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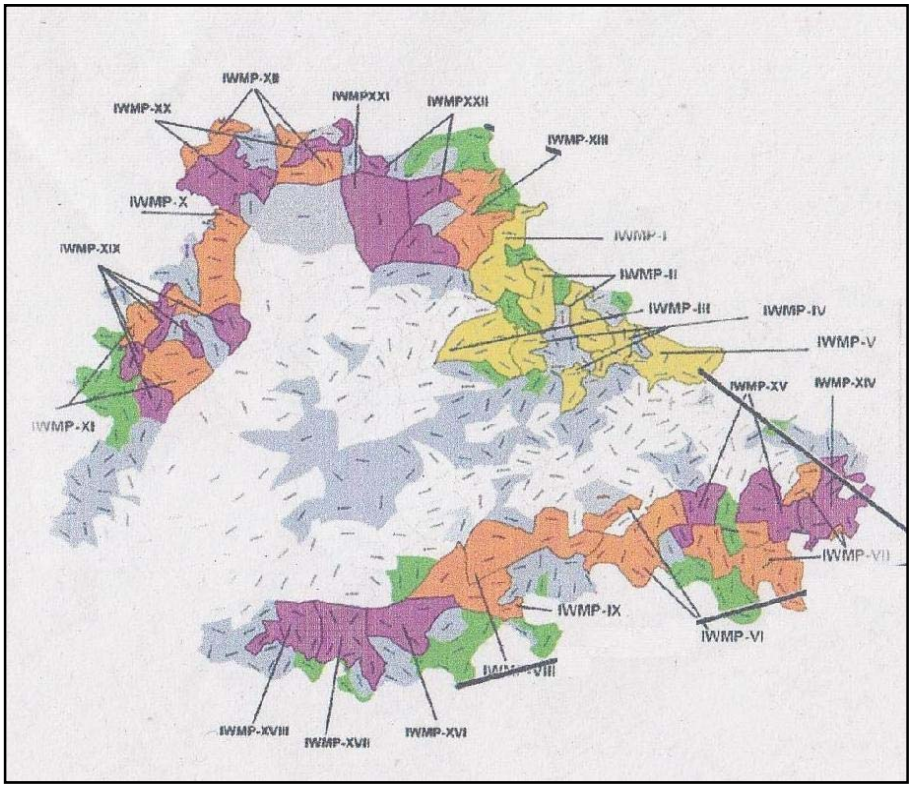
IWMP-X (2010-11) District - JALAUN

Name of the project	Weightage	No.of MWS	Geographial Area (ha)	Rainfed Area (ha)	Treatable area (ha)
I.W.M.P.- X (2010-11)	92.50	6	6640.25	5570.00	5220.00



PROJECT AT A GLANCE

1.	Name of Block	MADHOGARH
2.	No. of Gram Panchayats	6
3.	Four reasons for selection of Watershed	i. Poverty index above 80% ii. Actual wages are significantly lower. iii. Area under rain-fed is more than 80% iv. Agriculture production is low.
4.	Date of approval of watershed Development Plan by DRDA/DPC	19-10-2010
5.	Area proposed to be treated (ha.)	5220.00 Ha
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.)	626.40
9.	Proposed mandays	281000

EXECUTIVE SUMMARY

Bundelkhand region is ravenous, undulating and hillocks are bounded by Vindhyan Plateau in south, river Yamuna in north, river Ken in east and rivers Betwa and Pahuj in west. While the Yamuna flows from west to east, its first order tributaries viz., Betwa, Ken, Pahuj, Baghain, and Paisuni flow from south to north. Second order tributaries of the Yamuna namely, Dhasan, Jamni, Birma, Sonar, Katne, Bewas, Kopra etc., also drain the area. The entire system of drainage and stream flows forms a part of Ganga basin. The region generally slopes from south to north. The elevations in the area ranges from 100 m above mean sea level (amsl) in southern part to 155 m amsl near Yamuna River.

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 R.B.Pahuj River watershed comprises of 27 villages namely Rampura, Silauva Bujurg, Ooncha, Kharala, Dhunddha Sagar, Puranpura, Maharajpura, Rudpura Madhogarh, Mingani, Asahana, Harauli, Khargupura, Galampura, Supanunayacha, Gopalpura, Mahoi, Rampura Madhogarh, Jamrehi Avval, Sarjapura, Sultanpura, Tajpura Avval, Rangpura, Kurauti, Aheta, Mijhauna, Nichawadi, Rudaoli Madhogarh, villages of Kadaura Block in the Jalaun District of Uttar Pradesh. This watershed has been identified by the state department under NWDPRA 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 **26^0 21' 01''to 26^0 33' 05'' Latitude and 79^0 7' 02'' to 79^0 17' 08''** Longitude having Code No. - **2C3A1e2c, 2C3A1d1a, 2C3A1d1b, 2C3A1d1c, 2C3A1d1d, 2C3A1c1a,** Its altitude ranges from100 to 155 metres above mean sea level (MSL). The total area of watershed is 6640.25 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 Ist week of June locally designated as "Loo". The temperature during summer goes up to 46^0C. 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 banding along with minor levelling. Waste land will be treated with the engineering measures like staggered trenches and aforestation 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 DETAILS –I.W.M.P.-X, OF JALAUN (U.P.)

Physical in (Ha) & Financial in (Lacs)

S. No.	Item	1st Year 2010-11		IInd Year (2011-12)		IIIrd Year (2012-13)		1Vth Year (2013-14)		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
1	Administrative 10%	-	15.660	-	15.660	-	15.660	-	15.660	-	**62.640**
2	Monitoring 1%	-	1.566	-	1.566	-	1.566	-	1.566	-	**6.264**
3	Evaluation 1%	-	1.566	-	1.566	-	1.566	-	1.566	-	**6.264**
4	Entry Point Activity 4%	-	25.056	-	-	-	-	-	-	-	**25.056**
5	Institutional and Capacity building 5%	-	12.528	-	12.528	-	6.264	-	-	-	**31.320**
6	D.P.R Preparation 1%	-	6.264	-	-	-	-	-	-	-	**6.264**
7	Watershed Dev. Works 50%	-	-	2020.00	125.280	1980.00	103.356	1220.00	84.564	5220.00	**313.200**

8	Livelihood & Income Generating 10%	-	37.584	-	12.528	-	12.528	-	-	-	**62.640**
9	Production System development 13%	-	25.056	-	18.792	-	31.320	-	6.264	-	**81.432**
10	Consolidation Phase 5%	-	-	-	-	-	15.660	-	15.660	-	**31.320**
	Total	-	**125.44**	**2120.00**	**187.85**	**1980.00**	**188.37**	**1220.00**	**124.74**	**5220.00**	**626.40**

BUDGET ALLOCATION FOR THE VARIOUS COMPONENTS OF

I.W.M.P.-X , OF JALAUN DISTRICT (U.P.)

S.N.	Budget Component	Total (lakhs)
A.	**1.Administrative**	**62.640**
	2. Monitoring	**6.264**
	3. Evaluation	**6.264**
B.	**Preparatory Phase**	**25.056**
	1. Entry Point Activities	**31.320**
	2. Institution and capacity building	
	3. Detailed Project Report(DPR)	**6.264**
C.	**WATERSHED WORKS PHASE**	
	1. Watershed development works	**313.200**
	2. Livelihood activities for the asset less persons	**62.640**
	3. Production system and micro enterprises	**81.432**
D.	**CONSOLIDATION PHASE**	**31.320**
	GRAND TOTAL	**626.400**

CHAPTER-1

INTRODUCTION AND BACKGROUND

PROJECT BACKGROUND

The Study area falls in R.B.Pahuj watershed, of Madhogarh block with code No**2C3A1e2c, 2C3A1d1a, 2C3A1d1b, 2C3A1d1c, 2C3A1d1d, 2C3A1c1a,** having area of 6640.25Ha,Out of which 5220.00Ha area deploy for the treatment.

The project area is located in North – West 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-X) starting from the year 2010-11. The project will be completed by 2013-14.

The R.B.Pahuj watershed is Located in Madhogarh block of Jalaun District (U.P.). The watershed comprises of 27 village Rampura, Silauva Bujurg, Ooncha, Kharala, Dhunddha Sagar, Puranpura, Maharajpura, Rudpura Madhogarh, Mingani, Asahana, Harauli, Khargupura, Galampura, Supanunayacha, Gopalpura, Mahoi, Rampura Madhogarh, Jamrehi Avval, Sarjapura, Sultanpura, Tajpura Avval, Rangpura, Kurauti, Aheta, Mijhauna, Nichawadi, Rudaoli Madhogarh. The Area lies between **26^0 21’ 01’’to 26^0 33’ 05’’ Latitude and 79^0 7’ 02’’ to 79^0 17’ 08’’** Longitude. Total Area of the watershed is 6640.25 Ha (Treatment Area is 5220.00 Ha). Elevation ranges from 100 to 155metres 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 silty and coarse loamy.

BASIC PROJECT INFORMATION OF I.W.M.P.-X, JALAUN (U.P.)

Name of the project	Villages	Block	District	Total area of the project in (Ha)	Area proposed to be treated in (Ha)	Total project cost (Rs in Lac)	PIA
I.W.M.P - X	Rampura, Silauva Bujurg, Ooncha, Kharala, Dhunddha Sagar, Puranpura, Maharajpura, Rudpura Madhogarh, Mingani, Asahana, Harauli, Khargupura, Galampura, Supanunayacha, Gopalpura, Mahoi, Rampura Madhogarh, Jamrehi Avval, Sarjapura, Sultanpura, Tajpura Avval, Rangpura, Kurauti, Aheta, Mijhauna, Nichawadi, Rudaoli Madhogarh,	**MADHOGARH**	**JALAUN**	**6640.25**	**5220.00**	**626.00**	**B.S.A. LDWR Jalaun 1st**

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 in situ 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 27 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.W.M.P. - X	6	6640.25	Other	626.00	I	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv
					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	10	More than 80 % (10)	50 to 80 % (5)	Less than 50 % (3)	-

farmers					
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	10	Contiguous to previously treated	Contiguity within the	Neither contiguous to	

watershed that has already been developed/ treated		watershed & contiguity within the micro watersheds in the project (10)	micro watersheds in the project but non contiguous to previously treated watershed (5)	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	**90**	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. -X	6	**2C3A1e2c,2C3A1d1a, 2C3A1d1b, 2C3A1d1c,2C3A1d1d, 2C3A1c1a,**	Micro Watershed

STRENGTH, WEAKNESS, OPPORTUNITY AND THREAT (SWOT) ANALYSIS

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

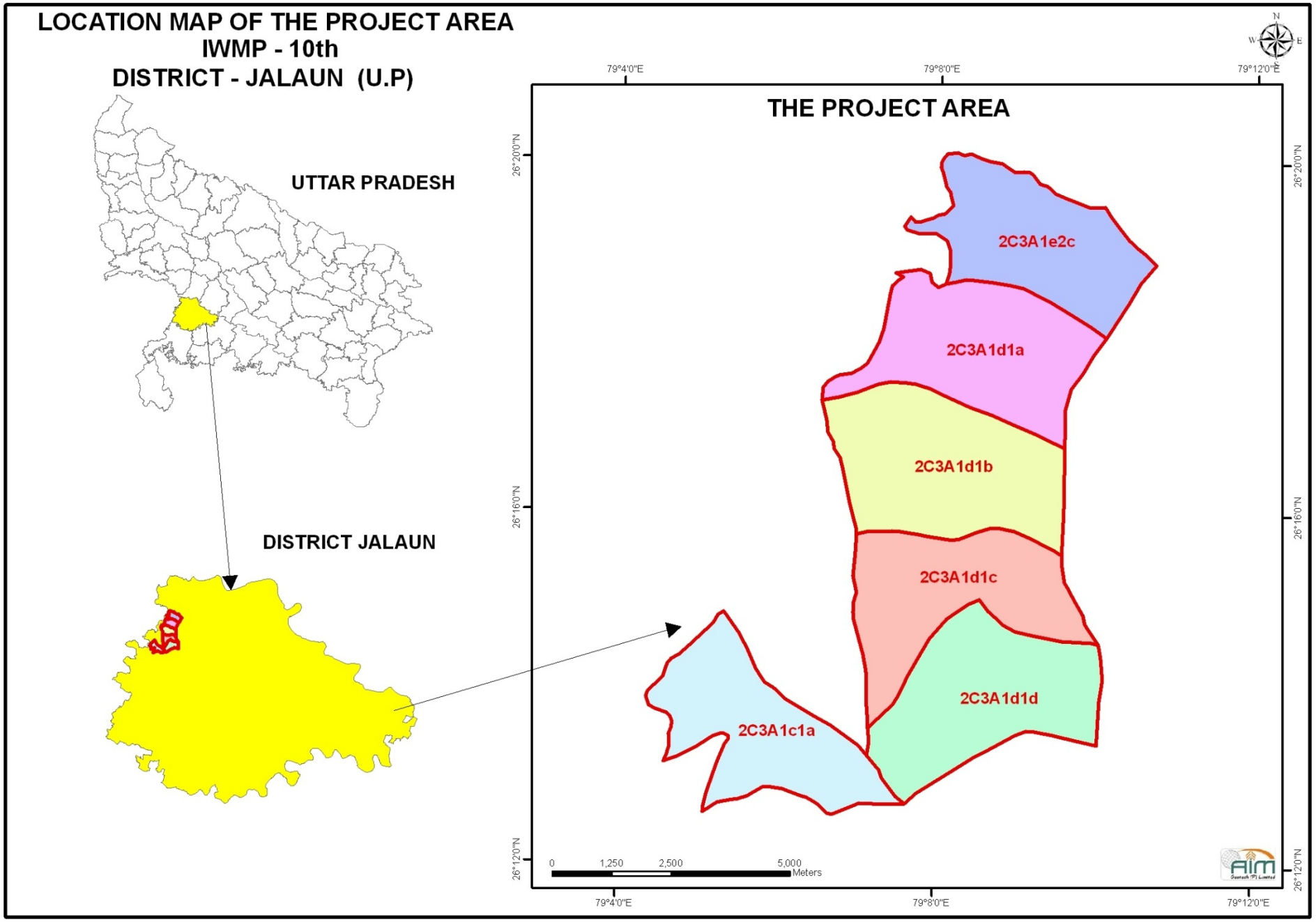
Strength (S)	**Weakness(W)**
1- Cooperative work culture is traditional activities 2- Close ethnic tier 3- Hard working man power 4- Honesty 5- Awareness of farmers about watershed management programmes 6- Social outlook of the community towards developmental works 7- Less pollution of agro ecosystem 8- Rich biodiversity	1- Poor water management 2- Resource poor farmers 3- Migration of rural youth 4- Low and erratic rain fall 5- Fragile geography 6- Fragmented land holdings. 7- Heavy infestation of wild animals 8- Problem of fuel and fodder 9- Deforestation
Opportunities(O)	**Threats (T)**
1- Better scope for pulses and oilseeds crop production 2- Scope of regular employment opportunity to check out migration 3- Conductive climate for rain fed crop diversification 4- Good scope for agro forestry and dry land horticulture. 5- Good scope for medicinal crop cultivation	1- Prone to adverse climate like drought 2- High market risk 3- Weak coordination among line departments. 4- Lack of expertise of implementing agencies in different aspect of WSM. 5- Avoidance of rural people regarding the maintenance and proper use of water bodies

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


LOCATION MAP OF THE PROJECT AREA
IWMP - 10th
DISTRICT - JALAUN (U.P)
UTTAR PRADESH
DISTRICT JALAUN
THE PROJECT AREA
2C3A1e2c
2C3A1d1a
2C3A1d1b
2C3A1d1c
2C3A1d1d
2C3A1c1a
79°4'0"E
79°8'0"E
79°12'0"E
26°20'0"N
26°16'0"N
26°12'0"N
0
1,250
2,500
5,000
Meters
N
W
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S

PROJECT AREA AND ITS LOCATION

The area of I.W.M.P. - X, of R.B.Pahuj River is situated about 20 Kms from the District headquarter, on the road of Rampura to Bangra. The Area lies between **26^0 21' 01''to 26^0 33' 05'' Latitude and 79^0 7' 02'' to 79^0 17' 08''** Longitude. The total area of the project is **6640.25 Ha** (Treatment Area is **5220.00 Ha**). Elevation ranges from 100 to 155metres above mean sea level.

