



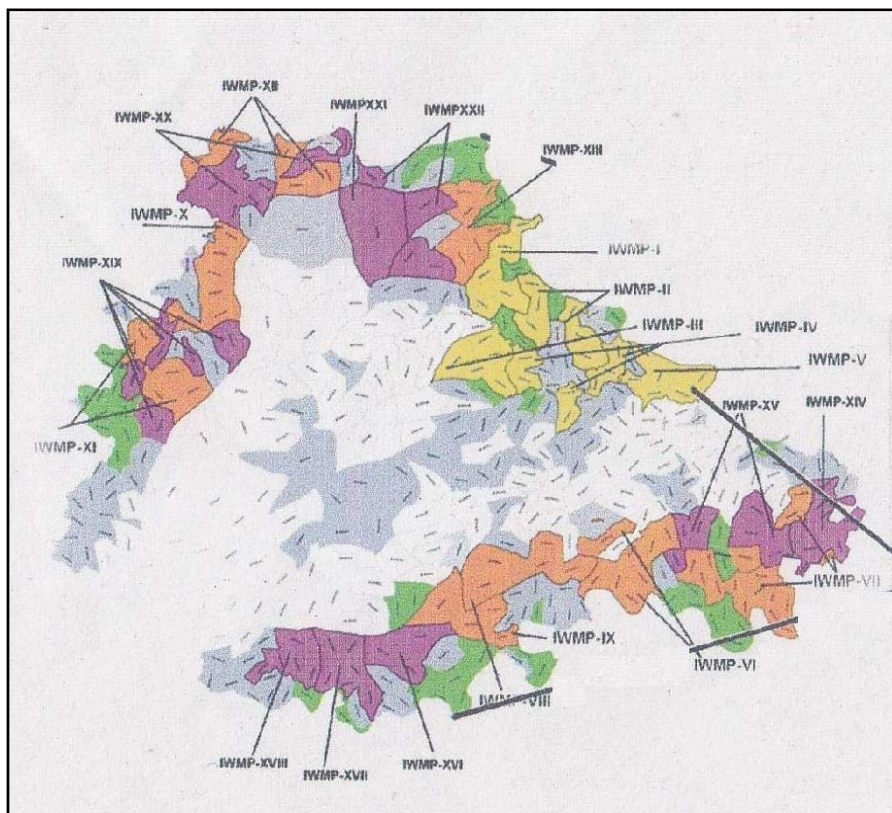
## INDEX

<b>S. No.</b>	<b>Particulars</b>	<b>Page No.</b>
	Executive Summary	4-9
1	Introduction and Background	10-20
2	General Description of Project Area	21-33
3	Baseline Survey	34-52
4	Institution Building and Project management	53-69
5	Management / Action Plan	70-119
6	Capacity Building Plan	120-122
7	Phasing Programme and Budgeting	123-125
8	Consolidation / Exit strategy	126-130
9	Expected Outcome	131-134
10	Watershed Maps of Project Area, Drainage Map, Village Map, Base Map, Landuse Map, Slope Map & Contour Map	135-149

## IWMP-7 (2010-11) District - JALAUN

## Project at a Glance

Name of the project	Weightage	No. of MWS	Geographical Area (ha)	Rainfed Area (ha)	Treatable area (ha)
I.W.M.P.VII (2010-11)	92.50	14	8358.36	5300.00	5300.00



1.	Name of Block	KADAURA
2.	No. of Gram Panchayats	11
3.	Four reasons for selection of Watershed	<ul style="list-style-type: none"> <li>i. Poverty index above 80%</li> <li>ii. Actual wages are significantly lower.</li> <li>iii. Area under rain-fed is more than 80%</li> <li>iv. Agriculture production is low.</li> </ul>
4.	Date of approval of watershed Development Plan by DRDA/DPC	19-10-2010
5.	Area proposed to be treated (ha.)	5300.00
6.	Date of sanction of PPR & Date of release of Ist Instalment	10-03-2010 & 15-06-2010
7.	Project duration	2010-2011 to 2013-2014
8.	Project Cost (in lac.)	636.00
9.	Proposed mandays	214000

## EXECUTIVE SUMMARY

Integrated watershed management has come to be recognized internationally as an important holistic approach to natural resources management, which seeks to promote the concept of sustainable development. Such an integrated approach has been recommended by the Rain - fed Authority of India, to the management of water and land resources. The watershed approach has conventionally aimed at treating degraded lands with the help of low cost and locality accessed technologies such as in-situ soil and moisture conservation measures, afforestation etc. and through a participatory approach that seeks to secure close involvement of the user communities. The broad objective was the promotion of the overall economic development and improvement of the socio-economic conditions of the resource poor sections of people inhabiting the programme areas. A comprehensive programme named Integrated Watershed Management Programme (I.W.M.P.) has been implemented under Common Guidelines on Watershed Development in 2008.

The main objectives of the IWMP are to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water. The outcomes are prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table. This enables multi-cropping and the introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area. In addition, there is a Scheme of Technology Development, Extension and Training (TDET) is also being implemented to promote development of cost effective and proven technologies to support watershed management. The entire study area falls in Bundelkhand region which is situated in Vindhyan hills and ravines, catchment of Betwa,

The L.B. Betwa River watershed comprises of 25 villages namely Alipur, Bainsa Pali, Bamhori, Baragawn, Bheri Khurd, Chandarsi, Chatela, Dhhamni Khurd, Ekona, Etor Bavani, Hajipur Saliya, Harchandpur, Kana Khera, Kharehta, Khutmila, Majhwar, Margayan, Mavai Brahm, Nagva, Nisvapur, Pandora, Parosa, Parsan, Pathreta, Sajehra villages of Kadaura Block in

the Jalaun District of Uttar Pradesh. This watershed has been identified by the state department under NWDPRAs scheme by proper prioritization of different parameters for watershed selection criteria. The watershed is located in the South- East of Jalaun district. It lies between 25° 52' 45'' to 26° 03' 12'' Latitude and 79° 42' 57'' to 79° 55' 14'' Longitude having Code No. - **2C2H1b2b, 2C2H1b2c, 2C2A1e2c, 2C2A1g2b, 2C2A1g2d, 2C2A1g2c, 2C2A1f2c, 2C2A1f2f, 2C2A1g2a, 2C2A1f1c, 2C2A1f1b, 2C2A1f2a, 2C2A1f1d, 2C2A1f1e**, Its altitude ranges from 75 to 134 metres above mean sea level (MSL). The total area of watershed is 6692.91 Ha.

The climate of the study area is of typical Central Indian climate, with mild winters and hot summers. Hot wave flows during May and I<sup>st</sup> week of June locally designated as “Loo”. The temperature during summer goes up to 46°C. The rainy Season is limited to 1½ - 2 months of July and August only. Winter rain fall is rare. Average rain fall is 600 - 700 mm but concentrated only during July – August. Most of the rain fall is run-off due to rocky nature of the soil.

Agriculture is the main source of income of the farmers of the watershed. Due to mono cropping, **anna pratha** and non manageable mar and kabar soil of the project area. Mono cropping is the most common farming system. Mixed farming in the combination of agriculture and live stock is also quite common in all the areas. In Kharif the main crops are Arhar, Bajra and jowar. Most of the fields are kept fallow during kharif season due to this reason Green Manuring is the proposed to minimize the runoff and to maintain the soil fertility of the soil.

Natural vegetation of the watershed area is very poor. The forest vegetation is predominant with Vilayati Babul (*Prosopis juliflora*) followed by Babul (*Acacia nilotica*). There are occasional occurrence of Neem plants (*Azadirachta indica*), Pipal, Bargad. There is no grass land in the watershed. Grass patches are seen only on the bunds, road sides and other such places. The principal grass is Moonj.

The problem of erosion of the watershed is to be tackled by harvesting additional water in existing water harvesting structures, which have lost most of their capacity due to siltation and creating new water bodies. Water stored in the water harvesting structures shall be properly recycled to provide supplemental irrigation at critical growth stages of crops and for the establishment of fruit orchards and forest trees. The agricultural land will be treated with bunding along with minor levelling. Waste land will be treated with the engineering measures like staggered trenches and afforestation etc.

Due to Lack of the Irrigation water the rate of mortality of planted trees is very high. High resource farmers keep one graded buffalo and one or two cows. Whereas low resource farmers are commonly have one or two buffalo + 3 - 4 goats. Both high and low resource farmers keep mulch animals for home consumption and also for sale. The share croppers also keep one or two desi buffaloes and 5-6 goats. P.R.A. exercises conducted in the villages of watershed area revealed that inadequate irrigation facilities, low production of field crops.

It is expected that the implementation of different watershed management activities will bring down the run off and soil loss by 70% and 80% of their present level respectively. It is envisaged to increase the water and land utilization.

The agricultural land will be treated with bunding along with minor levelling. Waste land will be treated with the engineering measures like staggered trenches and a forestation etc.

**YEAR WISE PHASING PHYSICAL & FINANCIAL ITEM WISE –I.W.M.P.-7<sup>th</sup> OF JALAUN (U.P.)**

S. No.	Item	1 <sup>st</sup> Year 2010-11		II <sup>nd</sup> Year (2011-12)		III <sup>rd</sup> Year (2012-13)		IV <sup>th</sup> Year (2013-14)		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
1	Administrative 10%	-	<b>15.90</b>	-	<b>15.90</b>	-	<b>15.90</b>	-	<b>15.90</b>	-	<b>63.60</b>
2	Monitoring 1%	-	<b>1.59</b>	-	<b>1.59</b>	-	<b>1.59</b>	-	<b>1.59</b>	-	<b>6.36</b>
3	Evaluation 1%	-	<b>1.59</b>	-	<b>1.59</b>	-	<b>1.59</b>	-	<b>1.59</b>	-	<b>6.36</b>
4	Entry Point Activity 4%	-	<b>25.44</b>	-	-	-	-	-	-	-	<b>25.44</b>
5	Institutional and Capacity building 5%	-	<b>12.72</b>	-	<b>12.72</b>	-	<b>6.36</b>	-	-	-	<b>31.80</b>
6	D.P.R Preparation 1%	-	<b>6.36</b>	-	-	-	-	-	-	-	<b>6.36</b>
7	Watershed Dev. Works 50%	-	-	<b>2120.00</b>	<b>127.20</b>	<b>2020.00</b>	<b>104.94</b>	<b>1160.00</b>	<b>85.86</b>	<b>5300.00</b>	<b>318.00</b>
8	Livelihood & Income	-	<b>38.16</b>	-	<b>12.72</b>	-	<b>12.72</b>	-	-	-	<b>63.60</b>

	Generating 10%										
9	Production System development 13%	-	<b>25.44</b>	-	<b>19.08</b>	-	<b>31.80</b>	-	<b>6.36</b>	-	<b>82.68</b>
10	Consolidation Phase 5%	-	-	-	-	-	<b>15.90</b>	-	<b>15.90</b>	-	<b>31.80</b>
	<b>Total</b>	-	<b>127.20</b>	<b>2120.00</b>	<b>190.80</b>	<b>2020.00</b>	<b>190.80</b>	<b>1160.00</b>	<b>127.20</b>	-	<b>636.00</b>

<b>S.N.</b>	<b>Budget Component</b>	<b>Total (lakhs)</b>
<b>A.</b>	<b>1. Administrative</b>	<b>63.60</b>
	<b>2. Monitoring</b>	<b>6.36</b>
	<b>3. Evaluation</b>	<b>6.36</b>
<b>B.</b>	<b>Preparatory Phase</b>	<b>25.44</b>
	<b>1. Entry point activities</b>	<b>31.80</b>
	<b>2. Institution and capacity building</b>	<b>6.36</b>
	<b>3. Detailed Project Report(DPR)</b>	<b>6.36</b>



<b>C.</b>	<b>WATERSHED WORKS PHASE</b>	<b>318.00</b>
	<b>1. Watershed development works,</b>	<b>63.60</b>
	<b>2. Livelihood activities for the asset less persons</b>	<b>82.86</b>
	<b>3. Production system and micro enterprises.</b>	
<b>D.</b>	<b>CONSOLIDATION PHASE</b>	<b>31.80</b>
	<b>GRAND TOTAL</b>	<b>636.00</b>

# **CHAPTER-1**

## **INTRODUCTION AND BACKGROUND**

## **PROJECT BACKGROUND**

The L.B.Betwa watershed, of Kadaura block with code No. **2C2H1b2b, 2C2H1b2c, 2C2A1e2c, 2C2A1g2b, 2C2A1g2d, 2C2A1g2c, 2C2A1f2c, 2C2A1f2f, 2C2A1g2a, 2C2A1f1c, 2C2A1f1b, 2C2A1f2a, 2C2A1f1d, 2C2A1f1e**, having area of 6692.91Ha, Out of which 5300.00Ha area deploy for the treatment.

The project area is located in South - East Part of the Jalaun District of Utter Pradesh. The area of watersheds is proposed to be taken up by Bhoomi Sanrakshan Adhikari, Department of land development & water resources, Jalaun for integrated watershed management program me (IWMP-7) starting from the year 2010-11. The project will be completed by 2013-14.

The L.B.Betwa watershed is Located in Kadaura block of Jalaun District (U.P.). The watershed comprises of 25 village Alipur, Bainsa Pali, Bamhori, Baragawn, Bheri Khurd, Chandarsi, Chatela, Dhamni Khurd, Ekona, Etor Bavani, Hajipur Saliya, Harchandpur, Kana Khera, Kharehta, Khutmila, Majhawar, Margaya, Mavai Brahm, Nagva, Nisvapur, Pandora, Parosa, Parsan, Pathreta, Sajehra. The Area lies between 25<sup>0</sup> 52' 45'' to 26<sup>0</sup> 03' 12'' Latitude and 79<sup>0</sup> 42' 57'' to 79<sup>0</sup> 55' 14'' Longitude. Total Area of the watershed is 6692.91 Ha (Treatment Area is 5300 Ha ). Elevation ranges from 75 to 134 metres above mean sea level. Most of the land comes under agriculture. The area in the watershed has undulating terrain with ravenous land . The soils of the area are mainly fine sility and coarse loamy.

## BASIC PROJECT INFORMATION

Name of the project	Villages	Block	District	Total area of the project	Area proposed to be treated	Total project cost (Rs in Lac)	PIA
I.W.M.P - VII	Alipur, Bainsa Pali, Bamhori, Baragawn, Bheri Khurd, Chandarsi, Chatela, Dhamni Khurd, Ekona, Etor Bavani, Hajipur Saliya, Harchandpur, Kana Khera, Kharehta, Khutmila, Majhawar, Margaya, Mavai Brahm, Nagva, Nisvapur, Pandora, Parosa, Parsan, Pathreta, Sajehra	<b>KADAURA</b>	<b>JALAUN</b>	<b>8358.36 ha</b>	<b>5300 ha</b>	<b>636.00</b>	<b>B.S.A. LDWR Jalaun IV</b>

## NEED AND SCOPE FOR WATERSHED DEVELOPMENT

### MAIN OBJECTIVES

- a. Restoration of health of watershed through reducing the volume and velocity of run-off water so that soil erosion can be checked.

- b. To increase per capita availability of drinking water through increased ground water level by insitu conservation measures, water harvesting structure and planting work in watershed ground water recharge through in situ conservation measures, water harvesting structures and plantations in watershed.
- c. Conservation, development and sustainable management of natural resources including their uses.
- d. To ensure foods security through increased agricultural production and productivity by popularizing improved varieties, INM, IPM and improved agricultural implements.
- e. Restoration of ecological balance in the degraded and fragile ecosystem through forestation.
- f. To discourage migration of villagers/rural community by creating sustainable employment opportunities for livelihood security in the watershed villages.

### **MAIN PROBLEM IN WATERSHED AREA**

Food sufficiency, economic growth and environmental security were identified as the major issues to be addressed in the watershed area. The area has undulating topography hence highly prone to soil erosion. Lack of irrigation water is the greatest problem experienced by the people followed by low function of field crops, lack of fodder availability and low animal productivity Problems identified and prioritized during the transact walk and PRA exercises in all villages.

*The study area* is predominantly agrarian; over 80% of population is dependent on agriculture, livestock, usufructs from agriculture and outsourcing income by seasonal migration after Rabi sowing. The Livelihood analysis shows that the 96% of the farmer's income is being earned from crop and livestock enterprise alone. While main enterprise of small and marginal farmers is dairy, the crop component increases and that of dairy decreases with rising land holding size. Landless villagers mainly depend on labour and dairy. In the project area about 23% of agricultural land is sown in Kharif season and about 70 to 76% in Rabi. Traditionally this practice is linked to the paradox of age old practice of *Annapratha*. The farmer generally leave their fields follow for free land grazing in Kharif season which makes cultivation difficult. These live stock generally sheep, goat and indigenous cattle having low productivity are let loose for grazing. This need changing of mindset which require massive

extension efforts to address increasing demand on the rain, landfall & water resources. Many a time's farmers are reluctant to sow during Kharif as stray cattle are likely to damage crop.

## PROBLEM IDENTIFICATION AND PRIORITIZATION

Soil and water conservation, Poor sufficiency, economic growth and environmental security has identified as the major issues to be addressed in the watershed area. The area has moderate to steep slope hence prone to soil erosion.

Problems identified and prioritized the transect walk and PRA exercise in all 25 villages have pooled and list of 9(nine) problems representing the whole watershed was prepared. Problems have ranked as per their total weightage in the 25 villages. Lack of drinking water is the greatest problem experienced by the people followed by, lack of irrigation water, lack of agricultural management, medical and health care facilities etc.

## WEIGHTAGE OF THE PROJECT

Project name	No. of micro-watersheds proposed to be covered	Proposed project area (ha)	Type of project(Hilly/ Desert/ Others)	Proposed cost (Rs. In lakh)	Weightage													
					I	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv
I.W.M.P. - VII	14	5300	Other	636.00	7.5	5	5	5	0	10	10	5	10	15	10	10	0	92.5

## CRITERIA AND WEIGHTAGE FOR SELECTION OF WATERSHED

Criteria	Maximum Score	Ranges & Scores			
Poverty index (% of poor to population)	10	Above 80 % (10)	80 to 50 % (7.5)	50 to 20 % (5)	Below 20 % (2.5)
% of SC/ ST population	10	More than 40 % (10)	20 to 40 % (5)	Less than 20 % (3)	-
Actual wages	5	Actual wages are significantly lower than minimum wages (5)	Actual wages are equal to or higher than minimum wages (0)	-	-
% of small and marginal farmers	10	More than 80 % (10)	50 to 80 % (5)	Less than 50 % (3)	-
Ground water status	5	Over exploited (5)	Critical (3)	Sub critical (2)	Safe (0)
Moisture index/ DPAP/ DDP Block	15	-66.7 & below (15) DDP Block	-33.3 to -66.6 (10) DPAP Block	0 to -33.2 (0) Non DPAP/ DDP Block	-
Area under rain-fed agriculture	15	More than 90 % (15)	80 to 90 % (10)	70 to 80% (5)	Above 70 % (Reject)

Drinking water	10	No source (10)	Problematic village (7.5)	Partially covered (5)	Fully covered (0)
Degraded land	15	High – above 20 % (15)	Medium – 10 to 20 % (10)	Low- less than 10 % of TGA (5)	-
Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable efforts (15)	Lands with moderate production & where productivity can be enhanced with reasonable efforts (10)	Lands with high production & where productivity can be marginally enhanced with reasonable efforts (5)	-
Contiguity to another watershed that has already been developed/ treated	10	Contiguous to previously treated watershed & contiguity within the micro watersheds in the project (10)	Contiguity within the micro watersheds in the project but non contiguous to previously treated watershed (5)	Neither contiguous to previously treated watershed nor contiguity within the micro watersheds in the project (0)	



Cluster approach in the plains (more than one contiguous micro-watersheds in the project)	15	Above 6 micro-watersheds in cluster (15)	4 to 6 micro watersheds in cluster (10)	2 to 4 micro watersheds in cluster (5)	
Cluster approach in the hills (more than one contiguous micro-watersheds in the project)	15	Above 5 micro-watersheds in cluster (15)	3 to 5 micro watersheds in cluster (10)	2 to 3 micro watersheds in cluster (5)	
	150	150	<b>90</b>	41	2.5

## PROBLEM IDENTIFICATION AND PRIORITIZATION IN THE WATERSHED

S. No.	Problem	Rank
1.	Low production of field crops	5
2.	Lack of drinking water	1
3.	Lack of irrigation water	2
4.	Lack of fodder availability	7
5.	Non-availability of fuel wood	6
6.	Lack of inputs like quality seeds, fertilizer, pesticides etc.	4
7.	Lack of medical, educational and transportation facilities	3
8.	Medical and Health care facilities for and low animal productivity.	8

## WATERSHED INFORMATION

Name Of the Project	No. of water sheds to be treated	Watershed Code	Watershed regime/type/order
I.W.M.P. - VII	14	2C2H1b2b, 2C2H1b2c, 2C2A1e2c, 2C2A1g2b, 2C2A1g2d, 2C2A1g2c, 2C2A1f2c, 2C2A1f2f, 2C2A1g2a, 2C2A1f1c, 2C2A1f1b, 2C2A1f2a, 2C2A1f1d, 2C2A1f1e	Micro Watershed

## STRENGTH, WEAKNESS, OPPORTUNITY AND THREAT (SWOT) ANALYSIS

A SWOT analysis of I.W.M.P.-VII of Jalaun watershed is presented as below:

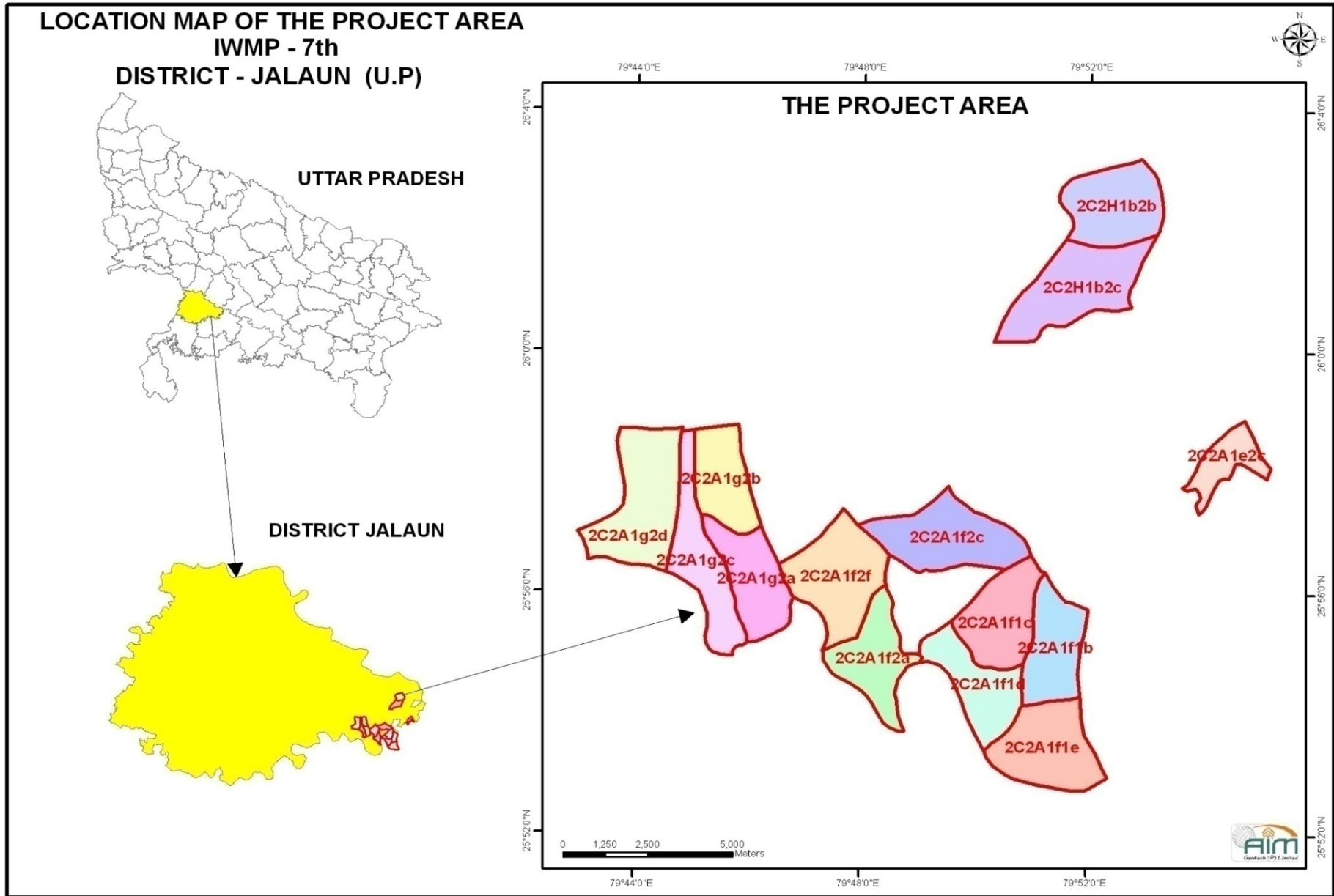
<b>Strength (S)</b>	<b>Weakness(W)</b>
<ul style="list-style-type: none"> <li>1- Cooperative work culture is traditional activities</li> <li>2- Close ethnic tier</li> <li>3- Hard working man power</li> <li>4- Honesty</li> <li>5- Awareness of farmers about watershed management programmes</li> <li>6- Social outlook of the community towards developmental works</li> <li>7- Less pollution of agro ecosystem</li> <li>8- Rich biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>1- Poor water management</li> <li>2- Resource poor farmers</li> <li>3- Migration of rural youth</li> <li>4- Low and erratic rain fall</li> <li>5- Fragile geography</li> <li>6- Fragmented land holdings.</li> <li>7- Heavy infestation of wild animals</li> <li>8- Problem of fuel and fodder</li> <li>9- Deforestation</li> </ul>
<b>Opportunities(O)</b>	<b>Threats (T)</b>
<ul style="list-style-type: none"> <li>1- Better scope for pulses and oilseeds crop production</li> <li>2- Scope of regular employment opportunity to check out migration</li> <li>3- Conductive climate for rain fed crop diversification</li> <li>4- Good scope for agro forestry and dry land horticulture.</li> <li>5- Good scope for medicinal crop cultivation</li> </ul>	<ul style="list-style-type: none"> <li>1- Prone to adverse climate like drought</li> <li>2- High market risk</li> <li>3- Weak coordination among line departments.</li> <li>4- Lack of expertise of implementing agencies in different aspect of WSM.</li> <li>5- Avoidance of rural people regarding the maintenance and proper use of water bodies</li> </ul>

## **OTHER DEVELOPMENTAL PROJECTS/SCHEMES RUNNING IN THE VILLAGES**

These villages being very backward have been on top priority for a number of developmental projects. These programmes are Swarnajayanti Gram Swarojgar Yojana (SGSY) and Indira Awas Yojana (IAY) . Integrated Watershed Management Programme in other areas of the district is under operation in the department of Agriculture.

