DETAIL PROJECT REPORT
OF
INTEGRATED WATERSHED MANAGEMENT
PROGRAMME
First

WATERSHED – GANGA & SASURKHADERI

BLOCK-MURATGANJ,SIRATHU,KADA,MANJHANPUR DISTRICT-KOUSHAMBI (U.P.)

SUBMITTED TO:-
Department of Land Development
And Water Resources.
Lucknow (U.P.)

REPRESENTED BY:-
Commissioner and Administrator
SHIANDA SHAYAK COMMANDO
LUCKNOW

DEPARTMENT OF LAND DEVELOPMENT AND WATER RESOURCES
LUCKNOW (U.P.)
YEAR 2009-2014

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PROJECT BACKGROUND

1- Executive Summary:

In District Koushambi (U.P.) 147 no. of micro watershed having 149496.00 ha are available for I.W.M.P., out of which 9 micro watersheds named 2B3B2c2a, 2B3B2c2d, 2B3B2c1b, 2B3B2c1c, 2B3B2c1a, 2C4A1d3b, 2C4A1d3a, 2C4A1d2b and 2C4A1d2a in which 5126 hectare area are selected under I.W.M.P. Ist for treatment in Koushambi District. These micro watersheds are situated in the catchment of river Ganga and Sasurkhaderi. The watershed is situated in the north east of Koushambi district. It lies between 25°35' latitude and 81°25' Longitude.

The estimate of the selected project is semi-arid with an average rainfall (preceding-five year) is 474 mm out of which about 90% is received during the monsoon season from July to September. Temperature ranges from very high 47°c in the May-June to minimum 8°c during December –January.

The soil of project area is mainly Sandy soil, Sandy loam & Saline soil. Middle portion of the project has minor slope. Agriculture is the main occupation of the people of project area. The main crops are Wheat, Rice, Banana, Musturd. Most of the fields are kept fallow during Kharif season due to this season Green Manuring is the proposed to minimize the runoff and to maintain the soil fertility of the soil.

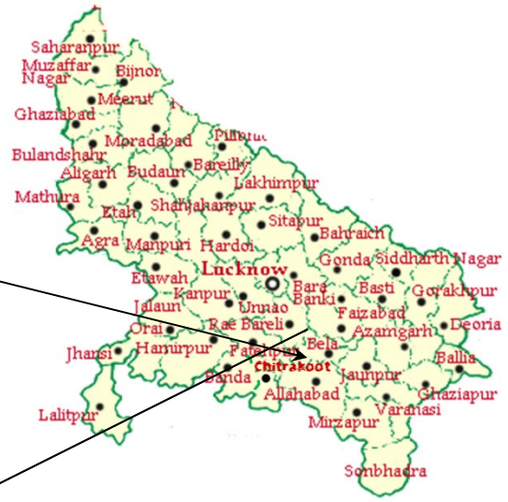
Natural vegetation of the watershed area is very poor. Babool, Mahua are the main tree of the area. Occasionally Mango, Neem, Sheesham, Ber tree are found in this area. There is no reserve pasture in the watershed area. Due to Ann da Pratha and lack of irrigation water the rate of mortality of planted trees is very high. P.R.A. exercises conducted in the villages of watershed area revealed that inadequate irrigation facilities, low production of field crops.

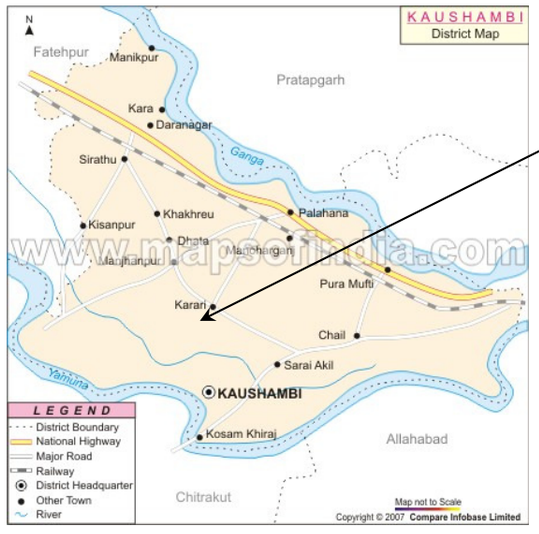
Fodder shortage, lack of inputs and market facility are some of the major constraints being experienced by the farmers. For this area Amla, Guava, Ber, Bel fruit plants are suitable. 50.00 ha Agro-Horticulture is proposed in the selected area to motivate the farmers to adopt the agro horticulture in practice because of inadequate irrigation water.

It is expected that the implementation of different watershed management activities will bring down the run off and soil loss by 70% and 80% of their present level respectively. It is envisaged to increase the water and land utilization index though adoption of bio-engineering measures and improve the eco-development index. The proposed plan will improve the crop diversification index, productivity of existing crops and thereby will lead to self-suffering in food with nutritional security. The different enterprises of various sectors and the project as a whole have been found to be economically viable with sound rate of internal return and less payback period.

<u>ITRODUCTION:</u> The selected watershed in Koushambi district (U.P.) is located between the longitude of 81°25' and latitudes 25°35'

LOCATION OF I.W.M.P. – II[nd] CLUSTER





AREA DETAILS OF THE PROJECT

Table no.1: Basic project information

Sl No.	Name of the project	Number of Watershed	Block	District	Area of the project	Area proposed to be treated	Total project cost(Rs. in lakh)
1	IWMP-I Koushambi	9	Muratganj, Sirathu, Majanpur, Kada	Koushambi	10171	5126.00	615.12

Need of Watershed Development Programme

Watershed Development Programme is prioritised on the basis of thirteen parameters namely Poverty Index, Percentage of SC/ST, Actual wages, Percentage of small and marginal farmers, Ground water status, Moisture Index, Area under rainfed agriculture, Drinking water situation in the area, Percentage of the degraded land, Productivity potential of the land, Continuity of another watershed that has already developed/treated, Cluster approach for plain or for hilly terrain. Based on these thirteen parameters a composite ranking was given to Watershed project as given in *table no. 2.*

Cluster approach was followed taking into consideration nine micro-watersheds covering a total area of 5126 Ha. With cumulative score of 100

All the parameters taken together give a cumulative score of 100 to the watershed (reference Table 2.1 below).

Table no. 2: Prioritized list of projects proposed for sanction during the financial year 2009-10

1	2	3	4	5	6	7	8													
S. N.	District	Name of the project	No. of micro-watersheds proposed to be covered	Proposed project area (ha)	Type of project (Hilly/ Desert/ Others)	Proposed cost (Rs. in lakh)	Weightage under the criteria#													
							i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	Total
1	Koushambi	IWMP-I	9	5126	Others	615.12	7.5	10	5	10	0	0	10	7.5	10	15	10	15	0	100

Reference Table 2.1- Criteria and weightage for selection of watershed

S. No.	Criteria	Maximum score	Ranges & scores			
i	Poverty index (% of poor to population)	10	Above 80 % (10)	80 to 50 % (7.5)	50 to 20 % (5)	Below 20 % (2.5)
ii	% of SC/ ST population	10	More than 40 % (10)	20 to 40 % (5)	Less than 20 % (3)	
iii	Actual wages	5	Actual wages are significantly lower than minimum wages (5)	Actual wages are equal to or higher than minimum wages (0)		
iv	% of small and marginal farmers	10	More than 80 % (10)	50 to 80 % (5)	Less than 50 % (3)	
v	Ground water status	5	Over exploited (5)	Critical (3)	Sub critical (2)	Safe (0)
vi	Moisture index/ DPAP/ DDP Block	15	-66.7 & below (15) DDP Block	-33.3 to -66.6 (10) DPAP Block	0 to -33.2 (0) Non DPAP/ DDP Block	
vii	Area under rain-fed agriculture	15	More than 90 % (15)	80 to 90 % (10)	70 to 80% (5)	Above 70 % (Reject)
viii	Drinking water	10	No source (10)	Problematic village (7.5)	Partially covered (5)	Fully covered (0)
ix	Degraded land	15	High – above 20 % (15)	Medium – 10 to 20 % (10)	Low- less than 10 % of TGA (5)	
x	Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable efforts (15)	Lands with moderate production & where productivity can be enhanced with reasonable efforts (10)	Lands with high production & where productivity can be marginally enhanced with reasonable efforts (5)	
xi	Contiguity to another watershed that has already been developed/ treated	10	Contiguous to previously treated watershed & contiguity within the microwatersheds in the project (10)	Contiguity within the microwatersheds in the project but non contiguous to previously treated watershed (5)	Neither contiguous to previously treated watershed nor contiguity within the microwatersheds in the project (0)	
xii	Cluster approach in the plains (more than one contiguous micro-watersheds in the project)	15	Above 6 micro-watersheds in cluster (15)	4 to 6 microwatersheds in cluster (10)	2 to 4 microwatersheds in cluster (5)	
xiii	Cluster approach in the hills (more than one contiguous micro-watersheds in the project)	15	Above 5 micro-watersheds in cluster (15)	3 to 5 microwatersheds in cluster (10)	2 to 3 microwatersheds in cluster (5)	
	Total	150	150	90	41	2.5

1- PROJECT AT A GLANCE

1.	Name of Project	I.W.M.P.-Ist KOUSHAMBI
2.	Name of Block	Muratganj,Sirathu, Kada, Majanpur
3.	Name of District	Koushambi
4.	Name of State	Uattar Pradesh
5.	Name of Micro Watershed	1. Kasia 2. Nawari Ahmed Karari 3. Kokhraj 4. Sakada 5. Khalispur 6. Rasulpur Giricha 7. Parshara 8. Mauli 9. Arayi Sumerpur
6.	Name of Village under Micro Watershed	Shakha,Sirohi Uprhar, Sakada Kachar, Sakda Uprhar, Plhana Uprhar, Rasoolpur Kagi, Dhanni, Baswanpur, Saita, Kasiya, Chaksaeganj, Mohammadpur Aswa, Parsara, Chakmahpur Pandymau, Jalalpur Boriya, Asrafpur taluka Asdullapur, Lalpur, Rasulpur Badlai, Patti Parwaijabad, Mauli, Malak Bharat, Siriyawa Kala, Chaphowa, Ari Sumairpur, Biroli, Bairua, Sakabaripur Uprhar, Sihori Kachar, Malak Rejama, Fatehpur Pershakhi, Devbhita, Roopnarayanpur Shailabi kachhar, Chheraha, Khalishpur, Nauriha Kareti, Salempur Urf Maheshpur, Jamai Mau, Ayaj mau, Malak Bhayal, Chak Jamal Mau Mugani, Chak Shivrajpur, Baghelapur Uperhar, Baghelapur Kachhar Kadeem, Kokraj Uperhar, Chak Chamarupur, Chamandha, Nauriha Amad Karari, Tikar Deeh, Sindhiya Amad karari, Rasulpur Girchha, Rampur Suhela Khas, Ahirara, Bidanpur Kakorha, Hishampur Pershakhi Uparhar, Faridpur, Sallaha, Adahara, Pawaiyan, Rampur Suhela Urf Alipur, Bisara, Ulachupur Uperhar, Ulachupur Kachhar Kadeem, Mahmoodpur Ukaiya, kashiya, Darwaispur, Suhel

7.	Micro Watershed Code Selected	2B3B2c2a, 2B3B2c2d, 2B3B2c1b, 2B3B2c1c, 2B3B2c1a, 2C4A1d3b, 2C4A1d3a, 2C4A1d2b and 2C4A1d2a
8.	Total Area of the Project	10171 hect
9.	Proposed Area for Treatment	5126.00 ha.
10.	Cost per Hectare	Rs. 12000.00 per ha.
11.	Project Period	2009-10 to 2014-15
12.	Total Cost of Project	Rs. 615.12 Lakhs

Table-3: Details of the types of areas covered under the project

1	2	3	4					5			
S. No.	Area of the project	No. of micro watershed	No. of beneficiaries covered					Identified DPAP/ DDP Blocks covered			
								DPAP		DDP	
			MF	SF	LF	Landless	Total	No. of blocks	Area	No. of blocks	Area
1	5126	9	17.50	4.90	1.10	1.10	24.60	-	-	-	-

AGRO-CLIMATIC CONDITION

AGRO-CLIMATIC CONDITION

Briefly describe the agro-climatic condition of project area including the Agro-climatic zone of project area, soil types, rainfall, major crops, etc.