The 3/4 th 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-10 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	**2C3A1e2c**	Uncha and others	26^0 18’ 01” to 26^0 20’ 04”	79^0 07’ 31” to 79^0 10’ 41”	144	98	46
2	**2C3A1d1a**	Migani and others	26^0 16’ 45” to 26^0 18’ 46”	79^0 06’ 32” to 79^0 10’ 03”	152	104	48
3	**2C3A1d1b**	Harauli and others	26^0 15’ 33” to 26^0 17’ 79”	79^0 06’ 32” to 79^0 09’ 35”	147	114	33
4	**2C3A1d1c**	Rampura Madhau Garh and others	26^0 14’ 33” to 26^0 15’ 45”	79^0 06’ 58” to 79^0 09’ 35”	151	123	28
5	**2C3A1d1d**	Tajpura and others	26^0 12’ 43” to 26^0 15’ 00’’	79^0 07’ 09” to 79^0 10’ 07’’	156	125	31
6	**2C3A1c1a**	Gopalpura and others	26^0 12’ 35” to 26^0 14’ 48’’	79^0 04’ 22” to 79^0 07’ 35’’	147	117	30

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 48^0C. 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 -10 of Bundelkhand I.W.M.P. –X 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. -X	Bundelkhand Zone-10	5220.00	Rakar,Kabar Mar & Padwa	4070	Undulating	520 mm	Wheat,gram,jowar, til,Arahar,Masoor	2870

WEATHER DATA (2008-2009)

Month	Rain Fall (mm)	Temperature ^{O}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 South - West part of the Jalaun District of Right Bank of The Pahuj 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 course 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 16740 m and 9484 m, respectively with the length: width ratio 1.76/1

SHAPE AND SIZE OF WATERSHED

S. N.	Micro watershed Code	Area (ha)	Shape	Approximate size in meter		Ratio Length: width
				Length	Width	
1	**2C3A1e2c**	996.89	Rectangle	4983	2122	2.34:1
2	**2C3A1d1a**	1140.93	Rectangle	5111	2715	1.88:1
3	**2C3A1d1b**	1282.04	Rectangle	4762	2783	1.71:1
4	**2C3A1d1c**	1048.38	Rectangle	4449	2247	1.97:1
5	**2C3A1d1d**	1166.47	Rectangle	5104	2970	1.71:1
6	**2C3A1c1a**	1005.29	Rectangle	4877	2968	1.64:1
	Total	**6640.00**				

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 13 to 15 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	27	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	27	Open wells	13 – 15 Mtr	9 - 11	-

SOILS

The study area has mainly four types of soil named Parwa,Kawar, 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. Kawar 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 R.B.Pahuj River

AGRICULTURE

Various agriculture land uses in the watershed are extended to diversified land capabilities starting from marginal to good class IInd 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 farmers in the study area. Cereal contribute to the food grain production (54.6%) followed by pulses (32.4%), oilseeds (8.0%), sugarcane (0.2%) and other crops (4.8%) under normal rainfall years. The region is surplus in pulses, deficient in oil seeds and sufficient in cereal production. Unlike other agroecologies rabi sowing (69%) in Project area predominates over kharif (31%) which is a paradox. As compared to Uttar Pradesh (51%) relatively lesser

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, Sugarcane

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 R.B. Pahuj 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 four 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.-X	27	0.875	-	1.460	0.475	2.810	728	-	1307	113	2148	86	-	101	28	213

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.-X) 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.-X	280	170 -189	Unemployment & High wages outside in City	135

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 the table .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 Watershed	Built-Up Land	Agriculture	Fallow Land	Wasteland	Plantation	Water Bodies	Total
1	**2C3A1e2c**	Uncha	16.26	586.76	29.93	352.40	1.41	10.13	996.89
2	**2C3A1d1a**	Migani	15.84	574.01	51.72	498.60	-	0.76	1140.93
3	**2C3A1d1b**	Harauli	37.48	566.50	180.11	493.82	-	4.13	1282.04
4	**2C3A1d1c**	Rampura Madhau Garh	8.18	851.80	102.87	85.53	-	-	1048.38
5	**2C3A1d1d**	Tajpura	23.97	1030.60	105.82	4.0	-	2.08	1166.47
6	**2C3A1c1a**	Gopalpura	46.93	352.87	192.41	408.29	4.79	-	1005.29
	Total		148.66	3962.54	662.86	1842.64	6.2	17.10	**6640.00**

PRESENT LANDUSE/LANDCOVER OF THE PROJECT AREA

S. No	Landuse/Land cover	Area (ha)	%
1	Built-up land	148.66	2.23
2	Agricultural Land	3962.54	59.67
3	Fallow Land	662.86	9.98
4	Waste Land	1842.64	27.75
5	Plantation	6.2	0.09
6	Water Bodies	17.10	0.28
Total		**6640.00**	**100**

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, Dhhamni Khurd, Ekona, Etora Bavani, Hajipur Saliya, Harchandpur, have been mapped under this category and the total area under category is

148.66 Hectare which is 2.23% 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 1842.64 Hectare which is 27.75 % 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 impounder in the form of ponds, lake & reservoirs. The total area under this category comes about 17.10 Hectare which is 0.28 % 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 indication the presence of a fence around it. Depending on the location, they exhibit a disbursed or contiguous pattern. The total area under this category comes about 6.2 Hectare which is 0.09 % of the total mapped area.

AGRICULTRAL 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. He Cropped areas 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 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 Arahar 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 3962.54 Hectare which is 59.67 % of the total mapped area.

FALLOW LAND

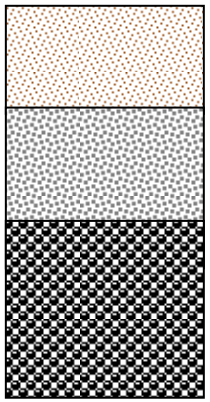
These are the lands primarily used for farming and for production of food; it includes land under the (irrigated and un-irrigated). Areas with standing crop as on the date of satellite overpass. Cropped areas are in varying shape and size in a contiguous and non contiguous pattern. They are widely distributed 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 662.86 Hectare which is 9.98% of the total mapped area.

Soil and land Capability Classification:

Soil Morphology: The study area is situated in the North- West of District - 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 planting consisting of practiced 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.

LOPE 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 **23560**. Out of the total population the male population is 12984 and female population is 10576. The detail of population is given below.

VILLAGE WISE HUMAN POPULATION, IWMP X ,JALAUN

S. No.	Name of Village	Total Population			Total Population(SC)		
		Male	Female	Total	Male	Female	Total
1.	Rampura	383	313	**696**	187	153	**340**
2.	Silauva Bujurg	356	302	**658**	160	124	**284**

3.	Ooncha	600	505	**1105**	252	213	**465**
4.	Kharala	148	120	**268**	6	5	**11**
5.	Dhunddha Sagar	-	-	**-**	-	-	**-**
6.	Puranpura	365	285	**650**	14	9	**23**
7.	Maharajpura	321	305	**626**	18	14	**32**
8.	Rudpura Madhogarh	546	444	**990**	87	73	**160**
9.	Mingani	752	599	**1351**	370	297	**667**
10.	Asahana	360	339	**699**	27	24	**51**
11.	Harauli	1547	1363	**2910**	301	263	**564**
12.	Khargupura	-	-	**-**	-	-	**-**
13	Galampura	333	272	**605**	94	70	**164**
14	Supanunayacha	725	584	**1309**	149	113	**262**
15	Gopalpura	2351	1824	**4175**	611	480	**1091**
16	Mahoi	187	138	**325**	6	1	**7**
17	Rampura	383	313	**696**	187	153	**340**

	Madhogarh						
18	Jamrehi Avval	526	400	**926**	259	215	**474**
19	Sarjapura	-	-	**-**	-	-	**-**
20	Sultanpura	408	312	**720**	92	68	**160**
21	Tajpura Avval	95	69	**164**	40	33	**73**
22	Rangpura	-	-	**-**	-	-	**-**
23	Kurauti	641	593	**1234**	257	242	**499**
24	Aheta	226	204	**430**	49	47	**96**
25	Mijhauna	1499	1061	**2560**	448	290	**738**
26	Nichawadi	96	97	**193**	33	34	**67**
27	Rudaoli Madhogarh	136	134	**270**	41	45	**86**
	Total	12984	10576	**23560**	3688	2966	**6654**

LIVESTOCK POPULATION

Total live stock population of the watershed is 70926. 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 X ,JALAUN

S. No.	Villages	Buffaloes	Cows	Ox	Calf	Buffalo Child(M)	Buffalo Child(F)	Goat	Hen
1.	Rampura	130	148	65	25	31	30	701	3008
2.	Silauva Bujurg	35	41	18	10	7	13	280	400
3.	Ooncha	85	130	47	31	11	21	388	2201
4.	Kharala	130	148	65	25	31	30	701	3008
5.	Dhunddha Sagar	-	-	-	-	-	-	-	-
6.	Puranpura	25	28	10	5	2	5	130	180
7.	Maharajpura	40	50	51	12	6	15	92	114
8.	Rudpura Madhogarh	130	148	65	25	31	30	701	3008
9.	Mingani	215	180	80	30	22	65	625	496
10.	Asahana	74	65	22	15	21	67	541	200
11.	Harauli	55	51	85	65	41	41	547	352
12.	Khargupura	-	-	-	-	-	-	-	-
13.	Galampura	21	54	35	23	45	8	45	630
14.	Supanunayacha	45	47	58	54	25	16	5	635

15.	Gopalpura	280	388	78	35	38	47	830	7000
16.	Mahoi	35	41	18	10	7	13	280	400
17.	Rampura Madhogarh	45	47	58	54	25	16	5	635
18.	Jamrehi Avval	280	388	78	35	38	47	830	7000
19.	Sarjapura	-	-	-	-	-	-	-	-
20.	Sultanpura	45	47	58	54	25	16	5	635
21.	Tajpura Avval	280	388	78	35	38	47	830	7000
22.	Rangpura	-	-	-	-	-	-	-	-
23.	Kurauti	280	388	78	35	38	47	830	7000
24.	Aheta	35	41	18	10	7	13	280	400
25.	Mijhauna	45	47	58	54	25	16	5	635
26	Nichawadi	280	388	78	35	38	47	830	7000
27	Rudaoli Madhogarh	25	28	10	5	2	5	130	180
	Total	**2615**	**3281**	**1211**	**882**	**554**	**655**	**9611**	**52117**

LIVELIHOOD ACTIVITIES

Crop production and livestock rearing are the major occupation in the project area, whereas usufruct rights in forest, other common properties or open access resources and migration for income outsourcing are the minor livelihood opportunities in the agrarian economy of the Bundelkhand. Crop cultivation and animal rearing alone contribute more than 90% to the overall livelihood. Crop residues contribute 67% to the animal fodder and coping mechanisms for mitigating vulnerability to drought have to be farming system centric. The traditional coping mechanism of cultivating diversified drought resistant coarse cereals, dual purpose varieties for grain and fodder, mixed cropping, staggering sowing over time, short duration varieties, mixed farming, share cropping, agroforestry and enterprises etc. have been diluted by new technologies to address competitive and emerging economic and social transformations.

Dwarf hybrid varieties of Pearlmillet (Bajra), Shorghum (Jowar), Bt Cotton, improved varieties of soybeans, chickpeas (gram), pigeon peas, lentils and mustard have increased inputs and productivity as well as risks and distress. Hybrids of castor, sunflower, improved varieties of safflowers, mustard, ground nut

Hybrid Bajra

etc. require one or two critical irrigation for harvesting economic yield. Peas have replaced relatively drought tolerant chickpeas especially in UP part. Water guzzling mentha, sugarcane etc. are becoming popular in irrigated areas at the cost of excessive depletion of ground water and inequity in sharing of canal irrigation. Sesamum (til) could survive the current continuous drought of four years almost everywhere but returns are low. Improved varieties of Shekhar and Pragati are better. There is an urgency of at least one oil mill for sesame or til to stabilize its prices and return to the farmers. A lot of churning process is going on and the following medium and long term measures are called upon.

Chickpeas, wheat, sorghum, paddy, maize, barley, seasame, lentils, linseed, mustard, rye, ground nut, soyabean, peas, urd, moong, tomato, onions, other vegetables are important crops combinations with amla, guava, lemon, mango, cows, buffalo, goat and sheep are important risk avoiding strategies.

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	1. Poor Farming 2. Labour on Daily Wages 3. Small scale business 4. Agriculture 5. Animal husbandry	1. Improvement in Farming 2. Self employment by S.H.G 3. Training 4. Improvement of Employment by project work 5. Agriculture allied activities 6. Diary & Milk product marketing 7. Vegetable Production 8. Self Employment by Group Farming	370	1.Unemployment 2. Poor Farming 3. Illiteracy 4. High wages in city

INFRASTRUCTURE SOCIAL FEATURES

The watershed has moderate communication facilities and all 27 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 than0.46 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

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 and 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)

Participatory Rural Appraisal (PRA) is a methodology for interacting with villagers understanding them and learning from them. It involve a set of principles , a process of communication and a menu of methods for seeking villagers participation in putting forward their points of view about any issue and enabling them do their own analysis with a view to make use of such learning. Analyzing information through People participation during PRA exercise PRA initiates a participatory process and sustains it .Its principles and the menu of methods help in organizing participation.

