Cover Story
Defeminisation of Agriculture
Shivering Lifeline

The Drying (dying) springs in the Himachal Pradesh

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Nearly four fifth’s of the Himalayan population is directly involved in agriculture, while 12.5% of total land area is cultivated, only 11% of the cultivable land is under irrigation, almost 64% of which is fed by natural springs.

Hindu Kush Himalaya mountain chain, spanning 8 countries, covering an area of about 43 lakh km² plays an important role in ensuring water, food, energy, and environmental security for much of the continent. The nine major perennial rivers have their origins in the Himalayas and the Indian Himalayan Region spans 10 hill States namely Himachal Pradesh, Uttarakhand, Sikkim, Tripura, Arunachal Pradesh, Meghalaya, Manipur, Mizoram Nagaland, Tripura, Jammu & Kashmir and two partial hill States – Assam and West Bengal. Nearly four fifth’s of the Himalayan population is directly involved in agriculture, while 12.5% of total land area is cultivated, only 11% of the cultivable land is under irrigation, almost 64% of which is fed by natural springs.

NITI Aayog reports that there are over 60,000 villages in the Indian Himalayan Region. With growing urbanisation, it is also imperative to consider the nearly 500 growing townships and 8-10 cities that are rapidly increasing the pressure on water resources in the region. Many growing urban centres also depend on springs and with the expansion of tourism there is an increasing gap between water demand and availability.

Springs are the sole source of water in the mountainous regions. According to the Report of Working Group I on the Inventory and Revival of Springs in the Himalayas for Water Security by NITI Aayog, there is increasing evidence that springs are drying up or their discharge is reducing throughout the IHR, and indeed, throughout the entire Hindu Kush Himalayan (HKH) region stretching from Afghanistan all the way to Myanmar. As per a rough estimate, there are five million springs across India, out of which nearly 3 million are in the Indian Himalayan Region alone. It is reported that half of them are already dried up or become seasonal, resulting in acute water shortages across thousands of Himalayan villages.

Springs have never been given their due attention and hence many are drying up. According to a survey, the water production in the State of Sikkim has declined in half of its springs, isn’t it an eye opener that aquifers are depleting in a State, which is almost entirely dependent on springs for drinking water. Similar effects are being observed in nearly all the mountainous regions of India. There are similar reports on the deteriorating water quality in the springs under changing land use and improper sanitation too.

Recently RRA Network had conducted a field study in Himachal Pradesh to understand the current scenario of agriculture and livestock based livelihood especially in the rain-fed areas of the State. This study included the current issues, concerns and pattern associated with the practice and policy. It is impossible to believe that a region with so many rivers, springs and glaciers is facing water crisis. At present there is enough evidence to make us believe that this mountain state is facing acute water shortage in the current time and is facing severe ecological implications. The drivers of Spring depletion are said to climate, land-cover, land-use, seismicity etc.

During the period of study, it was found that almost all villages in different districts and in different agro-climatic zones in the state of Himachal Pradesh faced the problem of water shortage for drinking, domestic, livestock as well as irrigation purpose. Streams are moving away from their natural state and becoming seasonal, discharge of springs had significantly decreased and reached to a negligible amount. Almost all the Bawadi in the vicinity of hamlets and village left with a negligible amount of water, pushing people to go far places to collect the water. The acute shortage had led to shortage of water which also impacted health and hygiene, health and yield of animals get affected drastically and even agriculture faced the challenge.

Prolonged dry spells are an issue with the Himalayan regions and we see people transporting water with the help of animals and vehicles. The drudgery of women is particularly worth mentioning here; when village springs run dry, women are forced to manually carry water from springs below their village during the lean season. Women are always at the receiving end of all these issues and the rural mountain women who are
already overburdened with firewood and fodder collection, household chores and also involved with agriculture and dairy find it difficult to cope with all responsibilities.