Table – 4: Details of Agro-climatic condition

1	2	3	4	5	6		7	8	
S. No.	Name of the Project	Name of the Agro-climatic zone covers project area	Area in ha	No. of villages	Major soil types		Average rainfall in mm (preceding 5 years average)	Major crops	
					a)Type	b) Area in ha		a) Name	b) Area in ha
1	IWMP-Ist Koushambi	Upper GangeticPlains Region(Central Plain)	5126		Sandy & Sandy Loam	4557	474	Rice Wheat	976 1980

Table- 5 : Details of soil erosion in the project area

1	2	3	4	5
Cause	Type of erosion	Area affected (ha)	Run off (mm/ year)	Average soil loss (Tonnes/ ha/ year)
Water erosion				
a	Sheet	3782.00	284.00	17.00
b	Rill	1604.00		
c	Gully	310.00		
Sub-Total		5696.00		
Wind erosion		0.00	NA	
Total		5696.00		

INFRASTRUCTURE IN THE PROJECT AREA

INFRASTRUCTURE IN THE PROJECT AREA

Table- 6: Details of infrastructure in the project area

1	2	3			
S. No.	Parameters	Status			
(i)	No. of villages connected to the main road by an all-weather road	66			
(ii)	No. of villages provided with electricity	66			
(iii)	No. of households without access to drinking water	-			
(iv)	No. of educational institutions : Primary(P)/ Secondary(S)/ Higher Secondary(HS)/ vocational institution(VI)	(P) 66	(S) 25	(HS) 6	(VI) -
(v)	No. of villages with access to Primary Health Centre	11			
(vi)	No. of villages with access to Veterinary Dispensary	03			
(vii)	No. of villages with access to Post Office	09			
(viii)	No. of villages with access to Banks	03			
(ix)	No. of villages with access to Markets/ mandis	2/8			
(x)	No. of villages with access to Agro-industries	01			
(xi)	Total quantity of surplus milk	1500 Ltrs			
(xii)	No. of milk collection centres (e.g. Union(U)/ Society(S)/ Private agency(PA)/ others (O))	(U) -	(S) -	(PA) 06	(O) -
(xiii)	No. of villages with access to Anganwadi Centre	58			
(xiv)	Any other facilities with no. of villages (please specify)	-			

DEMOGRAPHY AND LAND DISTRIBUTION

DEMOGRAPHY AND LAND DISTRIBUTION

Growth in population during the last three census' , per capita availability of land, sex ratio, population age group in the project area, literacy level, migration, workforce available in different sectors of the economy, demography of SC, ST, BPL and landless families in the project area etc.

Table- 7: Details of land holding pattern in the project area

1	2	3	4	5	6		
S. No.	Name of the villages	Type of Farmer	No. of households	No. of BPL households	Land holding (ha)		
					Irrigated		
	66	(i) Large	327	-	452		66
		(ii) Small	6641	3994	396		
		(iii) Marginal	13862	132	401		
		(iv) Landless	498	498	NA		
		Sub-Total	21328	4624	1249		

Table 8- SUMMARY OF COMPONENT WISE FINANCIAL OUTLAY IS GIVEN AS BELOW :

S.N.	Budget Component	Total (Lakhs)
1.	Management Cost	
	a) Administration Cost	61.512
	b) Monitoring	6.1512
	c) Evaluation	6.1512
	Sub Total	73.8144
2.	Preparatory Phase	
	a) Entry point activities	24.6048
	b) Capacity building	30.7560
	c) Preparation of DPR	6.1512
	Sub total	61.512
3.	Watershed Works	
	a) Soil and moisture conservation	135.54
	b) Water resources development	154.12
	c) Agro-forestry and horticulture	17.90
	Sub total	307.560
4.	Livelihood Activities	61.512
5.	Production System and Microenterprises	79.9656
6.	Consolidation Phase	30.756
	Grant Total	615.12

Table No.-8.1. Physical Outlays.

ACTIVITIES RELATED TO	Total (quantity)
ADMINISTRATIVE COSTS	
TD & DA, POL/ Hiring of vehicles/ Office and payment of electricity and phone bill etc. computer, stationary and office consumable and contingency.	√
Expert for monitoring and evaluation.	√
PREPARATORY PHASES	
Entry Point Activities Repair of well & Hand Pump, Maintenance of school builhing, Maintenance of religious place, repair of chabutara etc.	√
Institutional and capacity building	√
WATERSHED WORKS	
Watershed Development Works	
Construction of Bunds (Field Bund, Contour Bund, Submergence Bund, Marginal Bund and Peripheral Bund)	**3743.00**
Water Harvesting Structure/ Gully Plug/ Chek Dam	**1025.00**
Afforestation Development & Agro-horticulture	**358.00**
(Pucca Structure / Gully Plug, Chek Dam and Pipe Outlet) (nos)	**93**
LIVELIHOOD PROGRAMME (community based)	
Income generating activities through SHG's for landless and marginal farmers.	
a. Goat keeping. (nos)	**9**
b. Mombatti & Agarbati. (nos)	**6**
c. Dairy Work. (nos)	**3**
d. Masala grinnding & packing,Beshan & Namkeen product,Alloo chips . (nos)	**6**
e. Knitting	**4**
e. Livestock development activities	√
PRODUCTION SYSTEM AND MICRO ENTERPRISES	
Demonstration and assessment of improved composting system using alternate materials (45 Vermi-compost) and 68 nutrient analysis (Nos.),Fodder Bank	**45** **68**
Introduction of improved crop production practices. **i). For *Kharif* crops (ha).** **ii). For *Rabi* crops (ha).**	 **106.00** **102.00**
CONSOLIDATION PHASE	√

YEAR WISE PHASING OF WORKS

(PHYSICAL & FINANCIAL)

Phasing of various works / activities during different years of the project period for treatable area 3519 ha out of total area 4889 ha is presented in Table

Component wise & Year wise Phasing of Physical & Finanacial Outlay

Financial (Lakhs Rs.) Physical (ha.)

S. No.	Component	% of Budget	Total outlay	Ist Year		IInd Year		IIIrd Year		IV Year		V Year		Total	
				P	F	P	F	P	F	P	F	P	F	P	F
1. A.	Administration Cost TA & DA, POL/Hiring of vehicles/ office and payment of electricity and Phone bill etc. computer, stationary and office consumable and contingancy.	10%	61.5120	-	-	-	12.3024	-	16.6082	-	16.6082	-	15.9932	-	61.5120
B.	Monitoring	1%	6.1512	-	-	-	1.2302	-	1.2302	-	1.2302	-	2.4606	-	6.1512
C.	Evaluation	1%	6.1512	-	-	-	1.8453	-	1.0765	-	1.0765	-	2.1529	-	6.1512
	Sub Total	12%	73.8144	-	-	-	15.3779	-	18.9149	-	18.9149	-	20.6067	-	73.8144

2. A.	<u>Preparatory Phases</u> Entry Point Activities, like improvement of drinking water system, Repairing & Renovation Bundhies, check dam and school Activities & const/repair of culverts and handpump/well.	4%	24.6048	-	24.6048	-	-	-	-	-	-	-	-	-	24.6048
B.	Capicity Building	5%	30.7560	-	6.1512	-	12.3024	-	4.6134	-	4.6134	-	3.0756	-	30.7560
C.	Preparation of DPR	1%	6.1512	-	6.1512	-	-	-	-	-	-	-	-	-	6.1512
	Sub Total	10%	61.512	-	36.9072	-	12.3024	-	4.6134	-	4.6134	-	3.0756	-	61.512
3. A.	<u>Watershed works</u> Soil & moisture conservation i. Construction of Bunds. (graded, contour and field Bund) ii. Marzinal & Peripheral Bundh iii. Submerge Bund	50%													
B.	Water Resources Development i. Water Harvesting Bundhi & Check Dam(U) ii. Drop														

	Spilway/Pucca Structure														
C.	Agroforestry & Horticulture i. Agroforestry ii. Horticulture														
	Sub Total	50%	307.56	-	-	769	46.1340	1348	80.8883	1353	81.1958	1656	99.3419	5126	307.56
4.	Livelihood Activities Income generating Activities through SHGs for landless and Marginal formers (Goat farming, Agarbati & Candle making, Dona Pattal making, Masala, Papad and live stock development Activities,)	10%	61.5120	-	-	-	6.1512	-	24.6048	-	18.4536	-	12.3024	-	61.5120
	Sub Total	10%	61.5120	-	-	-	6.1512	-	24.6048	-	18.4536	-	12.3024	-	61.5120
5.	Production System & Micro enterprises Demonstration and assesment of improved composting system. i. Seed ii. Chemical Fartilizer/ Bio Fertilizer iii. Vermi Compost iv. Advance Agriculture Equipment	13%	79.9656	-	-	-	6.1512	-	24.6048	-	30.7560	-	18.4536	-	79.9656

	v. Animal Husbandary vi. Fodder Bank														
	Sub Total	13%	79.9656	-	-	-	6.1512	-	24.6048	-	30.7560	-	18.4536	-	79.9656
6.	Consolidation Phase	5%	30.756	-	-	-	-	-	-	-	-	-	30.756	-	30.756
	Sub Total	5%	30.756	-	-	-	-	-	-	-	-	-	30.756	-	30.756
	Grand Total	100%	615.12	-	36.9072	769	86.1168	1348	153.6262	1353	153.9337	1656	184.5362	5126	615.12

CONSTITUTION OF PIA, WDT, USER GROUPS, SHG's AND WC

Institutional Arrangement at Project level:

1. Project Implementing Agency

The Project Implementing Agencies (PIA) is selected by an appropriate mechanism by the State Level Nodal Agency (SLNA) for Integrated Watershed Management Programme (IWMP) in Koushambi. The PIAs are responsible for implementation of watershed project. These PIAs may include relevant line departments, autonomous organizations under State/ Central Governments, Government Institutes/ Research bodies, Intermediate Panchayats, Voluntary Organizations (VOs).

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

1- They should preferably have prior experience in watershed related aspects or management of watershed development projects.

2- They should be prepared to constitute dedicated Watershed Development Teams.

Selected PIAs will sign a contract/MOU with the concerned DWSUs/District Level Committee as referred in para 29 that will spell out well –defined annual outcomes, against whicg the performance of each PIA will be monitored each year and evaluated on a regular basis by institutional evaluators from a panel approved by the SLNA/Departmental Nodal Agency at the central level.

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

2. About Project Implementing Agency(PIA), Koushambi-I

2.1 The organization and its objectives:

The Project Implementing Agency(PIA), Koushambi-I is a district level nodal agency and was appointed on 23 June 2010 to oversee the smooth implementation of watershed projects in the district. The Bhoomi Shanrakshak Adhikari is appointed as head of the PIA. The PIA has dedicated and experienced staff comprising a technical expert and a multidisciplinary team of agriculture expert, community mobilization expert and Data Entry Operator, civil engineer, MIS coordinator, system analyst, surveyor, and accountant. The objectives of the PIA, Koushambi-I are supervising, planning, implementing, documenting and promoting watershed development projects and related developmental activities in the district as per guidelines.

2.2 Programmes/projects of PIA, Koushambi-I :

At present one IWMP projects have been sanctioned by Government of India for Koushambi district. The entry point activities of all the Villages of IWMP-I Koushambi project have been identified in the district.

2.3 Roles and Responsibilities of the PIA:

The project Implementing Agency(PIA) will provide necessary technical guidance to the Gram Panchayat for preparation of development plans for the watershed through Participatory Rural Appraisal(PRA) exercise, undertake community organization and training for the village communities, supervise watershed development activities, inspect and authenticate project accounts, encourage adoption of low cost technologies and build upon indigenous technical knowledge, monitor and review

the overall project implementation and set up institutional arrangements for post-project operation and maintenance and further development of the assets created during the project period.