Objectives of PRA

• To develop capabilities of a group/groups of people for critical analysis and assessment of their rural situations

• To build up village profile on different aspects based on perception of the local people

• To develop a system of information about the rural situation within the shortest possible time

• To ensure people's participation in programme development

• To make bureaucracy sensitive to the needs of the people

Techniques of PRA

• Resource Map

This indicates both the natural resources like vegetation, soil type water bodies available etc, and manmade resources needed for development of agriculture.

• Agro-ecology Map: Agro- ecology map will indicate the relation between agriculture and environment which includes weather parameters like rainfall, temperature, RH including fragmentation of holdings, drainage system weeds,etc.

• Technology Map:

The technology map will indicate the technology decision behavior of the farmers with reference to the adoption of agricultural technologies in terms of cropping pattern, varieties , Plant protection measures and nutrient management followed etc,. giving a totality of crops situation in the village.

• Social Map

This is to depict the social-structure of the village like local bodies, caste structure, housing pattern Institutions organizations etc,.

• Matrix Ranking:

Matrix ranking will indicate the reasons for technology decision behaviour of the farmers.preferences of the farmers in making choice of technology etc,.

• Mobility Map:

This will indicate the purpose for which the farmers go out for agriculture purpose.

• Time line: This indicates the major events remembered by the villagers and provides the past history of the village.

• Time trend: This indicates the change in past few years related to variables / technologies concerned with agriculture.

• Seasonal analysis: This indicates the month wise situation/ work operations from January to December with regard to agriculture and animal husbandry.

• Impact diagram : This indicates the changes that have occurred either for individual or for the society due to adoption of a technology.

• Wealth Ranking: Wealth ranking means placing people on the different places of social ladder according to the villagers criteria with reference to wealth status categorized by rural people themselves.

• Livelihood analysis: Indicates the way in which farmers belonging different category of wealth make their livelihood including the crisis management mentioning their income sources , expenditure pattern etc,.

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 06 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 Commitee	Name of Chairperson	Name of Seceratary	Name of WDT Member
1.	**2C3A1e2c**	Uncha	Sri Jagdish Mishra S/o Sri Chhakki Lal	Sri Aditaya Pachauri S/o Lt. Lalji Pachhauri	Sri Rahul dubey
2.	**2C3A1d1a**	Migani	Sri Mata Prasad S/o Param Sukh	Sri Sher Singh S/o Sri Ram Prakash	Sri Ramsaran Sanjay
3.	**2C3A1d1b**	Harauli	Sri Ramtirth	Sri Malarak	Sri Harish
4.	**2C3A1d1c**	Rampura Madhau Garh	Sri Sarawan Singh S/o Ram Bharos	Sri Rajenra Singh S/o Ram Gopal	Sri Ram Shankar Rajput
5.	**2C3A1d1d**	Tajpura	Sri Yashvant Singh	Sri Pintu	Sri Brijraj Singh Gangwar
6.	**2C3A1c1a**	Gopalpura	Smt. Pushp Lata W/o Sri Ram Mohan	Sri Santosh Kumar S/o Sri Mata Prasad	Sri Hakim Singh

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-X JALAUN

S. No.	Name of Micro-watershed	Name of SHG Group	President	Secretary	Number Of Members	Work of SHG Group
1.	2C3A1c2c	Maa Kali SHG	Sri Chandrapal S/o Vinay Singh	Sri Kamal Singh S/o Radhey Lal	20	Pattal Making & Goat Keeping
2.	2C3A1d1a	Buddha SHG	1.Sri Pankaj Singh S/o Gaya Prasad	Sri Ram Mohan S/o Mata Prasad	22	Goat Keeping & Pattal Making
		Ambedakar SHG	2. Sri Virendra S/o Baladin	Sri Pritam S/o Parmole	22	Goat Keeping & Pattal Making
3.	2C3A1d1b	Yaduvanshi SHG	Sri Mulayam Singh S/o Mukand Singh	Sri Arvind Singh S/o Raghuvir	11	Buffalo Keeping
4.	2C3A1d1c	Jai Bajarang SHG	Sri Sunil Kumar S/o Jagadish	Sri Pritam Singh S/o Malkhan	10	Goat Keeping
5.	2C3A1d1d	Sri Ram SHG	Sri Ram Kumar	Sri Krishna Ramf	11	Sewing
6.	2C3A1c1a	Bhole Shankar SHG	Sri Kashi Prasad S/o Mata Deenf	Balwan S/o Indal	10	Buffalo Keeping
		Jai Maa Durge SHG	Sri Farid Khan S/o Tahir Khanf	Sri Santosh Kumar S/o Mata Prasad	14	Pattal Making
		Pitambare Maa	Smt. Archana Devi W/o Santosh Kumar	Smt. Manorma W/o Munil Singh	14	Sewing, Sticking

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.	2C3A1c2c	Soil conservation	1.Sri Kailash Nath S/o Govind	1. Ram Autar S/o SupaLal	15
		Water conservation	2.Sri Ram Lakhan S/o Mihi Lal	2. Vidyaram S/o Babu	12
2.	2C3A1d1a	Water conservation	1.Sri Tej Singh Pal S/o Sarawan	1. Sri Ram Das S/o Baladeen	12
		Soil conservation	2.Sri Pankaj S/o Gaya Prasad	2.Arvind S/o Param Sukh	15
3.	2C3A1d1b	Soil conservation	1.Sri Arvind S/o Bhagwan	1. Sri Bramha Singh S/o Shankar Singh	14
		Water conservation	2.Sudama S/o Chhotelal	2. Sri Tudey S/o Manphule	10
4.	2C3A1d1c	Soil conservation	1.Sri Arman Singh S/o Kesar Singh	1.Sri Raju S/o Bhagirath	15
		Water conservation	2. Sri Prem Kuvar w/o Malkhona	2.Indupal Singh S/o Satawan Singh	10
5.	2C3A1d1d	Soil conservation	1.Sri Gyani S/o Jahar Singh	1.Ram Nath S/o Tulsi Verma	14

		Water conservation	2.Ram Siya S/o Dhanole	2.Sri Ramdhan S/o Hari Ram	10
6.	2C3A1c1a	Soil conservation	1.Sri Nasim Ahmad S/o Shahid Ahmad	1.Sri Tilak Singh S/o Panna	15
		Water conservation	2.Sri Maan Singh S/o Khachchhu	Balawan S/o Indal	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 Jalaun-1st at Jalaun.

DETAIL OF PIA STAFF

S. No.	Name	Designation	Qualification
1.	Sri Har Prasad	Bhumi Sanrakhan Adhikari	Ag. Engg. Diploma
2.	Sri Ram Singh	Junior Engineer	Civil Engg. Diploma
3.	Sri M.A. Khan	Junior Engineer	Civil Engg. Diploma
4.	Sri Ram Gopal yadav	Accountant	M.com
5.	Sri Chandra Pal	Senior Clerk	M.A.
6.	Sri Prabhash Narayan Srivastava	Junior clerk	Intermediate
7.	Sri Lal ji	Tracer	B.A.
8.	Sri Rahul Kumar Dubey	A.S.C.I.	M.Sc.(Ag.)
9.	Sri Ramsankar Rajpoot	A.S.C.I.	M.Sc.(Ag.)
10.	Sri Brajraj Singh Gangvar	A.S.C.I.	M.Sc.(Ag.)
11.	Sri Hakim Singh	Ziledar	Intermediate
12.	Sri Harish Babu	Irigation Sup.	Intermediate
13.	Sri Mansa Ram	Irigation Sup.	Intermediate
14.	Sri Ram Saran Sanjay	Irigation Sup.	M.A.
15.	Sri Ashok Kumar Mishra	Work In-charge	Intermediate
16.	Sri Dinesh Chandra Dubey	Munshi	B.A.
17.	Sri Ram Avtar Yadav	Irigation Sup.	Intermediate
18.	Sri Har Narayan Srivastava	Driver	Intermediate

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.-X

S. No.	Name of Member of WDT	Designation	Qualification	Experience	Subject
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 Ram Singh	Junior Engineer	Civil Engineering Diploma	30 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
3.	Sri M.A. Khan	Junior Engineer	Civil Engineering Diploma	30 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
4.	Dr. Sunil Kumar	Agriculture Scientist	M. Sc., PhD.	8 yrs in Agriculture development under Water Resources Management Project	Agriculture Scientist
5.	Sri Hari Shankar Sakayvar	Agronomist	M. Sc., Ag	8 yrs in Soil Science under Water Resources Management Project	Soil & Water conservation
6.	Smt. Pushpa Devi	Social Worker	Graduate	8 years of experience of Social Work	Social Work
7.	Sri Rahul Kumar Dubey	Asst. Soil conservation Inspector	M. Sc., Ag	30 yrs in Soil Science under Water Resources Management Project	Soil & Water conservation
8.	Sri Ram Shankar Rajpoot	Asst. Soil conservation Inspector	M. Sc., Ag	30 yrs in Soil Science under Water Resources Management Project	Soil & Water conservation
9.	Sri Brajraj Singh Gangwar	Asst. Soil Conservation Inspector	M. Sc., Ag.	25 yrs in Agriculture development under Water Resources Management Project	Soil Conservation
10.	Sri Ram Saran Sanjay	Work Incharge	M.A.	07 yrs in Agriculture development under Water Resources Management Project	Soil Conservation
11.	Sri Harish Babu	Work Incharge	Intermediate	07 yrs in Agriculture development under Water Resources Management Project	Soil Conservation
12.	Sri Hakim Singh	Work In-Charge	Intermediate	07 yrs in Agriculture development under Water Resources Management Project	Soil Conservation
13.	Sri Ram Deen Kushwaha	Work In-Charge	-	6 yrs in Agriculture development under Water Resources Management Project	Land and Water Management
14.	Sri Ram Sanehi	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. 25.056 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 activitiesIntegrated Watershed Development Programme is aimed at the socio-comic 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. 25.056 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 *Lankadhish 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 womens.

WORK PROPOSED FOR NATURAL RESOURSE CONSERVATION IN WATERSHED MANAGMENT

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 their is a change in slope and soil texture. Peripheral bund will 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.

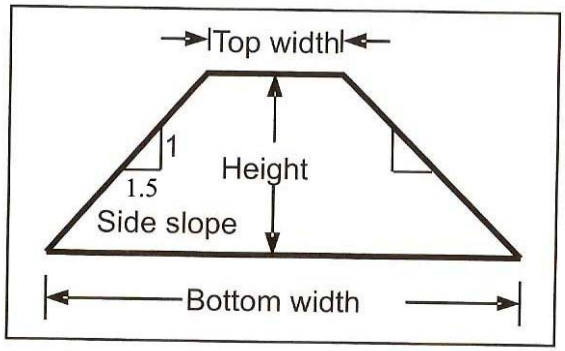
AGRO FORESTRY

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.

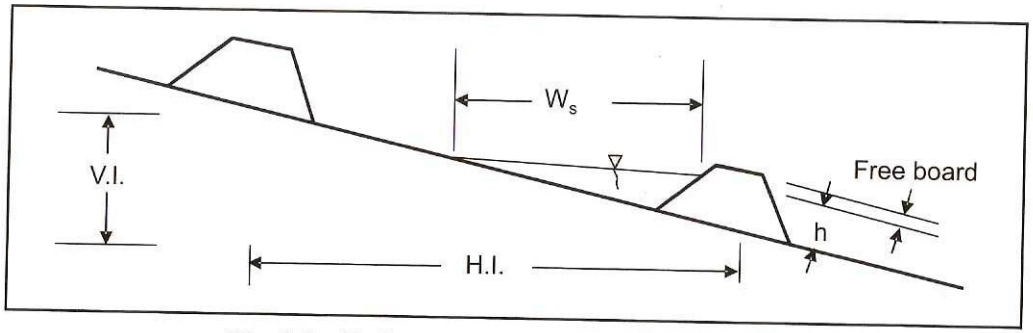
DRY LAND HORTICULTURE

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

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-X, (2010-2011)

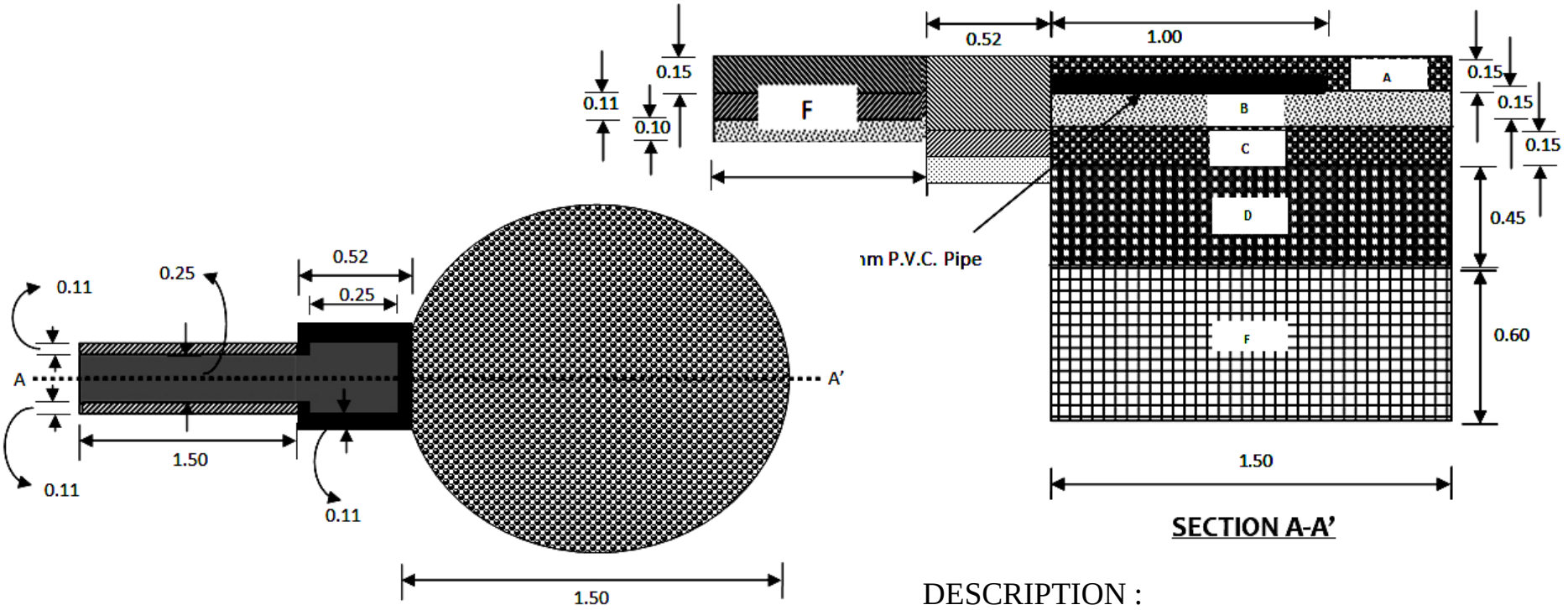
S. No	Micro-Watershed Code	Amount earmarked for EPA	Entry point activities Planned	Expected month & year of completion
1	**2C3A1c2c**	3.840	Repairing and Renovation of Kharanja, Nali, well and Hand pump, Plantation	March 2011
2	**2C3A1d1a**	4.320		March 2011
3	**2C3A1d1b**	4.800		March 2011
4	**2C3A1d1c**	3.840		March 2011
5	**2C3A1d1d**	4.416		March 2011
6	**2C3A1c1a**	3.840		March 2011
	Total	25.056		

