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Reservoirs of hope

An IDRC-funded shared learning effort helps farmers deliver fresh water — and the prospect of a brighter future — to impoverished villages in China’s Guizhou province.

“Water is good; it benefits all things and does not compete with them.”

Lao-tse

RESEARCH THAT MATTERS

The Development Challenge: Increase water supplies and decrease workloads

China's remarkable economic growth during recent decades has been largely confined to the coastal areas and major cities. The interior provinces, especially the more mountainous and arid rural districts, have fared less well. Many people in these areas are forced to scratch out a living on rough, hilly, and dry terrain.

One such district is Changshun county, in mountainous Guizhou province, in China's southwest. Here, securing an adequate supply of water has been a chronic problem. Fully 93% of the county is sloping land, and much of the subsurface is porous limestone and dolomite that fails to trap groundwater in accessible underground pools.

Farmers here struggle to manage complex production systems comprising irrigated

and rain-fed rice lands, less productive uplands and grasslands, forested areas, and unproductive land. The water shortage has meant low yields, little crop diversification,

degraded forests, and overgrazed commons. People have been working more just to maintain what little they have. The burden has fallen especially hard on the women, who traditionally have been responsible for many tasks, including collecting water.

Typically, during the dry winter season, village women would awaken in the middle of the night, then would hike two to three kilometres — in the dark — to a place where they would queue, sometimes for hours, to gather enough water for that day's consumption. By the time

Water is scarce in the hilly terrain of Guizhou province.



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they arrived back home with their heavy loads, the sun was just rising, yet these women had to face another working day, with insufficient sleep and already exhausted.

The idea: Mobilize the grassroots

For millennia, China has relied on a system of centralized state control enforced by a large and cumbersome bureaucracy. While many will sing the praises of this system, such a top-down model doesn't always deliver the goods at the local level.

In the early 1990s, Guizhou — one of China's poorest provinces — implemented a government-run water management project, with many facilities being rebuilt or maintained by the state. There was little accountability, however, and no proper management or local control. Throughout the province, the project's effectiveness was limited, and the impoverished villages of Changshun saw few benefits.

Researchers at the Guizhou Academy of Agricultural Sciences (GAAS), funded by Canada's International Development Research Centre (IDRC), decided to try a different

"The idea of "pay for use, pay for service" also helped raise awareness of natural resource values. When villagers used the new water system they knew they had to be aware both of how much water they withdrew and its effects on the overall system."

GAAS researcher
Yuan Juanwen

approach — community-based natural resource management (CBNRM), involving participatory decision-making. CBNRM is based on the notion of shared learning. It assumes that local people who use the natural resources will have a strong vested interest in protecting them. Scientists work directly with these people to try to understand their problems and to help them find the best solutions.

The Research: Hearing from the people

In 1995, the multidisciplinary GAAS team began working with a small number of villages in Changshun. In the beginning the team focused mainly on gathering information. It described and analyzed traditional resource management practices, and it measured the damage already done to the natural resource base of these villages.

The GAAS team then assumed the role of facilitator, and assembled academics and local residents in a guided collaborative process. Together they suggested technical, organizational, and public policy responses to the villages' problems. The exercise devoted much attention to the social aspects of development. Although new practices addressed an array of practical issues — new water sources, irrigation, aqueducts, reservoirs, pipes, and so on — the overall emphasis was on the process, on involving people in decisions about their own development.

On the Ground: User pays

The collaboration was lengthy and painstaking. Not only were technical solutions debated and selected by locals, but these residents themselves built the new water systems. Furthermore, they took "ownership" by

agreeing to regulate it themselves, and to pay for its management and maintenance — on the basis of the quantity of water used. In China, payment for consumption is a radical notion, and in Changshun the innovation ushered in a whole new attitude toward public utilities.

The user-pay approach has subsequently been approved by township and county-level governments for application in other rural areas.

In addition, the GAAS extension work applied the CBNRM technique in other ways, for example, to improve the management of collectively owned forest lands, to build roads and to provide public lighting, and to experiment with a biogas production system.

The Impact: Villages transformed

By joining together in a learning-by-doing process, GAAS and the Changshun farmers achieved a remarkable change in the living standards of these poverty-stricken districts.

Finally having access to reliable water supplies, the farmers diversified their crops and dramatically increased yields. They learned to make more productive use of all their opportunities, for example, by planting fruit trees and berry bushes on the marginal land on the slopes (and, at the same time, discouraging erosion). Today's incomes are higher and food supplies are more secure.

The impact on the lives of women has been particularly dramatic. By saving labour, the water management innovations have made it easier for the women to concentrate on other things. They have taken up new endeavours such as growing fruit trees, mushrooms, or



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Farmers and researchers joined together to learn by doing.



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The result: higher incomes and secure food supplies.

Local initiatives can solve local problems.

strawberries. What's more, they have learned to market their new crops, and have acquired fresh skills such as accounting, trading, and driving a motorcycle. They no longer carry water though the dead of night.

Future Challenges: Spreading the word

The basic problem in Guizhou was not so much finding new water sources as it was

mobilizing people to invest in and maintain their own water supply systems. The importance of the Changshun project has been

social rather than technical. It has showed that who makes the investments and who makes the decisions plays a crucial role in the success of natural resource management projects.

In China, the idea that local initiatives can solve local problems is gaining ground. Officials in Changshun county embraced the participatory approach. If new ground really has been broken, the time may be ripe for devolving more decisions about resource use and management to the village level, and for replicating these results elsewhere in Guizhou and in other provinces of the People's Republic.

"Water, everywhere over the earth, flows to join together. A single natural law controls it. Each human is a member of a community and should work within it."

I Ching



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