

DETAILED PROJECT REPORT

OF

INTEGRATED WATERSHED MANAGEMENT PROGRAMME



HAMIRPUR – VIIth



SANCTION – YEAR 2010 - 2011

WATERSHED- CHANDRAVAL RIVER

BLOCK –MAUDHA

DISTRICT- HAMIRPUR (U.P.)

P. I. A. :-

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Maudha, Hamirpur (U.P.)



REPRESENTED THROUGH:-

Chairman&Administrator
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Kanpur (U. P.)

SUBMITTED TO :-

**DEPARTMENT OF LAND DEVELOPMENT AND WATER RESOURCES
LUCKNOW (U.P.)**

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PROJECT AT A GLANCE

1	NAME OF STATE	UTTAR PRADESH
2	NAME OF DISTRICT	HAMIRPUR
3	NAME OF BLOCK	MAUDHA
4	NAME OF PROJECT	I.W.M.P.- 07
5	PROJEC PERIOD	2010-11 TO 2013-14
6	NAME OF WATER SHED	CHANDRAWAL RIVER
7	NAME OF CONCERN VILLAGES	MAUDHA,GIDHRAS,NARAICH,RAGAUL, FATEHPUR,MAKRAON, SINCHAULI, PIPRAUDA,SILAULI, ROHARI, KAMHARIA, SHAIR, MACHA DHUNGAWANA,ASUL,PATANPUR,MAHRKA,KHADAHI, BIGHENA, CHAKDAHA, KISHANPUR,GADARIA KHERA,PARCHA
8	CODE OF MICROWATER SHED	2C1B2f1a,2C1B2f1b,2C1B2f1c,2C1B2f1d,2C1B2f1e,2C1B2f1f,2C1B2f1g,2C1B2p3e,
9	TOTAL AAREA OF PROJECT	6849.00 ha.
10	PROPOSED AREA TREATMENT	5730.00 ha.
11	COST PER HECTARE	RS.12000.00
12	TOTAL COST OF PROJECT	687.60 Lac.
13	PROPOSED MANDAYS	307768 No.

CHAPTER-1

INTRODUCTION AND BACKGROUND

HAMIRPUR – HISTORY

ANCIENT PERIOD

The early history of the region covered by the present district of Hamirpur may be traced back to the palaeolithic age as evidence by the discovery of choppers, hand axes and pebble cores according to the pauranic tradition the earliest known Aryan people who settled in this region, lying between the Yamuna and the Vindhya, were known as chedis, the chedi, kingdom was known as one of the 16 most important kingdoms of that period in Mahabharat. The Mahabharat describes the chedis as being blessed with knowledge of the eternal law of righteousness. King Shishupal, ruled this kingdom and killed by Krishna. It is said that its chivalrous Kshatriya, acting, on the advice of Krishna, humiliated their enemies by making them prisoners and gave joy to their friends.

After some period this region was ruled by Murray's and Shinas. The district came under the domination of Kanishka (78-120 A.D.). After him the history of the district is shrouded in obscurity till about the middle of the third century A.D. when Vindhyasakti (255-275 A.D.) rose to power who was founder of the Vakata dynasty. It seems that the district partly came under the Vakataka sway and partly under the Bharsivas, a branch of the Nagas, whose sphere of influence extended at that time from Gwalior and Mathura in the west to probably Varanasi and Mirzapur in the east Gupta dynasty also ruled this region from the middle of 4th Century and continued till the beginning of the 6th Century.

In this eleventh century the town of Hamirpur, which gave its name to the district, was founded by one Hamira Dev, a Kalachuri Rajput, who came there from Alwar and took shelter with one Bunda, an Ahir. Bunda's name still survives in the neighbouring village of Bundanpur, where remains of an ancient Kharela are found. Having no male issue, Hamira Dev adopted his daughter's son Ram Singh, who married with the daughter of a Rajput of Alwar in Banda District. He was offered, in marriage, the eastern portion of pargana Maudha as dowry. The remains of the fort built by Hamira Dev are still found in Hamirpur.

MEDIEVAL PERIOD

For some period this region was ruled by Bundelas. During Akbar's reign (1556-1605) the district of Hamirpur was divided between two subas. The parganas of Mahoba, Muskara, Maudha and Sumerpur and considerable portion of other territory were comprised in the three mahals (revenue paying parganas) of Maudha, Kharela and Mahoba within the sirkar of Kalinjar and suba of Allahabad. The remainder of the district was distributed over the mahals of Rath, Khandaut, Kharela and Hamirpur and belonged to the sirkar of Kalpi in the suba of Agra. Even its submission to the Mughal authority some part of this district seem to principal leader of the Bundelas commenced operation against Aurangzeb in 1671 and expended his power over the whole of the country east of Dhasan river, completing his conquest with capture of the celebrated fort of Kalinjar on about 1680. His forces overran the tract now.

MODERN PERIOD

In 1721 Mohammed Khan Bangash, famous as Nawab Farrukhabad, was appointed governor of Allahabad. Fighting obstinate engagements with the entrenched Bundelas and facing continuous harassment at their hands with considerable loss of men and equipments it was not until the end of 1728 that the whole Hamirpur district came into the Nawab's possession, and was virtually being reduced to complete order when in March 1729, the sudden advent of the Marathas, Peshwa Bajirao, into this region turned Muhammad Khan's course of victory into defeat.

Raja Chhatrasal, restored to his possessions, by Maratha aid and realizing that without their assistance and protection his power would be lost as it had been acquired, decided to make the Marathas interested in its preservation. Shortly before his death, he drew up a will, by which he bequeathed one-third of his dominions to the Peshwa Bajirao, on the condition that his heirs and successors should be maintained by the Marathas in possession of the rest. The one-third of his dominions, Jaitpurraj which comprised most of the district was given to his second son, Jagatraj.

Most of the tract covered by the present district was ceded to the East India Company by the Treaty of Bassein on December 31, 1802. The capture of Kalpi by the British the same year effectually confirmed the British occupation of Bundelkhand. Hamirpur was then included in the newly formed district of Bundelkhand and remained a part of it till March, 1819, when two districts were formed. One including Hamirpur to the north was called Northern Bundelkhand or Kalpi, and that to the south Banda. In 1821, the headquarter of the former from Kalpi shifted to Hamirpur. In 1823, Hamirpur was formed as an independent district. The later history of the district up to 1857 is chiefly concerned with the difficulties of fiscal administration.

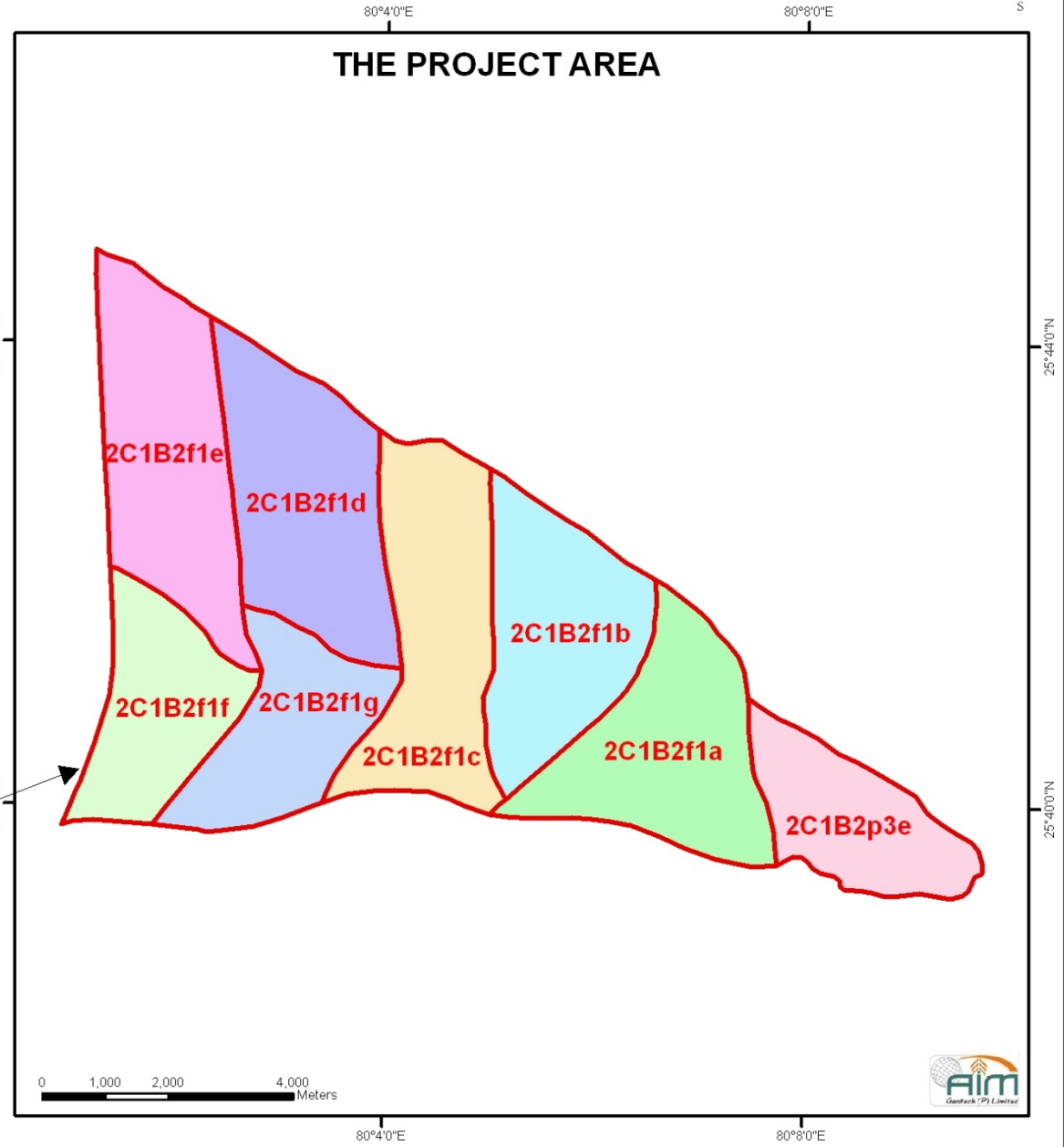
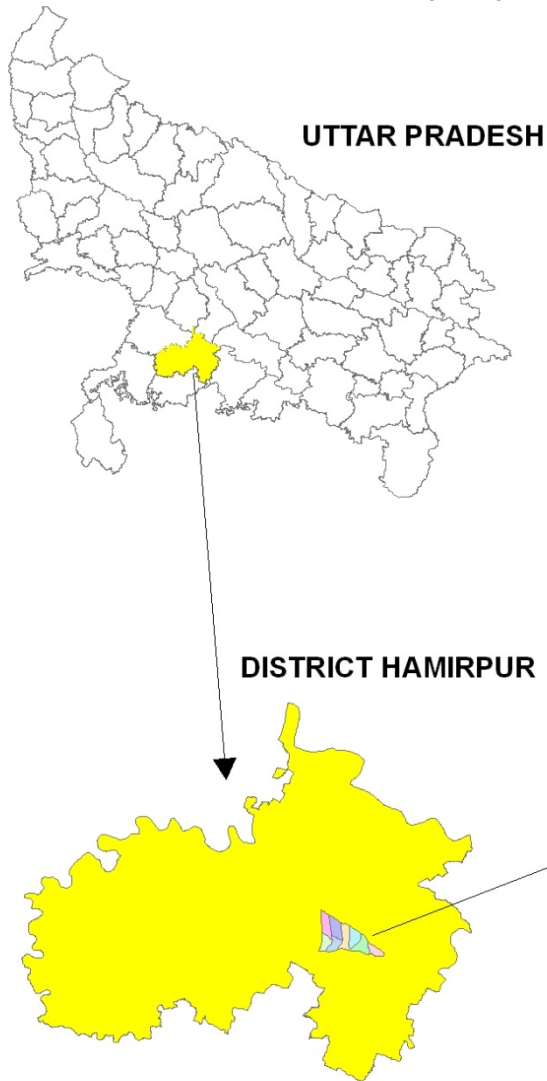
The 20th century began with the growth of nationalism in the whole of India and Hamirpur was no exception. The youth of the district were restless. During the Antipatriotic agitation of 1905, the district did not lag behind in holding public meetings, organizing strikes and protests.

The non-co-operation movement to spread in August, 1920, spread in the district rapidly. A campaign was launched in the district for using indigenous goods, especially khadi. The people were exhorted to leave government services, boycott the courts. **The distribution of the well-known pamphlets Bundelkhand Keshri and Pukar in the district marked a turning point as they created a revolutionary stir among the masses.**

The district participated in the elections of 1937 which were conducted under the Government of India Act of 1935, **in order to organize various activities of the Congress in the district Jawaharlal Nehru and Abul Kalam Azad visited Maudha in 1937**, with the outbreak of the second world war in 1939, however, the Congress ministries resigned on the issue of India's forced participation in it.

On the occasion of celebration of Silver Jubilee year of Independence in 1973, 323 persons of the district, who had taken part in India's freedom struggle were granted tamra patras placing on record the part played by them in the country's freedom struggle.

**LOCATION MAP OF THE PROJECT AREA
IWMP - 7th
DISTRICT - HAMIRPUR (U.P)**



INTRODUCTION

Bundel khand agricultural zone of Utter Pradesh is located in south west corner of Utter Pradesh extended between 24°11' and 26°27'N attitude and 78°17' and 81°34'E longitude with average attitude ranging 250-300M above MSL. In south of the region hill ranges which are part of the main Vindhyan range are found ranging from east to west of the border the general slope of the zone is towards north to east in southern part apart from the regular rill range and small rock out crops on hillock in nother part some small rock outer rock here and there are high ravines along the river banks are charaetavisties of this zone .

The zone comprises of 7 districts of Jhansi and Chitrakoot Dham divisions are Jhansi Lalitpur Jalaun , Hamirpur, Mahoba, Banda, and Chitrakoot and 25 Tehsil and 47 Blocks Agriculture is the main occupation for livelihood of population in the zone and the total number of workers engaged in agricultural are 90%of the total work force .

The Hamirpur district is located under the agricultural zone 6 (Bundel khand) in Citrakoot Dham division in south direction of U.P. having 4 Tehsil and 7 Block namely Kurara Sumerpur Maudha, Muskara, Rath Gohand, and Sarila, the geographical area of district Hamirpur is 412190 hect which under cultivation (area) is 390179 hect .

There are two main soil groups generate four soil series locally Known as Raker Prawa, Kaber and Mar . the area of Raker 21500 hect Parwa 313100 hect Kaber 128030 hect and Mar 16500 hect in the district the irrigated area of the district is 103674 hect in which by govt tubewell 13427 hect / private tubewell 30061 hect by canal 22162 hect by well 33352 hect by pond (talab) 4646 hect and other sources 26 hect, thus the total irrigated area of district is Appx. 22% of goographical area and 30% of cultivaed area, rest 70% area of the district are unirrigated under rainfed cultivation .

The main rivers of this district are Yamuna, Betwa, Birma, Chandrawal and Dhasan .

BLOCK MAUDHA– AT A GLANCE – 2010

The Maudha block of the disitric is situated in south east corner of the disitric, In the Maudha block corner of the disitric the total geographical area is 68398 hect which under forest 297 hect culturable waste land (banzer) 453 hect recent fallow land (parti) 4704 hect, others waste land 739 hect, alkaline and unculturable waste land 798 hect other uses except cultivation land 4391 hect, pasture land193 hect, and horticultural and shrubs are 79 hect .

The total irrigated area of Maudha block is 16734 hect and net irrigaled area is 16425 hect, which is 24.01% of geographical area, thus 51664 hect, cultivated area is under rainfed agro – eco-system. It means major part of this block is under rainfed agriculture .

MAIN CROPS AND THEIR SOWN AREA OF MAUDHA BLOCK

The department of Agriculture report (2008-09) indicates that in this block in Kharif main crops grown namely Jawar 3420 hect, Bajra 04 hect, Arher 1288 hect, Urad 2571 hect, Mong 778 hect, and Til 2655 hect, ground net 03 hect,

In Rabi season Masoor 14417 hect, Chana (Gram) 17684 hect, Mater (Pea) 670 hect, Lahi/Sarson 2033 hect, Alsi 1512 hect, wheat 13808 hect, Thus total pulses area are 37410 hect, and total cercals grown 23435 hect, in this block.

PROBLEMS AND NEED OF AREA:

Problem Identification and Prioritization: Food 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 highly prone to soil erosion. Efficiency soil depth is unlimited and spatially useful for good crop growth.

Problems identified and prioritized the transect walk and PRA exercise in all 22 villages have pooled and list of 8(eight) problems representing the whole watershed was prepared. Problems have ranked as per their total Weightage in the 22 villages. 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.

DETAIL OF MICRO WATERSHED

S. NO.	PROJECT CODE	NAME OF PROJECT	AREA OF MICRO WATER SHED		VILLAGES
			TOTAL	TREATABLE	
1	2C1B2f1a	Maudha-1	950	791	Maudha,Gidhras,Naraich,Ragaul.
2	2C1B2f1b	Ragaul	885	705	Ragaul, Maudha, Naraich, Sinchauli, Fatehpur, Makraon, Pipraunda
3	2C1B2f1c	Sinchauli	997	835	Pipraunda, Siloli, Ragaul, Sinchauli, Fatehpur, Naraich, Bamaura
4	2C1B2f1d	Silauli	1033	863	Rohari, Kamharia, Pipraunda, Siloli, Machha
5	2C1B2f1e	Kamharia	1038	855	Rohari, Kamharia, Machha,Patanpur,Maherka,Sayar, Siloli
6	2C1B2f1f	Machha	664	557	Kamharia, Machha,Dhungawan,Asuai,Khadhi, Bigahena, Chakdaha.
7	2C1B2f1g	Kishanpur	668	559	Siloli, Kishanpur, Chakdaha,Gadariakhera, Machha,Bamaura,Naraich, Fatehpur
8	2C1B2p3e	Maudha-2	614	565	Maudha,Parcha
		TOTAL	6849	5730	

STRENGTH, WEAKNESS, OPPORTUNITY AND THREAT (SWOT) ANALYSIS IS USEFUL

DECISION SUPPORT TOOL	
A SWOT analysis of selected watershed is presented as below:	
Strength (S)	Weakness (W)
1-Cooperative work culture is traditional activities	1-Poor water management
2-Close ethnic tier	2-Resource poor farmers
3-Road at the top as well as outlet of h watershed	3-Out migration of youth
4-Hard working man power	4-Low and erotic rain fall
5-Resource pool of crop genetic diversity	5-Fragile geography
6-Awareness of farmers about watershed management program	6-Fragmented land holding.
7-Well established CRP maintaining and sharing system	7-Heavy infestation of wild animals
8-Well maintained seasonal water bodies.	8-Problem of fuel and fodder
9-Social outlook of the community towards	
Opportunities (O)	Threats (T)
1-Wide range of annual and personal crops	1-Prone to adverse climate like drought
2-Scope of regular employment opportunity to check out migration	2-High market risk
3-Strengthening of existing irrigation system	3-Social conflicts owing to PRI & WSM policies and local policies.
4-Conductive climate for rainfed crop diversification	4-Weak coordination among line departments.
5-Goo scope for agro forestry an dry land horticulture.	5-Lack of expertise of implementing agencies in different aspect of WSM.
6-Potential for collective active action and management of CPRs.	

CHAPTER – 2

GENERAL DESCRIPTION OF PROJECT AREA

PHYSIOGRAPHY AND SOILS – BLOCK MAUDHA

The physiography of this area is Ravine tract, so the land slopes are undulating with severe erosion, Maximum Precipitation fastly flowing as runoff in result the upper fertile surface of soil washout and become dissected the major part of cultivated land having no such structure to check rain water. In the river Banks and at joining areas having light soil ie sandy loam (Parwa Rakar calcareous soil) . these soils are very low to low level fertility and as well as low water holding capacity (usthorthant ustochrepta). In the sown condition of crops reach to wilting point due to lack of eradic rain fall condition some time no return of yield of crops in drought condition .

ESSENTIAL NEED

In the séance of cultivation the ground water in essencial need of watershed management to enhance and sure crop production as such undulating areas to remove the poverty of farmers of this areas.Hence soil and moisture conservation with agro-forestry,harticulture,semiculture mini dairy and collate industries by cluster group. So programme should proposed in this area to empowerment of farmer village wise soil survey needed to study the soil type soil depth, soil slope soil erosion,croppine paler land capability classification irrigibility classification and drainage class flood position ground water level availability of ground water vegetation social status agriculture input availability etc.

IRRIGATION SYSTEM IN MAUDHA BLOCK

The length of canal's is 125 km, state tubewell 84, pakka kuan.186, pumpset 368, shallow well 2332, electrified tubewell 72, diesel pumpset 2239, other 21, deepborewell 226 .

IRRIGATED AREA IN BL MAUDHA BLOCK

Total irrigated area of this block is 16425 hect, In which by canal 1998 hect, by state tubewell 3342 hect, private tubewell 3889 hect, by well 4438 hect, ponds (talab) 2754 hect, by others 4 hect. Thus irrigated is 16425 and un irrigated area is 51973 hect, so 75.98% area under rainfed .

Year wise net irrigated area percent are 2000-01, 18.3%, 2005-06, 26.00%, 2006-07, 28.6% irrigational water availability is a typical problem of the betterment of livelihood of farmer.

LITERACY STATUS

The total literate person 64830 , in which 45122 male, and 19708 female, respectively lowest percent of literacy 54.12 than all block of the Hamirpur district while male and female literacy 68.95%, and 36.26, respectively .

AGRICULTURE LABOUR

There is 19915 farmer and 10795 agriculture labour in this block .

POPULATION

The total population of this block is 148370 in which male 80465 and female 67905 with number of family 17145 .

VILLAGE OF BLOCK

Number of ABAD GRAM 91 GAIR ABAD GRAM 12 number of BPL families 13830

CLIMATE

The climate of the district is characterised by an intensely hot summer, a pleasant cold season . The summer season from march to about middle of June is followed by the south-west monsoon season from mid-June to the end of September . October and first half of November consititute the post-monsoon period. The cold season is from mid-November to February .

TEMPERATURE

May and the begining of June are generally the hottest period of the year and maximum temperature in may is about 48°C and minimum about 33°C. the heat during the summer is intense. The maximum temperature on individual days sometimes reaches 50°C or more. During cold season minimum temperature sometimes drops so down to about 2 or 3°C .

SEISMICITY

No earthquake has been observed in the district during last 200 years. The district has, however experienced on a few occasions earthquakes originating in the Himalayan boundary fault zone. Muradabad fault and Narmada Tapti fault zones.

RAINFALL

Rain gauge stations in this district of Hamirpur, Rath, Maudha, Sarila . The average annual rainfall of these district is 850.7mm. of the total rainfall nearly 90%, falls during June to September, July and August are the rainy months . On an average there are 42 rainy days also differ from place to place . during the mansoon season relative humidity crosses over 70% . there after relative humidity decreases progressively and by summer, which is the district period of the year goes down to less then 250%, winter months . Slowly its increases in becomes hotter during summer season the wind spread increases also with the oneself of south-west mansoon. During winter generally the direction of the wind is from the west or north-west . by may westerlies and north easterlies also appear during south-west mansoon, winds are either from the south-west and west are from the north east and east . The yearwise and month wise rainfall from 2005 to 2010 .

MONTH WISE RAIN FALL DATA OF TEHASIL OF THE YEAR- 2005 TO 2010

UNIT- mm

S No	Year	Jan	Feb	March	Aprail	May	June	July	Agust	Set	Oct	Novm	Des	Total
1	2005	26.0	1.0	32.02	-	2.6	50.2	267.4	268.4	129.0	-	-	4.0	781.8
2	2006	-	-	26.08	12	1.6	28.4	200.3	182.8	36.2	11.3	14.0	-	502.6
3	2007	-	68.08	44.04	-	2.0	44.0	85.0	210.9	53.2	4.2	-	4.0	516.5
4	2008	-	-	-	-	3.2	316.7	432.2	192.0	63.3	7.0	12.2	-	1026.6
5	2009	4.0	-	-	-	73.06	-	178.1	-	-	-	-	-	255.7
6	2010	3.0	28.08	-	29.6	-	43.7	92.8	221.8	111.2	26.5	-	-	557.4

STATUS OF WATER TABLE

S. NO.	NAME OF VILLAGE	LOCATION	SOURCE	DATE OF SIMPLE RECORDING	DEPTH OF WATER TABLE INFEET
1	Maudha	National Enter College	Well	25/12/10	32
		Jamuna Prasad Dharam Shala	Well	28/12/10	58
		Kali madir	Well	11/7/2010	100
2	Ragaul	Bajrangwali mandir	Well	11/8/2010	107.5
		Maheswaricharan	Well	8/7/2010	96
3	Sinchauli	Halki s/oMathi Sing	Well	17/12/10	108
		ChetRams/o Budhwa			
4	Naraich	Hariganj basti	Well	17/12/10	45/56
5	Silouli	Near Panchayat Ghar	Well	17/12/10	65
		Khemchandra	Well	6/8/2010	120
6	Kamhariya	Kiran wife of mukesh kumar	Well	4/7/2010	105
7	Macha	Ramroopson of rameswer	Well	5/7/2010	100
		Mahipal son of matadeen	Well	5/8/2010	99.5
		Pragi on of hajari	Well	5/9/2010	98
8	Kishanpur	Primary School Campus	Well	17/12/10	67
		Guman singh Hause Chakdaha	Well	19/12/10	55
		arju son of Makkhu	Well	6/9/2010	105

HAMIRPUR –AGRICULTURE

Land & Soil

The soils consist of the well known Bundelkhand varieties, Mar, Kabar, Purua and Rakar. Mar is often called black Kabar soil. Its varies greatly in colour. It contains small lumps of kankar. Kabar range from a rich dark black to light brown. Its chief characteristics is its extreme adhesiveness, which causes it to quickly dry and cake in to hard block. Parua is light coloured sandy soil, found in many form. It is usually less rich in organic matter, but its finer texture makes it more responsive to manure and irrigation. Raker is refuse soil which occurs on sloping ground, where the action of water has tended to denude the earth of all its better qualities.

Land Use Pattern

Category	Area in Hectare	Percentage
Total Reportig area	415948	100
Area under forest	23520	5.6
Non Agricultural Area	31064	7.4
Net Sown Area	324935	78.1

Irrigation

Only 27.7%land are irrigated land in Hamirpur.The distribution of area of land irrigated by different sources of irrigation are as under.Canals are the main source of irrigation and constructed by he different rivers like Yamuna,Betwa,Dashan,Ken,Chandrawal and Pandwaha.

Sources	Area Irrigated(Hectare)	Percentage Area
Canal	24920	28.7
Tubewells	34049	39.2
Wells	22805	26.3
Ponds	539	0.6
Other Sources	4561	5.2
Total	93302	100.0

Crops

Threr are three harvests,the autumn or Khaarif have usually known as Siyari,and the spring or Rabi as Unhari.The Ziad or extra harvest is insignificabt in this area.Wheat,Barley,Peas,Arhar and Masoor are the main crops of Rabi,Jwar,Rice,Bajra,Urd,Moong and Moth are main crops of Kharif.Melon,Water-melon,Bitter guard,pumkin are main crops of Zaid.

Crop	Area Sown (hectare)	Percentage Area
Gram	93974	26.5
Wheat	83658	23.6
Masoor	58208	16.4
Jwar	36657	10.3
Urad	23318	6.6
Pea	19558	5.5
Tilhan	15657	4.4
Arhar	12995	3.7
Others	10740	3.0

GEOMORPHOLOGY AND SOILS

Geomorphology: The area lies in the South – West of District Hamirpur Bundelkhand region. The soil is mainly clay soil which is easily transportable after detaching causing soil erosion.

Soils: In the watershed area mainly Three types of soil named. Mar, Kaber, Padawa which are the main soil type of Bundelkhand region. Main crops are who need more phosphorous. Therefore deficiency of phosphorous is in this area.

Drainage: due to moderate to steep slopes and presence of a number of drainage lines, drainage is adequate. The watershed forms part of Yamuna & Betwa basin.

VEGETATION

(a) Natural Vegetation:

Natural vegetation of the watershed is very poor. The forest vegetation is predominant with vilayati Babool (Prosopis Juliflora) followed by babool (Acacia nilotica). There are occasional occurrence of Neem, Guava, Lemon, Amla, Mahuwa and Shisham. The reserve pasture land only 6.31 hect in the watershed. Grass patches are seen only on the bunds, road sides and other such places. The principal grasses are Doob & Munj.

(b) Horticulture: Though no organized orchards are present in the watershed, homestead planting of fruit trees of mango, papaya, amla, lemon, ber, bel etc. has been practiced by farmers.

(c) Agro-Forestry: The agriculture fields of the village do not have any forest or horticultural plantation. At some places isolated trees of Mahua, Babool, Ber, can be seen .

CHAPTER-3

BASE LINE SURVEY

SOCIO-ECONOMIC ANALYSIS OF THE PROJECT

Sustainability and environment security

In the proposed Watershed management plan of Watershed, proper blending of bioengineering measures will be applied on 60 % of the watershed area. Based on the results of studies conducted in this region, it is estimated that 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 exiting 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 ,who (BC)ratio criteria were employed to judge the economic efficiency of each enterprise and sector le watershed development plan was divided into three sector namely, agriculture, horticulture and forest/Fuel wood plantation.Net Present Value (NPV),Benefit Cost ratio.

HUMAN AND LIVE STOCK POPULATION

Human population: The total population of 22 villages of the watershed is 64226 with average family size of 6 persons.

Employment Generation

Labour migration in search of gainful employment of one the major problems in the remote watershed in particular.Causal employment opportunities to the tune of more than 3.078 lacs 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 person of 0.605 lac in the watershed.

Source of Income

S. No.	Name of Project	Income sources/No. of family						
		Agriculture	Labour	Pri.Sector Service	Govt.sector Service	Shop	Land less labour	Other
1	Maudha 1st							
2	Ragaul	1520	260				49	
3	Sichauli	38	21				11	
4	Kamhariya	545	280				307	
5	Macha						-	
6	Kishanpur	48	78				1	
7	Maudha 2st							
8	Silouli	305	422				51	
	Total							

Live Stock Population: Total live stock population of the watershed is 21435. Buffalo is preferred as milch animal compare to cow but milk yield is very low. Goats are kept mainly for the meat purpose. Homestead poultry rearing is common among marginal farmers. The breakup of live stock population is attached

Land Holdings: Majority of the watershed farmers are in category of marginal (< 1 ha) and small (1-2 ha). These small land holding are further scattered in different places which makes cultivation very difficult. Distribution of farm families according to the size of their land holdings is already given in the table.

Infrastructure Social Features: The watershed has moderate communication facilities and all 22 villages are approachable through motorable road. Literacy rate in the watershed is very low because except some village are having education facilities. Only Primary School and some villages have junior.High school. Some villages are electrified and some telephonic connection. Out of 22 villages television is available in all villages. Nearest small market is Maudha,sumerpur and district headquarter Hamirpur. Small land holdings (average less than 1.0 ha) with large family size (average 6 person) and more than 45% of the labour force of the total population living below poverty line indicate poor socio-economic status of the watershed community However a strong community spirit among the village show a positive indication for the success of any programme implemented in a participatory mode. Traditionally, the entire village community participates in the individual's work needing labor such as sowing, harvesting, house construction works etc. social maps of the watershed villages drawn by villagers themselves, depicting villages features is attached.

Means Of Communication: The watershed can be approached from four main roads

- 1- Hamirpur ,Mahoba road.
- 2- Banda,Maudha road .
- 3- Maudha Biwar road.
- 4- Maudha Muskra road.

The diagram to reach at all selected villages is attached on page no.

Livelihood: Out of the total population 148370 in the Block Maudha, a majority is more than 72% has farming as their major source of livelihood followed by 23% labour and 5% service+ business class.

Depending on forest for fuel wood and fodder

(A) 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.

(B) Fodder: Villages do not have any significant dependency on forest based fodder as these sources are not available in the forests. There is shortage of green fodder in winter and summer due to inadequate irrigation facility. Due to lack of fodder availability here is Anna Pratha in this area which is the most important reason for more mortality rate of planted trees also.

Labour Requirement: Labour requirement is found to be maximum during October-November, when the harvesting of Kharif and sowing of rabi crops are done simultaneously. The other crucial periods are March-April when harvesting and threshing of rabi crop is done and July-August when sowing of Kharif crops takes place. Other income generating enterprises having potential during the remaining month should be planned to reduce the migration of labours.

Crop Calendar: The present crop calendar in the watershed comprise of fallow-gram, fellow-lentil, fellow-wheat, Arhar-Jawar, Til-wheat, Bajra-lentil etc. Fallow-wheat ,fallow-gram, fallow-lentil, Arhar+Jawar are the most prevailing crop rotation on the agricultural lands both in rainfed and irrigated condition in the watershed. Organized vegetable cultivation, fruit plantation and traditional agro-forestry system are lacking widely in the watershed. The limited vegetable cultivation in the watershed is confined either to kitchen gardens or to be irrigated conditions in a scattered manner on extremely small area with view to meet out the domestic demand for vegetables. The cultivation of each crops other than the gram, lentil and mustard also lacks in the watershed.

Farmers Preferences

Fruit Trees: The Farmers preferences for fruit trees is solicited in terms of attributes like production, market availability and timber wood value. Overall, Amla, Guava, Ber ,Lemon, is found most preferred fruit tree.

Fodder Trees:

Farmers also do not have any preferred fodder tree in the watershed in spite of fact that watershed falls in semi arid tract.

The marketing facilities, lack of follow up of modern scientific package of practices of cropping potential in the watershed, socio-economical factors etc. is found to be most important factors deciding the preferences of farmers pertaining to selection and cultivation of agricultural crops, fruits, or fodder trees in the watershed.

Agriculture: Arhar, Gram, Jowar+Arhar , Bajra, are the most preferred agricultural crop in the watershed followed by wheat.

Present Land Use In The Watershed Chandrawal River:

The watershed has diversified land uses, namely agriculture Waste land (open scrub), seasonal water bodies etc.

THE VARIED PRESENT LAND USE AND AREA UNDER DIFFERENT CATEGORIES IN WATERSHED IS AS BELOW:

(Area in Hectare)

S. No.	Name of Project	No. of Micro Watershed	No. of Villages	Geographical Area of The Villages	Forest Area	Land under Agriculture Use	Rainfed Area	Permanent Pastures	Wasteland		Treatable Area
									Cultivable	Uncultivable	
1	2	3	4	5	6	7	8	9	10	11	12
1	I.W.M.P. VIIth Hamirpur	8	24	6849	–	6027	4528	6.30	126	303	5730

During PRA exercise, the villages prepared land use and hydrology maps of their villages. These maps are enclosed, present land use of the selected watershed is enclosed on page no.

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 is leveled, sloping and degraded and undulating. The agriculture is practiced on all these soil types though the productivity considerably varies. The total area in agriculture in the watershed is about 6027 ha out of which 354 is assured irrigated while 4520 ha is under rainfed agriculture. The water (both for irrigation and drinking) is most scarce natural resource in the watershed. The operation of tubewells for irrigation of agricultural crops frequently leads to the drinking water problem to the farmers for watershed.

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. Three types of soil *Mar, Kaber, Padwa* are the main soil of district-Hamirpur. 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 taste the quality of irrigation water samples of water of each selected village has sent to laboratory for testing.

Rehabilitation of waste lands with appropriate drought hardy species like *Prosopis juliflora*, introduction of suitable multipurpose tree, promoting agro forestry on agricultural lands with appropriate fruit and forest species, suitable vegetative barriers on sloping lands can of high future value in meeting out not only fire wood and fodder demands in the watershed but also for soil and water conservation, Rehabilitation of wasteland and substantial income generation for socio-economic uplift of farmers in the watershed.

One Year Crop Rotation:

Single Cropping: Fallow-Lentil, Fallow-gram, Fallow-wheat, arhar, Urad, Moong, jwar, Till

Double Cropping: Zero

Irrigated Agriculture:

One Year Crop Rotation: Urad/Moong-wheat, Urad/Moong-, Urad/Moong-Vegetables, Paddy-Gram, Paddy-Lentil, Maize-Potato.

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 (9-19 Qt/ha) 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 upto 6 to 7 months only.

The farmers also do not have suitable cropping systems to deal aberrant weather. Weeds impose considerable constant 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 Kharif crops like Bajra and Jawar+Arhar but it is not only irrational but also unscientific and beset with low productivity. Subsequent Rabi crops in general are raised on residual soil moisture under rain-fed production system during past monsoon season. Imbalanced use of fertilizers is common is 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, biofertilizers, soil and water conservation measures, use of brought up or in situ milches 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, wed milching, agro-forestry, vegetative barriers etc also completely lack in the watershed.

Indigenous Technological Knowledge: (I.T.K.) Agriculture is an age old 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 in Buldelkhand region line showing is in the traditional practice due the soil condition. Seed drill, seed comfort drill 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 adopt to the prevailing adverse conditions.

Forest And Other Vegetation:

Agro-Forestry:

The agro forestry practices are highly lacking in the watershed though it has good potential under existing dispositions and may play a vital role particularly with respect to minimization of cropping risk, built up soil fertility and productivity soil conservation, partly meeting out the fire wood demand of rural community and moreover, optimizing the watershed the other agro-forestry systems like agri-silvi, silvi-pastoral, band and boundary plantations also have good potential to cater the firewood and fodder demands of the rural community it the watershed. The existing area under agro Forestry is almost negligible. *Prosopis juliflora* may be planted as block or soleplantation specially on marginal and degraded lands in the watershed. The agro-forestry interventions comprising of ber, bel, amla, guava, teak etc may be applied for benefit of farmers under rainfed to irrigated production systems on leveled to slopy and marginal agricultural using proper planting techniques and termite control measures. The multipurpose trees may also help in supplementing fire wood and fodder demands of the rural community in the watershed and may be planted as hedge rows on rain-fed, marginal and degraded lands.

Horticulture: The watershed does not have organized orchards, however, farmers have fruit plants (mango, ber, bel, guava, mahua, amla etc.) near the homesteads and kitchen gardens. The elimate and soil of the area is favorable for fruit growing for sub tropical fruits in the lower reaches. Organized orchards, commercial vegetable cultivation, agro horticulture, and other system of agro forestry etc. are lacking .

Soil and land Capability Classification:

Soil Morphology: The selected area is situated in the South west of District-Hamirpur. 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 slopy land
- 3- Ravinous land.

