. In working with the Kikwari villagers, it is clear that they have been mixing and blending the outputs of all these “projects” to best meet their multiple needs. The thinking and planning by the village is solidly focused on integrating all water sources and matching them to their needs in a water-scarce environment. The MUS input to Jalswarajya brings some new technology tools plus strong support from the community and field-level implementing NGOs for the MUS concept and approach.

The Kikwari case supports the argument for water resource development planners to listen more carefully to the village voices and adjust inputs to support them. A few examples of community-level initiatives were: greywater collected via village drains (no connections to toilets) became common prop-

“The people don’t separate and make distinction for uses, but the government departments do.”

—CEO of GRASP

erty, and reuse was directed to school ornamental plants and a 1.5-acre horticultural

plot cultivated by GP staff to increase their income; all direct household connections were retrofitted to limit flow by reducing pipe diameter to achieve better equality in the public-tap distribution system; water harvesting, gully plugs, and other conservation measures were integrated with water abstraction and distribution activities.

SEVA, IDE’s partner organization in Ahmadnagar, worked with a community called Baloni that was so interested in multiple uses of their water that they lobbied their district Aple Pani (As mentioned previously, Aple Pani, not Jalswarajya, is operating in Ahmadnagar District) officials to allow water for 10–15 various industries in their village including manufacturing of mattresses, fishing nets, fiber products, chemical products, and plastics. They wanted the revenue source that would be generated from the higher tax rates that the industries paid.

CONSIDERATION OF FUTURE NEEDS

Kikwari was also able to translate their future needs into their system design. In Jalswarajya the drinking water schemes are designed to supply enough domestic water for the projected population in 2020. While Samundi will be using the current excess in addition to greywater for irrigation of kitchen gardens, Kikwari has ensured that the future domestic supply is not threatened by allotting the previous drinking water system for productive use. Samundi

unfortunately did not have this option because their previous drinking water system was merely two hand pumps and a well that they dug themselves. This same well is the source of their new Jalswarajya system.

COST AND ACCESS

Tribal access to water is a critical issue in Maharashtra. As a disadvantaged group, cost considerations are important for any new technology. Even the landless farmer interviewed in Samundi stated that the family-nutrition kits for kitchen gardens are affordable to the poorest in the village. And the wealthier landowners will allow the landless access to small plots of land for use of the family-nutrition kits. Kikwari has also displayed a desire to understand the needs of the most disadvantaged of their community. They not only established a 1,000-liter storage tank for the tribal cluster, but also helped in establishing a goat farm and compost enterprise. This enterprise allows the tribal cluster to productively use water for financial benefit through providing a service to the whole community.

SO AND TRAINING ORGANIZATION POWER

Despite the initiative of communities to integrate their water resource needs through multiple projects, many rural villages still need a great deal of assistance in these efforts. The Jalswarajya project was meant to encourage communities to lead their own projects, but many communities do not have the capacity to manage funds, hire contractors, etc. Unfortunately, the necessary assistance is not always being provided as it should.

The training organization and SO have a great deal of power to encourage a community toward a particular idea. For example, the chairwoman of the Women Empowerment Committee in Samundi was very keen to start a dairy in the village despite the high initial costs. This was largely due to the encouragement of the local training NGO, Josepha. Josepha had trained the committee on establishing a dairy. However, Josepha failed to help Samundi secure a loan for this enterprise. Therefore, Samundi spent most of the resources they received from Jalswarajya to hire Josepha to train them on beginning an enterprise and then were unable to actually establish one. Ultimately, this was a waste of Jalswarajya funds and the time of the WEC. Adhar (the SO) was meant to follow-up with Josepha but did not, largely due to the small payment Adhar received for assisting Samundi in their work. Adhar was only paid INR 70 (US\$1.72) per person for the entire project period, totaling INR 53,130 (\$1,302) for regular field visits and countless hours of assistance. And the project has extended well beyond the projected 18-month period, now passing two years. With this small set rate of payment and extended period of employment, there is little incentive for Adhar to follow-up with the community or visit them often. For a community like Kikwari with a strong village leader

and a good deal of resources, this is less of an issue. However, for a village like Samundi with a higher number of illiterate villagers and few resources, the importance of the SO cannot be overstated. As the liaison for the community, the SO needs greater incentive to excel at its function. Otherwise, time and money are wasted, and the community is left to pick up the pieces on their own, potentially unable to achieve stated Project goals.

