



Integrated farming with Tank cum well system

TECHNOLOGY BRIEF

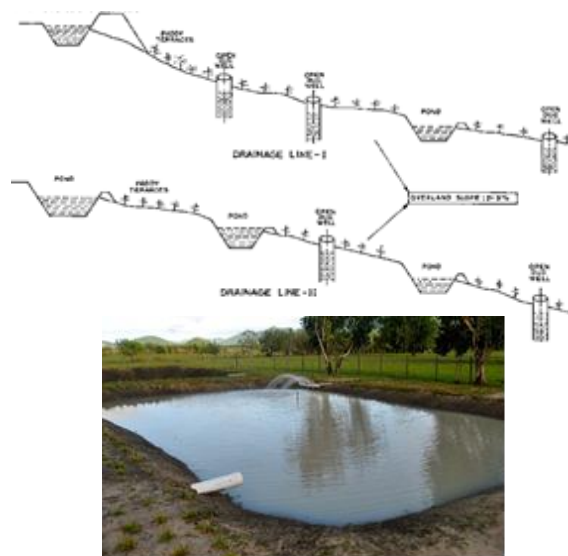
A **tank cum open dug well system** suitable for plateau region of eastern India has been developed for providing reliable irrigation to croplands and adoption of aquaculture systems. The system comprises of a series of tanks with open dug wells in the recharge zone of the tank that re-harvest back the seepage water. Thus, the rainwater remaining in the tank as well as partial seeped water is used for providing round the year full irrigation and composite fish culture of IMCs. This system was evaluated in field in Keonjhar district of Orissa. The total command area of the system of six tanks and five wells was 23 ha and the total irrigation potential was 44.5 ha. The system increased the rice yields from 1.92 t ha⁻¹ to 3.8 t ha⁻¹. The farmers went for crops in post-monsoon and summer season utilizing the conserved water and the cropping intensity rose to 182%. Aquaculture in tanks (3.6 t ha⁻¹ 210d⁻¹) provided additional net income of Rs. 83 000 ha⁻¹. This system has a potential of generating net income of ₹ 1, 82, 000 ha⁻¹ (agriculture, aquaculture, horticulture), more employment opportunities and is sustainable. Impact analysis of the water resources development and technology introductions at the study sites was carried out by analysing the comparative position of physical, social, financial, human and natural assets of the farmers before and after adoption of the introductions.

IMPACT / UTILITY

The overall standard of living of the study farmers increased from 11.5 to 19.1 on a scale of 5 to 25, respectively. The present study elucidates the effect of water resources development, multiple use of water and other technological interventions on the livelihood of farmers who rely on rainfall in eastern India. This irrigation system can be created and managed by locally available skills.

HIGHLIGHTS

- A software for design of percolation tank (SODEPT) has been developed
- The system has potential of being another tier of water resource development in addition to major, medium and minor irrigation systems.
- The system is also capable of providing irrigation through drip to part of a command during summer for third crop using water stored in tanks.
- This system reduced water turbidity and provided continuous supply of water.



Project Details

Rain water management strategy for drought alleviation (NATP Project, RRRP-4)

Publications

- *Srivastava et al.(2009) Water Resource Management, 23:1237-1255.*
- *Srivastava et al.(2010) Water Resource Management, 24:3017-3032.*