

Springs

Lifeline of the Nilgiris

T. Balachander



Local water resources are critical to sustain life in any region, and more so in hilly areas where the topography makes it challenging to transport water over long distances. In the Nilgiris, the occurrence of springs has had a major impact on the water resource distribution in the region. While beautiful waterfalls and fast flowing streams catch the eye during the monsoon season, the sustenance of the local inhabitants depends on the mostly invisible springs. Often the spring discharge is seen only in the form of a stream. However there is ample evidence in the Nilgiris that springs were appreciated as important sources of water, both by the state, through the construction of spring boxes, and through cultural practices such as 'Halla paruva' of the Badaga community.

So, what are these springs? Springs are holes from where water flows out. These could be holes in the ground or cracks in rocks. The water flow from a spring depends on rainfall. While most of the rainwater is lost as surface run-off, a part of it percolates underground and gets stored in the fine pores and cracks of the rocks. The greater the volume of rainwater getting recharged underground, the more will be the outflow from the springs in the non-rainy period. Dense vegetative cover, be they trees, shrubs or grasses, trenches and pits help increase the volume of water that infiltrates

underground. It also helps in filtering the water and improving the water quality.

Depression springs occur due to a sudden change in slope such that the water table cuts the surface. The recharge area of such springs is typically just above the spring. The wetlands in the Nilgiris, which are important ecosystems in themselves and are an important source of water, arise out of springs of this type. Fracture springs, as the name suggests, occur along fractures in the water bearing rock. Recharge area of such springs will be along the fractures above the springs. Contact springs emerge at the contact of two different rock types, with the rocks below being impermeable and those above being permeable. Determining the recharge areas of the fracture and contact springs is not as straight forward as that for the depression springs. Depending on the geology and the slope, the recharge area of a spring may be in another watershed entirely. Hence the concept of a springshed is not identical to that of a watershed.



Hubbathalai spring box

People have observed that over the years the discharge from many of the springs has reduced. A lack of appreciation of the technicalities of the functioning of a spring and the absence of any concerted efforts to identify and protect the springsheds is a possible reason for this. At present there is no estimate or inventory of springs in the country. Global phenomena such as climate change also have a role to play, through the increasing uncertainties in rainfall. Deforestation, landslides and developmental activities such as construction of houses, roads etc. disturb the catchment area of the springs and can result in reduced infiltration into the groundwater. Increased abstraction of groundwater through open wells and bore wells in and around wetlands may also reduce the ground water available for discharge through springs. Improper disposal of sewage and other waste in and around the springs can also contaminate



the groundwater thereby reducing the effectiveness of the springs.

It is therefore important for all the stakeholders including communities, civil society and government agencies to appreciate the working of springs in the Nilgiris and plan for their conservation. Inspiration can be drawn from the traditional practices of communities in the Nilgiris which include marking of spring sites as sacred to enforce systems of use, celebrating festivals around springs to reinforce their importance in daily life etc. Recently the Sikkim Government has taken up springshed protection as a major initiative named 'Dhara Vikas', which is a good example for the Nilgiris as well.

References:
 Government of Sikkim, 2014. Dhara Vikas Handbook. Gangtok, 2014. (<http://www.sikkimsprings.org/dv/posters/dhara%20vikas%201.pdf>)
<http://www.indiawaterportal.org/articles/water-and-livelihoods-nilgiris-part-i>
<http://www.indiawaterportal.org/articles/water-and-livelihoods-nilgiris-part-ii>

T. Balachander is programme co-ordinator at Keystone Foundation and can be contacted at bala@keystone-foundation.org