Left: A meeting between project technicians and users to discuss problems and issues related to drinking water and to identify viable solutions. (PARDYP)
Right: Sharing simple water quality treatment methods like SODIS and the low cost Safa filter with users. (B.S. Dongol)

Community efforts for improving drinking water quality

Nepal: पिउने पानीको गुणस्तरका लागि सामुदायिक प्रयास

Working with communities to demonstrate and disseminate methods for improving drinking water quality using structural and vegetative measures

The People and Resource Dynamics in Mountain Watersheds of the Hindu Kush-Himalayas Project (PARDYP) implemented this approach with 30 drinking water user households at Barbot in the Jhikhu Khola watershed, Kabhre Palanchok. The aim was to improve water quality and availability from an open spring source through participatory planning and implementation.

The approach first identified local concerns and observed the sanitary situation of the catchment area. Meetings were held jointly with men and women users from different caste groups (Brahmin, Chhetri, Newar and Kami) to discuss the problems and issues and to identify viable solutions. The advantages and disadvantages of the various options were discussed, after which users selected the following three measures to improve the drinking water supply: 1) building a brick-cement walled structure around the main local spring, 2) establishing check dams across nearby rills and gullies, and 3) planting grass around the spring box and tree saplings within the catchment area. The aim was to prevent direct flow of surface water into the spring and reduce contamination and turbidity of the source. Understanding and support was gained by demonstrating the technology and running an awareness campaign.

The project helped form a users committee made up of 11 women and 1 man and encouraged them to plant grass and tree seedlings across the entire catchment. The project regularly measured the quality of the water and shared the results with the users. Rules and regulations were developed to ensure equitable access to the spring and its sustainable use and management. A notice board with do's and don'ts was placed near the spring. The users held monthly meetings and established a revolving fund for maintaining the structures.

Spring users followed the rules and regulations by washing, cleaning, and bathing at separate sources. Livestock grazing was stopped in the nearby area and the area was regularly cleaned. Furthermore, users were encouraged to treat water for drinking using simple methods like SODIS and the low cost Safa filter to avoid microbiological contamination. They were made more aware of water quality, sanitation, and health issues.

WOCAT database reference: QA NEP17
Location: Barbot-Dhotra, Jhikhu Khola watershed, Kabhrepalanchok, Nepal
Approach area: <0.1 km^2
Land use: Extensive grazing
Climate: Humid subtropical
Related technology: Drinking water quality improvement through conservation measures (QT NEP17)
Compiled by: Madhav Dhakal, ICIMOD
Date: October 2006

The technology was documented using the WOCAT (www.wocat.org) tool.
ICIMOD
Swiss Agency for Development and Cooperation SDC
WOCAT

Problem, objectives and constraints

Problem

- Weak institutional collaboration to develop technological options for improving drinking water quality and availability and to raise awareness on health and hygiene and waterborne diseases

Objectives

- To explore and demonstrate appropriate water quality improving technologies and methods in a participatory way
- To increase awareness on water quality, water treatment, and health and hygiene
- To share knowledge gained on the water improvement options with farmers and other stakeholders

Constraints addressed

Major	Specification	Treatment
Technical	Different water treatment methods	Awareness of structural and vegetative measures; direct water treatment methods including Safa filter, SODIS, chlorination
Institutional	Weak institutional collaboration	User group formed linking local community organisations
Minor	**Specification**	**Treatment**
Financial	For the maintenance of the implemented technology	Revolving fund collected by users

Participation and decision making

Target group

Land users

Approach costs met by:

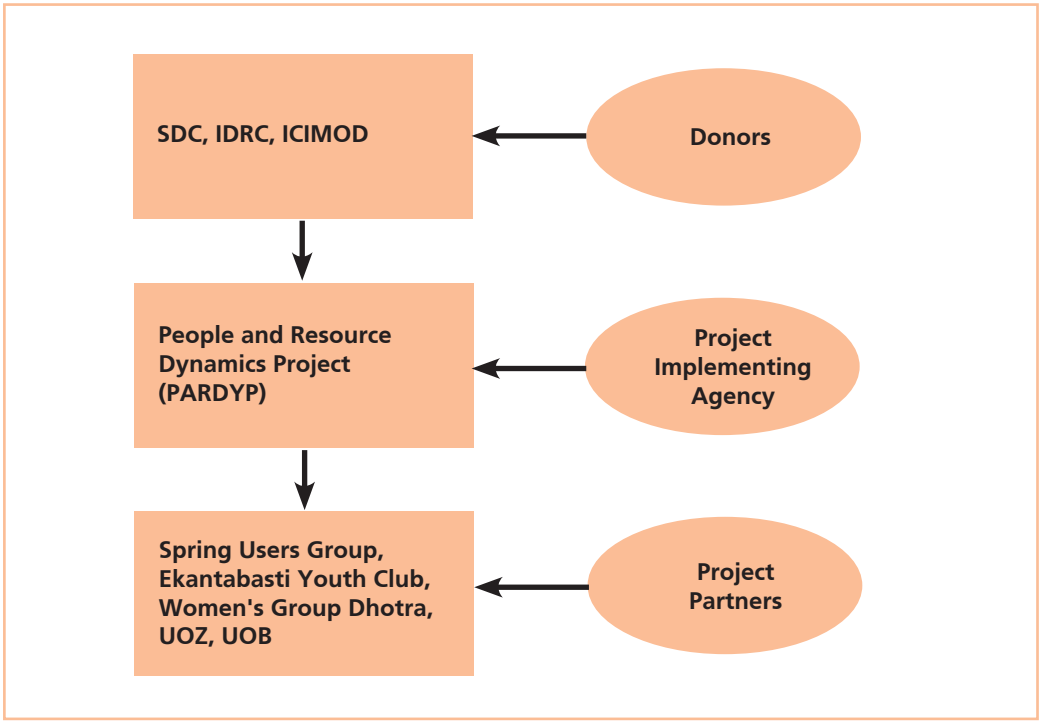
International donor funded project (PARDP)	90%
Community/local	10%
TOTAL	**100%**

