

Springs, Storage Towers, and Water Conservation

Exploring Decentralized Water Management Science for the Middle Hills of Nepal



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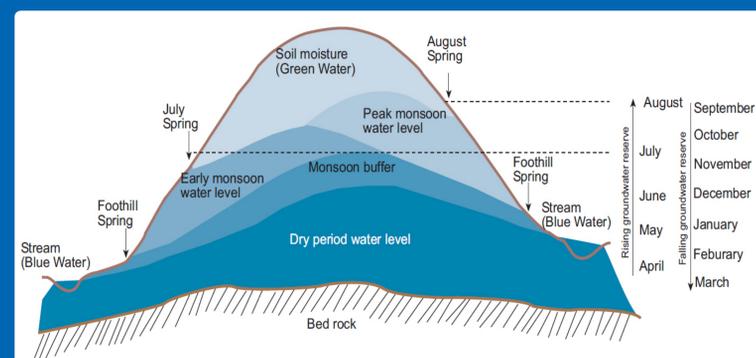
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Context

Communities in the Middle Hills of Nepal are facing severe water shortages. Springs and stone spouts are drying up, traditional water collection points are being abandoned, and fetching clean water has become a daily struggle, especially for women.



Rain water infiltrates into the soil and when it gets trapped by the bedrock or an impervious layer underneath, it gives rise to a veritable 'Water Tower' in the Middle Hills. Springs appear in places where this water tower leaks to the surface. The key to the revival of these water sources may lie in our ability to retain as much rain water as possible.



Bimala Bohra, a female head of household and resident of Paudyal Thok village in Tiniple area, lives next to Thulo Pandero spring, which dried up 10-15 years ago. During the last 12 years, she is collecting water from a dugwell in the valley bottom. As springs have been drying up in this area, people increasingly depend on dugwells. While some people lift water using electric pumps, Bimala cannot afford such a facility and has to fetch water manually.

Research

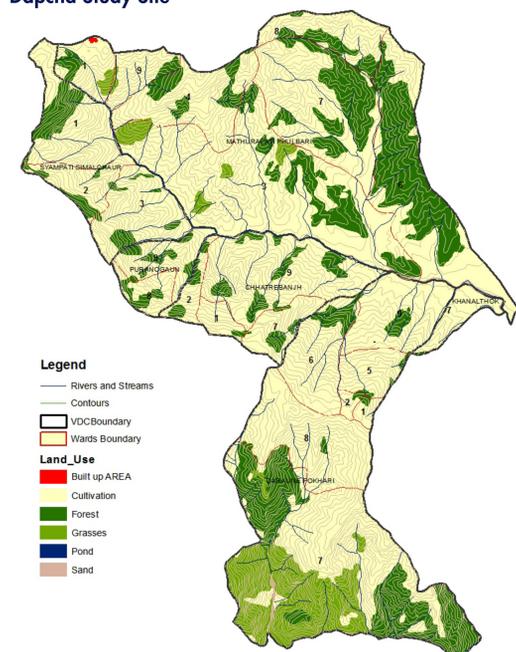
ICIMOD and NWCF initiated a long-term research to investigate the interrelationships among the springs in the hills, natural storage mechanisms, and water conservation in order to find a sustainable solution to address the needs of the local communities. A one-year action research project started under this initiative to understand the nature of springs and ponds in a typical middle hill environment in Nepal. The core theme of the research is to find a way of "capturing water where it falls", rather than focusing on only where it concentrates.

Two pilot study sites were chosen in Kavre District in Nepal to test the hypothesis. These sites represent typical middle mountain watersheds, where the communities face severe water shortage to the extent that people are migrating to the plains in search of water.

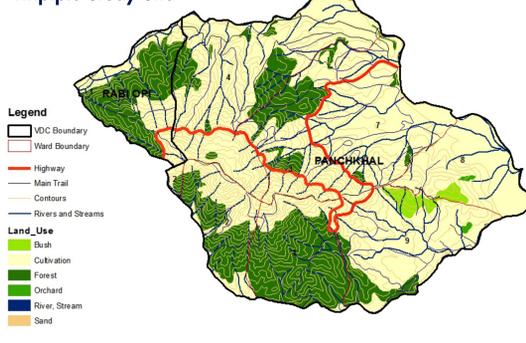
Methodology

- Mapping of springs, ponds, and wells
- Installation of simple field weather stations
- Focus group discussions
- Survey of water users
- Capacity building for community members
- Monitoring of springs and weather data collection with the participation of the local communities
- Collaboration with local FM radio station to broadcast the weather data and to disseminate research findings in the community
- Knowledge sharing

Dapcha Study Site

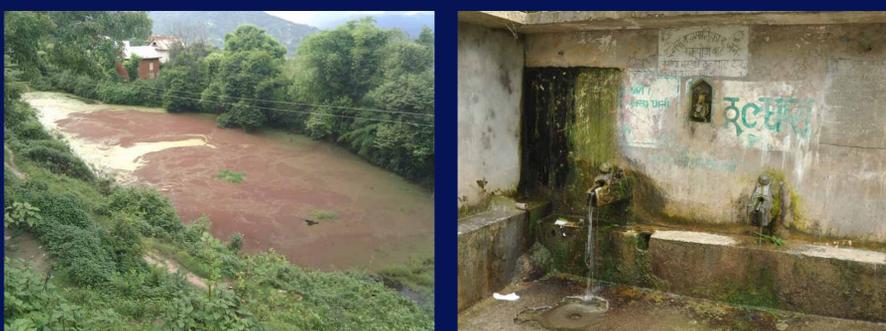


Tiniple Study Site



Initial Results

Spring Interconnections: Daraune Pokhari and Thulo Dhara

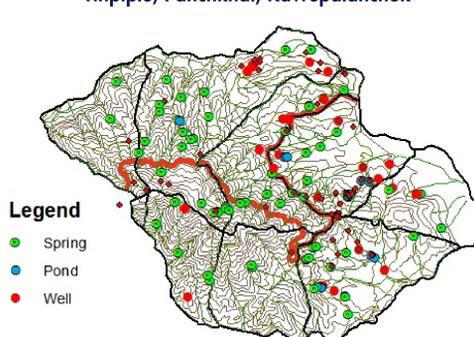


Natural ponds like Daraune Pokhari (left) in Dapcha, trap water and let it infiltrate slowly into the soil, which eventually finds its way to springs downstream such as the Thulo Dhara (right). These springs are perennial and provide domestic water to about 300 households. Water from another series of springs just below Thulo Dhara is collected in a storage tank and distributed as piped water in the community.

High number of springs in the pilot study sites

In the Tiniple study area of 14.27 km² a total of 73 springs were identified of which 59 are functional and 14 have dried up. In the Dapcha area of 22 km², the total number of springs found is 169 with 121 functional and 48 having dried up.

Pilot Study Site, Tiniple, Panchkhal, Kavrepalanchok



Pilot Study Site, Dapcha, Kavrepalanchok