The PIA, after careful scrutiny, shall submit the action plan for watershed development project for approval of the DWDU/DRDA and other arrangements. The PIA shall submit the periodical progress report to DWDU. The PIA shall also arrange physical, financial and social audit of the work undertaken.

STRENGTH, WEAKNESS, OPPORTUNITY AND THREAT (SWOT) ANALYSIS IS A USEFUL DECISION SUPPORT TOOL.

A SWOT analysis of the watersheds is presented as below:

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

Table- 9: Details of Project Implementing Agency (s)

1	2	
S. No.	Particulars of PIA	
(i)	Date of selection of PIA	23 June 2010
(ii)	Type of organization#	Government Institution
(iii)	Name of organization	Land Development and Water Resources
(iv)	Designation & Address	Bhoomi Sanrakshan Adhikari, Land Development and Water Resources, Meja, Allahabad
(v)	Telephone	09412129416
(vi)	Fax	
(vii)	E-mail	cadwmmeja@upldwr.com

U.P. Government, Land Development And Water Resources Department section -1 Lucknow has nominates as PIA to Bhoomi Sanrakshan Unit, Land development and water resources Department, Koushambi-lst for IWMP-I vide letter no- 796(1)/54-1-10-1(9)/2008 Dated 23 june 2010.

Detail Staffing Pattern of PIA:

S.No.	Name	Designation	Qualification	Experience (Year)
1	Sri Moti Ram	BSA	Intermediate Diploma in Ag. Engg.	26
2	Sri Ram Surat Maurya	Jr. Engg.	Intermediate, Diploma Civil Engg	27
3	Sri Rajesh Kumar Srivastava	Jr. Engg.	Intermediate, Diploma Civil Engg	25
4	Sri Desh Deepak	Accountant	B.Com.	07
5	Sri Surya Prasad Vishkarma	Sr. clerk	B.A.	24
6	Sri Sunil Kumar Yadav	Draftt Man	M.A., ITI in Draft man	07
7	Sri Umesh Sharan Srivastava	Tracer	M.A.	29
8	Smt. Sumitra	Jr.Clerk	M.A.	14
9	Sri Ravi Prakash	A.S.C.I.	M.Sc.(Ag.)	07
10	Sri. Ramesh Chand	Munsi	Intermediate	19
11	Sri. Sayad Safdar Raza	Munsi	M.A.	19
12	Sri Mangaroo Prasad	Work Incharge	Intermediate	27
13	Sri Nafisul Haq	Work Incharge	Intermediate	24
14	Sri Rajendra Prasad Srivastava	Work Incharge	Intermediate	24
15	Sri Ram Saran Prajapati	Work Incharge	Intermediate	22
16	Sri Hansnath Prasad	Work Incharge	B.A.	22
17	Sri Laxmikant Tripathi	Work Incharge	Intermediate	21
18	Sri Mahendra Kumar	Work Incharge	B.A.	21
19	Sri Gopalji Mishra	Jiledar	High School	26
20	Sri Chandra Prakash Mishra	Seench Pal	B.A.	21
21	Sri Raj Narain Yadav	Seench Pal	B.A.	21
22	Sri Anil Kumar Tiwari	Seench Pal	High School	29
23	Sri Nishar Ahmed	Driver	High School	25
24	Sri Ramanand Gupta	IV Class	Jr.High School	28
25	Sri Parash Nath Giri	IV Class	Intermediate(Ag.)	28
26	Sri Jagdish Prasad	IV Class	Intermediate	28
27	Smt. Chandavati	IV Class	Educated	09
28	Sri Ramdhani Yadav	Runner	Jr.High School	29
29	Smt. Chinta Devi	Runner	Educated	16
30	Smt. Savitri Devi	Runner	Educated	23

WATERSHED DEVELOPMENT TEAM:

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

Roles and Responsibilities of WDT:

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

a. **Assist Gram Panchayat /Gram Sabha in constitution of the watershed committee and their functioning.**
b. **Organizing and nurturing User Groups and Self-Help Groups.**
c. **Mobilizing women to ensure that the perspectives and interests of women are adequately related in the watershed action plan.**
d. **Conducting the participatory base –line surveys, training and capacity building.**
e. **Preparing detailed resource development plans including water and soil conservation or redamation etc. to promote sustainable livelihood at household level.**
f. **Common property resource management and equitable sharing.**
g. **Preparing Detailed Project Report (DPR) for the consideration of Gram Sabha.**
h. **Undertake engineering surveys, prepare engineering drawing and cost estimates for any structure to be built.**
i. **Monitoring, checking, accessing, and undertaking physical verification and measurement of work done.**
j. **Facilitating the development of livelihood opportunities for the landless.**
k. **Maintaining project accounts.**
l. **Arranging physical, financial and social audit of the work undertaken.**
m. **Setting up suitable arrangements for post-project operation, maintenance and future development of the assets created during the project period.**

Table No.-10: Details of Watershed Development Teams (WDTs) in the project area

S. No.	Name of Member of WDT	Qualification	Subject	Experience
1.	Sri Moti Ram	Diploma in Agriculture Engg.	Water Management	Experience of 30 years in soil & water conservation work
2.	Sri RamSurat Maurya	Diploma in Civil Engg	Water Management	Experience of 29 years in soil & water conservation work
3.	Sri MayanSen Singh	M.Sc Rural Sociology & Agriculture Engg	Social Organization	Experience of 28 years in soil & water conservation work
4.	Sri. Niranjan	M Sc	Soil Survey	Experience of 10 years in soil science
5.	Sri. Ajay Singh	M Sc,Phd	Agriculture	Experience of 30 years.
6.	Dr. Robins	Phd	Soil Science	Experience of 10 years.
7.	Shri Mahendra Kumar	Graduate	Livelihood	Experience of 25 years.
8.	Shri Nakisulhak	Graduate	Sociology	Experience of 10 years.
9.	Shri Ravi Prakash	M Sc	Agriculture	Experience of 7 years.
10.	Shri LaxmiKant Tripati	Graduate	Organization Building	Experience of 5 years.
11.	Smt. Manorama Devi W/o Kuljit	Graduate	Sociology	Experience of 8 years.

Watershed Committee (WC)

It is a committee that is constituted by Gram Sabha to implement the watershed project with technical support of WDT in the village. This committee is registered under society Registration Act 1860. The Gram Sabha of the village selects the chairman of the watershed committee with the secretary who will be a paid functionary. A watershed Committee was formed accordingly under watershed project. Capacity building training to the watershed committee is given by WDT.

The watershed committee has a pivotal role to play during and after the project implementation period.

Table No. 11: DETAIL OF WATERSHED COMMITTEE & SUB WATERSHED COMMITTEE

S.No	Name Of Watershed	Name Of President	Name Of Secretary	Member Of User Group	Member Of Shg	Female Member	Sc Member	Land Less Member
1	Shakha							
2	Sihori	Mohd. Shahid	Mahmood	Arif Aftab	Mahfooj Shahnoor	Jahda Najma	Nanka	Tufain Ahmed
3	Sakda	Basar Ahmed	Mohd. Alam	Aafak Ahmed Mata Prasad		Sumitra Devi Shanti Devi	Bakey	Ijaj
4	Plhana Uprhar	Rameshwar Prasad	Virendra Kumar	Arvind Kumar Shakuntala Devi	Satya Prakash Durga	Shyama Devi Shanti Devi	Ram Lakhan	Ramdeen
5	Rasoolpur Kagi	Sayad Mohd. Jafar	Mohd. Wamik	Mohd. Farooq Jafar Iqbal	Jafar Iqbal Mohd. Jahid	Wahida Malka	Bajrang Bali	Masook Ahmed
6	Dhanni	Shovrati	Madan Lal	Bhaiya Gulab Shabir	Shushil Kumar Rambilas	Sunita Devi Kamlawati	Madan Lal	Mehtab
7	Basawanpur	Anwar	Panna	Saleem Suresh	Kamlesh Shukul	Anita Shukhraji	Ramhit	Mithai Lal
8	Saita	Changu Lal	Babu Lal	Hari Mohan Ram Bahadur	Pitamber Jai Singh	Sunita Bittan Devi	Mithai Lal	Laxman Pal

9	Kasiya	Mukesh	Babloo	Ramsajan Kamlesh	Ram Chandra Shivnath	Lakhpati Kitkahi	Kalau	Ram Kishor
10	Chaksae Ganj	Chedi Lal Chaurasia	Ram Babu Sharma	Krishan Mohan Dinesh Chaurasia	Gaya Prasad Rekha Devi	Manju Devi Rajrani	Sripati	Saikan Lal
11	Mohammdpur Aswa	Radhey Shyam	Pitai	Heera Lal Lallan Prasad	Ashok Kumar Gulab	Raj Kumari Lalti Devi	Bhoolan	Ram Vishal
12	Parsara	Ram Murat Pandey	Mewa Lal	Ram khilawan Devi Prasad	Laxman Kamlesh Kumar	Raj Kumari Kamla Devi	Budhhai	Hirai
13	Chakmahpur Pandymau	Jaikaran Singh	Nawal Kumar	Vijay Bahadur Buddhu Ram	Virindawan Virendra Kumar	Basanti Devi Laxmi Devi	Prem Chand	Shiv Chand
14	Jalalpur Boriya	Uday Sagar	Tulsi	Shiv Nandan Sant Lal	Shiv Murat Vijay	Santara Devi Tulsi Devi	Kamlesh	Ramsewak
15	Asrafpur Taluka Asdullapur	Shiv Mohan Maurya	Dinesh Kumar	Srinath Jageswer	Devnath Ramesh Kumar	Prem Kumari Usha Devi	Komal Singh	Rajendra Prasad
16	Lalapur	Moti Lal	Masoom Ali	Dharam Narain Chandrma Prasad	Ramesh Chand Vinod Kumar	Chintamadi Kusum	Ramkhelawan	Kalloo
17	Rasulpur Badlai	Ramlotan	Bhairo Prasad	Chhote Lal Choorahu	Hari Lal Vimlesh	Inkata Devi Sushila Devi	Ram Prasad	Bhagwat Prasad
18	Patti Parwaijabad	Fashi Ahmed	Makshood Ahmed	Baijnath Juneda Alam	Rajesh Chand Sripal	Jakshan Devi Indrawati	Shivbhuwan	Afroj
19	Mauli	Jiya Lal	Radhey Shyam	Dinesh Kumar Moti Lal	Roop Chand Kunti Devi	Sangeeta Shukhrani	Dharamraj	Kripal
20	Malak Bharat	Nanhey	Bhulan Singh	Prithwi Lal Dharam Pal	Choubey Lal Niyaj Ahmed	Tashiroon Sunita Devi	Babu Lal	Anish Ahmed
21	Siriyawa Kala	Asharfi Lal	Veermanu	Asmad Ali Ramesh Babu	SatyaMannu Banrsi Lal	Gulab Devi Kusum Devi	Ramkhelawan	Munna
22	Chaphowa	Smt. Ramkali	Amit Kumar	Indra Pal Jageshar	Ghansyam Ramroop	Soni Bibi Ramsawari	Moolchand	Gulab