Decisions on choice of the technology: Mainly land and water resource users including women supported by a soil and water conservation (SWC) specialist. Users selected three of the potential conservation options.
Decisions on method of implementing the technology: Mainly land users supported by SWC specialist. The technology and associated measures were not new to the area and the implementing methods were simple and have been practised for a long time. The project initiated the formation of a users committee and the committee conducted the conservation activities.
Approach designed by: National specialist (project staff) together with the villagers. Concept designed by national specialist and implemented jointly with users

Community involvement

Phase	Involvement	Activities
Initiation	Interactive	Public meetings organised to identify problems and possible options to overcome them
Planning	Interactive	Public meetings organised regularly to identify implementing steps, and role and responsibility of different stakeholders in overcoming problems
Implementation	Self-mobilisation	Shared responsibility for major steps with the user group responsible for implementation and the project for technical support
Monitoring/ evaluation	Interactive	The quality of the water was measured in each season to monitor the impact of the technology. Detailed progress reports, results, and lessons learned were shared with district level institutions and authorities, water quality reports were shared with spring users at public meetings
Research	Passive	Water quality and availability recorded before and after technology implemented. Studies on access to water and conflicts among users

Differences in participation of men and women: None both participated equally



PARDP project donors and implementing partners
SDC: Swiss Agency for Development and Cooperation
IDRC: International Development Research Centre
ICIMOD: International Centre for Integrated Mountain Development
UOZ: University of Zurich
UOB : University of Bern

Extension and promotion

Training: Before implementation, users were trained on conservation measures and methods of treating contaminated water using SODIS and Safa filter. Information, education, and communication materials were used. The training was effective, especially for improving water quality.
Extension: After the technology was implemented, a number of exchange, interaction, and monitoring programmes were run to promote and scale up the technology. Multiple stakeholder involvement in these programmes helped to evaluate the success of the technology. All users have benefited from the training and their raised awareness of soil and water conservation.
Research: Some ad hoc research was carried out by the PARDYP project on access to drinking water, conflicts at water fetching times, water quality and quantity measurement, and effectiveness of water treatment methods.
Importance of land use rights: The land use rights – mostly state owned land and some private – did not hinder the implementation of the technology.

Incentives

Labour: Land users' involved as volunteers in implementing the technology and the approach
Inputs: Planting materials
Support of local institutions: Training on water quality treatment provided to local club
Long-term impact of incentives: The incentives in the long term helped greatly in conserving the spring sources and there are clear positive environmental and health hygiene effects.

Monitoring and evaluation

Monitored aspects	Methods and indicators
Biophysical	ad hoc observation on land use and degradation, sanitary inspection, history of spring, and available sources to trap water
Technical	regular measurement of seasonal water quality, and discharge
Socio-cultural	ad hoc observation on number of spring users (dependent, regular, occasional), household water requirement, and users' issues
No. of land users involved	observation of users' participation in conservation activities

Impacts of the approach

Changes as a result of monitoring and evaluation: Few changes were made – the project consulted with the local women's cooperative to solve a conflict over water quantity and access to the spring source
Improved soil and water management: Approach helped greatly to build awareness on SWC and methods of improving drinking water quality. It also helped users to work in a group
Adoption of the approach by other projects/land users: Similar approaches were already followed in other communities across Nepal
Sustainability: Users are maintaining the implemented technology and also protecting the other nearby spring sources

Concluding statements

Strengths and ➔how to sustain/improve	**Weaknesses** and ➔how to overcome
Users have become more aware of sanitation issues than before ➔ Awareness campaigns should be organized regularly covering more villages	Conflicts are visible during the dry season due to insufficient quantity of water ➔ Good coordination among group members should minimise conflicts – the strong and balanced role of the users committee is vital for the equitable sharing of benefits
Users have become more aware of 1) the quality of their drinking water, 2) its impact on their health, 3) water quality improvement options, and 4) the importance of soil and water conservation ➔ Water quality testing campaigns should be continued and technical know how about different water quality treatment methods for improved health shared at regular meetings	
Water users committee formed, revolving fund collected, and rules and regulations developed for the sustainable management of the drinking water system ➔ Maintain links with local community mobilisation groups for continuous guidance and support for the user group and for the proper use of the revolving fund	

Key reference(s): ICIMOD (2007) *Good Practices in Watershed Management, Lessons Learned in the Mid Hills of Nepal.* Kathmandu: ICIMOD
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