Soil Profile:**KABER SOIL (Heavy Soil)**

SOIL PROFILE		
KABER SOIL (HEAVY SOIL)		
12	AP	CLAY LOAM (BLACK)
31	A1	SILTY CLAY LOAM (DARK BLACK)
67	B1	SILTY CLAY LOAM (BROWNISH BLACK)
118	B2	SILTY CLAY LOAM (YELLOWISH RED)
180	B3	SILTY LOAM (DARK BROWNISH)

SOIL PROFILE		
PARWA SOIL		
15	AP	LOAM (YELLOWISH RED)
35	A1	LOAM (YELLOW)
75	A2	SILTY LOAM (BROWN DERK)
110	A3	SILTY LOAM (MEDIUM BROWN)
145	A3.1	SILTY LOAM (LIGHT BROWN)
180	A3.2	SILTY LOAM (MEDIUM BROWN)

Morphology Of Typical Solid Profil Chandrawal River Of Watershed

Horizon	Depth(Cm)	Morphology
A	0-150	Blackish 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	Bedrock(Red and White sand stone)

Soil Characteristics And Fertility Status:

Three type of solis 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. soil samples of each village, 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. For this demonstration of crop in Kharif and Rabi both season have been proposed under agriculture production activity. Receipts of sending samples are enclosed on page no.

Land Capability Classification(LCC):

Land capability classification(LCC) is crucial for appropriate land use planning consisting of practices like choice of vegetation /crops, tillage practices, use of scientific method of cultivation and desirous conservation practices,

Area Under Various LCC Classes Selected Watershed

LCC class	Area ha
II	1318.85
III	3620.80
IV	790.35
Total	5730.00

Conclusion: The land capability classification of the selected 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 II, which give an insight of good agriculture production potential of these watershed. 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.

PROPOSED LAND USE

Watershed management plan for Selected watershed is proposed with specific objectives of food efficiency and income and employment generation with environmental security. In plan preparation due importance is given to topology, land suitability, irrigation potentiality, prevailing farming systems, micro-farming situation, farmers preferences and priorities along with economic and environmental securities, crop and tree selection and area distribution is done as per farmers priorities revealed through PRA exercise. Technological options is blended with the indigenous knowledge based on the latest available research/experimental findings for this region. Due attention is given to resource of the farmers and adjustments has made in capital intensive/high resource demanding technological outputs while making them adoptable to the resource poor farmers. Emphasis is given on maximum use of Farmyard Manure (FYM) and green manuring. The proposed land use plan of watershed is given as below:

Present and Proposed land use plan of the selected watershed:

S. No.	Land use	Present (ha)	Proposed(ha)
1	Agriculture		
a	Rainfed	4520.00	3933.40
	(i) Crop	4520.00	3933.40
	(ii) Agro-forestry	NIL	287.00
b	Irrigated	1383.00	1473.40
	(i) Assured	354.20	396.30
	(ii) Partial	1028.80	1077.10
2	Wasteland	-	-
	(a) Afforestation	-	205.00
	(b) Pasture	6.30	10.50
	(c) Uncultivable	303.00	303.00
3	Village land & Others	636.70	636.70
	Total	6849.00	6849.00

Agriculture

In rainfed agriculture, the development cost can be recovered within one year as the present rainfed agriculture is being done on well maintained fields, therefore, does not require much investment. In irrigated agriculture, investment of Rs. 414.33 lacs is proposed to be made. The BC ratio of this sector is 1.6:1 with a three-year pay back period.

Economics of Agriculture Sector

S.No.	Sector	Area (ha)	NPV (Rs.)	BC ratio
1	Irrigated agriculture	1473.40	239579015	1.6:1
2	Rainfed agriculture	3933.40	94587460	1.4:1
3	Total	5406.80	334166475	1.5:1

Horticulture

Economic analysis of horticulture plantation in Agri-horti system at selected watershed. Project life is considered to be 25 years and discount rate for NPV estimation is 10 %

S. No.	Common Name	Scientific name	Area (ha)	NPV of Net Benefit (Rs)	B:C Ratio
1	Aonla	Embelica officinalis	98	6910470	3.97:1
2	Ber	Zyziphus mauritiaan	08	403139	2.84:1
3	Guava, Mango, Mausmi, Citrus Sinensis	Psidium, Guajava, Mangifera, Indica	165	30466012	2.50:1
4	Bael	Aegle marmelos	16	543684	2.84:1
			287	38323305	3.03:1

Forest/Fuel wood plantation

Economic analysis of fuel wood plantation at selected watershed. Project life is considered to be 25 years and discount rate for NPV estimation is 10 %

S. No.	Common Name	Scientific Name	Area (ha)	NPV of Net Benefit (Rs)	B:Cratio
1	Vilayati babool	Prosopis juliflora	112	1537927	1.11:1
	Babool		82	1125982	
	Karaunda,	Carissacarandas	06		
	Shesome		05		

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 in .

Status of food requirement and availability per annum in watershed

S. No.	Items	Requirement (q/yr)	Before Project		Proposed	
			Availability (q/yr)	Deficit or surplus(q/yr)	Availability (q/yr)	Deficit or surplus(q/yr)
1	Cereals	79793	52925	(-)26868	82115	2322
2	Pulses	19990	22880	(+)2890	28520	8530
3	Oil seeds	14730	13280	(-)1450	16770	2040
4	Vegetable	29430	15560	(-)13870	30250	820

DETAIL OF PRODUCTIVITY

S. NO.	AME OF CROPS	PRODUCTIVITY	
		PRESENT	PROPOSED
1	Kharif		
	1-Jwar	07 to 09 qut.	10 to 12 qut.
	2-Arhar	08to 10 qut.	12 to 14 qut.
	3-Till	02 to 04 qut.	05 to 07 qut.
	4-Urd	02 to 03 qut.	03 to 04 qut.
	5-Moong	03 to 04 qut.	04 to 05 qut.
2	Rabi		
	1-Gram	07 to 09 qut.	12 to14 qut.
	2-Lentil	07 to 09 qut.	11 to 13 qut.
	3-Musterd	06 to 08 qut	08 to 10 qut.
	4-Pea	08to 11 qut.	11 to 13 qut.
	5-Wheat	20 to 24 qut.	25 to 30 qut.
	6-Linseed	04 to 05 qut.	06 to 09 qut.

CROP INTENSITY VILLAGE WISE

S. NO.	NAME OF VILLAGE	AREA IN Ha.	AREA IN HECT.				CROP INTENSITY	
			PREASENT		PROPOSED		PREASENT	POST.
			KHARIF	RABI	KHARIF	RABI		
1	2	3	4	5	6	7	8	9
1	Macha	519	87.628	442.736	215	448	102.19	127.74
2	Asui	125	29.278	99.817	56	105	103.27	128.80
3	Khedhi	355	2.227	328.977	195	339	93.30	150.42
4	Bighena	489	62.150	336.358	203	371	81.49	117.38
5	Dhungawa	318	31.931	277.332	168	295	97.25	145.59
6	Kamhariya	715	96.595	152.347	329	368	34.81	97.48
7	Sayar	1938	304.229	715.103	582	1248	52.59	94.32
8	Mehrka	251	7.896	237.061	103	241	97.59	137.05
9	Patanpur	871	163.892	773.876	268	779	107.66	120.20
10	Ragaul	658	162.832	455.044	256	495	93.90	114.13
11	Maudha	2627	390.500	1874.150	815	1910	86.20	103.73
12	Makraw	849	48.626	628.250	293	696	79.72	116.49
13	Sinchauli	382	89.015	266.218	197	293	92.99	128.27
14	Fatehpur	239	76.870	203.801	108	207	117.43	131.80
15	Naraich	815	151.053	388.136	293	495	66.15	96.68
16	Bhamaura	449	64.416	106.586	178	237	38.08	92.42
17	Chakdha	323	71.295	215.751	185	267	88.86	139.94
18	Kishanpur	201	30.00	139.804	135	169	84.48	151.24
19	Gadariakhara	113	28.900	63.233	62	71	81.53	117.70
20	Pipraunda	747	19.594	679.672	233	682	93.60	122.48
21	Rohari	1174	135.837	996.015	203	1002	96.66	102.64
22	Silauli	827	187.637	712.344	312	735	108.82	126.60
23	Parchha	391	140.435	205.430	197	292	88.45	125.06
24	Gidhras	193	62.360	147.425	105	152	108.69	133.16

VILLAGE WISE BASIC DATA

S. NO.	PARTICULARS	Macha	Asui	Khedhi	Bighena	Dhungawa	Kamhariya	Sayar	Mehrka	Patanpur	Ragaul	Maudha	Makraon	Sinchauli	Fatehpur	Naraich	Bhamaura	Chakdaha	Kishnpur	Gadariakhara	Pipraunda	Rohari	Silauli	Parchha	Gidhras
1	Drinking water	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a	Water supply tank	-	-	-	-	-	1	01	-	-	1	3	-	-	-	-	-	-	-	-	1	-	-	-	-
b	Hand pumps	10	7	2	15	5	24	15	-	57	48	41	33	21	42	48	28	25	12	-	15	38	27	35	-
2	Agriculture equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a	Tractor	20	3	2	5	1	65	34	-	44	30	215	35	7	10	25	10	24	6	1	55	11	12	45	-
b	Cultiveter	18	2	2	4	1	65	32	-	41	30	215	35	7	10	25	10	24	6	1	52	12	11	45	-
c	Seed drill	11	1	1	3	1	20	16	-	8	30	175	34	2	10	4	8	20	6	1	28	7	8	10	-
d	Threshar	16	2	2	2	1	42	14	-	36	28	105	28	1	6	5	7	13	3	1	17	4	9	20	-
e	Fodder cutter	24	5	4	17	5	25	28	-	21	-	250	480	2	5	15	5	197	-	-	112	3	21	85	-
3	Agriculture inputs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a	State seed store	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
b	Co-operativesociety	Sayar	Maudha	Maudha	Maudha	Maudha	Sayar	Sayar	Sayar	Sayar	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Bighena	Bighena	Bighena	Sayar	Sayar	Maudha	Maudha	Maudha
c	Local market	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Biwar	-	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
d	TractorAgency	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
e	Fertilizer & Chemical	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
4	Public needs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a	P.D.S.	-	-	-	-	-	Yes	Yes	-	Yes	Yes	Maudha	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
b	Post office	Kamhariya	Bighna	Bighna	Bighna	Bighna	Yes	Yes	-	Yes	Yes	Maudha	Maudha	Ragaul	Makraon	Naraich	Naraich	Bighena	Bighena	Bighena	Makraon	Patanpur	Kamhariya	panori	-
c	P.H.C.	Maudha	No	No	No	No	Maudha	Biwar	-	Maudha	Ragaul	Maudha	Makraon	Sinchauli	Ragaul	Naraich	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Yes
d	Veterinary	Maudha	No	No	No	No	Maudha	Biwar	-	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Naraich	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
e	Bus stand	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Biwar	-	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Yes	Chakdaha	Chakdaha	Maudha	Maudha	Maudha	Maudha	Maudha
f	Panchayat house	Yes	No	No	No	No	Yes	Yes	-	Yes	Yes	Yes	No	No	No	Yes	No	Yes	No	No	Yes	Yes	Yes	Yes	
5	Education institute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a	Primary school	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
b	Juniorhigh school	Yes	No	No	Yes	No	Yes	Yes	-	Yes	No	Yes	Yes	NO	NO	Yes	Yes	Bighena	Bighena	Bighena	Yes	No	Yes	Yes	
c	High school	Maudha	No	No	No	No	Maudha	Yes	-	Maudha	No	Yes	Yes	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Patanpur	Maudha	Maudha	
d	Degree Collage	Maudha	No	No	No	No	Maudha	Biwar	-	Maudha	No	Yes	Yes	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha

COMMUNICATION FACILITES OF ALL VILLAGES

S. NO.	PARTICULAR	Macha	Asui	Khedhi	Bighena	Dhungawa	Kamhariya	Sayar	Maherka	Patanpur	Ragaul	Maudha	Makrawan	Sinchauli	Fatehpur	Naraich	Bhamaura	Chakdaha	Kishanpur	Gadariakhera	Pipraunda	Rohari	Silauli	Parchha	Gidhras
1	Primery school	0km.	0km.	0km.	0km.	0km.	0km.	0km.		0km.	0km.	0km.	0km.	0km.	0km.	0km.	0km.	0km.	0km.	1km.	0km.	0km.	0Km.	0Km.	
								Sayar												Chakdaha	Pipraunda				
2	Junior highschool	0km.	2km.	1km.	0km.	4km.	0km.	0km.		0km.	0km.	0km.	2km.	1km.	0km.	0km.	0km.	2km.	0Km.	2km.	0km.	2km.	0Km.	7Km.	
				Bighena		Bighena		Sayar						Ragaul				Bighena		Bighena	Pipraunda	Patanpur		Maudha	
3	High school	10km.	10km.	15km.	14Km.	15km.	6km.	0km.		10Km.	0km.	0km.	6km.	3km.	0km.	6km.	10km.	8km.	5km.	8km.	1km.	2km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Sayar		Maudha				Maudha		Maudha	Maudha	Maudha	Maudha	Maudha	Patanpur	Patanpur	Maudha	Maudha	
4	Intermediet school	10km.	10km.	15km.	14km.	15km.	6Km.	8km.		10km.	0km.	0km.	6km.	3Km.	1km.	6km.	10Km.	8km.	5km.	8km.	8km.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Biwar		Maudha				Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
5	Degree Collage	10km.	10km.	15km.	14km.	15km.	6km.	8km.		20km.	0km.	0km.	26km.	3km.	1km.	6km.	10Km.	8km.	5km.	8km.	8km.	10km.	7m.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Biwar		Maudha				Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
6	Post office	2km.	2km.	1km.	0km.	16Km.	0km.	0km.		0km.	0km.	0km.	3km.	4km.	1km.	0km.	4Km.	8km.	5km.	2km.	6km.	1Km.	2Km.	7Km.	
		Kamhariya	Bigahena	Bighena	Bighena	Maudha		Sayar						Makraw	Maudha		Naraich		Bighena	Bighena	Makraw	Patanpur	Kamhariya	Maudha	
7	Police station	10km.	14km.	14Km.	14km.	15km.	6km.	0km.		10Km.	0km.	0km.	3km.	3km.	1km.	6km.	10Km.	8km.	5km.	8km.	8km.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Sayar		Maudha				Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Biwar	Maudha	Maudha
8	Seed &Fertilize store	10km.	12km.	15km.	15km.	15km.	6km.	12km.		10km.	0km.	0km.	13km.	1km.	1km.	6km.	10km.	8km.	5km.	8km.	8m.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha		Maudha				Ragaul	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
9	Co-operativesociety	06km.	11km.	15km.	14km.	16km.	4km.	0km.		7km.	0km.	0km.	13km.	3km.	1km.	6km.	10km.	8km.	5Km.	2km.	6m.	8km.	7m.	7Km.	
		Sayar	Maudha	Maudha	Maudha	Maudha	Sayar	Sayar		Sayar				Maudha	Maudha	Maudha	Maudha	Bighena	Bighena	Bighena	Sayar	Sayar	Maudha	Maudha	
10	Market	10km.	14km.	18km.	14km.	18km.	6km.	0km.		10km.	0km.	0km.	5km.	3km.	1km.	6km.	10km.	8km.	5km.	8km.	8m.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Sayar		Maudha				Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
11	Mandi samiti	10km.	11km.	15km.	14km.	15km.	6km.	12km.		10km.	0km.	0km.	26km.	1km.	10km.	6km.	10km.	8km.	5km.	8km.	8m.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha		Maudha				Ragaul	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
12	P.H.C./sub P.H.C.	10km.	11km.	14Km.	14km.	15km.	0km.	8km.		10km.	0km.	0km.	3km.	3km.	1km.	6km.	10km.	8km.	3km.	8km.	8km.	10km.	2Km/	0Km.	
		Maudha		Maudha	Maudha	Maudha		Biwar		Maudha				Maudha	Ragaul	Maudha	Maudha	Maudha	Maudha	Chakdaha	Maudha	Maudha	Maudha	Kamhariya	
13	Tractor Agency	10km.	12m.	15km.	14km.	15km.	6km.	12km.		10km.	0km.	0km.	26km.	1Km.	1km.	6km.	10km.	8km.	5km.	8km.	8km.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha		Maudha				Ragaul	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
14	Agri.empliments	10km.	11km.	15km.	14km.	16km.	6km.	12km.		10km.	0km.	0km.	26km.	1Km.	1km.	6km.	10km.	8km.	5km.	8km.	8m.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha		Maudha				Ragaul	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha
15	Hospital	10km.	11km.	15km.	14km.	15km.	0km.	12km.		10km.	0km.	0km.	13km.	1km.	1km.	6km.	10km.	8km.	5km.	8km.	8Km.	10km.	7Km.	7Km.	
		Maudha	Maudha	Maudha	Maudha	Maudha		Maudha		Maudha				Ragaul	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha	Maudha

VILLAGE WISE GENERAL INFORMATION

S. No.	Particular	Macha		Asui		Khedhi		Bighena		Dhungawa		Kamhariya		Sayar		Mehrka (Gair abad)		Patanpur	
		Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.
1	Population	2492	6000	256	475	176	250	1494	2020	350	412	2975	11800	4419	16576			2803	11200
a	Male	1347	4199	129	285	94	135	839	1220	223	225	1617	6368	2378	9495			1516	6115
b	Female	1145	1801	117	190	82	115	655	800	127	187	1358	5432	2041	8125			1287	5085
2	S.C.	269	300	47	120	-	-	281	495	121	315	472	1875	1335	5280			750	2825
a	Male	150	180	25	70	-	-	147	291	96	200	272	1022	710	2753			412	1565
b	Female	119	120	22	50	-	-	134	204	25	100	200	853	625	2527			338	1260
3	Education	572	625	115	-	85	-	631	-	25	-	1084	5505	1235	4824			1161	9288
a	Male	496	400	84	-	61	-	526	-	15	-	777	2856	954	2795			764	5572
b	Female	76	225	31	-	24	-	135	-	10	-	307	2649	281	2029			397	3716
4	Agriculture labaur	-	-	-	-	-	-	-	-	-	-	-	545	-	2195	-	-	-	1325
5	Farmer	-	-	-	15	-	11	-	50	-	-	-	85	-	1225	-	-	-	1024
6	Portor	-	-	-	-	-	-	05	-	-	01	-	04	-	03				5
7	Semither	-	05	-	-	-	-	03	5	-	-	-	01	-	04				4
8	Carpenter	01	09	-	-	-	01	-	3	01	01	-	11	-	45				3
9	Weaver(Bunkak)	-	-	-	-	-	-	02	-	-	-	-	-	-	-				
10	Lather worker	08	-	-	-	-	-	-	2	-	-	-	-	-	-				
11	Piggeri	-	-	-	-	-	-	-	-	-	-	-	-	-	4110				4121
12	Poultry	-	-	-	-	-	-	-	-	-	-	-	01	-	01				4155
13	Animal husbandry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Massion	-	10	-	01	-	-	-	15	-	02	-	40	-	325				35
15	Fishermen	-	-	-	-	-	-	-	-	-	-	-	03	-	-				01
16	Businnimen	-	11	-	5	-	-	-	25	-	-	-	25	-	18				14
17	Talioring	-	25	-	2	-	-	-	8	-	01	-	20	-	26				21
18	Dairies	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
19	Service man	-	100	-	3	-	-	-	20	-	01	-	65	-	255				325
20	Adult education	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
21	Farmer classes	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
a	Marginal	-	-	-	-	-	-	-	-	-	-	206	-	625	-				386
b	Small	-	-	-	-	-	-	-	-	-	-	71	-	263	-				151
c	Other	-	-	-	-	-	-	-	-	-	-	208	-	255	-				196

Ragaul		Maudha		Makraw		Sinchauli		Fatehpur		Naraich		Bhamaura		Chakdha		Kishnpur		Gadariakhana		Pipraunda	
Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.
2105	4885	34417	51520	1690	3650	375	895	1155	4800	1942	3010	1064	2200	836	2715	504	1015	56	145	1412	5648
1186	2865	18325	27660	947	1945	215	495	624	2545	1062	1608	550	1195	453	1510	269	565	34	85	756	2966
919	2020	16092	23860	743	1705	160	400	531	2255	880	1402	514	1005	383	1205	235	450	22	55	656	2682
203	990		11480	329	450	03		334	1321	423	615	267	703	115	251	167	175			391	1525
110	605		6084	185	295	02		178	695	215	345	140	412	59	142	55	48			213	872
93	385		5396	144	155	01		156	626	208	270	127	251	56	189	52	77			178	653
931	4195	20828	33290		245	140	50	391	2311	349	1220	323	1505	232	1526	116	710	12	86	493	2265
66	2715	12649	19570			109	30	284	1815	228	818	237	1050	197	1018	104	507	11	62	348	1420
365	1480	8179	13720		115	31	20	107	496	121	402	86	455	35	508	12	203	01	24	145	845
	1520		3325		1375		38		396		387		202		147		48		07		425
	1465		2710		296		28		204		130		70		315		16		13		1025
	01		1420		01		02		03		25		10								01
			459		02		02						03		01		01				01
			295		08				22		25		02		02						
			70										02								
			215																		
	3/45				3/20								3/35								
	3/1100						02				1/250										
	7		550		20		27		20		06		15		18						55
	01						01						01		01						
	51		1825		55				05		08		03		03						15
	10		415		06		01		38		01		03		03						14
	101		5410		57				110		95		201		22		03		01		60
	30			250	613	22		44	40	209		191		143		55		35		236	
	25			64	196	08		12	15	81		49		87		42		18		68	
	15			85	607	18		27	30	80		73		62		28		07		112	

Rohari		Silauli		Parchha		Gidhras (Gair abad)	
Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.
993	3885	1385	5578	1329	1856		
539	2031	767	2908	718	1033		
454	1848	616	2670	611	823		
334	1338	392	1568	1150	1645		
184	782	229	863	690	910		
150	556	163	705	460	735		
344	1720	411	2466		1178		
269	1314	328	1885		795		
75	406	83	581		383		
	201		305		198		
	50		45				
	01		03				
	01		02				
	05						
					01		
	1/10		2/20		03		
	7/20						
	24		125				
			21		03		
	03		11				
	17		35		40		
140		138					
74		71					
30		67					

22	Finaancial Status	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
a	Landless	-	-	-	-	-	-	-	-	-	-	-	70	-	105	-	-	-	211
b	Bpl	-	115	-	-	-	-	-	30	-	-	-	307	-	162	-	-	-	89
c	Unemploies	-	-	-	-	-	-	-	-	-	-	-	80	-	643	-	-	-	565
d	Houseless	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	02
23	Labour	246	-	72	-	198	-	158	98	40	-	-	280	-	597	-	-	-	300

	49		726		465		11			75									10
	40				120		147		112		76		80		133		59		15
	375		825		467		27			110		25		76		24		02	145
	99		80				02		97										10
	260				272	21			120		275		255		156		78		13

	04		51				
	58		155				
	151		145		92		
	01		03				
	150		422				

FUNDAMENTAL DATA

S.NO.	PARTICULAR	Macha		Asui		Khedhi		Bighena		Dhungawa		Kamhariya		Sayar		Mehrka	
		Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.
1	Total area of village	520.79		124.83		355.14		484.90		317.99		708.79		865.51		269.19	
2	Area under agriculture	472.89		105.23		334.26		439.95		288.77		626.38		725.99		673.38	
3	Area under other use	28.61		6.91		10.60		22.83		8.88		34.14		97.12		6.05	
4	Non.agriculture																
a	Forestland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
b	Water loking	14.12		7.81		7.97		17.87		13.66		36.50		27.08		5.14	
c	Horti cultureland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
d	Wasteland	19.29		12.30		9.56		22.12		20.34		48.27		48.40		6.03	
5	Irrigated land	212.35		7.60		31.35		262.80		183.77		212.00		335.93			
6	Unirrigated land	318.00		29.21		297.62		135.70		125.47		400.00		566.37			
7	Ravince/Beehar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Pastureland	-		0.39		0.72		-		-		-		-		-	
9	Area under crops																
A	Kharif crops	87.63		29.28		2.23		62.15		31.93		96.59		304.23		7.89	
a	Paddy	-		-		-		-		-		-		-		-	
B	Jwar+Arhar	0.80		3.12				3.87		2.18		2.02		27.32		-	
C	Bajra	-		-				-		1.14		-		-		-	
D	Til	5.51		24.20				38.93		24.12		86.26		88.77		6.21	
E	Black gram(urd)	62.52		1.12				22.16		2.11		5.40		186.86		1.69	
F	Green gram(Moong)	18.80		0.51				5.77		1.01		2.31		0.36		-	
B	Rabi crops	442.74		99.82		328.98		336.36		277.33		152.35		715.10		237.06	
A	Wheat	161.49		72.62				127.91		184.12		132.67		320.27		-	
B	Barly	1.04		-				1.36		0.79		-		0.50		-	
C	Gram	40.37		26.52				152.36		90.99		356.55		251.30		174.74	
D	pea	-		0.27				1.00		-		-		2.20		-	
E	Musterd	62.36		-				33.51		-		0.10		3.74		-	
F	Masur	177.47		0.51				16.67		1.24		19.67		127.33		62.32	

FUNDAMENTAL DATA

Patanpur		Ragaul		Maudha		Makraw		Sinchauli		Fatehpur		Naraich		Bhamaura		Chakdha		Kishnpur	
Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.			Reco.	P R A.
870.49		658.15		2627.45		835.98		382.60		234.22		799.68		450.03		317.93		198.98	
806.50		568.90		3139.45		802.02		349.37		223.25		719.16		401.43		275.90		178.25	
25.35		63.74		346.00		19.08		17.79		4.10		21.97		17.17		15.15		8.05	
-																			
13.12		12.45				3.43		11.56		4.84		32.56		15.85		22.84		9.58	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.63		25.51		142.00		11.57		14.35		6.87		58.55		27.89		26.88		11.60	
279.00																			
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.01		-		-		3.31		1.09		-		-		-		-		1.08	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
163.89		162.83		390.50		48.63		89.01	-	76.87	-	151.05	-	64.41	-	71.29	-	30.00	-
-	-	1.95		20.10		-	-	-	-	-	-	-	-	-	-	1.26	-	-	-
59.46		3.26		147.20		6.10		5.88		2.20		34.82		13.20		7.64		6.86	
-		-		-		-		0.20		-		-		-		-		-	
75.58		130.22		90.50		35.07		70.31		19.44		26.46		24.79		0.71		5.03	
21.67		-		60.20		4.12		-		37.46		59.17		24.39		56.34		13.15	
0.20		8.48		30.10		1.81		9.95		11.67		28.20		1.93		1.11		4.28	
773.87		455.04		1874.15		628.25		266.22		203.80		388.14		106.58		215.75		139.80	
198.97		147.00		830.90		92.10		109.13		135.77		225.45		21.43		136.63		109.28	
0.20		1.02		52.19		1.80		3.53		5.94		11.63		1.20		2.15		6.00	
378.10		56.00		70.35		150.20		101.46		8.05		100.03		34.14		39.74		14.62	
3.30		-		3.15		4.05		0.60		1.49		0.83		2.41		0.97		1.00	
10.66		220.22		90.75		19.10		14.64		11.18		30.98		10.30		4.78		1.13	
176.10		87.56		-		380.10		33.07		37.54		13.62		28.63		30.07		7.36	

FUNDAMENTAL DATA

Gadariakhana		Pipraunda		Rohari		Silauli		Parchha		Gidhras	
Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.
110.17		746.57		172.76		826.38		390.89		192.94	
97.21		673.38		109.94		744.31		351.09		177.30	
3.07		18.96		25.17		39.13		15.22		5.27	
-		-		-		-		-		-	
-		-		-		-		-		-	
7.60		29.74		16.09		32.55		11.55		1.03	
-		-		-		-		-		-	
8.99		54.23		37.65		42.94		24.58		1.79	
-		-		304.72		226.86					
-		-		827.13		673.11					
-		-		-		-				-	
0.90		-		-		-		-		8.58	
-											
28.90		19.59		135.84		187.64		140.43		62.36	
-		0.68				-		1.20		-	
11.54		1.24		22.16		16.92		96.80		12.90	
-		-		-		-		-		-	
13.66		170.20		70.70		26.20		8.27		29.99	
2.51		1.60		31.75		95.94		14.98		9.22	
0.17		-		8.36		41.26		13.62		10.00	
63.23		679.67		996.01		712.34		205.43		147.42	
21.32		234.41		282.33		184.43		135.20		59.65	
0.85		1.16		1.60		1.01		-		-	
26.11		199.36		373.18		65.43		35.47		76.63	
0.43		1.00		8.04		0.81		1.67		-	
0.74		17.19		12.12		32.87		7.58		6.53	
10.59		216.13		309.11		409.20		18.58		4.10	

Details of Livestock

S. No.	Particular	Macha		Asui		Khedhi		Bighena		Dhungawa		Kamhariya		Sayar		Mehrka		Patanpur		Ragaul		Maudha	
		Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.
1	Cow	Nill	10		40		25		200		30		642		640								335
	Buffalow	Nill	120		10		15		100		50		525		540								885
	Goat&sheep	Nill	1000		250		70		100		250		1386		2524								2520
	Ox	Nill	26		08		06		16		10		20		54								164
	He Buffalow	Nill	26		05		07		25		15		25		38								225
	Piggery	Nill	-		-		-		-		-		40/30		10/25								430
	Poultry	Nill	01		02		25		-		-		40		155								5320
2	Area underirgation																						
	Cannal(In Ha.)											122		-				104.08					-
	State tubewells	Nill										-		-				130.00					30
	Oper bore wells	Nill										90		30/20				100.10					984
	Wells/others	Nill										-		34.73				70					371
	Electrical fasialties																	-					
	Caunal	20			-																		
	State tubewells	140			-																		
	Oper bore wells	185			23																		
	Well	-			-																		

Details of Livestock

S. No.	Particular	Pipraunda		Rohari		Silauli		Naraich		Bhamaura		Chakdha		Kishnpur		Gadariakhan		Makrawan		Sinchauli		Silauli		Parchha		Gidhras			
		Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.	Reco.	P R A.		
1	Cow		175		160		225																				128		
	Buffalow		125		165		170																				1195		
	Goat&sheep		320		325		750																				2975		
	Ox		15		50		55																				28		
	He Buffalow		11		07		08																				18		
	Piggery		-		-		2/10																				-		
	Poultry		45		115		25																				329		
2	Area underigation																												
	Cannal (In Ha.)	64.71		-		39.46		20.43		3.88		73.66															-		
	State tubewells	5.30		-		11.95		-		-		-															42.54		
	Oper bore wells	166.30		304.72		174.72		255.33		54.47		98.365															18.10		
	Wells/others	-		-		-				104.17		110.50															11.66		
	Electrical fasialties																												
	Caunal																												
State tubewells																													
Oper bore wells																													
Well																													

Watershed wise Land Holding

S.No.	Name of Project	Code No.	Total area	Praposed area	Marginal farmer		Small farmers		Others farmers		S.C. farmers		S.T. farmers	
			In Ha.	In Ha.	No.	Area Ha.	No.	Area Ha.	No.	Area Ha.	No.	Area Ha.	No.	Area Ha.
1	Maudha-1	2C1B2f1a	950	791	245	225	177	312	112	259	85	106	Nil	Nil
2	Ragaul	2C1B2f1b	885	705	230	198	165	288	105	234	78	95	Nil	Nil
3	Sinchauli	2C1B2f1c	997	835	252	217	187	327	129	302	35	76	Nil	Nil
4	Silouli	2C1B2f1d	1033	863	263	230	190	334	118	263	98	135	Nil	Nil
5	Kamharia	2C1B2f1e	1038	855	271	238	210	360	132	299	93	107	Nil	Nil
6	Machha	2C1B2f1f	664	557	170	145	132	230	82	187	96	108	Nil	Nil
7	Kishanpur	2C1B2f1g	668	559	185	162	107	185	96	218	92	119	Nil	Nil
8	Maudha-2	2C1B2p3e	614	565	167	133	118	225	72	159	52	102	Nil	Nil
	Total		6849	5730	1783	1548	1286	2261	846	1921	679	848	Nil	Nil

PHOTOGRAPHS OF P.R.A. EXERCISE OF THE PROJECT AREA



PRA KAMHARIYA



PRA KISHANPUR



PRA RAGAU



PRA SILAULI



PRA MACHA



SHG SILAULI



PROBLEM AREA KAMHARIYA



PRA SILAULI

CHAPTER - 4

INSTITUTION BUILDING AND PROJECT MANAGEMENT

PROECT IMPLEMENTING AGENCY (PIA)

LAND Development And Water Resources Department section -1Lucknow has nominates as PIA to Bhoomi Sanrakshan Unit, Land development and water resoures Development Hamirpur for IWMP-II vide letter no-666(10)/54-1-10-1(9)02008 Dated25-5-2010.

DETAIL OF P.I.A.

S.NO.	NAME	DESIGNATION	QUALIFICATION
1	Sri S.M.Sinha	B.S.A.	Diploma in Ag.Engg.
2	Sri Rajendra Singh	J.E.	Diploma in Ag.Engg.M.A
3	Sri Dharam Singh	J.E.	Diploma in. Ag.Engg. B.A
4	Mis Sunita	Acct.	M.Com.
5	Sri Ram Kumar	J.C.	B.A
6	Sri Rajesh Kumar	Work incharge	M.A.,Computer Diploma
7	Sri PatiRam	Work incharge	B.A.
8	Sri Mithai Lal	Work incharge	B.A.
9	Sri Om Prakash	Work incharge	M.A.(Economics)
10	Sri Bhagwati Prasad	A.S.C.I.	M.Sc. (Ag)., Soil Science&Ag. Chemistry
11	Sri Shisu Pal Yadaw	Work incharge	B.A
12	Sri Ravindr Kumar Singh	Work incharge	Inter Mediate
13	Sri Uday Veer Singh	Tracer	B.A.
14	Sri Rajendra Kumar Misra	Zeep Driver	Jr High School
15	Sri Lala Ram	IV class	Inter Mediate
16	Sri Amichandr	IV Class	Sakshar
17	Smt. Anita	IV Class	Sakshar
18	Sri Saty Prakash Misra	IV Class	Sakshar
19	Sri Brajesh Kumar	Compute operater	Inter Mediate, Com. Diploma.

DETAILS OF WATERSHED COMMITTEE

S. NO.	NAME OF PROJECT	COED NO.	NAME OF CHAIRMAN	SACRETERY	MEMBER	REMARKS
1	MAUDHA I st	2C1B2f1a	SRI RUSTAM KHAN	SRI UDAYBEER SINGH YADAV	SRI DHARAM SINGH	JUNIER ENGEENIER
					SMT GAYATRI	LADY MEMBER (S.C)
					SRI VASEEMUDDEEN	KAMJOTWALA FARMER
					SRI MO. AVVAS	ADHIKJOTWLA FARMER
					SRI SHAHED DEEVAN	SELF DEPEND COMMETY
					SRI JAMEEL AHMAD	CONSUMER COMMETY
					SRI PHJROODEEN	CONSUMER COMMETY
					SRI LATEEPH AHMAD	CONSUMER COMMETY
					SRI SATEESH	CONSUMER COMMETY
2	RAGAUL	2C1B2f1b	SRI NOOR ALII	SRI SHISHUPAL YADAV	SRI. DHARAM SINGH	JUNIER ENGEENIER
					SMT SUIKHYA DEVEE	LADY MEMBER (S.C.)
					SRI MAJEEUDDEEN	KAMJOTWALA FARMER
					SRI MOEUDDEEN	ADHIKJOTWALA FARMER
					SRI NASEERODDEEN	SELF DEPEND COMMETY
					SRI RAMKISHOR	SELF DEPEND COMMETY
					SRI RAPHEEK AHMAD	CONSUMER COMETY
					SRI SAUKHEELAL	CONSUMER COMETY
					SRI SAPHEEKUDDEEN	CONSUMER COMETY
3	SINCHAULI	2C1B2f1c	SRI AWDHESH GIREE	SRI MITHAI LAL	SRI RAJENDRA SINGH	JUNIER ENGEENIER
					SMT SUMITRA	LADY MEMBER (S.C.)
					SRI SANTOSH KUMAR	KAMJOTWALA FARMER
					SRI CHUNNOOWAD YADAV	ADHIKJOTWALA FARMER
					SRI VIJAY KUMAR	SELF DEPEND COMMETY
					SRI SHIV BALAK	SELF DEPEND COMMETY
					SRI CHETRAM	CONSUMER COMETY

					SRI RAM NARAYAN	CONSUMER COMETY
					SRI BADREE PRASAD	CONSUMER COMETY
4	KAMHARIYA	2C1B2f1e	SRI AJEEMUDDEEN	SRI BHAGWATI PRASAD	SRI DHARAM SINGH	JUNIER ENGEENIER
					SMT ANUSUIYA	LADY MEMBER (S.C.)
					SRI RAKESH KUMAR	KAMJOTWALA FARMER
					SRI PHAREEUDDDEEN	ADHIKJOTWALA FARMER
					SMT MITHLA DEVEE	SELF DEPEND COMMETY
					SRI RAM JEE	SELF DEPEND COMMETY
					SRI LALLOO PRASAD	CONSUMER COMETY
					SRI SYAM SINGH	CONSUMER COMETY
					SRI BHWANEE DEEN	CONSUMER COMETY
5	MACHA	2C1B2f1f	SRI SADHER ALI	SRI PATEERAM	SRI RAJENDRA SINGH	JUNIER ENGEENIER
					SMT RACHNA	LADY MAMBER (S.C.)
					SRI BASEER ALI	KAMJOTWALA FARMER
					SRI ERSHAD ALI	ADHIKJOTWALA FARMER
					SRI NWAB AHMAD	SELF DEPEND COMMETY
					SRI LATEEPH ALI	SELF DEPEND COMMETY
					SRI NAWAL KISHOR	CONSUMER COMETY
					SRI KAILASH BABOO	CONSUMER COMETY
					SRI GULAB ALI	CONSUMER COMETY
6	KISHANPUR	2C1B2f1g	SRI BODHAN YADAV	SRI RAJESH KUMAR SINGH	SRI RAJENDRA SINGH	JUNIER ENGEENIER
					SMT SHANTEE	LADY MEMBER (S.C.)
					SRI KALLOO	KAMJOTWALA FARMER
					SRI MATHOOR PRASAD	ADHIKJOTWALA FARMER
					SRI JAGROOP	SELF DEPEND COMMETY
					SRI SYAMLAL	SELF DEPEND COMMETY
					SRI SAHDEV	CONSUMER COMETY
					SRI MUNNA	CONSUMER COMETY
					SRI KEDAR NATH	CONSUMER COMETY

7	SILAULI	2C1B2f1f	SRI SHIV NARAYAN TIVAREE	SRI BHAGWATI PRASAD	SRI RAJENDRA SINGH	JUNIER ENGEENIER
					SMT LAKSHMEE	LADY MAMBER (S.C.)
					SRI RAM KARAN	KAMJOTWALA FARMER
					SRI SATTEDEEN TIWAREE	ADHIKJOTWALA FARMER
					SMT RANEE	SELF DEPEND COMMETY
					SRI SHIV GULAM	SELF DEPEND COMMETY
					SRI LALLOO	CONSUMER COMETY
					SRI RAM SANEHEE	CONSUMER COMETY
					SRI DEV NARAYAN	CONSUMER COMETY
8	MAUDHA IInd	2C1B2p3e	SRI MO. HUSAIN	SRI RAVINDR KUMAR SINGH	SRI DHARAM SINGH	JUNIER ENGEENIER
					SMT PREMA	LADY MAMBER (S.C)
					SRI JAMEEL AHMAD	KAMJOTWALA FARMER
					SRI SHAVIR ALI	ADHIKJOTWALA FARMER
					SRI HAMID RJA	CONSUMER COMETY
					SRI NIJAMUDEEN	CONSUMER COMETY
					SRI TURAB KHAN	CONSUMER COMETY
					SRI MURAD ALI	SELF DEPEND COMMETY
					SRI RANJNA SONKAR	SELF DEPEND COMMETY

DETAILS OF WATERSHED DEVELOPMENT TEAM (W.D.T.)