23	Ari Sumairpur	Omkarnath	Nandan Kumar	Shiv Dulare Bhola	Lav Kush Virandra Kumar	Rampyari Sushila	Gulab	Munni Lal
24	Biroli	Baboo	Uma Shanker	Gokul Prasad Lakhan Lal	Jeet Lal Sandeep Kumar	Shyama Devi Kusum Devi	Babadeen	Makhan Lal
25	Bairua	Kalloo	Dharmraj	Sanjeev Singh Abhilash	Awadh Narain Shanker Singh	Minakshi Singh Rampati	Bacchhu	Kalloo
26	Sakabaripur Uprhar	Nijam	Ramu	Aslam Makshood	Adalti Prasad Ram Singh	Rafia Rafia	Bansi	Mewa
27	Malak Rejama	Gayatri Devi	Ram Kishan	Amrit Lal Sunder Lal	Parasnath Gajanand	Urmila Devi Parvati	Ramdhani	Vashudev
28	Devbita	Gaind Lal	Ramesh Chand	Misri Lal Phoolan	Suresh Parvesh Kumar	Indra Rani Devrati	Lalli	Sunder
29	Roopnarayanpur Shailabi Kachha	Amarnath	Om Prakash	Mohd. Kameel Sunder Lal	Ashok Kumar Shyama Devi	Chander Devi Kamla Devi	Sunil Kumar	Siya Lal
30	Chheraha	Shiv Narain	Rajendra	Chhedi Lal Ashok	Shiya Ram Kelpatiya	Parwati Ramrati Devi	Shiaram	Guddu
31	Khalishpur	Kamroodjama	Mohd. Ismail	Akil Ahmed Lalloo	Sultan Ali Ram Bhawan	Shanti Devi Sukri	Jhurai	Sone Lal
32	Nauriha Kareti	Rajaram	Vishun	Shiv Shagar Dirgaj	Vijay Kumar Deshraj	Vimla Devi Ramsawari	Virendra Kumar	Surajpal
33	Salempur Urf Maheshpur	Rajesh	Vinod Kumar	Rakesh Kumar Suresh Chand	Sampoorna nand Ranjeet	Dhannoo Devi Dulia	Samai Lal	Lalchand
34	Jamal Mau	Sarojani	Dawarika Prasad	Khuddi Lal Heera Lal	Umesh Kumar Surendra Kumar	Sheela Devi Kalawati	Munni Lal	Phoolchand
35	Ayaj Mau	Rameshwar Prasad	Ram lakhan	Phool Lal Heera Lal	Jitendra Kumar Ram Naresh	Sheela Devi Sudama Devi	Bhaiya Lal	Shanker Lal
36	Malak Bhayal	Deshraj saroj	Santosh	Gulab Chand Kesharwani Ram Singh	Bansi Lal Sakuntla Devi	Chameli Devi Shanti Devi	Inder	Dukhi
37	Chak Jamal Mau Muglani	Jagan Patel	OmkarNath Patel	Dawarika Prasad Ayodhya Prasad	Ramsumer Maiku	Dhoorpatti Ramadevi	Masuriadeen	Phoolchand

38	Chak Shivrajpur	Mustak	Bachhau	Asharfi lal Santosh	Jagdish Phool Chand	Momina Mahmooda	Kasi Prasad	Raj Lal
39	Baghelapur Kadeem	Naimul Huda	Ajmudeen	Saifulwala Rais Saimudeen	Anshar Ahmed Mohd. Muslim	Naseem Sahani	Nokhey lal	Babu Lal
40	Kokhraj Uperhar	Ramesh Kumar	Gulesh Kumar	Subash Naresh	Uday Chand Navrati Devi	Sainaj Bano Sudama Devi	Kamlesh Kumar	Shiv Kumar
41	Chak Chamarupur Lathpur Koh	Ram Pratap Singh	Amar Singh	Lalloo Prasad Ram Bahadur	Nathan Gulab Singh	Sursati Sudama	Jagroop	Devnath
42	Chamandha	Leelawati	Bhimsen	Gaya Prasad Mata Prasad	Ashrfi Lal Heraj	Ganeshi Chandra Devi	Amarnath	Bihari
43	Nauriha Amad Karari	Bhaiya Lal Singh	Vijay Singh	Nirankar Putti Lal	Satya Dev Ramlakhan	Tirsha Devi Kusum	Rambhajan	Phoolchand
44	Tikar Deeh	Dhani Lal	Ganga Ram	Ram Babu Surendra Nath	Kamlesh Kumar Shambhoonath	Radha Devi Chaurasha Devi	Ram Prasad	Shiv Bhahor
45	Sindhiya Amad Karari	Anurag Shukla	Hari Lal	Santosh Tiwari Purshotam	Bhola Devnath	Vijay Laxmi Ujani Devi	Lalli	Kalloo
46	Rasulpur Girchha	Bharat Lal	Manoj Kumar	Kedar Ganesh	Bharat Lal Dev Nath	Sonia Surji	Shivlochan	Ram Chandra
47	Ahirara	Durga Prasad	Hari Prasad	Ramdeen Chandra Bhushan	Dushrath Lal Mangala Prasad	Kudai Devi Parvati Devi	Heera	Laxman Prasad
48	Bidanpur Kakorha	Rajaram	Ramchandra	Baijnath Banwari Lal	Sandeep Kumar Umaviresh	Nikki Devi Chandrawati	Murli	Chanda
49	Hishampur Pershakhi	Deshraj	Baijnath	Chandrashekhar Bhagirathi	Durga Prasad Kashi	Gayanwati Pushpa Devi	Keshan	Srinath
50	Sallaha	Abid Ali	Brijesh Kumar	Kamlesh Singh Ram Abhilash	Ganga Prasad Abrar Ahmed	Aisha Begam Nisha	Pitamber Lal	Chedi Lal
51	Adahara	Phool Chand	Munna	Bhanu Pratap Shiv Mohan		Nanhki Kalutia	Mahesh	Ashok
52	Pawaiyan	Chotte Lal	Lalta Prasad	Asharfi Lal Bhagwandeen	Chandra Pal Ramlotan	Kamla Devi Vimla Devi	Mithai Lal	Chotai

53	Bisara	Ram sajeevan	Ramlal	Ramlal Raj Kumar	Ram Manohar Dharam Pal	Malti Devi Kalawati Devi	Cheddi Lal	Sheetala Prasad
54	Ulachupur	Sri Chand	Ram Prasad	Arwaj Miya Tarik	Poorshotam Bitti Devi	Manju Devi Sumitra	Bhaiya Lal	Poorsotam
55	Mahmoodpur Ukaiya	Dukhiya Devi	Sant Lal	Ramasharey Shiv Chand	Jai Singh Vikas Kumar	Rukshana Savitri Devi	Dashrath Lal	Pittan Lal
56	Kashiya	Shiv Bahadur Tripathi	Sadashiv Pandey	Gulab Singh Ram Bahadur Tripathi	Sadashiv Kalawati	Sangeeta Devi Dhanpatti	Ramavtar	Hublal
57	Suhela	Chand Babu	Ahmed	Fateh Mohammad Yar Mohammad	Suresh Shanker	Tukkan Razia	Laloo	Mewa
58	Aliganj	Awadh Narain	Om Prakash	Ramhit Sahdev	Bachha Lal Ramkali	Sumitra Devi Savitri Devi	Dwarika	Hollar

Self Help Group

Self Help Groups are motivated, small homogenous groups organized together through credit and thrift activities. Self help group initiative especially for women help uplift their livelihood. Generally self help groups include landless and poor women.

Before formation of the SHGs, during PRA activities, Focussed Group Discussions (FGDs) were held with the women, which came up with the following observations:

a) Lack of proper credit facilities due to low intervention of formal financial credit institution.
b) Excessive exploitation of weaker section by money lenders
c) Lack of attitude for saving among poor people
d) Lack of knowledge on credit and thrift activity and banking.

Table No. 12: FORMATION OF SELF HELP GROUP

S.No.	Name Of Village	Name of SHG	President	Secretary	Work
1	Sihori	Gulsama SHG	Shanoor	Gulfama	Goat Keeping
2	Sakda	Jai Ma Sharda SHG	Jawahar	Omprakash	Buffalo Keeping
3	Palhana	Parvati SHG	Shakuntala Devi	Aradhana	Knitting Work
4	Rasoolpur Kagi	Rasoolpur Kaj SHG	Jafar Iqbal	Mohd. Jahid	Buffalo keeping
5	Dhanni	Dr. Bhimrao Ambedkar SHG	Sushil Kumar	Ghanshyam	Pig keeping
6	Saita	Kishan SHG	Laxman Pal	Pitamber	Vegetable Work
7	Kasiya	Urmila Devi SHG	Kalawati	Shakun Devi	Goat keeping
8	Chaksae Ganj	Maya SHG	Rekha Devi	Sunita Devi	Achar Work
9	Parsara	Parvati SHG	Mansa Devi	Neeta Devi	Masala Work
10	Chakmahpur Pandymau	Laxmi SHG	Virindavan	Virendra Kumar	Fairy Shop
11	Jalalpur Boriya	Bajrangbali SHG	Ramshewak	Bhullan	Goat Keeping
12	Asrafpur Taluka	Mahatma Budha SHG	Dinesh Kumar	Rajendra Kumar	Dairy Work

	Asdullapur				
13	Rasulpur Badlai	Agarni SHG	Hari Lal	Ram Lotan	Fairy Shop
14	Patti Parwaijabad	Soni SHG	Rajesh Chand	Chiraounji Lal	Goat Keeping
15	Mauli	Gaytri SHG	Vimla Devi	Suman	Beshan Work
16	Malak Bharat	Bharat SHG	Prithavi Lal	Dharam Pal	Milk Keeping
17	Siriyawa Kala	Ma Parvati SHG	SatyaManyu	Sahnaj	Knitting
18	Chaphowa	Bahar SHG	Ghanshyam	Ramroop	Buffalo Keeping
19	Ari Sumairpur	Ganesh SHG	Onkarnath	Virendra Kumar	Vegetable Work
20	Biroli	Sahara SHG	Jeet Lal	Sandeep Kumar	Poultry Farm
21	Bairua	Shiv SHG	Sanjeev Singh	Abhilash	Buffalo Keeping
22	Sakabaripur Uprhar	Jai Ma Kali SHG	Adalti Prasad	Ram Singh	Fehri Shop
23	Malak Rejama	Ganesh Shanker SHG	Parasnath	Gajanand	Buffalo Keeping
24	Nauriha Kareti	Jai Ma SHG	Vijay Kumar	Desh Raj	Goat Keeping
25	Salempur Urf Maheshpur	Om SHG	Sampoorna nand	Ranjeet	Masala Work
26	Jamal Mau	Shanker SHG	Umesh Kumar	Surendra Kumar	Dairy Work
27	Malak Bhayal	Bajrang Bali SHG	Shakuntla Devi	Pappi	Goat Keeping
28	Baghelapur Uperhar	Baba Saheb SHG	Rambhawan	Ram Pratap	Goat Keeping
29	Kokhraj	Navrat SHG	Navrati	Sahnaj Bano	Goat Keeping
30	Chamandha	Durga SHG	Ashrafi Lal	Hemraj	Dairy Work
31	Nauriha Amad Karari	Bhole SHG	Satya Dev	Ram Lakhan	Goat Keeping
32	Rasulpur Girchha	Vikas SHG	Bharat Lal	Devnath	Dairy Work
33	Ahirara	Shiv SHG	Dasharath	Durga Prasad	Vegetable Work
34	Bidanpur Kakorha	Uma SHG	Sandeep Kumar	Uma Vivesh	Pig Keeping
35	Pawaiyan	Adharsh SHG	Chandra Pal	Ramlotan	Pig Keeping
36	Suhela	Bajrangbali SHG	Suresh	Shanker	Vegetable Work

Table No. 12.1: Details of Self Help Groups (SHGs) in the project area

1	2	3				4				5			6		
S. No.	No. of villages	Total no. of SHGs				No. of members				No. of SC/ST in each category			No. of BPL in each category		
		With only Men	With only Women	With both	Total	Categories	M	F	Total	M	F	Total	M	F	Total
1	66	27	8	1	36	(i) Landless	156	51	207	57	28	85	156	51	207
						(ii) SF	125	38	163	55	11	66	125	38	163
						(iii) MF									
						(iv) LF									
Total	Total	27	8	1	36		281	89	370	112	39	151	281	89	370

S.H.G. SIROHI VILLAGE (LADIES)

S.H.G. PLHANA VILLAGE

S.H.G. CHAKSAEGANJ VILLAGE (LADIES)

S.H.G. CHAKMAHPUR VILLAGE

S.H.G. JALALPUR VILLAGE

S.H.G. ASRAFPUR TALUKA ASDULLAPUR VILLAGE

S.H.G. PATTI PARWAIJABAD VILLAGE

S.H.G. MALAK BHARAT VILLAGE

S.H.G. MALAK RAJAMA VILLAGE

S.H.G. MALAK BHAYAL VILLAGE (LADIES)

S.H.G. MALAK BHAYAL VILLAGE

S.H.G. SAKABARIPUR UPRHAR VILLAGE

S.H.G. DEVBITA VILLAGE

S.H.G. NAURIYA KARETI VILLAGE

S.H.G. RASULPUR GIRCHHA VILLAGE

S.H.G. KHALISHPUR VILLAGE

S.H.G. CHAK JAMAL MAU MUGLANI VILLAGE

USER GROUP:

User Groups (U.G) have constituted of homogeneous groups of persons which are more affected by each work/ related activity and has include those having land holdings within the watershed area.

