

GOVERNMENT ENGINEERING COLLEGE, VALSAD



**A Report**

**On**

**AL SHAKTI ABIYAN: CATCH THE RAIN-2022**

**Water Conservation Action Plan**

**Under**

**Jalshakti Abhiyan**

**By GEC Valsad**

**Prepared By**

**EBSB Club GEC Valsad**

## ❖ Introduction

Valsad district is one of the important tribal districts of Gujarat State. It has rich cultural background with affluent forest areas endowed with vivid fauna & flora. It is famous for its orchard plantations. There is rapid growth in agriculture as well as of industries in the district during recent past. Earlier (1951) it was a part of unified Surat District under Bombay Province. After formation of Gujarat State in 1960, it was separated from Surat district. Later on in year 1997, for administrative convenience, Valsad district is divided between two districts, namely Navsari comprising taluka areas of Navsari, Gandevi, Chikhali and Vansada while new Valsad district comprises taluka areas of Valsad, Pardi, Dharampur and Umergam. Valsad district has huge potential of surface water resources in the form of perennial river system comprising of Par, Wanki, Kolak, Damanganga and Varoli rivers and associated tributaries & springs in hilly terrains. Parts of Valsad district is covered by irrigation command of Daman Ganga Project and Ukai Project, and more than 50,000 ha area is irrigated in all three, Kharif, Rabi and Summer period through network of lined / unlined canal system. The canal network is also utilized for supply water for domestic and Industrial uses.

Gujarat is the second most water stressed state of the country and the state had in the past faced several instances of drought. South and Central Gujarat are heavily agricultural and industrial areas, the over use of chemical fertilizer and industrial waste has polluted the ground water; the region near coast is also contaminated because of salinity ingresses. Saurashtra region comprises of rocky formation, it has very low recharging

capacity, so ground water replenishment is very low. Valsad district receives much of its rainfall from the south-west monsoon during the period between June & September; its maximum intensity being in the month of July & August. Total rainy days ranges from 40 to 55 days / year.

• **Action Plan For for Institute**

<b>Sr. No</b>	<b>Action/Strategies</b>	<b>Activities</b>	<b>Action Duration Short Term/Long Term</b>
1.	Water conservation	<ul style="list-style-type: none"> <li>- Spreading awereness among students about the water conservation by encouraging students to prepare placard, report on stats of water availability in valsad – region wise,</li> <li>- Encouraging students to learn about the stats/strategies or scheme implemented by government of Gujarat and India and its current outcomes</li> </ul>	<ul style="list-style-type: none"> <li>- Long term</li> <li>-Short term</li> </ul>

		<p>and asking them to make report or suggest innovative idea to enhance or make it more outcome oriented to maximize the outcome by removing problem associated in it.</p>	
2.	Water Harvesting	<ul style="list-style-type: none"> <li>- Asking students of Civil engineering Department to prepare a detailed report on possibility of rain water harvesting for institutional building , surveying it to check feasibility of it, and also sensitize other departmental students to learn about it or to involve in it for the same.</li> <li>- Preparing a group of students to study water harvesting system installed around</li> </ul>	<ul style="list-style-type: none"> <li>- Short term</li> <li>- Long Term</li> </ul>

		campus and spreading awareness in surround areas by social medias, rallies, poster presentation etc	
3.	Renovation of traditional and other water bodies/ tanks	- Asking students to identify the water bodies like pond, lagoon, lake etc residing around the valsad and prepare detail report about it, checking weather government of Gujarat has any plan to conserve, maintain it or not by taking year by year data of its situation by visiting.	- Long Term
4.	Reuse, bore well recharge structures	- Asking students to survey about the number of bore well situated around the campus and in city area, assessing its technology/ structure and methods available	- Shor term

		<p>to recharge it.</p> <ul style="list-style-type: none"> <li>- If no methods to recharge it is there then make one for it which is best suitable for it</li> </ul>	<ul style="list-style-type: none"> <li>- Long term</li> </ul>
5.	Watershed development	<ul style="list-style-type: none"> <li>- To prepare report on topography of valsad district and prepare action plan for watershed development one such plan is discussed below.</li> </ul>	<ul style="list-style-type: none"> <li>- Short Long Term</li> </ul>