## **CHAPTER – 2**

# **GENERAL DESCRIPTION OF PROJECT AREA**



## **PROJECT AREA AND ITS LOCATION**

The area of I.W.M.P. - VII, of L.B. Betwa River is situated about 50 Kms from the District headquarter, on the road of Jalaun to Hamirpur. The Area lies between 25<sup>0</sup> 52' 45'' to 26<sup>0</sup> 03' 12'' Latitude and 79<sup>0</sup> 42' 57'' to 79<sup>0</sup> 55' 14'' Longitude. Total Area of the watershed is 6692.91 Ha (Treatment Area is 5300 Ha ). Elevation ranges from 75 to 134 metres above mean sea level.

The 3/4<sup>th</sup> of the total cultivated area is rain fed ,therefore farmers of the project area have to be dependent on rainwater for their crop production, although limited quantity of water remains available for crop production during Rabi but that too comes through the water bodies completely fed by rain water. Owing to these limitations total grain production and the productivity of project area is much below than it should be.

The study area has been afflicted with meteorological, hydrological and agricultural drought continuously for the past four years (since 2004–05).

## **PHYSIOGRAPHY**

The project area falls under the Agro-climatic Bundelkhand Zone-VII of Uttar Pradesh, which is gently undulating; grading slowly into a level plain. The crystalline rocks of Achaeans consist of granite, gneiss and quartz reefs. The Vindhyan are represented by sand stone, lime stone and shale. The rocks are dominant in the region while the unconsolidated formation of recent (Quaternary) consisting of sand, silt and clay occupy northern part of the project area.

The study area is moderately populated and most parts of the land is available for cultivation. Most of the agricultural land is dependent on monsoon. The height above mean sea-level (MSL) ranges from 134 meters in north-west to 74 meters in the south-east. Alluviums on the other hand comprise mainly of clays, silt and sand stone mixed with gravel and kankar. These

formations have a thickness of about 130 to 150 m over the eroded base of Bundelkhand Granite. The alluvium deposits are mostly found in Jalaun district.

### ELEVATION RANGE, LATITUDE LONGITUDE, RELIEF HEIGHT DIFFERENCE ETC

S. No.	Detail s of the watershed	Settlement	Location		Elevation of watershed from Mean Sea level		
			Latitude (N)	Longitude (E)	Highest in Meters	Lowest in Meters	Relief Height Difference
1	2C2A1g2d	Mawai, Dhamni khurd, Nagva, Parasan	25° 56' 21" to 25° 58' 42"	79° 43' 01" to 79° 44' 46"	127	107	20
2	2C2A1g2c	Margaya, Mawai, Nagva, Kanakera, Chandrasi	25° 54' 58" to 25° 58' 39"	79° 44' 32" to 79° 46' 01"	124	97	27
3	2C2A1g2a	Chandrasi, Kanakera, Nagva, Margaya	25° 55' 12" to 25° 57' 16"	79° 45' 10" to 79° 46' 45"	125	98	27
4	2C2A1g2b	Nagva, Margaya	25° 56' 58" to 25° 58' 44"	79° 45' 03" to 79° 46' 13"	128	103	25
5	2C2A1f2f	Chatela, Kanakera	25° 55' 05" to 25° 57' 19"	79° 46' 34" to 79° 48' 27"	123	95	28
6	2C2A1f2a	Chatela, Kanakera, Hajipur Saliya, Pathreta	25° 53' 43" to 25° 56' 04"	79° 47' 20" to 79° 49' 03"	111	75	36
7	2C2A1f2c	Pandora, Bamhori, Chatela, Baragawn	25° 56' 21" to 25° 57' 44"	79° 47' 56" to 79° 50' 56"	134	103	31
8	2C2A1f1c	Baragawn, Bhedi Khurd	25° 54' 44" to 25° 56' 38"	79° 49' 37" to 79° 51' 13"	122	95	27
9	2C2A1f1d	Bheri Khurd, Baragawn, Chatela	25° 53' 32" to 25° 55' 31"	79° 49' 01" to 79° 50' 51"	116	78	38
10	2C2A1f1b	Baragawn, Bheri Khurd, Kakarau	25° 54' 11" to 25° 56' 18"	79° 50' 49" to 79° 51' 59"	119	91	28
11	2C2A1f1e	Bheri Khurd, Beri	25° 54' 11" to 25° 56' 18"	79° 50' 12" to 79° 52' 20"	104	76	28
12	2C2H1b2b	Ekona, Alipur, Manghwar, Nisvapaur	26° 01' 45" to 26° 03' 11"	79° 51' 26" to 79° 53' 15"	126	106	20



13	2C2H1b2c	Nisvapur, Harchandpur, Parosa-2, Etora Babni	26° 00' 11" to 26° 01' 55"	79° 50' 20" to 79° 53' 11"	131	110	21
14	2C2A1e2c	Khutmila, Sajehra, Kharehta, Bainsa Pali	25° 57' 19" to 25° 58' 51"	79° 53' 41" to 79° 55' 14"	129	98	31

## CLIMATE

The year may be divided into four seasons. The cold season from mid November to February is followed by the summer season from March to mid June. The period from mid June to the end of September is the south-west monsoon season and the October and the first half of November constitute the post-monsoon season.

### Rainfall:

The south-west monsoon usually arrives over the project area by about the middle of June and withdraws by the end of September. The average rainfall of the project area is 520 mm. About 87 percent of the annual rainfall is recorded during the period June to September, July being the rainiest. The monsoon in the district generally advances from the south-west to the north-east.

On an average there are 45 rainy days (i.e. days with rain 2.5 mm. or more) in a year, the variation in different parts of the district is not much.

## Temperature:

Hot wave flows during May and Ist week of June locally designated as “Loo”. The temperature during summer goes up to 48<sup>0</sup>C. The rainy season is limited to 1½ - 2 months of July and August only. Winter rain fall is rare. Most of the rain fall is run-off due to rocky nature of the soil.

## Humidity:

During the monsoon and the post monsoon seasons the relative humidity are high ranging between 70 and 85 per cent. In the winter months humidity decreases and in summer the air is comparatively drier.

## AGRO-CLIMATE CONDITIONS

The Agro-Climate Condition of the project area including the Agro-Climate Zone VII of Bundelkhand I.W.M.P. – 7 Jalaun is briefly described below.

S. No.	Name of Project	Name of Agro-climate Zone covered	Area (Ha)	Major Soil Type (Ha)		Topography	Average Rainfall (mm)	Major crops	
				Type	Area (ha)			Name	Area (ha)
1	I.W.M.P. -VII	Bundelkhand Zone-7	5300	Rakar,Kabar Mar & Padwa	4130	Moderate slope and Undulating	520 mm	Wheat,gram,jowar, til,Arahar	2915

## WEATHER DATA (2008-2009)

Month	Rain Fall (mm)	Temperature °C		Relative Humidity (%)
		Maximum	Minimum	
Oct., 08	4.2	30.8	19.5	Oct., 08
Nov., 08	-	24.6	12.8	Nov., 08
Dec., 08	-	19.5	9.5	Dec., 08
Jan., 09	1.50	21.5	3.1	Jan., 09
Feb., 09	-	24.8	11.5	Feb., 09
March, 09	-	28.6	13.5	March, 09
April, 09	00	40	30	April, 09
May, 09	-	44	35	May, 09
June, 09	-	48.20	14.1	June, 09
July, 09	112.73	46.23	14.5	July, 09
August, 09	204.40	43.23	14.2	August, 09
Sept., 09	122.95	38.12	24.45	Sept., 09

## GEOMORPHOLOGY

The area lies in the North-East part of the Jalaun District of Left Bank of The Betwa River. The soils of the project area divided into two major types red and black. Shallow black soil, also locally known as Parwa soils, which are coarse grained clayey in nature and mostly grey to grayish brown in colour usually occurs in low lying areas of the project. Topography is moderate and undulating.

## WATERSHED CHARACTERISTICS

### Shape and Size

The watershed shape (IWMP - VII, Jalaun) is more or less elongated in shape. The direction of the slope in the project area is north-west to south-east. The maximum length and width of IWMP - VII watershed, are 16946 m and 8535 m, respectively with the length: width ratio 1.9/1

### SHAPE AND SIZE OF WATERSHED

S. N.	Micro watershed Code	Area (ha)	Shape	Approximate size in meter		Ratio Length: width
				Length	Width	
1	2C2A1g2d	822.89	Rectangle	4131	2648	1.56:1
2	2C2A1g2c	601.70	Elongate	6671	1451	4.59:1
3	2C2A1g2a	532.18	Rectangle	3641	1498	2.40:1
4	2C2A1g2b	465.73	Rectangle	3334	1581	2.10:1
5	2C2A1f2f	738.91	Square	2855	2728	1.04:1
6	2C2A1f2a	529.34	Rectangle	2312	2018	1.14:1
7	2C2A1f2c	719.70	Semi-circular	4541	2415	1.88:1
8	2C2A1f1c	573.51	Circular	3191	2144	1.48:1

9	2C2A1f1d	518.47	Elongate	3568	1730	2.06:1
10	2C2A1f1b	523.13	Elongate	3166	1550	2.04:1
11	2C2A1f1e	665.78	Rectangle	2832	2494	1.13:1
12	2C2H1b2b	623.80	Circular	2964	2612	1.14:1
13	2C2H1b2c	775.19	Rectangle	3644	2837	1.28:1
14	2C2A1e2c	268.03	Elongate	2284	1744	1.30:1
	<b>Total</b>	<b>8358.36</b>				

## WATER QUALITY

The ground water quality of the project area is found to be suitable as per drinking water standard (IS:10500) the average pH value ranges from 7.5 to 7.8, the Electric conductivity of the ground water varies from 960 to 1125 us/cm . The overall analysis of the ground water shows that the water is suitable for the drinking purpose. The water level in the project area ranges from 11 to 13 metre.

### STATUS OF DRINKING WATER

S. N.	No. of the villages	Availability of drinking water (no. of months in a year)		Quality of drinking water	
		Pre-project	Expected Post-Project	Pre-project	Expected Post-Project
1	25	10 months	12 months	Hard & Soft	Soft

**DETAILS OF AVERAGE GROUND WATER TABLE DEPTH IN THE PROJECT AREAS (IN METERS)**

S. N.	No. of the villages	Sources	Pre-project	Expected Post-Project	Remarks
1	25	Open wells	13 – 15 Mtr	9 - 11	-

**SOILS**

The study area has mainly four types of soil named Parwa, Kavar, mar, and Rakar which are the main soil type of the region. The characteristics of these soils are given below:

1. Parwa Soils - Light brown loam to clay, generally structure less, average in water holding capacity and organic matter, moderately alkaline, restricted drainage, surface soil poor in lime, moderately alkaline, restricted calcareous, medium in soluble salts. Carbonates and sulphates practically absent.
2. Kavar Soils - Light gray brown at surface to pale brown at lower depth, poor to average water holding capacity neutral in reaction and poor in organic matter. Generally non calcareous with fair drainage, medium in soluble salts content with predominance bicarbonates and chlorides.
3. Mar Soils - These are black soils with high water holding capacity, neutral in reaction, slightly calcareous low in organic matter content, impeded drainage and prone to salinity in the water logged areas and average to soluble salts.
4. Rakar - Soils - Brown at surface and lighter brown sandy loam, average water holding capacity, neutral non-calcareous, fair drainage, low in soluble salts mainly comprising of bicarbonates and chlorides of sodium.

The project area is basically Mar soils dominating area which is black soils with high water holding capacity, neutral in reaction, slightly calcareous low in organic matter content, impeded drainage and prone to salinity in the water logged areas and average to soluble salts.

## **DRAINAGE**

Drainage occurs principally from north to south. Due to this moderate to steep slopes and presence of a number of drainage lines, drainage is adequate. The watershed forms part of the L.B. Betwa River

## **AGRICULTURE**

Various agriculture land uses in the watershed are extended to diversified land capabilities starting from marginal to good class II<sup>nd</sup> lands. The watershed distinctly has three types of land i.e. levelled, sloping and degraded or undulating. The agriculture practised on all these soil types though the productivity considerable varies.

The agricultural soils in the watershed have diversified texture i.e. clay, silty clay, sand mixed with gravel and loam which are located in patches throughout the watershed. Four types of Rakar, Kabar, Mar and Padawa are the main soil of the project area. The heavy soils are almost kept fallow during rainy season. The irrigation water is conveyed in earthen channels and surface irrigation methods following mainly border method of free flooding method of irrigation by farmers in the watershed. The factors substantially reduce the water use efficiency of limited available and valuable irrigation water in the watershed. To test the quality of irrigation water samples of water of each selected village has sent to laboratory for testing.

### **Crop Rotation**

**Single Cropping:**, Bajara , Fellow- Wheat,Fellow- Lentil,

**Double Cropping:** Jowar – Wheat ,Arhar , Barlay – Gram -Musterd

## **CROP PRODUCTIVITY**

**Food** crop production is a major land based activity in the watershed. Traditional cultivation practices, coupled with poor quality seeds and long duration crops varieties result in low crop yields. Crops are taken under rainfed as well as irrigated conditions. The yield levels of rainfed crops are particularly very poor. Large variation has been noticed in productivity of wheat (28.2 Qu/ha) and Jowar (16 . 77 Qu/ha.) under rainfed and irrigation, condition respectively. At present level of rainfed farming. The total produce from Rabi and Kharif crops obtained by a medium size of holding owning family can meet food requirements for up to 6 to 7 months only.

The farmers also do not have suitable cropping systems to deal aberrant weather. Weeds impose considerable constraints in producing of both Kharif and rabi crops under irrigation as well as rain-fed production system. Use of weedicide is rare in the watershed.

The mixed cropping is in practice in limited area with Rabi crops like Sorghum – Arhar, Maize+Arhar but it is not only irrational but also unscientific and beset with low productivity. Subsequent Kharif crops in general are raised on residual soil moisture under rain-fed production system during past monsoon season. Imbalanced use of fertilizers is common in not only Rabi and Kharif crops but also in rain fed and irrigated production system. The recommended deep ploughing for enhanced in situ residual soil moisture conservation and higher production is also not followed in the watershed. The shallow ploughing tractors drawn tillage implements are available with the farmers in the watershed but deep ploughing implements yet need to be introduced.

The soil fertility/health restoration practices like green manuring, crop rotations and intercropping specially with legumes, use of FYM/compost, vermi-compost , bio-fertilizers , soil and water conservation measures, use of brought up or in situ mulches are widely lacking in the watershed. The soil and water conservation measures are limited to mechanical/earthen measures created by the state Govt. agencies. Conservation agronomical measures like seeding and ploughing across the slope, weed mulching, agro-forestry, vegetative barriers etc, also completely lack in the watershed.

### **MAJOR CROPS GROWN AND THEIR PRODUCTIVITY IN THE PROJECT AREA**

S. N.	Names of the crop		Current status		Expected Post-Project Status	
			Area (ha)	Productivity (kg/ha)	Area(ha)	Productivity(kg /ha)
1	Kharif	Jowar	1334	850	1788	1170
2	Rabi	Wheat	1340	1420	2000	2460
		Pulses	1815	720	2172	1250
3	Zaid/Other season		-	-	-	-



## **INDIGENOUS TECHNOLOGICAL KNOWLEDGE: (I.T.K.)**

Agriculture is an old age occupation which farmers have practiced and improved in their own manner to earn livelihood under the condition of area. The villagers have their traditional village ponds, practice of field bunding, production of Arhar crop on the bunds in paddy area which typically constitute agriculture related ITKs in the watershed. The indigenous farming technology in the watershed is observed to cover a vast spectrum of activities involving tillage, implement crop selection, storage of produce and value condition. Seed drill, seed comfort drills are used with tractor and Nai/chonga with indigenous plough. These ITKs are eco-friendly, cost effective and involve use of local materials with farmers own wisdom. These techniques equip farmers with skills and strength to adapt to the prevailing adverse conditions.

## **HORTICULTURE**

Though no organized orchards are present in the watershed, homestead planting of fruit trees of Neebo and guava has been practiced by farmers. The sub-tropical fruits and vegetable have very good potential in the watershed. Organized orchard, commercial vegetable cultivation, Horti-agri and other system of agro-forestry etc. are lacking but have good potential in the watershed.

## **AGRO-FORESTRY**

The argo-forestry interventions comprising of guava, bail, ber, Neebo, Aonla, orange etc. may be applied for benefit of the farmers under rain-fed production systems on level to sloppy and marginal agriculture using proper planting techniques and termite control measures. The multipurpose trees may also help in supplementing fire wood and fodder demands of the rural communities in the watershed and may be planted as hedge rows on rain-fed, marginal and degraded lands.

# **CHAPTER-3**

## **BASE LINE SURVEY**

**A detailed baseline survey of the project area was conducted to the study major socioeconomic and biophysical constraints to sustainable crop production. The following information were collected:**

## **SOCIO-ECONOMIC ANALYSIS OF THE PROJECT**

### **SUSTAINABILITY AND ENVIRONMENT SECURITY**

In the proposed watershed management plan of Betwa basin watershed, proper blending of bio engineering measures will be applied on 50 % of the total watershed area. Based on the results of studies conducted in this region, it is estimated that more than 50 % of the watershed area will be treated and consequently the soil loss and runoff from the area is expected to be reduced by 70 % and 65 % respectively. The proposed land use plan will improve the land utilization index and crop diversification index significantly as compared to the existing one. It will help in maintaining ecosystem integrity on sustained basis along with improving the livelihood security of the farming community.

### **ECONOMIC ANALYSIS**

Economic analysis of the project was carried by taking direct benefits and costs considering 25 years project life at 10 percent discount rate. For this purpose of economic analysis, whole watershed development plan was divided into three sectors namely, agriculture, horticulture and forest/Fuel wood plantation. Net Present Value (NPV), Benefit Cost ratio (BC ratio) criteria were employed to judge the economic efficiency of each enterprise and sector.

## AGRICULTURE

In rain fed agriculture, the development cost can be recovered within one year as the present rain fed agriculture is being done on well maintained field, therefore, does not require much investment.

## FOOD SUFFICIENCY

Achieving self sufficiency in food production is one of the prime objectives of the project. The status of food requirement and production before and after the project is presented

### Status of food requirement and availability per annum in watershed

Sr. No.	Items	Requirement (q/yr)	Before project		Proposed	
			Availability (q/yr)	Deficit or surplus	Availability (q/yr)	Deficit or surplus (q/yr)
1	Cereals	16518	7150	-9368	22520	+ 6002
2	Pulses	2215	1000	- 1215	3110	+ 895
3	Oil seeds	190	150	-40	300	+ 110
4	Vegetable	1890	1099	- 791	2050	+ 160

## EMPLOYMENT GENERATION

Labour migration in search of gainful employment is one of the major problems in the remote watershed in particular. Causal employment opportunities will be generated during the implementation of the project activities. However, the changes in land use pattern and adoption of other subsidiary enterprises will generate employment opportunities for persons in the watershed.

### EXPECTED EMPLOYMENT RELATED OUTCOMES

Name of Project	No. of the Villages	Wage employment										Self employment				
		No. of mandays (Lakhs)					No. Of beneficiaries					No. Of beneficiaries				
		SC	ST	Others	Women	Total	SC	ST	Others	Women	Total	SC	ST	Others	Women	Total
I.W.M.P.-7 <sup>th</sup>	12	1.31	-	0.65	0.18	2.14	1285	-	1929	90	3333	112	-	110	15	238

## MIGRATION PATTERN

Labour migration in search of gainful employment is one of the major problems in the remote watershed in particular. People migrate during summer season to different parts of the state as daily wagers, agricultural labours and construction workers. Lack of employment opportunity the total migration during last year was 1325. The detail is given below.

### DETAILS OF MIGRATION (I.W.M.P.-7<sup>th</sup>) JALAUN

Name of the Project	No. of persons migrating	No. of days per year of migration	Main reason for migration	Expected reduction in no. of persons migrating
I.W.M.P.-7 <sup>th</sup>	160	120-180	Unemployment & High Wages in City	80

## PRESENT LAND USE IN THE WATERSHED

Spatial information on land use/land cover is a necessary prerequisite in planning, utilizing and management of natural resources. In the current days context of development planning, information on land use/land cover and the changes over a period of time attain prominence because of its primary requirement in all the planning activities. The present watershed R.B. Pahuj have varied land/use land cover categories as shown in table 3.1 & 3.2 One such map of land use/ land cover of the watershed is shown in Annexure Map.

### THE LAND UNDER DIFFERENT CATEGORIES WITHIN WATERSHED

S. No.	Watershed Code	Name of Villages	Built-Up Land	Agriculture	Fallow Land	Wasteland	Plantation	Water Bodies	Total
1	2C2A1g2d	Mawai, Dhamni khurd, Nagva, Parasan	8.78	675.87	133.05	5.19	-	-	822.89
2	2C2A1g2c	Margaya, Mawai, Nagva, Kanakera, Chandrasi	10.19	418.21	135.76	37.54	-	-	601.70
3	2C2A1g2a	Chandrasi, Kanakera, Nagva, Margaya	2.74	231.57	105.24	149.46	43.17		532.18
4	2C2A1g2b	Nagva, Margaya	-	397.60	2.89	65.24	-	-	465.73
5	2C2A1f2f	Chatela, Kanakera	23.19	242.33	240.00	67.29	166.10	-	738.91
6	2C2A1f2a	Chatela, Kanakera, Hajipur Saliya, Pathreta	-	174.56	312.56	42.22	-	-	529.34
7	2C2A1f2c	Pandora, Bamhori,	-	574.85	34.92	109.93	-	-	719.70

		Chatela, Baragawn							
8	2C2A1f1c	Baragawn, Bhedi Khurd	-	323.39	26.04	224.08	-	-	573.51
9	2C2A1f1d	Bheri Khurd, Baragawn, Chatela	36.61	177.99	45.77	255.81	-	2.29	518.47
10	2C2A1f1b	Baragawn, Bheri Khurd, Kakarau	7.84	301.90	117.40	95.99	-	-	523.13
11	2C2A1f1e	Bheri Khurd, Beri	-	323.22	267.81	74.75	-	-	665.78
12	2C2H1b2b	Ekona, Alipur, Manghwar, Nisvapur	--	493.84	89.31	40.65	-	-	623.80
13	2C2H1b2c	Nisvapur, Harchandpur, Parosa-2, Etor Babni	8.31	608.93	127.50	30.45	-	-	775.19
14	2C2A1e2c	Khutmila, Sajehra, Kharehta, Bainsa Pali	-	268.03	-	-	-	-	268.03
	<b>Total</b>								
			<b>97.66</b>	<b>5212.29</b>	<b>1638.25</b>	<b>1198.6</b>	<b>209.27</b>	<b>2.29</b>	<b>8358.36</b>

### PRESENT LANDUSE/LANDCOVER OF THE PROJECT AREA

S. No	Landuse/Land cover	Area (ha)	%
1	Built-up land	97.66	1.17
2	Agricultural Land	5212.29	62.36

3	Fallow Land	1638.25	19.61
4	Waste Land	1198.60	14.33
5	Plantation	209.27	2.50
6	Water Bodies	2.29	0.03
<b>Total</b>		<b>8358.36</b>	<b>100</b>

### **DESCRIPTION:**

The present LU/LC map has been depicted through the satellite data of January,2010 (Google). A total no. of 6 major categories of LU/LC has been mapped.

### **BUILT-UP LAND**

All the major settlement Alipur, Bainsa Pali, Bamhori, Baragawn, Bheri Khurd, Chandarsi, Chatela, Dhamni Khurd, Ekona, Etor Bavani, Hajipur Saliya, Harchandpur, have been mapped under this category and the total area under category is 97.66 Hectare which is 1.45 % of the total mapped area. Under this category road network and other built-up area has also been included.

### **WASTE LAND**

Land which is deteriorating for lack of appropriate water and soil on account of natural causes comes under this category. The total area under this category comes about 1052.75 Hectare which is 15.76 % of the total mapped area. The sub categories are like Salt affected land, Gullied/Ravinous Land, Scrub Land etc.



## **WATER BODIES**

This category comprises area with surface water either impounded in the form of ponds, lake & reservoirs. The total area under this category comes about 2.29 Hectare which is 0.03 % of the total mapped area.

## **PLANTATION**

These areas are separable from crop land especially with the data acquired during rabi/zaid season. Plantations appear with different size and regular and sharp edges indicating the presence of a fence around it. Depending on the location, they exhibit a dispersed or contiguous pattern. The total area under this category comes about 209.27 Hectare which is 3.12 % of the total mapped area.

## **AGRICULTURAL LAND**

These are the lands primarily used for farming and for production of food, it includes land under the (irrigated and un-irrigated). Areas with standing crop as on the date of satellite overpass. The cropped areas vary in shape and size in a contiguous and non contiguous pattern. They are widely distributed in different terrains; prominently appear in the irrigated areas irrespective of the source of irrigation. The study area predominantly paddy producing area being its flatness in 2007-08 maximum production of Jowar recorded in this region under the double crop area Ahar belt capture 361 Hectare total agriculture land. Area under rabi crop is about 792 Hectare of the total cropped area. It is important to know that the project area has maximum **single crop area** i.e. **Rabi**. The average size of the agricultural field is less than 0.5 Hectare. The total area under this category comes about 4368.52 Hectare which is 65.27 % of the total mapped area.