SUSTAINABLE WATER USE

Both Kikwari and Samundi cases show a concern for sustainability. This is partially contributed to by the fact that villages participating in the Soil and Water Conservation Program were given priority for receiving a Jalswarajya project. However, of more importance is the deep understanding of the problems created by water scarcity. Both villages are aware that if they do not care for their water resources, their situation of scarcity will continue to worsen. As part of the Soil and Water Conservation Program, both communities worked hard to recharge their groundwater and planted trees to reverse the negative effects of deforestation. Samundi even established an enforcement mechanism by fining violators of community conservation and sanitation rules.

Perhaps the greatest accomplishment of Kikwari was to garner participation from all community members for water conservation and management instead of pursuing individual action. They prohibited individuals from drilling bore wells that would draw large amounts of water from the deep aquifer. Instead, they worked as a unit to recharge their shallow aquifer and improve their community drinking water system.

WASTEWATER RECYCLING

Villagers in Kikwari also established a wastewater recycling system by piping the drainage water to a settling tank, which is then stored in a second tank after filtration. This water is used to irrigate a community garden and school ornamental garden. While Samundi has not yet established this system, they are planning to use their greywater as part of the water required for irrigation of their kitchen gardens. The use of drip irrigation for their kitchen gardens and the school vegetable garden will allow for efficient use of productive water and not overutilize the domestic water for productive activities.

SUFFICIENT DOMESTIC WATER

However, as the population of Samundi grows, the current excess will be needed for domestic purposes. Samundi will have a choice: find another source for productive-use water, or expand the current domestic system for greater overall supply. Alternatively, they could borrow an idea from the Nepal

double-tank system and have only overflow from the domestic tank be used for productive purposes. This could be built cheaply on their own with village contributions. They could use the remaining money from their Sanitation Campaign awards. Or they could lobby the government for assistance. As the community indicated during interviews, it is sometimes easier to obtain projects in their village because they are a tribal community.

SHIFT OF CROP PATTERN

In Kikwari, Mr. Kakulate encouraged villagers to irrigate horticulture with drip systems instead of cultivating sugarcane. Now there are 60–70 farmers who have 1–2 acres of fruit trees irrigated with drip. Unfortunately, one women's SHG is cultivating 12 acres of sugarcane with flood irrigation on community land. Although they have not pledged a shift to less-water-intensive cropping, they are convinced that using drip instead of flood irrigation will be a better

“Once you do water budgeting with the village community, people are able to better plan for their crops; they know how much they will receive in certain seasons and what crops are best to grow.”—CEO of GRASP

way to conserve water and are currently working to implement this plan. These efforts are definitely a positive step, but larger statewide incentives to grow sugarcane must be adjusted to encourage cultivation of crops requiring less water. Officials at the state level are beginning to encourage water budgeting and watershed development work, predominantly recharging wells, but they have yet to actively adjust the economic factors encouraging growth of sugarcane in the state. Until these systemwide factors are addressed, the incentives to grow the water-thirsty crop will outweigh the lure of prize money for conservation efforts.

MITIGATING CONFLICT

In both cases, the communities worked to mitigate water conflicts and ensure equitable distribution. In Samundi, the community decided that for the time being individuals could only fill two containers of water from the hand pump at one time so that all households had an equal share and conflicts at the pump would diminish. Now that they are building the Jalswarajya scheme, they are planning to install household connections to reduce wastage and ensure equal access for all households.