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

S.No	Micro-Watershed Code	Name of Project	Occupation of S.H.G	Total cost (Rs. In lacs)
1	**2C3A1c2c**	Uncha	Pattal Making & Goat Keeping	9.600
2	**2C3A1d1a**	Migani	Goat Keeping & Pattal Making	10.800
3	**2C3A1d1b**	Harauli	Buffalo Keeping	12.000
4	**2C3A1d1c**	Rampura Madhau Garh	Goat Keeping	9.600
5	**2C3A1d1d**	Tajpura	Sewing	11.040
6	**2C3A1c1a**	Gopalpura	Buffalo Keeping, Pattal Making, Sewing, Sticking	9.600
			Total	62.640

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	**0.077 cum**
10.	Brick work 1:4	1 x 2	1.50	0.11	0.15	**0.049 cum**
	Total of (9.) + (10.) Brick work 1:4.					**0.126 cum**
11.	Plastering 1:4	1 x 2	1.50	0.56	-	1.680 m^2

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^2

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^2	0.18	-	-	-	-	0.025
Total			**0.35**	**60**	**1.059**	**1.058**	**0.264**	**0.389**

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
	Total			**Rs. 3006.30**

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^2	40.00/m^2	67.20
8.	Curing	0.126 cum	25.00/cum	3.15
	Total			**Rs. 315.22**

Total Expenditure	
1. Cost of materials	3006.30
2. Labour Charges	315.22
Total	**Rs. 3,321.52**
Say	**Rs. 3,325.00 only**

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 2 2	0.52 0.52 0.30	0.52 0.11 0.11	0.11 0.30 0.30	**0.029** **0.034** **0.019**
	Total					**0.082 cum**
4.	Plastering	4 2 2 1	0.30 0.52 0.30 0.30	- - - 0.30	0.30 0.11 0.11 -	**0.360** **0.114** **0.066** **0.090**
	Total					**0.630 m^2**
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^2	0.06	0.009	-	-	-
Total			**0.17**	**0.055**	**39**	**1.00 m**	**1 nos.**

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
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
Total				**Rs. 426.35**

LABOUR CHARGE

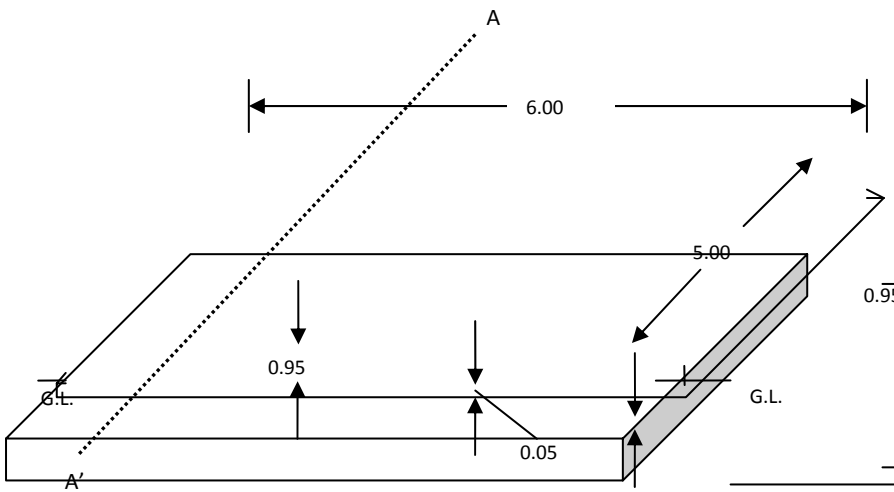
S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	0.24 cum	36.66/cum	8.79
2.	Sand Laying	0.027 cum	33.33/cum	0.89
3.	Brick Work	0.082 cum	370.00/cum	30.34
4.	Plastering	0.63 m^2	40.00/m^2	25.20
5.	Fixing of pipe & filter	-	-	25.00
	Total			**Rs. 90.22**

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

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

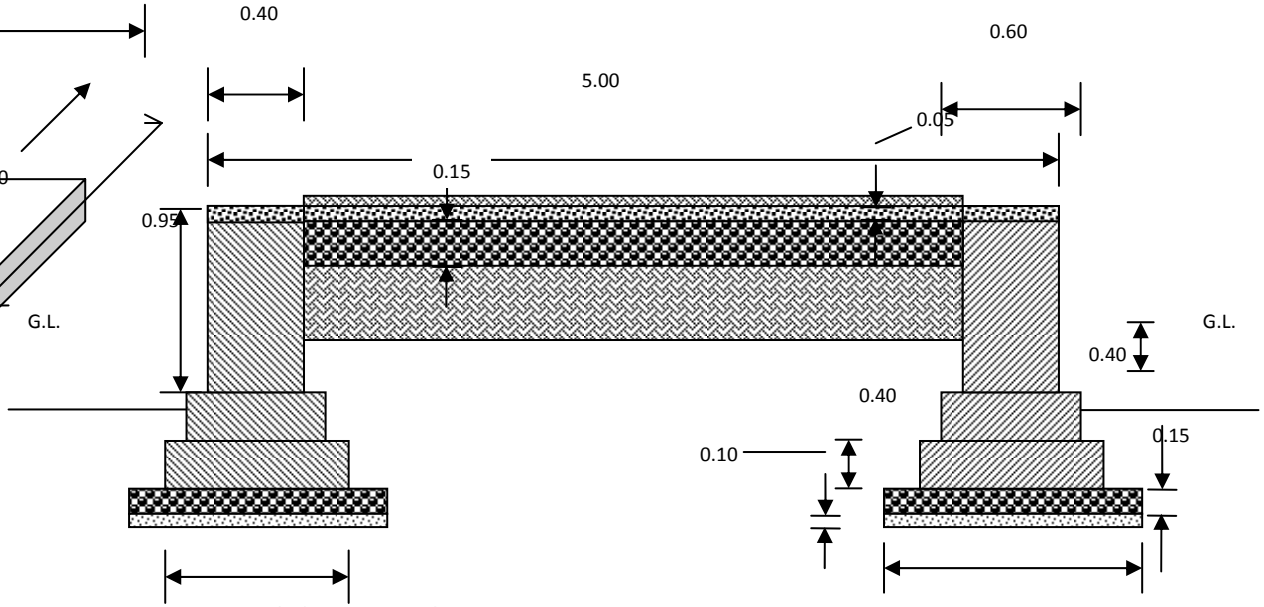
S. No.	Description of work	Unit	Quantity	Rate	Amount
1	Transportation of rig machine, hand Pump material, P.V.C. Pipe, strainer and cement from store to work site.	work	1	3000.00	3000.00
2	Supply of material to install Hand Pump	No.	1	5380.00	5380.00
	i- Lowering and installation of India mark-II Hand Pump with G.I. Pipe & connecting rods.				
	ii- 140 mm P.V.C. Pipe 8kg/cm2.	metre	20	240.00	4800.00
	iii- medium G.I.Pipe of the 32 mm Ø.	metre	30	202.90	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
				Total	**Rs. 42,567.00**
				Says	**Rs. 42,600.00**

DRAWING OF KRISHAK VIKAS MANCH



ISOMETRIC VIEW OF PLATFORM (CHABUTRA)

DESCRIPTION



SECTION AT A-A'

DESCRIPTION

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					
	Long Wall	2	8.00	1.20	1.10	21.12
	Short Wall	2	4.00	1.20	1.10	10.56
	Total					**31.68 cum**
2.	Laying of Sand					
	Long Wall	2	6.60	1.00	0.10	1.32
	Short Wall	2	3.60	1.00	0.10	0.72
	Total					**2.04 cum**
3.	C.C.W. 1:4:8					
	Long Wall	2	6.60	1.00	0.15	1.98
	Short Wall	2	3.60	1.00	0.15	1.08
	Total					**3.06 cum**
4.	Stone masonary work 1:4 in foundation & super structure					
	1st Footing.					
	Long Wall	2	6.40	0.80	0.40	4.096
	Short Wall	2	3.80	0.80	0.40	2.432

	2nd Footing					
	Long Wall	2	6.20	0.60	0.40	2.976
	Short Wall	2	4.00	0.60	0.40	1.920
	Super Structure					
	Long Wall	2	6.00	0.40	0.90	4.320
	Short Wall	2	4.20	0.40	0.90	3.024

Total						**18.768 cum**
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
Total						**19.80 m^2**

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 masonary 1:4		18.568 cum
5.	C.C.W. 1:2:4		1.500 cum
6.	Raised Pointing 1:3		19.80 m^2

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^2	0.91	0.093	-	-	-
Total			**76.64**	**11.995**	**18.768**	**5.892**	**1.275**
Say			**77 Bags**	**12.000**	**18.768**	**5.900**	**1.280**

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
Total				**Rs. 56,436.20**

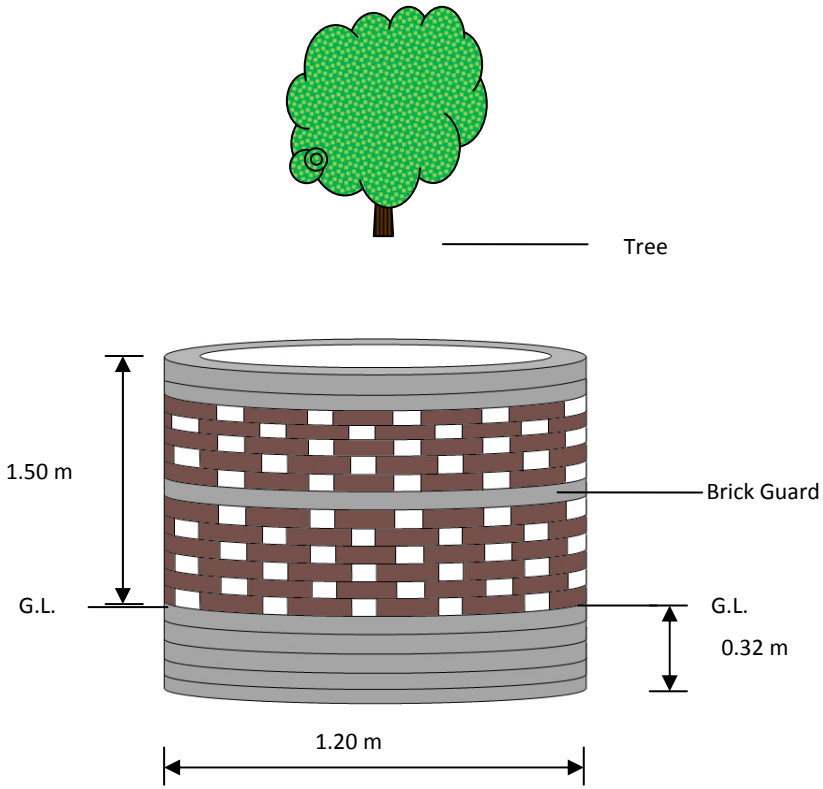
LABOUR CHARGES

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^2	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
Total				**Rs. 14,736.73**

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

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 In foundation	1 1	0.60 3.14x1.09	0.60 0.20	0.60 0.30	0.216 0.205	
Total						**0.421**	
2.	Brick work 1:4					Solid	Glazed
	In foundation In super structure with glazed Solid Glazed Solid	1 1 1 1 1	3.14x1.09 3.14x1.09 3.14x1.09 3.14x1.09 3.14x1.09	0.11 0.11 0.11 0.11 0.11	0.40 0.48 0.08 0.40 0.16	0.151 - - - 0.060	- 0.181 0.030 0.151 -
Total						**0.211**	**0.362**
3.	Plastering 1:4	1 1 1	3.14x1.20 3.14x1.20 3.14x1.09	- - -	0.07 0.15 0.07	0.264 0.565 0.239	
Total						**1.068 m^2**	

CONSUMPTION OF MATERIAL

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

COST OF MATERIALS

S. No.	Particulars	Quantity	Rate	Amount
1.	Brick Ist 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
Total				**Rs. 959.35**

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^2	40.00/m^2	42.72
Total				**Rs. 203.87**

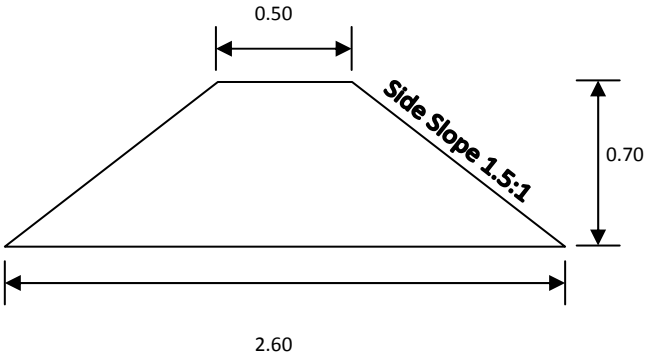
Head load and transportation 20% of material cost - Rs. 191.87

Total Expenditure		
1.	Material	2822.50
2.	Labour	1093.87
3.	Head load and transportation	1083.63
Total		**Rs. 5000.00**
Say Rs. 5000.00 only.		