## **FALLOW LAND**

These are the lands primarily used for farming and for production of food; it includes land under the (irrigated and un-irrigated). Areas with standing crop as on the date of satellite overpass. Cropped areas are in varying shape and size in a contiguous and non contiguous pattern. They are widely distributed in different terrains; prominently appear in the irrigated areas irrespective of the source of irrigation. The average size of the agricultural field is less than 0.5 Hectare. The current Fallow lands have been

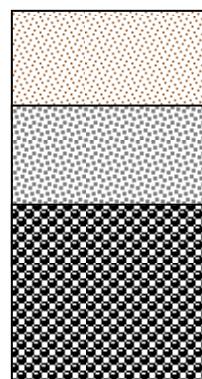
mapped in the study area as viewed in the satellite scene. Actually the above category is a part of agriculture land which have left for sowing due to some reason by the farmers. The total area under this category comes about 962.42 Hectare which is 14.37 % of the total mapped area.

### Soil and land Capability Classification:

**Soil Morphology:** The study area is situated in the South-East of District-Orai - jalaun. The entire watershed is topographically divided into three major land forms. Accordingly, the soils of watershed have been grouped in the three major categories.

- 1- Plain land
- 2- Moderate sloppy land
- 3- Strong

**Soil Profile: A Representative Soil Profile**



1-1.5 (Heavy texture clay-soil yellowish Brown in color)  
 5 -8m (Locally called “Clay”)  
 7 –8 m(Sandy Clay)

**Morphology of Typical Solid Profile of Watershed**

Horizon	Depth(Cm)	Morphology
A	0-150	Yellowish brown in colour, clay content > 80%, soft and easily erodible when moist, hard when dry, high elasticity, Cracks occur when dried.
B	150-800	whitish brown in colour, very hard when dry, clay content > 60%
C	>800	(Black and sandy )

### **Soil Characteristics and Fertility Status:**

Four types of soils are in the watershed area. The fertility status is about normal range due to production of major pulses crops. There is scarcity of phosphorus due to continuous growing of pulses. The four soil samples of each village, three for nutrients analysis and one for sulphur and micro nutrients analysis have been send to laboratory. After receiving the analysis report effort will be made to motivate the farmers to use nutrients and micronutrients according to the any analysis report. This demonstration of crop in Kharif and Rabi both seasons have been proposed under agriculture production activity.

### **LAND CAPABILITY CLASSIFICATION (LCC)**

Land capability classification is an interpretative grouping of lands made to show their relative suitabilities for various crops, pasture, forestry and wildlife and recreation. The inherent characteristics, limitations and risk of damage to the soils and also their response to manage-ment are taken into consideration for classifying them under various land capability classes.

Land capability class is the broadest category in the land capability classification system. Class codes I, II, III, IV, V, VI, VII, and VIII are used to represent arable and non-arable land as defined below.

Class I lands have slight limitations that restrict their use.

Class II lands have moderate limitations that reduce the choice of plants or require Land capability classification is an interpretative grouping of lands made to show their relative suitabilities for various crops, pasture, forestry and wildlife and recreation. The inherent characteristics, limitations and risk of damage to the soils and also their response to management are taken into consideration for classifying them under various land capability classes.

Land capability class is the broadest category in the land capability classification system. Class codes I, II, III, IV, V, VI, VII, and VIII are used to represent arable and non-arable land as defined below.

Class I lands have slight limitations that restrict their use.

Class II lands have moderate limitations that reduce the choice of plants or require moderate conservation practices

Class III lands have severe limitations that reduce the choice of plants or require special conservation practices, or both.

Class IV lands have very severe limitations that restrict the choice of plants or require very careful management, or both.

Classes V to VII cover lands that are unsuitable for agriculture but suitable for pasture.

Class VIII lands are suitable neither for agriculture nor for forestry and are best left for wildlife and recreation.

Land capability classes are divided into land capability subclasses, groupings of soils that have the same kind of limitations for agricultural use. Subclass codes used are e, w, s and c.

‘e’ represents susceptibility to erosion by water or wind,

‘w’ represents drainage difficulties including wetness or overflow,

‘s’ represents soil limitations for plant growth and

‘c’ represents climatic limitations.

Land capability subclasses are subdivided into land capability units that are groupings of one or more individual soil map units having similar limitations or hazards. They are denoted by appending a numeral from 0 to 9 to the land capability subclass to specify the kind of limitation. The specific limitations are

- stony or rocky (0),
- erosion hazard/slope (1),
- coarse texture (2),
- fine texture (3),
- slowly permeable subsoil (4),

Land capability classification(LCC) is crucial for appropriate land use planning consisting of practices like choice of vegetation /crops, tillage practices, use of scientific method of cultivation and desirous conservation practices, Detailed LCC Survey carried out in the watershed brought out the prevailing LCC classes as I,II,III,IV

## **CONCLUSION**

The land capability classification of the watershed provides reasonable good information with regard to capability of soil, that could be used for agriculture, agri-horticulture, silvi-culture and pasture development. The majority of land form is coming under class VI, which give an insight of good agriculture production potential of these watersheds. The productivity of these lands could be further enhanced by adoption of simple soil & water conservation measures like contour bunding *in-situ* moisture conservation practices. In class III submergence bund, marginal and peripheral bund are planned and in class IV, gully plugging structures, earthen check dam and water harvesting bunds are proposed with permanent Pucca Drop Spill Way structures.

## SLOPE ANALYSIS:

The Project area has an uneven terrain with higher elevations on the north- West side of the watershed. Since slope is the most important terrain characteristic and plays a vital role in geomorphological and runoff processes, soil erosion and land use planning, it is very important to have an understanding of the spatial distribution for the development and management of both land and water resources. The general slope of the watershed is towards south - East. In the present study Seven (7) Slope classes were identified through the analysis of Aster Digital Elevation Model. One such map of Slope of the watershed is shown in Annexure Map.

## HUMAN AND LIVESTOCK POPULATION

### HUMAN POPULATION

The total population of the project area is 44874. Out of the total population the male population is 21211 , female population is 16913 and children population is 6750. The detail of population is given below.

#### VILLAGE WISE HUMAN POPULATION, IWMP 7<sup>th</sup> ,JALAUN

S. No.	Name of Village	Total Population			Total Population(SC)		
		Male	Female	Total	Male	Female	Total
1.	Alipur	854	608	<b>1462</b>	340	288	<b>628</b>
2.	Bainsa Pali	615	578	<b>1193</b>	218	195	<b>413</b>
3.	Bamhori	1808	1615	<b>3423</b>	412	325	<b>737</b>

4.	Baragawn	1701	1415	<b>3116</b>	563	450	<b>1013</b>
5.	Bheri Khurd	1571	1253	<b>2824</b>	451	386	<b>837</b>
6.	Chandarsi	804	600	<b>1404</b>	325	223	<b>548</b>
7.	Chatela	2405	2045	<b>4450</b>	409	317	<b>726</b>
8.	Dhamni Khurd	852	640	<b>1492</b>	315	278	<b>593</b>
9.	Ekona	984	796	<b>1780</b>	152	103	<b>255</b>
10.	Etora Bavani	874	742	<b>1616</b>	467	383	<b>850</b>
11.	Hajipur Saliya	-	-	-	-	-	-
12.	Harchandpur	1169	1020	<b>2189</b>	591	505	<b>1096</b>
13.	Kana Khera	696	583	<b>1279</b>	311	261	<b>572</b>
14.	Kharehta	315	245	<b>560</b>	74	54	<b>128</b>
15.	Khutmila	629	553	<b>1182</b>	106	94	<b>200</b>
16.	Majhawar	252	117	<b>369</b>	52	40	<b>92</b>
17.	Margayan	2303	1822	<b>4125</b>	1062	814	<b>1876</b>
18.	Mavai Brahm	1865	1415	<b>3280</b>	778	664	<b>1442</b>
19.	Nagva	629	539	<b>1168</b>	207	166	<b>373</b>
20.	Nisvapur	521	391	<b>912</b>	157	125	<b>282</b>
21.	Pandora	443	427	<b>870</b>	299	265	<b>564</b>
22.	Parosa	462	378	<b>840</b>	188	154	<b>342</b>

23	Parasan	1744	1516	<b>3260</b>	740	654	<b>1394</b>
24	Pathreta	901	727	<b>1628</b>	48	35	<b>83</b>
25	Sajehra	252	200	<b>452</b>	95	94	<b>189</b>
	Total	24649	20225	<b>44874</b>	8360	6873	<b>15233</b>

## LIVESTOCK POPULATION

Total live stock population of the watershed is 15183. Cow is preferred as milk animal but milk yield is very low. Goats are the other source of milk production but kept mainly for the meat purposes. Homestead poultry rearing is common among marginal farmers. The details of village-wise live stock population is given in table below.

### VILLAGE WISE ANIMAL POPULATION, IWMP 7<sup>th</sup>, JALAUN

S. No.	Villages	Buffaloes	Cows	Ox	Calf	Buffalo Child(M)	Buffalo Child(F)	Goat	Hen
1.	Alipur	110	160	60	55	12	18	450	210
2.	Bainsa Pali	60	50	25	15	6	13	410	170
3.	Bamhori	55	45	20	10	5	12	385	110
4.	Baragawn	225	200	80	70	25	45	1450	150
5.	Bheri Khurd	175	210	85	60	20	40	815	460
6.	Chandarsi	40	50	20	15	5	13	250	150
7.	Chatela	200	500	100	160	240	50	2050	800
8.	Dhamni Khurd	150	315	60	105	15	30	180	300



9.	Ekona	160	205	40	65	12	28	215	105
10.	Etora Bavani	145	215	65	70	13	25	540	210
11.	Hajipur Saliya	-	-	-	-	-	-	-	-
12.	Harchandpur	45	65	25	20	05	10	190	80
13.	Kana Khera	25	60	10	10	13	15	200	100
14.	Kharehta	30	35	15	10	03	06	240	180
15.	Khutmila	45	102	20	35	14	17	250	64
16.	Majhwar	48	100	25	30	03	08	240	65
17.	Margayan	55	148	30	35	04	07	140	25
18.	Mavai Brahm	45	165	124	45	5	10	180	140
19.	Nagva	65	175	20	55	10	15	210	110
20.	Nisvapur	60	115	30	30	08	13	165	105
21.	Pandora	75	105	35	35	12	18	175	95
22.	Parosa	60	75	30	25	10	18	130	45
23.	Parasan	155	225	70	85	25	35	340	350
24.	Pathreta	65	105	45	30	08	13	215	170
25.	Sajehra	25	20	10	08	03	06	200	18
	<b>Total</b>	<b>2118</b>	<b>3445</b>	<b>1044</b>	<b>1078</b>	<b>476</b>	<b>465</b>	<b>9620</b>	<b>4212</b>

## LIVELIHOOD ACTIVITIES

Out of the total population 44874 in the watershed, a majority i.e. more than 75% has farming as their major source of livelihood followed by 23% labourer and 2% service+ business class.

Income generating activities through Self Help Group, landless and marginal farmers like farming, Vegetable Production, Dairy & Milk product marketing, livestock development activities, Agriculture allied activities etc. will be executed in the villages of watershed through the involvement of Krishi Vigyan Kendra, Rura, Jalaun. Training of farmers, women, landless rural youth and field level workers for Forest/horticulture nurseries, Seri-culture, fruit preservation, Beekeeping, Computer training and Mobile repairing etc will be given at Krishi Vigyan Kendra, Rura, Jalaun.

### SUMMARY OF LIVLIHOOD

No. of Villages	Existing livelihood activities	Possible livelihood intervention under the project	Current status of migration(No. of people)	Main reason of migration
25	<ol style="list-style-type: none"> <li>1. Poor Farming</li> <li>2. Labour on Daily Wages</li> <li>3. Small scale business</li> <li>4. Agriculture</li> <li>5. Animal husbandry</li> </ol>	<ol style="list-style-type: none"> <li>1. Improvement in Farming</li> <li>2. Self employment by S.H.G</li> <li>3. Training</li> <li>4. Improvement of Employment by project work</li> <li>5. Agriculture allied activities</li> <li>6. Dairy &amp; Milk product marketing</li> <li>7. Vegetable Production</li> <li>8. Self Employment by Group Farming</li> </ol>	370	<ol style="list-style-type: none"> <li>1.Unemployment</li> <li>2. Poor Farming</li> <li>3. Illiteracy</li> <li>4. High wages in city</li> </ol>

## **INFRASTRUCTURE SOCIAL FEATURES**

The watershed has moderate communication facilities and all 25 villages and Concern majra are approachable through motorable road. Mostly villages are electrified and have TV & telephonic connection. Nearest small market is about 8-15 km and nearest big market is about 12-15 km from the watershed. Religious and ritual features are almost common as in other part of the U.P. Small land holding (average less than 0.46 ha) with large family size (average 7 person) and more than 25 % of the labor force of the total population living below poverty line indicate poor socio economic status of the watershed community. However, strong community spirit among the villager's show positive indication for the success of any programme to be implemented in participatory mode. Traditionally the entire village community participates in the individual works, map of the watershed villages drawn by villagers themselves.

## **IMPORTANCE OF DEVELOPMENT INSTITUTION**

In the Venn diagram, farmer's perception was recorded for importance and role of different development institutions in relation to infrastructure development in the villages. Importance has been depicted with the size of the circle and role with distance from the village circle.

## **DEPENDENCY ON FOREST FOR FUEL WOOD AND FODDER**

### **Fuel wood**

Some villagers of the selected village are using LPG to meet their cooking energy requirements. The main source of fuel is from cow dung cake, woody stem of Arhar crop and Mustard. About 65 to 70 percent of the domestic energy requirement is met from the Agro By-Product and cow dung cake. Rest is met out from the forest outside the village and watershed boundary.

### **Fodder:**

Fodders shortage lack of input and market facility are some of measure constant being experienced by the farmers. For this area Guava, Ber, Mango fruit plants are suitable. This also leads to low productivity. There is a lot of ignorance about the

use of new farming methods and technologies such as multiple cropping. They don't use FYM and other input in a proper way; that is why they don't get 100% output. So these factors contribute to low productivity.

### **LACK OF ADEQUATE FARM MACHINERY**

Even today a large number of farmers in water shade area use wooden ploughs and bullocks. They don't have adequate machinery like seed drill. So, old machineries take more time in tillage practices.

### **LACK OF GOOD QUALITY SEEDS AND FERTILIZERS**

Good quality seed, fertilizer and pesticide are important factor in agriculture productivity. The use of good quality leads to higher land productivity. In watershed, however, there are two limitations in the use of fertilizer. First these fertilizers are most useful in irrigated condition. But in watershed 100 per cent of land depend on rainfall. mostly farmers use nitrogenous fertilizers especially urea. This has resulted in disproportionate use of fertilizer depleting the quality of land.

### **LACK OF OTHER FACILITIES SUCH AS STORAGE AND MARKETING**

5-10% of agriculture product damage after harvesting due to scarcity of proper storage and proper market for sale. So he sells to local traders at the low prices. Farmers mainly face proper means of transportation and roads. And second problem is farmers don't have proper storage facilities.

## **CHAPTER - 4**

# **INSTITUTION BUILDING AND PROJECT MANAGEMENT**

## **PARTICIPATORY RURAL APPRAISAL (PRA)**

In order to realize these numerous benefits from multiple cycle archival data, judicious organization and management of the voluminous village level special database in the watershed that steadily grows with each year is very crucial. Recent state – of-the-art technology solutions and emerging trends contribute a great deal in designing and implementing highly functional geo-databases.

An attempt has been made to strengthen the planning of the study area. Remotely sensed data have been used for the mapping of various themes like landuse, drainage, base map etc. All the thematic layers have been converted into the GIS environment. All these layers could be overlaid on the base layer including village boundary. Various PRA techniques like resource mapping, social mapping and season calendar were used to understand the physical and social condition of the village in the project area.





## WATERSHED COMMITTEE

Watershed committee has been constituted in all 14 nos. of micro watershed separately by W.D.T. & village of micro watershed. Detail of W.C. is given below

S. No.	Name of Micro watershed	Name of Watershed Committee	Name of Chairperson	Name of Seceretary	Name of WDT Member
1.	2C2A1g2d	Mawai	Sri Newal Kishore S/o Puran	Sri Adarsh Tiwari S/o Rajiv Tiwari	Abdul Sattar
2.	2C2A1g2c	Nagwan	Sri Lakshman S/o Gore Lal	Sri Amol Singh S/o Wala Prasad	Sri Rudra Kumar Mishra
3.	2C2A1g2a	Kanakhera	Sri Samay Deen S/o Ghasita	Sri Chandra Bhan S/o Jagdev	Sri Shyam Narayan Katiyar
4.	2C2A1g2b	Margayan	Sri Govind Singh S/o Pokhar Singh	Sri Mahesh Prasad	Sri Devi Prasad Pandey
5.	2C2A1f2f	Chatela	Sri Avesh Mohammad S/o Ramsan	Sri Jiyauddin S/o Indrish Mohammad	Sri Shyam Narayan Katiyar
6.	2C2A1f2a	Pathareta	Sri Rajaram S/o Kashi Prasad	Sri Kunvar Singh S/o Bhagwandeem	Sri Hari Ratan Singh
7.	2C2A1f2c	Bamhauri	Sri Noor Mohmmad S/o Rasid	Sri Shiv Kumar S/o Rajeshvar	Sri Styra Ram Mishra



8.	2C2A1f1c	Bada Gaon	Sri Chote Lal S/o Lallu	Sri Ramsevak S/o Kallu	Sri Kailash
9.	2C2A1f1d	Mahmudnagar	Sri Shyam Karan S/o Kalka Prasad	Sri Nand Kumar S/o Ram Avtar	Sri Hari Ratan Singh
10.	2C2A1f1b	Kakarau	Sri Moti Singh S/o Badan Singh	Sri Krishngopal S/o Jagat Narayan	Sri Rampal Singh
11.	2C2A1f1e	Bhedikhurd	Sri Kallu Kushwaha S/o Prabhu Dayal	SriShiv Kumar S/o Vradha Singh	Sri Anjani Sharan Pathak
12.	2C2H1b2b	Majhwar	Sri Dayaram S/o Hori Deen	Sri Maheshwar Deen S/o Sita Ram	Sri Rajesh Kumar
13.	2C2H1b2c	Harchandpur	Sri Gokaran S/o Ramratan	Smt sarita Devi w/o Bhagat singh	Sri Rajesh kumar
14.	2C2A1e2c	Khutmila	Sri Babu S/o Deen Dyal	Sri Arun Kumar S/o Kailash Narayan	Sri Nakedgupta

### SELF HELP GROUPS

Self Help Groups are motivated, small homogenous groups organized together through credit and thrift activities. Self help group initiative especially for women help uplift their livelihood. Generally self help groups include landless and poor women. Before formation of the SHGs, during PRA activities, Focused Group Discussions (FGDs) were held with the women, which came up with the following observations:

- a) Lack of proper credit facilities due to low intervention of formal financial credit institution.
- b) Excessive exploitation of weaker section by money lenders
- c) Lack of attitude for saving among poor people

d) Lack of knowledge on credit and thrift activity and banking.

The constitution of self help groups have been constituted by W.C. in all micro watershed for generating Income & Improved their social status with the help & financial support through scheme by Technical support of P.I.A. Detail of SHGs is given below.

### FORMATION OF SELF HELP GROUPS I.W.M.P-7<sup>TH</sup> JALAUN

S. No.	Name of Micro-watershed	Name of SHG Group	Work of SHG Group	President	Secretary	Number Of Members
1.	2C2A1f1b	1.Nizam SHG Group	Tailoring/sewing	Neha W/o Ahmad	Hasina Bano W/o Noor Mohammad	10
		2.Maa Kali SHG Group	Goat Keeping	Vinda S/o Mahavir	Mansukh S/o Harichan	10
2.	2C2A1f2c	1. Jai Maa Durge SHG Group	Goat Keeping	Sripat S/o Ramdular	Devendra Singh S/o Virendra Singh	11
		2.Jai Bajrang SHG Group	Buffalo Keeping	Ramgopal Pal S/o Harinarayan	Valdev S/o Sumer	11
3.	2C2A1f2f	1.Gribotthan SHG Group	Goat Keeping	Kallu S/o Babu	Asgar S/o Shahjad	20
		2. Chatela SHG Group	Poultry	Azim S/o Iqubal	Bhiyalal S/o Ramdayal	10

		3. Swet Kranti SHG Group	Buffalo Keeping	Bhaiyalal S/o Ramprasad	Bhagwan S/o Mahadev	13
4.	2C2A1f1e	Jai Maa Kali SHG Group	Goat Keeping	Jagdev Singh S/o Veer Singh	Govind S/o Sumera	10
5.	2C2H1b2c	Dr. Bhimrao Ambedakar SHG Group	Goat Keeping	Vadriprasad	Subhashchandra	15
6.	2C2H1b2b	Durga SHG Group	Goat Keeping	Hiralal S/o Harprasad	Ramjivan S/o Gorelal	15
7	2C2A1g2c	1.Mansha Devi SHG Group	Buffalo Keeping	Amol Singh	Nirbhay Singh	10
		2. Dr. Bhimrao Ambedakar SHG Group	Goat Keeping	Surendra Kumar	Rajkumar	11
8.	2C2A1g2b	Jai Bhavani SHG Group	Poultry	Santosh Kumar S/o Swamideen	Sugriv S/o Babu Rao	10
9.	2C2A1g2d	1. Ambedkar SHG Group	Buffalo Keeping	Ramprakash S/o Bhagirath	Asharam S/o Siyaram	17
		2. Jai Bhim SHG Group	Goat Keeping	Nirpati S/o Halke	Kanghilal S/o Budhaiya	10

10.	2C2A1g2a	Garibotthan SHG Group	Goat Keeping	Phul Sing S/o Hardev	Ranjit S/o Ramdas	20
11.	2C2A1f1d	1.Sarvoday SHG Group	Buffalo Keeping	Baladeen S/o Sukkha	Maheshvarideen S/o Kussu	10
		2. Gram vikas SHG Group	Goat Keeping	Dayaram S/o Sukkha	Atmaram S/o Gangaram	10
12	2C2A1f2a	Garibotthan SHG Group	Goat Keeping	Ramasare S/o Sevaram	Shaktideen S/o Sumera	20
13.	2C2A1f1c	1.Swet Kranti SHG Group	Buffalo Keeping	Ahmad S/o Rasid	Lakhan S/o Jageshvar	10
		2. Ghaji Miya	Goat Keeping	Babulal S/o Lalaram	Khitty S/o Anval	10
14.	2C2A1e2c	Dr. Ambedkar SHG Group	Goat Keeping	Usha Devi	Ghanshayam	20

## USER'S GROUP

The following user's groups are Identified & constituted in all micro watershed by watershed committee in presence of watershed Development team for Implementation of watershed work Proper use & management of all Engineering & Vegetative measure to be creating/constructing under watershed through scheme. Detail of user's group given below.

### DETAIL OF USER'S GROUP

S. No.	Name of Micro watershed	Name of User group	President of User group	Secretary of User group	No. of Member
1.	2C2A1f1b	Soil conservation	Haribabu S/o Jageshvar	Noor Mohammad S/o Mo. Vasir	10
2.	2C2A1f2c	Soil conservation Water conservation	1.Karan Sing S/o Devi Singh 2. Devendra Singh S/o Virendra Sing	Maheshvari S/o Mahadev Ramesh S/o Chedalal	10 10
3.	2C2A1f2f	Soil conservation	Ramdash S/o Kalideen	Uved Mohammad S/o Mandal Ahamad	10
4.	2C2A1f1e	Soil conservation Water conservation	1.Ranvijay S/o Rajbant Singh 2. Ramadhar S/o Vijaybahadur	Sadanand Singh S/o Bachcha Singh Shivkumar S/o Buddha	10 10
5.	2C2H1b2c	Soil conservation	Vijay Sing S/o Sahab Sing	Heeralal S/o Gokul	10

6.	2C2H1b2b	Soil conservation	Ramdas S/o Horideen	Vijay S/o Ramasare	10
7.	2C2A1g2c	Soil conservation	Manoj S/o Amar Singh	Rajendra S/o Ramkaran	10
8.	2C2A1g2b	Soil conservation	Devendra Singh S/o Ramsvarup	Pintu Umare S/o Dharmendra	10
9.	2C2A1g2d	Soil conservation	Brijmohan S/o Ramjatan	Radhasharn S/o Vansh Gopal	10
		Water conservation	Ramprakash S/o Bhagirath	Asharam S/o Shivram	10
10.	2C2A1g2a	Soil conservation	Ramkumar S/o Jaypal	Rampal S/o Shambhudyal	10
11.	2C2A1f1d	Soil conservation	Sallu S/o Ramratan	Santosh S/o Chandrabhan	10
12.	2C2A1f2a	Soil conservation	Rampal S/o Sevaram	Gulam Ali S/o Rasid	10
13.	2C2A1f1c	Soil conservation	Rajendra S/o Bachchi	Sanjay Singh S/o Brijpal Singh	10
14.	2C2A1e2c	Soil conservation	Pappu S/o Tatia	Anirudh S/o Shyambabu	10

## **INSTITUTIONAL ARRANGEMENT AT PROJECT LEVEL**

### **PROJECT MANAGEMENT AGENCY**

The SLNA would evolve appropriate mechanisms for selecting and approving the PIAs, who would be responsible for implementation of watershed projects in different districts. These PIAs may include relevant line departments, Autonomous organizations under State/Central Governments, Government Institutes/Research bodies, Intermediate Panchayats, Voluntary Organizations (VOS).

However, the following criteria may be observed in the selection of these PIAs:

- 1- They should preferably have prior experience in watershed related aspects or management of watershed development projects.
- 2- They should be prepared to constitute dedicated Watershed Development Teams.

Selected PIAs will sign a contract/MOU with the concerned DWSUs/District Level Committee as referred in para29 that will spell out well –defined annual outcomes, against which the performance of each PIA will be monitored each year and evaluated on a regular basis by institutional evaluators from a panel approved by the SLNA/Departmental Nodal Agency at the central level.