User Groups are normally formed to manage an activity or asset created under the programme on a long term basis. The user group collect user charges from their members, oversee the works and manage the benefits.

It was decided that each group would formulate certain internal rules and have a feeling of ownership with community spirit.

Table- 13: DETAILS OF USER GROUPS

S.No.	Name Of Micro Watershed	Area Of Micro Watershed Ha	Selected Area For Treatment	No. Of User Group Constituted
1	2B3B2c2a	793.671	400.00	4
2	2B3B2c2d	1138.956	574.00	5
3	2B3B2c1c	1136.836	573.00	5
4	2B3B2c1a	1254.256	632.00	6
5	2B3B2c1b	856.012	432.00	4
6	2C4A1d3b	1365.721	688.00	6
7	2C4A1d3a	1163.820	586.00	5
8	2C4A1d2b	1582.919	798.00	7
9	2C4A1d2a	878.951	443	4
Total		10171.142	5126.00	46

Table-13.1: Details of User Groups

1	2	3				4				5			6		
S. No.	No. of villages	Total no. of UGs				No. of members				No. of SC/ST in each category			No. of BPL in each category		
		Men	Women	Both	Total	Categories	M	F	Total	M	F	Total	M	F	Total
	66	75	-	23	98	(i)Landless									
						(ii) SF	832	22	854	328	7	335	618	22	640
						(iii) MF	961	2	963	428	-	428	-	-	-
						(iv) LF	542	-	542	14	-	14	-	-	-
Total	66	75	-	23	98		2335	24	2359	770	7	777	618	22	640

USERS GROUP VILLAGE SIROHI

USERS GROUP VILLAGE SHAKADA

USERS GROUP VILLAGE PLHANA

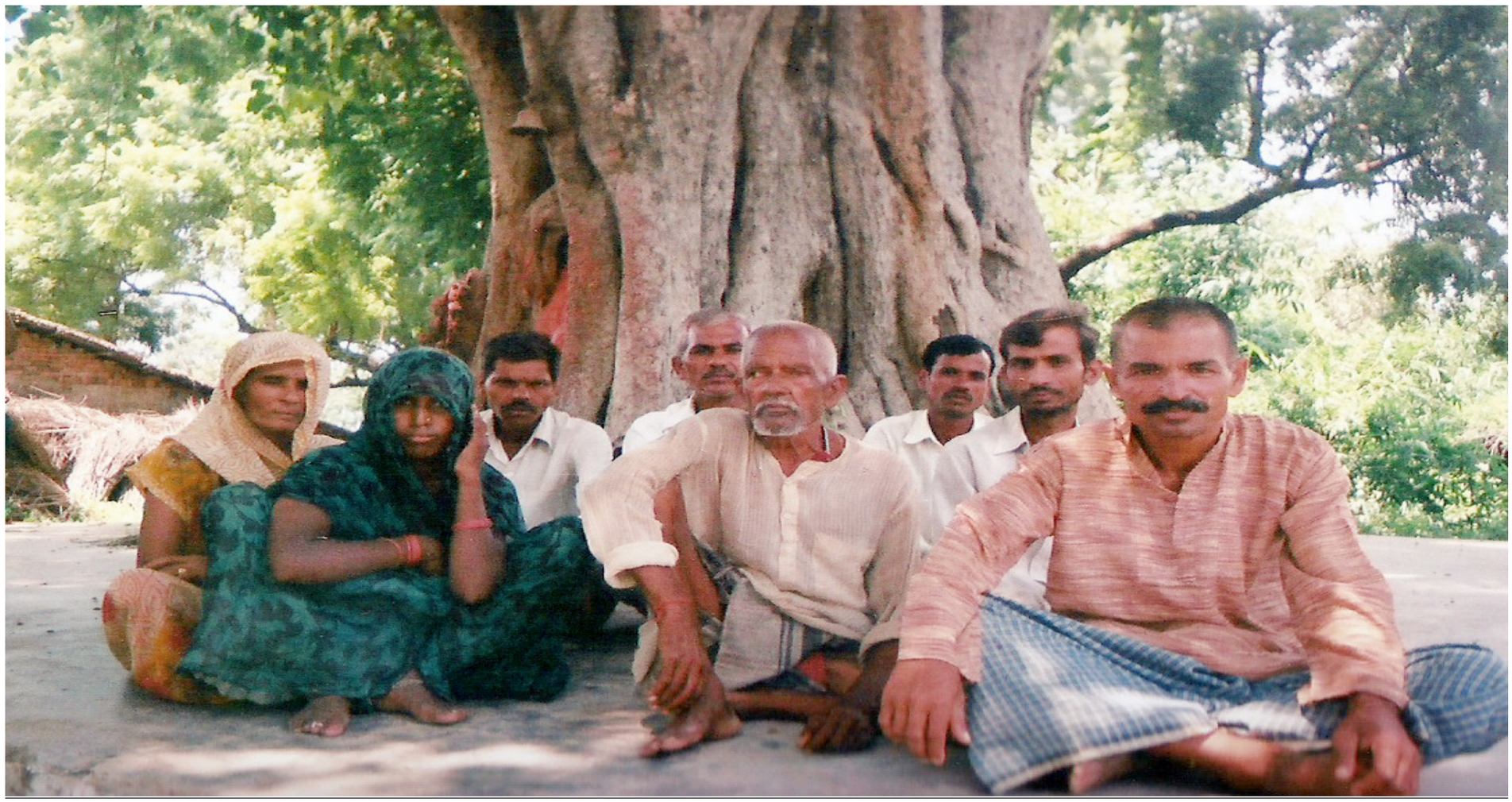
USERS GROUP VILLAGE PLAHANA

USERS GROUP VILLAGE RASULPUR KAGI

USERS GROUP VILLAGE DHANNI

USERS GROUP VILLAGE CHAKSAE GANJ

USERS GROUP VILLAGE PARSARA



USERS GROUP VILLAGE CHAKMAHPUR

USERS GROUP VILLAGE ASRAFPUR TALUKA ASDULLAPUR

USERS GROUP VILLAGE MALAK BHARAT

USERS GROUP VILLAGE MALAK REJAMA

USERS GROUP VILLAGE ARI SUMAIRPUR

USERS GROUP VILLAGE DEVBHITA

USERS GROUP VILLAGE AYAJ MAU

USERS GROUP VILLAGE RASULPUR GIRCHHA

USERS GROUP VILLAGE HISAMPUR PERSHAKHI

USERS GROUP VILLAGE PAWAIYA

USERS GROUP VILLAGE BISARA

USERS GROUP VILLAGE MALAK BHAYAL

USERS GROUP VILLAGE BAGHELPUR UPRHAR

<u>Area and Elevation:</u> Total treatable area of the watershed is 5126.00 ha. Elevation ranges from 98.00 m to 103.00 m above mean sea level. Sixty six villages, namely Shakha,Sirohi Uprhar, Sakada Kachar, Sakda Uprhar, Plhana Uprhar, Rasoolpur Kagi, Dhanni, Baswanpur, Saita, Kasiya, Chaksaeganj, Mohammadpur Aswa, Parsara, Chakmahpur Pandymau, Jalalpur Boriya, Asrafpur taluka Asdullapur, Lalpur, Rasulpur Badlai, Patti Parwaijabad, Mauli, Malak Bharat, Siriyawa Kala, Chaphowa, Ari Sumairpur, Biroli, Bairua, Sakabaripur Uprhar, Sihori Kachar, Malak Rejama, Fatehpur Pershakhi, Devbhita, Roopnarayanpur Shailabi kachhar, Chheraha, Khalishpur, Nauriha Kareti, Salempur Urf Maheshpur, Jamai Mau, Ayaj mau, Malak Bhayal, Chak Jamal Mau Mugani, Chak Shivrajpur, Baghelapur Uperhar, Baghelapur Kachhar Kadeem, Kokraj Uperhar, Chak Chamarupur, Chamandha, Nauriha Amad Karari, Tikar Deeh, Sindhiya Amad karari, Rasulpur Girchha, Rampur Suhela Khas, Ahirara, Bidanpur Kakorha, Hishampur Pershakhi Uparhar, Faridpur, Sallaha, Adahara, Pawaiyan, Rampur Suhela Urf Alipur, Bisara, Ulachupur Uperhar, Ulachupur Kachhar Kadeem, Mahmoodpur Ukaiya, kashiya, Darwaispur and Suhel are the located in the watershed.

<u>Shape:</u> Maximum length and width of the watershed area is 15500 meter and 13500 metre respectively with a length: width ratio is 1.15:1.

<u>Physiography:</u> The watershed is in the Vindhya region having moderate slopes and drains into river Tones And belan. About 50% of the watershed area has slopes up to 1%, 30% area has slopes up to 1% to 2% area has slopes from 2 to 3 %. A number of streams join the main perennial stream of Tones. Total 29 numbers of streams of different order are found in watershed, with total length 30500 meters. Stream characteristics of the watershed are present in the table -14.

TABLE-14: STREAM CHARACTERISTICS OF SELECTED WATERSHED

Stream Order	Stream number	Mean Stream Length(M)
1st order	14	17000
2nd order	03	14500
3rd order	02	1500
4th order	01	1500
Total	**20**	**34500**

Climate: **The watershed lies in the semi-arid region having tropical climate. The average annual precipitation is 474 mm Most of the annual rain fall (about 90%) is received during the rainy season (July to September) accompanied with high intensity storm. The temperature in the area rarely goes up to 47°c during summer and reaches 15°c in winter.**

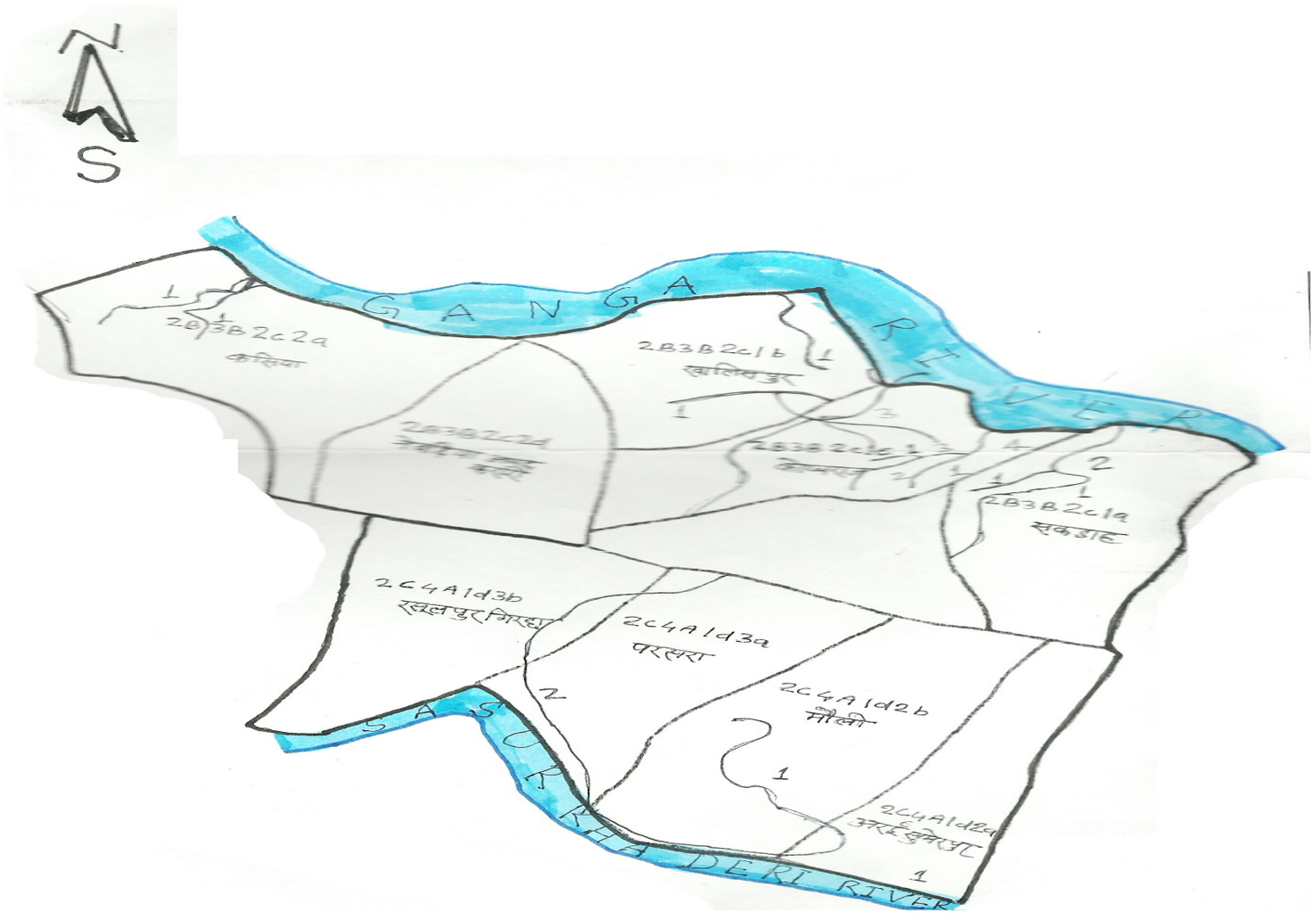
GEOMORPHOLOGY AND SOILS

Geomorphology: The area lies in the South side middle of District- Koushambi of Vindhya region. The soil is mainly clay soil which is easily transportable after detaching cousing soil erosion.