In Kikwari, households that had direct household connections from the previous drinking water system were found to be using far more than other

households. Therefore, in spite of protest from these influential households, the user group collectively chose to limit their supply by narrowing the diameter of the pipes to their homes. This protected the domestic needs of all community members. With the new scheme, all households will have direct connections for both domestic and productive use from the separate tanks and distribution lines.

NEED FOR IMPROVED WATER QUALITY

Unfortunately, Samundi showed less of an awareness about water quality issues than Kikwari, indicating a lack of knowledge transfer from Adhar. While Kikwari is planning to cover all of its wells, Samundi's well is open, and its animals are allowed to access the well. Samundi also has no current plan for covering the well or treating the drinking water. This indicates a lack of understanding of the importance of protecting the water source and reducing waterborne illness. There are two possible explanations for the discrepancy between the two cases on this issue. The education level in Samundi is much lower than in Kikwari, so Samundi probably started the projects with less knowledge of these issues. However, the issue of water safety is one that the SOs are supposed to cover in the Jalswarajya Project. Either Adhar did not thoroughly educate Samundi on the issue, or the community did not deem it important. Considering how thoroughly they soaked up the dairy promotion information from Josepha, it is more likely the former than the latter. Jalswarajya should work to ensure that SOs adequately educate communities about the health issues associated with drinking water schemes.

APPROPRIATE TECHNOLOGY SELECTION

Unfortunately, through Jalswarajya there was very little flexibility for communities to adjust the technology for the scheme. The Technical Service Provider chose the design from a limited list approved by the Jalswarajya Project. And IDE did not approach Jalswarajya early enough in their planning process to have a chance to explicitly plan productive use into the systems. It is recognized that planning productive use into the system would have allowed communities to more explicitly use the water for productive purposes and would have ensured both domestic and productive uses could continue well into the future. Since this was not accomplished, the next best approach was to use the excess currently in the system (for the projected population of 2020) for productive purposes now. Partially of their own accord and partially from MUS input by IDE, communities worked around the Jalswarajya limitations to ensure that the technologies used worked for them.

INNOVATIVE USE OF TECHNOLOGY

Kikwari used multiple techniques to recharge ground water, including check dams, trenches, and a rainwater harvesting structure on the school, with water filtered and used to recharge the groundwater feeding the hand pump near the school. They also incorporated solar street lamps to circumvent irregular delivery of energy in the region. They decided to use the old drinking water system for productive uses and save the new scheme for domestic purpose. In Samundi, instead of incurring the additional cost of larger pipelines, the community decided to put more effort into management and distribution to ensure that sufficient water for both domestic and productive use was distributed to each house.

ENSURING EQUAL DISTRIBUTION

Rules of distribution vary depending on system uses. In MUS projects where the technology links domestic and productive distribution systems, the “equal share” concept from domestic-only systems supersedes other distribution rules commonly seen in irrigation-only systems (e.g. distribution based on size of landholdings or proportion of financial input per household to the project). Since these systems are used for domestic purpose as well as productive purpose, communities have sought ways to ensure equitable access. The Kikwari case illustrates design that limits the delivery volume to those with household connections so they could not use more than those without household connections. To accomplish this, the previously buried connection was brought aboveground to be visible to others. They also creatively borrowed an idea from drip irrigation design to limit flow: before entering the house, water flow was restricted by the insertion of a short section of small-diameter tubing, such as used for drip irrigation. They also realized the need for the tribal community to have additional storage, building a 1,000-liter tank for tribal water storage.