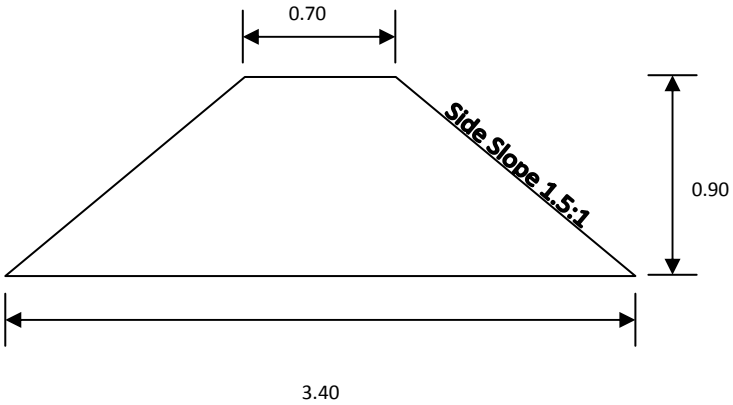
DETAILS ESTIMATE OF WATERSHED DEVELOPMENT WORK PHASE

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

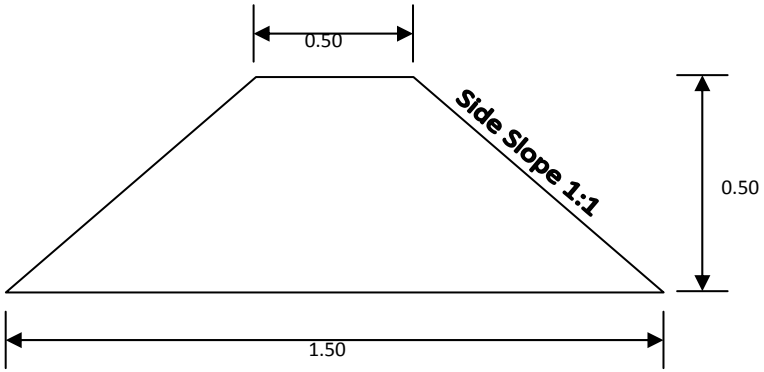
(Not to Scale)



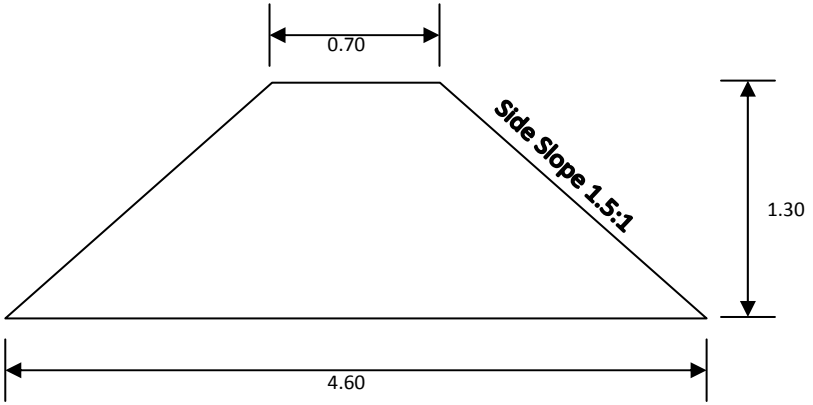
(C.B., Cross-Section – 1.085 m^2)



(S.B., Cross-Section – 1.845m^2)



(Field Bund, Cross-Section – 0.50 m^2)

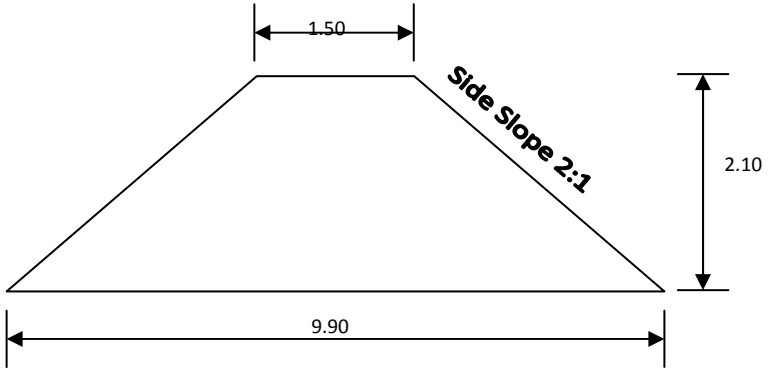


(S.B. /P.B. /M.B., Cross-Section – 3.445 m^2)

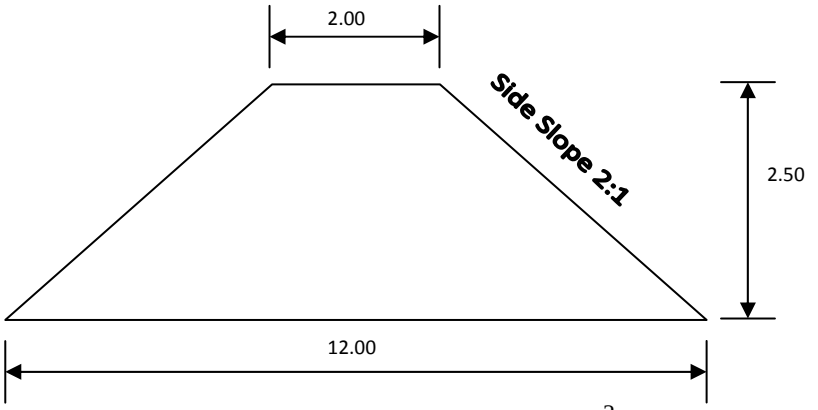
(All dimensions in Metre)

DRAWING OF EARTHEN CHEKDAM / GULLY PLUG

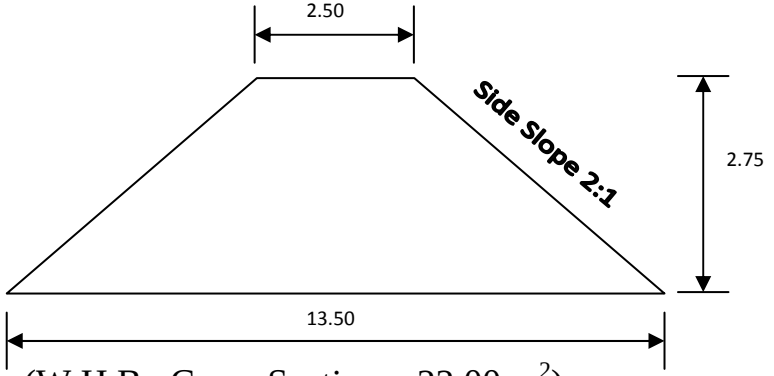
(Not to Scale)



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



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



(W.H.B., Cross-Section – 22.00 m^2)

DESIGN OF CONTOUR BUND

Type of Soil -Loam, Sandy Loam
Rain fall -24 hr in cm -25 cm
Field Stop -1%
Vertical Interval (VI) = [s/3+2] x 0.3
= [1/3+2] x 0.3
= 0.70 m
Horizontal Interval (HI) = 100 x V.I/s
= 100 x 0.7/1
Height of bund h = $\sqrt{(\text{Re x VI})/50}$ Re=maximum rainfall in cm
= $\sqrt{(25 \text{ x } 0.7)/50}$
= $\sqrt{0.35}$
= 0.59
Say 0.60 m
Free board =15% of height minimum -10 cm
Height = 0.60 + 0.10
= 0.70 m

Taking top width of bund 0.50 m and side slope 1.5:1
Then base of Bund = 0.50 + (1.50 d) x 2
= 2.60 m
Cross-Section of bund = (0.50 + 2.60) x 0.70 / 2
= 1 .085 m^2
Length of bund = 100 s / V.I.
= 100 x 1 / 0.70
=142.85 m/ha

Say 150 m/ha

Earth work/ha = 150x1.085
= 162.75 cum

Cost Rs. / ha = 162.75 x 39.16 = 6373.29
Say 6375.00

DESIGN OF SUBMERGENCE BUND

Types of soil – -Loam, Sandy Loam Rainfall intensity for 24 hrs – 25cm

Field slope 3% V.I.=[s/3+2]x0.30

=0.90 m

Horizontal Interval = (100xV.I.)/s = (100x0.90)/3

=30 m

Height of bund h=$\sqrt{(\text{Re x V. I.})/50}$ =$\sqrt{(25 \text{ x } 0.90)/50}$ =$\sqrt{0.45}$ = 0.67 m. **Say 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 x 1.5d
= 0.70+2.70
= 3.40

Cross Section of Submergence Bund = (0.70+3.40) x 0.90 / 2
= 1.845 m^2

Length of bund = 100 s / V.I.
= (100 x 3) /0.90

= 333 m

Feasible length	100 + 25 + 25
	= 150 m
Earth work/ha	=150 x 1.845
	=276.75
Cost per ha	=276.75 x 39.16
	=10,837.53
	Say 10,850=00

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)x0.50/2 = 0.50 m^2
Length per hectare	= 200 m
Earthwork	= 200 x 0.50 = 100 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)x1.30/2
	= 3.445 m^2
Cost/ meter	= Rs. 142.oo

TYPICAL SECTION OF EARTHEN CHECK DAM / GULLY PLUG

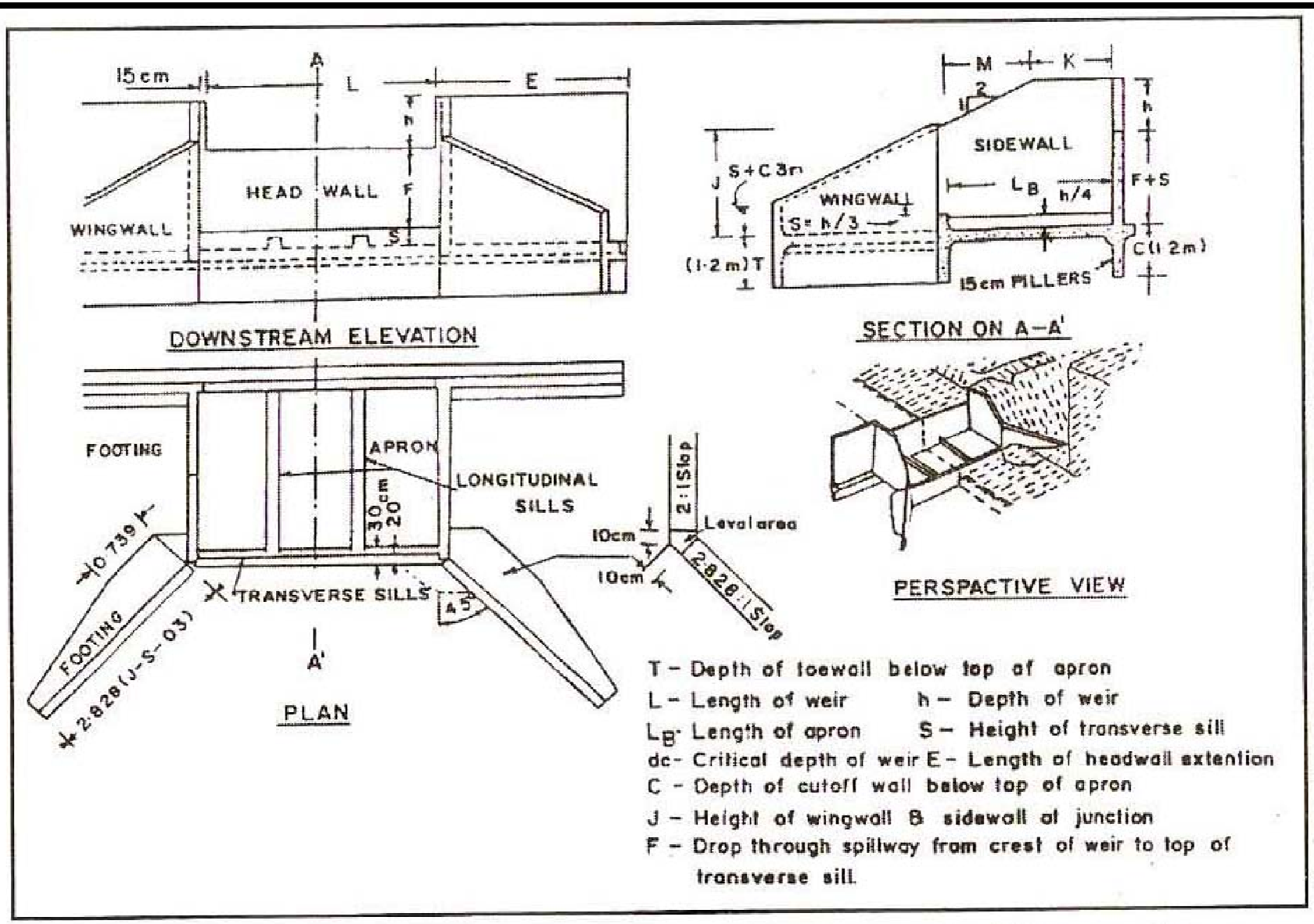
Top width	= 1.50 m
Side slope	= 2:1
Height	= 2.10m
Bottom Width	= 9.90 m
Cross section	= (1.50 + 9.90) x 2.10 / 2
	= 11.97 m^2
Cost per meter	= Rs. 551.45

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) x 2.50 / 2
	= 17.50 m^2
Cost /meter	= Rs. 839.12

TYPICAL SECTION OF W.H.B

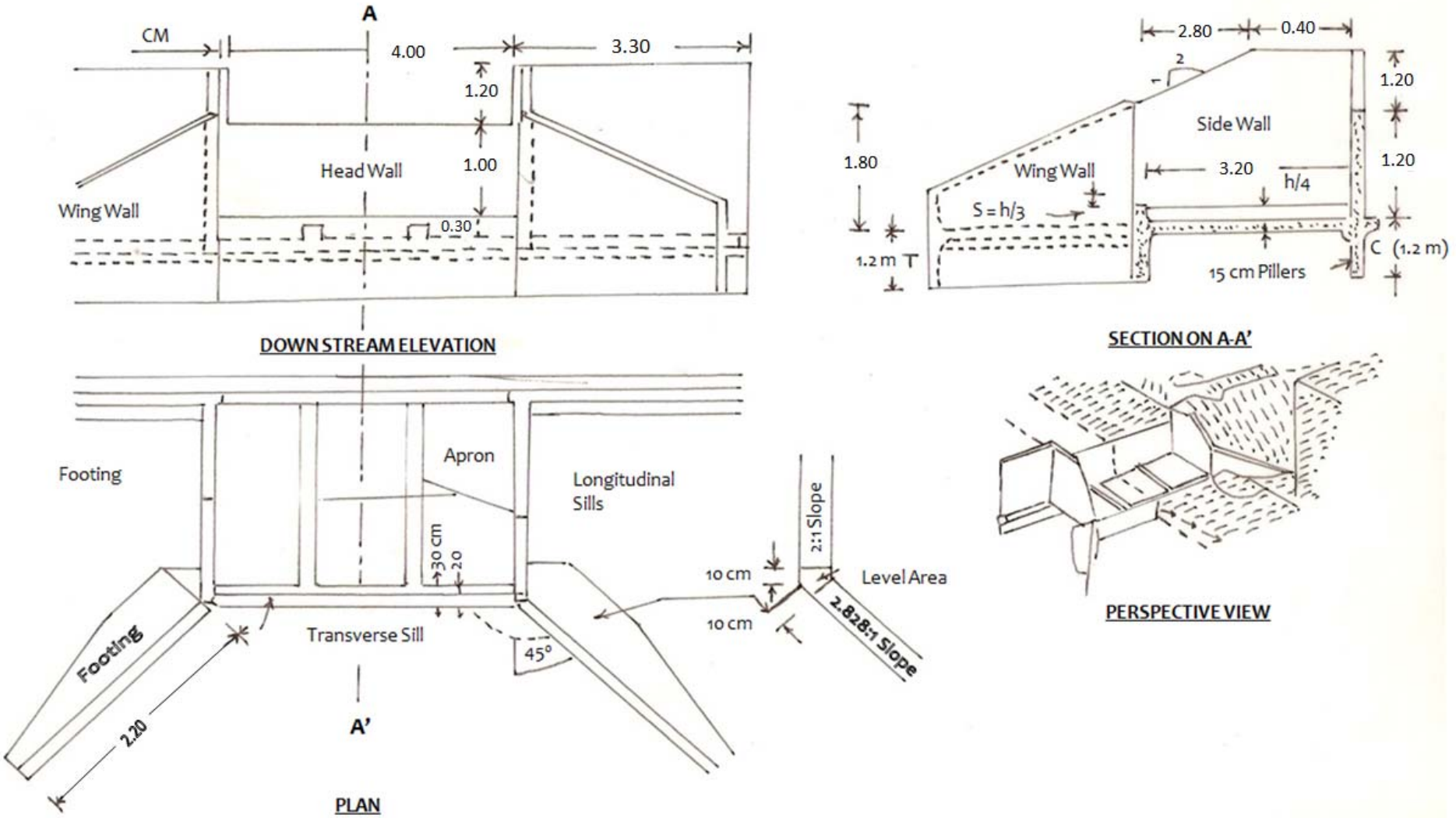
Top width	= 2.50 m
Side slope	= 2:1
Height	= 2.75 m
Bottom Width	= 13.50 m
Cross section	= (2.50 + 13.50) x 2.75 / 2
	= 22.00 m^2
Per meter cost	= Rs. 1085.92



