

Integrated Watershed Management Program (IWMP)

Based on the common guidelines 2008, the government of India sanctioned new scheme IWMP which is in operation in the state. The implementation is taking place with specific treatable area of the watershed in view. Watershed can be defined as unique area of land serving as natural management unit which captures rainfall, filters and store water and regulates its release. It is further defined by complex relationship between human and natural process encompassing interaction between soil, vegetation, people, and water and plant vegetation.

A shared understanding of IWMP principles is encouraging and they are increasingly being put into practice through programme and efforts on ground. The water scenario is a major building block for learnt, efforts are needed in area of improving the decision making & supporting tools to facilitate the process of watershed development and management and strengthening the data base and information on factors important to sustainable land use and vigorous vegetative cover.

The department of Land Resources (DoLR) and Ministry of Rural Development Govt. of India implements Integrated Watershed Management Programme (IWMP) through their own body and through selected experience NGOs. Govt. of Rajasthan has initiated a rigorous NGO selection process, GVNML is one among other selected as Project Implementing Agency (PIA) to execute IWMP in Desuri block of Pali District. IWMP- 22 is located in Desuri block of Pali district. The project area is between the latitude $25^{\circ}16'23''$ to $25^{\circ}24'23''$ N longitude $73^{\circ}33'10''$ to $73^{\circ}39'23''$ E.



S. No.	Description	Details of Project
1	Name of The Project (As per GOI)	IWMP- 22
2.	Catchment name as per river basin	Luni
3.	Sub basin	Sukri
4.	Agro – climatic Zone	Agro climatic Zone- 1 (a) Dry Arid hot
5.	Name of Catchment	Transitional plain of Luni basin II B
6.	Project Area – Net Treatable Area	4350 Hact
7.	Cost of The Project	652.50 Lacs
8.	No of Village covered	11
9.	Macro and Micro Watershed	13/1, 14/1, 15/1,2,5

Situation of Ground Water Status

- **Classification of Ground Water Situation of Panchayat Samiti :** Over Exploited
- **Details of the Field's Hydrogeology:** Generally hydro-geological formation of the area is granite, to see specifically the district belongs to Delhi Super Group and Marwar Super Group. The Delhi Super Group comprises of Kumbhalgarh, Phulad Ophiolite suite, Sendra-Ambaji granite, Sirohi and Punagarh Group. The Delhi Super Group is overlaid by a sequence of unmetamorphosed sedimentary rocks consisting of sandstone, limestone, siltstone and gypsum beds. Erinpura granite & gneiss occupied almost 50 % area of the district and exposed mainly in central, southern and southeastern parts of the district.
- **Features/Characteristic of Aquifer:** Pali district has quite large areas where aquifers are formed hard rocks. Weathered, fractured and jointed hard rocks constitute good aquifers of which Granite (37% area) is most prominent, followed by Phyllites which account for about 17% of district's aquifers and Gneisses and lime stones also form good aquifers.

Water Budget

1.	Water Requirement to be fulfilled for Crops (Ref. Table 11 C)	10610.16	TCM
2.	Drinking Water Requirement for Humans and Livestock (Ref. Table 11 A)	474.30	TCM
3.	Water Requirement for Industries / Institutions (Ref. Table 11 B)	2.00	TCM
4.	Total Water Requirement for Villages (1+2+3)	11086.46	TCM
5.	Catchment Yield (In TCM) (Ref. Table 12 C, Yield at 50% Dependability)	5371.43	TCM
6.	Water Harvested in Existing Structure (Ref. Table 13.1)	4239.58	TCM
7.	Runoff to be Harvested in Proposed Structures (Ref. Table 13.2)	1632.1045	TCM
8.	Total Runoff Harvested (6+7)	5871.6845	TCM
9.	Excess/ Deficit Water Storage in Area (8-4)	5214.7755	TCM
10.	Runoff at Outlet of Catchment After Project Interventions (5-8)	156.6545	TCM

Details of Interventions carried out:

1. Soil and moisture conservation

- Farm field bunding over 858 hect. of farm land.
- Bench tarracing over 4 hect. of sloppy land .
- Continuous Contour Trenches (CCT) /Deep CCT and Staggered contour Trenches (SGT) constructed over 124.57 hact non arable land (Pasture land).

