

Learning to Share Water in the Highlands of Bhutan Using the Companion Modeling Approach



HIGHLIGHTS

- ✓ Increased capacity of local stakeholders and strengthened or created local institutions to tackle common natural resource management problems in diverse contexts
- ✓ Trust fostered and improved communication among multiple stakeholders through collective learning
- ✓ Contribution to conflict mediation through the formulation of concrete action plans from participatory activities

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Outcome Stories

A necessary break from tradition

Water management problems occur rapidly and involve a variety of stakeholders with different, often conflicting, interests and perceptions. Stakeholders' differing views of water management need to be incorporated into the decision-making process.

In Lingmuteychu catchment in the Bhutanese highlands, competition over water for rice irrigation has caused conflicts between communities for generations. Year after year, during the rice transplanting season, fights over water flare up between the villages of Limbukha in the upper catchment and Dompola and five other villages in the lower catchment.

Traditional rules allow upstream villages such as Limbukha to control the release of water to downstream villages – to the gross disadvantage of the latter.

In order to find a solution to these recurrent conflicts, researchers from the CGIAR Challenge Program on Water and Food (CPWF) decided to examine the existing water sharing agreement between the two communities. Using the innovative companion modeling approach, upstream and downstream user perspectives and needs were considered.

Cover: Players representing the seven Lingmuteychu catchment villages negotiate sharing irrigation water in a role-playing session

Right: Two players from Limbukha and Dompola villages allocate their selected crops on the board in a role-playing game session.

Below: Meeting of the watershed management committee in Lingmuteychu.



Photos cover and above: Guy Trebuil

"Companion modeling provides a key to mitigate conflicts between communities over their shared use of renewable resources."

About CPWF Outcome Stories

The CPWF Outcome Stories document changes in knowledge, attitudes and practices that have emerged through CPWF-funded research. Outcomes occur when research outputs foster engagement processes that result in changes in practice or changes in behavior. These stories capture outcomes at a specific point in time; outcomes may have evolved since the completion of these projects.

Companion modeling or ComMod (<http://www.commod.org/en>) has proved to be instrumental in helping communities understand and resolve conflicts, and collectively explore solutions for the sustainable use and management of their shared resources.

Its application has helped open up lines of communication and established trust among stakeholders with competing interests. Participants explored virtual situations by employing a combination of low-tech role playing games and high-tech but simple computer simulations, along with discussions and negotiations about real-world problems. Translating these into concrete plans of action helped them to discuss their differences and work toward mutually acceptable solutions.

When people genuinely understand the large role that they can play in exploring solutions to their problems, they claim a bigger stake in making sure that their plans will be properly implemented

and that they succeed. This sense of ownership bodes well for the judicious use and management of their common resources, and helps ensure harmony among the community members who benefit from them.

Community representatives came up with agreements on how to share and manage their water, forest and land resources collectively, to the mutual benefit of upstream and downstream villages.

To allow for timely transplanting in the downstream villages, they collectively decided that Limbukha would release irrigation water five days earlier than the date set by traditional custom, which falls on the 10th day of the fifth lunar month in the Bhutanese traditional calendar. Abiding by a decision, however, can be quite different from agreeing to it. At one point during the early stage of the project, Limbukha farmers were unwilling to release water according to the new date. They rationalized that a

legal agreement should have been signed in advance, despite acknowledging that the issue had already been discussed and resolved.

With the support of a truly decentralized policy for the management of renewable natural resources and of relevant government authorities, the villagers formed a functional watershed management committee (WMC) to supervise the watershed activities, the first of its kind in the country. From its creation in late 2005 - early 2006, the watershed management committee was composed of all seven villages in the catchment. The committee has since been overseeing the protection of springwater sources, rehabilitation of an abandoned irrigation channel and rice terraces, and construction of water impoundment ponds in each village. The process later evolved to include five other villages in the watershed. The government's

Ministry of Agriculture has also requested the project to apply the same approach in resolving the water capture and sharing problem in the Kengkhar remote area of Mongar district in Eastern Bhutan. ComMod was also used to open a communication channel and stakeholder dialogue between two communities of sedentary cattle and nomad yak herders in the same region.

Reference

CIMMYT. 2010. *Companion modeling for resilient water management: Stakeholders' perceptions of water dynamics and collective learning at the catchment scale*. CPWF Project Report PN25. Colombo, Sri Lanka: CGIAR Challenge Program on Water and Food.

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Project Partners

International Water Management Institute (IWMI)
Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)
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Multiple Cropping Center, Chiang Mai University
Faculty of Science, Chulalongkorn University
Faculty of Agriculture, Ubon Rajathanee University
Ministry of Agriculture and Forests of Bhutan.

Opening of the top water channel in Limbukha village to divert irrigation water to lower Dompola area in Lingmuteychu catchment



Andes • Ganges • Limpopo • Mekong • Nile • Volta

About CPWF

The CGIAR Challenge Program on Water and Food was launched in 2002, with the aim to increase the resilience of social and ecological systems through better water management for food production (crops, fisheries and livestock). We do this through an innovative research and development approach that brings together a broad range of scientists, development specialists, policy makers and communities, in six river basins, to address the challenges of food security, poverty and water scarcity.

The CPWF is part of the CGIAR Research Program on Water, Land and Ecosystems. WLE combines the resources of 11 CGIAR centers and numerous international, regional and national partners to provide an integrated approach to natural resource management research. The program goal is to reduce poverty and improve food security through the development of agriculture within nature. This program is led by the International Water Management Institute (IWMI).

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