Nomenclature and symbols of a typical drop spillway

DRAWING OF SPILLWAY OF CREST LENGTH 4.0 m

Not to Scale



DETAIL ESTIMATE OF DROP SPILLWAY OF CREST LENGTH 4.00 METRE

1. Earth work in cutting in foundation

S. No.	Description of work	No.	L	B	D/H	Quantity
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^2

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^2	1.61	0.165	-	-	-
Total			**193.50**	**27.5640**	**59.045**	**5.75**	**0.378**
Say			**194 Bags**	**27.5640 cum**	**59.04 cum**	**5.75 cum**	**0.38 cum**

COST OF MATERIALS

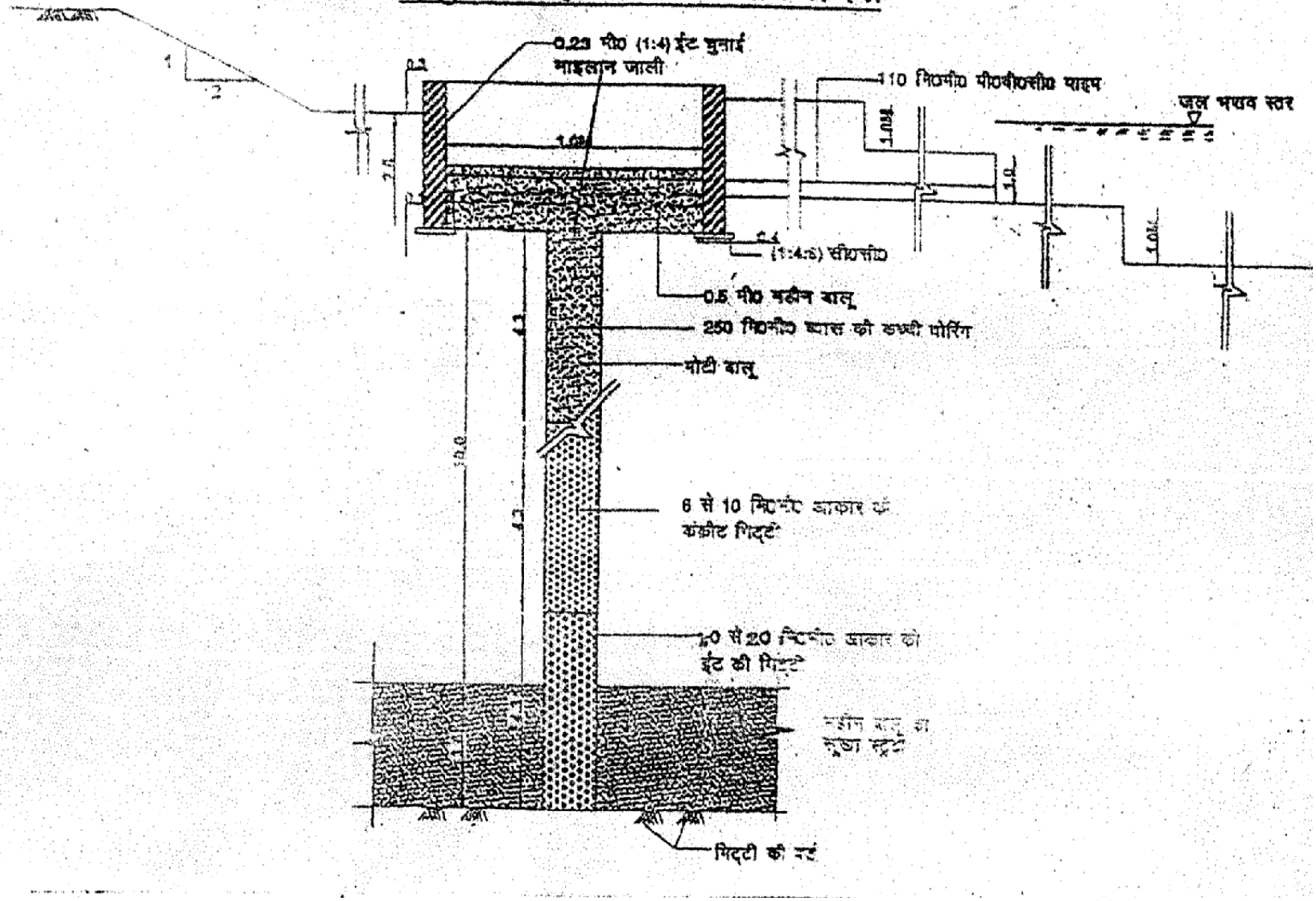
S.N0	Name of Materials	Quantity	Rate	Amount
1.	Cement	194 Bags	285.00/bag	55290.00
2.	Coarse sand	27.564 cum	2550.00/cum	68910.00
3.	Brick	59.04 cum	1025.00/cum	60516.00
4.	G.S.B. 25-40 mm	5.75 cum	855.00/cum	4916.25
5.	G.S.Grit 10-20 mm	0.38 cum	1250.00/cum	475.00
Total				**Rs. 190107.25**

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^2	51.61/m^2	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
	Total			**Rs. 45,984.50**

Total Expenditure	
1. Cost of materials	190107.00
2. Labour Charges	45984.50
Total	**Rs. 236091.25**
	Say Rs. 236091.00 only
	Say Rs. 236091.00 only

रिचार्जशाफ्ट की ड्राइंग
लघु सिचाई विभाग उत्तर प्रदेश



Detail Estimate of Recharge Shaft

S. No.	Description of Work	No.	Length (m.)	Breadth (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	3.143×1.4	0.40	0. 25	0.439cum.
4.	B/W(1:4)for filter chamber	1	3.143×1.23	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. No.	Item	Quantity	Cement bag	c/sand m^3	Bricks no.	B/ballast m^3	Kankar m^3	Fine sand m^3
1.	c.c.(1:4:8)	0.439m^3	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^3	35.08/m^3	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^3	110.0/m^3	48.29
4.	Brick work	2.22 m^3	385.0/ m^3	854.70
5.	Filling of graded material	L.S.	-	200.00
	TOTAL	**-**	**-**	**4289.07**

Cost of Material

S.No.	Item	Quantity	Rate(Rs.)	Amount(Rs.)
1.	1st class bricks	1021no.	4149.0/%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^3	1080.0/ m^3	653.40
5.	10mm kanker	0.210 m^3	168.0/ m^3	35.28
6.	Coure sand	1.017 m^3	950.0/ m^3	966.15
7.	Fine sand	0.392 m^3	624.0/ m^3	244.60
	TOTAL	**-**	**-**	**11135.50**

Abstract of Cost

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

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.-X 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 –X, (MADHOGARH) 2010-11

Phasing of various works/activities during different years of the project period for treatable area 5220.00 ha out of total area 5570.00 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 A	**Administrative Cost** **TA & DA, P.O.L/Hiring of vehicle/office and payment of electricity and phone bill etc. computer, stationary and office consumable and contingency**	10%	-	15.660	-	15.660	-	15.660	-	15.660	-	62.640
B	**Monitoring**	1%	-	1.566	-	1.566	-	1.566	-	1.566	-	6.264
C	**Evaluation**	1%	-	1.566	-	1.566	-	1.566	-	1.566	-	6.264
	Sub Total	12%	**-**	**18.792**	**-**	**18.792**		**18.792**		**18.792**		**75.168**
2. **A.**	**Preparatory Phases** **Entry Point Activities, , Repairing & Renasation Bundhies, check dam and const./repair of culverts**	4%	-	25.056	-	-	-	-	-	-	-	25.056
B.	**Capacity Building** **D. SLNA Level** **E. WCDC Level** **F. PIA**	0.30% 0.90% 3.80%	-	12.528	-	12.528	-	6.264	-	-	-	31.320
C.	**Preparation of DPR**	1%	**-**	6.264	-	-	**-**	-	**-**	**-**	**-**	6.264
	Sub Total	10%	-	43.848	-	12.528	-	6.264	-	-	-	62.64
3. **A.**	**Watershed Works** **Soil & moisture conservation** **1. Construction of Bunds (graded, contour and field Bund)** **2. Marzinal & Peripheral Bund with structure**	**50%**	-	-	2020.00	125.280	1980.00	103.356	1220.00	84.564	5220.00	313.200
B.	**Water Resources Development** **3. Water Harvesting**											

	Structure/ Bundhi Pucca Check Dams, Farm Pond											
C.	**Agroforestry & Horticululture** **4.Agroforestry** **5.Horticulture**											
	SubTotal	**50%**	-	-	2020.00	125.280	1980.00	103.356	1220.00	84.564	5220.00	313.200
4.	**<u>Livelihood Activities</u>** **Income generating Activities through SHGs for landless and Marginal farmers (Goat farming, Bee keeping, & live stock development Activities)**	**10%**	-	37.584	-	12.528	-	12.528	-	-	-	62.640
	SubTotal	**10%**	-	37.584	-	12.528	-	12.528	-	-	-	62.640
5.	**<u>Production System & Micro enterprises</u>** **Demonstration and assessment of improved composting system as:** **Seed, Chemical Fertilizer/ Bio Fertilizer,** **Pest Control, Advance Agriculture Equipment, Production of compost**	**13%**	-	25.056	-	18.792	-	31.320	-	6.264	-	81.432
	SubTotal	**13%**	-	25.056	-	18.792	-	31.320	-	6.264	-	81.432
6.	**<u>Consolidated Phase</u>**	**5%**	-	-	-	-	-	15.660	-	15.660	-	31.320
	Grand Total	**100%**	**-**	**125.44**	**2120.00**	**187.85**	**1980.00**	**188.37**	**1220.00**	**124.74**	**5220.00**	**626.40**

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.-X, 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.-X, 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.-X, 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.- X 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
	Total	**3650.00**					**153212500.00**

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
	Total	**4850.00**					**316057480.00**

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 - 316057480 = 1:2.06
153212500

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

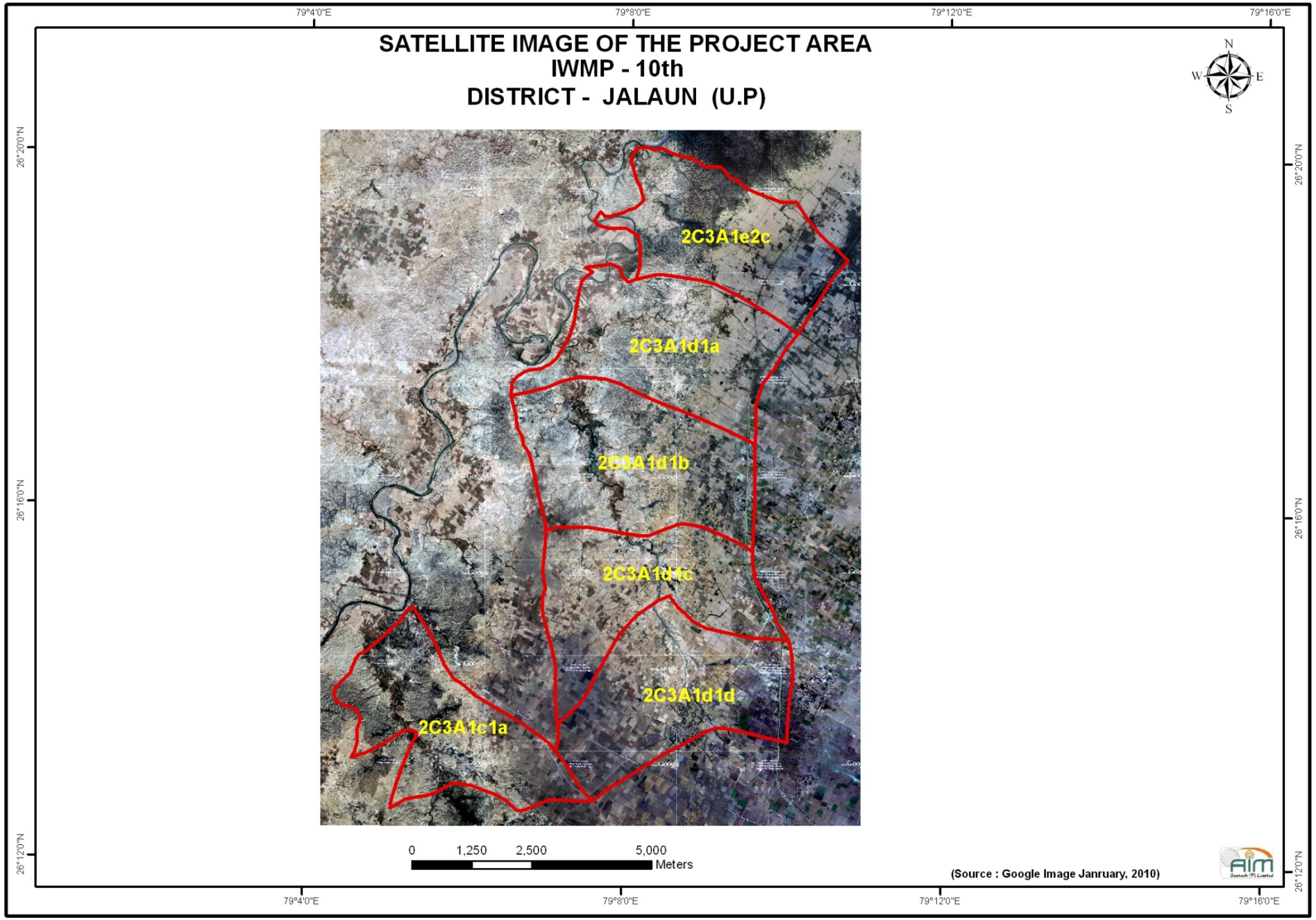
EXPECTED/ESTIMATED OUTCOMES OF IWMP-X, (2010-11) JALAUN

