

Silent Revolution - Success Story of Checkdams in Jharkhand

“When water fails, functions of nature cease,
Thus when rain fails, no men can walk in “duty’s ordered way”.
-Kural (20)



Background & Objectives

Agriculture and related activities are the primary source of livelihood for the people in Jharkhand, with nearly 67% of the total work force dependent on agriculture.

Out of 38 lakh hectares of cultivable land, presently only 18.04 lakh hectares are net sown area. However, despite the fairly sufficient average rainfall of around 1400 mm, only 11.3% of the total net sown area is under irrigation in Jharkhand.

The State has a fairly high potential for agriculture in general and for cultivation of certain high value agricultural crops including fruits, flowers and vegetables in particular due to the favourable climatic conditions. Despite these advantages, agricultural development and adoption of modern technologies are yet to reach their potential in the State. Consequently, production and productivity are below the national average in the case of most of the crops.

Irrigation plays a significant role in increasing yield from the land. Non-availability of timely and adequate water for irrigation is a serious constraint in achieving higher productivity and stability of farming; assured irrigation is the need of the hour. Though the total rainfall in Jharkhand State is satisfactory, its distribution over time and space is highly uneven. Therefore, rain water harvesting and water use efficiency are critical for increasing production and productivity.



Intervention

The water holding capacity of the State soil is very low due to porous nature of the soil and undulating topography. The annual average rainfall in the state is approx 1200-1400 mm, which occurs mainly during the monsoon months i.e. during June-Sept. Out of the total rain, 60% is wasted due to surface run-off and leaching and only 40% rainwater remains available for crop use. Given the geographical and soil conditions, the most effective method of rainwater harvesting in Jharkhand is to collect runoff in streams (*nalas*) through construction of small check dams that will enhance water conservation as well as control soil erosion.

Approximately 80% of the farmers in the region are small and marginal (<2 ha) and the high cost of investment in soil & irrigation development is beyond the reach of most rural families. Therefore, Participatory Integrated and Improved Community Irrigation Projects have been promoted with subsidy up to 90% of the project cost with the following structures:

- Birsa Pucca Check Dam (BPCD)
- Loose Boulder Check Dam (LBCD) and Guard Wall
- Lift Irrigation System (Including Sunken Well, Pump House, 8hp Diesel Pump set and underground PVC pipe system (with 4kg/cm²))

Participatory community irrigation management (PCIM) through Water Users Associations (*Pani Panchayats*) has been encouraged to maximize the benefit from the available water. Capacity building of *Pani Panchayats* has been taken up to bring about awareness of rights, roles and responsibilities of these groups for effective utilization and monitoring of water allotted to them.



For better water utilisation in the targeted areas, irrigation water is supplied through underground conduits to minimize transmission loss and Rotational Water Supply System has been adopted for effective use of water.

Assured irrigation of at least 90- 100% in kharif season, 80- 90% in Rabi season and 20-30% in summer season has been made available for cultivable land in each cluster of 20-25 ha. This has been achieved by a suitable combination of flow irrigation, as well as micro irrigation system.

Micro Irrigation (drip and sprinkler irrigation) helps farmers in saving water, increasing yield, supporting new technological packages and increasing employment. Micro irrigation is being promoted in a big way in the State by providing subsidies upto 90% of cost for setting up drip and sprinkler irrigation system and this will go long way in efficient use of water.