2. Pasture land development

- 10 Hact of pastureland developed by applying of CCT, deep CCT and grass seeding.

3. Creating water harvesting structure

- 41 mini percolation tank and 10 percolation tank constructed over non arable land on 2nd stage drainage.
- 1 Sunken Pond constructed on non arable land.
- 3 Talab renovated

4. Drainage line treatment

- 23 checkdam and anicut were constructed on third or fourth level drainage.

5. Sub surface water conservation

- 2 Sub surface barrier were constructed on Sumeri river

All above sites GEO-Tagged and gone through Geo based panning and monitored by using Geo-technology.

Achievement Gained:

1. Arable Land Development: 858hectare Agriculture land bunded, positive changes descibed below:

Water scarcity in agriculture land is a one of most common problem of agrarian families, farm bunding is a successful and age old technique to store rain water in agriculture land that can reduce the water scarcity to a great extent, following are some key results.

1. Farm bunding fixes moisture in soil/sub surface area so Rabi crop can be possible without irrigation in submerges area.
2. It recharges ground water so that existing well and tube well can irrigate agri fields.
3. If good rain during Mansoon, downstream area of farm bunding can be irrigated through pumping or gravity flow and by this farmer can get good production.
4. By implementing farm bunding rain water stores over ground that can improve the fertility of soil and adds organic matter in soil profile that benefits to agrarian families in form of strengthening agriculture activity, enhance livestock rearing and reduces fertilizer cost of farmers.

2. Pastureland Development: 124.57Hectare land treated by CCT and deep CCT, description given below:

CCT and deep CCT that we applied in 88 hectares area will work for conserving and harnessing rain water in this common grazing land. In the absence of the intervention,

this water would otherwise be lost as runoff, carrying along with it the finer, fertile sediment rich in organic matter. Over



seeding of improved grass and fodder tree seeds is also an integral part of the pastureland development.

We envisage that these CCTs and deep CCTs will be very effective in performing the following functions:

- It will help to break up a long slope into several short ones. This reduces the velocity at which water runs off, to less than the velocity at which it would cause soil erosion.
- It intercepts the runoff and retains it on the greater part of the field.
- It will help to increase the duration for which water stays where it falls, thereby allowing more runoff water to infiltrate, be absorbed in and be held in the soil profile.
- It will help to maintain and regenerate adequate natural vegetative cover, including grasses, shrubs and trees on the soil, for controlling soil erosion and enhancing the grazing potential of the existing degraded pasture and grassland in the area.
- It ensures the maintenance of the ecological balance.

3. Rain Water Harnessing and Harvesting Impact:

82 Different kind of rain water harvesting structures like; Percolation tank Mini Percolation tank, Talab, Sunken pond and checkdams were constructed on season stream to stop rain runoff upto a level which is sufficient for local requirement and recharge of ground water for further requirement. The details of benefit of these structures described below:

- It is surface rain water storage that to be used as drinking water for animals, it recharges ground water that supports agriculture activity, enhances livestock rearing and reduces drinking water scarcity etc. It enhance ground water table that have many benefits to community such as easy to agriculture, able to grow green fodder, support greenery etc. Construction of these structures creates safe guarding of common property resources otherwise people encroaches the lands, cut trees, make illegal agriculture fields, built animal sheds etc.
- 300 Bigha (75 hectare) land can be irrigated.

- Land productivity will be more than double because at least 2 crops is possible.
- Drinking water wells and Hand Pumps that primarily using as drinking water sources will be recharged.
- 450 families use water for their domestic use like bathing, washing clothes, house repair, etc.

The outcomes envisaged are avoidance of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table to enable multi-cropping. Introduction of diverse agro-based activities helps to provide sustainable livelihoods to the people residing in the watershed area.