Each PIA must put in position a dedicated watershed development team (WDT) with the approval of DWDU. The WDT will be hired on contract/deputation. Transfer etc for a term not exceeding the project period. The composition of the WDT will be indicated in the contract/MOU. No programme funds for DPR and watershed works under any circumstances should be released to either the PIA or Watershed Committee (WC) unless the composition of the WDT has been clearly indicated in the MOU/contract and the team members are fully in place.

### **PROJECT IMPLIMENTING AGENCY (PAI)**

U.P. Government, Land Development And Water Resources Department Govt. of U.P. Lucknow has nominates as PIA to Soil Conservation Officer Land development and water resources Department DPAP Jalaun-4<sup>th</sup> at Jalaun.

## DETAIL OF PIA STAFF

S. No.	Name	Designation	Experience (Year)
1.	Sri Harprasad	BSA	30
2.	Sri P.K. Singh	Jr. Engineer	30
3.	Sri A.K. Gupta	Jr. Engineer	29
4.	Sri Umakant Nigam	Draughtman	30
5.	Sri Prabhudayal Verma	Accountant	30
6.	Sri Hariratan Singh	A.S.C.I.	32
7.	Sri Rajesh Kumar	A.S.C.I.	15
8.	Sri S.N. Katiyar	A.S.C.I.	32
9.	Sri Debi Prasad pandey	Work Incharge	30
10.	Sri Satyram Mishra	Work Incharge	32
11.	Sri Rudra Kumar Mishra	Work Incharge	22
12.	Sri Rampal Singh	Work Incharge	28
13.	Sri Kailash	Work Incharge	30
14.	Sri Anjanisaran pathak	Work Incharge	28
15.	Sri Nachhed Gupta	Work Incharge	22
16.	Sri Abdul Sattar	Work Incharge	28
17.	Sri Umanath Tripathi	Work Incharge	28
18.	Sri K.k. Srivastava	Sr. Clerk	31
19.	Sri Kailash	Jr. Clerk	13

## ROLES AND RESPONSIBILITIES OF THE PIA

The project Implementing Agency(PIA) will provide necessary technical guidance to the Gram Panchayat for preparation of development plans for the watershed through Participatory Rural Appraisal(PRA) exercise, undertake community organization and training for the village communities, supervise watershed development activities, inspect and authenticate



project accounts, encourage adoption of low cost technologies and build upon indigenous technical knowledge, monitor and review the overall project implementation and set up institutional arrangements for post-project operation and maintenance and further development of the assets created during the project period.

The PIA, after careful scrutiny, shall submit the action plan for watershed development project for approval of the DWDU/DRDA and other arrangements. The PIA shall submit the periodical progress report to DWDU. The PIA shall also arrange physical, financial and social audit of the work undertaken. It will facilitate the mobilization of additional financial resource from other government programs, such as NREGA, BRGF, SGRY, National Horticulture Mission, Tribal Welfare Schemes, Artificial Ground Water Recharging, Greening India, etc.

#### **WATERSHED DEVELOPMENT TEAM**

The WDT is an integral part of the PIA and will be set up by the PIA. Each WDT should have at least four members, broadly with knowledge and experience in agriculture, soil science, water management, social mobilization and institutional building. At least one of the WDT members should be a woman. The WDT members should preferably have a professional degree. However, the qualification can be relaxed by the DWDU with the approval of SNLA in deserving cases keeping in view the practical field experience of the candidate. The WDT should be located as close as possible to the watershed project. At the same time, it must be ensured that the WDT should function in close collaboration with the team of experts at the district and state level. The expenses towards the salaries of the WDT members shall be charged from the administrative support to the PIA. DWDU will facilitate the training of the WDT members

As per new common guide line direction/Instruction given in Para 5.3 point 40 P.I.A. has been constituted watershed Development Team as given below:

**WATERSHED DEVELOPMENT TEAM I.W.M.P.-7<sup>th</sup>**

<b>S. No.</b>	<b>Name of Member of WDT</b>	<b>Designation</b>	<b>Qualification</b>	<b>Experience</b>	<b>Subject</b>
1.	Sri Harprasad	Bhoomi Sanrakshan Adhikari	Ag. Engineering Diploma	30 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
2.	Sri P.K. Singh	Junior Engineer	Civil Engineering Diploma	30 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
3.	Sri A.K. Gupta	Junior Engineer	Ag. Engineering Diploma	30 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
4.	Dr. Rakesh Kumar	Agronomist	M. Sc. PhD.	8 yrs in Agriculture development under Water Resources Management Project	Agro Economist
5.	Sri Indrajeet Singh Gurjar	Scientist	M. Sc.	10 yrs in Soil Science under Water Resources Management Project	Soil Science
6.	Umra Praveen	Social Worker	-	4 Year in Social Work	-
7.	Sri Hariratan Singh	Asst. Soil Conservation Inspector	M. Sc. Ag.	30 yrs in Agriculture development under Water Resources Management	Soil Conservation

				Project	
8.	Sri Rajesh Kumar	Asst. Soil Conservation Inspector	M. Sc. Ag.	12 yrs in Agriculture development under Water Resources Management Project	Soil Conservation
9.	Sri S.N. Katiyar	Asst. Soil Conservation Inspector	B. Sc. Ag.	30 yrs in Agriculture development under Water Resources Management Project	Soil Conservation
10.	Sri Debi Prasad Pandey	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
11.	Sri Satyram Mishra	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
12.	Sri Rudra Kumar Mishra	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
13.	Sri Rampal Singh	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management

14.	Sri Kailash	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
15.	Sri Anjanisaran pathak	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
16.	Sri Nachhed Gupta	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
17.	Sri Abdul Sattar	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management

## **ROLES AND RESPONSIBILITIES OF WDT**

The WDT will guide the watershed committee (WC) in the formulation of the watershed action plan. An indicative list of the roles and responsibilities of the WDT would include among other s, the following.

- a. Assist Gram Panchayat /Gram Sabha in constitution of the watershed committee and their functioning.
- b. Organizing and nurturing User Groups and Self-Help Groups.
- c. Mobilizing women to ensure that the perspectives and interests of women are adequately related in the watershed action plan.

- d. Conducting the participatory base –line surveys, training and capacity building.
- e. Preparing detailed resource development plans including water and soil conservation or redamation etc. to promote sustainable livelihood at household level.
- f. Common property resource management and equitable sharing.
- g. Preparing Detailed Project Report (DPR) for the consideration of Gram Sabha.
- h. Undertake engineering surveys, prepare engineering drawing and cost estimates for any structure to be built.
- i. Monitoring, checking, accessing, and undertaking physical verification and measurement of work done.
- j. Facilitating the development of livelihood opportunities for the landless.
- k. Maintaining project accounts.
- l. Arranging physical, financial and social audit of the work undertaken.
- m. Setting up suitable arrangements for post-project operation, maintenance and future development of the assets created during the project period.

# **CHAPTER - 5**

## **MANAGEMENT / ACTION PLAN**

## PHYSICAL ACTIVITIES TO BE UNDERTAKEN UNDER IWMP, JALAUN

### ENTRY POINT ACTIVITY (EPA)

EPA activities are taken up under watershed projects to build a rapport with the village community at the beginning of the project; generally, certain important works which are in urgent demand of the local community are taken up. A group Discussion was conducted with watershed Development Committee regarding the EPA activity, It was conveyed to the WC that an amount of Rs. 25.44 Lacs was allotted for EPA activity, which was 4 per cent of total allocated budget. The villagers discussed various activities which they felt is important but after a brief discussion it was conveyed to them that only those activities can be taken, which revive the common natural resources. It was also taken into priority that there should be an instrument of convergence which will result in sustainability of activities

Integrated Watershed Development Programme is aimed at the socio-economic upliftment of the dwellers of watershed area and to create trust about the programme to be implemented so that they can coordinate in participatory mode for success of the programme. As per the New Common Guidelines total financial outlay for entry point activities is 4% of the total project cost. To increase the per capita availability of drinking water older wells of the village will be renovated as well as the *pucca jagat* will be constructed, to increase the irrigation water availability, older Bund which already exists but not functioning will be reconstructed/renovated. Repairing and maintenance of water bodies have been proposed on priority basis. Schools lies in the watershed area will be equipped with drinking water facility and extracurricular activities will be promoted among the children's of the water by supplying sport goods to the schools. To approach watershed villages construction and repairing of damaged *pulia* has also been proposed and construction of women bathrooms renovation of ponds. Beside hand pump are well. Total estimated cost for these activities is Rs. 25.44 lacs.





# PANCHVATI

**“Vriksho Rakshati Rakshatah”**

**Moolan Brahmaa, Twachaa Vishnu:, Shakha Rudro Maheshwarah: I**

**Patre – Patre Tu Devanaam, Vriksha Raajo Namostute II**

**Panchvati:** Panch means ‘five’ and Vati means ‘tree’. The place where five types of plants are available is called PANCHVATI. These five type of plants are: Banyan, Peepal, Bel, Amla and Ashok. The importance of Panchvati is shown in Ramayana. That is, Lord Ram gained most power by living between Panchvati and defeated most powerful king *Lankadhis Raavan*.

**BANYAN/ BARGAD:** One drop of milk of Banyan tree has energy equal to 1 litre of common milk.

**PEEPAL :** There is an old tradition of worshipping the Peepal tree by womens and to tie a thread around it because this is an only tree which releases OZONE gas along with OXYGEN gas. The Ozone gas helps to enhance the power of generation of child and the new born babies are more healthier. Deficiency of Ozone gas results in increasing SKIN CANCER.

**BEL :** Bel helps to decrease the hotness of our stomach and other parts of our body, that is why people worship Lord Shiva with BEL PATRA.

**AMLA :** Amla is also called KALPVRIKSHA. It is the best source of VITAMIN C, which increases the resistance power of our body. The Vitamins of Amla are not destroyed, even though after heating it also, thus, it is used in CHYAWANPRASH.

**ASHOK** : Ashok is the best tree of the world. The canopy of this tree destroys all the tension and nervousness. Its canopy also cures many diseases of women.

### **WORK PROPOSED FOR NATURAL RESOURCE CONSERVATION IN WATERSHED MANAGEMENT**

For soil and moisture conservation, water resource developments, horticulture, besides agro-forestry vegetation/plantation work, engineering structure have also been proposed under the project. Engineering structures are important components of soil and water conservation that can play a vital role in erosion control on arable land. Engineering measures usually involve creating mechanical barriers across the direction of flow of water and thus retard or retain runoff on the following principles:

- Increase the time of concentration.
- Break a long slope into several short ones.
- Protection of drainage channels against damage.
- Prevent excessive soil and water losses.

### **CONTOUR, MARGINAL AND PERIPHERAL BUND**

Contour bunding is effective for erosion control and moisture conservation measures in dry areas having less than 2% slope to reduce the length of slope. Contour bund will be constructed against the slope in the treatment area. Marginal bund is the engineering structure to reduce the volume and speed of runoff. Those locations where there is a change in slope and soil texture. Peripheral bund will be constructed along with the nala bank.

## **CHECK DAM**

These structure of built of masonry. Check dams have been proposed constructed in big gullies/ravines carrying relatively high run of and sediment load. Water stored in check dams will be utilized as source of irrigation water during post Monsoon season.

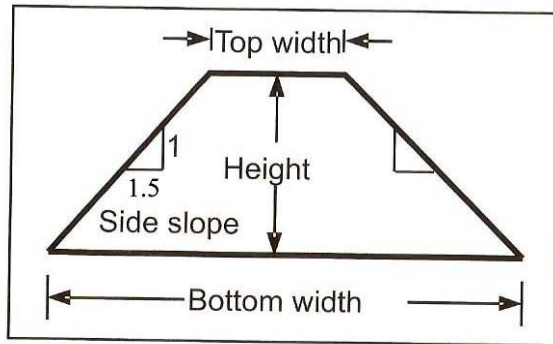
## **AGRO FORESTRY**

Land will be taken from the waste land falling in the class-VII category in the watershed. The Eucalyptus and Sagon plants planted by the farmers.

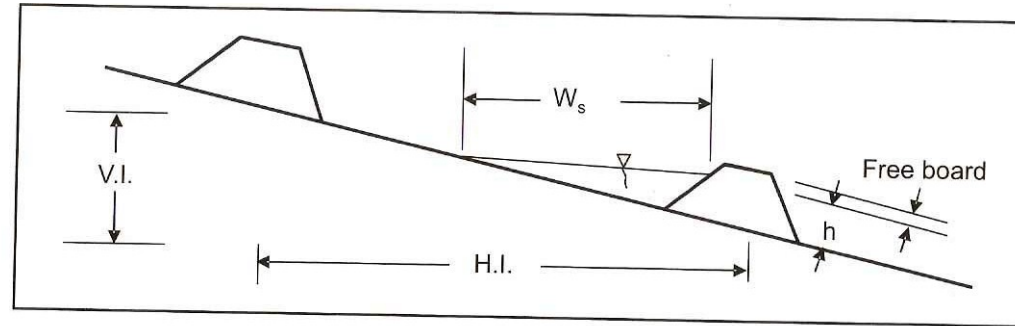
## **DRY LAND HORTICULTURE**

Lawn will be taken for the plantation of fruit trees like Guava, Mango will be planted at suitable spacing in the watershed.

Typical drawing of cross section and photograph of structure as given below



Cross-section of a contour bund



Definition sketch for a contour bund



कंटूर बन्ड



मार्जिनल बन्ड

## AREA TREATMENT PLAN

Integrated watershed development programme envisage treatment of proposed area with soil & water conservation works along with development of Horticulture, Afforestation & development of silvi pastoral system in denuded land unfit for cultivation, following works are proposed under watershed Development works.

1. Constructions of bunds (Field bund, contour bund, submergence bund, Marginal & peripheral).
2. Renovation of Existing Bund for in-situ moisture conservation.
3. Rain fed Horticulture with and without fencing.
4. Construction of recharge Filter.
5. Construction of new & renovation of Existing structures/ gully plugs/Check dams.
6. Afforestation and development of silvi– pastoral system.
7. Drainage line treatment (pucca structures, gully plug, check dams).

### ENTRY POINT ACTIVITIES (EPA) I.W.M.P-7<sup>TH</sup> (2010-2011)

S. No	Name of Villages	Amount earmarked for EPA	Entry point activities Planned	Expected month & year of completion
1	Kakarau	1.584	Repairing and Renovation of Kharanja, nali, well and Hand pump, Plantation	March 2011
2	Bamhauri	2.208		March 2011
3	Chatela	2.256		March 2011
4	Bhedikhurd	2.016		March 2011
5	Harchandpur	2.400		March 2011

6	Majhwar	1.920	Repairing and Renovation of Kharanja, nali, well and Hand pump, Plantation	March 2011
7	Nagwan	1.824		March 2011
8	Margayan	1.440		March 2011
9	Mavai	2.496		March 2011
10	Chandrasi	1.632		March 2011
11	Mahmudnagar	1.584		March 2011
12	Kanakheda	1.584		March 2011
13	Badagaon	1.728		March 2011
14	Khutmila	0.768		March 2011

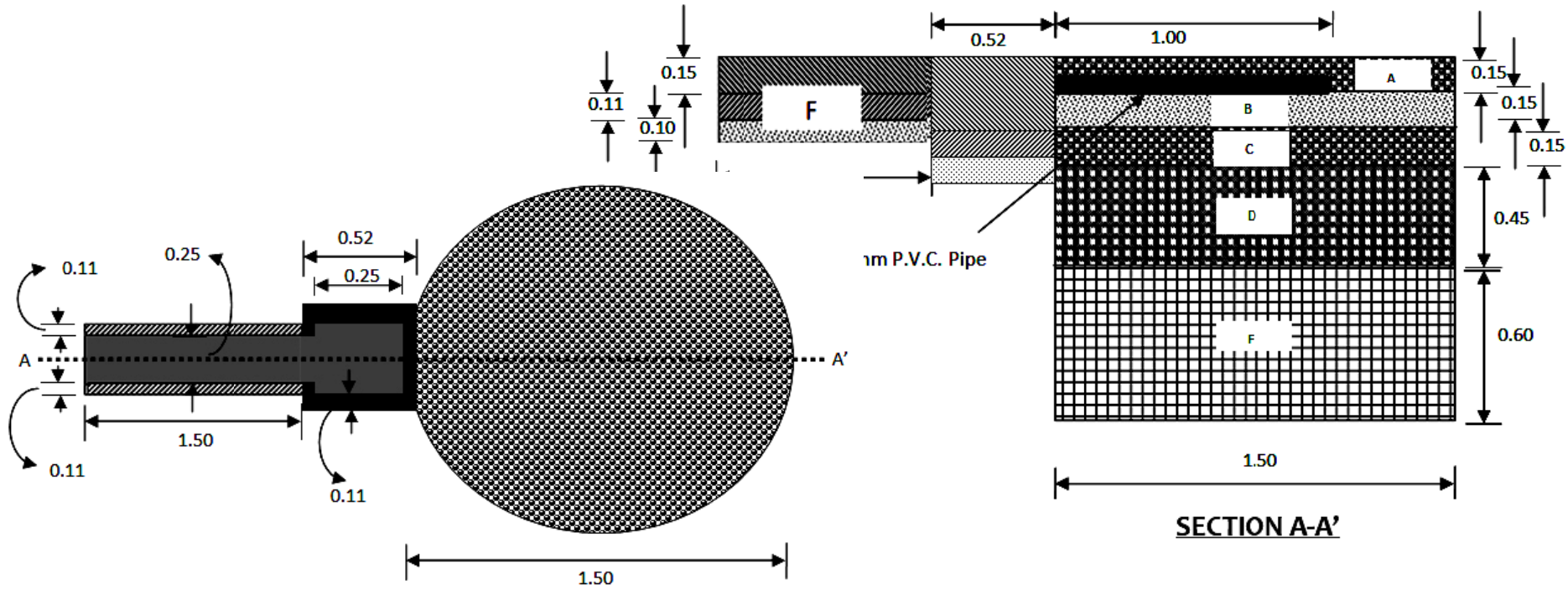
**ACTIVITY RELATED TO LIVELIHOOD BY SELF HELP GROUPS (SHGs), UGs & etc. IN THE PROJECT AREAS**

S.No	Name Of Village	Occupation of S.H.G	Total cost (Rs. In lacs)
1	Kakarau	Tailoring/sewing	3.960
		Goat Keeping	
2	Bamhauri	Goat Keeping	5.520
		Buffalo Keeping	
3	Chatela	Buffalo Keeping	5.640
		Goat Keeping	

		Poultry	
4	Bhedikhurd	Goat Keeping	5.040
5	Harchandpur	Goat Keeping	6.000
6	Majhwar	Goat Keeping	4.800
7	Nagwan	Goat Keeping	4.560
		Buffalo Keeping	
8	Margayan	Poultry	3.600
9	Mavai	Goat Keeping	6.240
		Buffalo Keeping	
10	Chandrasi	Goat Keeping	4.080
11	Mahmudnagar	Buffalo Keeping	3.960
		Goat Keeping	
12	Kanakheda	Goat Keeping	3.960
13	Badagaon	Buffalo Keeping	4.320
		Goat Keeping	
14	Khutmila	Goat Keeping	1.920

# DRAWING OF SOAKING PITS WITH SILTING TANK

All Dimensions Are in Metre



**PLAN OF SOAKING PITS WITH SILTING TANKS**

**DESCRIPTION :**

- A- 0.10 x 0.20 Grit.
- B- Coarse Sand.
- C- 0.10 x 0.20 Grit
- D- 0.25 x 0.50 Grit
- E- Cut Stone/Random Rubble.
- F- Brick wall 0.11m x 0.25m Width channel



## DETAIL ESTIMATE OF SOAKING PIT

S.No.	Description of Work	No.	L.	B.	D./H.	Quantity
1.	Earth work in cutting	1	3.14 x 0.75 x 0.75	-	1.50	2.64 cum
2.	Laying of Khanda	1	3.14 x 0.75 x 0.75	-	0.60	1.059 cum
3.	Laying G.S.B. 25-50 mm	1	3.14 x 0.75 x 0.75	-	0.45	0.794 cum
4.	Laying of G.S.Grit 10-20 mm	1	3.14 x 0.75 x 0.75	-	0.15	0.264 cum
5.	Laying of Coarse sand	1	3.14 x 0.75 x 0.75	-	0.15	0.264 cum
6.	Laying of G.S.B. 25-50 mm	1	3.14 x 0.75 x 0.75	-	0.15	0.264 cum
7.	Earth work	1	1.50	0.50	0.40	0.30 cum
8.	Laying of sand	1	1.50	0.47	0.10	0.070 cum
9.	Brick work 1:4	1	1.50	0.47	0.11	<b>0.077 cum</b>
10.	Brick work 1:4	1 x 2	1.50	0.11	0.15	<b>0.049 cum</b>
	<b>Total of (9.) + (10.) Brick work 1:4.</b>					<b>0.126 cum</b>
11.	Plastering 1:4	1 x 2	1.50	0.56	-	1.680 m <sup>2</sup>

## ABSTRACT OF MEASUREMENT

1.	Earth work	2.64 + 0.30	2.94 cum
2.	Laying of Khanda		1.059 cum
3.	Laying of G.S.B. 25-50 mm	0.794 + 0.264	1.058 cum
4.	Laying of G.S.Grit 10-20 mm		0.264 cum
5.	Laying of coarse sand	0.264 + 0.070	0.334 cum
6.	Brick work 11cm 1:4		0.126 cum
7.	Plastering 1:4		1.680 m <sup>2</sup>

## CONSUMPTION OF MATERIAL

S.No.	Description of work	Quantity	Cement (bag)	Brick (nos)	Khanda (cum)	G.S.B. 25-50 mm (cum)	G.S.Grit 10-20 mm (cum)	Coarse Sand
1.	Laying of khanda	1.059 cum	-	-	1.059	-	-	-
2.	Laying of G.S.B.	1.058 cum	-	-	-	1.058	-	-
3.	Laying of G.S.Grit	0.264 cum	-	-	-	-	0.264	-
4.	Laying of coarse sand	0.334 cum	-	-	-	-	-	0.334

5.	Brick work 1:4	0.126 cum	0.17	60	-	-	-	0.030
6.	Plastering 1:4	1.680 m <sup>2</sup>	0.18	-	-	-	-	0.025
<b>Total</b>			<b>0.35</b>	<b>60</b>	<b>1.059</b>	<b>1.058</b>	<b>0.264</b>	<b>0.389</b>

### **COST OF MATERIALS**

S.No.	Particulars	Quantity	Rate	Amount
1.	Khanda	1.059 cum	1025.00/cum	1085.47
2.	Cement	0.35 Bags	255.00/Bag	89.25
3.	Brick	60 nos	4050.00/Thousand	243.00
4.	Coarse Sand	0.389 cum	910.00/cum	353.99
5.	G.S.B. 25-50 mm	1.058 cum	855.00/cum	904.59
6.	G.S.Grit	0.264 cum	1250.00/cum	330.00
<b>Total</b>				<b>Rs. 3006.30</b>

### **LABOUR CHARGES**

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth work	2.94 cum	36.66/cum	107.78
2.	Khanda laying	1.059 cum	33.33/cum	35.29
3.	G.S.B. laying	1.058 cum	33.33/cum	35.26

4.	G.S.Grit laying	0.264 cum	33.33/cum	8.79
5.	Laying of sand	0.334 cum	33.33/cum	11.13
6.	Brick work 1:4	0.126 cum	370.00/cum	46.62
7.	Plastering 1:4	1.680 m <sup>2</sup>	40.00/m <sup>2</sup>	67.20
8.	Curing	0.126 cum	25.00/cum	3.15
<b>Total</b>				<b>Rs. 315.22</b>

<b>Total Expenditure</b>	
1. Cost of materials	3006.30
2. Labour Charges	315.22
<b>Total</b>	<b>Rs. 3,321.52</b>
<b>Say</b>	<b>Rs. 3,325.00 only</b>

## DETAIL ESTIMATE OF SILTING TANK

S.No.	Description of Work	No.	L.	B.	D./H.	Quantity
1.	Earth Work	1	0.70	0.70	0.50	0.24 cum
2.	Sand Laying	1	0.52	0.52	0.10	0.027 cum
3.	Brick Work	1	0.52	0.52	0.11	<b>0.029</b>
		2	0.52	0.11	0.30	<b>0.034</b>
		2	0.30	0.11	0.30	<b>0.019</b>
<b>Total</b>						<b>0.082 cum</b>
4.	Plastering	4	0.30	-	0.30	<b>0.360</b>
		2	0.52	-	0.11	<b>0.114</b>
		2	0.30	-	0.11	<b>0.066</b>
		1	0.30	0.30	-	<b>0.090</b>
<b>Total</b>						<b>0.630 m<sup>2</sup></b>
5.	Steel Filter 4" Ø	1				1 nos.
6.	P.V.C. Pipe 110 mm Ø	1	1.00	-	-	1.00 m

## CONSUMPTION OF MATERIALS

S.No.	Description of Work	Quantity	Cement (bags)	Coarse Sand (cum)	Brick (nos.)	P.V.C. Pipe 110 mm Ø	Steel Filter
1.	Sand Laying	0.027 cum	-	0.027	-	-	-

2.	Brick Work 1:4	0.082 cum	0.11	0.019	39	-	-
3.	Steel Filter 4"	1 nos.	-	-	-	-	1 nos.
4.	P.V.C. Pipe 110 mm Ø	1.0 m	-	-	-	1.00 m	-
5.	Plastering	0.63 m <sup>2</sup>	0.06	0.009	-	-	-
<b>Total</b>			<b>0.17</b>	<b>0.055</b>	<b>39</b>	<b>1.00 m</b>	<b>1 nos.</b>

### **COST OF MATERIALS**

<b>S.No.</b>	<b>Particulars</b>	<b>Quantity</b>	<b>Rate</b>	<b>Amount</b>
1.	Coarse Sand	0.055 cum	910.00/cum	50.05
2.	Cement	0.17 bags	255.00/Bag	43.35
3.	Brick	39 nos.	4050.00/Thousand	157.95
4.	Steel Filter 4" Ø	1 nos.	25.00 each	25.00
5.	P.V.C. Pipe 110 mm Ø	1.00 m	150.00/m	150.00
<b>Total</b>				<b>Rs. 426.35</b>