S NO.	NAME OF MEMBER	DESIGNATION	QUALIFICATION	EXPERIECE (IN YEAR)
1	Sri Krishna Prasad Singh	Senior Ag.Trainer Soil&Water Conservation Maudha-Hamirpur	M.Sc.(Ag.) Ag. Economics	25Years
2	Sri Rajendra Singh	Junior Engg.	Diploma in Ag engg., Post Graduate	28 Years
3	Sri Dharam Singh	Junior Engg.	Diploma in Ag engg., Graduate	28 Years
4	Sri Bhagwati Prasad	Asst.Soil conservation inspector	M.Sc. (Ag)., Soil Science&Ag. Chemistry	7Years
5	Smt. RajeshW/oVed Narayan (Naraich)	Social worker	M.A. Sociol Scince	5Years

DETAILS OF SELF HELP GROUP (S.H.G.)

S No.	PROJECT CODE	NAME OF PROJECT	NO.OF S.H.G.	NO.OF MEMBER
1	2C1B2f1a	Maudha-1	5	55
2	2C1B2f1b	Ragaul	5	55
3	2C1B2f1c	Sinchauli	6	66
4	2C1B2f1d	Siloli	6	66
5	2C1B2f1e	Kamharia	6	66
6	2C1B2f1f	Machha	5	55
7	2C1B2f1g	Kishanpur	4	44
8	2C1B2p3e	Maudha-2	4	44
		TOTAL	41	451

DETAILS OF USERS GROUP (U.G.)

S NO.	PROJECT CODE	NAME OF PROJECT	NO.OF USERS GROUP
1	2C1B2f1a	Maudha-1	09
2	2C1B2f1b	Ragaul	09
3	2C1B2f1c	Sinchauli	10
4	2C1B2f1d	Siloli	10
5	2C1B2f1e	Kamharia	10
6	2C1B2f1f	Machha	06
7	2C1B2f1g	Kishanpur	06
8	2C1B2p3e	Maudha-2	06
		TOTAL	66

CHAPTER - 5

MANAGEMENT / ACTION PLAN

PHYSICAL ACTIVITIES TO BE UNDERTAKEN UNDER IWMP, HAMIRPUR

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. **27.504** Lacs was allotted for EPA activity, which was 4 per cent of total allocated budget. The villagers discussed various activities which they felt is important but after a brief discussion it was conveyed to them that only those activities can be taken, which revive the common natural resources. It was also taken into priority that there should be an instrument of convergence which will result in sustainability of activities

Integrated Watershed Development Programme Ist 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 his which already exist 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. **27.504** Lacs.

DETAIL OF WORK IN E.P.A.

S NO.	PROJECT CODE	NAME OF PROJECT	EST.COST	NAME OF WORK	LOCATION
1	2C1B2f1a	Maudha-1	3.796	Well Repair-3, Sockpit, Renovation of pond, Drainage channel Renovation	Pond National Road, Lala farni Moh. Choudhran ,Moh. Well Hussainia Near National Inter College
2	2C1B2f1b	Ragaul	3.384	Chabootra, Culvert, Sockpit	Near Meera Talab, makraon.
3	2C1B2f1c	Sinchauli	4.009	Well Repair-2 No, Sockpit, Drainage channel ,Rasta Repair of slob,	Near of Halkai s/o Matti Home, Near Chetram s/o Budhuwa(Sinchauli) Near Prem Chandra House, Near Rashid Chaudhry House(Naraich)
4	2C1B2f1d	Silouli	4.143	Well Repair, Repair of Drainage channel, Sockpit, Boundry of Panchayat Bhawan	Silouli, Sarkar Kauna To Kachhr Road. Dhobi talab pathamay Well, Babloo, panchayat ghar
5	2C1B2f1e	Kamharia	4.104	Well Repair, Sockpit, Chabootra Nirman, Pashu Ghat, Pulia Nirman, Kharanja Nirman	Near Ram Lal Dhumar(Kamharia) ,panchayat ghar, Bacchpradhan, Subbir Baba Hardaul Lala(Sayar), Patanpur.

6	2C1B2f1f	Machha	2.672	Well Repair, Chabootra Nirman-2No, Renovationof Pond, Pashu Ghat, Sockpit, kaccha road	Near Primary School& PanchayatGhar
7	2C1B2f1g	Kishanpur	2.684	Well Repair, Repair Of Rasta&Drainage channel,Repair of kaccha road, Repair of Pond Outlet	Near Sahdev Home, Kishanpur&Chakdaha
8	2C1B2p3e	Maudha-2	2.712	Well Repair, Sockpit-5No, Repair of kaccha drainage, Culvert& kaccha Road	Parchha Villege.
		TOTAL	27.504		

WATER RESOURCE DEVELOPMENT AND SOIL CONSERVATION MEASURES

Status Of Present Water Resources Utilization: There is no natural water body in the selected area which may be used for irrigation. Present assured/Partial irrigation is done by private tub wells.

Proposed Plan For Irrigation Of Water Resources: Sprinkler sets for irrigation from private tube well are distributed by Agriculture Department to Tube well holders on the basis of & Irrigation group. Effort will be made to help the tube well holders of selected area to form group and to get sprinkler sets. Therefore, more area will be irrigated by the available irrigation water. Farmers trained by demonstration and training for technical irrigation system.

New Water Harvesting Structures: In the 650 ha area new and renovation of existing watershed harvesting structure / Gully Plug / Earthen C.D. will be constructed for water harvesting.

Ground Water Recharge: In order to augment the flow in the drainage line, it is necessary to undertake moisture and water recharge measure in the watershed area. For the purpose of ground water recharge Sock pit, recharge filler & contour staggered trench (2mt. length with cross section 0.3x0.3mt.

Crop Production: In the light of the land capability classification of the watershed and need of the farmers, the reallocation of watershed area rainfed and irrigated lands has been done for improving productivity, income generation and maintaining ecological balance. The production crop management plan has the following salient features:

Organic Farming System: Organic Farming System will be achieved in the following manner:

- 1- Maximum use of crop residues in the Integrate plant Nutrients System (IPNS)
- 2- Prevision of legumes composed in the cropping system.
- 3- Green manuring with appropriate legumes.
- 4- Rapid compost using crop residue, domestic and farm waste animal dung.
- 5- **Milching and Crop Residue Management:** Sources of milch material includes weeds, pruning from agro-foresting trees and *in situ* grown legumes and green manure crops. The concept of live milching is based on the principle of mixed cropping whereby a fast growing legumes is established before or simultaneously along with a widely spaced seasonal grain crops such as maize, and is incorporated into the soil at an appropriate stage to act on as a mulch. Application of organic mulch material 4-5 t / ha is recommended.
- 6- **Green Manuring:** To improve the organic matter and physical condition of the soils, green manuring crops like Dhaincha and sun hemp which supply 20-30 t / ha of green matter and 85-125 kg/ha of Nitrogen shall be raised and incorporated into the soil.

- 7- **Seed Treatment With Rhizobium Culture:** The seed of leguminous crop like black gram, soybean, pea, etc. should be treated with Rhizobium culture before sowing.
- 8- **Tillage operation:** It is advisable to carry out tillage operation like ploughing followed by planking just after the harvest of Kharif crops. This will be helpful in conserving moisture for sowing and germination of Rabi crop in addition, coverage of soil surface with mulch material is also recommended to ensure the soil moisture.
- 9- **Introduction Of Improved Seeds/Varieties:** Short duration and high yielding varieties suitable for this region have been proposed in long duration varieties. Demonstrations of High Yielding Varieties (HYVs) of different crops in 211.00 ha is planned in the watershed however for self sufficiency in seed requirement farmers of the watershed will be involved to produce required quantity of seed of the recommended crop varieties.
- 10- **Sowing Methods:** Agronomical practices like contour cultivation, strip or inter-cropping, optimum time of sowing , optimum plant population by keeping proper distance through line sowing and placement of fertilizer below the seed will help in enhancing the crop yields without involving monetary inputs.
- 11- **Control Of Insects Pest And Diseases:** Pod borer in gram is the major insect in the watershed area leading to loss in crop productivity. Similarly white blister is also a common disease in the mustard crop the management strategies of these insects, pests and diseases will also be demonstrated in the watershed for benefit of the growers.
- 12- **Dry Land Horticulture:** In the selected area 287 ha land is planned for horticulture and agro horticulture. Species like amla , guava, ber , bel ,lemon will be planted at suitable spacing in the watershed.

DRAWING AND DETAIL ESTIMATE

IN

PREPARATORY PHASE

APPEAL TO THE PEOPLE OF I.W.M.P.-VIIth

We want to give a message to the people of all the villages situated in the Project Area of I.W.M.P.-VIIth, that, to avoid Flood & Hunger, they should plant at least one Panchvati in each village. They should plant PEEPAL tree in the EAST, BANYAN tree in the WEST, tree of BEL in the NORTH, AMLA tree in the SOUTH & the tree of ASHOK in the SOUTH-EAST. Then, in the middle of Panchvati, a Worship Place (i.e. a temple) should be made and a Hand Pump should be installed. In this hand Pump, water will be available for thousands of years. The roots of these Panchvati trees makes the existing source of water between them pure and capable to cure many diseases.

There should a house by name of each women and there, they should plant at least three plants.

- 1). Tree of God Vishnu- Amaltash.,
- 2). Tree of Goddess Lakshmi- Kachnar.,
- 3). Plant of Basil (Tulsi), which is able to cure all the diseases.

For purification of environment, at least one plant of Neem should be planted in front of each house because it has efficiency of absorbing harmful gases (Carbon-mono-oxide, Hydrogen Sulphide, Sulphur-di-oxide, Nitrous Oxide, Ammonia, etc.) and releases gases which are useful for us, same as when Lord Shiva absorbed all the poison which was released during *SAMUDRAMANTHAN*.

Therefore, to live a healthy life, at least one plant of Neem should be planted near the residence.

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.

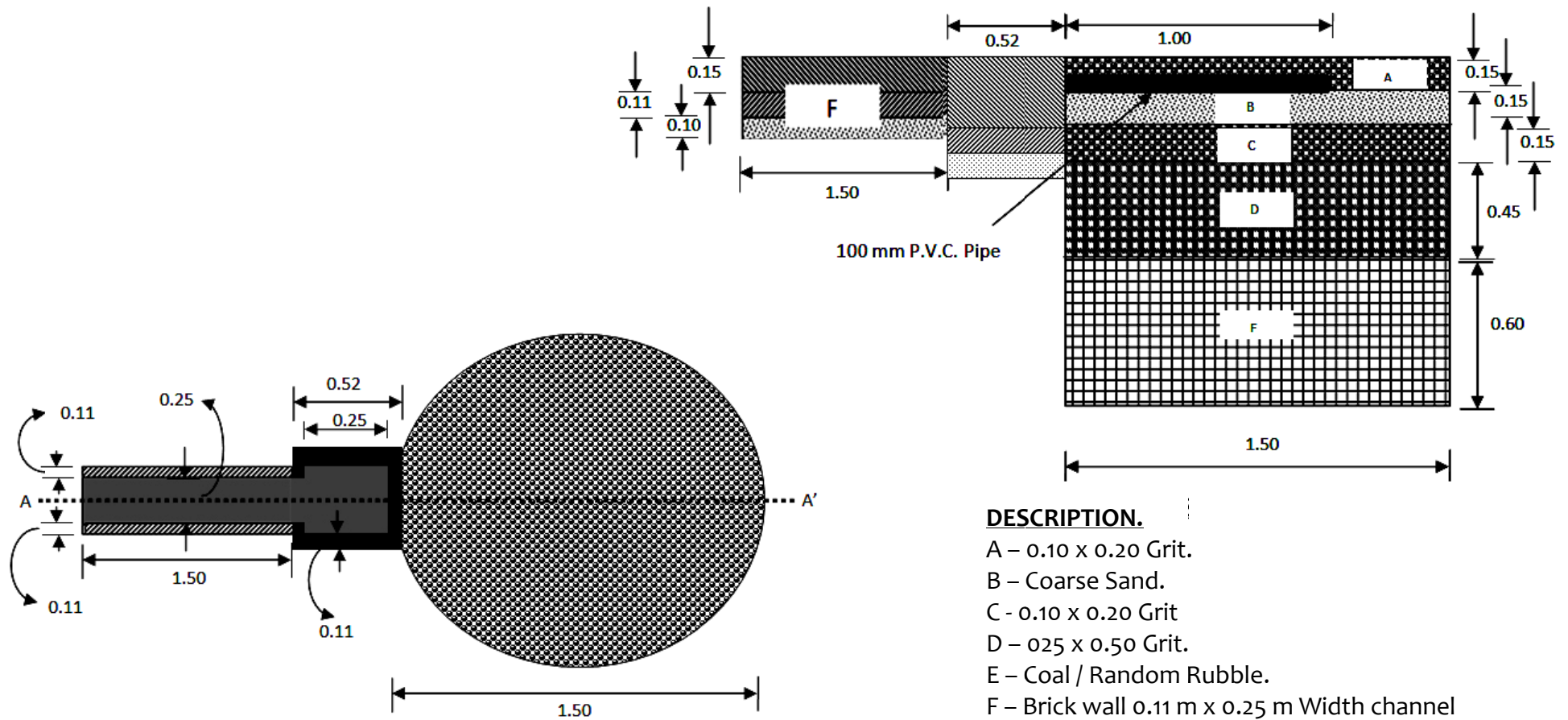
ASHOK : Ashok is the best tree of the world. The canopy of this tree destroys all the tension and nervousness. Its canopy also cures many diseases of womens.

DETAIL ESTIMATE OF PANCHVATI PLACE

S.No.	Particulars	Unit	Quantity	Cost / Unit	Total
1.	Demonstration of Panchvati Place and Horticulture with Brick Guard	nos.	6	1355.00	8130.00
2.	Cost of Plants with Earth Work, Digging and Filling with FYM	nos.	6	172.00	1032.00
3.	Construction of Krishak Vikas Manch	nos.	1	71200.00	71200.00
4.	India Mark-II Hand Pump	nos.	1	42600.00	42600.00
5.	Renovation of Jagat of Well	nos.	1	9100.00	9100.00
6.	Soaking Pit for Hand Pump or Well	nos.	1	3845.00	3845.00
	Sub Total with Hand Pump's Cost				Rs. 1,26,807.00
	or				Say Rs. 1,26,800.00 only
	Sub Total with Jagat of Well's Cost				Rs. 1,75,307.00
					Say Rs. 1,75.300.00 only

WITH SILTING TANK

All Dimensions Are in Metre



PLAN OF SOAKING PITS WITH SILTING TANKS

DETAIL ESTIMATE OF SOAKE PIT & CHANNEL OF LENGTH 1.50 M

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

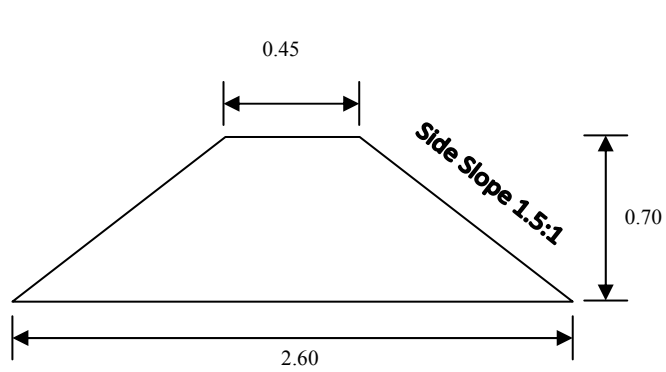
S.No.	Particulars	Quantity	Rate	Amount
1.	Earth work	2.94 cum	36.66/cum	107.78
2.	Khanda laying	1.059 cum	33.33/cum	35.29
3.	G.S.B. laying	1.058 cum	33.33/cum	35.26
4.	G.S.Grit laying	0.264 cum	33.33/cum	8.79
5.	Laying of sand	0.334 cum	33.33/cum	11.13
6.	Brick work 1:4	0.126 cum	370.00/cum	46.62
7.	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

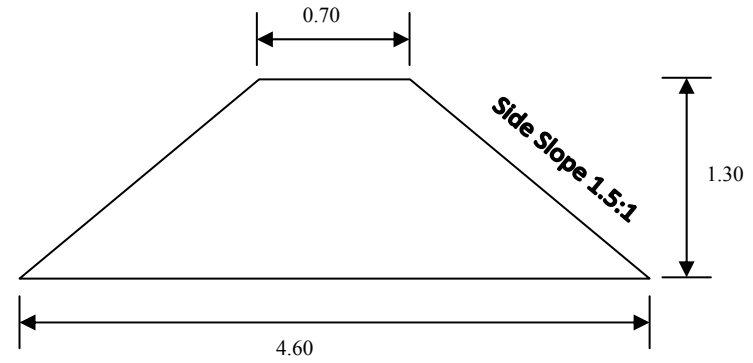
**DRAWING AND DETAIL ESTIMATE
OF
WATERSHED DEVELOPMENT WORKS
IN WATERSHED WORK PHASE**

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

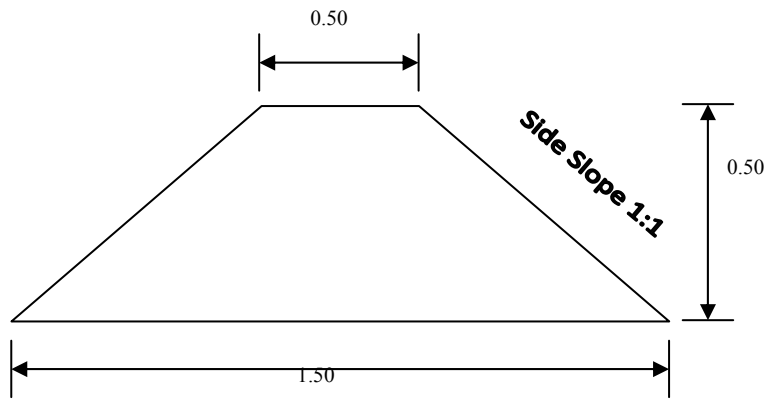
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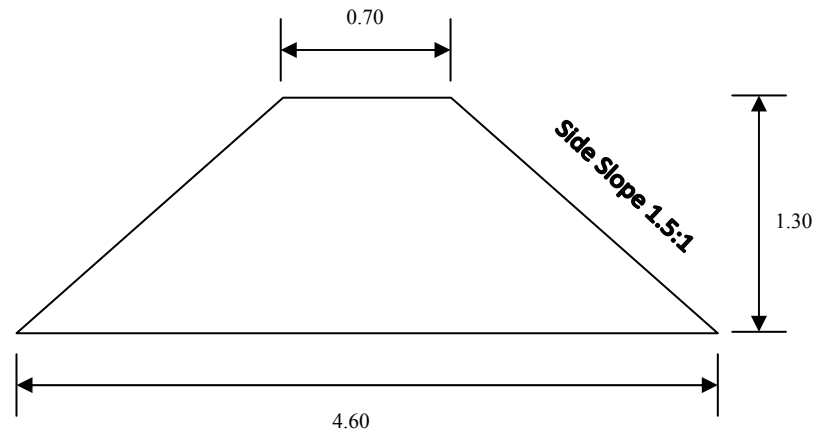
(C.B., Cross-Section – 1.085 m²)



(S.B., Cross-Section – 1.845m²)



(Field Bund, Cross-Section – 0.50 m²)

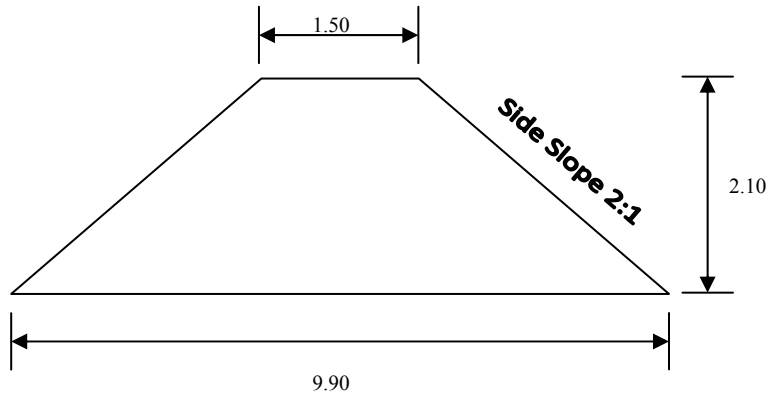


(S.B. /P.B. /M.B., Cross- Section – 3.445 m²)

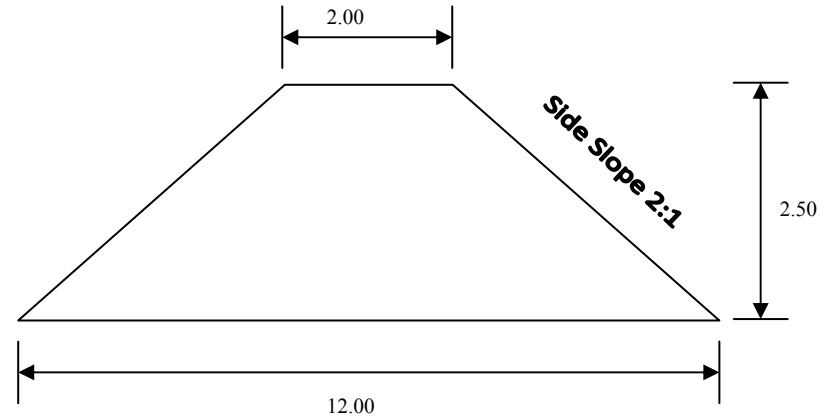
(All dimensions in Metre)

DRAWING OF EARTHEN CHEKDAM / GULLY PLUG

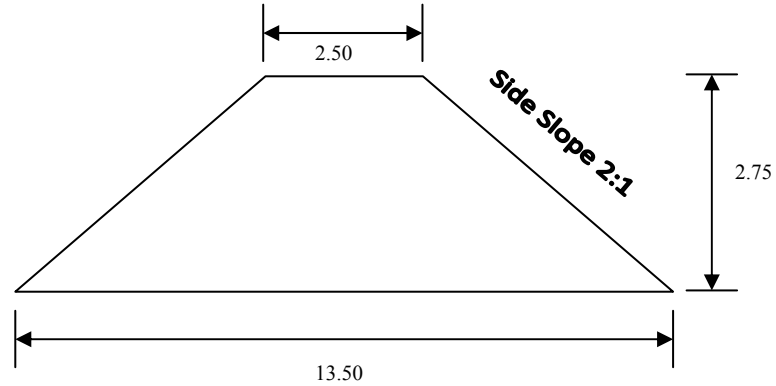
(Not to Scale)



(C.D. /G.P., Cross-Section – 11.97 m²)



(C.D. /G.P., Cross-Section – 17.50 m²)



(W.H.B., Cross-Section – 22.00 m²)

(All dimensions in Metre)

DESIGN OF CONTOUR BUND

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

DESIGN OF SUBMERGENCE BUND

Types of soil –Clay	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 $h=\sqrt{(Re \times V.I.)/50}$	$=\sqrt{(25 \times 0.90)/50} = \sqrt{0.45} = 0.67 \text{ m. Say } \mathbf{0.70m}$
Free board 20% of height minimum 20cm	
Total Height	=0.90m
Taking top width of bund 0.70m and side slope 1.5:1	
Bottom of bund	= 0.70+2 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	= $(0.50+1.50) \times 0.50 / 2 = 0.50 \text{ m}^2$
Length per hectare	= 200 m
Earthwork	= $200 \times 0.50 = 100 \text{ cum}$
Cost 39.16/cum	= Rs. 3916.00
Cost per hectare	= Rs. 3916.00

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

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

TYPICAL SECTION OF EARTHEN CHECK DAM / GULLY PLUG

Top width	= 1.50 m
Side slope	= 2:1
Height	= 2.10m
Bottom Width	= 9.90 m
Cross section	= $(1.50 + 9.90) \times 2.10 / 2$ = 11.97 m 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	= $(2.00 + 12.00) \times 2.50 / 2$ = 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	= $(2.50 + 13.50) \times 2.75 / 2$ = 22.00 m ²
Per meter cost	= Rs. 1085.92

HORTICULTURE DEVELOPMENT FOR WATERSHED MANAGEMENT

Horticulture is an important component of land use management. Now India is the second largest producer of fruits in the world after Brazil. However, 53% of the total geographical area of the country is degraded due to various reasons. Fruit trees and fruit based systems are the viable alternatives for economic utilization of such lands. The basic philosophy behind the conservation horticulture is the use of available resources and skillful choice of fruits. The use of available soil moisture, collection of the runoff water from the catchment area to make up the deficit requirements as well as in situ water harvesting techniques are some of the measures. The in situ water harvesting techniques should be used for growing trees in such a way that each tree has its own micro catchment area. The success of the conservation of horticulture entirely depends on the selection of economically viable hardy varieties of fruit crops resistant to moisture stress or drought and other adverse climate conditions. The fruit crops selected for degraded lands must be such that their maximum growth take place during the period of maximum water availability in the soil and should have low demand.

The main constraints which restrict development of the horticulture land use in degraded lands are enumerated below:

(A) Basic constraints

- 1- Lack of suitable agro-techniques for degraded lands
- 2- Lack of trained resource persons
- 3- Inadequate dissemination of the technologies
- 4- Lack of community approach
- 5- High biotic interference
- 6- Lack of infrastructure including marketing.

(B) Soil constraints

- 1- Poor nutrient status of the soil
- 2- Physical impediment
- 3- Moisture stress / water logging / inadequate drainage.

(C) Plant related constraints

- 1- Problem of plant establishment
- 2- Physiological disorders
- 3- Fruit drop and poor productivity
- 4- Incidence of insects-pests.

However, apart from the above mentioned constraints, the measure bottleneck in horticulture development are poor technological advancements, high initial establishment cost, high input demand, timely operation and seasonal shortage of labours, etc.

CONCEPTS AND ADVANTAGES OF CONSERVATION HORTICULTURE

Conservation horticulture or horticulture land use based on soil and water conservation principle is a suitable alternative for utilization and management of land under rainfed conditions. Thus horticulture development in watershed management appears to be the most appropriate technique for sustained productivity as well as for restoration of degraded lands. In fact, horticulture system meet all the basic needs-food, fruits, fodder, fuel and timber besides, providing employment and sustaining a number of products for industries.

The fruit trees grown with crops can provide fuel from pruned shoots and dried branches, leaf fodder for animals and leaf litter that can be utilized as mulch material and organic matter the leaf litter of deciduous fruit trees not only protects the top soil from the impact of raindrops but also improve soil structure, reduces evapotranspiration, increases infiltration and add to the nutrient status of soil. Therefore conservation based horticulture land use system assumes great significance as fruit trees on degraded lands provide higher returns and offer alternative opportunity in non-arable areas where cropping may not be possible.

CONSERVATION HORTICULTURE PRACTICES

Some of the important practices are given below

1- Selection of Suitable Fruits Types: For the success of conservation horticulture, selection of hardy varieties resistant to diseases and pests and use of local or other hardy root stocks for raising fruit-trees is of great importance. The major part of the reproductive cycle ie. Period from flowering to fruiting must also fall during maximum water availability period and the root ripening must be completed before the onset of dry summer (April-May).

Ber, Guava, Karonda, Bel, Amla, Lemon, and Phalsa etc. are the plants which fulfill this requirement and all these fruit plants are most suitable for Bundelkhand region.

2- Planting Techniques: For degraded lands, pits should be dug of 1m x 1m x 1m size, the excavated soil is mixed with Farmyard Manure (FYM) @ 5-10kg/pit with doses of potash and phosphorous and some insecticide / pesticide (numicide / aldrex) for prevention of white ant. Planting of the fruits plants should be done with the onset of monsoon.

Use of Root Stokes: Budding and grafting on the wild root stock gives benefit of the establishment root and in turn provides better quality fruits with high field potential. For example, Ziziphun mauritiana, a wild ber can be successful budded with scion of improved cultivars, This practice is only successful where sizable patch of wild root stock is available. The budded/grafted stock needs intensive management as it is required to be protected from the wild animals, birds, insects, pests etc. The wild root stock develops efficient top root to provide moisture and nutrients to the scion. Amla. Bel is other examples of raising the improved cultivation the wild root stock.

In Site Water Harvesting: Since on slopy lands, runoff water is considerably higher, therefore, it should be harvested and used. The run off can be utilized for growing fruit plants in such a way that each tree in the established plants is at the time of fruit setting and fruiting. Moisture available at this critical period improves the fruit yield.

Runoff water will be harvested and stored in tanks during the rains. The stored water will be utilized at the time when the fruit trees show moisture stress during dry months. Counter trenches will dug between the rows of fruit trees because this is effective in conserving moisture and providing soil erosion.

Mulching: Mulching is practiced to conserve moisture. It prevents the loss of moisture by evaporation and improve water intake by the soils. Various organic (Straw, hay, manure, tree leaves, dry wads) Mulches are used for mulching. Use of plastic mulch has been taken in rainfed and dryfarming conditions to increase the productivity by minimizing evapotranspiration losses.

Drip Irrigation: Drip irrigation saves water by 40 to 70 percent and two to three times mare area can be irrigated with the same amount of available water. It has the advantages that it ensures uniform distribution of water, provides perfect control over water application and minimizing the losses during convergence and seepage.

COST OF PLANTATION FOR ONE PLANT WITH DIGGING, FILLING MIXED WITH FARM YARD MANURE (FYM)

1	Earth work in digging	1	1.0	1.0	1.00	1.00	36.66	36.66	
2	Cost of FYM, in Kg/pit	1	-	-	-	10Kg	8.00	80.00	
3	Filling of pits mixed with FYM and soil	1	1.0	1.0	1.0	1.00	36.66	36.66	
4	Cost of plants	1	-	-	-	1	18.00	18.00	
Total								171.32	
Say								Rs. 172.00	

Estimate of Orchard Development in the Watersheds Per Hectare (Without Fencing)

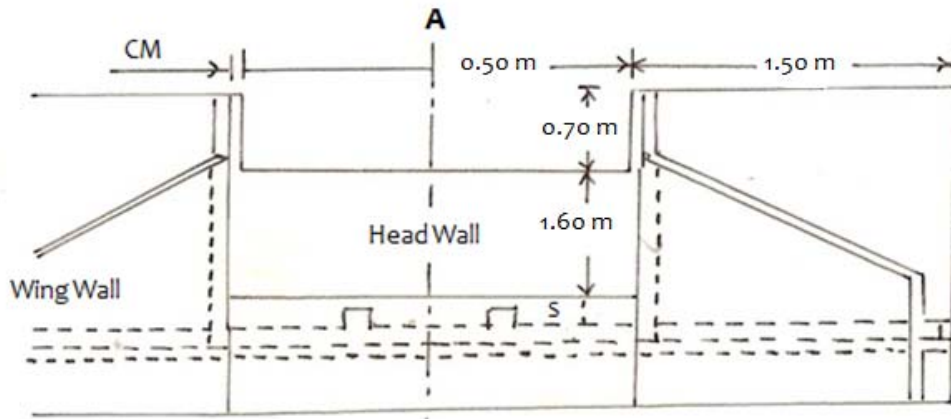
S.No.	Particulars	Quantity	Rate	Amount	Remarks
A. Horticulture					
1.	Soil working 1m x 1m x 1m size pits (270nos.) including cost of refilling	270.00 cum	36.66/cum	9898.20	Since, the project is to be operated in a participatory mode, contribution in the form of labour input for pit digging, FYM and its applications, weeding and hoeing are to be provided by the participating farmers, hence the costs are not included in the estimates.
2.	Application of Farmyard Manure, including cost		L.S.	450.00	
3.	Cost of NPK mixture, neemicide @ 250 gm/plant		L.S.	400.00	
4.	Cost of plants (including 15% etc. for mortality) including transportation and planting	310 nos.	15.00/Plant	4650.00	
5.	Casualty replacement @ 10% of item No. 4 & 5			465.00	
6.	Cost of 2 weeding and hoeing		1.00/Plant	540	
7.	Contingency and unforeseen (3%)			492.00	
	Total			Rs. 6,007.00	
	Say			Rs. 6,000.00	
	Maintenance cost 2 nd year onwards – 15 % of 1 st year cost			900.00	
	For next 5 years i.e., Rs. 900 x 5			4500.00	
	Total Cost			Rs. 10,500.00	
	Say			Rs. 10,500.00	
B. Agro-Horticulture (cost per ha)					
1.	Cost of raising 270 plants up to 5 years @ Rs. 10,000.00			10500.00	The remarks mentioned under Horticulture are also applicable for Agro-Horticulture.
2.	Cost of raising agricultural crops @ Rs. 5,000 per hectare per year			5000.00	
	Total			Rs. 15,500.00	

Estimate of Orchard Development in the Watersheds Per Hectare (With Fencing)

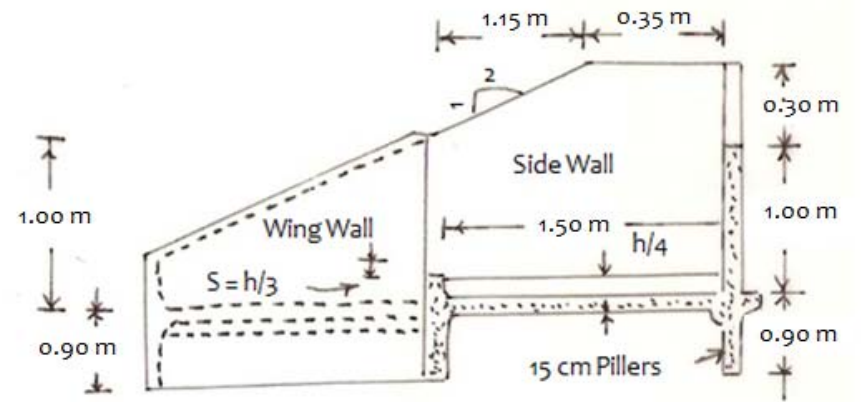
S.No.	Particulars	Quantity	Rate	Amount	Remarks
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	Total			Rs. 6,007.00	
	Say			Rs. 6,000.00	
	Maintenance cost 2 nd year onwards – 15 % of 1 st year cost			900.00	
	For next 5 years i.e., Rs. 900 x 5			4500.00	
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	Say			Rs. 10,500.00	
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1.	Cost of raising 270 plants up to 5 years @ Rs. 10,000.00			10500.00	The remarks mentioned under Horticulture are also applicable for Agro-Horticulture.
2.	Cost of raising agricultural crops @ Rs. 5,000 per hectare per year			5000.00	
3.	Fencing			45300.00	
	Total			Rs. 60,800.00	

DRAWING OF SPILLWAY OF CREST LENGTH 0.5 m

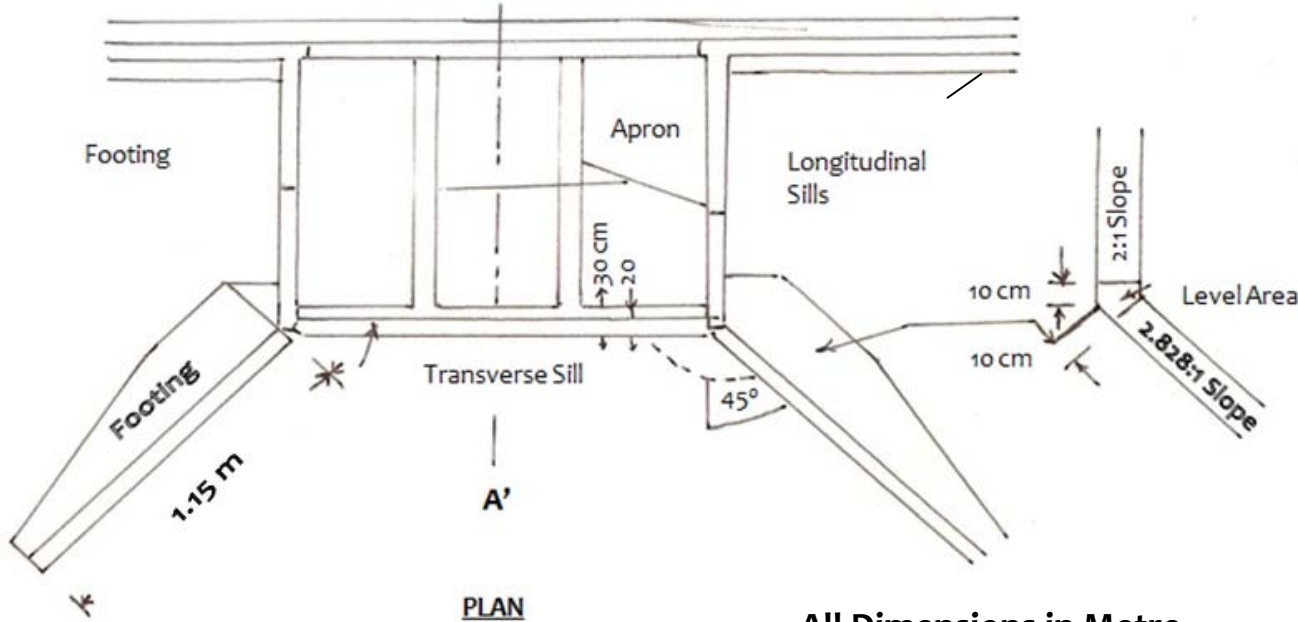
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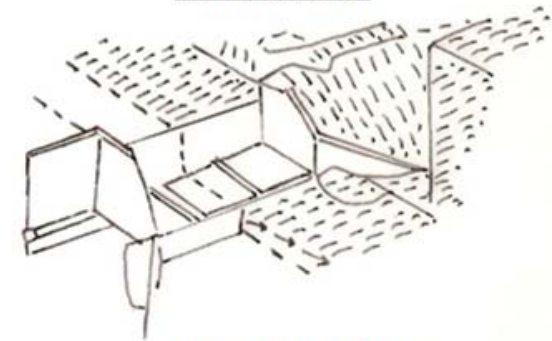
DOWN STREAM ELEVATION



SECTION ON A-A'



PLAN



PERSPECTIVE VIEW

All Dimensions in Metre

Design of Drop Spillway for 1.00 ha Catchment Area

Design of Drop Spillway to be constructed at a place in a gully having width of 1.0 m and catchment area 1.00 ha and net drop 0.50 m Taking rainfall intensity for duration equal to time of concentration of watershed and design return period of 25 years , as 120mm/hr. The coefficient of runoff for the watershed is 0.3.

