
Training of Participatory Farmers in Water Allocation, Baluchistan, Pakistan

Changing water allocations is a cost-effective and powerful, yet underdeveloped instrument to improve water management, and hence the utilization of an increasingly scarce resource. For example, the introduction of rotation schedules with a long duration or with intervals without supplies in South Asia's large-scale irrigation systems accelerated groundwater pumping in areas overlying fresh groundwater. As a result, water that was previously lost to the system was reutilized and, in many areas, the improvements in vertical drainage drastically alleviated waterlogging problems.

Paradoxically, the introduction of similar changes in small-scale systems is more problematic. Water distribution in farmer-managed systems is generally more complex and consequently more difficult to modify. The pattern of allocations is definitely vague not only to those outside to the system, but also to a majority of the actual water users themselves. Moreover, in contrast to bureaucratically managed systems, there is no one single decision center in farmer-managed systems and the authority to make changes is instead often vested in an informal assembly of independent

holders of water rights. Water deliveries may be untimely or unmanageable, for instance, and system-level conveyance losses can be high. To improve collective water management, two participatory farmer training programs were organized on a trial basis as part of an investment program in small-scale irrigation in the Baluchistan Province of Pakistan, which this note briefly discusses.

Acknowledging the complexities of local-level water management and the sovereignty of water users in this regard, the training programs invited a select number of knowledgeable persons from the community of water users, proposed by the representatives of its water users' association. The central premise of the training programs was that many water allocation systems have evolved incrementally and that much could be gained by having key users describe and evaluate the current rules and practices in their own systems.

The first trial training program invited farmers from two different systems at a neutral venue in the provincial capital. The idea was that the discussion would benefit from having farmers from different systems, querying each others' patterns of water management. With simple role plays, farmers were encouraged to identify some of the general principles of appropriate system-level water management, like systematic water schedules, irrigation cycles of proper duration, creating flexibility in exchanges without sacrificing conveyance efficiency, managing delivery quantities by proper flow division and easy policing of water theft. After the general discussion, the farmers were requested to prepare a map of their own system and explain the location of the command areas, the network of channels, the water schedule applied, the irrigation cycles used, the practices on exchanging water turns and the variations related to changing water requirements and availabilities. The farmers were then asked to assess possible shortcomings and identify possible improvements, after which the trainers and the participants from the other systems made further suggestions.

Particular emphasis was given to the usage of the additional water that had become available as a result of the investments in the physical irrigation facilities under the program. The participatory training in collective water management was complemented by one and a half days of demonstrations on field-level water management.

The second training program was organized in one of the villages itself, and as in the first training program, the need was identified to discuss some of the issues on the spot, whereas the cross-fertilization effect of having participants from two areas had been disappointing in the first training program. The role plays that were found to be culturally less appropriate were substituted for a more direct discussion of water management principles. Inclusive of the demonstrations on field-level water management, the training in its final shape lasted two half days.

A particular problem was the availability of trainers. The demands were high, since the trainers had to quickly grasp the complexities of a local water allocation system and take part in a critical discussion with village experts. None of the academic courses in Pakistan prepared people technically for such an assignment. The interests of civil engineers were largely with the construction of irrigation infrastructure, whereas agronomists had a basic understanding of crop water management, but were equally unfamiliar with system-level water distribution. In the end, a number of engineers were self-trained by asking them to diagnose the water allocation in a number of irrigation systems.

The result of the training programs was encouraging. In all three schemes, improvements, as well as constraints in introducing them, were identified by the participants. These constraints were either in the field of pareto-biases, where a certain party would lose a vested interest, if the current water allocation was improved; or in the field of the nonproductive uses of the water that were effected by a water allocation system which was optimal from the point of view of irrigation efficiency. In the first village (Uriagi) water rights were not related to landholding sizes and hence the degree of relative water scarcity differed between farmers, which resulted in a practice of farmers with relative large water shares giving their excess flows away to other farmers in the same command area. When the amount of water increased due to improvements to the conveyance facilities under the project program, the farmers with relatively large water shares were interested in developing a second command area, which required a rearrangement of the water schedule, so that the combined excess water would flow in an unlined channel to this second area for a number of consecutive days to minimize seepage losses. This change was blocked by the farmers with the relatively small

shares, because such a rearrangement would mean that they would no longer have access to other persons' excess flows. In the second village (Thal), land was held under communal tenure with an annual lottery determining who was to cultivate which land. This system was well adopted to the cultivation of winter wheat, but was not suitable for the more rewarding cultivation of deciduous fruit trees. The community of water users resisted a breakup of the system of communal tenure, and feared it would facilitate land and water transaction to members of other clans, which might fatally harm the integrity of the local community. Similarly, in the third village (Zum Shah Murad) noneconomic arguments were used to maintain a nonsystematic water distribution schedule. The reason was that under the haphazard schedule water reached the different corners of the village territory everyday, which was convenient in the absence of piped domestic water supply facilities.

In summary, the trial participatory training programs achieved their purpose as they quickly uncovered these issues and made them a matter of discussion. Improvements to the trainings were identified by building in a follow-up and commitment phase in the training protocol. Similarly, the potential value of this training during the design of a distribution network was identified, because it allowed the identification of main channels, division structures and appropriate design capacities. Moreover, by having improvements to the water allocation system formulated at an early stage, they could be made conditional, which would help in overcoming the inertia to institutional changes, due to the negative pareto-effects, as for instance, those that occurred in the first village.

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