## LABOUR CHARGE

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	0.24 cum	36.66/cum	8.79
2.	Sand Laying	0.027 cum	33.33/cum	0.89
3.	Brick Work	0.082 cum	370.00/cum	30.34
4.	Plastering	0.63 m <sup>2</sup>	40.00/m <sup>2</sup>	25.20
5.	Fixing of pipe & filter	-	-	25.00
<b>Total</b>				<b>Rs. 90.22</b>

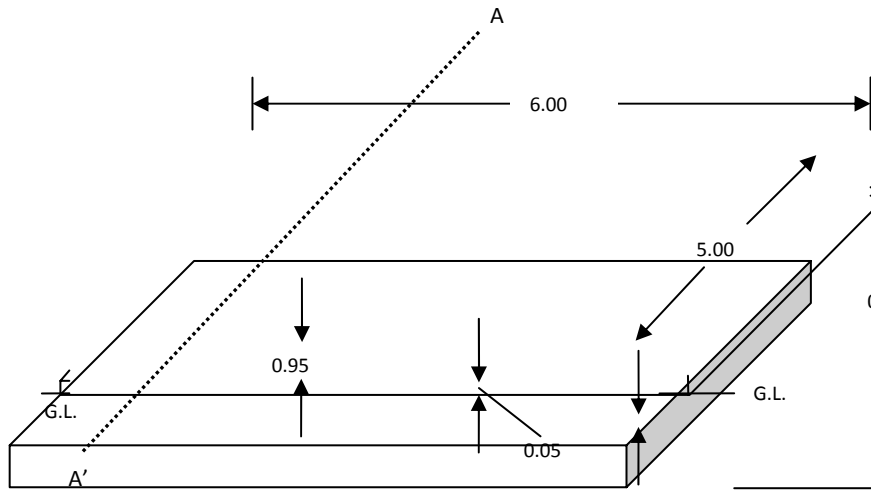
<b>Total Expenditure</b>	
1. Cost of materials	426.35
2. Labour Charge	90.22
<b>Total</b>	<b>Rs. 516.57</b>
<b>Say Rs. 520.00 only</b>	
<b>TOTAL EXPENDITURE OF SOAKING PIT &amp; SILTING TANK</b>	
1. Soaking Pits	3325.00
2. Silting Tank	520.00
<b>Total</b>	<b>Rs. 3,845.00</b>
<b>Say Rs. 3845.00 only</b>	

## DETAIL ESTIMATE OF INDIA MARK-II HAND PUMP DISTRICT - Jalaun U.P.

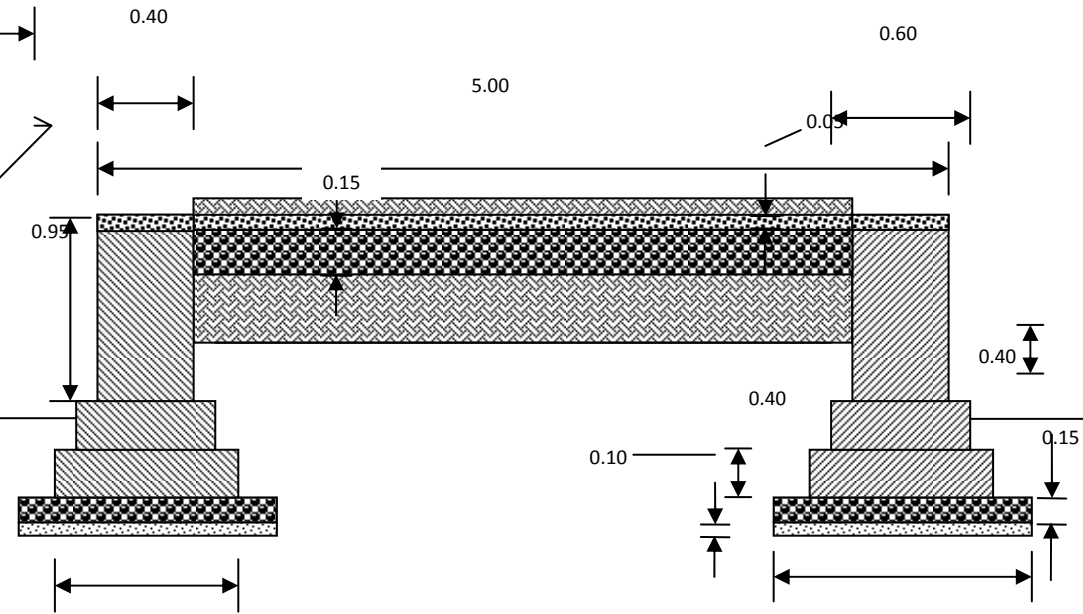
S.No.	Description of work	Unit	Quantity	Rate	Amount
1	Transportation of rig machine, hand Pump material, P.V.C. Pipe, strainer and cement from store to work site.	work	1	3000.00	3000.00
2	Supply of material to install Hand Pump  i- Lowering and installation of India mark-II Hand Pump with G.I. Pipe & connecting rods. ii- 140 mm P.V.C. Pipe 8kg/cm <sup>2</sup> . iii- medium G.I.Pipe of the 32 mm Ø.	No.  metre metre	1  20 30	5380.00  240.00 202.90	5380.00  4800.00 6087.00
3	Boring work by D.T.H. Rig machine and lowering of P.V.C. assembling	meter	50	396.00	19800.00
4	Development of Hand Pump after installation	work	1	100.00	100.00
5	work after development with material	work	1	50.00	50.00
6	construction of Platform of 1.86 m Ø with all material and cement	work	1	2525.00	2525.00
7	construction of channel with all material and labour	meter	3	125.00	375.00
8	Embossing work	work	1	50.00	50.00
9	Water testing work	work	1	400.00	400.00
				<b>Total</b>	<b>Rs. 42,567.00</b>
				<b>Says</b>	<b>Rs. 42,600.00</b>



# DRAWING OF KRISHAK VIKAS MANCH



ISOMETRIC VIEW OF PLATFORM (CHABUTRA)



DESCRIPTION

DESCRIPTION

SECTION AT A-A'

1. C.C.W. - 1:4:8.
2. R.R. Stone masonry- 1:4
3. Plastering- 1:4
4. Raised Pointing- 1:3.

## DETAIL ESTIMATE OF KRISHAK VIKAS MANCH

S.No.	Description of Work	No.	L.	B.	D/H	Quantity
1.	Earth work in foundation Wall				1.10	
	Long Wall	2	8.00	1.20 1.20	1.10	21.12
	Short Wall	2	4.00			10.56
<b>Total</b>						<b>31.68 cum</b>
2.	Laying of Sand					1.32
	Long Wall	2	6.60	1.00 1.00	0.10 0.10	0.72
	Short Wall	2	3.60			
<b>Total</b>						<b>2.04 cum</b>
3.	C.C.W. 1:4:8					
	Long Wall	2	6.60	1.00 1.00	0.15 0.15	1.98
	Short Wall	2	3.60			1.08
<b>Total</b>						<b>3.06 cum</b>
4.	Stone masonry work 1:4 in foundation & super structure					
	<b>1st Footing.</b>					
	Long Wall	2	6.40	0.80	0.40	4.096
	Short Wall	2	3.80	0.80	0.40	2.432
<b>2<sup>nd</sup> Footing</b>						

	Long Wall		2	6.20	0.60	0.40	2.976
	Short Wall	<b>Super</b>	2	4.00	0.60	0.40	1.920
	<b>Structure</b>						
	Long Wall		2	6.00	0.40	0.90	4.320
	Short Wall		2	4.20	0.40	0.90	3.024

<b>Total</b>						<b>18.768 cum</b>
5.	Earth work in filling	1	5.20	4.20	0.75	16.38 cum
6.	C.C.W. 1:4:8	1	5.20	4.20	0.15	3.276 cum
7.	C.C.W. 1:2:4	1	6.00	5.00	0.05	1.500 cum
8.	Raised Pointing 1:3					
	Long Wall	2	6.00	-	0.90	10.80
	Short Wall	2	5.00	-	0.90	9.00
<b>Total</b>						<b>19.80 m<sup>2</sup></b>

### **ABSTRACT OF WORK**

1.	Earth Work	31.68 + 16.38	48.06 cum
2.	Sand Laying		2.040 cum
3.	C.C.W. 1:4:8	3.060 + 3.276	6.336 cum

4.	Stone masonry 1:4	18.568 cum
5.	C.C.W. 1:2:4	1.500 cum
6.	Raised Pointing 1:3	19.80 m <sup>2</sup>

### **CONSUMPTION OF MATERIALS**

S.No.	Particulars	Quantity	Cement (cum)	Coarse Sand (cum)	Khanda (cum)	G.S.B. 25-40 mm (cum)	Stone Grit 10-20 mm (cum)
1.	Sand Laying	2.040 cum	-	2.040	-	-	-
2.	C.C.W 1:4:8	6.336 cum	21.54	2.851	-	5.892	-
3.	Stone Masonary	18.768 cum	45.04	6.381	18.768	-	-
4.	C.C.W. 1:2:4	1.500 cum	9.15	0.630	-	-	1.275
5.	Raised Pointing	19.800 m <sup>2</sup>	0.91	0.093	-	-	-
<b>Total</b>			<b>76.64</b>	<b>11.995</b>	<b>18.768</b>	<b>5.892</b>	<b>1.275</b>
<b>Say</b>			<b>77 Bags</b>	<b>12.000</b>	<b>18.768</b>	<b>5.900</b>	<b>1.280</b>

### **COST OF MATERIALS**

S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	77 Bags	255/Bag	19635.00
2.	Coarse Sand	12.00 cum	910.00/cum	10920.00

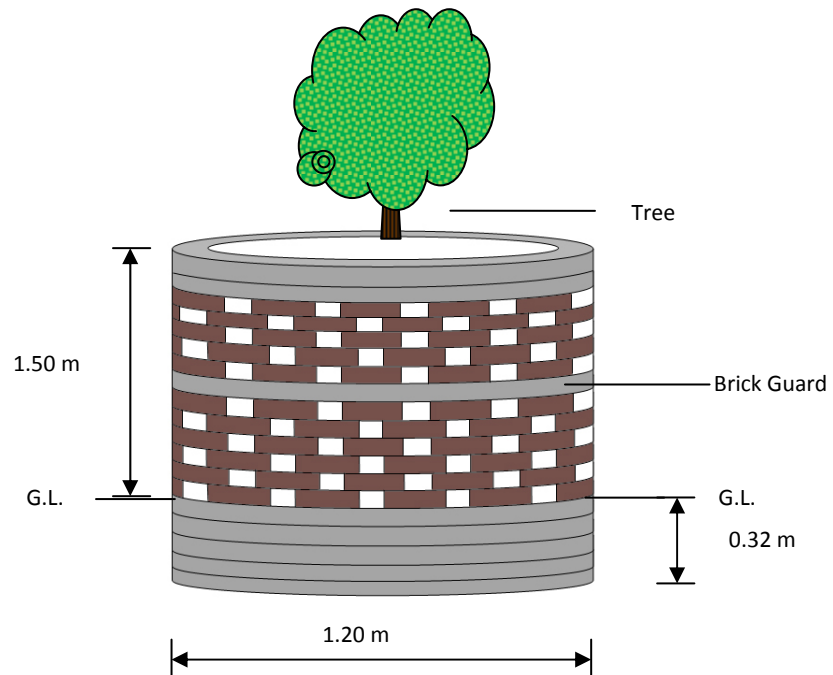
3.	Khanda	18.768 cum	1025.00/cum	19237.20
4.	G.S.B. 25-40 mm	5.900 cum	855.00/cum	5044.00
5.	G.S. Grit 10-20 mm	1.280 cum	1250.00/cum	1600.00
<b>Total</b>				<b>Rs. 56,436.20</b>

### **LABOUR CHARGES**

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	48.06 cum	36.66/cum	1761.87
2.	Sand Laying	2.060 cum	33.33/cum	68.65
3.	C.C.W. 1:4:8	6.336 cum	494.00/cum	3129.98
4.	C.C.W. 1:2:4	1.500 cum	494.00/cum	741.00
5.	R/R Stone Masonary 1:4	18.768 cum	370.00/cum	6944.16
6.	Raised Pointing 1:3	19.800 m <sup>2</sup>	51.61/cum	1021.87
7.	Curing Charges	18.768 cum	25.00/cum	469.20
8.	Chowkidar	6 Man Days	100.00/Man Day	600.00
<b>Total</b>				<b>Rs. 14,736.73</b>

<b>Total Expenditure</b>	
1. Cost of Materials	56,436.20
2. Labour Charges	14,736.73
<b>Total</b>	<b>Rs. 71,172.93</b>
<b>Say</b>	<b>Rs. 71,200 only</b>

## DRAWING OF BRICK GUARD



### DESCRIPTION.

1. Brick work = 1:4.
2. Plastering = 1:4.
3. Thickness of wall = 0.11 m.
4. Total height of brick guard =  $0.32 + 1.50 = 1.82$  m.
5. Diameter = 1.2 m.

## DETAIL ESTIMATE OF BRICK GUARD

S.No.	Description of work	No.	L	B	D/H	Quantity	
1.	Earthwork for tree	1	0.60	0.60	0.60	0.216	
	In foundation	1	3.14x1.09	0.20	0.30	0.205	
<b>Total</b>						<b>0.421</b>	
2.	Brick work 1:4					Solid	Glazed
	In foundation	1	3.14x1.09	0.11	0.40	0.151	-
	In super structure with glazed	1	3.14x1.09	0.11	0.48	-	0.181
	Solid	1	3.14x1.09	0.11	0.08	-	0.030
	Glazed	1	3.14x1.09	0.11	0.40	-	0.151
	Solid	1	3.14x1.09	0.11	0.16	0.060	-
<b>Total</b>						<b>0.211</b>	<b>0.362</b>
3.	Plastering 1:4	1	3.14x1.20	-	0.07	0.264	
		1	3.14x1.20	-	0.15	0.565	
		1	3.14x1.09	-	0.07	0.239	
<b>Total</b>						<b>1.068 m<sup>2</sup></b>	



## CONSUMPTION OF MATERIALS

S.No.	Description of work	Quantity	Brick Nos.	Cement Bags	Coarse Sand
1.	Brick work 11 cm thick 1:4	0.211 cum	100	0.29	0.050
	Brick work glazed	0.362 cum	86	0.25	0.043
2.	Plastering 1:4	1.068 m <sup>2</sup>	-	0.11	0.016
<b>Total</b>			<b>186</b>	<b>0.65</b>	<b>0.109</b>
<b>Say</b>			<b>190</b>	<b>0.65</b>	<b>0.110 cum</b>

## COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Brick I <sup>st</sup> class	190 nos.	3650.00	693.50
2.	Cement	0.65 Bags	255.00	165.75
3.	Coarse sand	0.110 cum	910.00	100.10
<b>Total</b>				<b>Rs. 959.35</b>

## LABOUR CHARGES

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth work	0.421 cum	39.16/cum	16.48
2.	Brick work	0.391 cum	370.00/cum	144.67
3.	Plastering	1.068 m <sup>2</sup>	40.00/m <sup>2</sup>	42.72
<b>Total</b>				<b>Rs. 203.87</b>

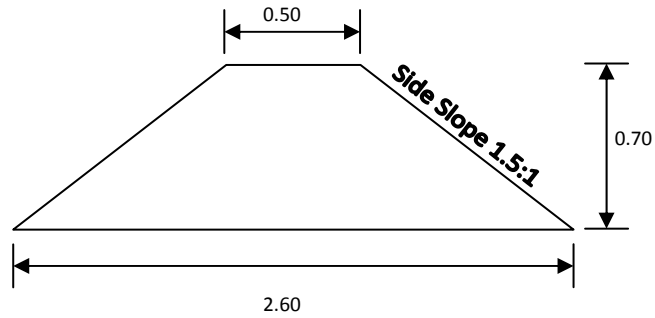
Head load and transportation 20% of material cost - Rs. 191.87

<b>Total Expenditure</b>		
1.	Material	2822.50
2.	Labour	1093.87
3.	Head load and transportation	1083.63
<b>Total</b>		<b>Rs. 5000.00</b>
<b>Say Rs. 5000.00 only.</b>		

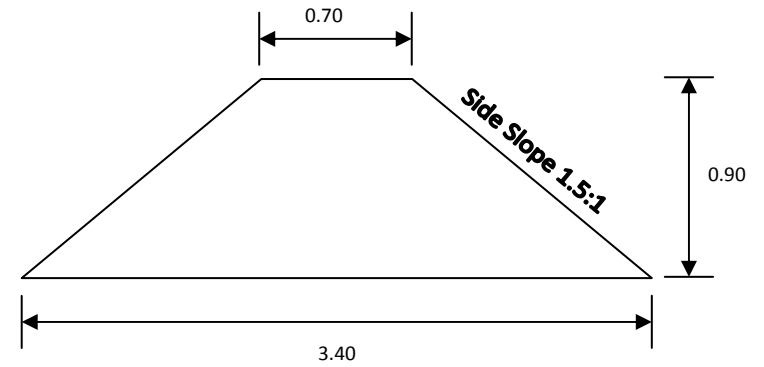
# **DETAILS ESTIMATE OF WATERSHED DEVELOPMENT WORK PHASE**

**DRAWING OF C.B., S.B., P.B., AND M.B.**

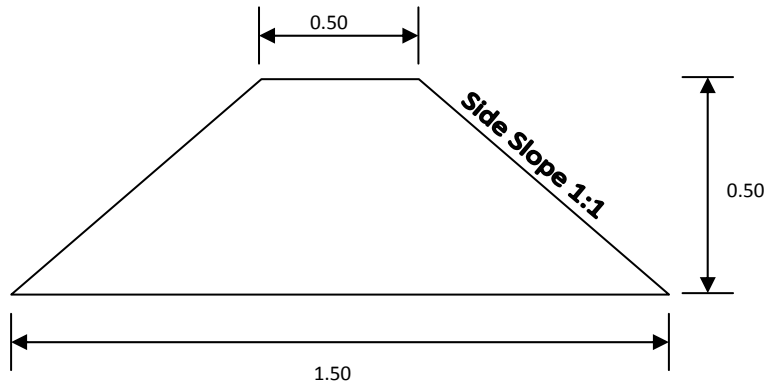
*(Not to Scale)*



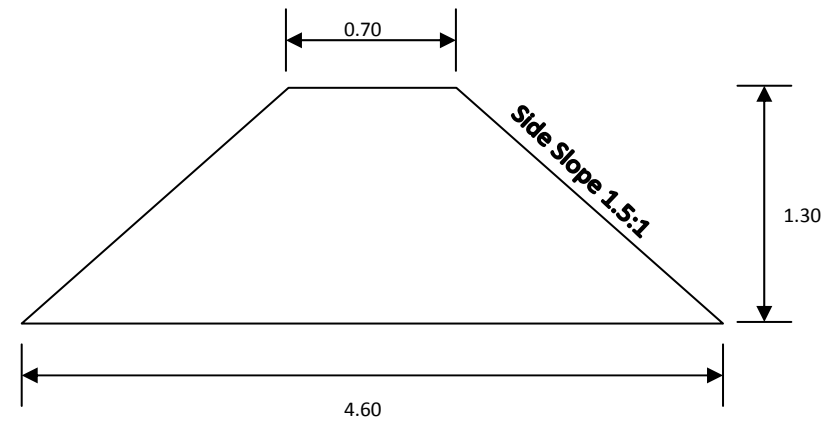
(C.B., Cross-Section – 1.085 m<sup>2</sup>)



(S.B., Cross-Section – 1.845m<sup>2</sup>)



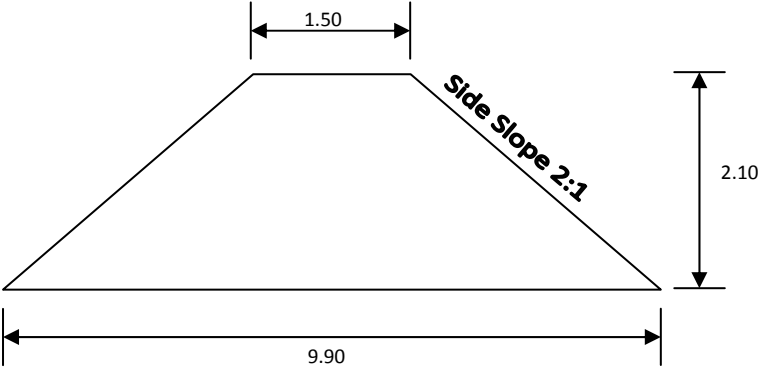
(Field Bund, Cross-Section – 0.50 m<sup>2</sup>)



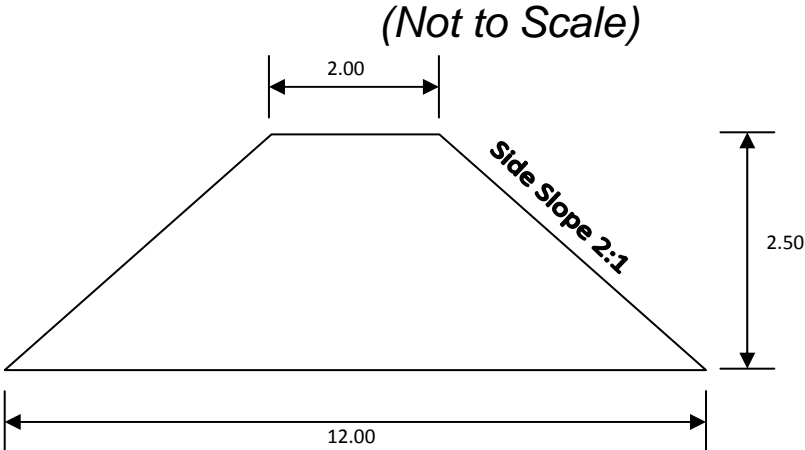
(S.B. /P.B. /M.B., Cross-Section – 3.445 m<sup>2</sup>)

(All dimensions in Metre)

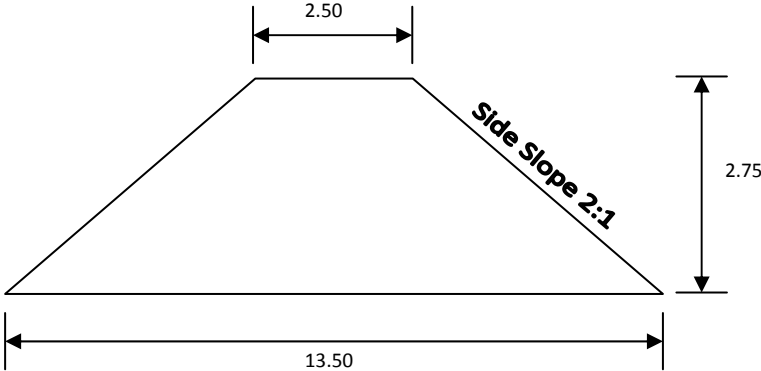
**DRAWING OF EARTHEN CHEKDAM / GULLY PLUG**



(C.D. /G.P., Cross-Section – 11.97 m<sup>2</sup>)



(C.D. /G.P., Cross-Section – 17.50 m<sup>2</sup>)



(W.H.B., Cross-Section – 22.00 m<sup>2</sup>)

**(All dimensions in Metre)**

## DESIGN OF CONTOUR BUND

Type of Soil	-Loam, Sandy Loam	
Rain fall	-24 hr in cm -25 cm	
Field Slope -1%		
Vertical Interval (VI)	$= [s/3+2] \times 0.3$ $= [1/3+2] \times 0.3$ $= 0.70 \text{ m}$	
Horizontal Interval (HI)	$= 100 \times V.I/s$ $= 100 \times 0.7/1$	
Height of bund h	$= \sqrt{(Re \times VI)/50}$ $= \sqrt{(25 \times 0.7)/50}$ $= \sqrt{0.35}$ $= 0.59$	Re=maximum rainfall in cm
	<b>Say 0.60 m</b>	
Free board	=15% of height minimum -10 cm	
Height	$= 0.60 + 0.10$ $= 0.70 \text{ m}$	
Taking top width of bund 0.50 m and side slope 1.5:1		
Then base of Bund	$= 0.50 + (1.50 d) \times 2$ $= 2.60 \text{ m}$	
Cross-Section of bund	$= (0.50 + 2.60) \times 0.70 / 2$ $= 1.085 \text{ m}^2$	
Length of bund	$= 100 s / V.I.$ $= 100 \times 1 / 0.70$ $= 142.85 \text{ m/ha}$	
	<b>Say 150 m/ha</b>	
Earth work/ha	$= 150 \times 1.085$ $= 162.75 \text{ cum}$	
Cost Rs. / ha	$= 162.75 \times 39.16 = 6373.29$	
	<b>Say 6375.00</b>	

## DESIGN OF SUBMERGENCE BUND

Types of soil – -Loam, Sandy Loam	Rainfall intensity for 24 hrs – 25cm
Field slope 3%	$V.I. = [s/3+2] \times 0.30$ $= 0.90 \text{ m}$
Horizontal Interval = $(100 \times V.I.) / s$	$= (100 \times 0.90) / 3$ $= 30 \text{ m}$
Height of bund $h = \sqrt{(Re \times V.I.) / 50}$	$= \sqrt{(25 \times 0.90) / 50} = \sqrt{0.45} = 0.67 \text{ m. Say } \mathbf{0.70m}$
Free board 20% of height minimum 20cm	
Total Height	= 0.90m
Taking top width of bund 0.70m and side slope 1.5:1	
Bottom of bund	$= 0.70 + 2 \times 1.5d$ $= 0.70 + 2.70$ $= 3.40$
Cross Section of Submergence Bund	$= (0.70 + 3.40) \times 0.90 / 2$ $= 1.845 \text{ m}^2$
Length of bund	$= 100 s / V.I.$ $= (100 \times 3) / 0.90$ $= 333 \text{ m}$
Feasible length	$100 + 25 + 25$ $= 150 \text{ m}$
Earth work/ha	$= 150 \times 1.845$ $= 276.75$
Cost per ha	$= 276.75 \times 39.16$ $= 10,837.53$ <b>Say 10,850=00</b>