1. Hydrologic design- The design peak runoff rate (m^3/s) for the watershed from Rational formula is given as:

$$Q = \frac{\text{C.I.A.}}{360} = \frac{0.3 \times 120 \times 1.00}{360} = 36/360 = 0.10 \text{ cum/second}$$

2. Hydraulic design- The maximum discharge capacity of the rectangular weir given by

$$Q = \frac{1.711 L H^{3/2}}{(1.1+0.01 F)}$$

To find suitable value of L & H

Let us assume $L = 0.50 \text{ m}$ (since width of gully is 1.00 m)

$$0.10 = \frac{1.711 L H^{3/2}}{(1.1+0.01 \times 0.5)} = \frac{1.711 L H^{3/2}}{(1.105)}$$

$$L H^{3/2} = \frac{1.105 \times 0.10}{1.711} = \frac{0.1105}{1.711} = 0.064$$

$$H^{3/2} = \frac{0.064}{0.50} = 0.128$$

$$H = (0.128)^{2/3} = 0.25 \text{ m}$$

$$\text{Test: } L/h = \frac{0.50}{0.25} = 2.0 \geq 2.0 \text{ hence O.K.}$$

$$h/f = \frac{0.25}{0.50} = 0.50 \leq 0.5 \text{ hence O.K.}$$

3. Structural design –

1- Minimum headwall extension , $E = (3h + 0.6)$ or $1.5 f$ whichever is greater

$$E = 3 \times 0.5 + 0.6 \quad \text{or} \quad 1.5 \times 0.50$$

$$E = 2.10 \text{ m} \quad \text{or} \quad 0.75 \text{ m}$$

Adopted 2.10 m

$$2\text{- Length of apron basin } L_B = f(2.28 h/f + 0.54) = 0.50 (2.20 \times \underline{0.5} + 0.54) \\ 0.5$$

$$= 0.50 \times 2.74 = 1.37 \text{ m says } 1.40 \text{ m}$$

$$3\text{- Height of end sill, } S = \frac{h}{3} = \frac{0.50}{3} = 0.16 \text{ m says } 0.20 \text{ m}$$

4- Height of wing wall and side wall at Junction :

$$J = 2h \text{ or } [f + h + S - (L_B + 0.10)/2] \text{ whichever is greater}$$

$$= 2 \times 0.50 \text{ or } [0.50 + 0.50 + 0.16 - (1.37 + 0.10)/2]$$

$$= 1.0 \text{ or } [1.16 - 0.735]$$

$$= 1.0 \text{ or } 0.425$$

adopt $J = 1.00 \text{ m}$

$$5\text{- } M = 2(f + 1.33 h - J) = 2(0.50 + 1.33 \times 0.25 - 1.00)$$

$$= 2 \times (-0.167) = -0.335 \text{ m}$$

$$6\text{- } K = (L_B + 0.1) - M = (1.37 + 0.1) - 0.335$$

$$= 1.47 - 0.335$$

$$= 1.135 \text{ m}$$

Toe and cut off walls

$$\text{Normal scour depth (N S D)} = 0.473 \times (Q/f)^{1/3}$$

$$= 0.473 \times (0.1/1)^{1/3}$$

$$= 0.473 \times 0.464$$

$$= 0.219$$

$$\text{Maximum Scour depth (M S D)} = 1.5 \times \text{N S D}$$

$$= 1.5 \times 0.219$$

$$= 0.328 \text{ m}$$

$$= 0.35 \text{ m says}$$

$$= 0.35 \text{ m}$$

Depth of cutoff /Toe wall

Apron thickness : For an over fall of 0.5 m. The Apron thickness in concrete construction is 0.20 m since the structure is constructed in masonry, the Apron thickness will be $0.20 \times 1.50 = 0.30 \text{ m}$

Wall thickness: The thickness of different wall of the structure (masonry construction) is given below:

Description	Thickness of wall	
	Top width	Bottom width
Head wall	0.40	1.00
Side wall	0.30	0.80
Wing wall and head wall extension	0.30	0.60

DETAIL ESTIMATE OF DROP SPILLWAY OF CREST LENGTH 0.5 METRE

1. Earth work in cutting in foundation

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Side wall	2	1.50	1.00	1.15	3.45
2	Head wall	1	0.50	1.20	1.15	0.69
3	Head wall extension	2	2.20	0.80	1.15	4.04
4	Wing wall	2	1.15	0.80	1.15	2.11
5	Toe wall	1	0.50	0.80	0.60	0.24
6	Cut off wall	1	4.70	0.80	0.60	2.25
7	Apron	1	0.50	1.50	0.60	0.45
Total						13.23 cum

2. Laying of sand in the bed of foundation

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Side wall	2	1.50	1.00	0.10	0.300
2	Head wall	1	0.50	0.40	0.10	0.020
3	Wing wall	2	1.15	0.80	0.10	0.184
4	Toe wall	1	0.50	0.80	0.10	0.040
5	Cut off wall	1	4.70	0.80	0.10	0.376
6	Apron	1	0.50	1.50	0.10	0.075
Total						0.995 cum

3. C.C.W. 1: 3: 6 in foundation

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Cut off wall	1	4.7	0.80	0.15	0.564
2	Head wall	1	0.50	0.40	0.15	0.030
3	Side wall	2	1.50	1.00	0.15	0.450
4	Wing wall	2	1.15	0.80	0.15	0.276
5	Toe wall	1	0.50	0.80	0.15	0.060
6	Apron	1	0.50	1.50	0.15	0.112
Total						1.492 cum

4. R/R Stone masonry 1:4

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Cut off wall	1	4.70	0.80	0.45	1.692
		1	4.70	0.60	0.45	1.269
2	Head wall	1	0.50	1.10	0.45	0.247
		1	0.50	1.00	0.45	0.225
		1	0.50	$(0.40 + 1.00) / 2$	0.60	0.180
3	Head wall extension	2	2.10	0.80	0.45	1.512
		2	2.10	0.60	0.45	1.134
		2	2.10	0.60	0.60	1.512
		2	2.10	0.40	0.70	1.176
4	Side wall	2	1.50	1.00	0.45	1.350
		2	1.50	0.80	0.45	1.080
		2	1.50	0.80	0.60	1.440
		2	1.50	0.60	0.40	0.720
		2	$(0.35 + 1.50) / 2$	0.40	0.30	0.222
5	Wing wall	2	1.15	0.80	0.45	0.828
		2	1.15	0.60	0.45	0.621
		2	1.15	0.40	$(1.00 + 0) / 2$	0.460
6	Toe wall	1	0.50	0.80	0.45	0.180
		1	0.50	0.60	0.45	0.135
		1	0.50	0.40	0.20	0.040
7	Apron	1	0.50	1.50	0.45	0.337
Total						16.360 cum

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

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Head wall	1	0.50	0.40	0.025	0.005
2	Side wall	2	0.35	0.40	0.025	0.007
		2	1.18	0.40	0.025	0.023
3	Head wall extension	2	2.10	0.40	0.025	0.042
4	Wing wall	2	1.52	0.40	0.025	0.030
5	Toe Wall	1	0.50	0.40	0.025	0.005
6	Apron	1	0.50	1.50	0.025	0.018
Total						0.130 cum

6. Raised Pointing 1:3

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Head wall	1	0.50	-	0.60	0.30
		1	0.50	-	0.84	0.42
2	Side wall	2	1.50	-	1.00	3.00
		2	$(0.35 + 1.50) / 2$	-	0.30	0.55
3	Head wall extension	2	2.10	-	1.00	4.20
4	Wing wall	2	1.15	-	$(1.00 + 0) / 2$	1.15
Total						9.62 m ²

CONSUMPTION OF MATERIALS

S.No.	Particulars	Quantity	Cement (Bags)	Coarse Sand (cum)	Khanda (cum)	G.S.B 25-40 mm (cum)	G.S. Grit 10-20 mm (cum)
1.	Sand laying	0.995 cum	-	0.995	-	-	-
2.	C.C.W. 1:3:6	1.492 cum	6.41	0.671	-	1.342-	-
3.	R/R Stone Masonry	16.360 cum	39.26	5.562	16.36	-	-
4.	C.C.W. 1:2:4	0.130 cum	0.79	0.054	-	-	0.110
5.	Raised Pointing 1:3	9.62 m ²	0.44	0.045	-	-	-
Total			46.90	7.327	16.36	1.342	0.110
Say			47 Bags				

COST OF MATERIALS

S.No	Name of materials	Quantity	Rate	Amount
1.	Cement	47 Bags	255.00/bag	11985.00
2.	Coarse sand	7.327 cum	910.00/cum	6667.57
3.	Stone Khanda	16.36 cum	1025.00/cum	16769.00
4.	G.S.B. 25-40 mm	1.342 cum	855.00/cum	1147.41
5.	Grit 10-20 mm	0.110 cum	1250.00/cum	137.50
Total				Rs. 36,706.48

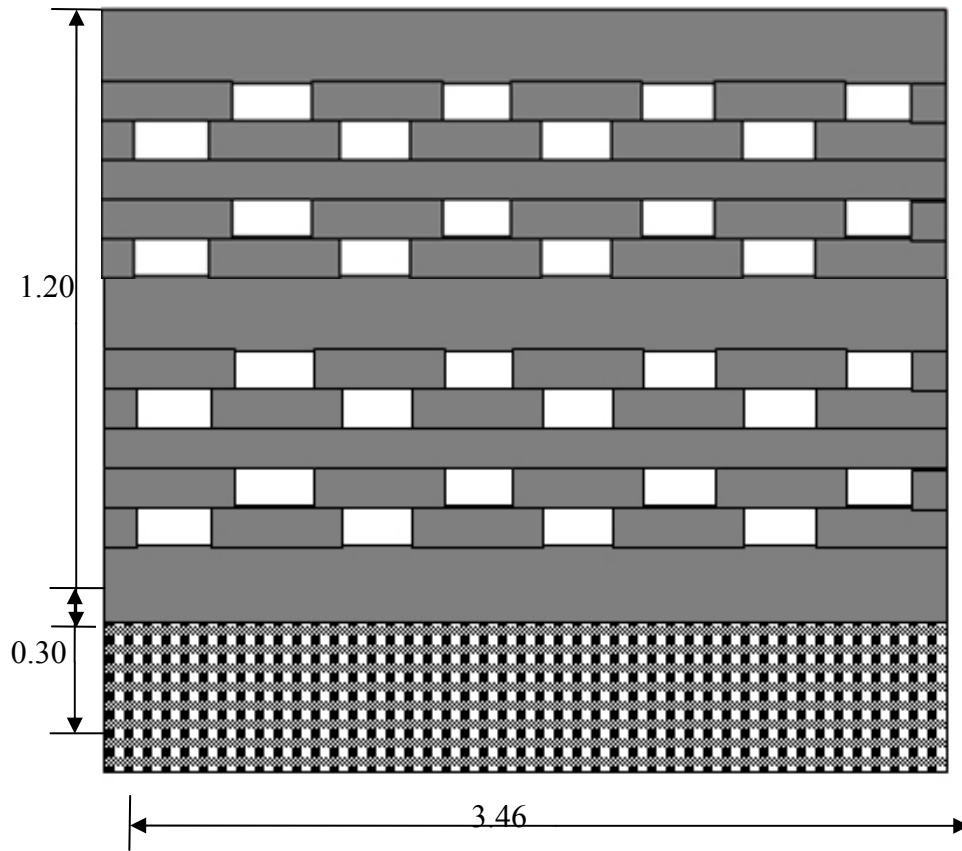
LABOUR CHARGE

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	13.23 cum	36.66/cum	485.01
2.	Sand Laying	0.995 cum	33.33/cum	33.16
3.	C.C.W. 1:3:6	1.492 cum	494/cum	737.04
4.	Stone masonry	16.36 cum	370/cum	6053.20
5.	C.C.W. 1:2:4	0.130 cum	494/cum	64.22
6.	Raised Pointing	9.62 m ²	51.61/m ²	496.48
7.	Curing	16.36 cum	25.00/cum	409.00
8.	Chowkidar	6 Man Days	100.00/Man Day	600.00
9.	Head load & local transportation cost 10% cost of material	-	-	3670.64
Total				Rs. 12,548.75

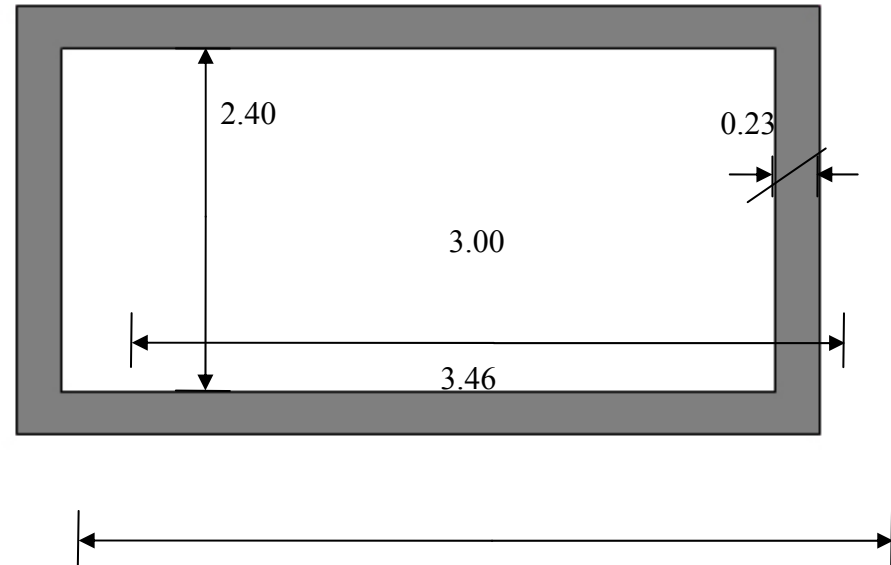
Total Expenditure	
1. Cost of materials	36706.48
2. Labour Charges	12548.75
Total	Rs. 49,255.23
	Say Rs. 49,300.00 only

**DRAWING AND DETAIL
ESTIMATE
OF
LIVELIHOOD PROGRAMME
IN WATERSHED WORK
PHASE**

DRAWING OF NADEF COMPOST STRUCTURE



ELEVATION



PLAN

DESCRIPTION.

1. Brick work = 1:4.
2. Plastering = 1:4.
3. Thickness of wall = 0.23 m.
4. Total height of Structure = $1.20 + 0.30 = 1.50$ m.

PREPARATION OF COMPOST BY NADEF METHOD

Nadef is the name of inventor of this method. In this method glazed pit of brick masonry above Ground level is made as shown in the drying. In this method by using a little quantity of cow dung, and crop residue, leaf of trees, straw and other organic materials. The method of filling up the pit is below.

First of all best soil of pond or field is spread in the bottom of pit as least 3” thickness and then one layer of 6” thickness and other agriculture waste is made then best soil is spread on it and on this layer the liquid made of cow dung is spread to wet the crop residue, straw etc. this method is repeated until the pit is net completely filled up. On the top layer of this material a bulk is made and then the pit is closed by earthen gara. Water is spread on the top of bulk and from glazed side weekly. This process is repeated to moist the filling material always. The decomposition in filling material started and within six month filled material becomes compost khad.

ESTIMATE OF COMPOST BY NADEF METHOD

S.No.	Description of Work	No.	L.	B.	D./H.	Quantity
1.	Earth Work					
	Long Wall	2	3.60	0.30	0.30	0.648
	Short Wall	2	2.33	0.30	0.30	0.419
	Total					1.067 cum
2.	Brick Work 1:4					
	Long Wall Solid	2	3.46	0.23	0.90	1.432
	Short Wall Solid	2	2.40	0.23	0.90	0.993
	Total					2.425 cum
	Long Wall Glazed	2	3.46	0.23	0.60	0.954
	Short Wall Glazed	2	2.40	0.23	0.60	0.662
	Total					1.616 cum
3.	Plastering Work					
	Long Wall	2	3.46	-	0.60	4.152
	Short Wall	2	2.40	-	0.60	2.880
	Top of Long Wall	2	3.46	0.23	-	1.591
	Top of Short Wall	2	2.40	0.23	-	1.104
	Total					9.727 m²

ABSTRACT OF WORK

S.No.	Particulars	Quantity
1.	Earth Work	1.06 cum
2.	Brick Work 1:4 2.425 + 1.616/ 2	3.233 cum
3.	Plastering 1:4	9.727 m ²

CONSUMPTION OF MATERIALS

S.No.	Particulars	Quantity	Cement (Bags)	Coarse Sand (cum)	Bricks (nos.)
1.	Brick work 1:4	3.233 cum	5.82	0.873	1487
2.	Plastering 1:4	9.727 m ²	1.07	0.146	-
	Total		6.89	1.019	1487
	Say		7 Bags	1.02 cum	1500 nos.

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	7 Bags	255.00/ Bag	1785.00
2.	Coarse Sand	1.02 cum	910.00/ cum	928.20
3.	1 st class Brick Work 1:4	1500 nos.	4050.00/ Thousand	6075.00
	Total			Rs. 8,788.20

LABOUR CHARGES

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	1.06 cum	36.66/ cum	30.85
2.	Brick Work	3.233 cum	370.00/ cum	1196.21
3.	Plastering	9.727 m ²	40.00/ m ²	389.08
	Total			Rs. 1616.14

Total Expenditure	
1. Cost of Materials	8788.20
2. Labour Charges	1616.14
Total	Rs. 10,404.34
	Say Rs. 10,400.00 only

Establishment of Goat Units for S.H.G.'s formed in I.W.M.P.VIIIth Project

District Hamirpur is situated in Bundelkhand region where the number of sheep is very less and they are small in nature. Goat population is appreciable and in fact, it is the major source of livelihood for poor people of the district.

In the state, on an average, 16 kg of meat is obtained from a goat, if they are dewormed twice, there shall be increment of 4 kg in meat on an average, benefiting the farmers of the state.

Deworming and vitamins, mineral- supplement to the goats shall enhance their productivity and also improve anti-body response and protection level through vaccination, i.e., importance in efficiency of vaccination. More productivity and assured health and low mortality shall result into adoption of more farmers to goat farming with the formation of more S.H.G.'s and in turn availability of goats for processing units.

Goat excreta shall be of immense help in enrichment of soil fertility.

Establishment of Goat Units for S.H.G.'s

Bundelkhand region, due to the geo-climate conditions and land pattern is favorable for goat husbandry. Goats thrive well in dry and semi-dry climate with bushes and thorny vegetation. Presently in this area, farmers rear goats for their livelihood. If goat husbandry would be transformed to intensive husbandry, there shall be more economic stability of farmers, more profit sharing and availability of running capital for future expansion. Keeping in view the above facts, goat units shall be formed in the area in intensive way.

16 Goat Units are proposed in I.W.M.P. VIIth Project for S.H.G. One unit constituting 10 goats and 1 buck will be distributed to one S.H.G.

A register of S.H.G. will be maintained by Secretary of S.H.G. in the supervision of W.D.T. member. The details of beneficiaries of S.H.G. including the breed of goat reared, breeding and feeding status, deworming status, deaths, post mortem conducted claim settlement and working status of unit will be maintained in the register.

Preferences shall be given in consecutive years in purchasing the goats and bucks for new units, from old units for which database maintained shall be of use and it should be assured by buy back arrangement.

Financial Component

S.No.	Component	Amount
1.	Cost of 10 goats of improved breed (not less than 6 months of age) @ Rs. 3000.00 each	30000.00
2.	Cost of 1 buck of improved breed @ Rs. 5000.00	5000.00
3.	Cost of insurance @ 11.63 / unit	4070.00
4.	Feed cost for 3 months @ 250 gm/ day for goats @ Rs. 11.84/ 250 gm	2930.40
5.	Provision of deworming, mineral and vitamin supplement, treatment, vaccination @ Rs.160/ animal	1760.00
6.	The expense including monitoring expenses, register and records @ Rs. 170.00/ unit	170.00
	Total	Rs. 43,930.40
		Say Rs. 43,950.00

Estimate of Livestock Development Activities

Total number of female animals:	Buffalo	-		4725	
	Cow	-		5597	
	Total	-		10,322	
1. Artificial Insemination (A.I.):	33% of total animals per year, i.e., 3406 (say 3400 nos.)				
	Amount required for A.I. by BAIF @ 100.00/ animal.				
	Total Amount			- Rs. 3,40,00.00	
2. Vaccination:	Total number of animals in I.W.M.P. VII th - 12657 nos.				
	1. H.S. + B.Q.	@ 5.50		69,613.50	
	2. F.M.D.	@10.50		2,65,797.00	
		(twice in a year)			
	Total Amount			- Rs. 3,35,410.00	
3. Deworming:	Adult animals -	11472			
	Child animals -	1185			
	Albendazole for	11472 animals	@ 40.56	4,65,304.00	
		1185 child animals	@20.28	24,032.00	
	Total Amount			- Rs. 4,89,336.00	
4. Mineral Mixture:	Agrimine Forte Chelated for 8205 animals @ 115.00				Rs. 9,43,575.00
	GRAND TOTAL		-		Rs. 21,08,321.00

**DRAWING AND DETAIL ESTIMATE
OF
PRODUCTION SYSTEM AND
MICRO-ENTERPRISES IN
WATERSHED WORK PHASE**

DEMONSTRATION OF WHEAT

- 1- Variety recommended for District-Hamirpur
Irrigated-W.H-542
Unirrigated –K-8027, k-5351(Mandakini)
Kathia-Raj 1555
- 2- Seed rate -100 -125 Kg/hectare
- 3- Requirement of fertilizers/ha N-125 Kg
 P-70-75Kg
 K-70-75Kg

ESTIMATE OF DEMONSTRATION OF WHEAT IN WATERSHED (PER ha)

S.No.	Particulars	Quantity	Rate	Amount	Remark
1	Tillage operation or preparation of field for sowing	1.0ha	1000.00/ha	1000.00	Since the project is to be operated in a participatory Mode, contribution in form of the tillage, sowing, irrigation and harvesting done by farmer is not included in the estimates
2	Cost of seed	100.00kg	18.00/kg	1800.00	
3	Sowing by seed drill	1.0ha	1000.00/ha	1000.00	
4	D.A.P. 18:46	160kg	573.00/ 50 kg	1833.60	
5	Urea	210kg	270.00/ 50 kg	1134.00	
6	Potash(M.O.P.)	150kg	300.00/50kg	900.00	
7	Irrigation(three irrigation)	1.00ha	650.00/ha	650.00	
8	Harvesting	1.00ha	2000.00/ha	2000.00	
Total				5667.60	
Say				5700.00	

Hence demonstration cost of wheat /ha is Rs. 5700.00

DEMONSTRATION OF GRAM IN WATERSHED AREA (per ha)

Variety - irrigated – vdai,KWR-108,

Rainfed – J.G-315, Avrodhi

Seed rate/ha -50-55kg

Fertilizer requirement/ha N-25.0kg P-80kg K-30kg

ESTIMATE FOR DEMONSTRATION OF GRAM(PER ha)

S.No.	Particulars	Quantity	Rate	Amount	Remark
1	Tillage operation in preparation of field and seed sowing	1.0ha (twice)	1000.00/ha	2000.00	Since the project is to be operated in participatory Mode, contribution by the farmer in the form of tillage, sowing operation, sowing and harvesting is not included in the estimates.
2	Cost of seed	55kg	90/kg	4950.00	
3	D.A.P	175kg	573.00/ 50 kg	2005.50	
4	M.O.P.	65kg	300.00/50kg	390.00	
5	Medicine	1.00ha	Lump sum	1250.00	
6	Harvesting	1.00ha	700.00/ha	700	
Total				8595.50	
Say				Rs. 8600.00	

Hence per hectare of demonstration –Rs. 8600.00

DEMONSTRATION OF ARHAR IN WATERSHED AREA(PER ha)

Variety - Malviya-13, narendra-1, Amar

Seed rate/ha -30 kg

Requirement of fertilizers/ha N-20.0kg P-50kg K-40kg

ESTIMATE FOR DEMONSTRATION OF ARHAR (PER ha)

S.No.	Particulars	Quantity	Rate	Amount	Remark
1	Tillage operation in preparation of field and seed sowing	1.0ha	1000.00/ha	2000.00	Since the project is to be operated in participatory Mode, contribution by the farmer in the form of tillage, operation, sowing and harvesting provided by participating farmers, hence this cost is not included in the estimates.
2	Cost of seed	30.0kg	120.00/kg	3600.00	
3	Nitrogen N.P.K 16:32:16	190.0kg	470.00/50kg	1786.00	
4	Urea	-	-	-	
5	M.O.P.	-	-	-	
6	Harvesting	1.00 ha	650.00	650.00	
7	Medicine	1.00 ha	Lump sum	1000.00	
Total				6386.00	
Say				Rs. 6400.00	

Hence per hectare of demonstration –Rs. 6400.00

DEMONSTRATION OF HYBRID BAJRA IN WATERSHES (per ha)

Requirement of Seed / ha -10kg

Requirement of fertilizers/ N- 60.00 kg P- 40.00 kg K-40.00 kg

ESTIMATE FOR DEMONSTRATION OF BAJRA(per ha) RAINFED

S.No.	Particulars	Quantity	Rate	Amount	Remark
1	Tillage operation in preparation of field and for sowing	1.0ha	1000.00/ha	2000.00	Since the project is to be operated in participatory Mode, contribution of tillage operation, and harvesting cost
2	Cost of seed	10.0kg	130.00/kg	1300.00	
3	Nitrogen N.P.K 16:32:16	125.0kg	470.00/50kg	1175.00	
4	Urea	90kg	270.00/50 kg	486.00	
5	M.O.P.	40kg	300.00/50kg	240.00	
6	Harvesting	1.00Ha	650.00/ha	600.00	
Total				3201.00	
Say				Rs. 3200.00	

DEMONSTRATION OF GREEN MANURING

Green Manuring is very useful but due to sowing of Kharif season crop, lack of suitable type of seeds, and limitation of moisture, it is not widely practiced. Green Manuring brings immediate advantage because of its quick decomposition where as FYM and compost improves the soil physical condition in the long-run. Benefits of Green Manuring accrue from substitution of chemical fertilizers, enhance soil biological activities and erosion control due to vegetative cover.

Sesbania Species (Dhaincha) and *Crotolaria Juncea* (Sunhemper Sanai) are most common green manure crops. They accumulate about 100 kg N/ha in their biomass and 64-88% of this is derived from atmosphere. Apart from direct benefit of green Manuring as a source of nutrients and organic matter, it has the capacity to mobilize soil phosphorus and other nutrients. It also helps in reclamation of problem of soil, e.g., *Sesbania* helps in removing exchangeable sodium and reclamation of salt affected soils.

In District Hamirpur more fields are kept fallow and only single crop in Rabi is grown. Therefore, this area is suitable for Green Manuring. Therefore, in I.W.M.P. VIIth Project, efforts will be made to oblige the farmers for Green Manuring.

A typical estimate is made for Green Manuring is given below:

ESTIMATE FOR GREEN MANURING IN THE WATERSHED (PER ha)

S.No.	Particulars	Rate	Cost	Remark
1	Seed of Sesbania (Dhaincha)25Kg/ha	25.00/Kg	625	Since the project is to be operated in a participatory mode, contribution in the form of tillage will be done by farmers is not included in the estimate.
2	Tillage operation before sowing and to plough the plants of Dhaincha after 40-45 days of sowing for Green Manuring.	1000/ha Before and after saring	2000.00	
Total			Rs. 625.00	

Therefore cost per hectare of Green Manuring is Rs. 625.00/ha

PASTURE MANAGEMENT

Introduction: The sound animal industry in any country centers around good quality feed and fodders. The livestock population in India is nearly 15% of the total livestock population of the world, though we have only 2% of the world's geographical area. The project on green and dry fodder requirement in India has been estimated at 1061 and 590 million tons by 2010 A-D, while the present feed and fodder resources in the country can meet only 4% of the requirement. The grazing intensity is very high i.e., 26 adult cattle unit (ACU)/ha as against 0.8 ACU in the developing countries.

The importance of grasses for protection and production, the two aspects of soil and water conservation is well known. Grass is unique in that it is the only resource utilized in situ by grazing. A "grassland" or more appropriately, a "range" is defined as "the areas which are predominantly covered with grasses or grass like plants and are primarily utilized as forage for grazing animals or used as hay." The grasslands are the major sources of food to the animals.

Pasture Management: All grazing areas are referred to as pastures, but more specifically the term is applied to cultivated grassland used for grazing. Thus pastures are artificial grasslands with or without non-grass vegetation (such as legumes) that are created with selected high forage-yielding grass and legume species and with inputs like fertilizers and irrigation and carefully managed to exclude all other vegetation. Pastures are usually fenced and used either for grazing, for hay and silage making or for both.

Intensive Fodder Production: In areas where the major enterprise of the farmers centers around the milk production. Continuous supply of green fodder round the year is the basis for success of such an industry. Under the aegis of ICAR's all India coordinated Research Project on Forage Crops, several highly productive fodder cropping systems have been tested and recommendations made for their general use. For central region important intensive crop rotations are presented as given below

Zone wise crop rotations yield(t / ha)	Green fodder
Central region	
1- Hybrid napier +Cowpea-Berseem+Japanrape	286.3
2- Maize+Cowpea-Jowar-Berseem+Japanrape	197.2
3- Jawar+Cowpea-Berseem+Japanrape-Jawar+Cowpea	168.6

Conservation on of Forages: In order to sustain animal production, it is essential that the optimum feeding should be maintained round the year. In India, we have two seasons, rainy season and winter season, when surplus quantities of green fodder is available-country to this there are 2 to 3 months of lean periods(October-November and April to July) when the fodder availability to animals is at its low. In the summer months, it is difficult even to meet the maintenance requirements of the animals. Stage of maturity to feed the animals adequately during the lean period. The conservation of forages could be done in the form of silage from cultivated fodders (legumes and cereals) and also pasture grasses. Forages could also be conserved in the form of hay when dried to its nutrients. This feed stuff is quantitatively important from both maintenance and nutritional point of view.

Agro-forestry system for fodder production: A number of fodder trees play an important role in human food security through their function as animal food sources, especially as drought services. Agro-forestry systems consisting of such tress and animals and/or pasture are called Silvo-Pastoral system.

Silvi-Pasture (or Silvo-Pastoral system) is the most promising alternate land use system which integrates multipurpose trees, shrubs, legumes and grasses mostly on non-arable, degraded and marginal lands for optimizing land productivity. It helps in conservation of vegetation, soil and nutrients and provides forage, timber and fuel wood on a sustainable basis.

Potentials of Semi-arid region for different forage production systems.

Region	Forge Production Systems
Semi arid	Integration of Agro-Silvi-Pasture, dry land agriculture on cultivated lands. Forage-cum-Copping forming on the marginal and sub marginal lands with intercropping dry lands cereals and legumes

ROLE OF GRASSLAND IN SOIL CONSERVATION

The grass plant itself protects the soil from the forces of water erosion including the impact of rain drops and surface flow. Grass acts a spring cushion intercepting and broking up the falling rain drops in their way down. Conducting the water down the blades and stems of the plants and finally allowing it to reach the ground as fine sprays without disturbing the surface. Clamps of grass plants, in a mechanical way, obstruct-flowing water and reduce its rate of flow.

In fact to control soil erosion whatever technique is adopted, there are four approaches to deal with the problem:

- 1- To condition the soil to make it resistant to determent and transportation and create more absorptive surface layer.
- 2- To cover the soil so that it is protected from the impact of wind and rain drops.
- 3- To decrease the velocity of wind or run off water.
- 4- To provide safe disposal outlet for surplus run off.

Grass in the nature highly efficient device to protect the soil from destructive forces like rain , wind etc. Grass and legumes increase the aggregation of soil particles; improve soil structure and water holding capacity of the soil. Grasses gives quicker protection to eroded lands. To establish gully sides, water ways, gully head and check dams. Grass is perhaps the most effective and economical tool. It can put to various uses in soil conservation:

- 1- Strip cropping, rotational cropping or lay farming.
- 2- Stabilization of bunds and terraces.
- 3- Stabilization of gullies, diversion or drainage channels.
- 4- Stabilization of sand dunes.
- 5- Meadows and pasture on steep slopes.
- 6- Fertility builder for eroded soil.

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 IWMP, Hamirpur VIIth financial outlay for capacity building 5% (Rs. 34.38 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

CHAPTER - 7

PHASING OF PROGRAMME AND BUDGETING

PHASING OF WORKS (Financial and Physical)

Phasing of various works/activities during different years of the project period for treatable area 5730 ha out total area 6849 ha year 2010-11 to 2013-14 is presented 687.60 lack

S. No.	Component	Unit	Unit cost (Rs.)	1 st Year 20%	2 nd Year 25%	3 rd Year 25%	4 th Year 30%	Total
A	Administrative costs							
	Administrative costs-TA&DA,POL/Hiring of vehicles/office and payment of electricity and phone bill etc. computer,stationary and consumable and Contingency	-	-	13.75	18.91	18.91	17.19	68.76
	D.P.R. PREPARATION	-	-	6.88	-	-	-	6.88
	Expert for monitoring and evaluation	Nos	NA	3.44	3.44	3.44	-	13.75
	Sub Total	-	-	24.07	22.35	22.35	20.62	89.39
B	PEREPARATORY PHASES	-	-	-	-	-	-	-
	Entry Point Activities like improvement in drinking water system,school,water harvesting &approach road etc.	-	-	27.50				27.50
	Institutional and capacity building	-	-	20.62	6.88	6.88	-	34.38
	Sub Total	-	-	48.12	6.88	6.88	-	61.88
C	WATERSHED WORKS	-	-	-	-	-	-	-
a	Soil &water conservation works	-	-	-	-	-	-	-
1	Contour & field bunding	Hect.	4220	51.57	40.64	40.65	95.04	227.90
2	submergence bund		-	-	-	-	-	-
3	Periferal bund		-	-	-	-	-	-
b	Renovation of existing bund for soil and moisture control	Hect.	740	-	10.00	10.00	12.00	32.00
	Sub Total	-	4960	51.57	50.64	50.65	107.04	259.90

1	New & existing Water harvveting bund/earthen check dam	Hect.	590		23.60	23.60	23.60	70.80
2	Pounds							
c	Afforestation works	-	-	-	-	-	-	-
1	Horticulture works	Hect.	60	-	2.76	2.76	-	5.52
2	Afforestation works	Hect.	120	-	3.79	3.79	-	7.58
	Sub Total	-	5730	51.57	80.79	80.80	130.64	343.80
D	LIVILIHOD PROGRAMME(Community based)	-	-	-	-	-	-	-
	Income generating activities through SHG's for Indless and marginal farmers and livestock development works.	-	-	6.88	30.94	30.94	-	68.76
E	PRODUCTION SYSTEM AN MICRO ENTRPRISES	-	-	-	-	-	-	-
	Crop production, diversification of agriculture and introduction of agro-forestry and Demonstration of improved composting system	-	-	6.88	30.94	30.94	20.63	89.39
	Sub Total	-	-	6.88	30.94	30.94	20.63	89.39
F	CONSOLIDATION PHASE	-	-	-	-	-	34.38	34.38
	GRAND TOTAL	-	5730	137.52	171.90	171.91	206.27	687.60

Physical plan

Phasing of various works/activities uring dirrerent yers of the project period os presented

Physical plan phasing

Activities related to	1 Year	2Year	3Year	4Year
	(quantity)	(quantity)	(quantity)	(quantity)
ADMINISTRATIVE COSTS				
TA&DA,POL/Hiring of vehicles/office and payment of electricity and phone bill etc. computer,stationary and cosumable and Contingency	-	-	-	-
Expert for monitoring and evaluation	-	-	-	-
PEREPARATORY PHASES	-	-	-	-
Entry Point Activities like improvement in drinking water system,school,water system,school,temple etc.	-	-	-	-
Institutional an capacity building	-	-	-	-
WATERSHED WORKS	-	-	-	-
Watershed development works	-	-	-	-
	-	-	-	-
Construction of bunds (graded,) (ha)	955	752	753	1760
Renovatin of the exisiting contore and field bunds and Periferal,marginal & Submurjenc bunds	-	231	231	278
Renovation and new construaction of water harvesting works earthan cheak dam and pounds	-	197	197	196
Dryland horticulture development	-	30	30	-
Afforestation and silvipastoral development (ha.)	-	60	60	-

LIVILIHOD PROGRAMME (COMMUNITY BASED)	955	1270	1271	2234
Income generating activities through SHG's for landless and marginal farmers	-	-	-	-
Livestock development activities	-	-	-	-
PRODUCTION SYSATEM AND MICRO ENTERPRISE	-	-	-	-
Demonstration and aesment of improved composting system using alternate material (36ermin compost) and nutrient nalysis (Nos.)	-	10	9	-
Introduction of improved crop production practices	-	-	-	-
I) for kharif crops (ha)	-	25	24	-
ii)for rabi crops (ha)	-	32	30	-
CONSOLIDATION PHASE				

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 IWMP 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

Economic analysis of horticulture plantation in agri-horticulture system at IWMP watershed. 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 IWMP-I watershed. 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

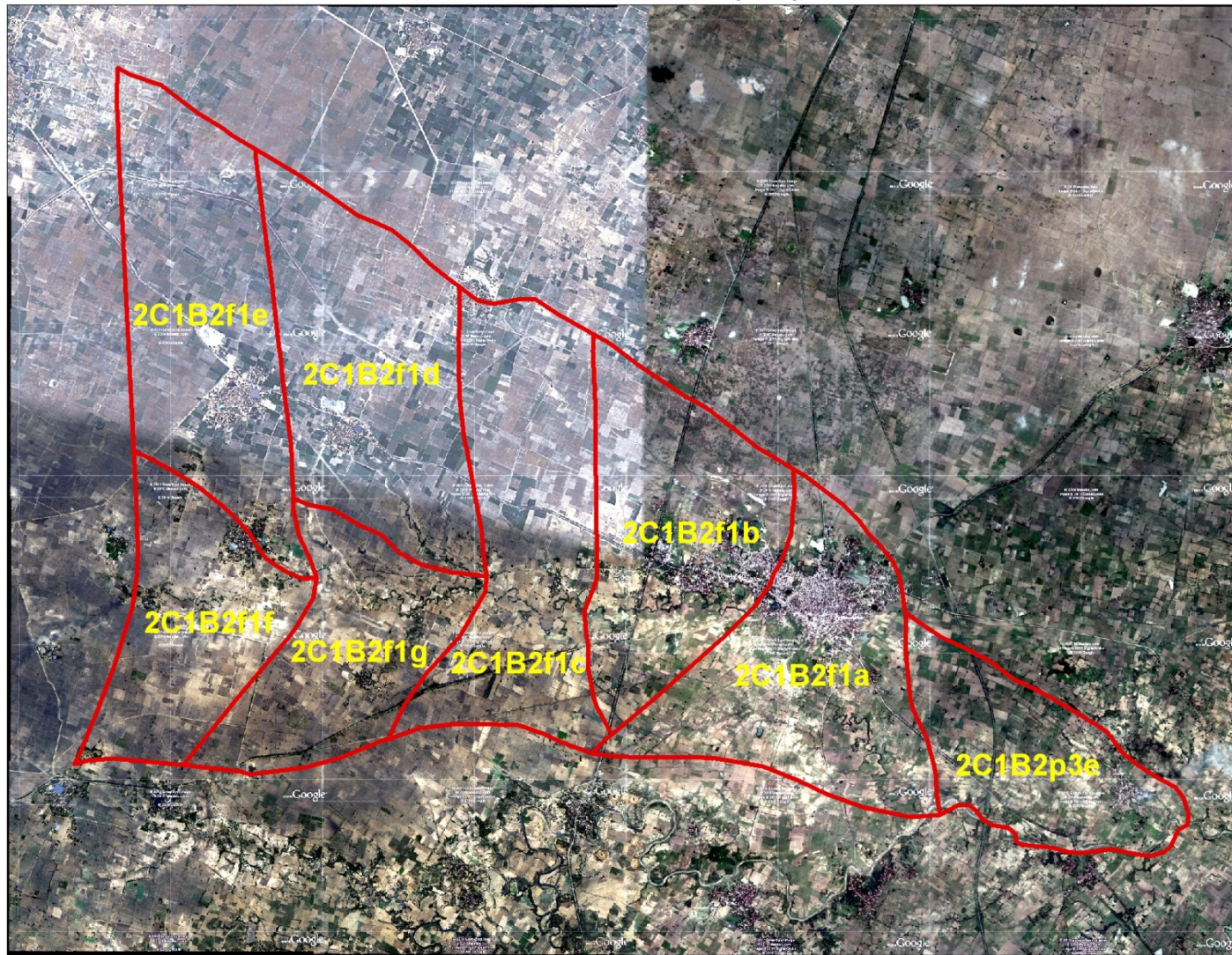
As a result of the watershed activities, it is expected that the quantity and quality of drinking water would be improve.

