

## **5. Creation of Water Resources & Harvesting Assured Yield**

### **With Minor Irrigation**

#### **Background & Objective:**

The postulate that wherever there is water, poverty will dissipate by itself is aptly demonstrated by flagship projects of Rahrriya Krishi Vikas Yojana (RKVY) which has envisaged to maximize Minor Irrigation Development by exploitation of surface and ground water resources throughout the state for extending irrigation facilities to far flung areas where irrigation water is scarce or not available as well as providing assured irrigation to increase cropping intensity. The target area and objective of the RKVY is to addresses underlying constraints impeding agricultural productivity in remote and distant areas where no other irrigation facilities could be provided and it will facilitate critical gap bridging as achieved in pursuant to the targeted initiative of RKVY named “Bringing green revolution to the Eastern India” to cater to the small and marginal farmers for their overall socio-economic development taking into consideration the States’ agro climatic conditions, natural resources and technology.

The state of West Bengal has diverse physiographies and hydro-geological conditions and is dominated by small land holders and landless labourers comprising several agro-ecological regions, make it conducive to grow a wide variety of crops comprising of fruits, vegetables etc. The average rainfall in the State is about 1750 mm of which 1250 mm, occurs during June to September. Instead of being uniform, the precipitation pattern in the State is found to register wide regional variations. While the hilly Himalayan region receives the heaviest rainfall, ranging from about 2500 mm to 6000 mm. the Southern districts in the plains receive on an average 1125 mm to 1875 mm. Among the districts in the plains, Bankura, incidentally receives the lowest rainfall (1175 mm) and jalpaiguri the highest (3900 mm). But, West Bengal suffers from inadequate availability of irrigation water, mainly because of its undulating topography, high surface runoff, and lack of surface storage facilities.

To remedy the situation, RKVY format is designed to provide complete flexibility to the States to select, plan, approve and execute projects as per their priorities and the State adopted Minor Irrigation Structures such as Tube wells and Minor Irrigation Tanks (MIT) to create water resources for assured irrigation.

## **Intervention:**

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 the State is satisfactory, its distribution over time and space is highly uneven. Therefore, rain water harvesting and water use efficiency are critical in arid areas for increasing production and productivity in conjunction with ground water supplement through tube wells where safe drawal is possible.

Department of agriculture, government of West Bengal decided to scale up minor irrigation related interventions under RKVY to boost ongoing efforts. These interventions were prioritized as RKVY flagship scheme with a total outlay of Rs.5.21, Rs.7.98, Rs.13.00, Rs.12.00 & Rs.18.62 crore during the years 2008-09, 2009-10 2010-2011, 2011-2012 & 2012-2013 respectively and Rs.38.70 crore has been assigned for the year 2014-15.

Among different types of irrigation schemes, minor, irrigation schemes based on exploitation of surface water resources are the most popular schemes and have appropriately been adopted in large numbers in the State. Such schemes have advantages as these can show quicker utilization of created potential. Since it is the priority to extend maximum benefits to small and marginal farmers, it has been ensured that schemes are to be so located that 80% or more of the beneficiaries belong to small and marginal categories.

Depending upon the soil and climatic condition, the State may be broadly divided into the following six agro-climatic regions.

- 1) Hill region in the North.
- 2) Terai and Tista alluvial region of the north Bengal.
- 3) Lateritic, red and gravelly undulating region in the West.
- 4) Gangetic alluvial region in the East.
- 5) Vindhya alluvial region in the centre.
- 6) Coastal alluvial region in the South.

Following MI structures have been adopted depending upon available natural resources in agro-climatic regions, like geo-hydrological characteristics, soil texture and structure, land topography in accordance with the vision of RKVY. Tube Wells have been proposed for those areas where stage of development is still low and safe drawal is possible.

**3.1. Farm pond structures** are suitable where surface flow is available, field contour permits gravity flow and there is absence of filling zone in the field.

3.2. Tube Wells have been proposed for those areas where stage of development is still low and safe drawal is possible. Tube Well Structures have been proposed at sites where pre-monsoon ground water table is generally available within the suction limit of centrifugal pumps.

**3.3. Water Harvesting Tank (WHT) & Minor Irrigation Tanks(MIT):**

Areas having problem of groundwater and scarcity of natural water body are very much effective for Minor Irrigation Tanks. Rain water are harvested in the water bodies for use in agriculture irrigation for supplement irrigation in Kharif & Rabi season and also for pisciculture.

**3.4 Surface flow minor irrigation schemes/check dam:**

To arrest rain water from catchment area /stream-flow which otherwise is wasted as surface run-off and impound in reservoir for use in agriculture irrigation in arid zones.

**3.5. Field channel:**

To reduce the seepage loss and thereby minimizing the operational cost as well as gap between irrigation potential created and its utilization field channels are proposed to be areas.

## **Out Come**

Substantial progress has been made in the creation of minor irrigation related assets by RKVY since its inception in the year 2007-08. Irrigation potential of about 15520 Ha has been created so far up to the financial year 2013-14 and irrigation potential of 18856 Ha has been proposed to be created during 2014-15.

1) Case Studies of Water Harvesting Tanks- Ankro, Manbazar-II Block, District:- Purulia

Purulia Agri-Irrigation Division under the Department of Water Resources Investigation and Development, Government of west Bengal is also playing active role to increase the agriculture productivity through development of Minor Irrigation Schemes under RKVY.

In the district of Purulia exploration of surface water could only be possible whereas the chances of ground water exploration is almost nil due to underground is covered with very hard rock and absence of sufficient water bearing strata for the purpose of irrigation Manbazar – II Block is situated in the south –East part of the Purulia District , average annual rainfall is approximately 1300 mm and the rainfall pattern is erratic. The major percentage of run-off is flows through Stream / Jore / River with a high velocity for undulating topography and ultimately goes to the ocean creating huge soil erosion in the upstream. Moreover, it requires supplementary irrigation in Kharif season. To arrest rain water as surface run-off and reduce the soil erosion, construction of WHT is to be done.

Keeping the fact in view, WHT has been constructed at Ankro at Mouza Ankro (JL no. 221), Plot No. 6045, 6048 during the year 2012-13 under Manbazar – II Block. After construction, Cultivable area covered under Kharif crop is increased from 9.2 Ha to 21.2 Ha and similarly from 1 Ha to 6.36 Ha for Rabi. Executed amount of the scheme is Rs.37, 28,729.00 and submerged area of the tank is 2.15 Ha and water volume in the reservoir is 65320 cum.

As the area is lying within the Arid Zone, was mono cropped which was rain fed, but after the construction cropping pattern of this area has been changed. Nearly 32 families, who are mostly small and marginal as well as Tribal farmers are benefitted and increased their livelihood.

**PHOTOGRAPHS OF CONSTRUCTION OF WHT AT ANKRO AT MANBAZAR –II BLOCK UNDER RKVY PROGRAM.**

