

Certificate Course on Participatory Irrigation Management (PIM)

Module 1- The Necessity of Participatory Irrigation Management (PIM)

Topic 1.1 – Status of Agriculture and Irrigation

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Status of Agriculture and Irrigation

Topics of Module 1:

- 1.1 Status of Agriculture and Irrigation
- 1.2 Problems in Traditional Irrigation Management
- 1.3 The Concept and Need of PIM
- 1.4 Successful Examples of PIM – Past and Present

1. Agriculture in the country

India is the second largest country in the world on the basis of population. According to the 2011 census, its population was about 125 crores, which is estimated to cross about 139 crores at present. We have 17 percent population of the world, but we have only 4 percent of the water available globally. Per capita water availability in more than half of the country's 20 large river basins is less than 1000 cubic meters, which indicates a major water crisis. In this way, water management in our country has more importance than other countries. About two-thirds of the total population of the country lives in the villages, whose main basis of livelihood is agriculture.

Agriculture and allied activities take place in more than 18 crore hectares of land in the country. In different agro climatic zones various types of crops like paddy, sugarcane, wheat, Millet, Soghum, oilseeds, pulses, vegetable, and fruit crops are grown abundantly all over the country. About 84 percent of the total water used is utilised in agriculture alone. According to, Planning Institute, Planning Department, Government of India, in year 2014-15, the country produced around 25 million metric tons of food grains, of which about 4.28 million metric tons of food grains, about 1.71 million metric tons of pulses and about 2.75 million metric tons of oilseeds Was also produced. In this way, a large part of the world's food grains, pulses and oilseeds were received from the country and the country became self-sufficient in food grains, which is a remarkable achievement.

Inadequate resources and small holdings are the two main problems of the farmers. About 82 percent of the farmers in the country have less than 1 hectare of land (agricultural land). Due to small holdings (agricultural land), the income of marginal and small farmers is very low and they do not even have their own private system of irrigation. These farmers usually depend on others for irrigation related works and a large part of their agricultural income goes towards the payment of irrigation water (mainly irrigation water from tubewells).

2. Irrigation in India

According to the River Basin Atlas 2010, about 4728 large dams are built in the country and 397 new dams are under construction. According to the Fifth Minor Irrigation Survey, 2.1 crore minor irrigation structures have been erected in 6.46 lakh villages of the country, including 92 lakh wells, 91 lakh shallow water bodies, 15 lakh deep borwells and 12.5 lakh surface and small lift structures, all of which are major contributor to irrigation. There is no shortage of water sources, but in canal irrigation projects actual irrigation is much less area than created potential due to social, managerial and financial reasons. The balance between availability of water and demand for water has deteriorated. It will be better to achieve 100 percent of the irrigation potential created rather than creating new potential.

Due to rainfed agriculture, the field where there is 1 ton of wheat, if the same farm gets adequate irrigation facilities, the production can reach 3 tonnes.

3. Irrigation from canal and other sources -

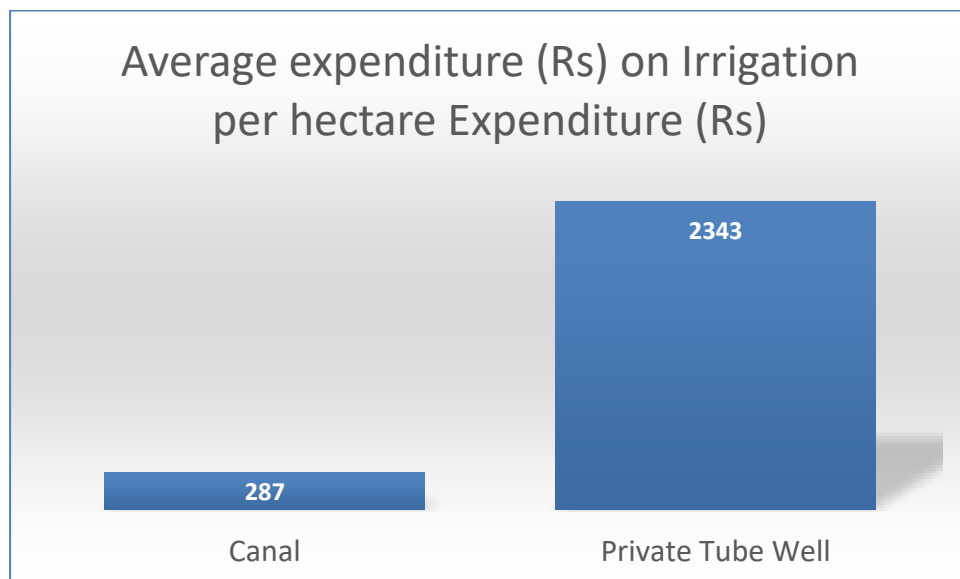
In 2014-15, only about 9 crore hectares area was irrigated against the total sown area of 18 crore hectares in the country. This is only about 50 percent of the total area sown. The unirrigated portion is dependent on rainfall for irrigation, which is a matter of grave concern. As is clear from the above picture, large population of farmers rely on private tube wells for irrigation. After private tube wells, the canals are the most dependable means of irrigation. Tube wells and canals irrigate about 63 percent and 37 percent of the land area respectively.

4. Comparison of rainfed and irrigated farming -

Good farming is dependent on many reasons such as fertility of the land, quality of seed, hard work of the farmer, etc. But the most important factor is availability of secured water at every stage of crop development from sowing to harvesting. If water is not available in time, then the production of the crop will have a reverse effect.

According to a research conducted by Development Support Center, Ahmedabad, timely and appropriate availability of irrigation water can lead to two times the production of jowar, three times of millet and groundnut and up to four times the production of wheat. The production of crops like rice and sugarcane also increases with adequate irrigation. No one can understand the importance of irrigation water for farming better than the farmer. As is evident from the above picture, the farmers of the state mainly use both ground water (here ground water means irrigation by tube wells) and surface water (like canals).

Farmers invest far more capital in groundwater development than they can afford to cultivate on time and ensure the availability of the appropriate amount of water, but irrigation by canal is much cheaper than irrigation of tube wells and wells. According to an estimate, the comparison of irrigation expenditure by tubewell is Rs. 4000-7000 and by canal is Rs. 250-1800/- per hectare.



According to the field studies, the cost of water from the canal is less than the tube well. Farmers also believe that irrigation from private tube wells is quite expensive, on the contrary canal water is much cheaper, but due to lack of communication with the irrigation department, most of the time they do not know when and how much water will come in the canal.