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.

MAPS

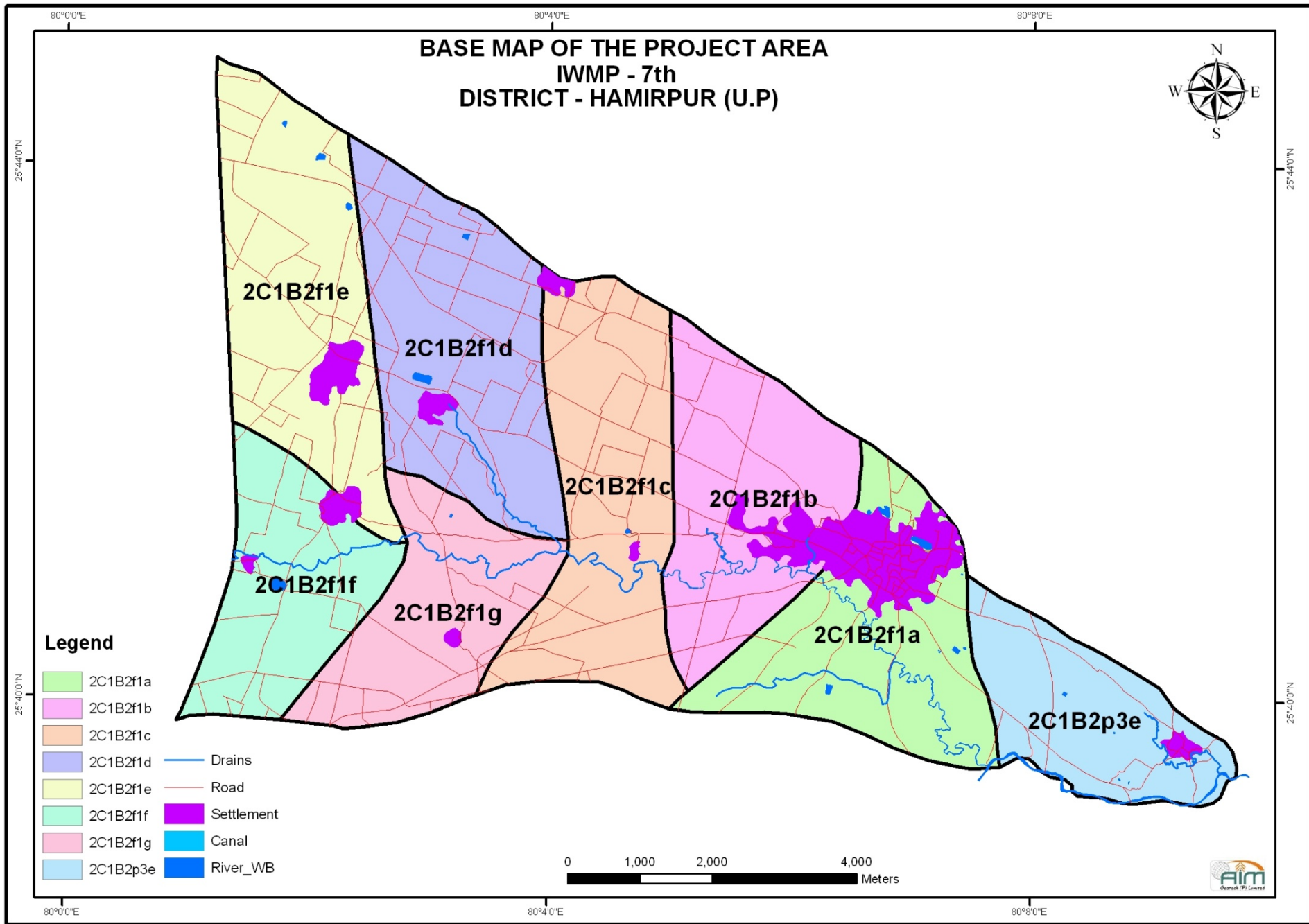
**SATELLITE IMAGE OF THE PROJECT AREA
IWMP - 7th
DISTRICT - HAMIRPUR (U.P)**



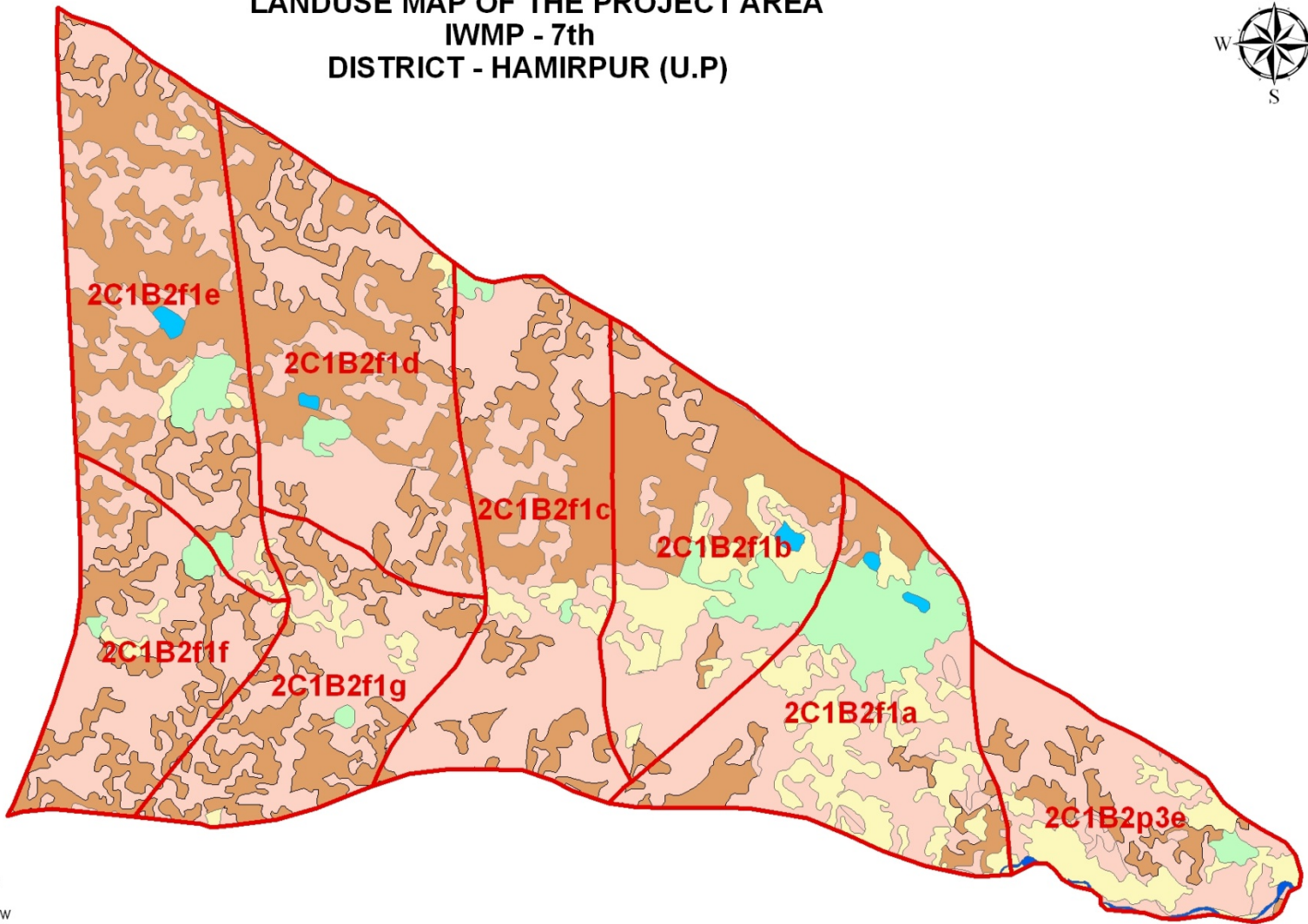
0 1,000 2,000 4,000
Meters

(Source : Google Image January, 2010)



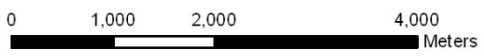


LANDUSE MAP OF THE PROJECT AREA
IWMP - 7th
DISTRICT - HAMIRPUR (U.P)



Legend

-  Watershed_Boundary
- LULC**
-  Agriculture Land - Crop
-  Agriculture Land - Fallow
-  Built Up
-  Lakes \ Pond
-  River
-  Wastelands - Scrub Land



25°44'0"N

25°40'0"N

25°44'0"N

25°40'0"N

80°0'0"E

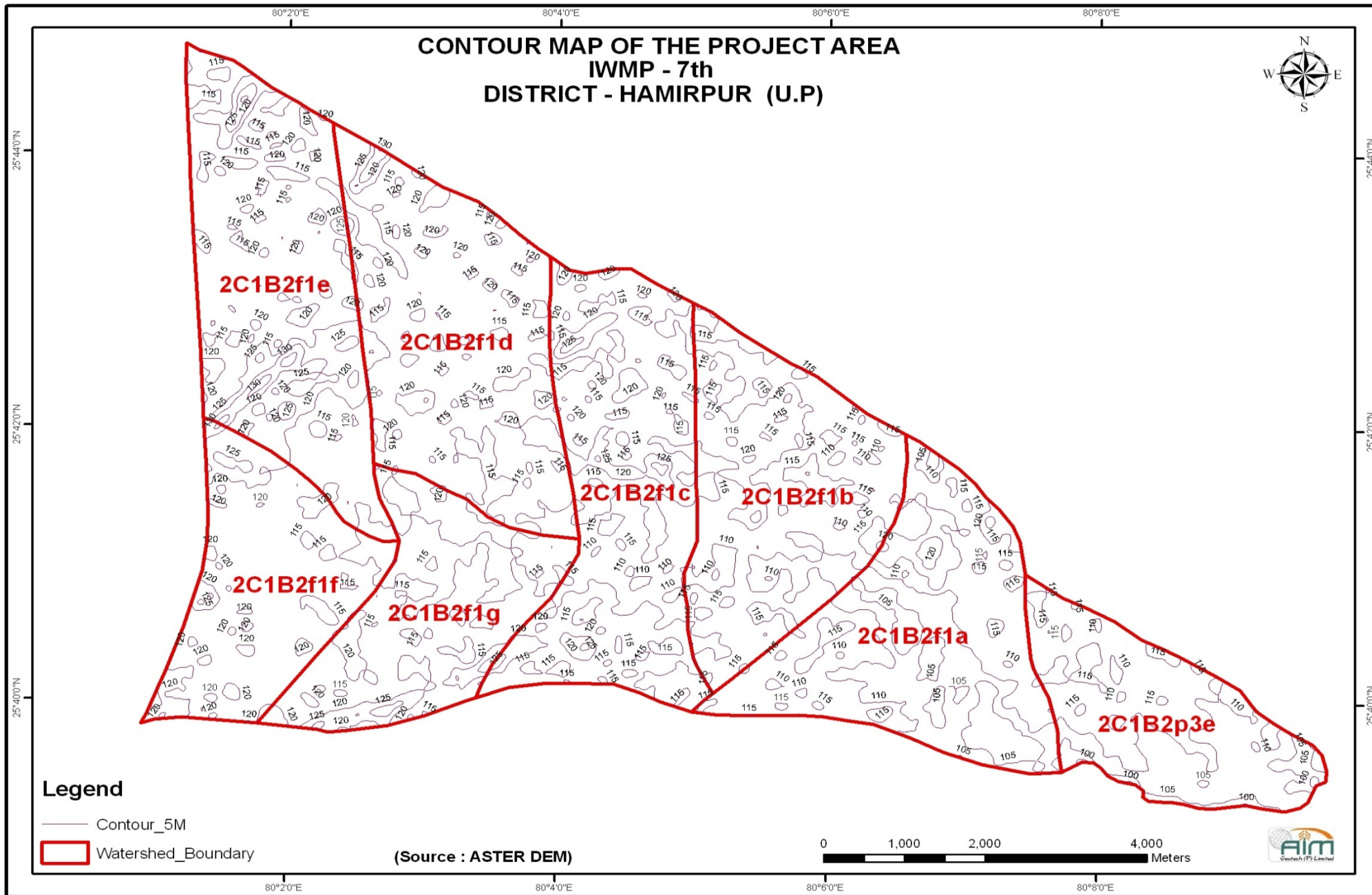
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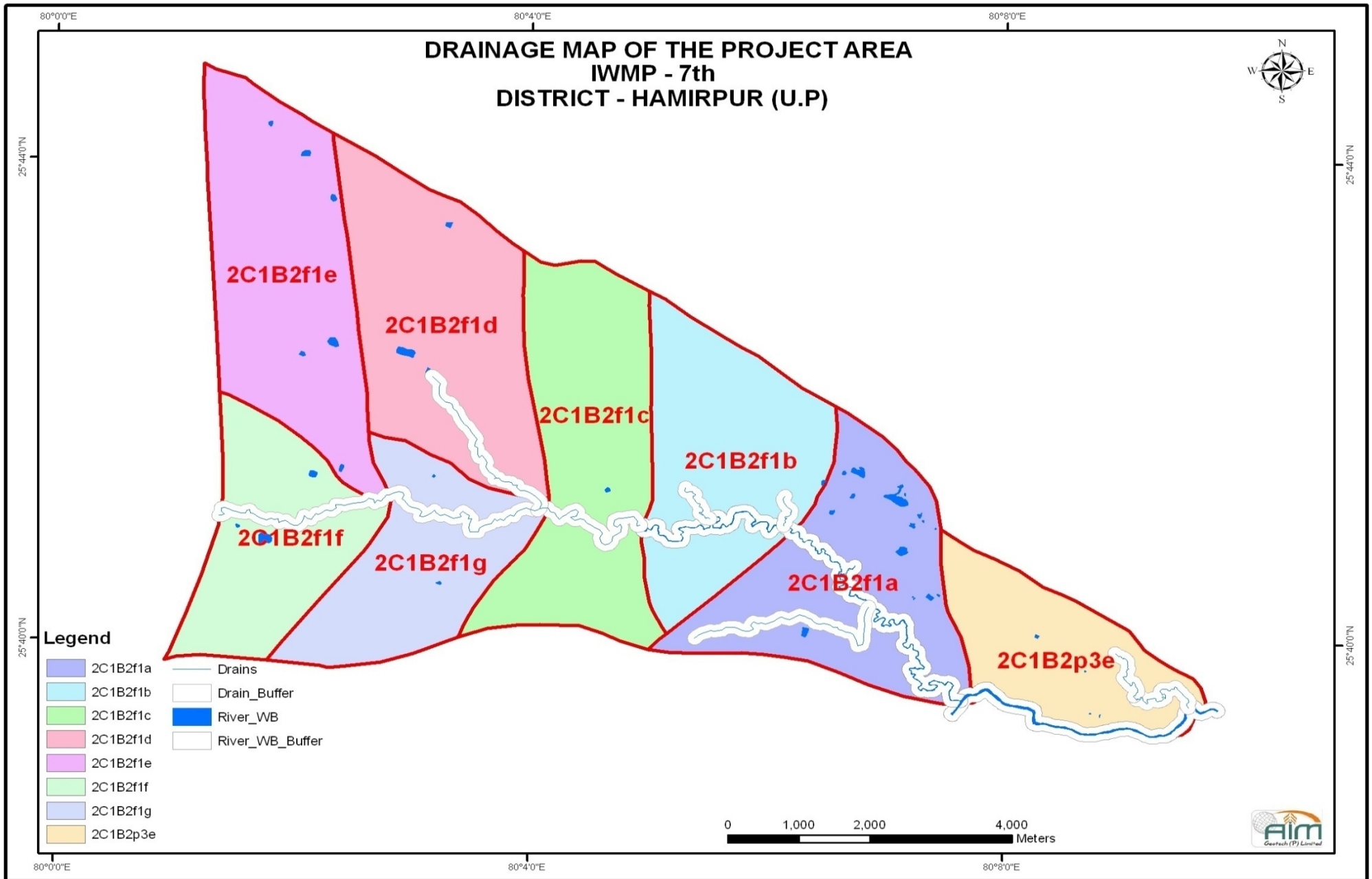
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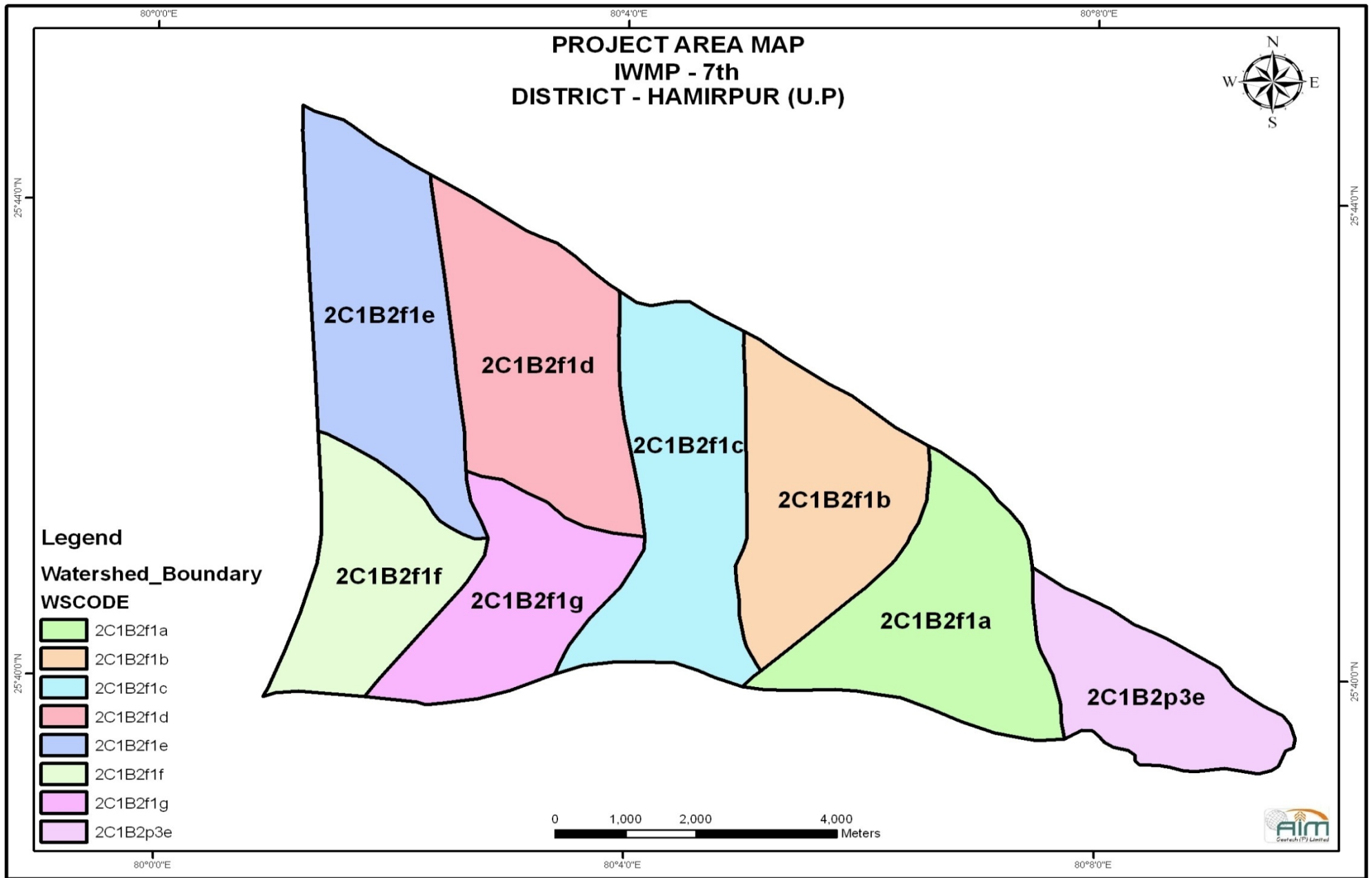
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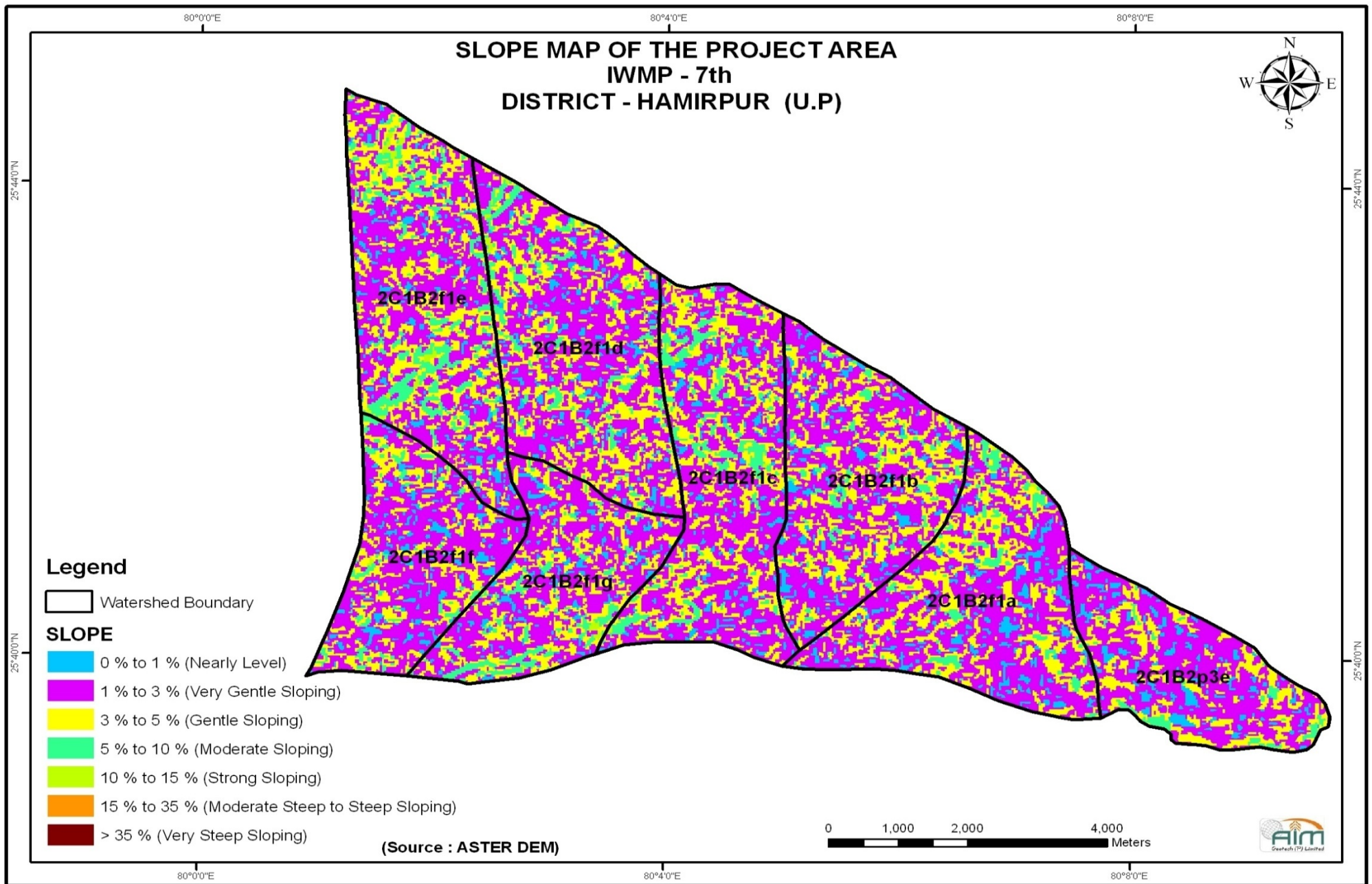
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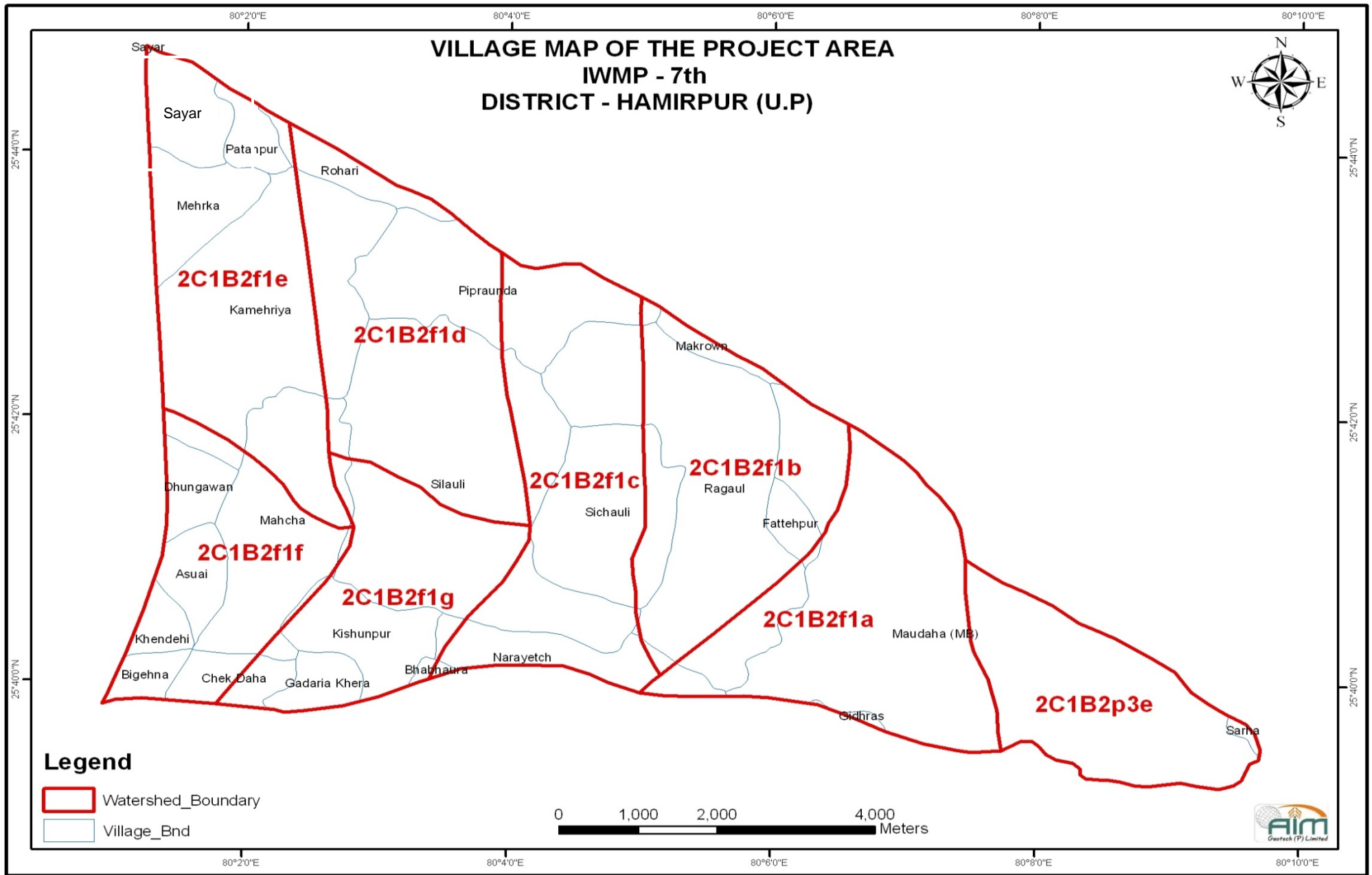
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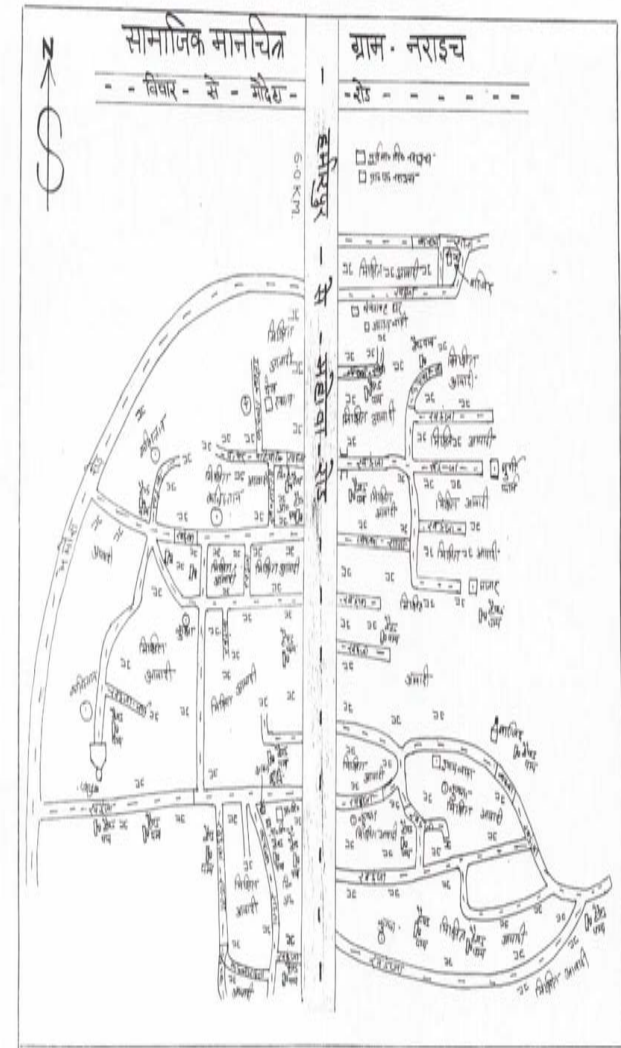
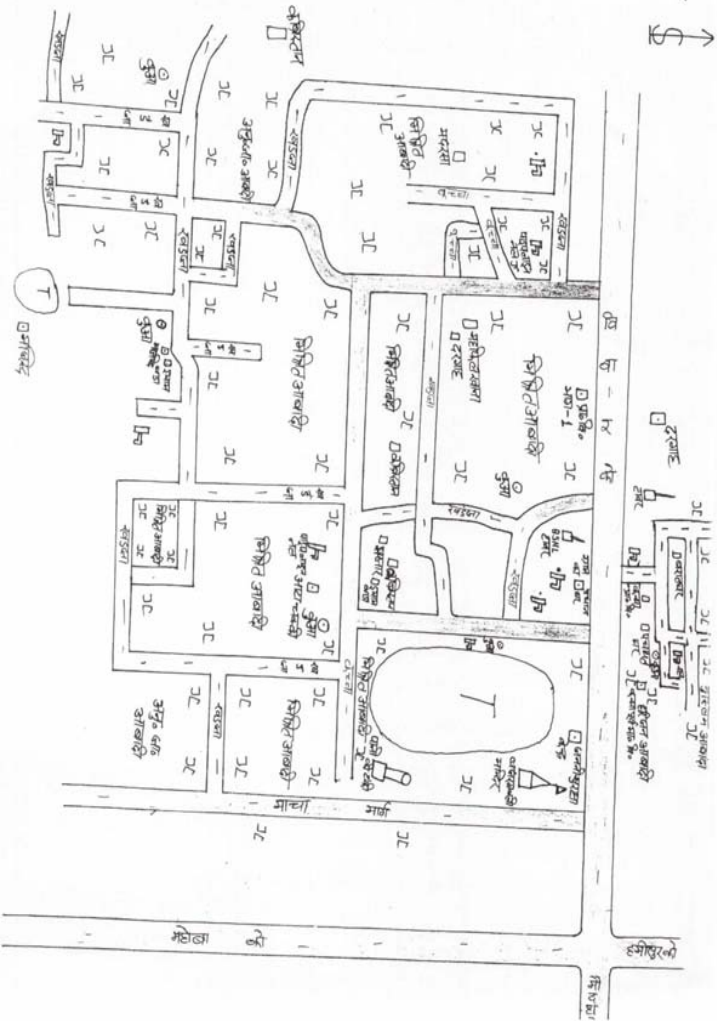


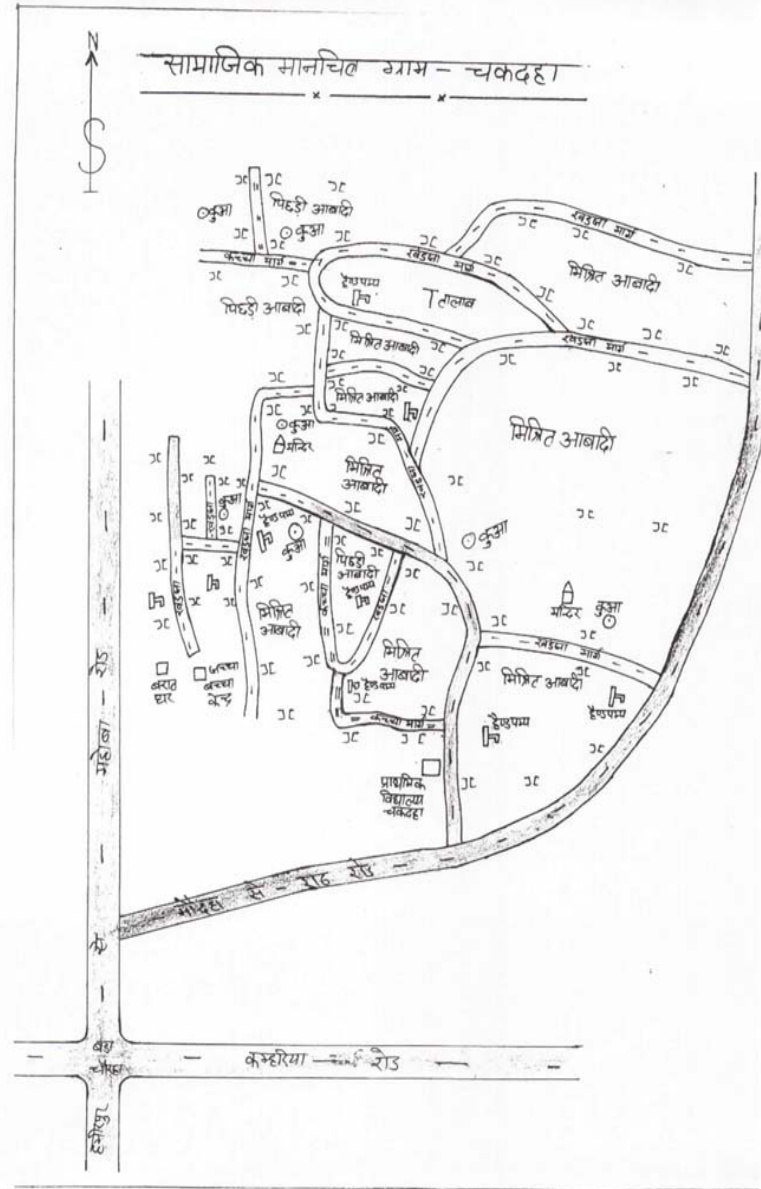
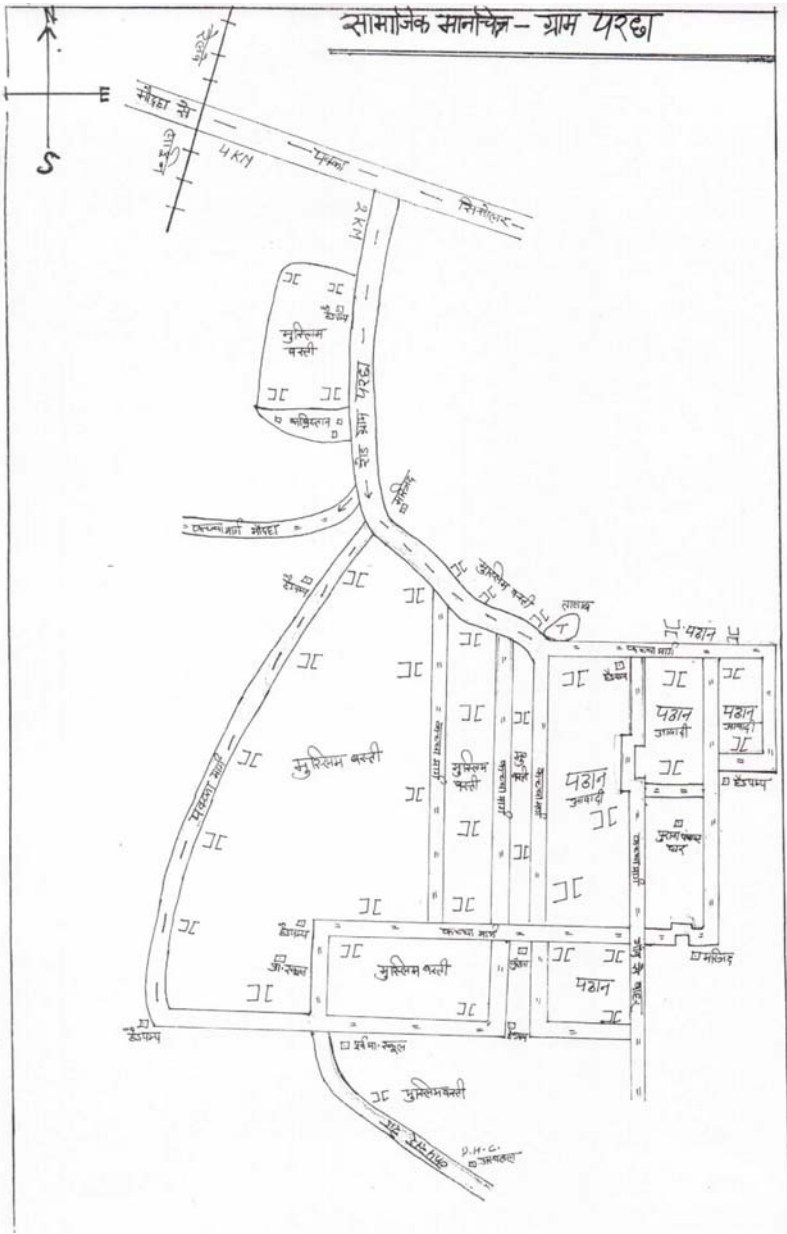