Soils: In the watershed area mainly four types of soil named. Mar, Kaber, Padawa & Rocker which are the main soil type of Upper Gangatic Plain Region. Main crops are pulces who need more phosphorous. Therefore deficiency of phosphorous is in this area.

<u>Drainage:</u> due to moderate to steep slopes and presence of a number of drainage lines, drainage is adequate. The watershed forms part of Upper Ganga basin.

DRAINAGE MAP OF WATERSHED



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 occurance of Neem, Mango, Guava, Lemon, Amla, Mahua and Shisham. There is no reserve pasture land 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, whose frequency is less than one tree per running length of 100 m.

HUMAN POPULATION

Human Population: **The total population of the villages of the watershed is 122564 with average family size of 5 persons. Detail attached in Table-15.** **Table-15**

S.No.	Name of Village	No_HH	TOT_P	TOT_M	TOT_F	P_SC	M_SC	F_SC
1	Shakha	666	3949	2147	1802	1205	646	559
2	Sihori Uprhar	211	1327	702	625	150	75	75
3	Sakada Kachar	0	0	0	0	0	0	0
4	Sakda Uprhar	214	1349	674	675	260	140	120
5	Plhana Uprhar	867	5126	2668	2458	902	455	447
6	Rasoolpur Kagi	252	1534	807	727	525	285	240
7	Dhanni	450	2583	1368	1215	685	372	313
8	Basawanpur	80	397	210	187	376	194	182
9	Saita	481	2761	1481	1280	1220	643	577
10	Kasiya	1009	6033	3227	2806	1744	934	810
11	Chaksae Ganj	211	1254	666	588	730	390	340
12	Mohammdpur Aswa	305	1801	897	904	1018	516	502
13	Parsara	472	2370	1259	1111	1048	553	495
14	Chakmahpur Pandymau	459	2813	1525	1288	1055	562	493
15	Jalalpur Boriya	368	2049	1039	1010	856	408	448
16	Asrafpur Taluka Asdullapur	448	2587	1360	1227	933	496	437
17	Lalapur	137	822	425	397	223	110	113
18	Rasulpur Badlai	626	3511	1891	1620	1408	765	643
19	Patti Parwaijabad	768	4727	2514	2213	2326	1261	1065
20	Mauli	475	2421	1266	1155	1186	608	578
21	Malak Bharat	287	1544	803	741	548	291	257
22	Siriyawa Kala	377	2043	1077	966	980	500	480
23	Chaphowa	215	1193	630	563	669	348	321
24	Ari Sumairpur	362	2109	1127	982	851	436	415
25	Biroli	299	1841	962	879	1258	662	596

26	Bairua	252	1527	836	691	529	279	250
27	Sakabaripur Uprhar	267	1646	881	765	484	259	225
28	Sihori Kachar	0	0	0	0	0	0	0
29	Malak Rejama	217	1128	620	508	351	170	181
30	Fatehpur Pershakhi	150	810	403	407	163	84	79
31	Devbita	115	718	367	351	296	149	147
32	Roopnarayanpur Shailabi Kachha	0	0	0	0	0	0	0
33	Chheraha	24	178	101	77	50	31	19
34	Khalishpur	85	474	231	243	198	88	110
35	Nauriha Kareti	160	883	463	420	348	172	176
36	Salempur Urf Maheshpur	132	747	393	354	289	159	130
37	Jamal Mau	180	1089	553	536	438	225	213
38	Ayaj Mau	61	345	185	160	16	10	6
39	Malak Bhayal	242	1217	592	625	913	438	475
40	Chak Jamal Mau Muglani	0	0	0	0	0	0	0
41	Chak Shivrajpur	32	168	77	91	0	0	0
42	Baghelapur Uperhar	128	812	423	389	390	205	185
43	Baghelapur Kachhar Kadeem	0	0	0	0	0	0	0
44	Kokhraj Uperhar	1673	8771	4518	4253	4465	2273	2192
45	Chak Chamarupur Lathpur Koh	146	819	428	391	446	230	216
46	Chamandha	742	4320	2298	2022	1664	885	779
47	Nauriha Amad Karari	543	3370	1820	1550	1753	934	819
48	Tikar Deeh	492	2837	1500	1337	1642	856	786
49	Sindhiya Amad Karari	388	2473	1323	1150	985	526	459
50	Rasulpur Girchha	346	2190	1204	986	1035	559	476
51	Rampur Suhela Khas	417	2506	1336	1170	1184	640	544
52	Ahirara	501	2488	1359	1129	469	257	212
53	Bidanpur Kakorha	614	3468	1802	1666	1427	730	697
54	Hishampur Pershakhi Uparhar	492	2707	1424	1283	598	302	296

55	Faridpur	59	399	207	192	107	55	52
56	Sallaha	87	443	210	233	363	169	194
57	Adahara	366	2270	1186	1084	934	478	456
58	Pawaiyan	171	1034	539	495	564	293	271
59	Rampur Suhela Urf Alipur	105	660	329	331	338	179	159
60	Bisara	777	4601	2417	2184	2753	1427	1326
61	Ulachupur Uperhar	122	702	361	341	279	144	135
62	Ulachupur Kachhar Kadeem	0	0	0	0	0	0	0
63	Mahmoodpur Ukaiya	37	260	133	127	124	58	66
64	Kashiya	1081	5775	3091	2684	2693	1437	1256
65	Darwaispur	85	585	316	269	75	43	32
Total		21328	122564	64651	57913	50519	26394	24125

LIVE STOCK POPULATION

Live Stock Population: **Total live stock population of the watershed is 93255. Cow is preferred as milch animal compare to buffalo 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 given in table- 16.**

Table-16: LIVE STOCK POPULATION

S.No.	Watershed Code	Buffalo	Cow	Ox	Pig	Sheep	Goat	Hen	Camel
1	2B3B2c2a	1440	1335	360	1674	875	3830	306	5
2	2B3B2c2d	1996	699	138	1020	75	3710	1630	-
3	2B3B2c1c	3287	1482	191	765	200	6225	3630	-
4	2B3B2c1a	1940	865	220	240	175	3015	3780	-
5	2B3B2c1b	2130	925	245	1600	40	3033	4000	-
6	2C4A1d3b	1415	645	312	845	520	3260	200	-
7	2C4A1d3a	428	245	220	770	250	2300	320	-
8	2C4A1d2b	1980	1075	294	1682	475	4021	2225	-
9	2C4A1d2a	1109	455	165	455	725	7265	1605	-
Total		15725	7726	2145	9051	3339	37568	17696	5

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.**

Infrastructure Social Features: The watershed has moderate communication facilities and all 66 villages are approachable through motorable road. Literacy rate in the watershed is very low because except some village, all villages are having education facilities up to Junior High School. All the villages are electrified and have telephonic connection. Out of 66 villages television is available mostly villages. Nearest small market is Kokhraj, Muratganj, Bharwari and district headquarter Koushambi. 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.

Means of Communication: The watershed can approached from three main roads

1- **Allahabad Kanpur National Highway.**
2- **Muratganj to Manjanpur and Karari through Bharwari.**
3- **Kokhraj to manjhanpur and Karari through Bharwari.**

Natural Resource Base: Total rainfed area under watershed is 5696.00 ha at present land under agriculture use total 6945.00 ha. Main source of irrigation are private tube wells and seasonal water bodies for pre-sowing irrigation only.

Importance of Development Institution: **In the Venn diagram, farmer's perception was recorded for importance and role of different development institutions is relation to infrastructure development in the villages.**

Livelihood: Out of the total population 122564 in the watershed, farming is the major source of livehood for more than 70% off population and 25% population are labours and Balance are 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 form cow dung cake, woody stem of Arhar crop and Mustard. About 70 to 75 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. Fuel wood is obtained from the forest which is situated in the Block-Muratganj, Sirathu, Manjanpur & Kada.

(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-December, 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. Therefore other source off generating income should planned to reduce the migration of labours.

Crop Calendar: **The present crop calendar in the watershed comprises of fallow-gram, fallow-lentil, fallow-wheat, Arhar-Jawar mixed cropping, paddy-wheat, Til-wheat, fallow-Potato, 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. There is lack of cultivation of crop other than gram lentil and muster in the watershed.**

Farmers Preferences

Fruit Trees: **Farmers preferences for fruit trees are solicited in terms of attributes like production, market availability and timber wood value. Overall, Amla, Guava, Ber, Lemon, Papaya 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, Lentil, Jowar + Arhar, Bajra, are the most preferred agricultural crop in the watershed followed by wheat and paddy.**

Historical Time Line: **The Historical Timeline is the chronological record of important events in the history of a village which is useful in understanding its background in the context of watershed development. Historical time line depicting important events in respect of different villages of the watershed has prepared through PRA "Historical timeline" of the selected village are attached from Pg.no. 96 – 111.**

HISTORICAL TIMELINE VILLAGE-WISE OF I.W.M.P. Ist

Village Asharfpur Taluka Asdullapur		Village Sihori	
Year	**Activity**	**Year**	**Activity**
1796	Village was established.	1802	Village was established. .
1997	Construction of First Road.	1974	First Radio was purchased .
1975	First Radio was purchased in the village	1991	First Motorbike was purchased .
1968	First Cycle was purchased in this village.	1993	First Tractor was purchased .
1977	First Tubewell was established in this village .	1998	First road was constructed.
1998	Village was Electrified.	1998	Village was Electrified.

Village Sakda		Village Plhana	
Year	Activity	Year	Activity
1858	Village was established.	1810	Village was established.
1997	Construction of First Road.	1998	Construction of First Road.
1981	First Radio was purchased in the village.	1979	First Radio was purchased.
1993	First Motorbike was purchased in this village.	1991	First Motorbike was purchased .
1981	First Tractor was purchased in this village.	1979	First Tractor was purchased.
1997	Village was Electrified.	1998	Village was Electrified.

Village Rasulpur Kagi		Village Dhanni	
Year	Activity	Year	Activity
1798	Village was established,	1812	Village was established,
1996	Construction of First Road.	1998	Construction of First Road.
1984	First Radio was purchased in the village.	1985	First Radio was purchased
1993	First Motorbike was purchased in this village.	1990	First Motorbike was purchased
1983	First Tractor was purchased in this village .	1981	First Tractor was purchased
1998	Village was Electrified.	1997	Village was Electrified.