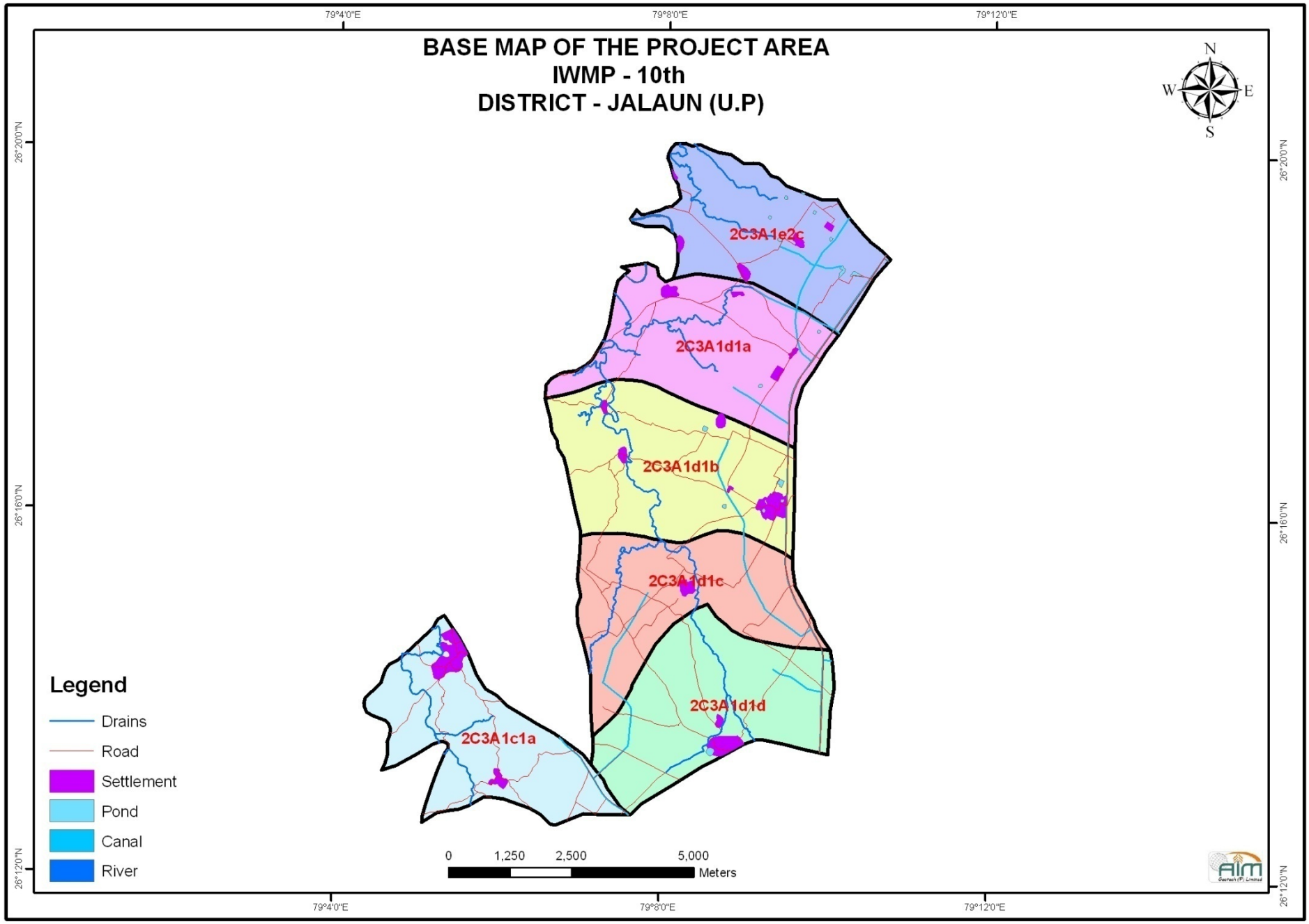
S. No.	Item	Unit of Measurement	Pre-project Status	Post-project Status
1	**3**	**4**	**5**	**6**
1.	Status of water table	Meters	15.50	14.00
2.	Ground water structure repaired/ rejuvenated	Stage	Poor	Good
3.	Quality of drinking water	Quality	Unhygenic, Drinking Water	Good Quality of Drinking Water
4.	Availability of drinking water	Month	6-7	9-12
5.	Increase in irrigation potential	%	0	100 %
	Change in cropping/land use pattern			
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

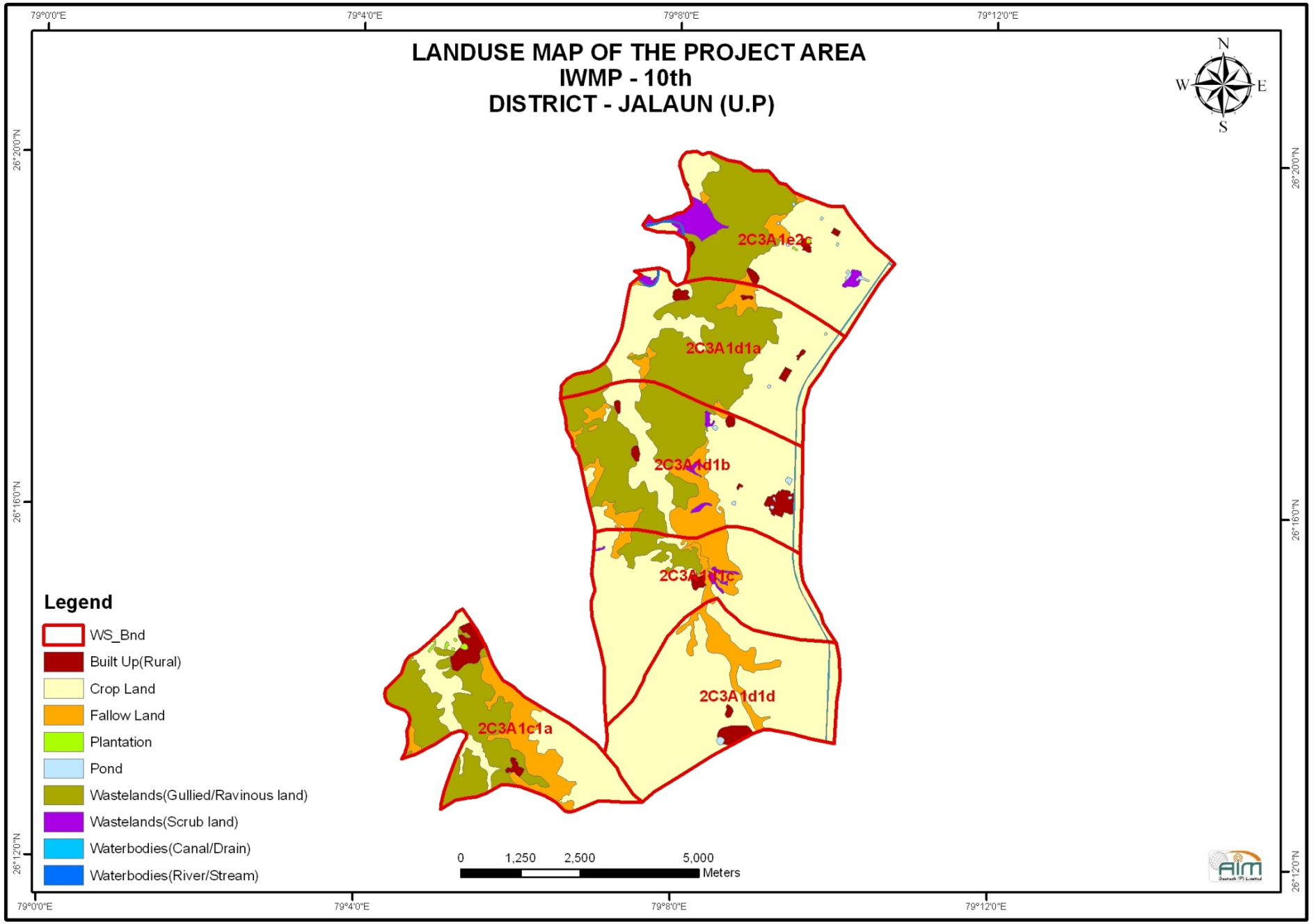
10.	Increase in milk production	%	-	50%
11.	No. of SHGs	Nos.	-	9
12.	Increase in no. of livelihoods	Nos.	-	23
13.	Migration	Nos.	-	135
14.	SHG Federation formed	Nos.	-	02
15.	Credit Linkage with banks	Nos.	-	6

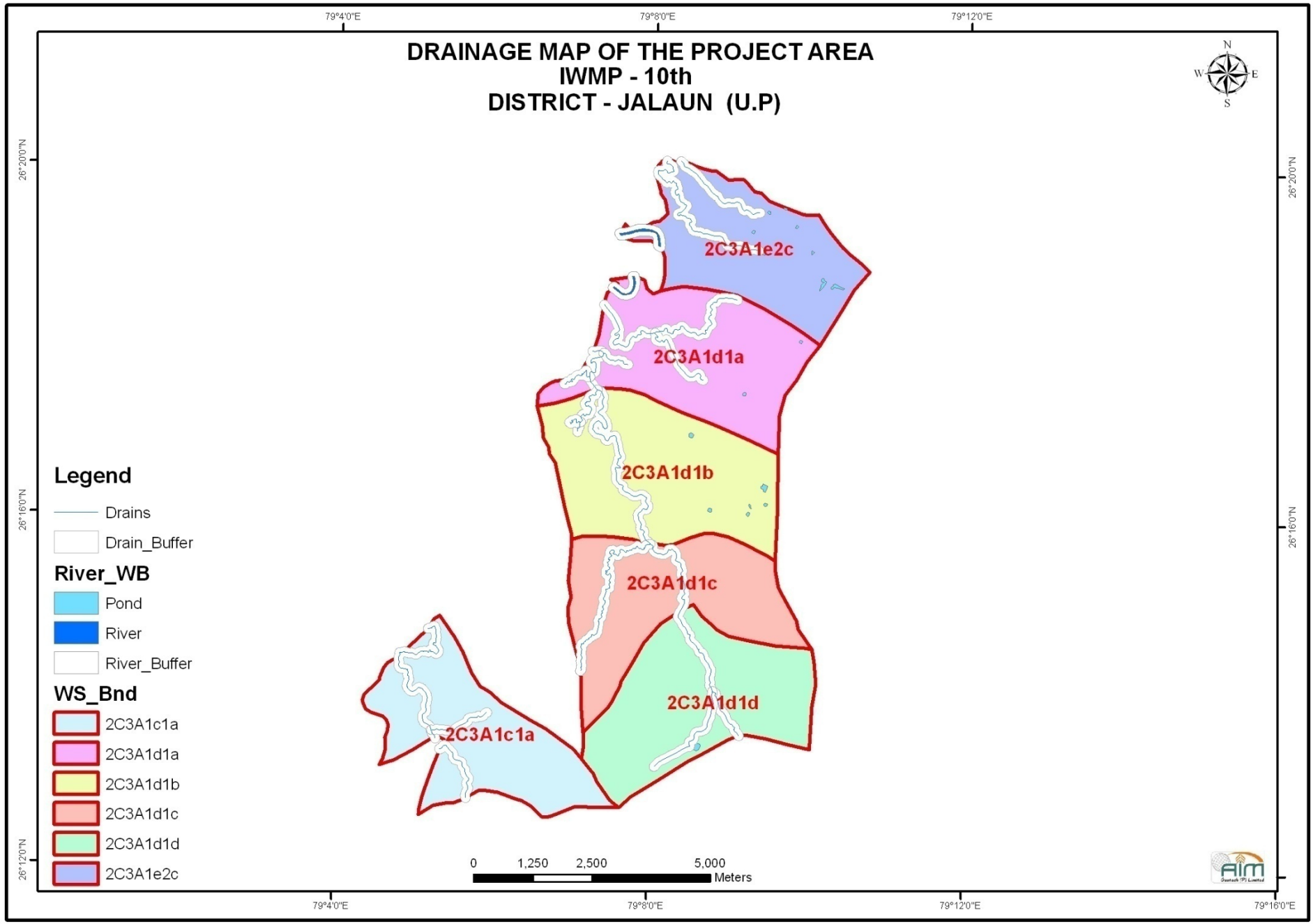
MAPS

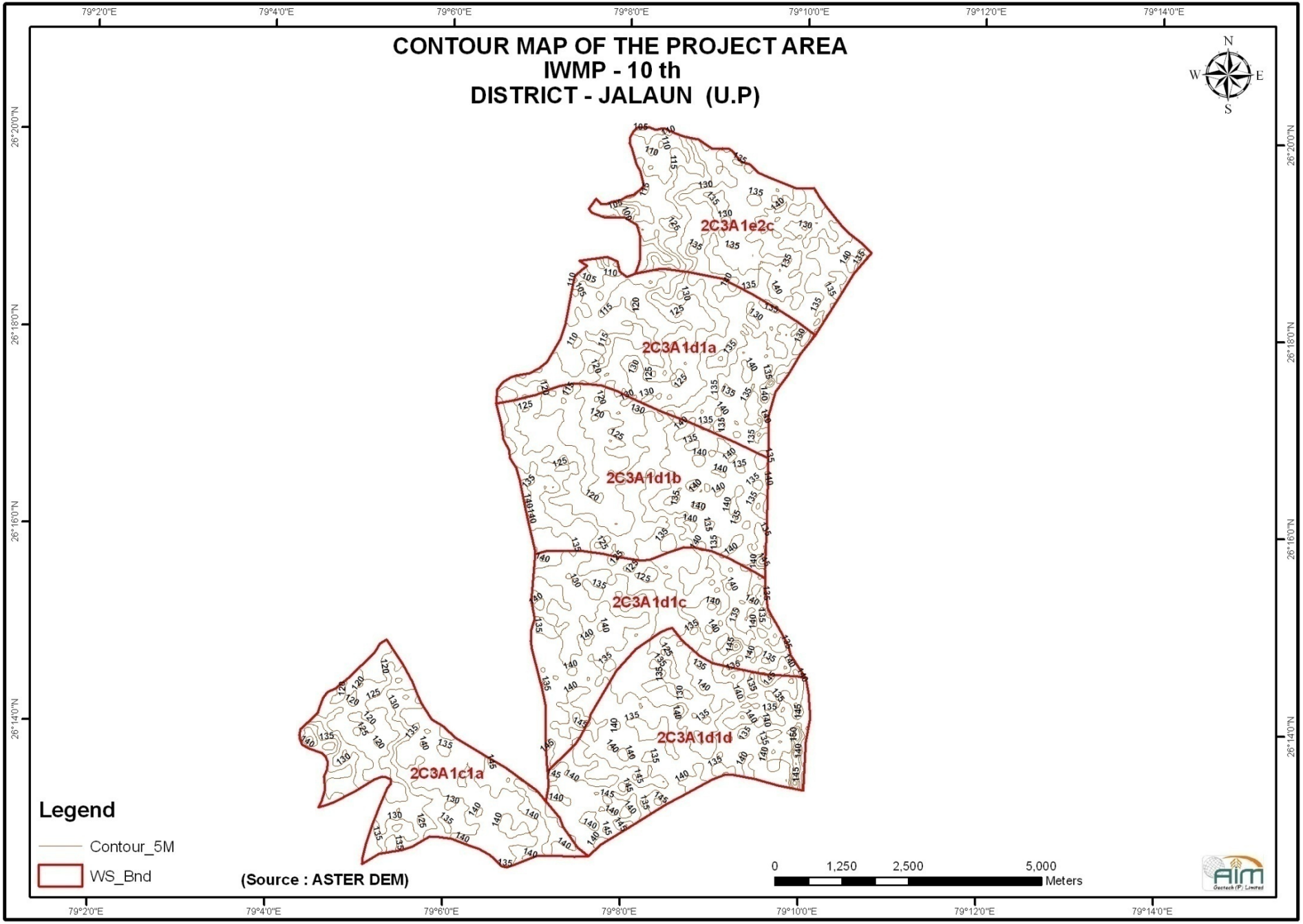
SATELLITE IMAGE OF THE PROJECT AREA
IWMP - 10th
DISTRICT - JALAUN (U.P)

