

Local Knowledge for Sustainable Water Management in the Kumaon Region



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My two month field project in the winter of 2016 looked at traditional water harvesting systems of Kumaon region. Prior to my field project I was aware of water problems in some regions of Kumaon and was very keen on exploring the role of traditional water management systems in sustainable water management. My primary research was conducted in two villages in Kumaon and involved collecting information from the villagers about the changes in the use of water over time. The data received from the two villages were very different. While one village had abundant water supply from springs, the other village had water shortage and villagers had to travel long distances to fetch water for daily use.



A naula: Structure for collecting spring water

The water access in the hills depends on the geographic and geomorphic characteristics of the place. Due to the hilly topography, women have to do immense hard work to get water for the daily domestic use. My reflections and observations from my field project included both perceptions of loss as well as some hope where some efforts of revival of this knowledge are taking place.

Loss of Local Knowledge

From the time I spent in the villages and the interactions that I had with the villagers of different age groups, one thing was very clear: there seems to be a loss of local knowledge. Due to various interventions in the development paradigm that aim at providing facilities of day to day life to these hill folks, these local communities have been made dependent on alien institutions. Such institutions provide very little space for their local knowledge to be restored, developed and used. The *Pahari* (hill) communities are heavily dependent on local resources and have an in-depth knowledge of local foods that provide nutrition to them. The local materials used to make houses provided them comfort during harsh temperatures, but these houses are now being replaced by brick and cement structures which might not be very conducive for these temperatures. Many

interviews mentioned *naulas* (structure for collecting spring water) indicating that these were the most familiar structures of traditional water management to them. However, there seems to be hardly anyone in the village today with knowledge of how these structures were constructed and what the engineering know-how behind these structures were. There were also some abandoned *gharats* (water mills: Western Himalayas were known in the past, for using energy in flowing water to mill/ pound grains), now used as storage spaces. The use of these traditional water management structures merely exist as memories narrated by villagers. It is a very sad situation where the communities that once heavily relied on their local knowledge systems to lead sustainable and independent lives are now dependent on uncertain external interventions and institutions. In the absence of documentation about the engineering and the science behind the traditional water management systems it is very difficult to revive these structures. Even though the villagers understand that their future and the fate of the hills might be in danger as most of the resources are becoming scarce they are unable to use the local knowledge that is disappearing fast with the older generations.

Innovations for Reviving Traditional Water Harvesting Systems

There have been many NGOs, individuals and several local villagers themselves who have realized the potential of their local knowledge and the systems of traditional water management. There have been many efforts made to revive the existing (abandoned) *gharats*. These *gharats* were mostly used to grind flour and now these water mills are replaced with diesel run or electricity run mills, making water mills redundant. One more reason for the water mills being out of use is the decrease in the flow and quantity of water, on which the water mills are entirely dependent.

There are efforts made by Uttarakhand Rural Energy Development Agency (UREDA) to revive 700 water mills to generate electricity at local levels and to solve the problem of providing electricity in the remote regions. These *gharats* were earlier dependent on turbines made of wood, which is being replaced with metal turbines for better maintenance and faster speed. Whether stream flow can be revived to release adequate energy depends on restoration of catchment areas. Local NGOs have also made efforts to recharge flow of springs and make *naulas* more accessible and clean to use. The traditional systems of water management

in this region were integrated, grassroots engineering that provided access to all without causing major changes within the ecosystem. This important, traditional system of knowledge is disappearing and there should be more attention given to restore and use these systems of knowledge to re-establish a sustainable relationship with nature.