“Angioplasty in Water Conservation” – A Tested Model for Drought-Prone Areas

The retirement plans of Mr. Suresh Khanapurkar, a former geologist, led him to transform the grim groundwater situation in Shirpur Teshil of Dhule district in Maharashtra into a unique water conservation model termed as “Angioplasty in Water Conservation.”

About Shirpur Taluka

Geologically, one-third of the Shirpur taluka is covered by Tapi Alluvium and the rest is covered by Deccan Basalt. An aquifer is a body of saturated rock through which water can easily move. While alluvial aquifers typically occur adjacent to rivers and is composed of clay, silt, sand, gravel or similar unconsolidated material deposited by running water, basaltic rocks aquifers are the most productive aquifers in volcanic rocks. Shirpur taluka, which had highly erratic rainfall and unevenly distributed surface water resources, depended highly on its groundwater resources for irrigation, drinking water and industrial purposes. Over time, its groundwater levels declined to alarming proportions rendering the area water scarce. The groundwater based drinking water schemes were the first casualty of such a development. Due to overexploitation of groundwater resources, all the dug wells in the Tapi Alluvium in Shirpur taluka dried up. Drying of wells in the alluvial belt and insufficient availability of water after December in the basalt region were the main problems of Shirpur. This precarious situation led Mr. Khanapurkar to initiate a water conservation programme in the area.

Actions Taken

As part of this project that spanned 14 years (2004-2018), as many as 210 check dams were created to enable the infiltration of water from 14 streams, which were widened and deepened up to 25 meters and 8 meters respectively in the basalt and alluvial area. The check dams were made without gates and waste weir to augment huge storage of water based on ridge to valley approach.

Parallely, to recharge the deeper aquifers by using the surplus water of the dams artificially through dug wells of about 40-50 meters which had dried, 65 cement

bunds were constructed on all 14 streams. As many as 59 dried dug wells were recharged through this technique.

Impact

- Water table rose from 150 meters to 10 meters in basalt hard rock aquifer.
- Water table rose from 150 meters to 30 meters in alluvial formations.
- People had enough water to irrigate 2nd crop even after no rainfall for two years. Average per capita income increased at least by Rs 1 lakh/hectare.
- Drinking water problem of over 70 villages solved.
- Energy consumption decreased.
- Fisheries started in many villages resulting in rise in annual income of the farmers.

Taken up on all small streams in mini and micro watersheds anywhere in the country, this model is worth emulating in rain-fed and non-command areas. Total eradication of flood and scarcity is possible within a time span of ten years.

For more on this model, you can contact Mr. Suresh Khanapurkar at suresh612@rocketmail.com