

## **Managing Water Stress in Rain-fed Areas with Farm Ponds**



*A farm pond for protective irrigation in Maharashtra*

### **Background and Objectives**

Maharashtra occupies an important position in the agriculture economy of the country with 34% of country's area under cotton, 17% of total area under sugarcane and 15% of the area under oilseeds. The State is also a major producer of horticulture crops like onion, grapes, pomegranates etc. Maharashtra, however, faces tremendous water scarcity in large parts of the State with 80% of its 175 lakh hectare area under cultivation being rain-fed.

Nearly 52% of the cultivated area in the State is drought prone. This presents enormous challenge for the State to harness and provide water to its' farmers for raising crops on sustainable basis.

Maharashtra has been planning and undertaking programmes for water and soil conservation including rain water harvesting on a large scale to convert their constraint into opportunity. A massive watershed development plan was therefore conceived for the State and over 30000 micro watersheds have been developed with State funding by constructing check dams, contour bunding etc.

In addition, it was also obvious that private investments will need to be boosted in water conservation at the micro level by encouraging construction of farm ponds by farmers in their farms to conserve rain water and surface run off from higher elevations. Promoting construction of farm ponds was, therefore, identified as one of the earliest interventions for taking up under the Rashtriya Krishi Vikas Yojana in the state with the objective to increase ground water recharge in water stressed areas to provide protective irrigation to the standing crops during the dry period and to improve the ground water table.

A farm pond is usually of 3 ft depth with width and length varying depending upon the farmer's land and catchment water potential in his field or what he can transport from the source. Most farm ponds are without any permanent ground or side linings. A typical farm pond in Maharashtra has dimensions of 30' x 30' x 3' or 25' x 25' x 3' with an inlet for water to collect from surface run off from higher reaches/ or to receive pumped water and an outlet for overflow of water. Water is usually collected during monsoon in these farm ponds. But, wherever water can be pumped from the water sources, the same is done in winter season or even early summer. Stored water is utilised for protective irrigation for Kharif/ Rabi crops and, wherever possible for providing water to fruit plantations during summer.

Most of the farm ponds also recharge ground water as water percolates down in unlined ponds and help in raising water tables in nearby wells. Many farmers have laid polythene cover for the stored water in the ponds to help conserve water for

irrigation during Rabi season/ summer period. This is more evident in loose soil areas where water percolation is very fast and hence the storage gets depleted soon.

### **Intervention**

Maharashtra took up promotion of farm ponds in a massive way in the first year of RKVY itself. A project of Rs. 92.74 crores was approved for farm ponds as the first project of RKVY in 2007-08. The same commitment continued next year when another project of Rs. 123.79 crores was approved for farm ponds. Finally, Maharashtra approved a multi-year farm ponds project in 2009-10 with allocation of Rs. 224.00 crores. Implementation of the Scheme was initiated in two major cotton growing regions of Vidarbha and Marathwada in 2007-08 in the districts of Yeotmal, Amravati, Akola, Buldhana, Washim, Wardha, Chandrapur, Nagpur, Latur, Osmanabad, Nanded, Hingoli, Parbhani, Aurangabad, Jalna and Beed. It was extended to Khandesh region in 2008-09 covering the districts of Jalgaon, Dhule, Nandurbar, Nasik and Ahmednagar. Finally, the scheme was extended to non cotton growing Drought Prone Area Programme (DPAP) blocks in the districts of Sangli, Satara, Pune, Nasik Ahmednagar and Solapur. The scheme has been finally implemented in as many as 250 Talukas of 25 districts of the State.

Under this scheme, subsidy is extended to farmers who take up construction of farm ponds of specific designs provided by the Department. The average subsidy amount ranges from Rs 52000 to Rs 82500 depending on the size of the ponds constructed while the actual cost to the farmers ranges from Rs 1.5 lakh to Rs 2.5 lakh.



A total of 73500 farm ponds were proposed to be funded under RKVY projects approved in three years (2007-10). 69279 farm ponds have been actually constructed by December 2011 at a total cost of Rs 40987.24 lakhs. Highest number of 17007 farm ponds with outlay of Rs. 9546.19 lakhs has been constructed in Amravati district, followed closely by Latur district where 16500 farm ponds have been constructed under RKVY with expenditure of Rs. 9205.94 lakhs. Other districts with substantial number of farm ponds are Aurangabad, Nasik and Nagpur.

The State has also converged the farm pond programme under RKVY both in terms of scale expansion as well as vertical integration. The State Government is taking up construction of 100000 farm ponds under Mahatma Gandhi National Rural Employment Guarantee Act (MANREGA) and also under other initiatives like 60000 Pulses Villages Programme and Horticulture Mission. State Government has provided pump sets to 12871 RKVY farm ponds farmers under National Food Security Mission. The State has taken up demonstration of cotton, oilseeds and pulses crop in the fields of 22790 farmers and also assisted in installation of sprinkler sets in the fields of 4174 of these farmers.

## **Outcome**

The implementation of the programme has helped in providing protective irrigation for about 81,145 hectare area during Kharif. For crops like cotton, these farm ponds have been extremely important. With the construction of farm ponds, the ground water table has also increased by approximately 0.5 to 1 meter in the catchment area. In some cluster villages, where large number of farm ponds have been constructed (25-30 farm ponds in a village), ground water table is up by as high as 2.5 meters. With these farm ponds, wells in the catchment areas also get recharged, and drinking water for cattle has become available.

Sillod is a block in Ajanta Hill ranges of Aurangabad. It receives moderate rainfall of around 700 mm annually. The land mass in the block comprises of hard rock which allows lesser penetration of rain water and storage. Not only the Rabi sowing was less than 7% of Kharif area in this block, even Kharif crops were highly irregular due to lack of supplementary irrigation facilities. The situation has got dramatically altered now after introduction and implementation of "Farm Pond scheme" under RKVY. The yield of cotton crop, with availability of 'assured and protective irrigation' has increased by 50% from less than 400 Kg/ha to over 600 Kg per ha. The Rabi area in the village has also shot up from 67 ha to over 350 ha during the first year itself after construction of 42 farm ponds.



In the Kaygaon village of the district, Rabi cropping area has increased from 250 ha to over 350 ha after construction of 19 farm ponds and in Nillod village, the area under Rabi crop has increased from 160 ha to over 380 ha after construction of 34 farm ponds.



Similar happier reports have come from thousands of farmers. Mrs. Wasundhara Ashok Rout, who was sanctioned a farm pond of the size 30\*30\*3 with assistance of Rs. 82240, actually constructed a farm pond of 35\*35\*3 size. She raised gram crop in 2009-10, when water was available in the farm

pond. Her yield of gram went up from 9 quintals per hectare in the year before to 16 quintals. She obviously is quite happy and so are over 70000 farmers of Maharashtra.

Rashtriya Krishi Vikas Yojna  
**Farmpond**



Yield of gramcrop per ha. before completion of Farmpond	Yield of gramcrop per ha. after completion of Farmpond	Increase in yield per ha.
year 2008-2009 9 Qtl.	year 2009-2010 16 Qtl.	7 Qtl.

Name : Sau. Wasundhara Ashok Raut  
 At post : Ghusar TQ., Distt: Akola  
 Sanctioned Size : 30X30X3 Mtr.  
 Actual Size : 35X35X3 Mtr.  
 Sanctioned Subsidy : 82,240 Rs.

*Sau. Wasundhara A. Raut*  
 Sau. Wasundhara A. Raut



Use of plastics in farm ponds has enabled several farmers to keep water for their fruit plantations, especially pomegranate, during summer months which are critical for the survival and productivity of pomegranate crop.