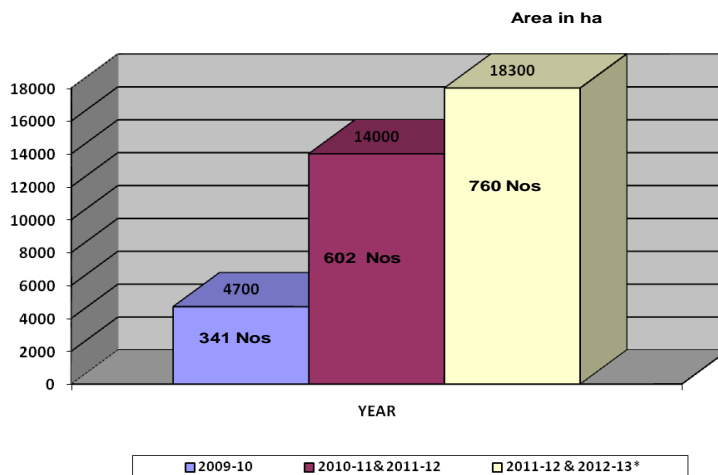




Outcome

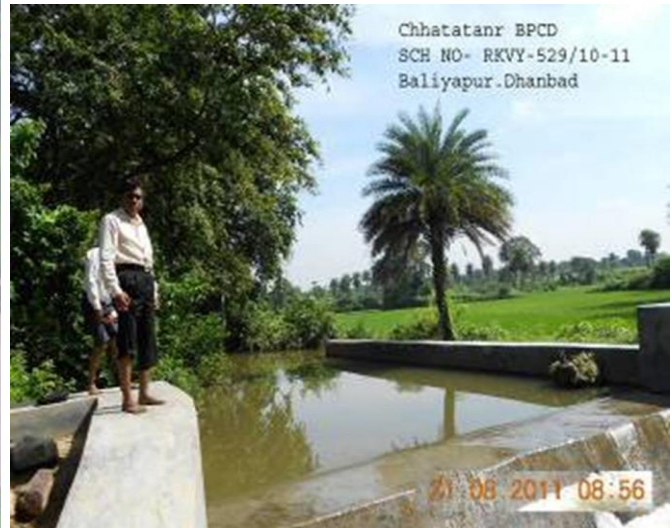
In Jharkhand 943 Birsa Pucca Check Dams (BPCD) have been constructed across the perennial streams in 2009 and 2010-11 at a total cost of Rs 89.164 crores and the cost has been met largely from RKVY. An irrigation potential of 18700 ha has been created for Kharif and Rabi crops. There used to be severe water stress during Kharif earlier. Now farmers are in a position to raise crops without interruption in areas where check dams have been constructed. In Rabi the production has enhanced by 80-90% in these areas. The cropping intensity in these areas has been enhanced by more than 200%.

Year wise irrigational achievement from LOW COST BIRSA PUCCA CHECK DAM



Earlier, farmers used to take Paddy & Maize only during Kharif season because they were dependent on rain only. In Rabi season agriculture was almost negligible and only Rabi vegetables were grown with very low production. After construction of the check dams, not only was

paddy cultivation ensured with increased production but Rabi and summer cultivation also came into regular practice.



For example, Shri Umesh Pd. Mahto, S/o Sri. Tiku Mahto, a farmer of Village Nagwan, Block Sadar, District Hazaribagh, who has a farm of about 1 acre notched up a cropping intensity of 300% in 2009-10 by cultivating hybrid rice, maize and vegetables in kharif, wheat and vegetables in rabi and vegetables in summer after availing the benefits of assured irrigation through construction of the BPCD in his area.



Some of the farmers stated as:-

"bl psdMSe ds cuus ls vc gesa ikuh dh fpark ugha jg x;h gS] /kku rks lqfuf'pr gks gh xbZ] vc jch vkSj xjek Hkh Hkjiwj mxk jgs gSA ¼Jh fnus'oj egrks] firk&Lo0 peu egrks] xzke&ljk[kqnZ] iz[k.M&xksyk] ftyk&jkex<+½A

fcjlk iDdk psdMSe ds cuus ls igys [ksrh jke Hkjksls Fkh ij vc gekjs gkFk esa gSA¼Jh HkDrq mjkae egrks] firk&Lo0 egkchj mjkae] xzke&ukokMhg] iz[k.M&dkads] ftyk&jkaph+½A

SRI MINU MAHTO AT SCHEME IN HAZARIBAGH KEREDARI



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ojnku gSA¼Jh ehuv egrks] xzke&ykspu] iz[k.M&dsjsMkj] ftyk>kjhcKx+½A

The total targeted investment from RKVY for this intervention from 2009-10 to 2012-13 is Rs 165.164 crores. It is expected that due to this intervention the state will be able to bring more than 37000 ha area under assured irrigation by the end of 2012. In other words, there will be an increase of 1.65% of irrigated area in the State.