### TYPICAL SECTION OF FIELD BUND

Top width	= 0.50 m
Side slope	= 1:1
Height of bound	= 0.50 m
Bottom Width	= 1.50 m
Cross section	= $(0.50+1.50) \times 0.50 / 2 = 0.50 \text{ m}^2$
Length per hectare	= 200 m
Earthwork	= $200 \times 0.50 = 100 \text{ cum}$
Cost 39.16/cum	= Rs. 3916.00
Cost per hectare	= Rs. 3916.00

### TYPICAL SECTION OF P.B., M.B., S.B.

Top width	= 0.70 m
Side slope	= 1.5:1
Height	= 1.30 m
Bottom	= 4.60 m
Cross section	= $(0.70+4.60) \times 1.30 / 2$ = $3.445 \text{ m}^2$
Cost/ meter	= Rs. 142.00



### TYPICAL SECTION OF EARTHEN CHECK DAM / GULLY PLUG

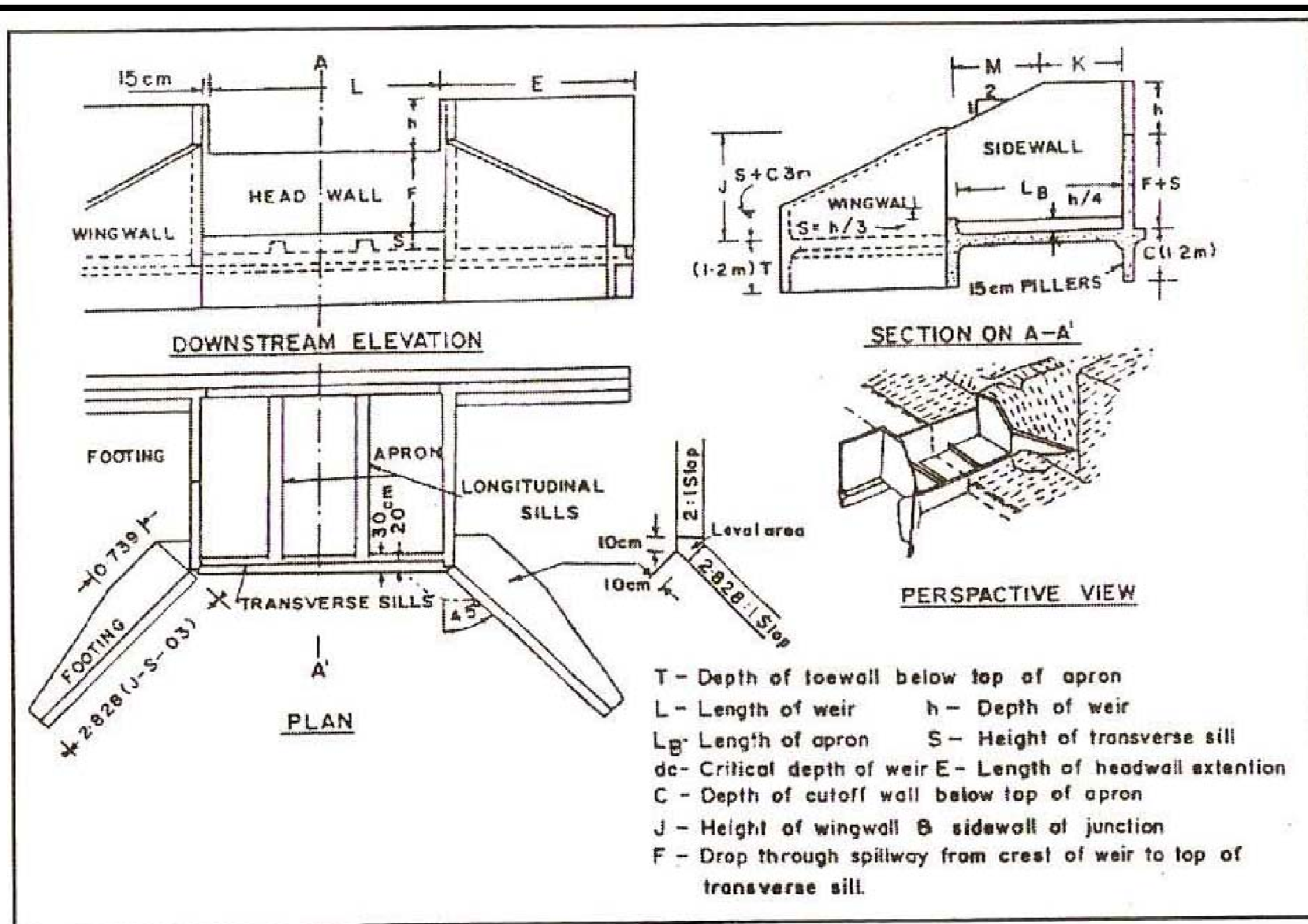
Top width	= 1.50 m
Side slope	= 2:1
Height	= 2.10m
Bottom Width	= 9.90 m
Cross section	= $(1.50 + 9.90) \times 2.10 / 2$ = 11.97 m <sup>2</sup>
Cost per meter	= Rs. 551.45

### TYPICAL SECTION OF CHECK DAM / GULLY PLUG

Top width	= 2.00m
Side slope	= 2:1
Height	= 2.50 m
Bottom Width	= 12.00 m
Cross Section	= $(2.00 + 12.00) \times 2.50 / 2$ = 17.50 m <sup>2</sup>
Cost /meter	= Rs. 839.12

## TYPICAL SECTION OF W.H.B

Top width	= 2.50 m
Side slope	= 2:1
Height	= 2.75 m
Bottom Width	= 13.50 m
Cross section	= $(2.50 + 13.50) \times 2.75 / 2$ = 22.00 m <sup>2</sup>
Per meter cost	= Rs. 1085.92

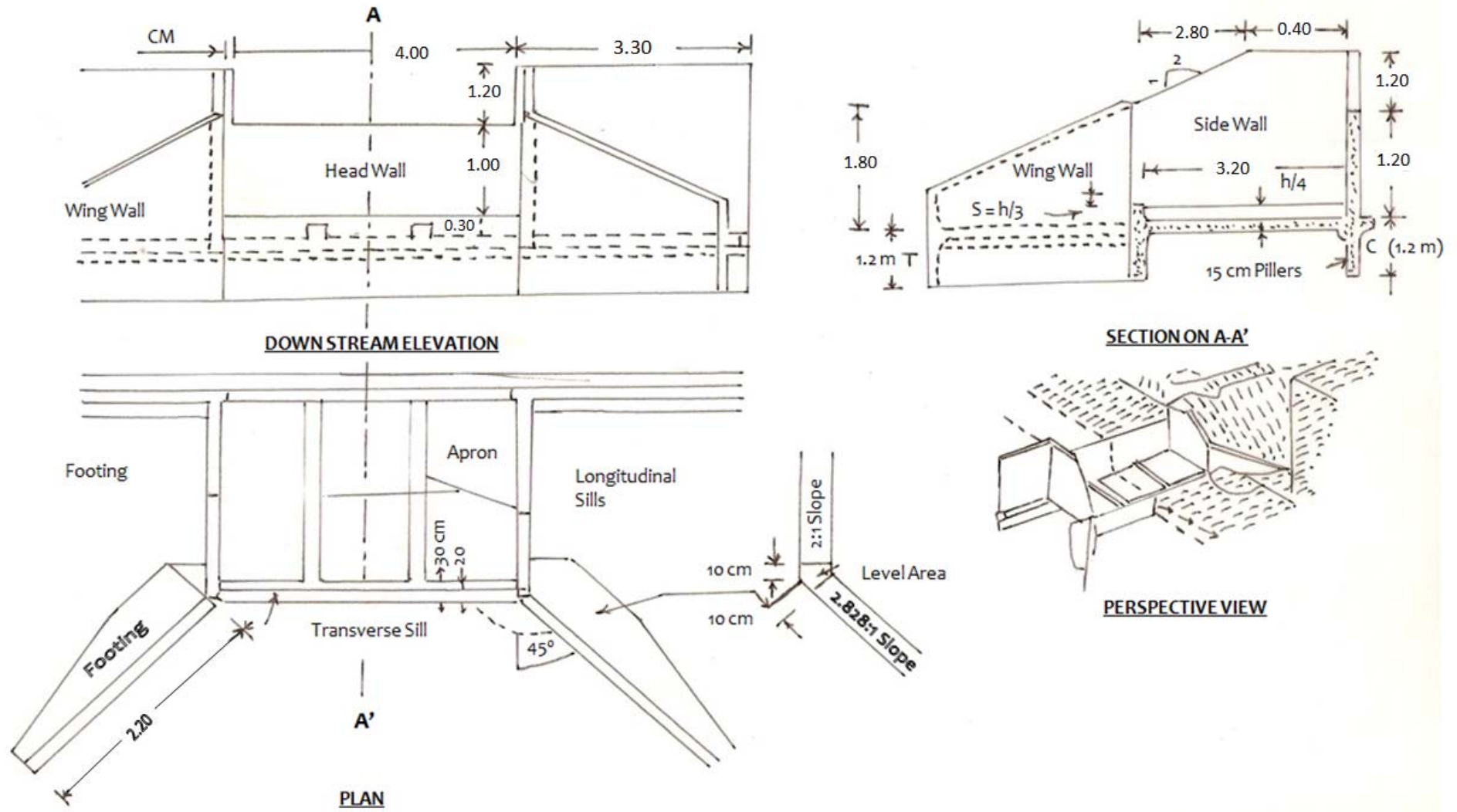


Nomenclature and symbols of a typical drop spillway

# DRAWING OF SPILLWAY OF CREST LENGTH 4.0 m

All Dimensions in Metre

Not to Scale



**DETAIL ESTIMATE OF DROP SPILLWAY OF CREST LENGTH 4.00 METRE**

**1. Earth work in cutting in foundation**

<b>S. No.</b>	<b>Description of work</b>	<b>No.</b>	<b>L</b>	<b>B</b>	<b>D/H</b>	<b>Quantity</b>
1	Side wall	2	3.20	1.20	1.15	8.32
2	Head wall	1	4.00	1.60	1.15	7.36
3	Head wall extension	2	3.30	1.00	1.15	7.59
4	Wing wall	2	2.20	1.00	1.15	5.06
5	Toe wall	1	4.00	1.00	1.15	4.60
6	Cut off wall	1	10.60	1.00	1.15	12.19
7	Apron	1	4.00	3.20	0.70	8.96
Total						54.08 cum

### Laying of sand in the bed of foundation

S. No.	Description of work	No.	L	B	D/H	Quantity
1.	Side wall	2	3.20	1.20	0.10	0.768
2.	Cut off wall	1	10.60	0.90	0.10	0.954
3.	Head wall	1	4.00	0.60	0.10	0.240
4.	Head Wall Extension	2	3.30	0.40	0.10	0.264
5.	Wing wall	2	2.20	0.90	0.10	0.396
6.	Toe wall	1	4.00	0.90	0.10	0.360
7.	Apron	1	4.00	3.20	0.10	1.280
Total						4.262 cum

### C.C.W. 1:3:6 in bed and foundation

S. No.	Description of work	No.	L	B	D/H	Quantity
1.	Side Wall	2	3.20	1.20	0.15	1.152
2.	Cut-off Wall	1	10.60	0.90	0.15	1.431
3.	Head Wall	1	4.00	0.60	0.15	0.360
4.	Head Wall Extension	2	3.30	0.40	0.15	0.396
5.	Wing Wall	2	2.20	0.90	0.15	0.594
6.	Toe Wall	1	4.00	0.90	0.15	0.540
7.	Apron	1	4.00	3.20	0.15	1.920
Total						6.393 cum

**Brick work1:4**

S. No.	Description of work	No.	L	B	D/H	Quantity
1.	Cut off wall	1	10.60	0.90	0.90	8.586
2.	Head wall	1	4.00	1.40	0.90	5.040
		1	4.00	$(0.50 + 1.40) / 2$	1.00	3.800
3.	Head wall extension	2	3.30	0.90	0.45	2.673
		2	3.30	0.80	0.45	2.376
		2	3.30	0.60	0.60	2.376
		2	3.30	0.50	0.60	1.980
		2	3.30	0.40	1.20	3.168
4.	Side wall	2	3.20	1.20	0.45	3.456
		2	3.20	1.00	0.45	2.790
		2	3.20	0.80	0.60	3.072
		2	3.20	0.60	0.60	2.304
		2	3.20	0.50	0.60	1.920
		2	$(0.40 + 3.20) / 2$	0.40	0.60	0.768
5.	Wing wall	2	2.20	0.80	0.45	1.584
		2	2.20	0.60	0.45	1.188
		2	2.20	0.50	$(1.80 + 0) / 2$	1.980
6.	Toe wall	1	4.00	0.80	0.60	1.920
		1	4.00	0.60	0.60	1.440
		1	4.00	0.40	0.30	0.480
7.	Longitudinal sill	2	3.20	0.20	0.30	0.384
8.	Apron	1	4.00	3.20	0.45	5.760
Total						59.045 cum

**C.C.W. 1:2:4 on the wall**

S. No.	Description of work	No.	L	B	D/H	Quantity
1.	Head wall	1	4.00	0.50	0.025	0.050
2.	Side wall	2	0.40	0.40	0.025	0.008
		2	2.86	0.40	0.025	0.057
3.	Head wall extension	2	3.30	0.40	0.025	0.066
4.	Wing wall	2	2.84	0.50	0.025	0.071
5.	Longitudinal sill	2	3.20	0.20	0.025	0.032
6.	Apron	3	3.20	1.20	0.025	0.192
7.	Toe Wall	1	4.00	0.40	0.025	0.040
Total						0.445 cum

**Raised Pointing 1:3**

S. No.	Description of work	No.	L	B	D/H	Quantity
1.	Head wall	1	4.00	-	1.00	4.00
		1	4.00	-	1.72	6.88
2.	Side wall	2	3.20	-	1.80	11.52
		2	$(0.40 + 3.20) / 2$	-	0.60	2.16
3.	Head wall extension	2	3.30	-	1.00	6.60
4.	Wing wall	2	2.20	-	$(1.80 + 0) / 2$	3.96
Total						35.12 m <sup>2</sup>



### CONSUMPTION OF MATERIALS

S. No.	Particulars	Quantity	Cement (Bags)	Coarse Sand (cum)	Coarse (cum)	G.S.B 25-40 mm (cum)	G.S. Grit 10-20 mm (cum)
1.	Sand laying	4.262 cum	-	4.262	-	-	-
2.	C.C.W. 1:3:6	6.393 cum	27.48	2.876	-	5.75	-
3.	C.C.W. 1:2:4	0.445 cum	2.71	0.186	-	-	0.378
4.	Brick work 1:4	59.045 cum	141.70	20.075	59.045	-	-
5.	Raised Pointing 1:3	35.120 m <sup>2</sup>	1.61	0.165	-	-	-
<b>Total</b>			<b>193.50</b>	<b>27.5640</b>	<b>59.045</b>	<b>5.75</b>	<b>0.378</b>
<b>Say</b>			<b>194 Bags</b>	<b>27.5640 cum</b>	<b>59.04 cum</b>	<b>5.75 cum</b>	<b>0.38 cum</b>

### COST OF MATERIALS

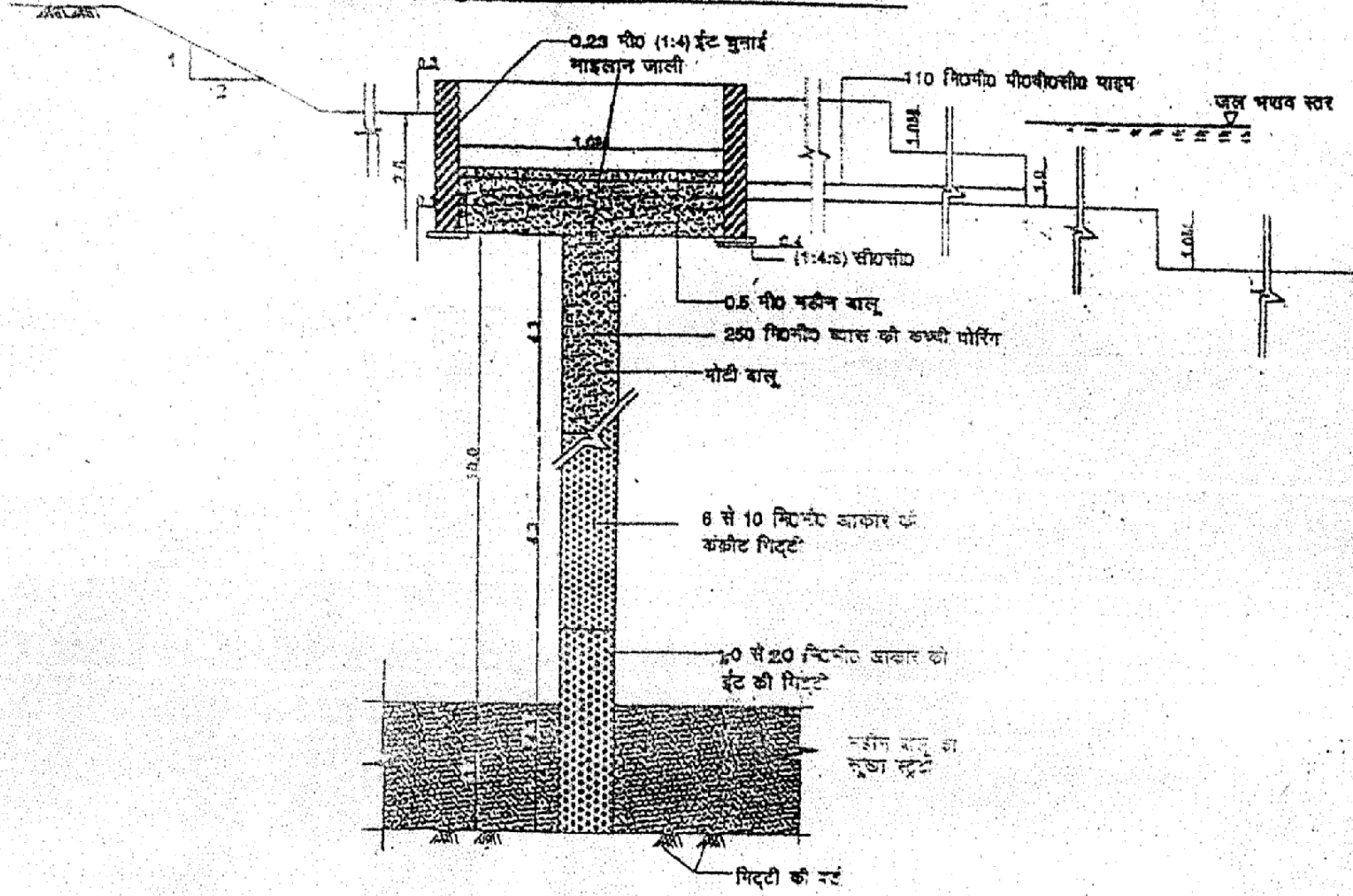
S.No	Name of Materials	Quantity	Rate	Amount
1.	Cement	194 Bags	285.00/bag	55290.00
2.	Coarse sand	27.564 cum	2550.00/cum	68910.00
3.	Brick	59.04 cum	1025.00/cum	60516.00
4.	G.S.B. 25-40 mm	5.75 cum	855.00/cum	4916.25
5.	G.S.Grit 10-20 mm	0.38 cum	1250.00/cum	475.00
<b>Total</b>				<b>Rs. 190107.25</b>

### LABOUR CHARGE

S. No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	54.08 cum	36.66/cum	1982.57
2.	Sand Laying	4.262 cum	33.33/cum	142.05
3.	C.C.W. 1:3:6	6.393 cum	494/cum	3158.14
4.	C.C.W. 1:2:4	0.445 cum	494/cum	219.83
5.	Brick masonry	59.045 cum	370/cum	21846.65
6.	Raised Pointing	35.12 m <sup>2</sup>	51.61/m <sup>2</sup>	1812.54
7.	Curing	59.045 cum	25.00/cum	1476.12
8.	Chowkidar	13 Man Days	100.00/Man Day	1300.00
9.	Head load & local transportation cost 10% cost of material	-	-	14046.60
<b>Total</b>				<b>Rs. 45,984.50</b>

Total Expenditure	
1. Cost of materials	190107.00
2. Labour Charges	45984.50
<b>Total</b>	<b>Rs. 236091.25</b>
<b>Say Rs. 236091.00 only</b>	
<b>Say Rs. 236091.00 only</b>	

# रिचार्जशाफ्ट की ड्राइंग लघु सिंचाई विभाग उत्तर प्रदेश



## Detail Estimate of Recharge Shoft

S. No	Description of Work	No.	Lenth(m.)	Bridth(m)	D/H(m.)	Quantity
1.	E/W. pit digging for filter chamber	1	$0.785 \times (2.50)^2$	-	2.50	12.265cum.
2.	Khacha boring 250mm.with presser set	1	-	-	13.0	13.0m.
3.	c.c. work(1:4:8)	1	$3.143 \times 1.4$	0.40	0.25	0.439cum.
4.	B/W(1:4)for filter chamber	1	$3.143 \times 1.23$	0.23	2.50	2.22cum.
5.	110mm.6kgf p.v.c. pipe	1	20.0	-	-	20.0m.
6.	Graded filter material					
	a- 20mm B/Ballast	1	$0.785 \times (0.25)^2$	-	4.30	0.210cum
	b- 10mm. kankar grite	1	$0.785 \times (0.25)^2$	-	4.30	0.210cum
	c-Course Sand	1	$0.785 \times (0.25)^2$	-	4.30	0.210cum
	d- fine sand	1	$0.785 \times (1.0)^2$	-	0.50	0.392cum.

## Consumption of Material

S.N o.	Item	Quantity	Cement bag	c/sand m <sup>3</sup>	Bricks no.	B/ballast m <sup>3</sup>	Kankar m <sup>3</sup>	Fine sand m <sup>3</sup>
1.	c.c.(1:4:8)	0.439m <sup>3</sup>	1.50	0.197	-	0.395	-	-
2.	B.W.(1:4)	2.220	3.99	0.610	1021	-	-	-
3.	Graded material							
	a- B/Balast	0.210	-	-	-	0.210	-	-
	b- kanker	0.210	-	-	-	-	0.210	-
	c-c/sand	0.210	-	0.210	-	-	-	-
	d-fine sand	0.392	-	-	-	-	-	0.392
	TOTAL	-	5.49	1.017	1021	0.605	0.210	0.392

## Cost of Labour

S.No.	Item	Quantity	Rate(Rs.)	Amount(Rs.)
1.	Earth work	12.26 m <sup>3</sup>	35.08/m <sup>3</sup>	430.08
2.	Kachcha bore			
	a-Set charge	13.00m	12.0/m	156.00
	b-Laboure charge	13.00m	2M.D./m	2600.00
3.	C.C.work	0.439m <sup>3</sup>	110.0/m <sup>3</sup>	48.29
4.	Brick work	2.22 m <sup>3</sup>	385.0/ m <sup>3</sup>	854.70
5.	Filling of graded material	L.S.	-	200.00
	<b>TOTAL</b>	-	-	<b>4289.07</b>

## Cost of Material

S.No.	Item	Quantity	Rate(Rs.)	Amount(Rs.)
1.	1 <sup>st</sup> class bricks	1021no.	4149.0/‰	4236.12
2.	Cement	5.49bage	255.0/bage	1399.95
3.	110mm P.V.C pipe	20.0m	180.0/m	3600.00
4.	Brick ballast	0.605m <sup>3</sup>	1080.0/ m <sup>3</sup>	653.40
5.	10mm kanker	0.210 m <sup>3</sup>	168.0/ m <sup>3</sup>	35.28
6.	Coure sand	1.017 m <sup>3</sup>	950.0/ m <sup>3</sup>	966.15
7.	Fine sand	0.392 m <sup>3</sup>	624.0/ m <sup>3</sup>	244.60
	<b>TOTAL</b>	-	-	<b>11135.50</b>

## Abstract of Cost

1. Material Cost –	Rs. 11135.50
2. Laboure Cost -	Rs. 4289.07
<b>TOTAL</b>	<b>Rs. 15424.97</b>
3. Adm. Charge- 2%	Rs. 308.49
<b>G. TOTAL</b>	<b>Rs. 15733.00</b>

# **CHAPTER - 6**

## **CAPACITY BUILDING PLAN**



## **CAPACITY BUILDING**

Capacity building and training are the most important components of watershed management programme both for the field level project staff/officers and functionaries of people institutions i.e. watershed community. Apart from enhancing technical skill of project staff, this would also provide opportunities to community members to develop their capacity as the future custodians of the programme after project's withdrawal. In I.W.M.P.-7<sup>th</sup>, Jalaun financial outlay for capacity building 5% (Rs.31.80 Lacs) of the total project cost have been proposed.

