



POLICY BRIEF

# **DHARA VIKAS – Reviving the springs of Sikkim**



**Ministry of Environment,  
Forest and Climate Change**  
Government of India



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*This policy brief is the output of a research project titled 'Understanding Mountain Peoples' Approach and Practices to Combating Climate Change in the Indian Himalayan Region: Research to Renewal and Reforms' funded by National Mission on Himalayan Studies (NMHS) under MoEFCC led by Integrated Mountain Initiative and TERI.*

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# Background:

Springs have been the main source of water for communities living in the Himalayan landscape of Sikkim. However, with the ever-increasing effect of climate change on rainfall pattern, there has been increasing instances of springs drying or becoming seasonal. The South and West part of Sikkim have been in the rain-shadow area and as such the villagers suffer from water scarcity during the dry season. However, this problem has reduced after the implementation of the Dhara Vikas programme. Implemented in 2008 by the Rural Management and Development Department (RMDD), Dhara Vikas in Sikkim was launched with an objective to revive critical springs, streams, and lakes. For the entire project, the geo-hydrology technique was carried out which included the mapping of springsheds, monitoring of spring discharge and quality. The spring revival technique was implemented on the sloping lands which comprised mostly of staggered rows of contour trenches.

The objective of this programme was to empower and protect the livelihood of the local beneficiaries dependent on springs and streams for domestic and agricultural purposes. The programme has succeeded in reviving 55 springs in Kaluk, Rhenock, Ravangla, Sumbuk, Jorethang, Namthang and has recharged 1,035 million liters of groundwater annually in the last 4 years.

## Approach:

The study included extensive review of available literature including published journals, news articles, and grey literature. To get first-hand data, field surveys were undertaken in three villages of West and South Sikkim (Deythang, West Sikkim and Bikmat, Sumbuk in South Sikkim). Information was gathered using semi-structured formats, interviews and group discussions with key stakeholders including officials from line departments such as Rural Management and Development Department and Department of Science & technology. 25 household surveys were conducted in each village and an FGD was conducted in Sumbuk with the water users to understand the demand and trend in water availability after the implementation. A discussion was carried out with the Panchayat members and Field Facilitators to analyze the gaps and challenges towards ensuring water security in Sikkim.



Fig 1: Focus Group Discussion in Sumbuk



Fig 2: Increasing number of water harvesting structures below the spring sources



Fig 3: Spring Discharge Measurement in Bikmat

# Findings:

The impact-assessment study of the programme provides evidence that spring discharge has increased over the years. The following table shows how Dhara Vikas has proved to be beneficial in the studied villages.

Pre-Implementation	Post-Implementation
Drying of springs during the lean season/reduced flow	Increased flow of springs/dharas
Reduced crop production during the dry season	Increased irrigation – Beneficial to agriculture and farming
Dry forest cover	Increased Forest Cover
Water disputes	No water disputes
	Reduced landslides, flood control and downstream field damage due to controlled run-off

## Recommendations:

Niti Ayog report of Working Group I, “Inventory and Revival of Springs in the Himalayas for Water Security” stated that some of the success stories led by few State government agencies can play in effective mobilization of resources and implementation of springshed management programmes and must be replicated by other states too. The Dhara Vikas Programme initiated in Sikkim suggests that this approach has potential in enhancing rural water security in mountain states.

Our study recommends the following:

### 1. Need for data inventory and sharing:

- Since trends in the low flow of springs and rainfall share common correlation it is important to have a rainfall and temperature database. Hence, the State should have a data repository with rainfall and temperature data as well as water resources data.
- The capacities of Gram Panchayat Unit needs to be built by providing equipment and training to measure rainfall and temperature. Discharge of springs should be done in an institutionalized way to enable the comparison of data.
- Several agencies have rainfall data but it is not shared. Therefore, data sharing through the public domain is equally important.

### 2. Community ownership through funding and knowledge sharing:

- Our collection of spring discharge data shows a decline in the discharge of the spring sources of the studied villages. This has been attributed due to the lack of desilting. This would require community ownership and awareness within the villages where the programme is or will be implemented. Therefore, there is a need for an institutionalised mechanism for funding and for community ownership, both required for the desilting of the trenches.
- Decrease in the spring discharge of the studied villages post implementation of the programme has been observed. The discharge data of April 2015 was received from the Rural Management and Development Department, Sikkim and the data of April 2018 was compiled during our field study. The reason could also be if the trenches are not being desilted from time to time and the uncontrolled manner in which tapping is being done which can lead to serious water disputes in the future. Therefore, the issue of sustainable water management will also have to be addressed deeply as the number of poly pipes being tapped with the source is ever increasing. Thus, public awareness of water conservation and management is an urgent need to manage the springs of Sikkim.



### 3. Strengthening of laws related to water:

- a) Groundwater policy regarding deep bore wells and water tankers needs to be studied. Village water resources should be mapped and updated periodically.
- b) It is vital to build a connection between project stakeholders, policy makers, and the community. There is also an urgent need to have Underground Water Policy in the State.
- c) It is also important to monitor whether the Village Water Security Plan is being implemented in an institutionalized way.



Fig 4: Overtapping around the spring source as seen in Deythang, West Sikkim







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