One consideration in using the current excess water in the system, is how the use of this water will change over time. In all rural communities, the added capacity for population growth is generally utilized for other purposes at the beginning, and as population grows, the community finds ways to adjust to less water availability. With the VWSC managing the system, there is a formal structure in place to ensure that as population increases, domestic needs are not overlooked, particularly for marginalized populations. An interesting way that villages in Maharashtra (including Kikwari and Samundi) attempt to establish transparency in water allocation is by writing the water-balance and scheme-budget information on the wall of a building in the community. This technique could be taken one step further to show the design excess and list each application and how long that application is allotted the set amount. This would allow the community to come to an agreement about how the water will be used over time and ensure that domestic needs are met in the future.

LOWER HEALTH RISKS

Another important factor in design, particularly of domestic systems, is health. Kikwari has placed an emphasis on identifying water-related health risks and coming up with solutions like covering the wastewater canals, covering the community wells, and treating well water with chlorine. They also moved compost piles from beside the homes out to individual's farms and the goat farm.

Through dealing effectively with wastewater—using covered canals to transport it outside the village for filtration and use on a 1.5-acre community horticulture farm—Kikwari has decreased breeding grounds for mosquitoes in their area. The benefits of this were seen when an area outbreak of Chikungunya, a relatively rare form of viral fever caused by an alphavirus that is spread by mosquito bites, passed the village altogether.

As part of the Sanitation Campaign, Samundi built latrines and designed gravel soak pits at each household for their wastewater. These soak pits cut down on mosquito breeding by removing pools of stagnant wastewater near each home. Unfortunately, Samundi did not carry forward these efforts to reduce health risks into the Jalswarajya Project. They are not covering their wells or planning to treat their water. As mentioned above, Jalswarajya needs to be more consistent on this issue.

INCLUSIVE INSTITUTIONS

As part of the Jalswarajya Project both Kikwari and Samundi were required to establish three committees for effective planning, construction, and operation of the system as well as development of income-generating enterprises for women. In fact, both communities had shown previous initiative in working together toward their water-management goals. In Kikwari, it was mostly the men who led the effort, instigated by the vivacious leader farmer Mr. Kakulate. In Samundi, it was the women who instigated change in their community. In both villages the existing group structure morphed into one of the

“If by virtue of community planning availability for domestic and productive water can be improved, it will help women. Therefore, it is imperative to involve the women in the planning.”—CEO of GRASP

Jalswarajya committees, but leaders basically retained their previous influence in the village. In Kikwari, the men who were leading the efforts became the VWSC. In Samundi, the group Mahila Mandal became the WEC.

Both communities encouraged women and tribal households to participate and actively worked toward empowering them to form their own enterprises. In Kikwari, the tribal households established the goat farm and compost-making activity. One of the women's SHGs (80 percent tribal) also leased community land for production and sale of wheat and sugarcane. And the community allowed the GP staff (public servants who receive low levels of income) to use a community plot for cultivation and sale of horticulture crops. Now that the scheme is completed, all households will have access to productive-use water for cultivating kitchen gardens. And wealthier landholders in the community have agreed to allow landless farmers to cultivate kitchen gardens on their land. This will probably have the largest impact on tribal households in Kikwari that currently have a lower level of income and little access to land.

Likewise in Samundi, all will have access to water for kitchen gardens. Women in the community are excited to establish kitchen gardens with drip irrigation are beginning to the effort. They recognize that consumption and sale of these vegetables will most likely reduce their food costs and increase their income.

ADEQUATE FINANCING

Jalswarajya has a set payment contribution for all its projects. Tribal communities pay 5 percent of the total scheme costs. They choose the breakdown of this 5 percent into labor and cash contribution. Samundi's breakdown was 1 percent cash and 4 percent labor. Nontribal communities pay 10 percent of costs in labor and cash. Kikwari also chose to use their substantial cash prizes from the Soil and Water Conservation Program and Sanitation Campaign for continued village development activities. In addition, they received a subsidy for installing the solar lamps. Some Samundi households received a subsidy for toilet installation. All those who decide to purchase kitchen-garden drip irrigation kits will be required to pay the full cost of the kits. However, households who purchase them will be able to recoup the cost of the kits from vegetable sales.