### **SCOPE OF CAPACITY BUILDING AT PROJECT AREA**

- Alternative Land Use Plan
- Scientific technique of Soil and Moisture conservation
- Improved and Scientific agriculture practices
- Fodder development and Management
- Forestation
- Meteorological Information
- Dairy Development and Management
- Rural Craft
- Income Generation Activities
- Stitching
- Food Processing
- Post Harvest management practices

### INSTITUTIONAL ARRANGEMENT & CAPACITY BUILDING IN THE PROJECTS

S. No.	Project Stake holders	No. of Stake holders	Total no. of persons	No. of persons trained so far	No. of Persons to be trained	Sources of funding for training, BSA Unit or DOLR or others		Name & Address of Training institute
						DOLR	BSA unit or others	
1	Distinct Data centre	1	3	-	2		BSA unit	C.S.A. Kanpur
2	PIA	1	15	10	10	-	BSA unit	D.D.U. Bakshi Ka Talab & other centres
3	WDTs	6	6	6	6	-	BSA unit	K.V.K. ROORA,
4	W.Cs	5	5	5	5	-	BSA unit	As Above
5	GPs	5	15	10	15	-	BSA unit	As Above
6	SHG	28	250	-	250	-	BSA unit	As Above
7	UG	32	300	-	300	-	BSA unit	As Above
8	Community	14	650	-	650	-	BSA unit	As Above
9	Any others	14	600	-	600	-	BSA unit	As Above

# **CHAPTER - 7**

## **PHASING OF PROGRAMME AND BUDGETING**

**YEAR WISE PHASING OF WORKS (PHYSICAL & FINANCIAL) JALAUN – 7<sup>th</sup> (KADAURA) 2010-11**

Phasing of various works/activities during different years of the project period for treatable area 5300.00 ha out of total area 6692.91 ha is presented in Table Component wise & Year wise Phasing of Physical & Financial Outlay

**Financial (Lakhs Rs.) Physical (ha)**

S. No.	Component	% of Budget	I st Year (2010-11)		II Year (2011-12)		III rd Year (2012-13)		IV th Year (2013-14)		Total	
			P	F	P	F	P	F	P	F	P	F
1	<b>Administrative Cost TA &amp; DA, P.O.L/Hiring of vehicle/office and payment of electricity and phone bill etc. computer, stationary and office consumable and contingency</b>	10%		15.900		15.900		15.900		15.900		63.60
A	<b>Monitoring</b>	1%		1.59		1.59		1.59		1.59		6.36
B	<b>Evaluation</b>	1%		1.59		1.59		1.59		1.59		6.36
C	<b>Sub Total</b>	12%		19.08		19.08		19.08		19.08		76.32
2.	<b>Preparatory Phases</b>											
A.	<b>Entry Point Activities, , Repairing &amp; Renasation Bundhies, check dam and const./repair of culverts</b>	4%		25.44	-	-	-	-	-	-	-	25.44
B.	<b>Capacity Building</b>											
	D. SLNA Level	0.30%		0.763		0.763		0.382				1.908
	E. WCDC Level	0.90%		2.289		2.289		1.146				5.724
	F. PIA	3.80%		9.668		9.668		4.832				24.168
	<b>Sub Total</b>	5%		12.720		12.720		6.360				31.800
C.	<b>Preparation of DPR</b>	1%		6.360		-		-				6.360
	<b>Sub Total</b>	10%		44.520		12.720		6.360				63.600
3.	<b>Watershed Works</b>				1180.00	38.160	1100.00	32.040	475.00	25.200	2755.00	95.40
A.	<b>Soil &amp; moisture conservation</b>											
	1. Construction of Bunds (graded, contour and field Bund)	BY NAREGA	-	-								
	2. Marzinal & Peripheral Bund with structure											
B.	<b>Water Resources Development</b>	50%			980.00	76.320	805.00	62.400	665.00	52.080	2450.00	190.800
	3. Water Harvesting Structure/											

	<b>Bundhi Pucca Check Dams, Farm Pond</b>											
<b>C.</b>	<b>Agroforestry &amp; Horticulture</b> <b>4.Agroforestry</b> <b>5.Horticulture</b>		-	-	40.00	12.720	35.00	10.500	20.00	8.580	95.00	31.800
	<b>SubTotal</b>	50%	-	-	22.00	127.200	1940.00	104.940	1160.00	85.860	5300.00	318.000
<b>4.</b>	<b><u>Livelihood Activities</u></b> <b>Income generating Activities through</b> <b>SHGs for landless and Marginal</b> <b>farmers (Goat farming, Bee keeping,</b> <b>Candle making,Dona Pattal making &amp;</b> <b>live stock development Activities,</b> <b>Rope &amp; Basket making)</b>	10%	-	38.160	-	12.720	-	12.720	-	-	-	63.600
	<b>SubTotal</b>	10%		38.160	-	12.720	-	12.720	-	-	-	63.600
<b>5.</b>	<b><u>Production System &amp; Micro</u></b> <b>enterprises</b> <b>Demonstration and assessment of</b> <b>improved composting system as:</b> <b>Seed,</b> <b>Chemical Fertilizer/ Bio Fertilizer,</b> <b>Pest Control,</b> <b>Advance Agriculture Equipment</b> <b>Production of compost</b>	13%	-	25.440	-	19.080	-	31.800	-	6.360	-	82.680
	<b>SubTotal</b>	13%	-	25.440	-	19.080	-	31.800	-	6.360	-	82.680
<b>6.</b>	<b><u>Consolidated Phase</u></b>	5%	-	-	-		-	15.900	-	15.900	-	31.800
	<b>Grand Total</b>	100%		127.200	2120.00	190.800	2020.00	190.800	1160.00	127.200	5300.00	636.00

# **CHAPTER -8**

## **CONSOLIDATION / EXIT STRATEGY**

## **PLANS FOR MONITORING AND EVALUATION**

A Web-based GIS system is being developed for monitoring and evaluating the project in its planning & implementation phases. The system would be available on a public domain and can be accessed by all the stakeholder of the project. The system shows the entire state of Uttar Pradesh and all of those areas selected over the next 18 years. Filtering allows the user to zoom onto one particular project. Details related to soil type, Land-use classification, inhabitation etc., can be obtained village-wise. Furthermore, survey-number wise details related to ownership, irrigation source, yield etc., can also be accessed by the users of the system. This system is being used for pooling up the details obtained from the DPR. In other words, the DPR is made available online in the form of a database which will help the stakeholders know areas of importance viz., already treated areas/historical works in the area, proposed areas for treatment etc., for further treatment and planning. The system would also show the satellite imageries of various years from the project inception stage to the project closing stages. This allows the user to evaluate the effectiveness of the treatment and thereby plan corrective measures for the project area. The system would serve as an aiding tool to the planners and evaluate the effectiveness of the treatment and thereby plan corrective measures for the project area. The system would serve as an aiding tool to the planners and evaluators for judging the efficacy of the project.

Yet another component of the Web-based GIS system is the Mobile based Monitoring & Evaluation System, which will help the ground staff alias WDTs (Watershed Development Team) to transmit information from the ground level to the central server. Also, any higher-up official in charge of the project can obtain information regarding the project area on the project area on their mobile phone by means of an SMS. The system works in the following manner. The WDT equipped with a GPS instrument marks the latitude-longitude information of various treatment areas during the DPR. The probable sites are then transferred onto the central server. During the works phase, any progress in the treatment areas is reported to the server by means of an SMS by the WDT. Similarly, any nodal officer or higher-up official can view the progress in a project by means of summarized reports generated over frequent periods of time.

## **PLANS AND PROJECT MANAGEMENT**

The project management of a watershed programme is very important. It mainly depends upon the community organisation and the village level institutes. In watershed committee and various user groups have been formulated for post project operation and maintenance of assets created during project period. Major emphasis will on equity and sustainable benefit of the project even after implementation stage. A proper linkup will be built during project period with various institutes and capacity building organisation. They will act as a major kingpin during post implementation for scaling up the successful experience during project.

## **WATERSHED DEVELOPMENT FUND**

The major source of financial assistance after post implementation period is Watershed Development Fund. The contribution of it will comes mainly from the fund generated.

## **USER CHARGES**

Various user groups will be formed in village. These user groups will collect user according to the designated rules formed during the formation of user group. These funds will be transferred to the WDF funds as per these formulated rules. The secretary of watershed committee (WC) shall maintain the records.

## **SUSTAINABILITY AND ENVIRONMENT SECURITY**

In the proposed watershed management plan of I.W.M.P.-7<sup>th</sup> watershed, proper blending of bio engineering measures will be applied on 60% of the total watershed area. Based on the results of studies conducted in this region, it is estimated that more 50% of the watershed area will be treated and consequently the soil loss and runoff from the area is expected to be reduced by 70% and 65% respectively. The proposed land use plan will improve the land utilization index and crop



diversification index significantly as compared to the existing one. It will help in maintaining ecosystem integrity on sustained basis along with improving the livelihood security of the farming community.

## **ECONOMIC ANALYSIS**

Economic analysis of the project was carried by taking direct benefits and costs considering 25 year project life at 10 per cent discount rate. For this purpose of economic analysis, whole watershed development plan was divided into three sectors namely,

Agriculture, horticulture and forest/fuel wood plantation. Net present value(NPV), Benefit cost ratio (BC) ratio criteria were employed to judge the economic efficiency of each enterprise and sector.

### **AGRICULTURE**

In rainfed agriculture the development cost can be recovered within one year as the present rainfed agriculture is being done on well maintained field, therefore, does not require much investment.

### **HORTICULTURE**

The Economic analysis of the horticulture plantation in agri-horticulture system at I.W.M.P.-7<sup>th</sup> watershed has been done and it is expected that the Project life is considered to be 25 years and discount rate for NPV estimation is 10%.

## **FOREST/ FUEL WOOD PLANTATION**

Economic analysis of fuel wood plantation at I.W.M.P.-7<sup>th</sup> watershed has been done and it was observed that the Project life is considered to be 25 years and discount rate for NPV estimation is 10%

## **FOOD SUFFICIENCY**

Achieving self sufficiency in food production is one of the prime objectives of the project.

# **CHAPTER -9**

## **EXPECTED OUTCOME**

## **EMPLOYMENT**

Employment has always been a problem in the village. The principal occupations of the people are dry land agriculture, animal husbandry and casual labour work. Animal husbandry does not keep them engaged full time, Thus the people mainly depend upon casual labour, either in the village itself or outside it.

The project plans for creation of both wage employment and self employment opportunities. Wage employment would be created by engaging people in watershed physical works like construction of earthen bunds, farm bunds, village pond, plantation, etc. Self employment would be created by providing the people with cash support in the form of direct livelihood activities like agriculture, animal husbandry and other enterprise development.

## **MIGRATION**

On account of agriculture and animal husbandry providing only part time employment for some part of the year, the people migrate for a better half of the year for wage labour. Employment opportunities in the local area as mentioned above will ensure lessening seasonal migration from the area.

## **DRINKING WATER**

As a result of the watershed activities, it is expected that the quantity and quality of drinking water would be improve.

## LIVESTOCK

The village has quite a good of livestock population. These include cows, bullocks, buffaloes, goats,. The interventions like provision of good quality cows and buffaloes, the establishment of a fodder bank and other such related activities would spur up the dairy development in the village. It is expected that the post project period would see a substantial increase in livestock population and yield from them.

### I.W.M.P.- 7<sup>th</sup> Jalaun

#### Ratio of Cost and Profit

##### Status Before Work:

S. No.	Name of Cereal	Area in hectare	Production /Total hect.	Cost/hect.	Rate/hect.	Net profit/hect.	Total profit/hect.
1.	Arhar	636	10.50	3000.00	4500.00	44250.00	28143000.00
2.	Til	1742	6.00	4000.00	6000.00	32000.00	55744000.00
3.	Jawar	1334	15.00	2500.00	800.00	9500.00	12673000.00
4.	Wheat	1340	14.20	3000.00	1000.00	11200.00	15008000.00
5.	Mator	1815	7.50	2600.00	3000.00	19900.00	36118500.00
6.	Mustard	614	4.60	2500.00	2500.00	9000.00	5526000.00
	<b>Total</b>	<b>3650.00</b>					<b>153212500.00</b>

##### Status After Work:

S. No.	Name of cereal	Area in hectare	Production /Total hect.	Cost/hect	Rate/hect	Net profit/hect	Total profit/hect
1.	Arhar	832	14.50	3000.00	4500.00	62250.00	51792000.00
2.	Til	2215	9.70	4000.00	6000.00	54200.00	120053000.00
3.	jawar	1788	11.70	2500.00	800.00	6860.00	12265680.00
5.	Wheat	2000	24.60	3000.00	1000.00	21600.00	43200000.00
6.	Mator	2172	12.50	2600.00	3000.00	34900.00	75802800.00
7.	Mustard	809	7.40	2500.00	2500.00	16000.00	12944000.00
	<b>Total</b>	<b>4850.00</b>					<b>316057480.00</b>

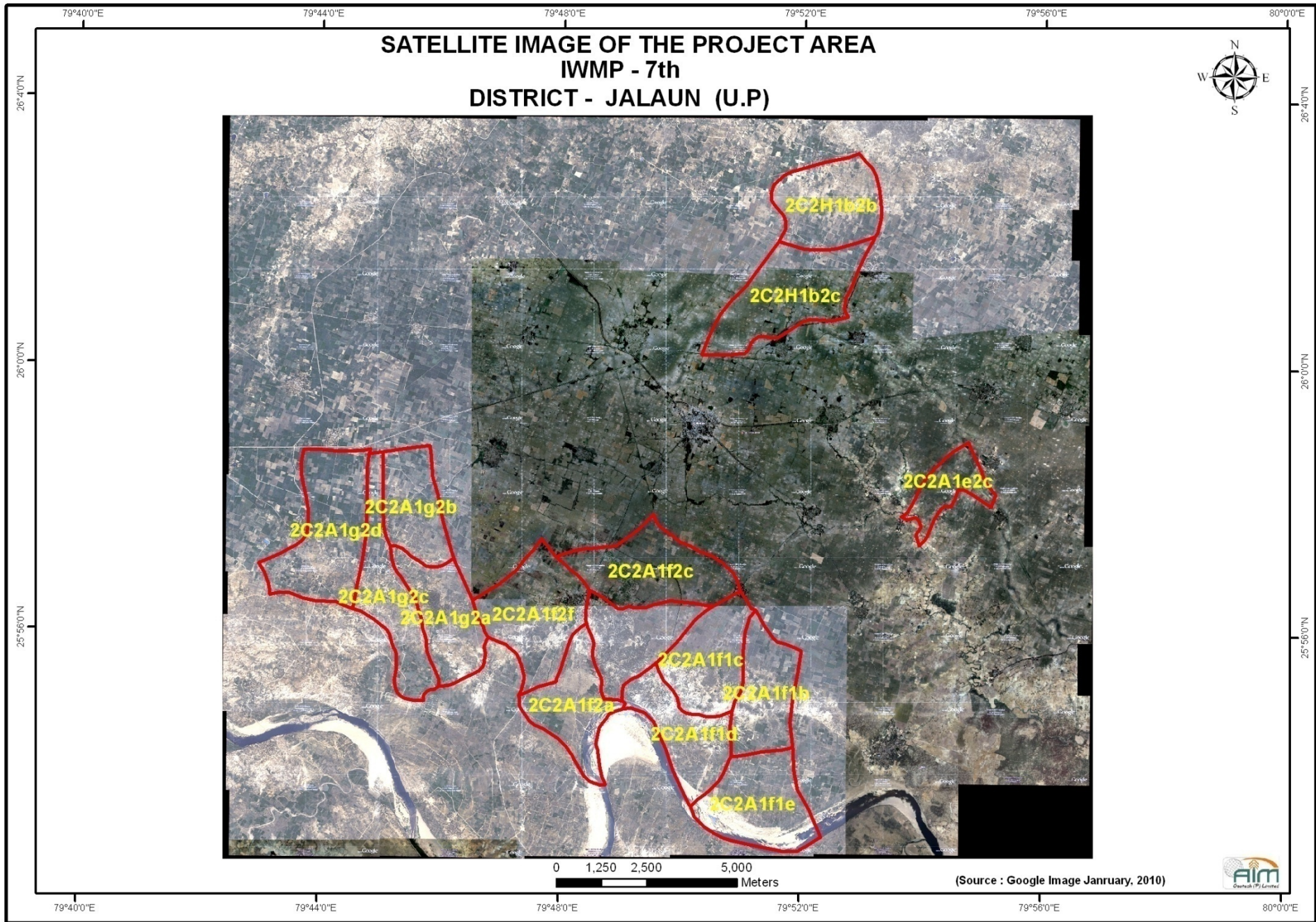
Bhoomi sanrakshan after the treatment of Land	-	316057480.00
Bhoomi sanrakshan before the treatment of Land	-	153212500.00
Net Profit	-	162844980.00
Ratio of cost profit ratio	-	$\frac{316057480}{153212500} = 1:2.06$

The above ratio clearly indicated that the conservation of land is extremely profitable.

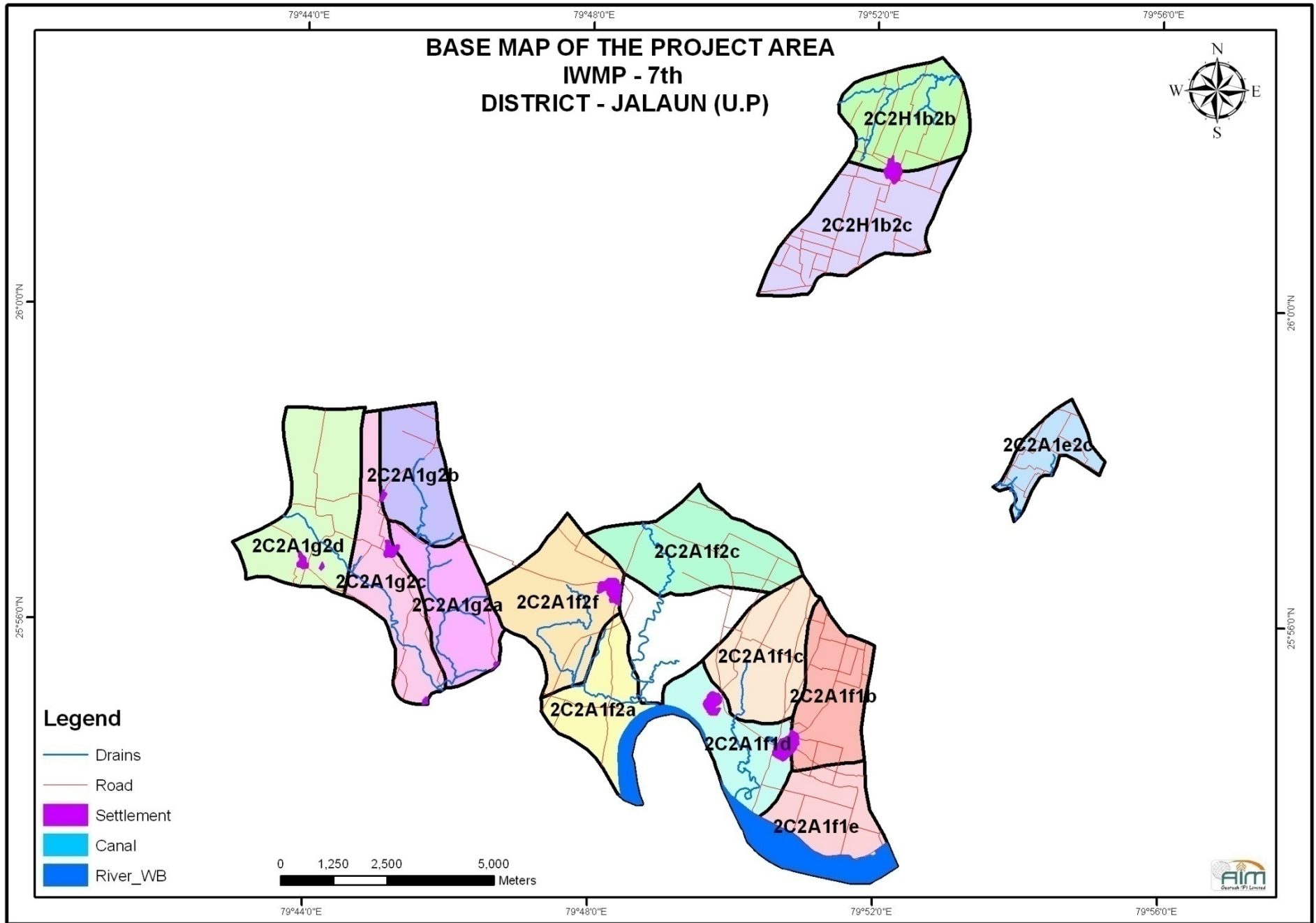
### EXPECTED/ESTIMATED OUTCOMES OF IWMP-7<sup>th</sup> (2010-11) JALAUN

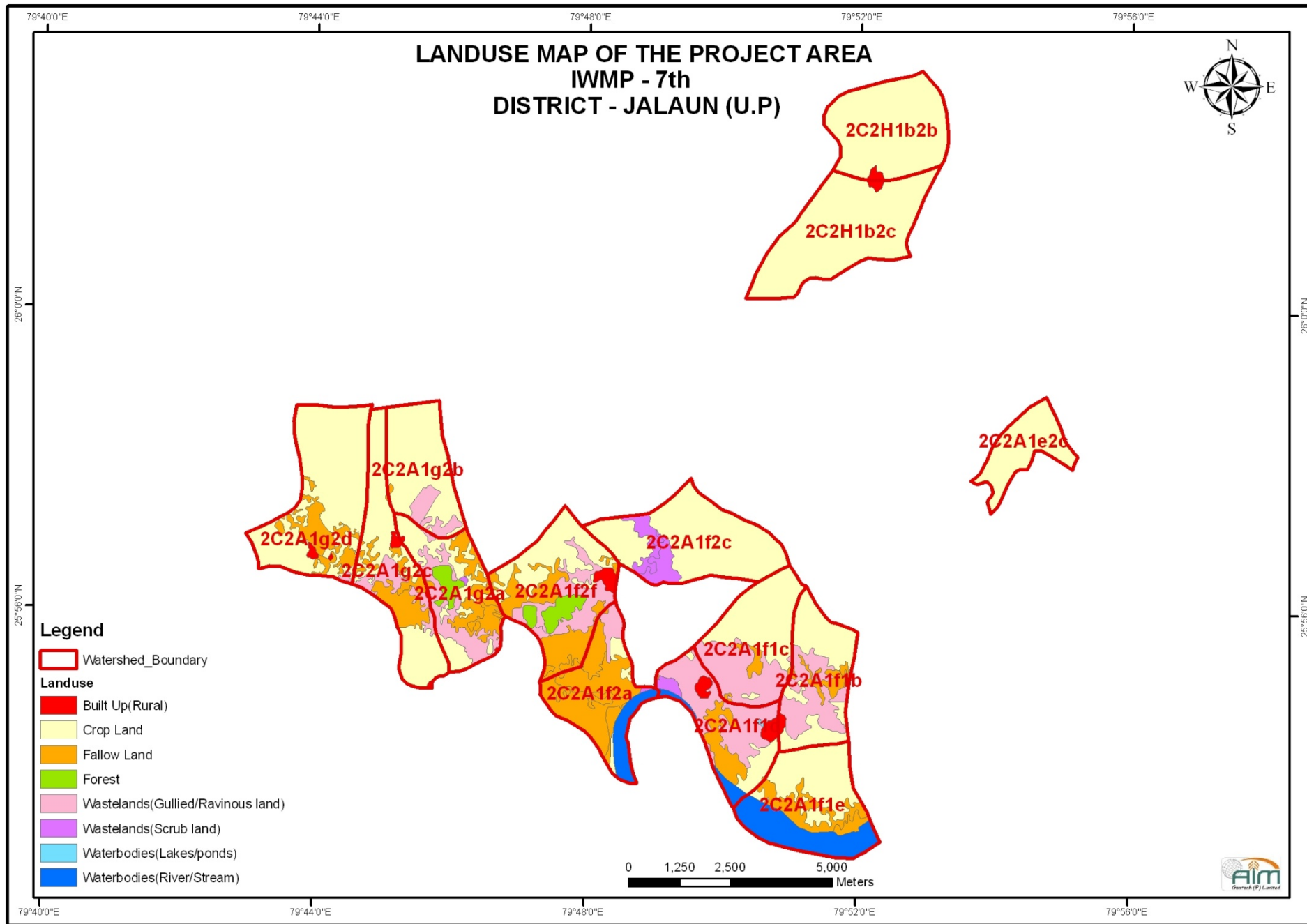
S. No.	Item	Unit of Measurement	Pre-project Status	Post-project Status
1	3	4	5	6
1.	Status of water table	Meters	15.50	14.00
2.	Ground water structure repaired/ rejuvenated	Stage	Poor	Good
3.	Quality of drinking water	Quality	Unhygenic, Drinking Water	Good Quality of Drinking Water
4.	Availability of drinking water	Month	6-7	9-12
5.	Increase in irrigation potential	%	0	100 %
	<b>Change in cropping/land use pattern</b>			
6.	Area under agriculture crop	Ha		
	i- Area under single crop	Ha	2138.00	4130.00
	ii- Area under double crop	Ha	-	1500.00
	iii- Area under multiple crop	Ha	-	100.00
	iv-Cropping Intensity	%	2720.00	3996.00
7.	Increase in area under vegetation	Ha	-	165.00
8.	Increase in area under horticulture	Ha	-	50.00
9.	Increase in area under fuel & fodder	Ha	-	1150.00
10.	Increase in milk production	%	-	50%
11.	No. of SHGs	Nos.	-	14
12.	Increase in no. of livelihoods	Nos.	-	23
13.	Migration	Nos.	-	102
14.	SHG Federation formed	Nos.	-	02
15.	Credit Linkage with banks	Nos.	-	14