## **THE ROLE OF MOUNTAINS**

- **High precipitation levels**
- **Storage and distribution of water to the lowlands**
- **The life-sustaining role of water**
- **Fragile ecosystems**
- **Conflicts over water**
- **"Sacred" mountain water**

## Water crisis

- “The climate and water story is simple,” explained [Amir Bazaz](#), a senior climate change researcher at [Indian Institute of Human Settlement](#), Bengaluru.
- “The story is connected to precipitation. Climate change will change precipitation patterns and all your water bodies get water from precipitation as there is no other source.”

## Solution

“Water towers” are crucial to the welfare of humankind.



## Existing solutions



### Check Dam

- Site selection
- Local people resistance
- Approach distances to farms



### Multiple Ponds

- Soil structure suitability
- Temporary structure
- Short term advantage
- Less number of beneficiary



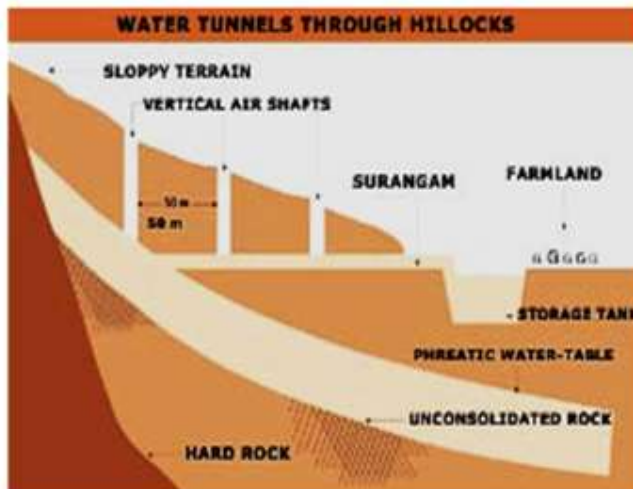
### Harvesting Tank

- Limited capacity to hold water
- Requires more space for an individual family
- Treatment required for domestic uses
- Storage may not be sufficient for irrigation

## Water tower development on Hills

- Site selection for large water tower creation is always been a critical task.
- Few challenges like Land acquirement, obtain trust from local people and to educate people are persistent (also in case of construction of check dams)
- The primary function of water towers is **to pressurize water for distribution**. Elevating the water high above the pipes that distribute it throughout the surrounding building or community ensures that hydrostatic pressure, driven by gravity, forces the water down and through the system.

## Surangam



- The word *surangam* is derived from a Kannada word for tunnel. It is also known as *thurangam*, *thorapu*, *mala*, etc, in different parts of Kasaragod. It is a horizontal well mostly excavated in hard laterite rock formations.
- The excavation continues until a good amount of water is struck. Water seeps out of the hard rock and flows out of the tunnel. This water is usually collected in an open pit constructed outside the *surangam*.



## **Advantages**

- Rain water can be harvested by great extent, as without obstructing the flow huge amount of water get spilled into the rivers and finally to sea.
- Water accumulation at uniform places and various elevation which recharge and raise the water level
- Very less space required for water sustainment so more utilisation of agricultural lands can be achieved
- Erosion of mountain land can also be considerably reduced
- Kinetic energy of the water can be utilised using micro head water turbine and electricity can also be generated

## **Challenges**

- Construction of channels and holes drilling on hilly terrain
- Effect on structural strength of the mountains
- Feasibility about power production to be assessed critically
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Sr No	Activity	Duration
1.	<b>Deciding of Approach And Mehodology</b>	May- June 22
2.	Planning and preparation phase	June-July 22
3.	Data collection phase	July August 22
4.	Data analysis Plan	August 22
5.	Report phase	August 22
6.	Activity implementation phase	August 22 November 22