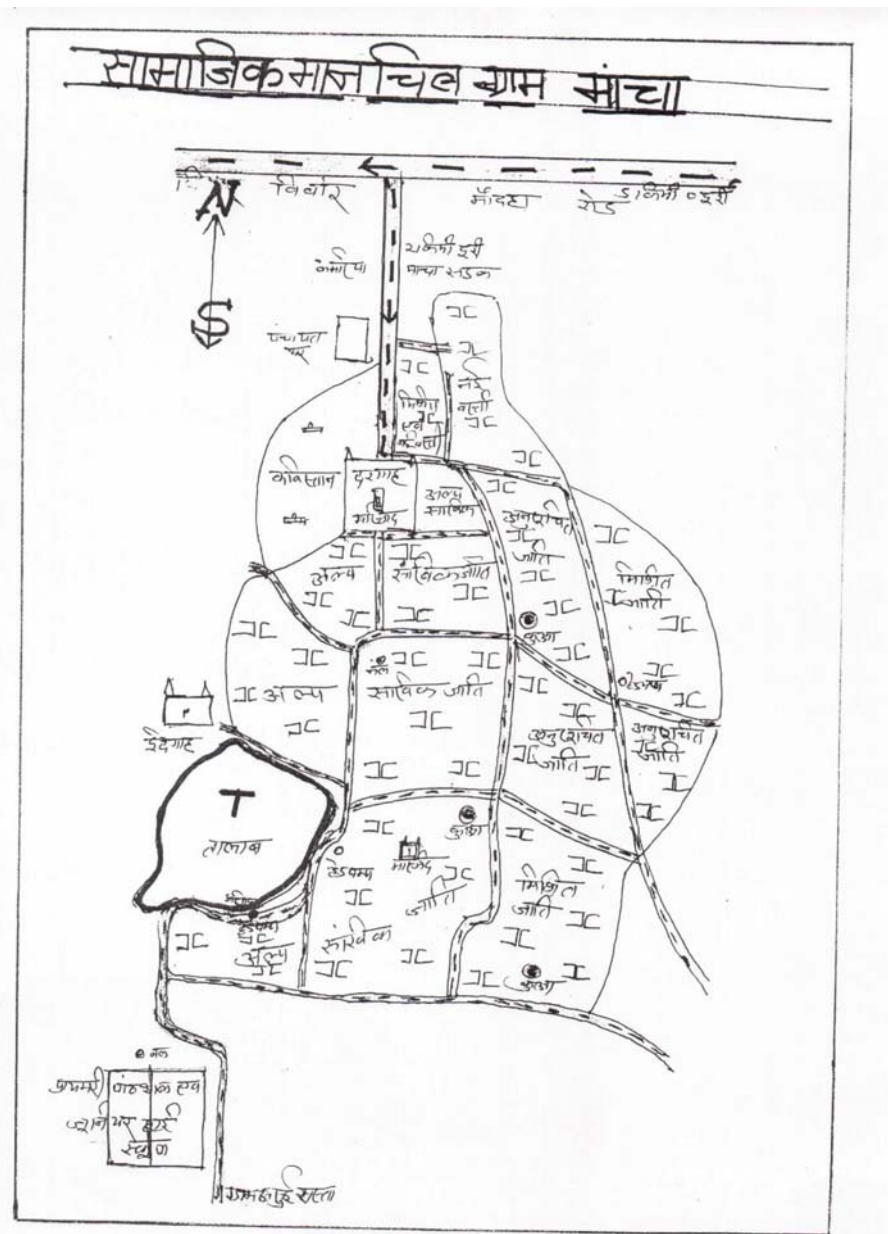
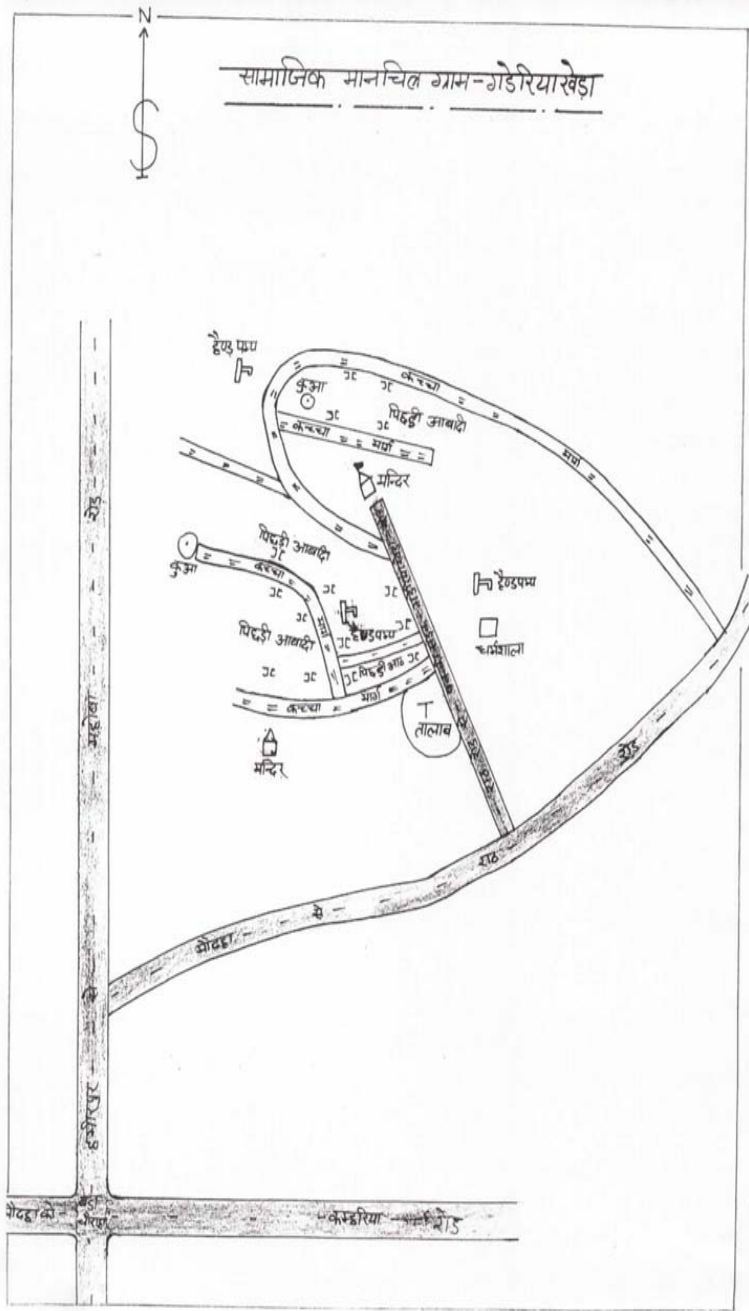


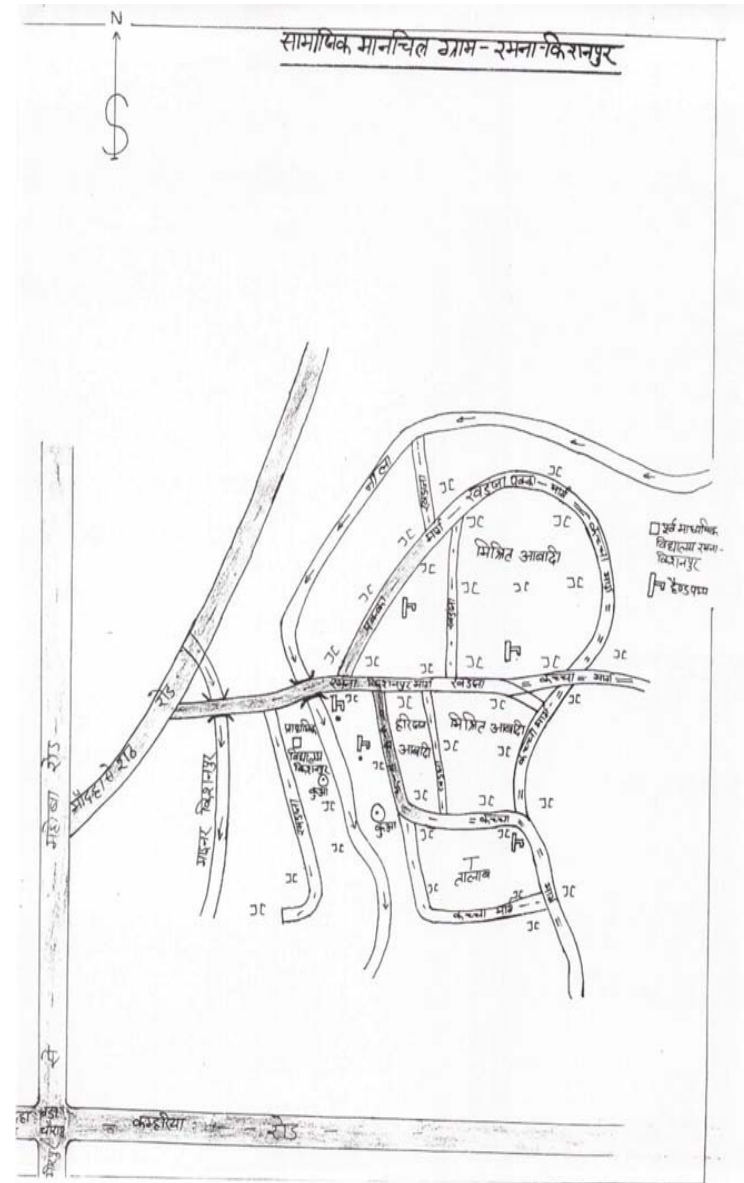
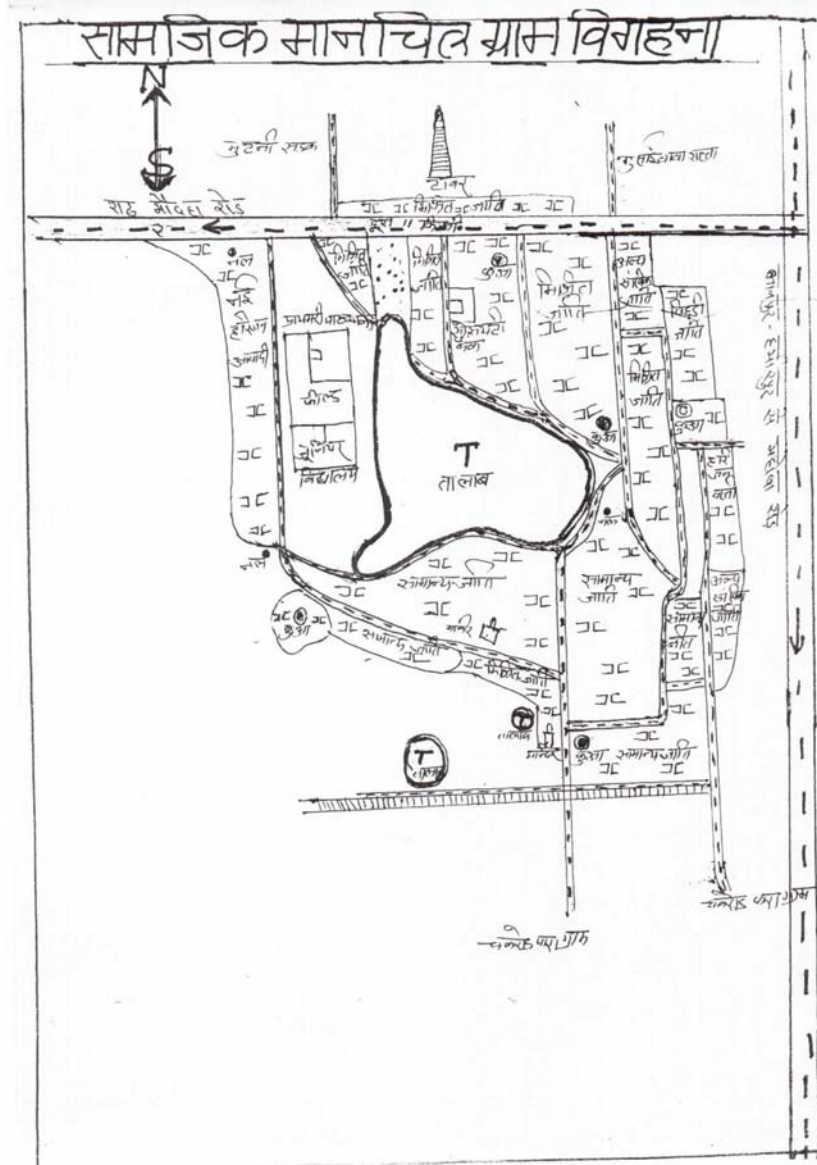


सामाजिक मानचित्र ग्राम - कम्हरिया

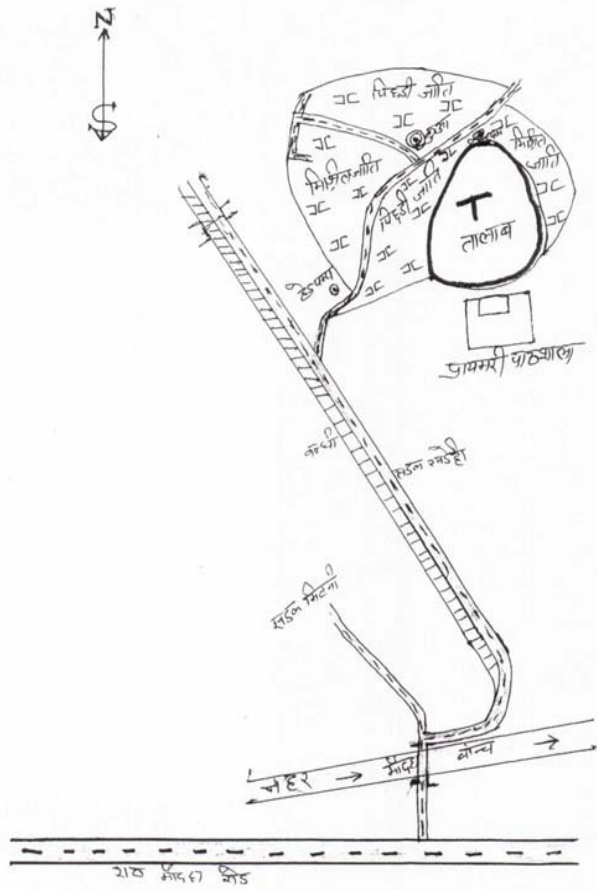




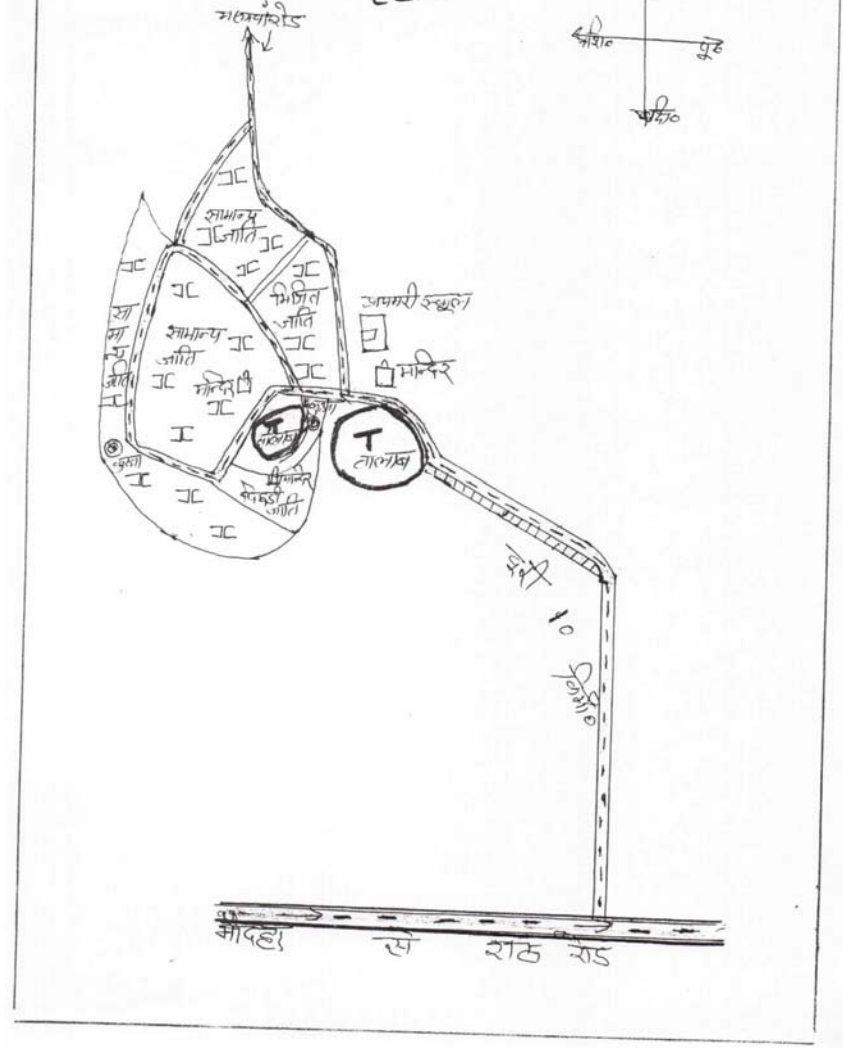




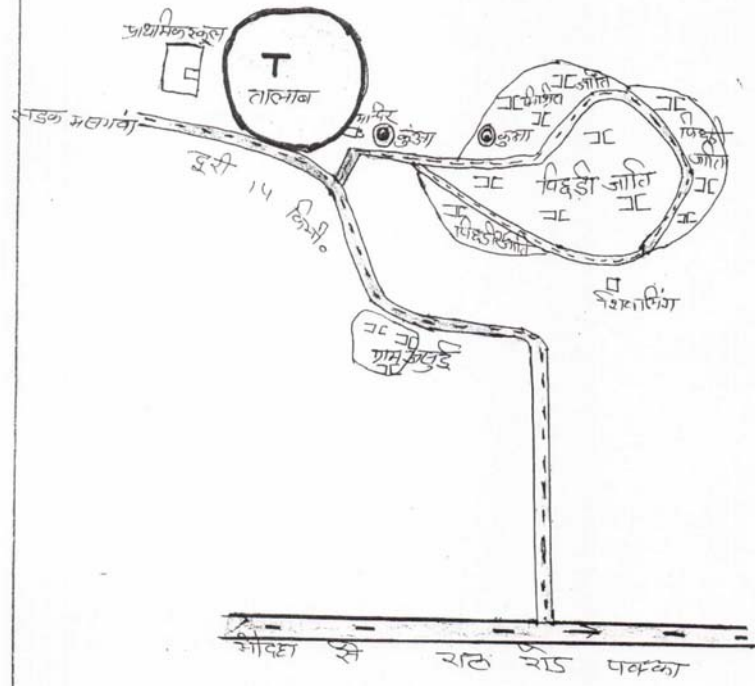
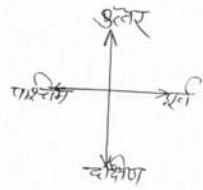
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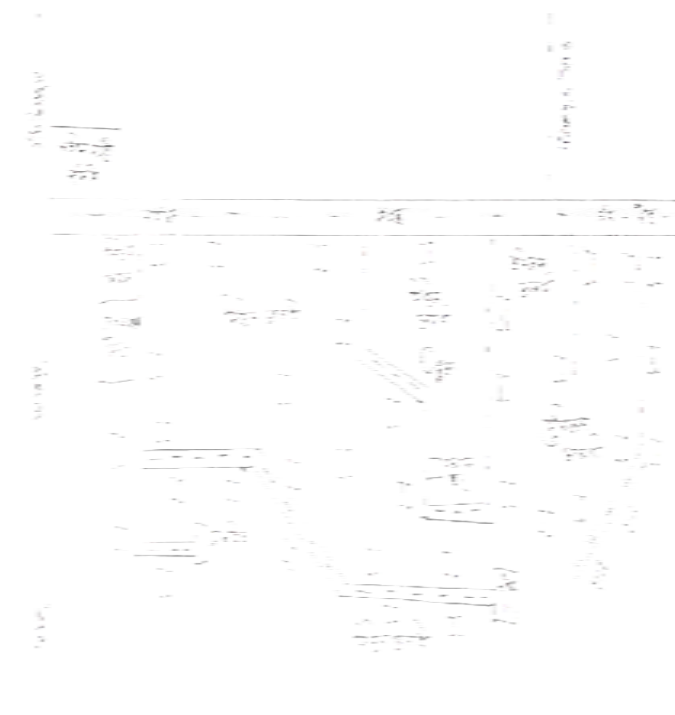
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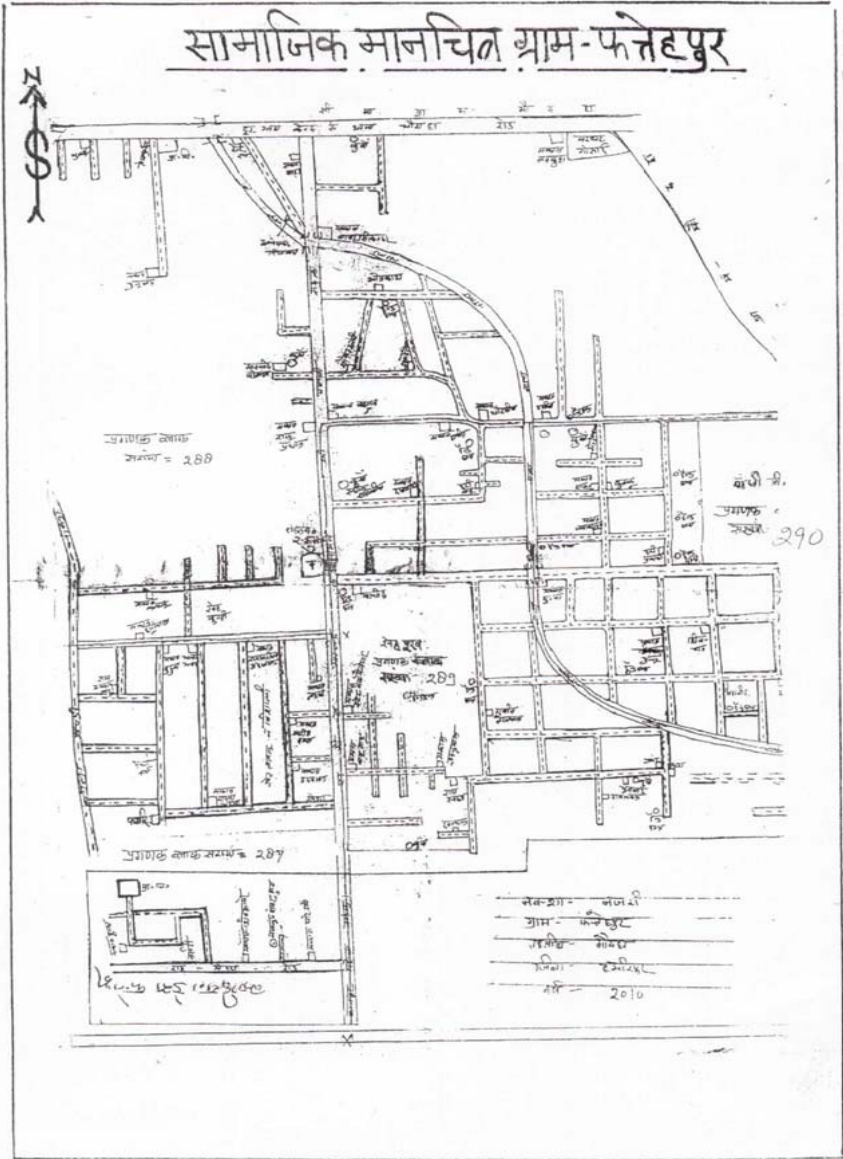
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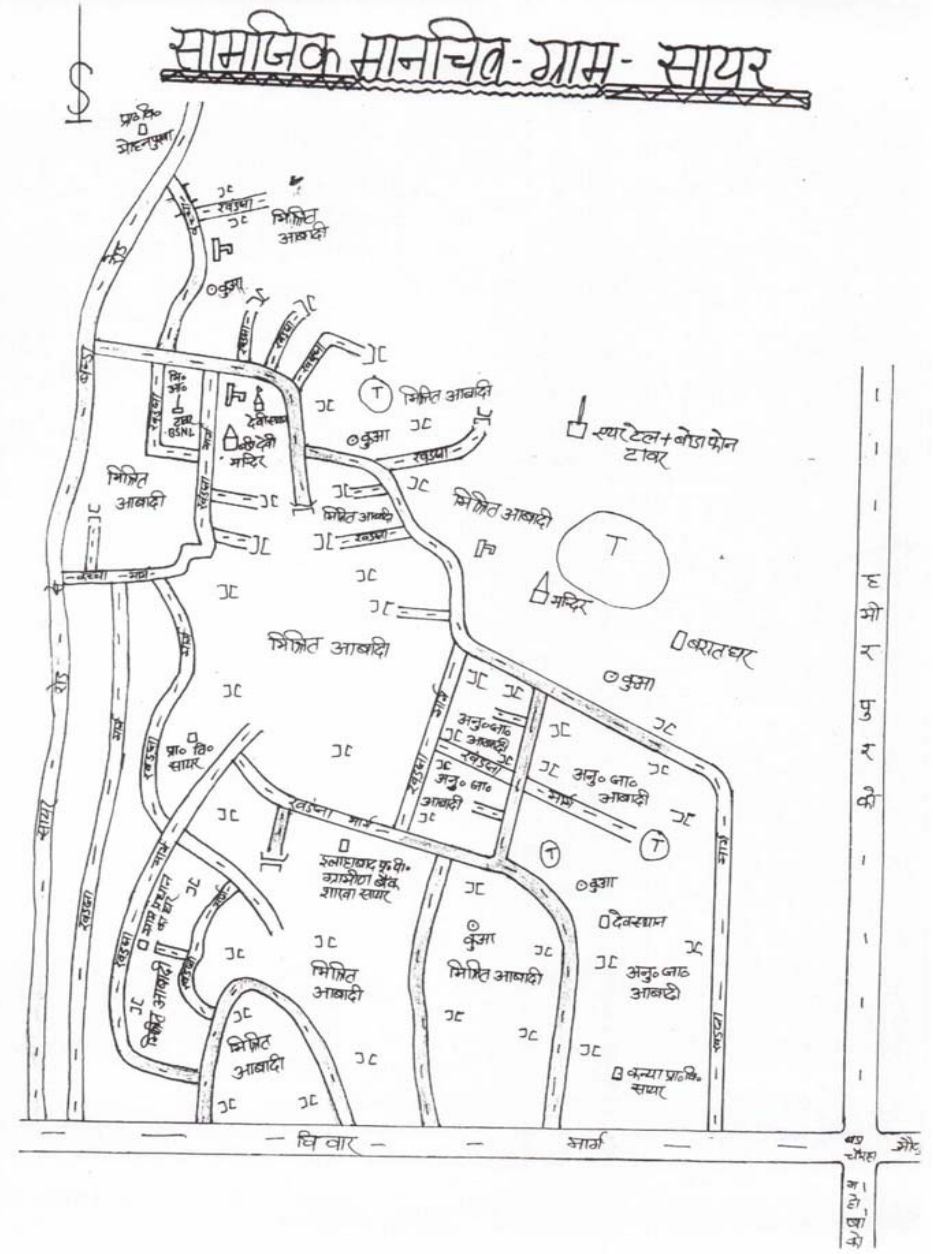
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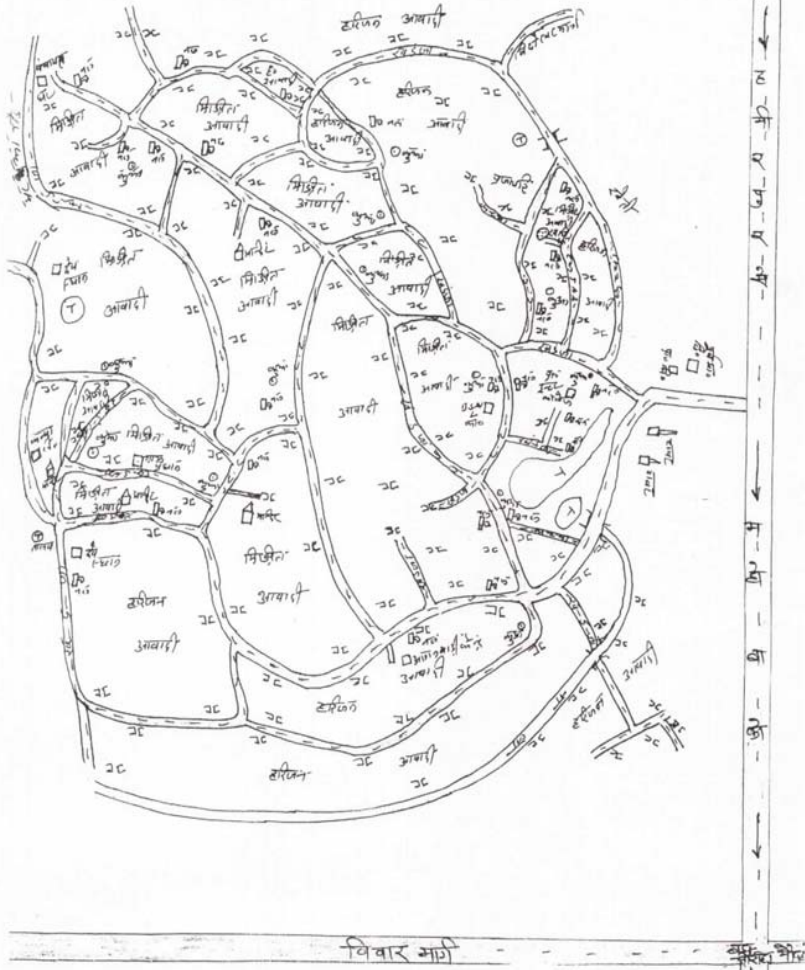
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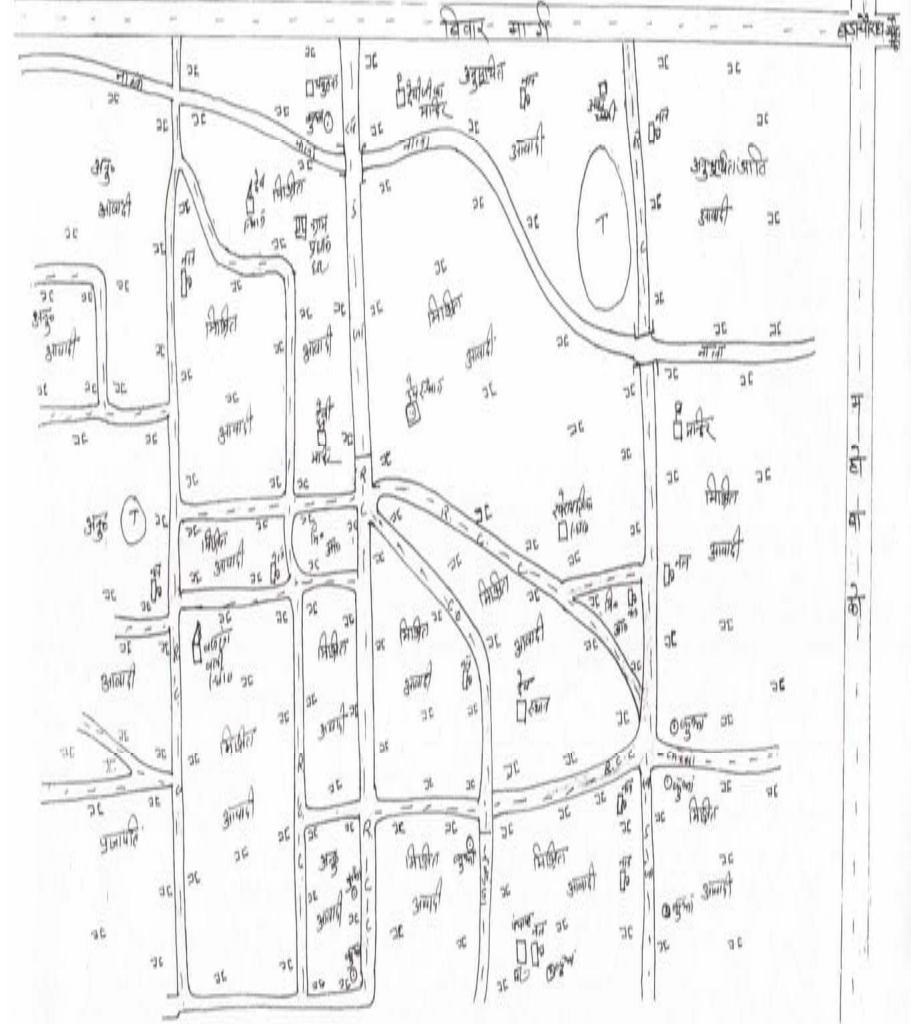
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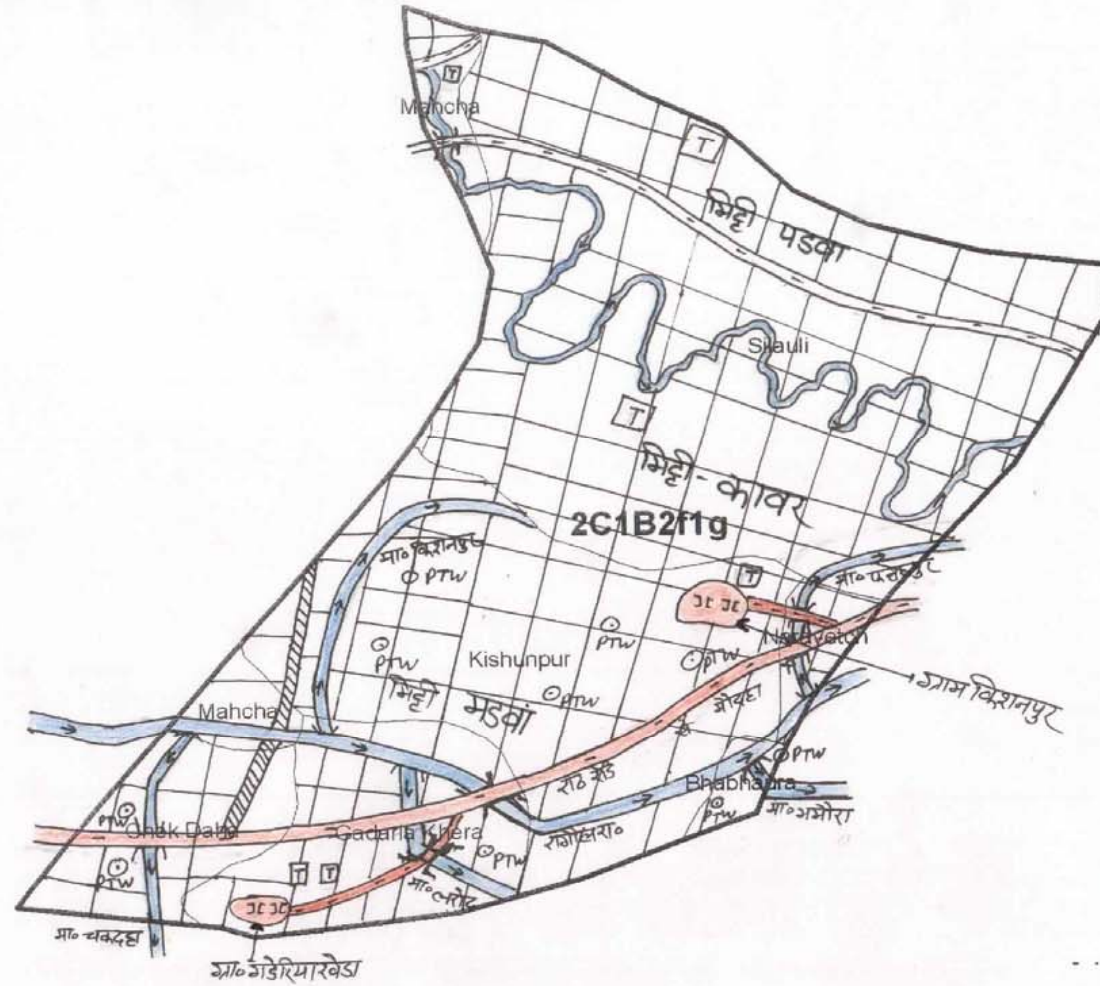
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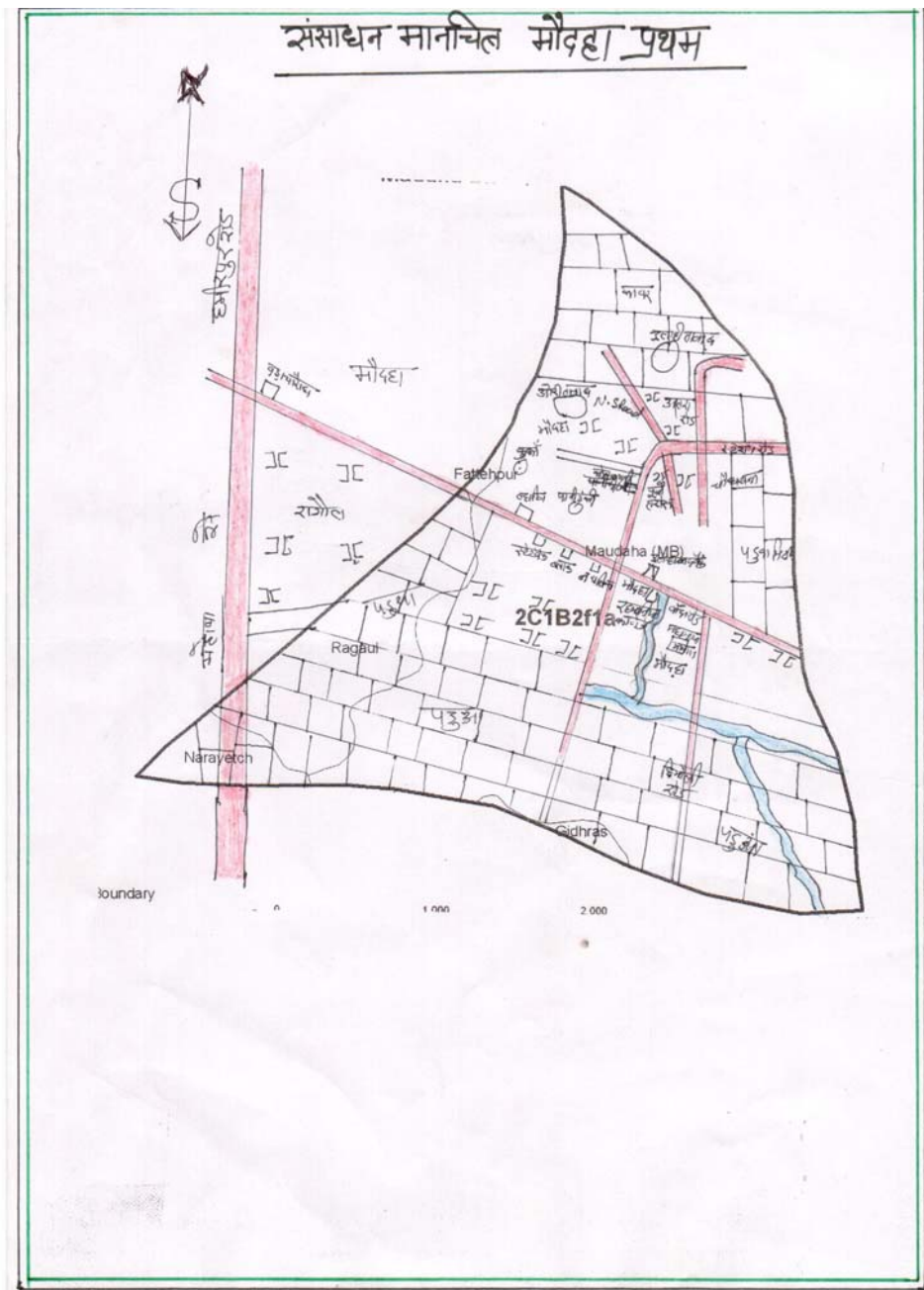
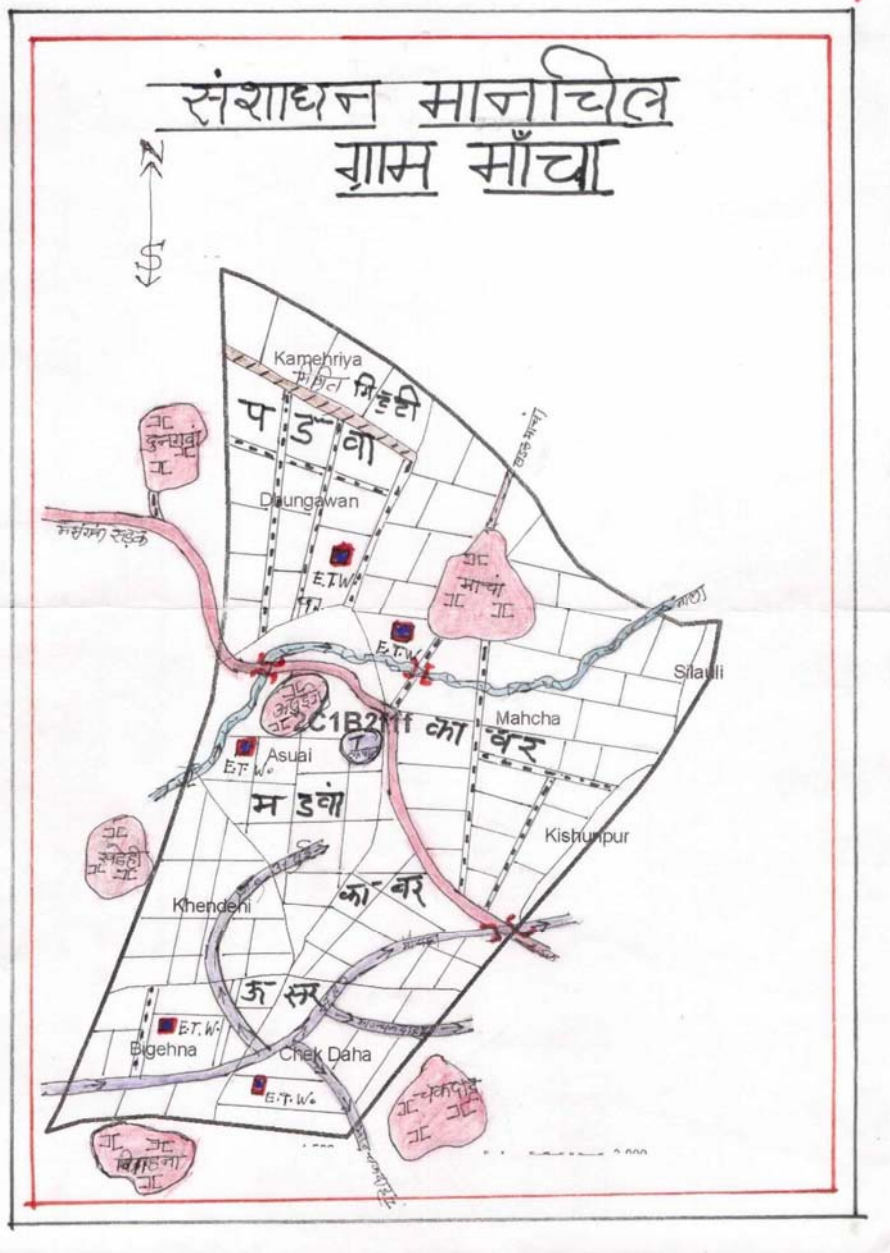