The current states of springs are also impacting the ecology and biodiversity of the region. Every single river in India has its origin in Springs. Springs and rivers enjoy a very close relationship. Any change in spring hydrology has clear ramifications on river hydrology, whether in the headwater regions, where springs manifest themselves as sources of rivers, or in the lower-reach plains of river systems where they contribute almost invisibly as base flows to river channels. Depleting the springs would lead to further ecological imbalances and will contribute to multiple water-related issues in downstream. River rejuvenation will be incomplete without a clear focus on spring revival. Spring depletion has not only affected people, but has also had serious impact on forests and wildlife. Many natural watering holes for wildlife are in the verge of depletion. Drying of springs in the forest area also trigger the forest fire as well as the migration of wild animals to the agricultural land and villages.

The problem, therefore, transcends the entire spectrum of dependents and dependencies, rural and urban to forests and wildlife.

RRA in its study, based on observations and inputs from multiple stakeholders found that the changes in the climate, decreasing forest cover, changes in the catchment area, direct tapping of the source for domestic supply, changing rainfall, construction activities and increase in water demand are the main reason for declining water resources.

Knowledge gaps as mentioned in the Report of Working Group I by NITI Aayog are the lack in understanding the systemic functioning of springs as parts of aquifers and watersheds. Understanding of traditional practices and culture around springs both of which have significant socioeconomic and governance dimensions is missing. Documentation of various initiatives and institutions working on the multiple aspects of spring management is also missing. It will be difficult to plan, design and manage spring water in a region without an exhaustive database pertaining to multiple parameters for the region.

The Himalayan region has been mentioned in
the National Water Policy (2012) only in the context of consideration of environmental issues while planning. There aren’t any special emphasis on springs and spring shed management in the document and nor does it explain the connection between springs and groundwater, or springs and river flows.

Over the time the government policies have been a major disconnect between the user and the resource. User and communities remain bound to the source and try to manage with the limited resources. Neglect of springs in planning of Urban Water Supply, Large scale drilling in the mountains to improve agricultural productivity, provide access to drinking and domestic water and enable industrial growth is leading to competition between. In case of springs, limited or negligible knowledge of resource among all stakeholders and especially the decision makers had also contributed to the present state of springs.

The RRA inferences on springs in Himachal Pradesh largely align with the recent report of NITI Aayog Inventory and Revival of Springs in the Himalayas for Water Security. Spring water management provides not only an effective, eco-friendly and community-centric solution to correct the Himalayan Water Syndrome but seems the best approach for efficient, equitable and sustainable water management in the region called the ‘water tower’ of India.

The knowledge gaps and policy gaps mentioned in the report also lays down a programme for the revival of springs in the regions. It also states that there is an overall policy neglect of springs in India’s groundwater policy and the report has proposed the launch of National Spring Water Management Programme for the Himalayan Region and has detailed several short-(first four years), medium- (4-8 years) and long-term actions (8 years).

Many community-led initiatives offer hope in mitigating the crises. Spring shed management has been carried out in the form of pilot initiatives across the Indian Himalayan States. Dhara Vikas Programme by the RM&DD, of Government of Sikkim was the first systematic initiative undertaken. Similar initiatives have also been undertaken in Himachal Pradesh, Uttarakhand and Nagaland. Institutions like ATREE, GBPNIHESD, IIT-ROORKEE, National Institute of Hydrology, Wadia Institute of Himalayan Geology, BARC, ARGHYAM and HESCO have all been conducting research on a variety of aspects dealing with spring hydrology from different hydro-ecological zones of the Himalayas.

It is high time that government takes a note of the current state of water resources in the state and take action to support and revitalizing life and livelihood of people, survival of animal and protection and conservation of biodiversity. Balancing evidence-based policy with political imperatives at the local, national, and HKH regional scales, while ensuring that mountain communities derive commensurate benefits from HKH water resources in a manner that safeguards downstream water needs.

Reviews

1. Water in the Hindu Kush Himalaya, Springer Link, 05 January 2019
2. NITI Aayog Report of Working Group 1 Inventory and Revival of Springs in the Himalayas for Water Security

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