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# Importance of Continuous Contour Trenches (CCT) in Maharashtra

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#### Abstract:

Most of the part of Maharashtra state is drought prone. Rugged topography and basaltic formation restricted the irrigation efforts. Only 18 % of the agriculture is under irrigation. According to study groups this proportion can be increase up to 42%. Previously state efforts are limited to increase water storage capacity by building dams and afterwards bands and tanks. Soil loss is as threatening as water scarcity in Maharashtra. But soil and water conservation masseurs not integrated in past. At the end of 20<sup>th</sup> century new technique, CCT is introduced, accepted, popularized and practiced in Maharashtra. Few micro water shade are treated with integrated watershed management masseurs where CCT is widely used. But at government level this technique should have given more waightage as it is ideal for increase infiltration of rain water, reduces runoff, reduces the soil loss and increase the ground water level. This is useful for increase agriculture productivity and solving the problem of shortage of drinking water.

#### Key words:

Continuous Contour Trenches (CCT). Watershed management, soil conservation, water conservation,

Agriculture is traditionally the major economic activity in Maharashtra. Soil and water are two basic essentials for agriculture.<sup>1</sup> Maharashtra is one of the most drought prone states in India. In Maharashtra water is consider more valuable than soil. Continuous loss of forest, unscientific agricultural practices, unplanned development results in loss of soil. Its leads the runoff and reduces water percolation rate. The final hazard is decreasing ground water level and ecosystem disturbance. Because of the continuous negligence of water and soil conservation practices by people, society and government, the intensity of drought is becoming more and more severe with every passing year. Many efforts were made in past for water, soil and forest conservation but they are done individually and separately, there are lack of awareness about integrated conservation methods.

Maharashtra has a rugged topography and basaltic geological formation so there is limitation on canal as well as well irrigation. In past most of the efforts were made by the government in storing the flowing water and less attention is given to percolation of water, which is useful in wide availability of ground water. There are many measures for the conservation of water and soil. They are performed by various government agencies. See the following table.....

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Objective	Types of Measures	Agency
Water conservation	Vanrai, Kaccha earthen, Bund, Nala Bandhara,	Soil Conservation
	Nala Plugs, check dam, Percolation tank	Department
Soil Conservation	Forestation, Continuous contour trench	Forest Department & Social
		Forestry
	Contour trench, Contour bonding, Farm pond,	Soil Conservation Department
	Check dam	
Strengthening of	Fracture Seal Cementation, Jacket well, Stream	Groundwater Surveys &
drinking water sources	blasting, Bore Blast Technique, Bore well flooding.	Development Agency

Continuous contour trenching is an experiment in the forest areas since 1993.<sup>2</sup> CCT is the best suitable technique for low rainfall, hilly and undulating terrain areas. CCT are Excavating continuous trenches (60 cm wide x 30 cm. deep) on continuous contour lines which are mark, prepared with the help of contour marker. Trenching was started from top to bottom. Distance between two trenches is depend upon the slope as well as availability of time and resources. The major purposes of using CCT technique are...

- 1. To stop the soil loss
- 2. To reduce the rate of runoff, increase in percolation.
- 3. To increase the ground water level.
- 4. To increase the green cover over the area and soil quality.
- 5. To increase the availability of drinking water, agriculture development and employment.
- 6. To increase the soil moisture to vegetation and develop the degraded lands.

In the last decade of 20<sup>th</sup> century, this technique is implemented and popularized by Dr. Vasantrao Takalkar, a retired forest officer in Maharashtra. With his experience on plantation of trees in arid Satpuda region realized that CCT is the best technique for Soil, water and forest conservation in scanty rainfall and rocky hill areas. A study of CCT project near Dolasane village in Ahmednagar district by Sadgir, Patil and Takalkar it is scientifically proved that the water level of the well is considerably increase in a very short span in the project area.<sup>3</sup> Few other studies also supported to the importance of CCT in dryland areas. In a experimental study undertaken by Dr. Panjabrao Deshmukh Agriculture University Akole, It was observed that the CCTs helps in better soil moisture condition and which influences the plant growth and ultimately the leaf area index (LAI) of the plantation in CCT treated catchments was better as compared to non-treated catchments.<sup>4</sup>

In the first decade of 21 century, Ninh Thuan province of Vietnam expereances successive droughts, water shortage and floods. Royal Haskoning and Westerveld Conservation Trust suggested the implementation of contour trenching as the appropriate solution. In water harvesting technique, this method is identified as a catch runoff, following with the infiltration, and eventually retains water subsurface.<sup>5</sup>

There are few case studies has done in past to understand the effects of CCT. For eg.

- 1. Malchelma, Chinna Cheruvu watershed (in Sekhapur village), Telangana
- <sup>2.</sup> Ambedkar Nagar, Kolhapur, Maharashtra.<sup>6</sup>
- <sup>3.</sup> Village Shinde, Taluka- Karjat, Dist. Ahmednagar7
- <sup>4.</sup> Village Suregam, Taluka- Shrigonda, Dist. Ahmednagar.8

Now this fact is well established in experts that CCT is the vital tool for environmental conservation in low rainfall, undulating area. This fact is not yet reflects in Maharashtra government policy for soil and water conservation. In 2003-04, 44000 hectare area is treated with CCT <sup>9</sup> which is decrease to 10,155 ha. In 2008-09 <sup>10</sup>

After the new government in Maharashtra attention is given to rechargeing ground water through variety of measures under 'Jalyukt Shivar Scheeme'. CCT is the major part of that scheme. Paani Foundation works collectively with The Government of Maharashtra, NGOs like WQTR, corporates like Reliance Foundation, TATA Trusts etc. to strategically plan Satyamev Jayate Water Cup. The Cup is essentially a competition between different villages to see who can do the maximum work for watershed management and water conservation in the period of the competition. The competition period of the first edition of the Water Cup was 20th April to 5th June, 2016. Satyamev Jayate Water Cup has successfully become a People's movement where people take ownership of their village problems and work together for the watershed management. In it, top 35 villages accomplished 75.69 km of CCT (Continuous Contour Trench) in their village, 33.67 km of Deep CCT and 65.5 km of Nala Deepening/Widening.<sup>11</sup>

Maharashtra government's water conservation programme is one of the efforts to solve the problem of ground water availability for agriculture and drinking water. Maharashtra receives about 80 to 85 % of annual rainfall in 4 months of monsoon. Heavy runoff made the people dependency on stored water and ground water in remaining 8 months of the year. In recent years people awareness is increase about water conservation and integrated water conservation measures were started in many areas. The success stories of Ralegan Siddhi, Hiware Bazar, Adgaon, Palskheda are the example of peoples participation in water conservation at village level (micro water shade). CCT is part and parcel of integrated water conservation mainly in hilly area.

## Conclusion:

- 1. CCT technique should be used more frequently at wider part of Maharashtra to solve the soil and water conservation.
- 2. soil and water conservation should be integrated.
- 3. Peoples participation is necessary for effective implementation of watershade management programme.

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