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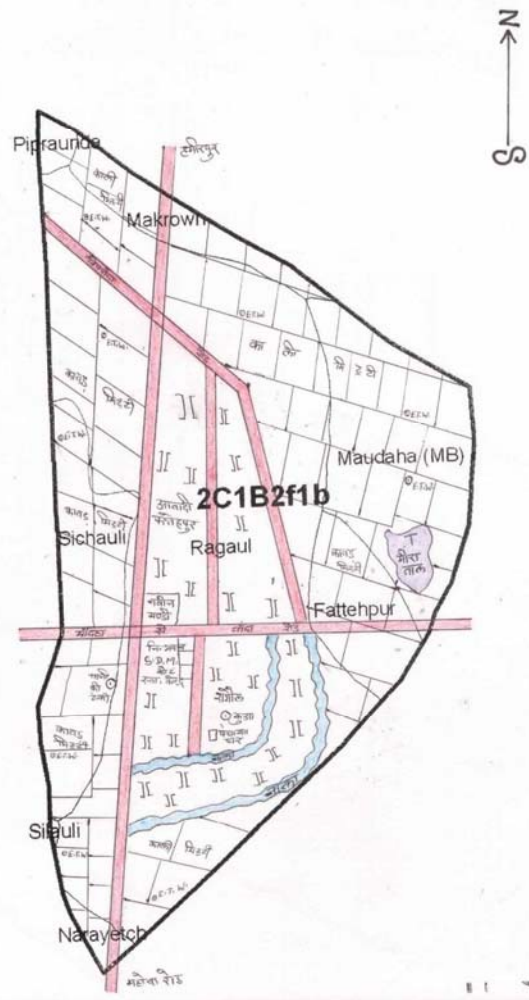


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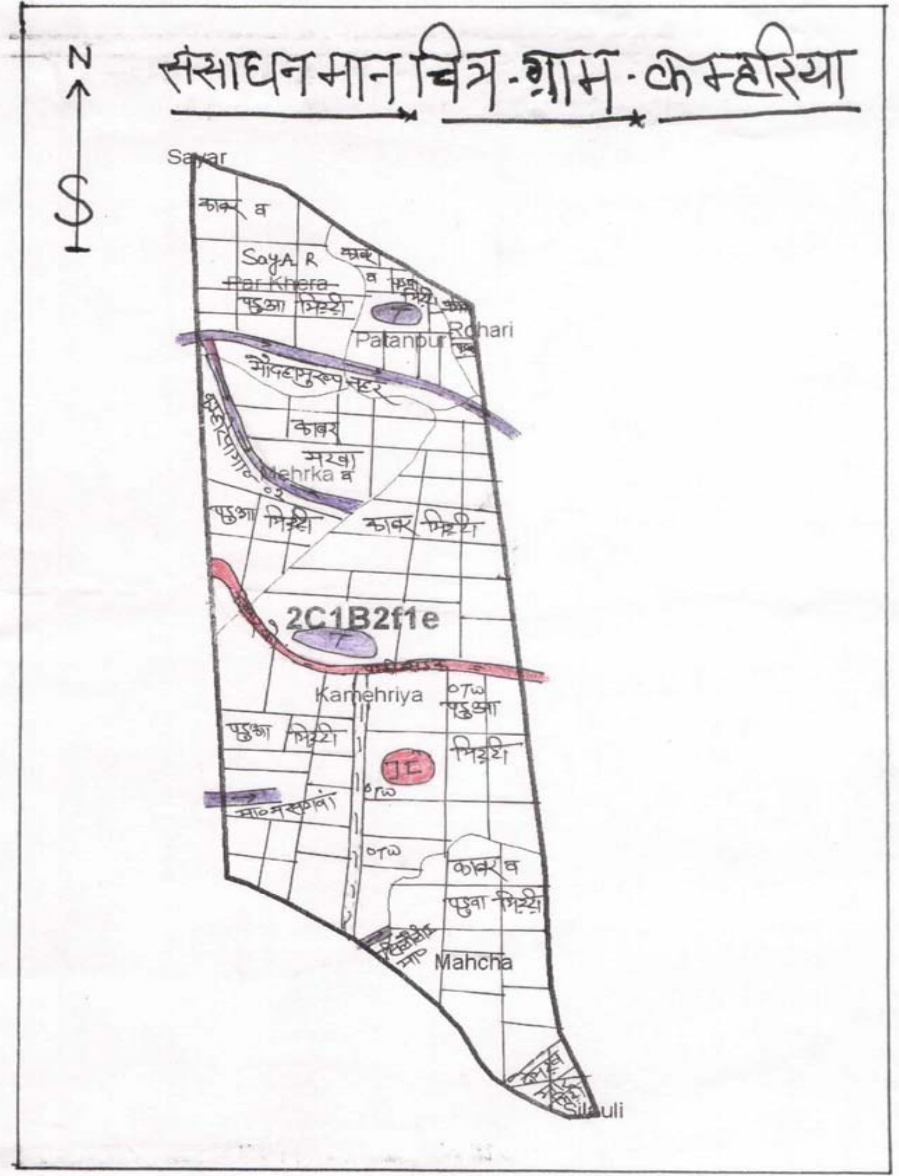


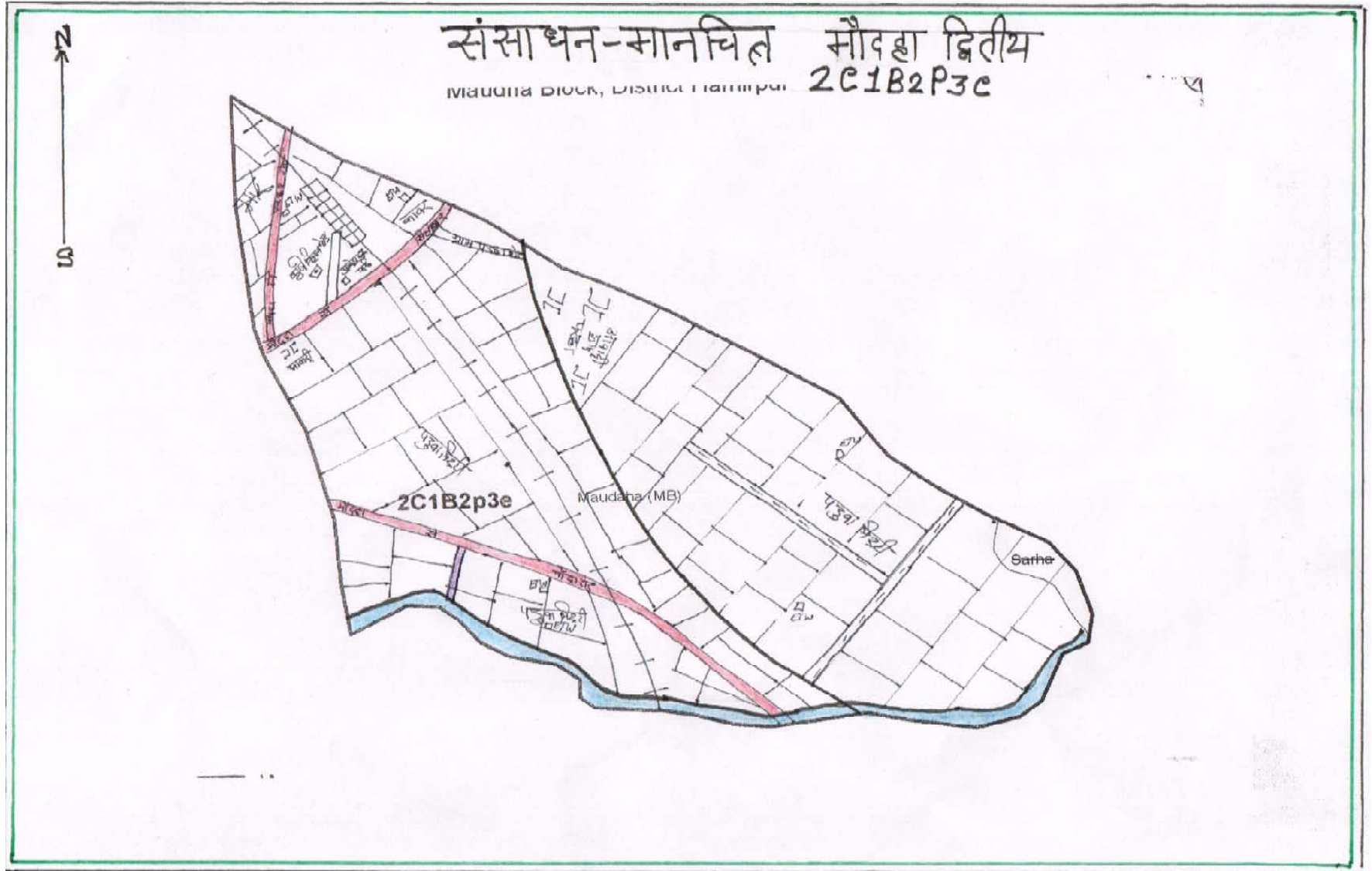


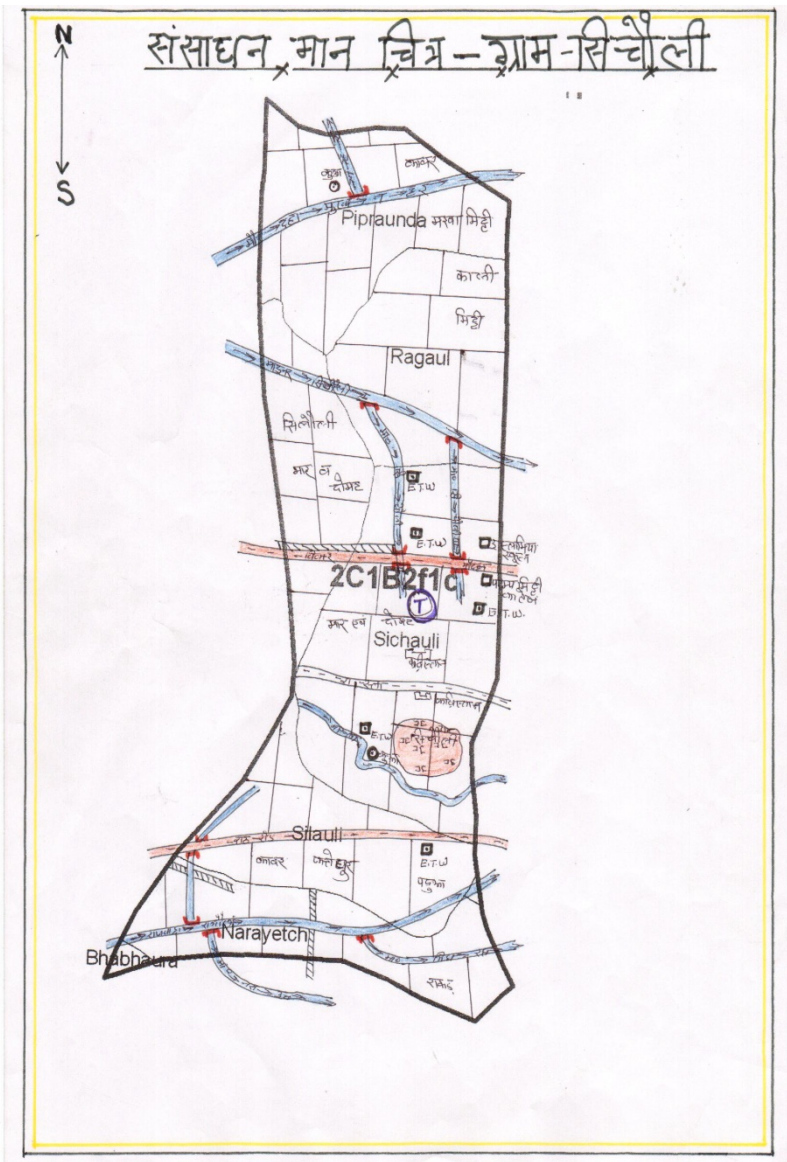
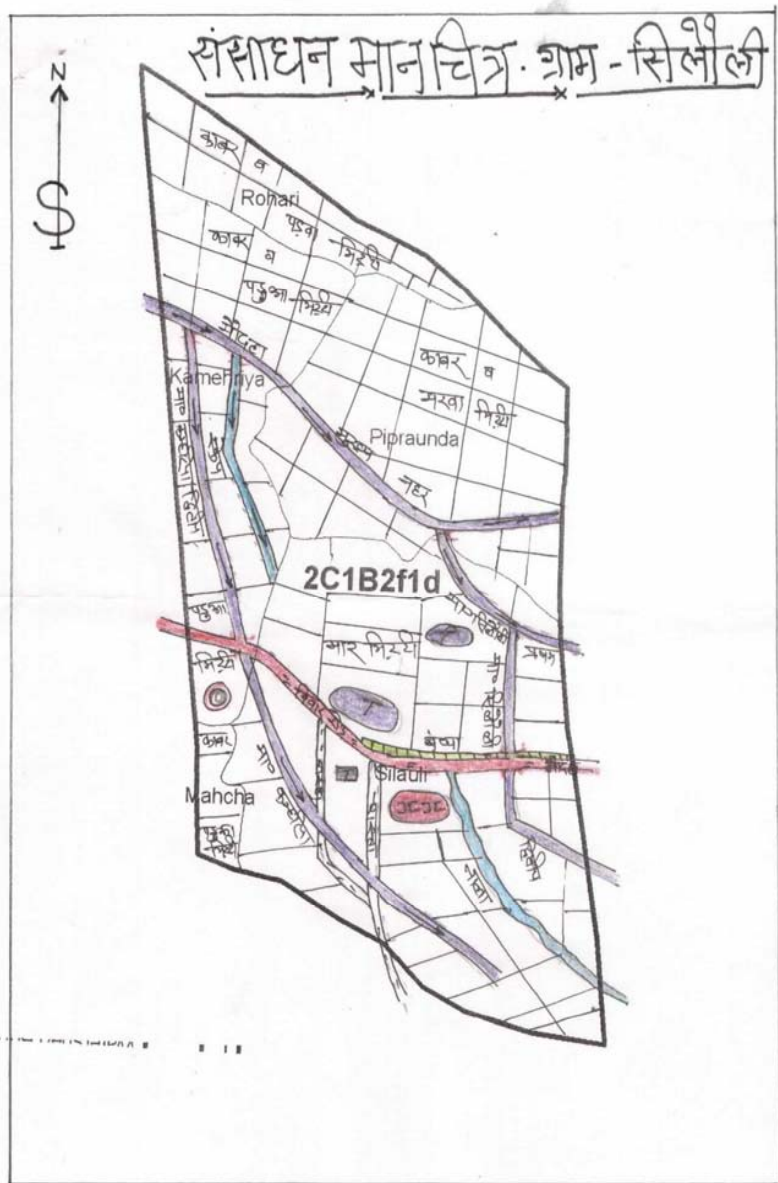
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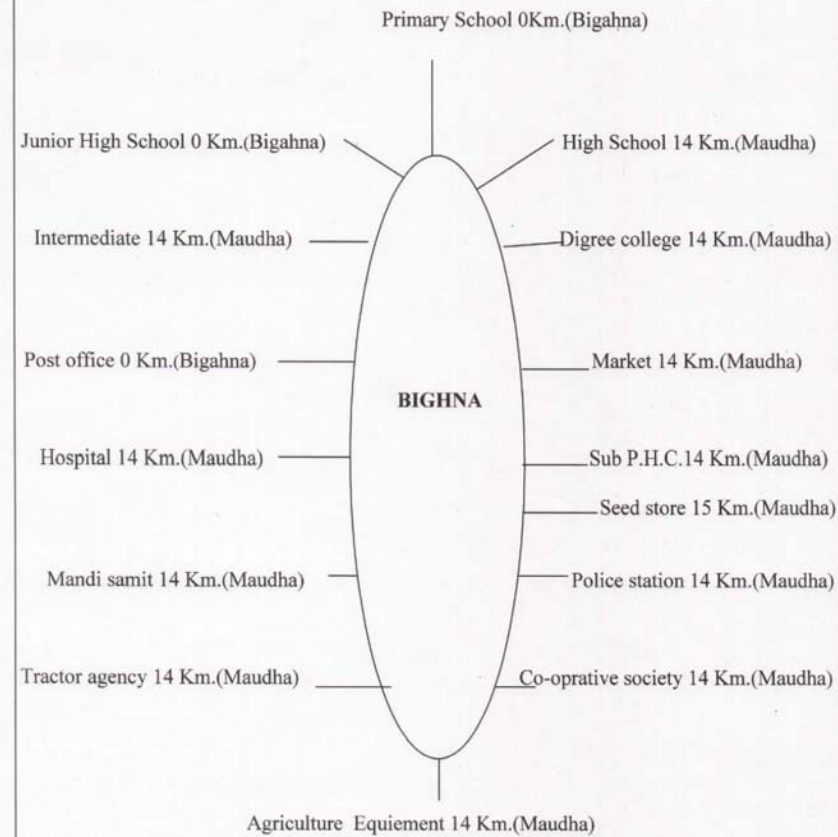
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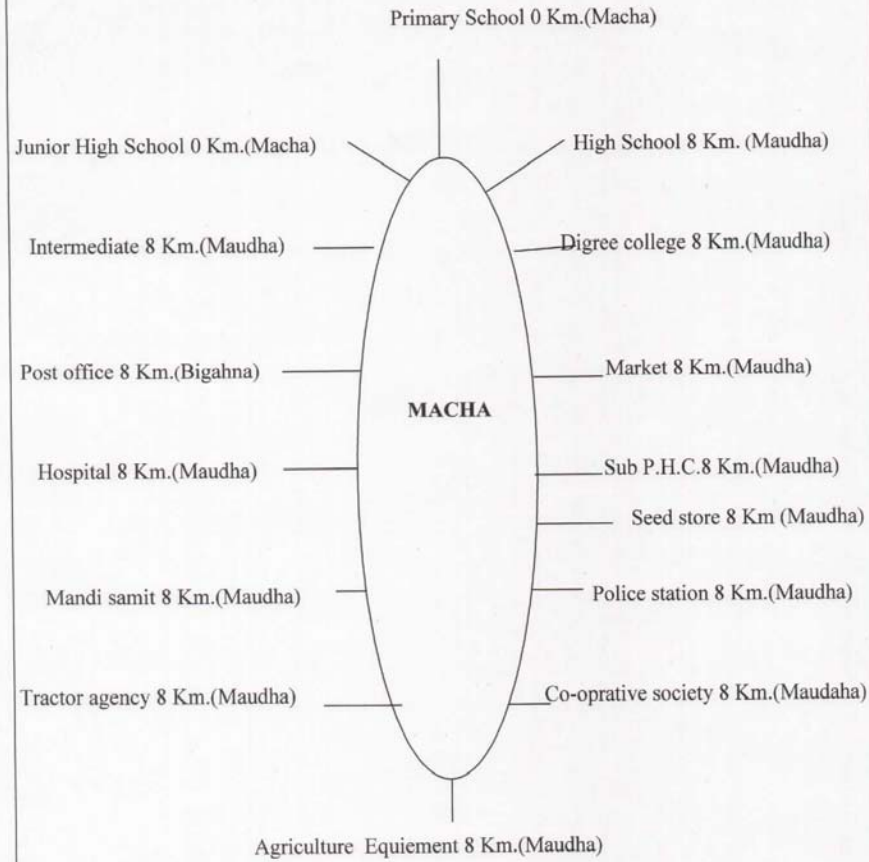




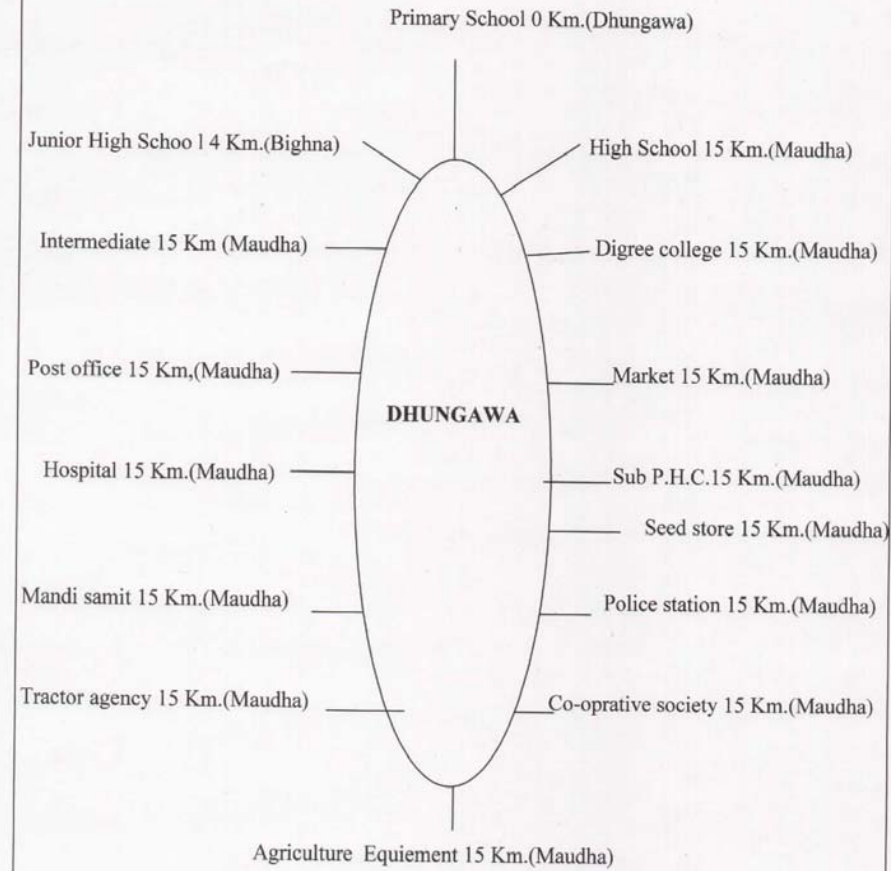
Distance of resource from village



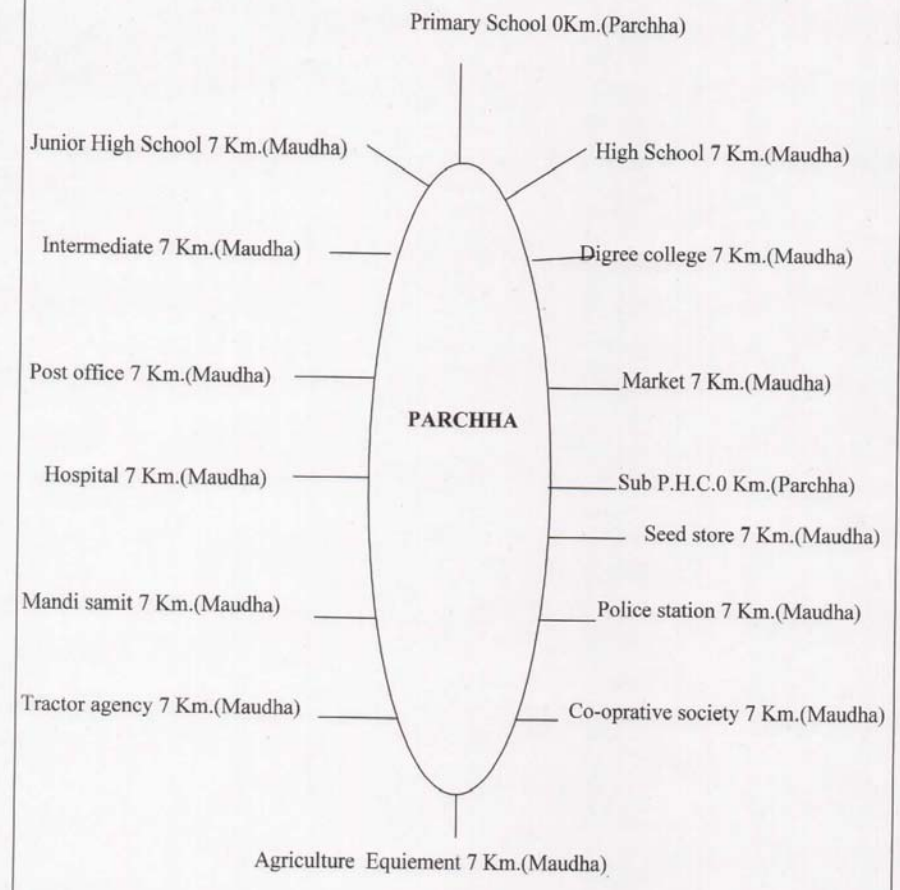
Distance of resource from village



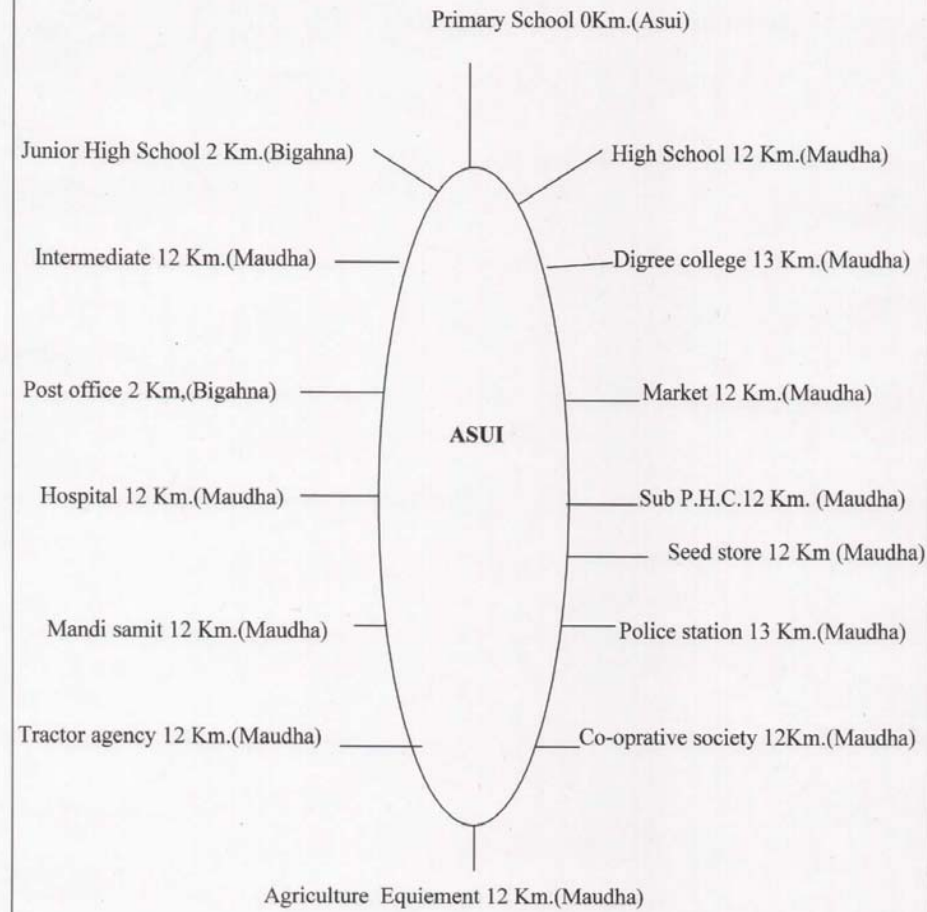
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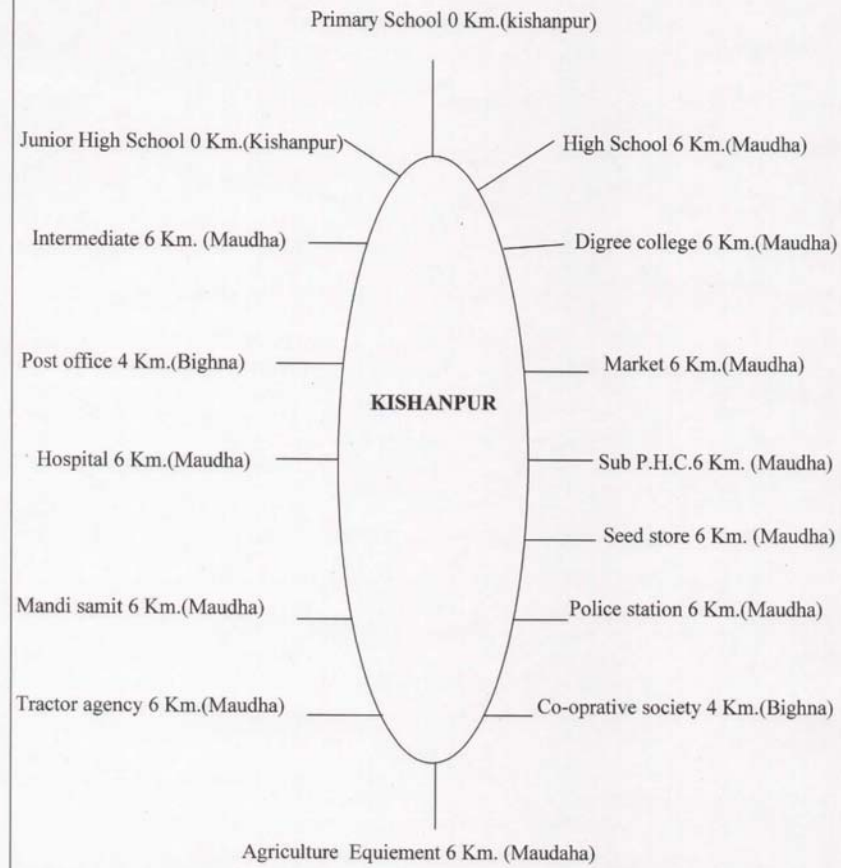
Distance of resource from village