Village Basawanpur		Village Saita	
Year	Activity	Year	Activity
1786	Village was established,	1843	Village was established,
1997	First road was constructed.	1996	First road was constructed.
1993	First Motorbike was purchased in this village.	1992	First Motorbike was purchased .
1979	First Tractor was purchased in this village.	1980	First Tractor was purchased .
1996	Village was Electrified.	1998	Village was Electrified.

Village Kashia		Village Chakshae Ganj	
Year	Activity	Year	Activity
1782	Village was established,	1812	Village was established,
1996	Construction of First Road.	1998	First road was constructed.
1987	First Radio was purchased in this village.	1990	First Radio was purchased .
1989	First Motorbike was purchased in this village .	1991	First Motorbike was purchased .
1979	First Tractor was purchased in this village.	1989	First Tractor was purchased.
1997	Village was Electrified.	1998	Village was Electrified.

Village Mohammadpur Aswa		Village Parsara	
Year	Activity	Year	Activity
1785	Village was established,	1796	Village was established,
1986	First Radio was purchased in the village .	1987	First Radio was purchased.
1993	First Tractor was purchased.	1996	First Television was purchased .
1991	First Motorbike was purchased in this village.	1993	First Motorbike was purchased .
1996	Village was Electrified.	1998	First Tractor was purchased.

Village Chakmahpur		Village Jalalpur	
Year	Activity	Year	Activity
1856	Village was established,	1793	Village was established,
1997	Construction of First Road.	1976	First Radio was purchased .
1980	First Radio was purchased in the village .	1987	First Motorbike was purchased
1985	First Television was purchased in this village.	1980	First Tractor was purchased.
1970	First Motorbike was purchased in this village.	1997	Village was Electrified.
1975	First Tractor was purchased in this village .	1998	First road was constructed.

Village Asrafpur Taluka Asdullahpur		Village Lalpur	
Year	Activity	Year	Activity
1803	Village was established.	1865	Village was established,
1997	Construction of First Road.	1987	First Radio was purchased
1979	First Radio was purchased in the village.	1989	First Television was purchased .
1987	First Motorbike was purchased in this villagel.	1981	First Tractor was purchased .
1981	First Tractor was purchased in this village.	1997	Village was Electrified.
1997	Village was Electrified.	1996	First road was constructed.

Village Rasulpur Badlai		Village Patti Parwejabad	
Year	Activity	Year	Activity
1792	Village was established,	1798	Village was established,
1997	Construction of First Road.	1985	First Radio was purchased.
1995	First Television was purchased .	1993	First Television was purchased .
1979	First Tractor was purchased .	1976	First Tractor was purchased
1996	Village was Electrified.	1998	Village was Electrified.
		1997	First road was constructed.

Village Mouli		Village Malak Bharat	
Year	Activity	Year	Activity
1802	Village was established,	1787	Village was established,
1997	Construction of First Road.	1981	First Radio was purchased.
1995	First Television was purchased .	1991	First Television was purchased .
1979	First Tractor was purchased.	1986	First Tractor was purchased
1997	Village was Electrified.	1998	Village was Electrified.
		1998	First road was constructed.

Village Siriyawa Kala		Village Chaphowa	
Year	Activity	Year	Activity
1794	Village was established,	1861	Village was established,
1997	Construction of First Road.	1985	First Radio was purchased.
1993	First Television was purchased .	1992	First Television was purchased.
1982	First Tractor was purchased .	1979	First Tractor was purchased.
1996	Village was Electrified.	1997	Village was Electrified.
		1997	First road was constructed.

Village Ari Sumerpur		Village Biroli	
Year	Activity	Year	Activity
1793	Village was established.	1801	Village was established,
1997	Construction of First Road.	1979	First Radio was purchased .
1979	First Radio was purchased in the village.	1991	First Television was purchased .
1990	First Television was purchased in this village.	1981	First Tractor was purchased .
1990	First Motorbike was purchased in this villagel.	1998	Village was Electrified.
1996	Village was Electrified.	1998	First road was constructed.

Village Bairua		Village Sakabaripur	
Year	Activity	Year	Activity
1793	Village was established,	1794	Village was established,
1997	Construction of First Road.	1978	First Radio was purchased.
1991	First Television was purchased .	1993	First Television was purchased .
1978	First Tractor was purchased .	1976	First Tractor was purchased
1996	Village was Electrified.	1998	Village was Electrified.
		1996	First road was constructed.

Village Malak Rejama		Village Fatehpur Parshakhi	
Year	Activity	Year	Activity
1803	Village was established.	1792	Village was established,
1996	Construction of First Road.	1979	First Radio was purchased.
1978	First Radio was purchased in the village.	1991	First Television was purchased .
1992	First Motorbike was purchased in this village.	1982	First Tractor was purchased .
1981	First Tractor was purchased in this village.	1996	Village was Electrified.
1996	Village was Electrified.	1998	First road was constructed.

Village Devbhita		Village Roopnarainpur Shailabi	
Year	Activity	Year	Activity
1803	Village was established,	1793	Village was established,
1998	Construction of First Road.	1976	First Radio was purchased.
1995	First Television was purchased .	1993	First Television was purchased .
1978	First Tractor was purchased .	1976	First Tractor was purchased
1998	Village was Electrified.	1997	Village was Electrified.
		1997	First road was constructed.

Village Chheraha		Village Khailshpur	
Year	Activity	Year	Activity
1804	Village was established.	1792	Village was established,
1997	Construction of First Road.	1979	First Radio was purchased .
1981	First Radio was purchased in the village.	1989	First Television was purchased .
1990	First Television was purchased in this village.	1981	First Tractor was purchased .
1989	First Motorbike was purchased in this village.	1998	Village was Electrified.
1982	First Tractor was purchased in this village.	1998	First road was constructed.
1997	Village was Electrified.		

Village Nauria Kareti		Village Salempur urf Maheshpur	
Year	Activity	Year	Activity
1782	Village was established,	1778	Village was established,
1996	Construction of First Road.	1981	First Radio was purchased.
1989	First Television was purchased .	1993	First Television was purchased .
1976	First Tractor was purchased .	1981	First Tractor was purchased
1998	Village was Electrified.	1997	Village was Electrified.
		1979	First road was constructed.

Village Jamal Mau		Village Ayaj Mau	
Year	Activity	Year	Activity
1863	Village was established.	1862	Village was established,
1997	Construction of First Road.	1982	First Radio was purchased.
1979	First Radio was purchased in the village.	1989	First Television was purchased .
1990	First Television was purchased in this village.	1981	First Tractor was purchased .
1987	First Motorbike was purchased in this village.	1997	Village was Electrified.
1979	First Tractor was purchased in this village.	1998	First road was constructed.
1998	Village was Electrified.		

Village Malak Bhayal		Village Chak Jamal Mau Muglani	
Year	Activity	Year	Activity
1863	Village was established,	1868	Village was established,
1997	Construction of First Road.	1979	First Radio was purchased.
1989	First Television was purchased .	1993	First Television was purchased .
1978	First Tractor was purchased .	1976	First Tractor was purchased
1980	Village was Electrified.	1982	Village was Electrified.
		1979	First road was constructed.

Village Chak Shivrajpur		Village Baghelapur	
Year	Activity	Year	Activity
1821	Village was established.	1829	Village was established,
1996	Construction of First Road.	1977	First Radio was purchased.
1978	First Radio was purchased in the village.	1989	First Television was purchased .
1990	First Television was purchased in this village.	1981	First Tractor was purchased .
1987	First Motorbike was purchased in this village.	1996	Village was Electrified.
1981	First Tractor was purchased in this village.	1997	First road was constructed.
1997	Village was Electrified.		

Village Baghelapur Kadeem		Village Kokhraj	
Year	Activity	Year	Activity
1789	Village was established,	1792	Village was established,
1997	Construction of First Road.	1978	First Radio was purchased.
1989	First Television was purchased .	1993	First Television was purchased .
1982	First Tractor was purchased .	1979	First Tractor was purchased
1996	Village was Electrified.	1997	Village was Electrified.
		1998	First road was constructed.

Village Chak Chamarupur		Village Chamandha	
Year	Activity	Year	Activity
1793	Village was established.	1786	Village was established,
1998	Construction of First Road.	1978	First Radio was purchased.
1979	First Radio was purchased in the village.	1991	First Television was purchased .
1990	First Television was purchased in this village.	1981	First Tractor was purchased .
1987	First Motorbike was purchased in this village.	1996	Village was Electrified.
1982	First Tractor was purchased in this village.	1980	First road was constructed.
1997	Village was Electrified.		

Village Nauriha Ahmed Karari		Village Tiker Deeh	
Year	Activity	Year	Activity
1773	Village was established,	1823	Village was established,
1998	Construction of First Road.	1978	First Radio was purchased.
1988	First Television was purchased .	1993	First Television was purchased .
1976	First Tractor was purchased .	1975	First Tractor was purchased
1998	Village was Electrified.	1997	Village was Electrified.
		1979	First road was constructed.

Village Sindhiya Ahmed Karari		Village Rasulpur Girchha	
Year	Activity	Year	Activity
1784	Village was established.	1792	Village was established,
1996	Construction of First Road.	1978	First Radio was purchased.
1979	First Radio was purchased in the village.	1989	First Television was purchased .
1990	First Television was purchased in this village.	1982	First Tractor was purchased .
1987	First Motorbike was purchased in this village.	1997	Village was Electrified.
1979	First Tractor was purchased in this village.	1998	First road was constructed.
1998	Village was Electrified.		

Village Rampur Suhela Khas		Village Ahirara	
Year	Activity	Year	Activity
1816	Village was established,	1823	Village was established,
1996	Construction of First Road.	1982	First Radio was purchased.
1995	First Television was purchased .	1993	First Television was purchased .
1978	First Tractor was purchased .	1976	First Tractor was purchased
1997	Village was Electrified.	1998	Village was Electrified.
		1997	First road was constructed.

Village Bidanpur Kakorha		Village Hishampur Pershakhi	
Year	Activity	Year	Activity
1793	Village was established.	1792	Village was established,
1997	Construction of First Road.	1976	First Radio was purchased.
1979	First Radio was purchased in the village.	1991	First Television was purchased .
1992	First Television was purchased in this village.	1981	First Tractor was purchased .
1987	First Motorbike was purchased in this village.	1996	Village was Electrified.
1979	First Tractor was purchased in this village.	1997	First road was constructed.
1998	Village was Electrified.		

Village Faridpur		Village Sallaha	
Year	Activity	Year	Activity
1803	Village was established,	1797	Village was established,
1998	Construction of First Road.	1986	First Radio was purchased.
1995	First Television was purchased .	1993	First Television was purchased .
1975	First Tractor was purchased .	1976	First Tractor was purchased
1997	Village was Electrified.	1997	Village was Electrified.
		1997	First road was constructed.

Village Adahara		Village Pawaiya	
Year	Activity	Year	Activity
1794	Village was established.	1812	Village was established,
1998	Construction of First Road.	1979	First Radio was purchased.
1979	First Radio was purchased in the village.	1989	First Television was purchased .
1993	First Television was purchased in this village.	1981	First Tractor was purchased .
1997	First Motorbike was purchased in this village.	1996	Village was Electrified.
1984	First Tractor was purchased in this village.	1997	First road was constructed.
1997	Village was Electrified.		

Village Rampur Suhela urf Alipur		Village Bisara	
Year	Activity	Year	Activity
1802	Village was established,	1809	Village was established,
1997	Construction of First Road.	1978	First Radio was purchased.
1997	First Television was purchased .	1998	First Television was purchased .
1982	First Tractor was purchased .	1984	First Tractor was purchased
1997	Village was Electrified.	1998	Village was Electrified.
		1998	First road was constructed.

Village Ulachupur Uparhar		Village Mahmoodpur Ukaiya	
Year	Activity	Year	Activity
1811	Village was established.	1793	Village was established,
1996	Construction of First Road.	1972	First Radio was purchased.
1979	First Radio was purchased in the village.	1997	First Television was purchased .
1996	First Television was purchased in this village.	1978	First Tractor was purchased .
1993	First Motorbike was purchased in this village.	1997	Village was Electrified.
1980	First Tractor was purchased in this village.	1998	First road was constructed.
1996	Village was Electrified.		