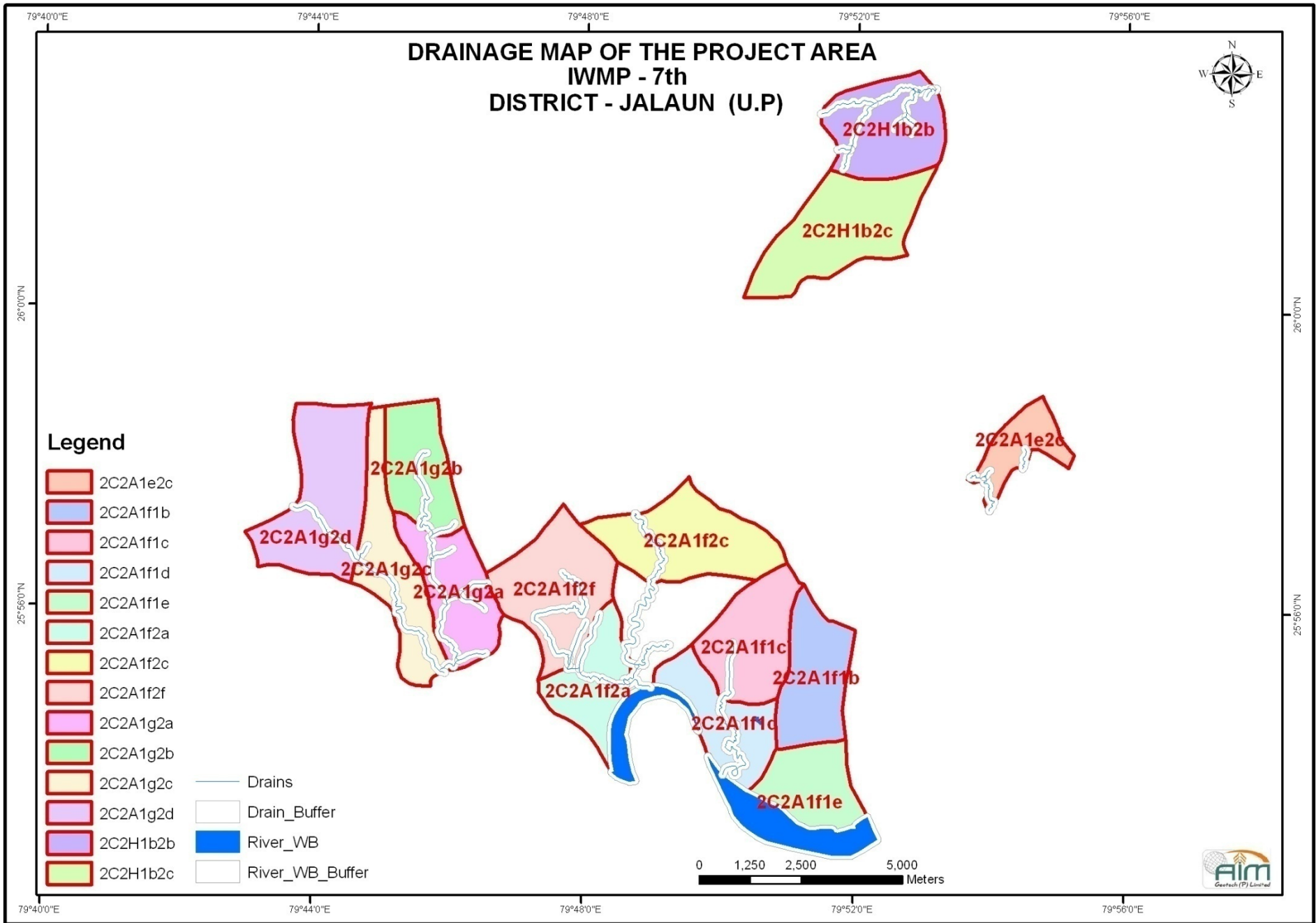
# MAPS

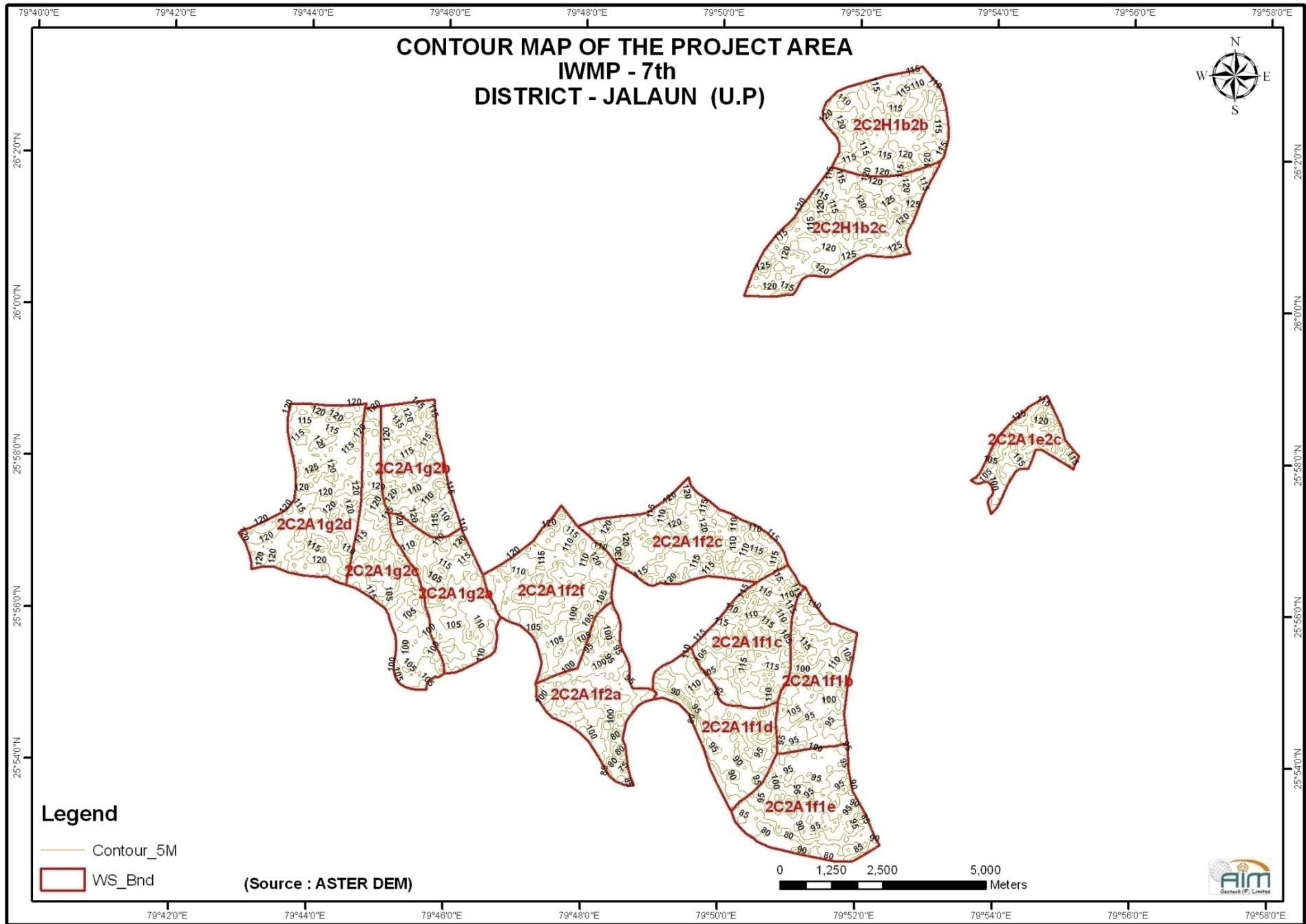


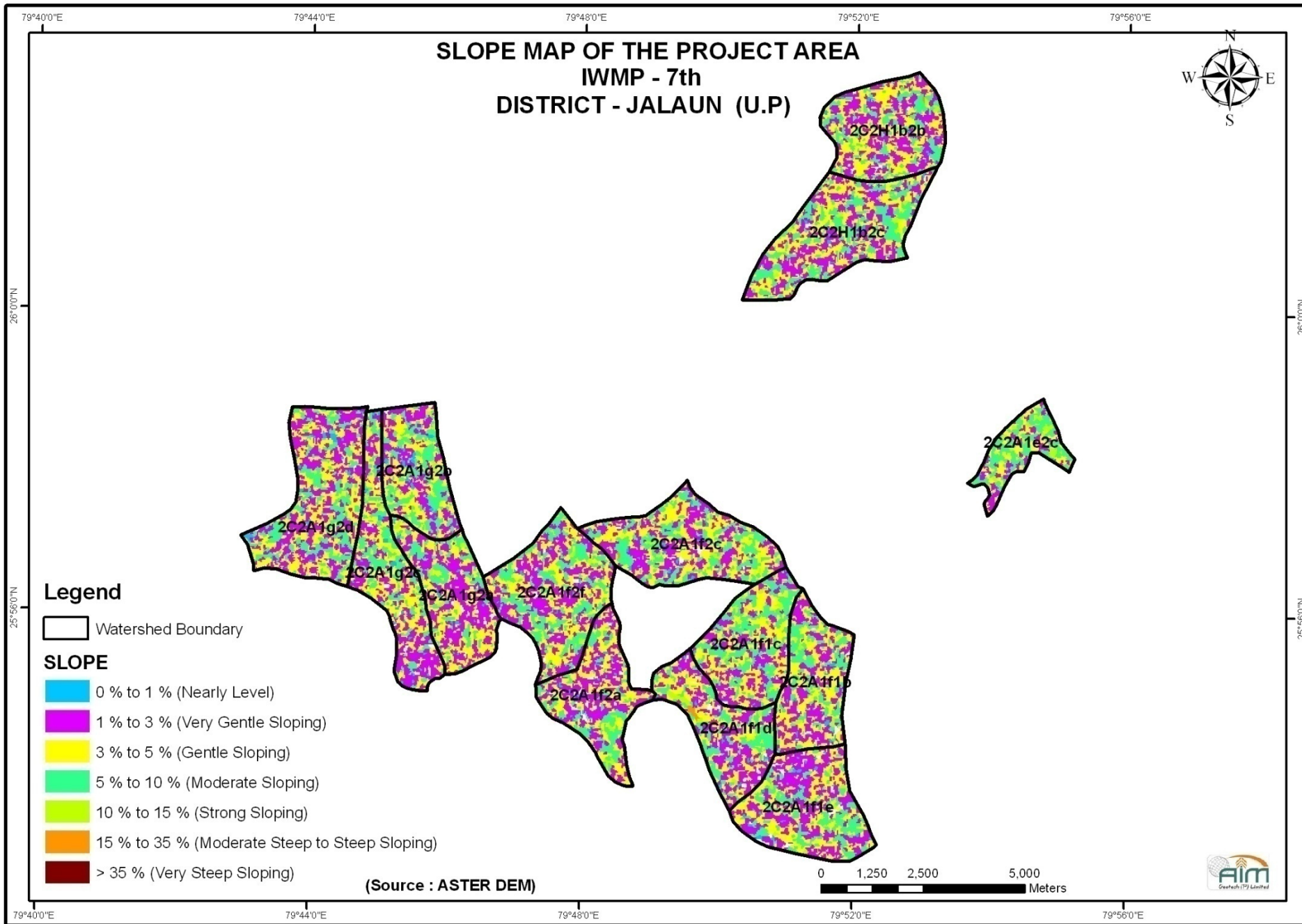


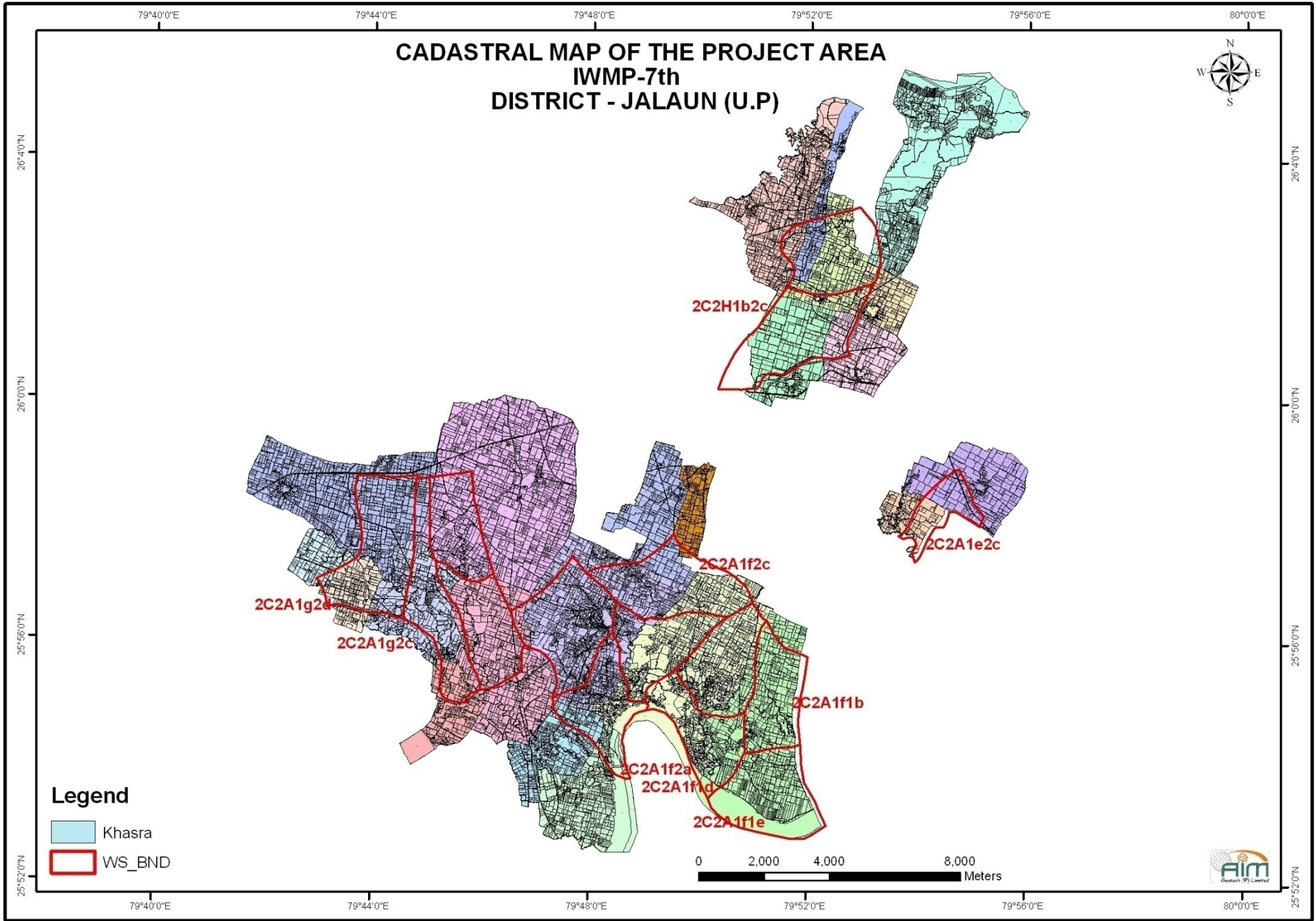






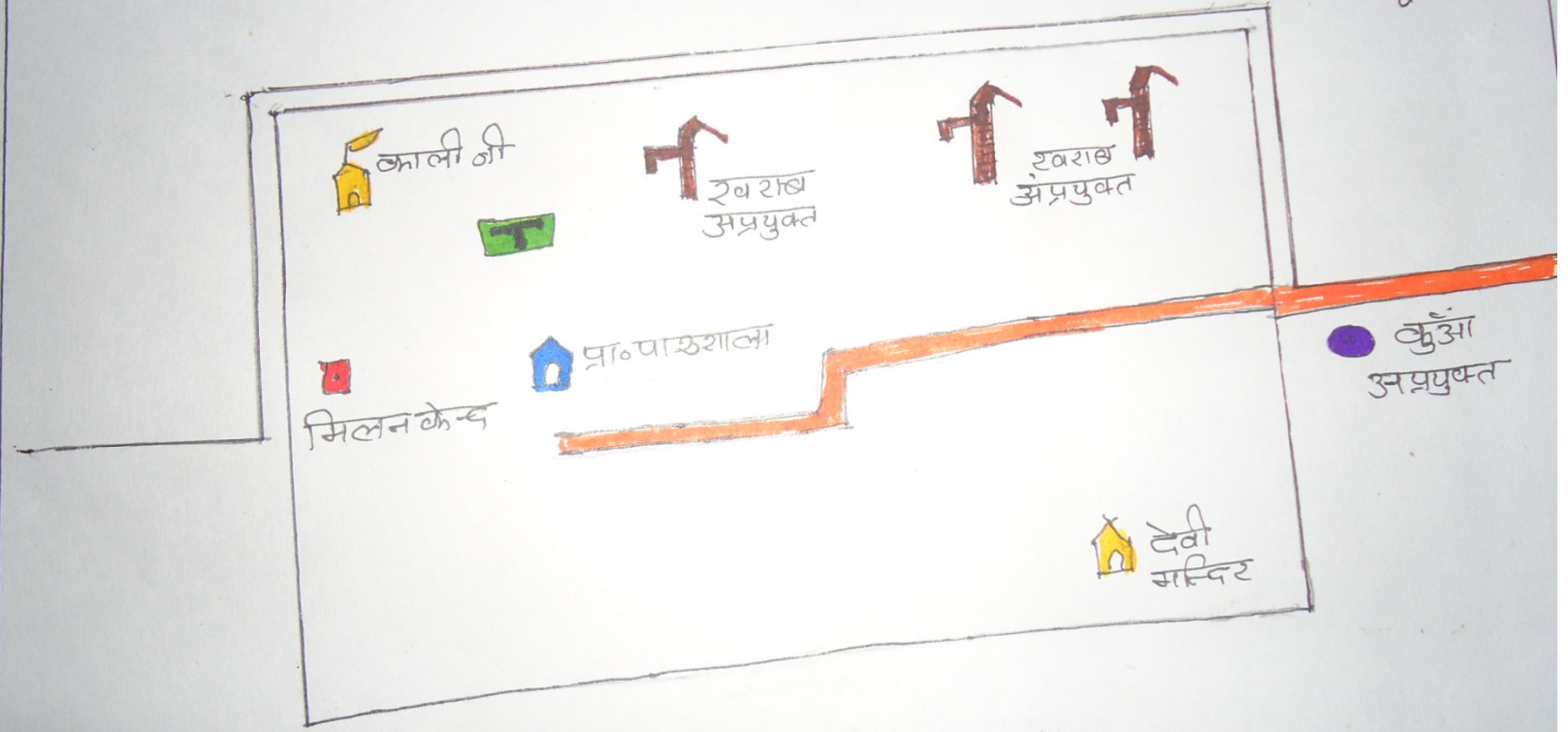
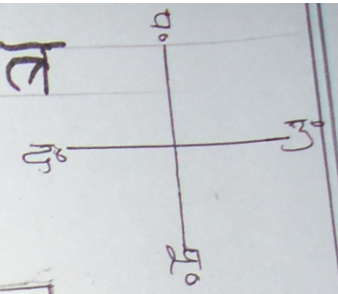




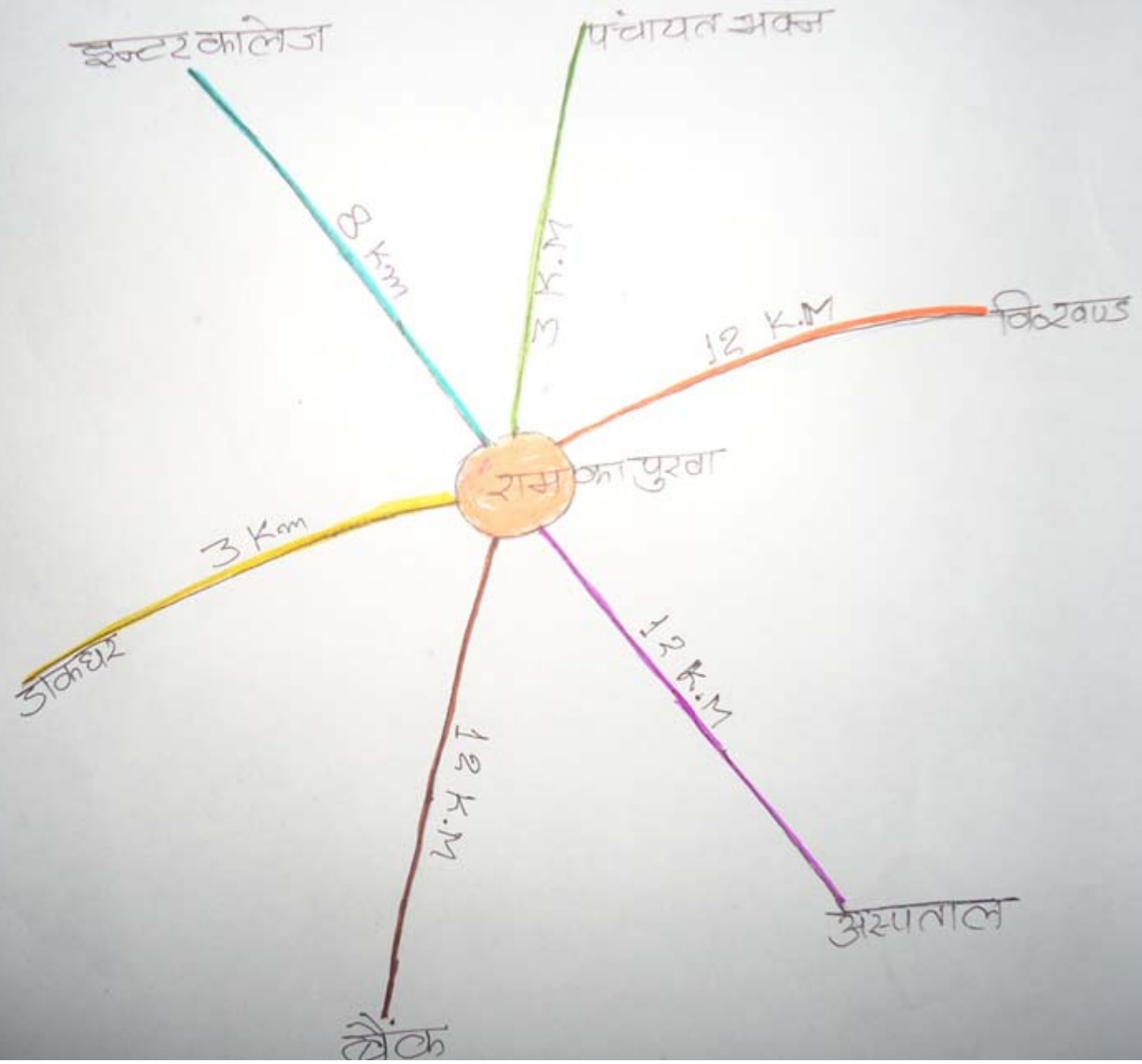


# टि सोज - मानचित्र

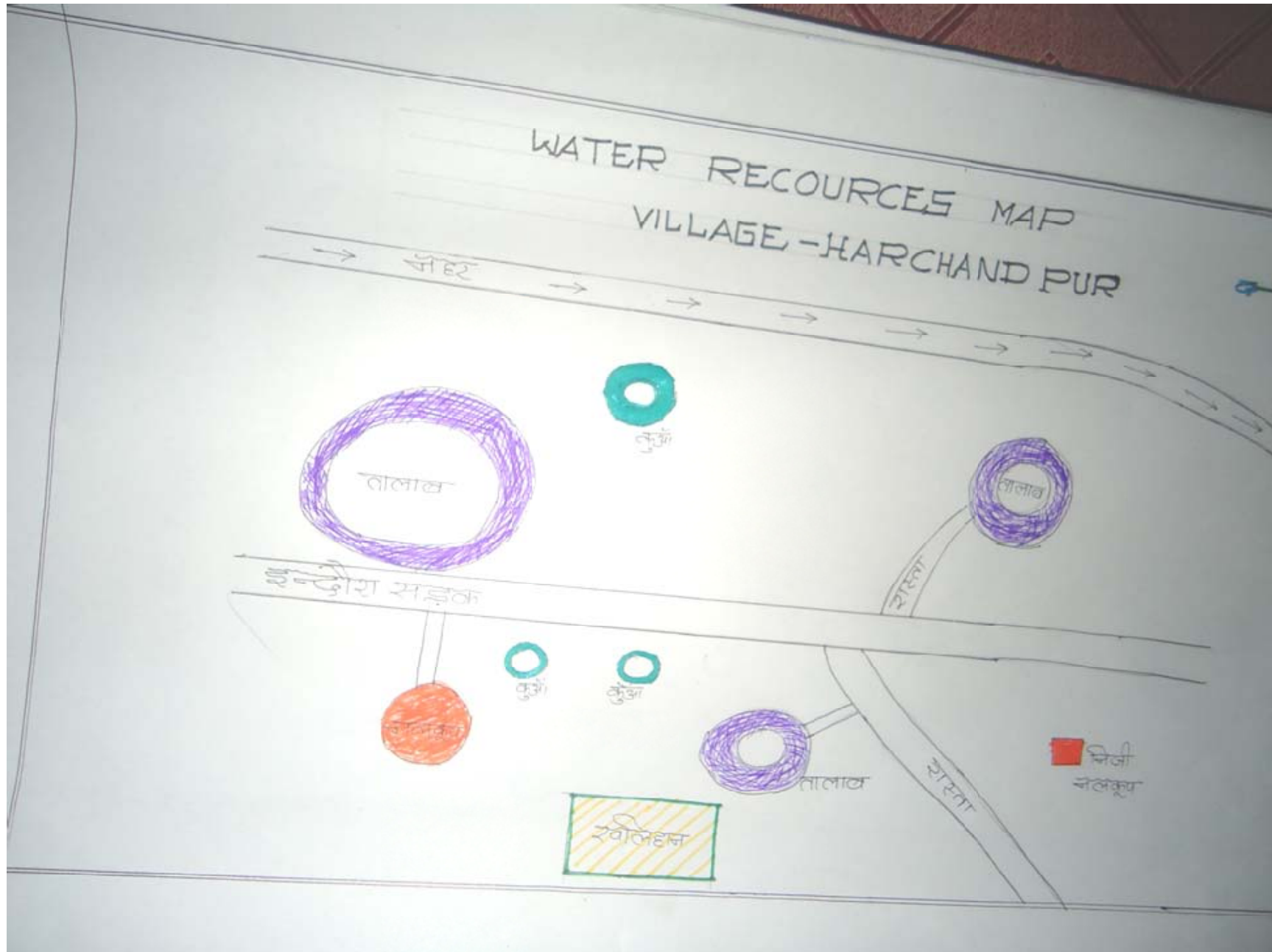
ग्राम - सरगाया



# ग्राम - सहायता







# साजीचल

## प्राकृतिक संसाधन





## PREPARATION OF DPR

Detail Project Report of Integrated Watershed Management Programme IWMP- 7<sup>th</sup> had been prepared through base line/ bench Mark survey for physiography climate, soil, land use, vegetation, hydrology and socio economic data analysis. PRA have been exercised to collect primary data, secondary data have been collected from Revenue, Statistics department, Statistical Magazine of the district, Jalaun, department of animal Husbandry, development block Kadaura etc., Topo sheet (1 : 50000) survey of India- Dehradun and technical & specific input and health with preparation and drafting of detail project report.

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# DPR PLAN ABSTRACT

The collection of all the relevant data of watershed area and the possible option and solution are described with the help of feedback of focused discussion and detailed perspective plan for the watershed area with year wise and activity wise summarized for the DPR plan abstract for 4 years (2010-11 to 2013-14).

The summary of the above document is verified by the following persons:

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## **Technically Approved By:**

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## **Physically & Financially Approved:**

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District Rural Development Authority  
District – Jalaun

Chief Development Officer  
District – Jalaun