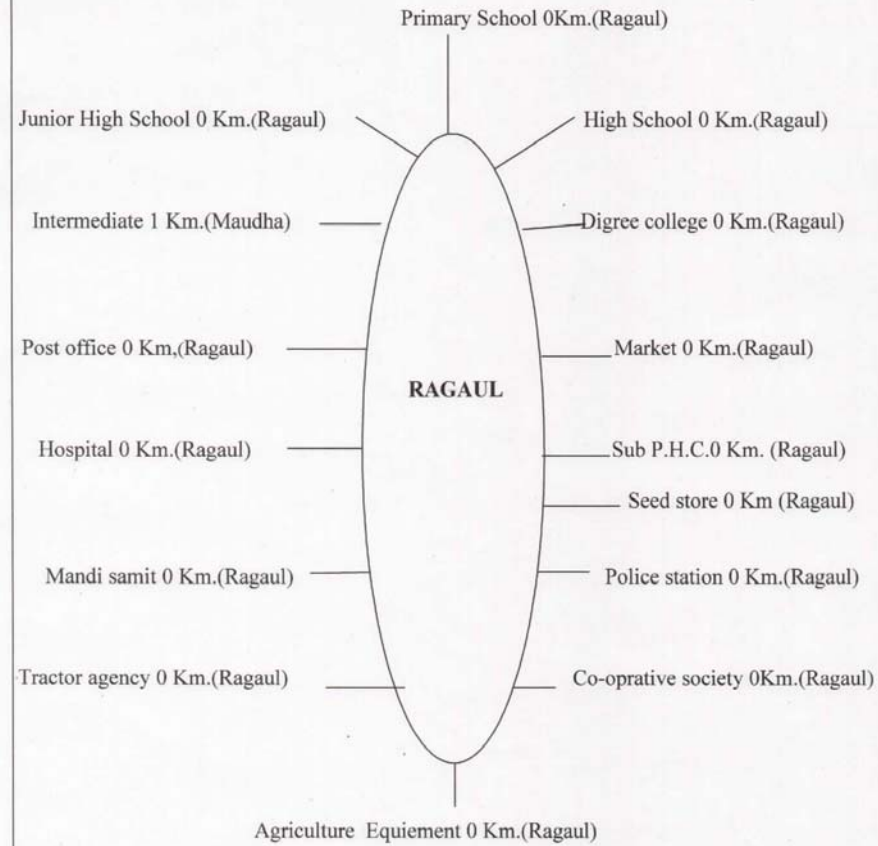
Distance of resource from village



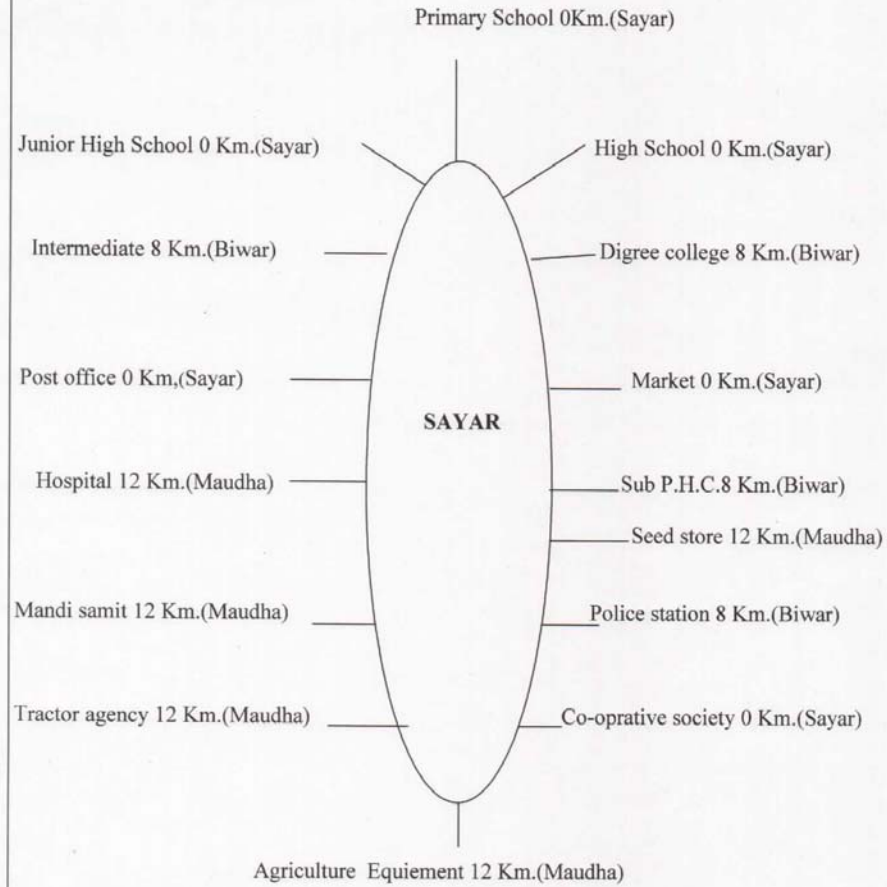
Distance of resource from village



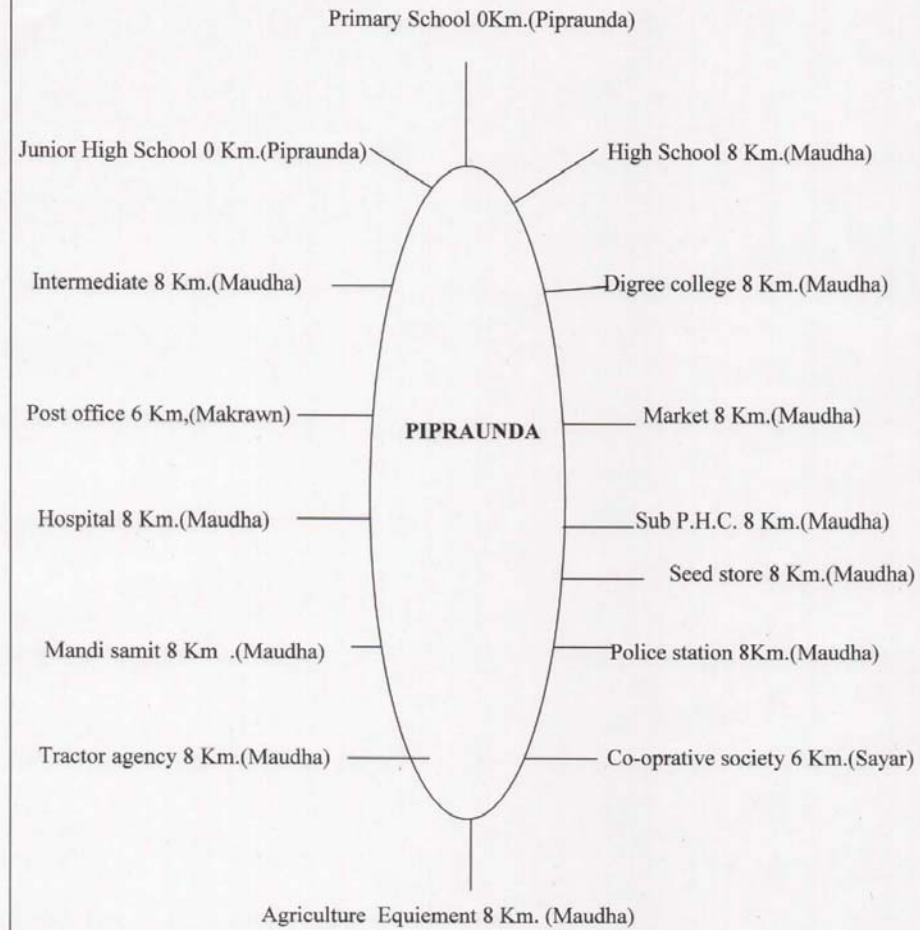
Distance of resource from village



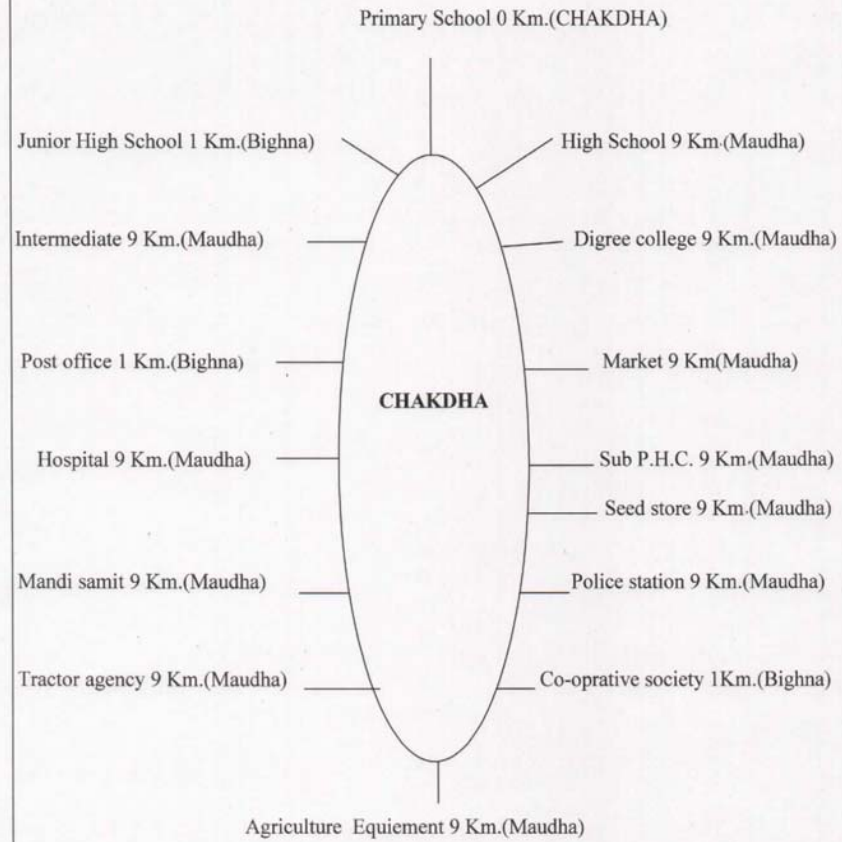
Distance of resource from village



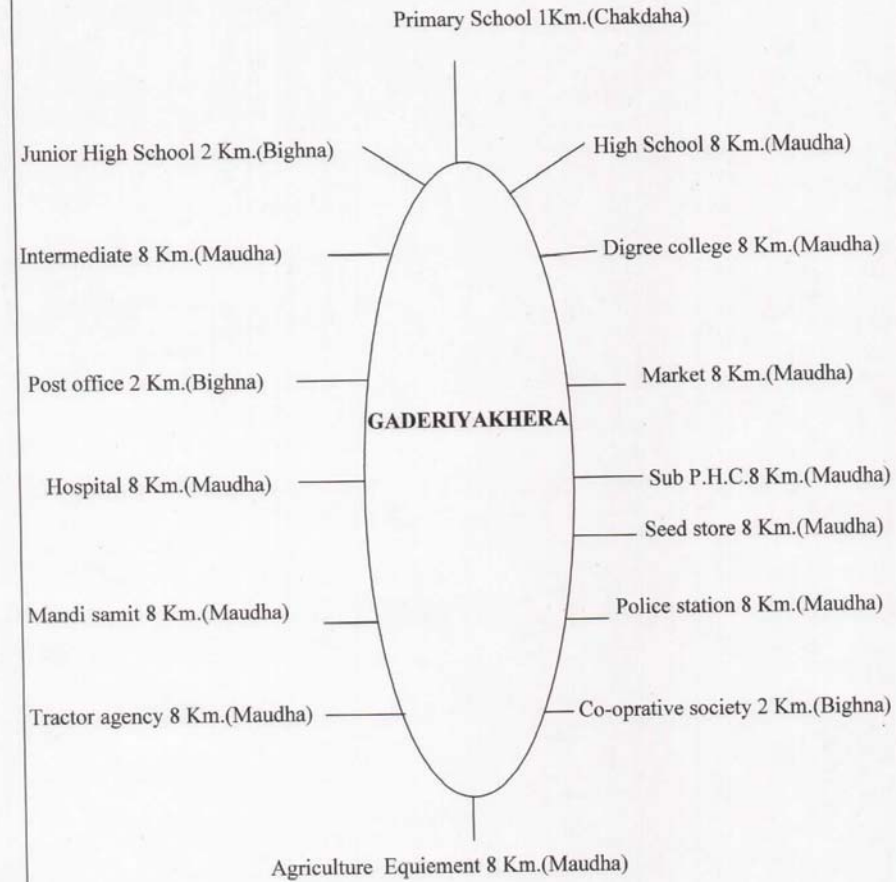
Distance of resource from village



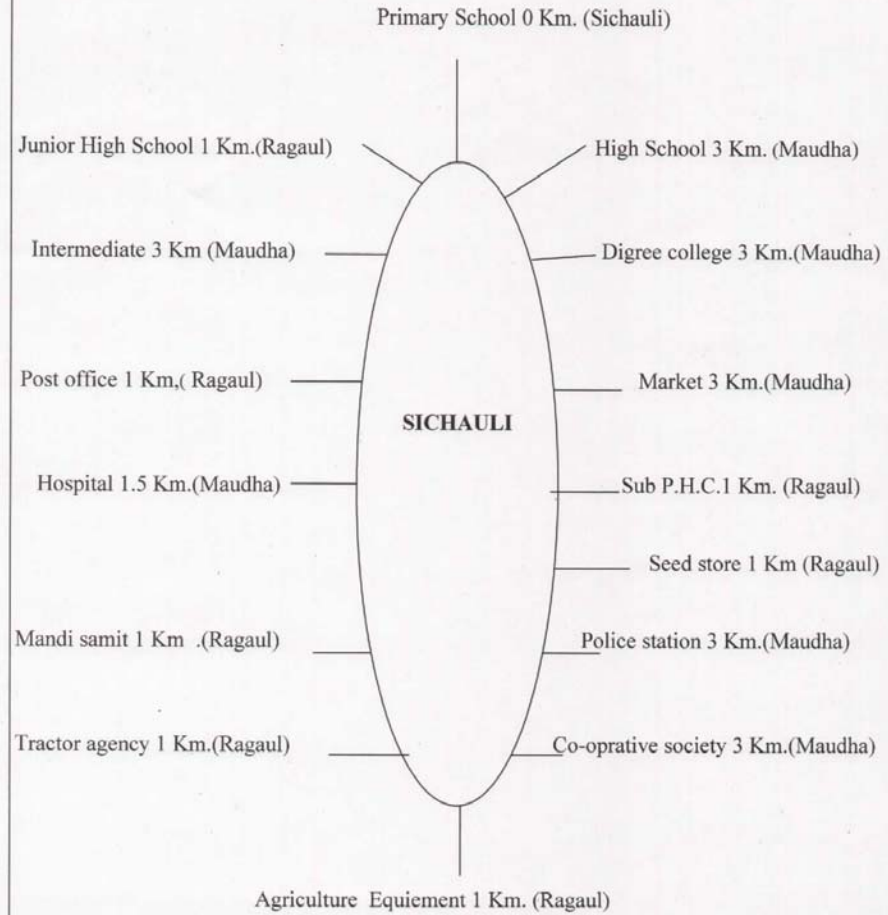
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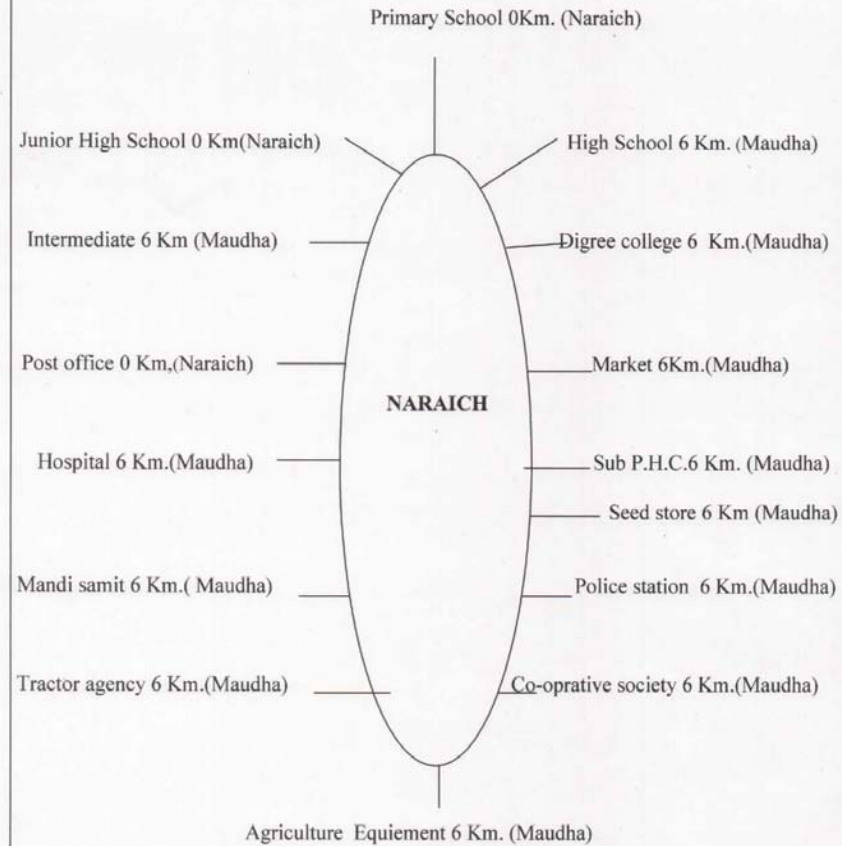
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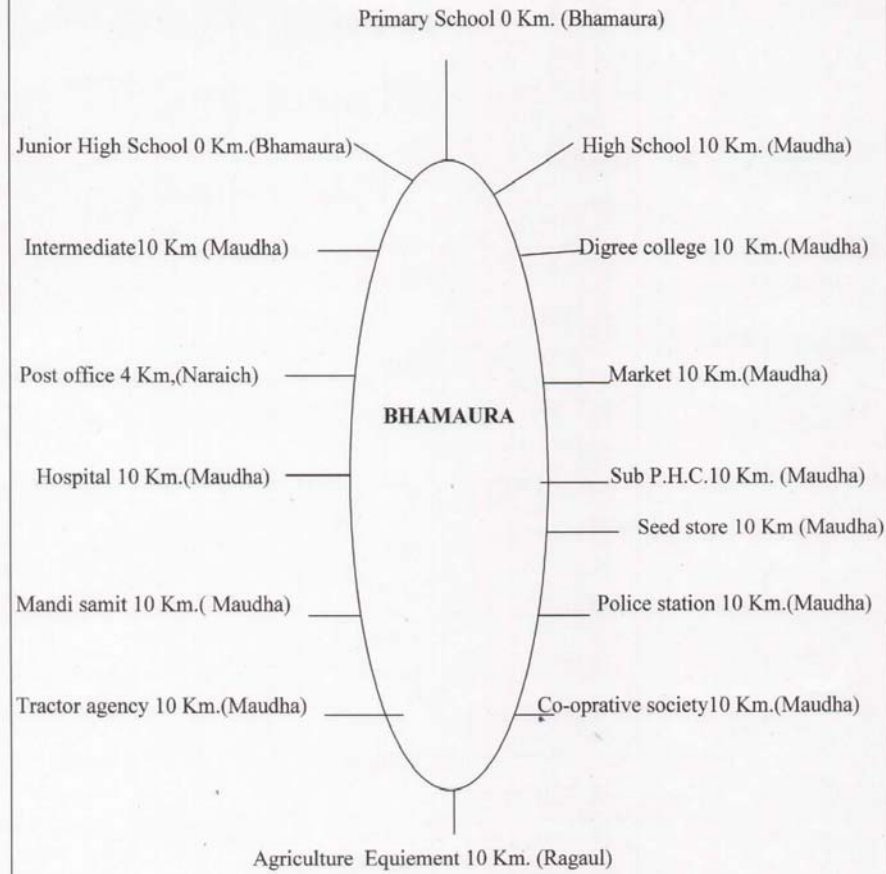
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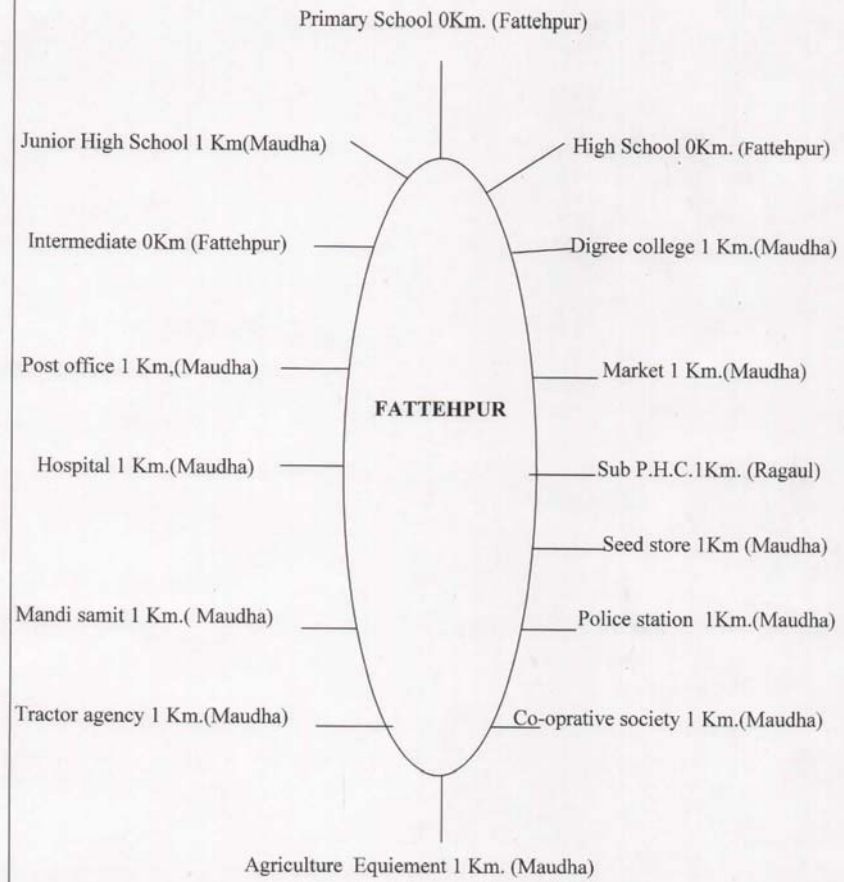
Distance of resource from village



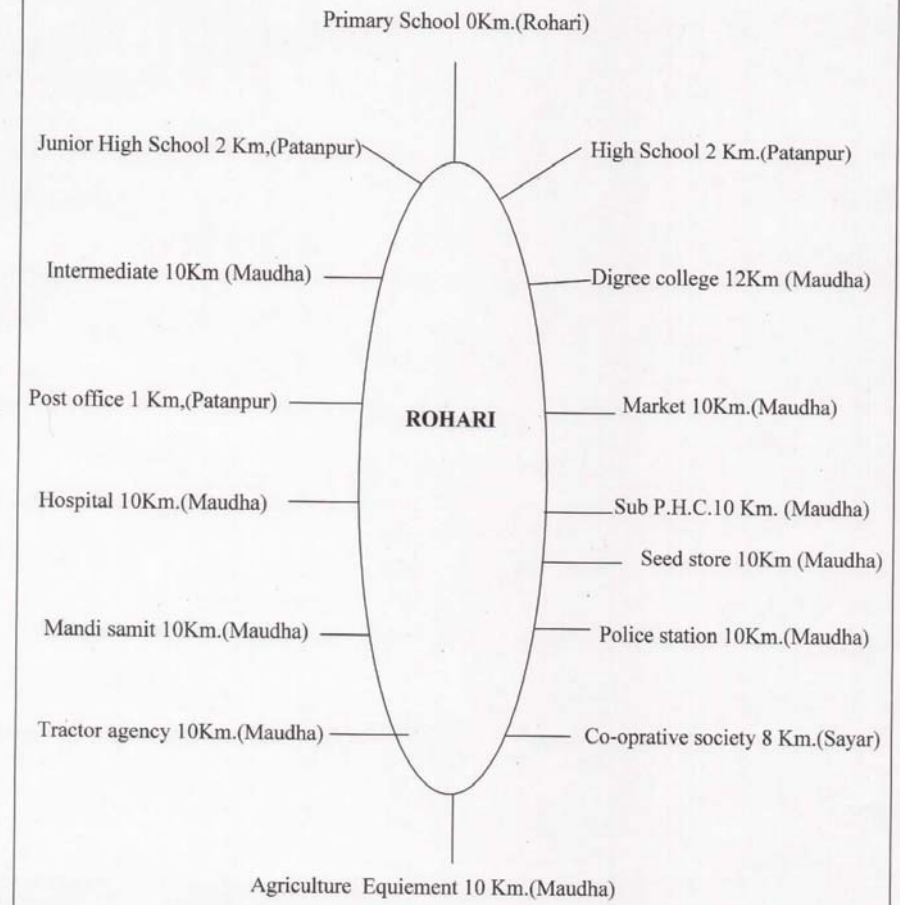
Distance of resource from village



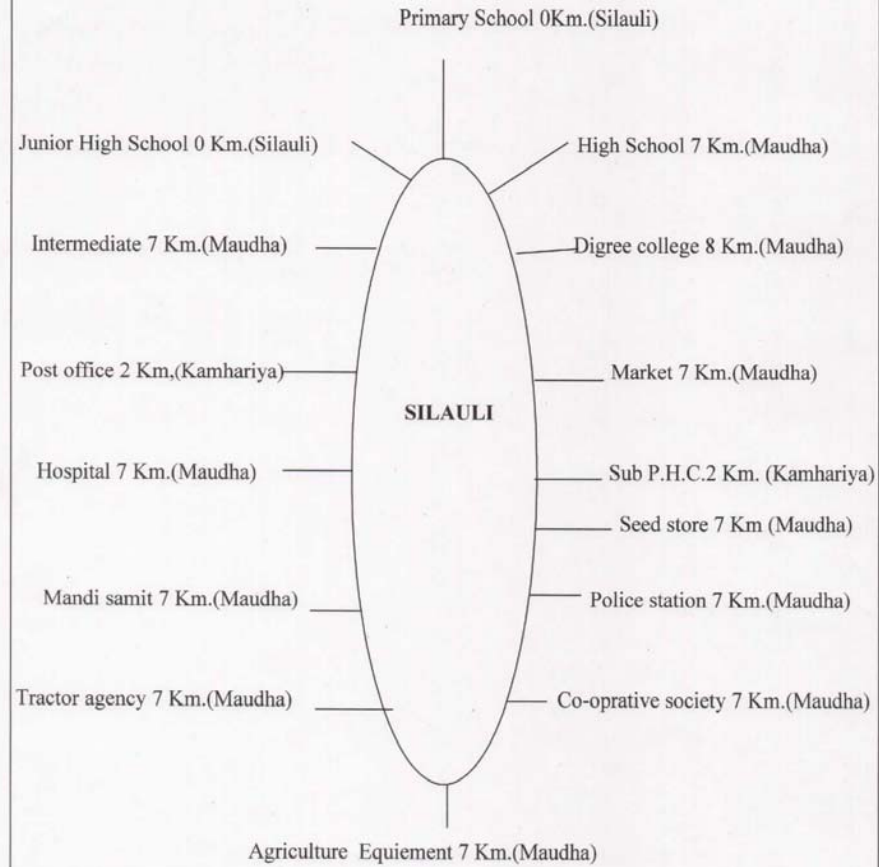
Distance of resource from village



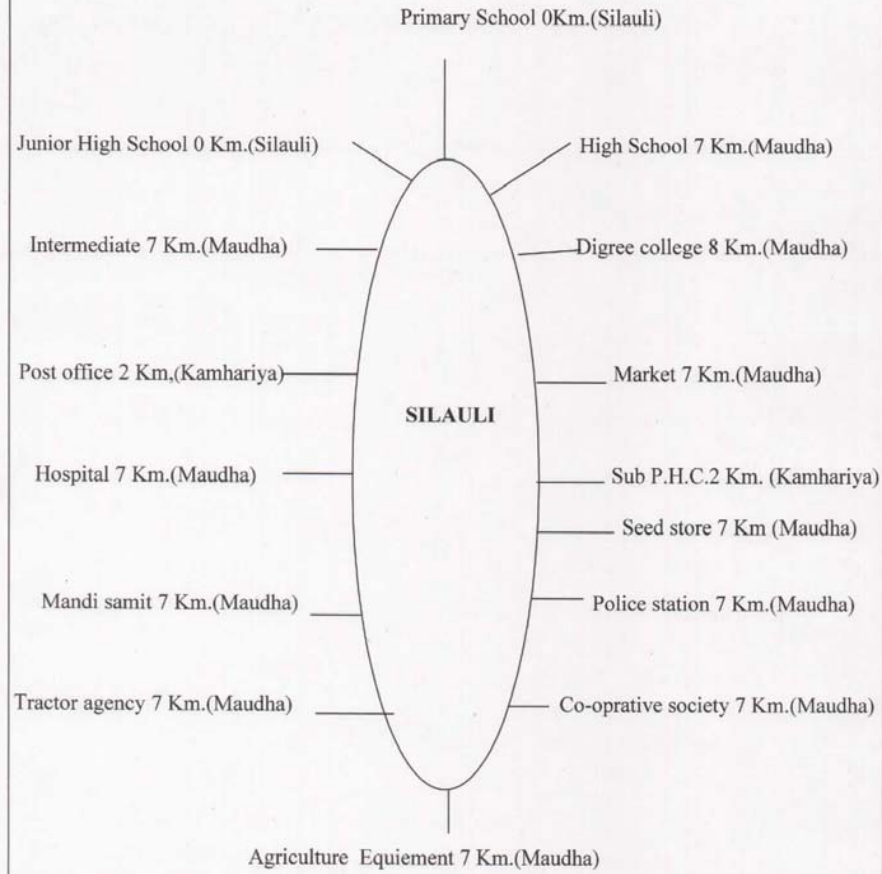
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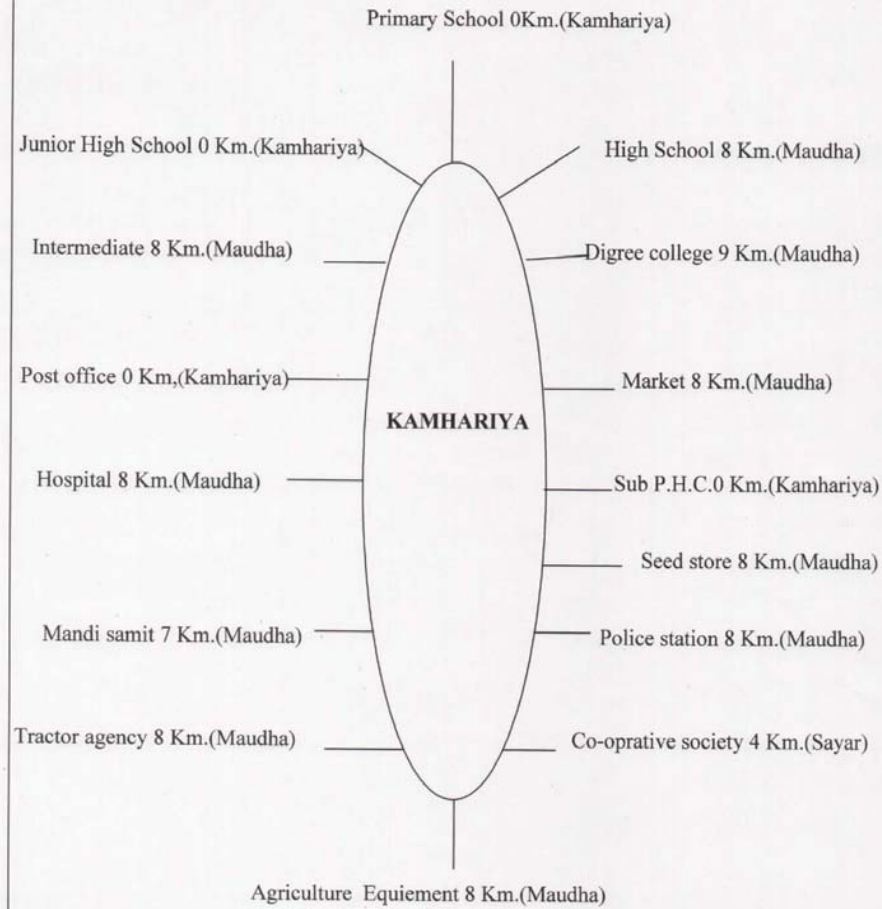
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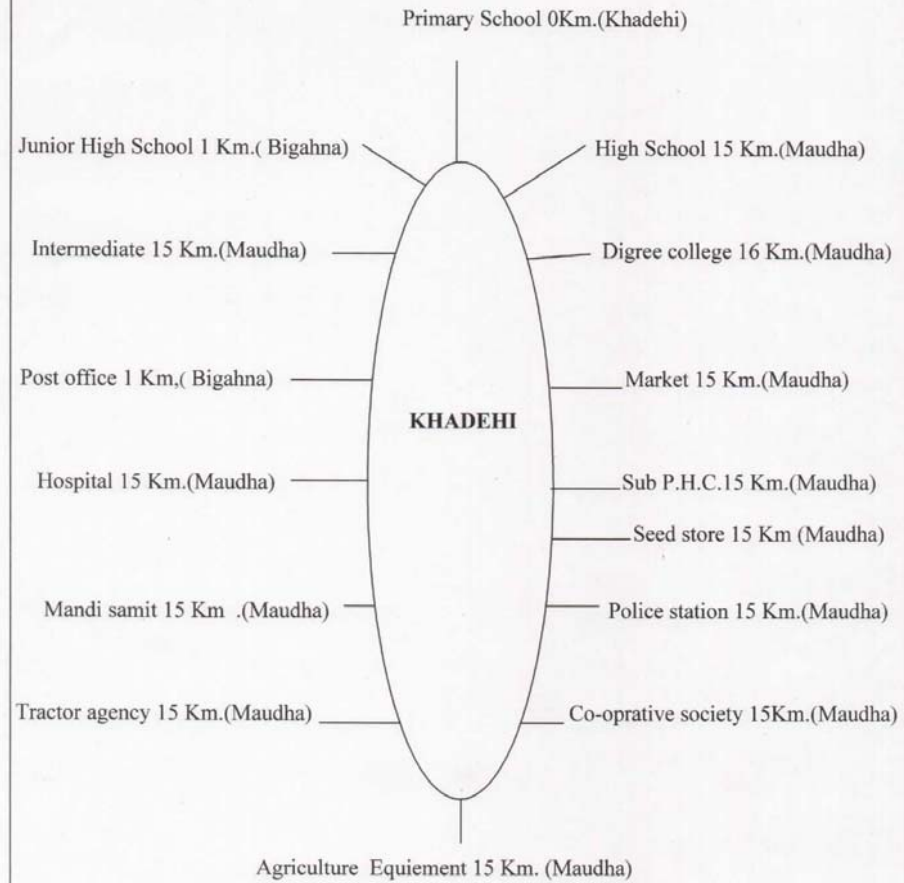
Distance of resource from village



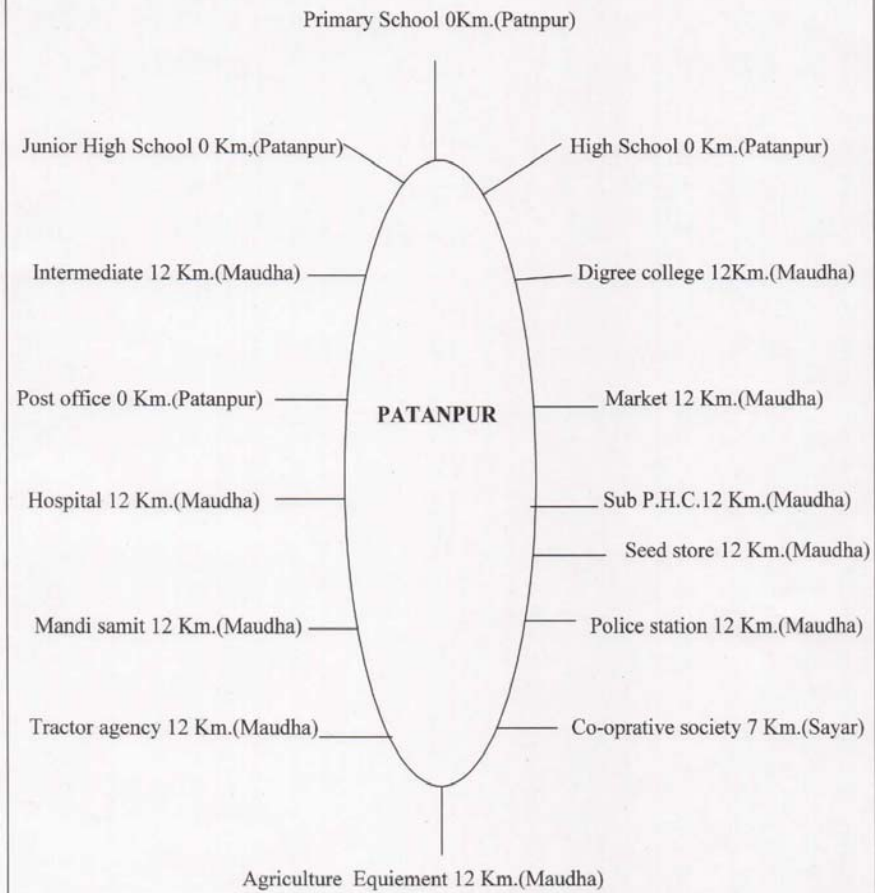
Distance of resource from village



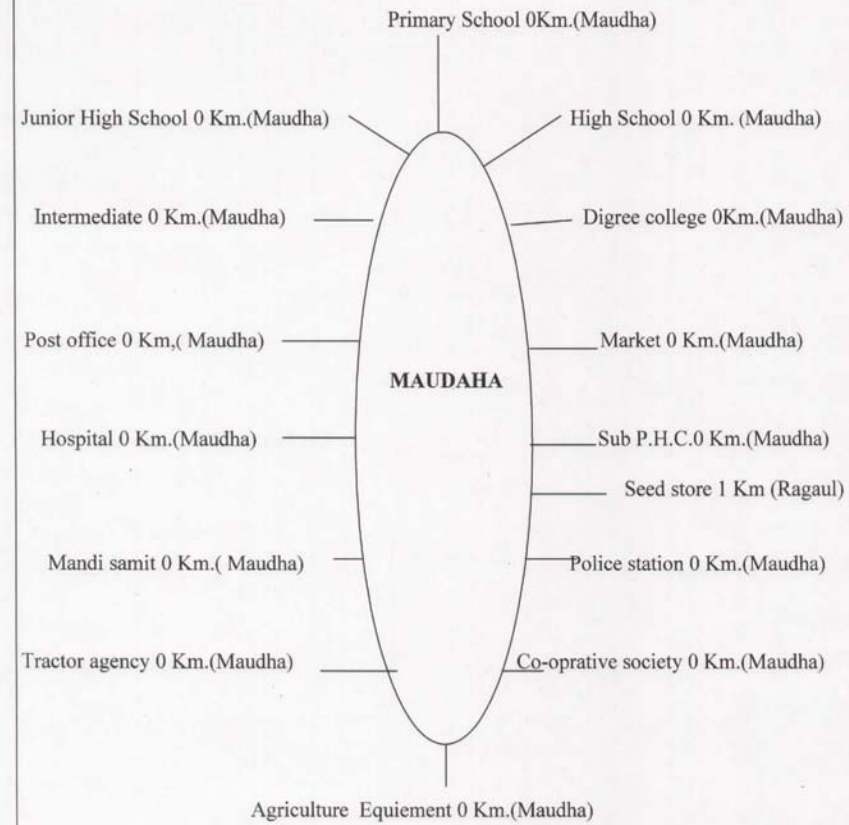
Distance of resource from village



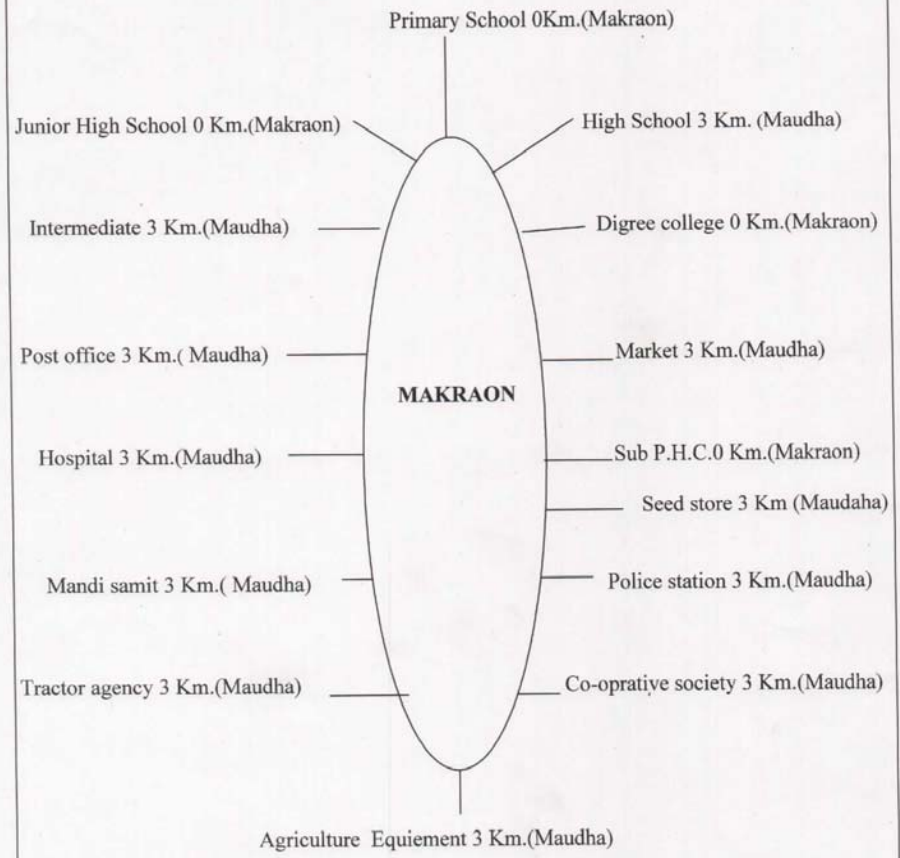
Distance of resource from village



Distance of resource from village



Distance of resource from village



DPR PLAN ABSTRACT

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

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

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