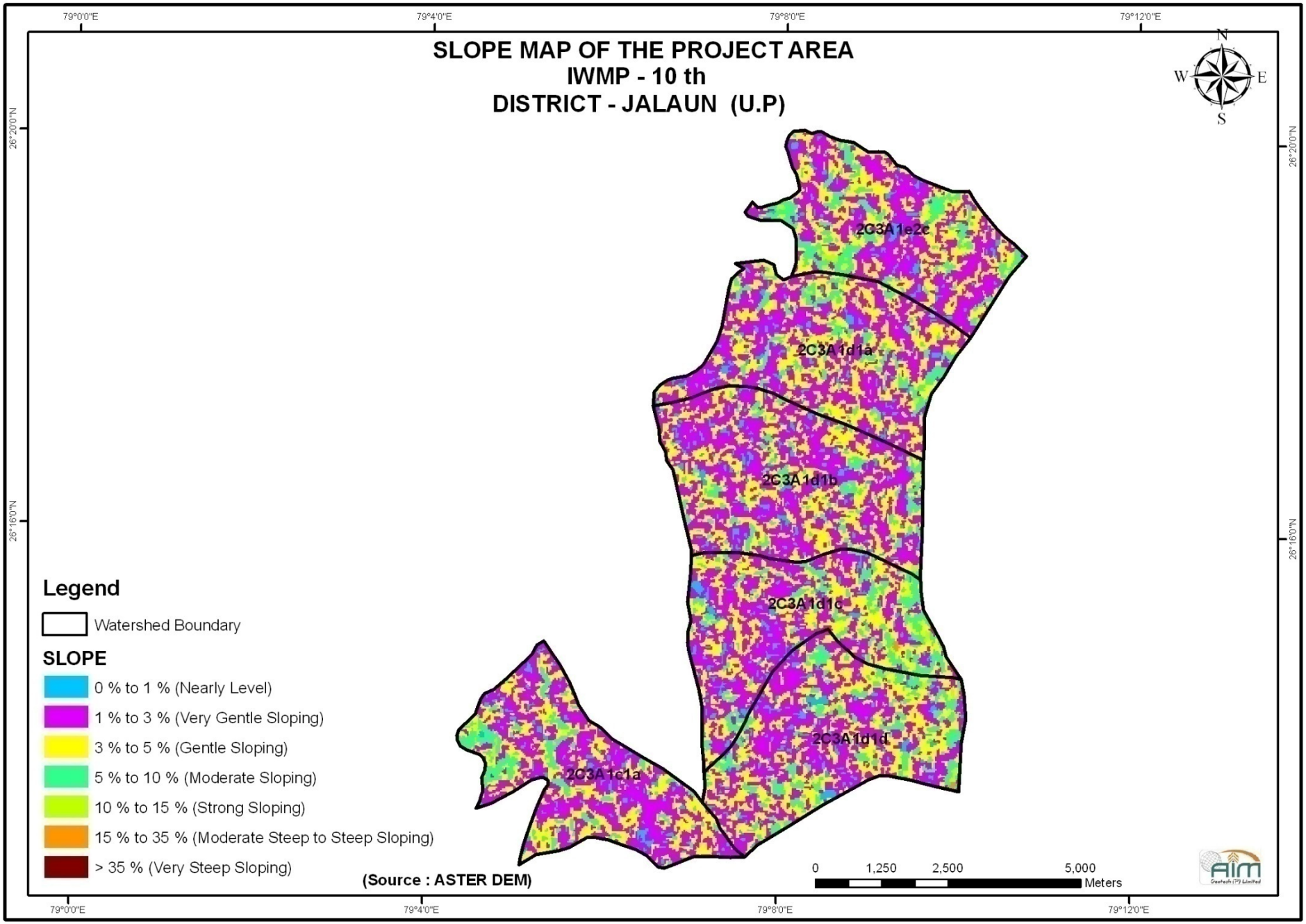


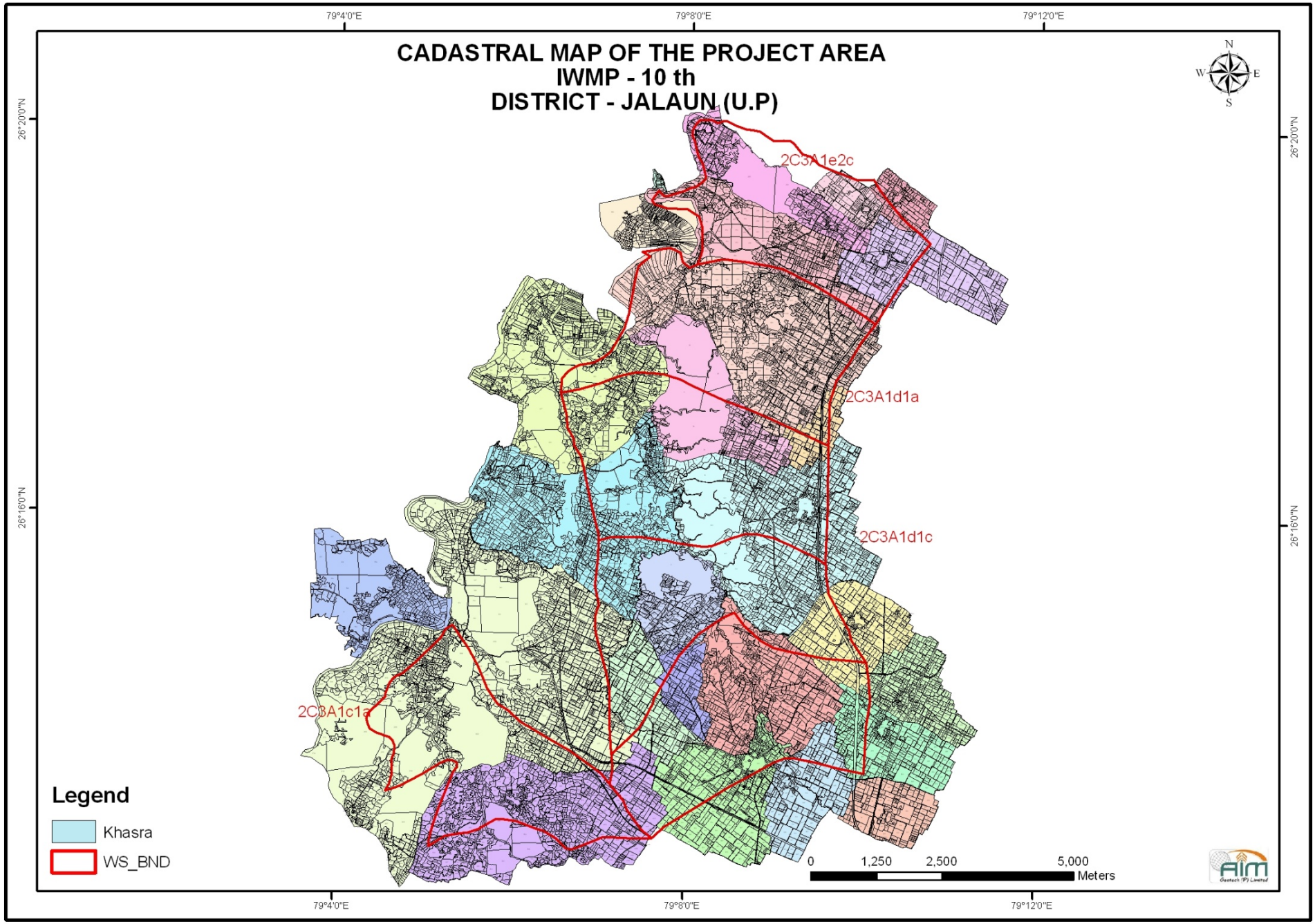

BASE MAP OF THE PROJECT AREA
IWMP - 10th
DISTRICT - JALAUN (U.P)
79°4'0"E
79°8'0"E
79°12'0"E
26°20'0"N
26°16'0"N
26°12'0"N
N
S
E
W
2C3A1e2c
2C3A1d1a
2C3A1d1b
2C3A1d1c
2C3A1d1d
2C3A1c1a
Legend
Drains
Road
Settlement
Pond
Canal
River
0
1,250
2,500
5,000
Meters


LANDUSE MAP OF THE PROJECT AREA
IWMP - 10th
DISTRICT - JALAUN (U.P)
79°0'0"E
79°4'0"E
79°8'0"E
79°12'0"E
26°20'0"N
26°16'0"N
26°12'0"N
N
S
E
W
2C3A1e2c
2C3A1d1a
2C3A1d1b
2C3A1d1c
2C3A1d1d
2C3A1c1a
Legend
WS_Bnd
Built Up(Rural)
Crop Land
Fallow Land
Plantation
Pond
Wastelands(Gullied/Ravinous land)
Wastelands(Scrub land)
Waterbodies(Canal/Drain)
Waterbodies(River/Stream)
0
1,250
2,500
5,000
Meters


DRAINAGE MAP OF THE PROJECT AREA
IWMP - 10th
DISTRICT - JALAUN (U.P)
79°4'0"E
79°8'0"E
79°12'0"E
79°16'0"E
26°20'0"N
26°16'0"N
26°12'0"N
N
S
E
W
2C3A1e2c
2C3A1d1a
2C3A1d1b
2C3A1d1c
2C3A1d1d
2C3A1c1a
Legend
Drains
Drain_Buffer
River_WB
Pond
River
River_Buffer
WS_Bnd
2C3A1c1a
2C3A1d1a
2C3A1d1b
2C3A1d1c
2C3A1d1d
2C3A1e2c
0
1,250
2,500
5,000
Meters


CONTOUR MAP OF THE PROJECT AREA
IWMP - 10 th
DISTRICT - JALAUN (U.P)
79°2'0"E
79°4'0"E
79°6'0"E
79°8'0"E
79°10'0"E
79°12'0"E
79°14'0"E
26°20'0"N
26°18'0"N
26°16'0"N
26°14'0"N
N
S
E
W
2C3A1e2c
2C3A1d1a
2C3A1d1b
2C3A1d1c
2C3A1d1d
2C3A1c1a
Legend
Contour_5M
WS_Bnd
(Source : ASTER DEM)
0
1,250
2,500
5,000
Meters


SLOPE MAP OF THE PROJECT AREA
IWMP - 10 th
DISTRICT - JALAUN (U.P)
79°0'0"E
79°4'0"E
79°8'0"E
79°12'0"E
26°20'0"N
26°16'0"N
N
S
E
W
2C3A1e2c
2C3A1d1a
2C3A1d1b
2C3A1d1c
2C3A1d1d
2C3A1c1a
Legend
Watershed Boundary
SLOPE
0 % to 1 % (Nearly Level)
1 % to 3 % (Very Gentle Sloping)
3 % to 5 % (Gentle Sloping)
5 % to 10 % (Moderate Sloping)
10 % to 15 % (Strong Sloping)
15 % to 35 % (Moderate Steep to Steep Sloping)
> 35 % (Very Steep Sloping)
(Source : ASTER DEM)
0
1,250
2,500
5,000
Meters


CADASTRAL MAP OF THE PROJECT AREA
IWMP - 10 th
DISTRICT - JALAUN (U.P)
79°4'0"E
79°8'0"E
79°12'0"E
26°20'0"N
26°16'0"N
N
S
E
W
2C3A1e2c
2C3A1d1a
2C3A1d1c
2C3A1c1a
Legend
Khasra
WS_BND
0
1,250
2,500
5,000
Meters

PREPARATION OF DPR

Detail Project Report of Integrated Watershed Management Programme IWMP- 10th 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 Madhogarh etc., Topo sheet (1 : 50000) survey of India- Dehradoon and technical & specific input and health with preparation and drafting of detail project report.

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9	Sri Ram Gopal yadav	Accountant, I.W.M.P.-X, Jalaun
10	Sri Chandra Pal	Senior Clerk, I.W.M.P.-X, Jalaun
11	Sri Prabhash Narayan Srivastava	Junior clerk , I.W.M.P.-X, Jalaun
12	Sri Lal ji	Tracer, I.W.M.P.-X, Jalaun
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17	Sri Harish Babu	Irigation Sup., I.W.M.P.-X, Jalaun
18	Sri Mansa Ram	Irigation Sup., I.W.M.P.-X, Jalaun
19	Sri Ram Saran Sanjay	Irigation Sup., I.W.M.P.-X, Jalaun
20	Sri Ashok Kumar Mishra	Work In-charge, I.W.M.P.-X, Jalaun
21	Sri Dinesh Chandra Dubey	Munshi, I.W.M.P.-X, Jalaun
22	Sri Ram Avtar Yadav	Irigation Sup., I.W.M.P.-X, Jalaun

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:

Prepared By:

Bhoomi Sanrakshan Adhikari
Dept. of Land Development & Water Resources
Jalaun – 1st

Technically Approved By:

Deputy Director
Dept. of Land Development & Water Resources
Mandal – Chitrakoot Dham-IInd
at Hamirpur

Physically & Financially Approved:

Project Director
District Rural Development Authority
District – Jalaun

Chief Development Officer
District – Jalaun