Village Kasia		Village Darwaishpur	
Year	Activity	Year	Activity
1791	Village was established,	1799	Village was established,
1998	Construction of First Road.	1982	First Radio was purchased.
1993	First Television was purchased .	1993	First Television was purchased .
1978	First Tractor was purchased .	1976	First Tractor was purchased
1998	Village was Electrified.	1997	Village was Electrified.
		1998	First road was constructed.

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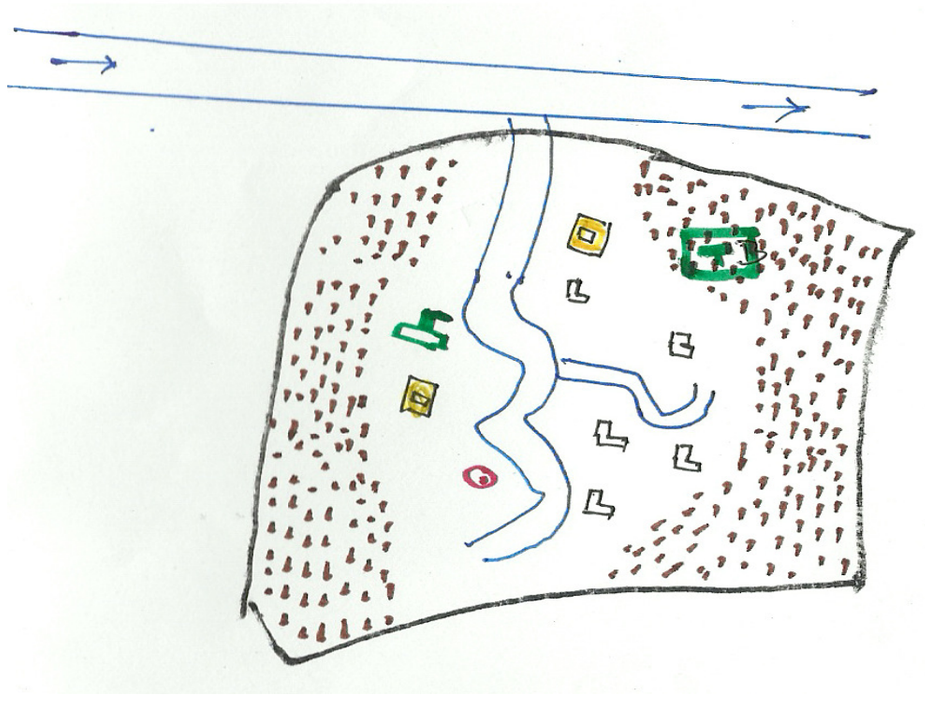

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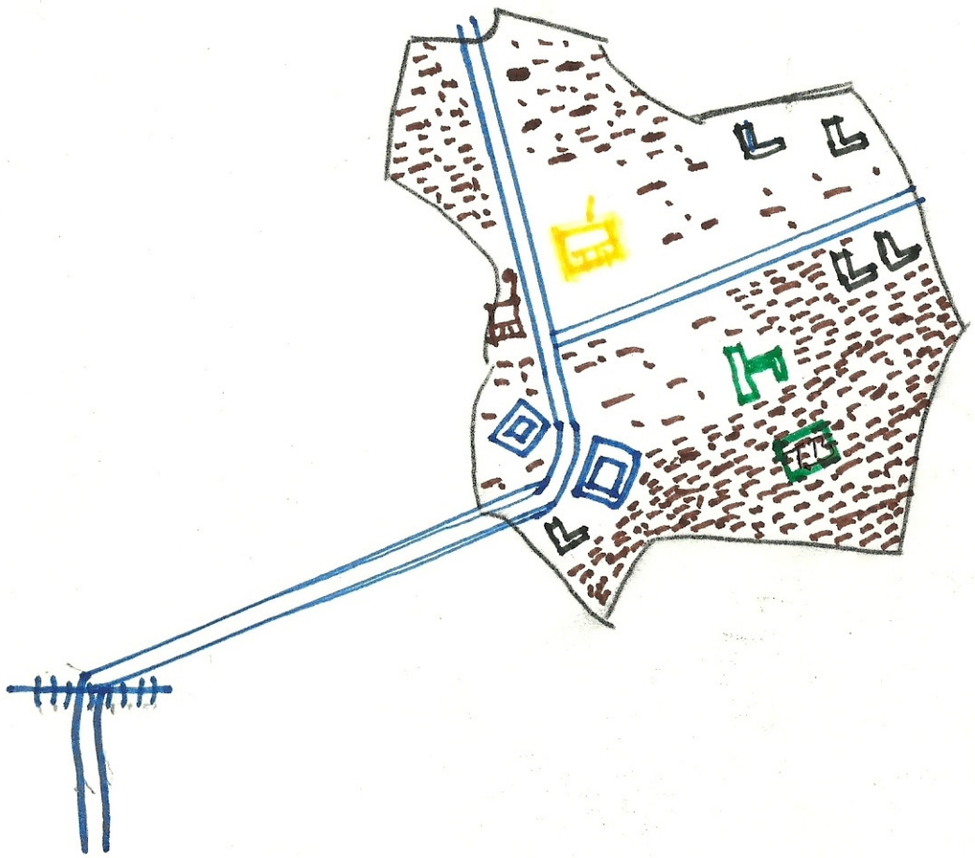

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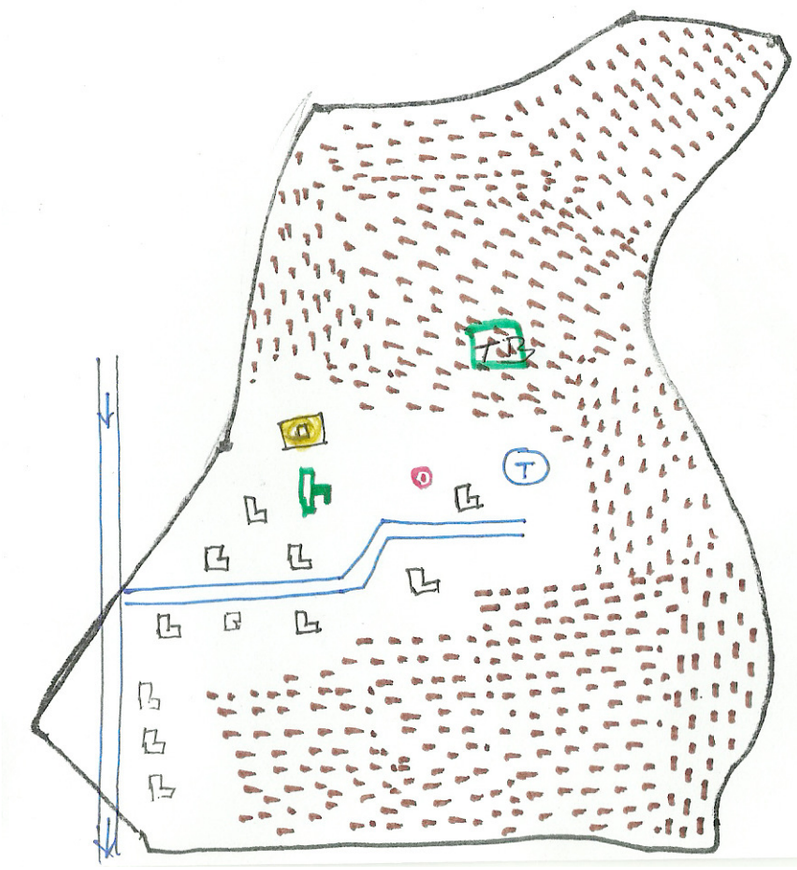

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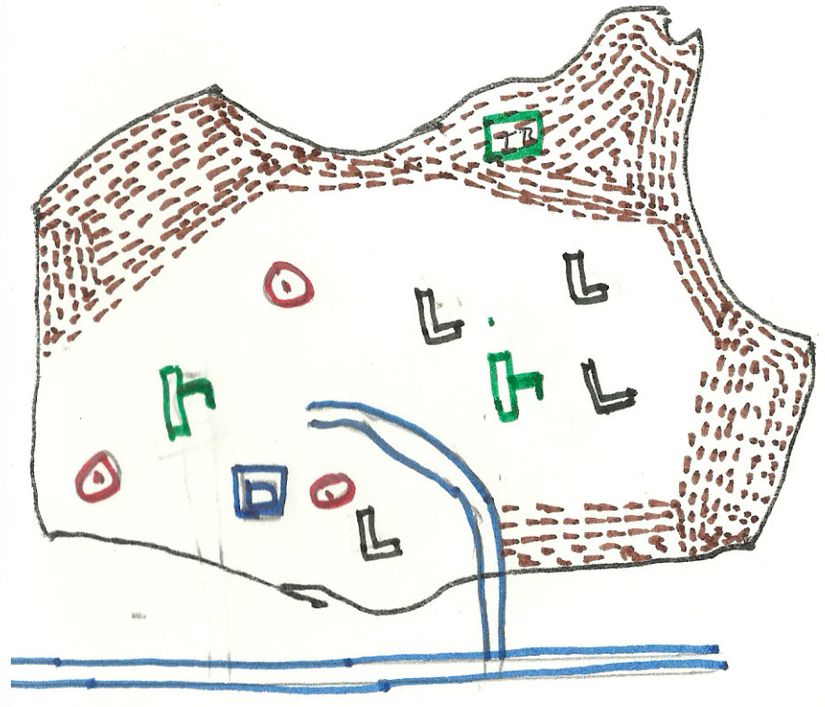

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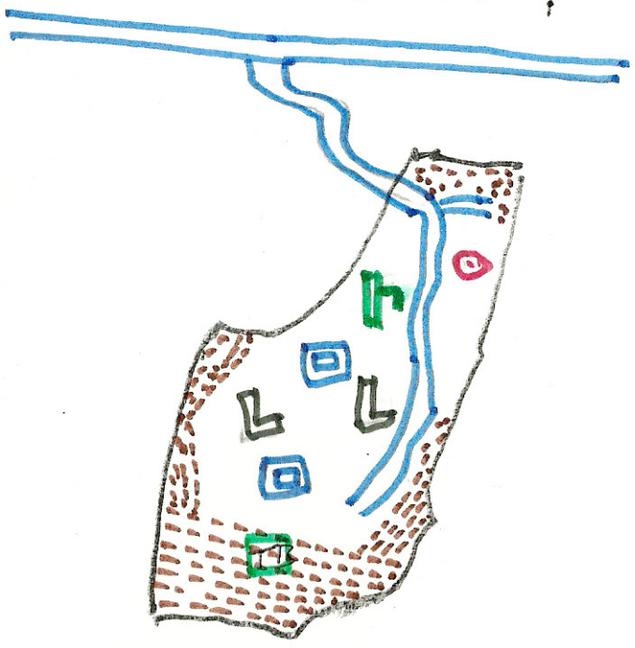

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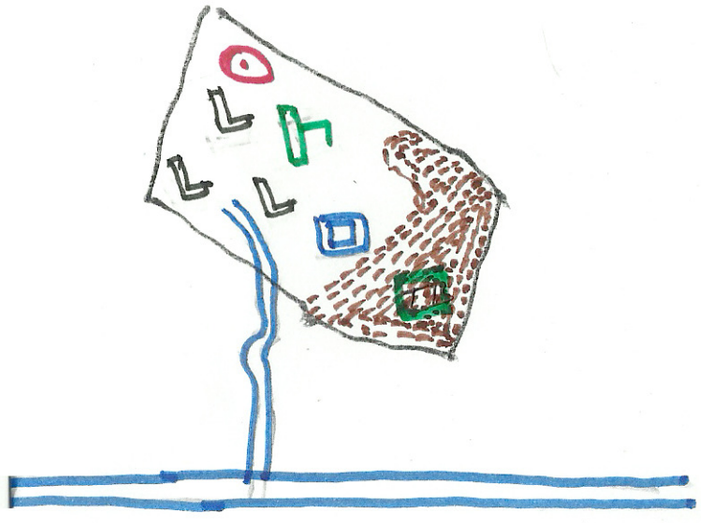

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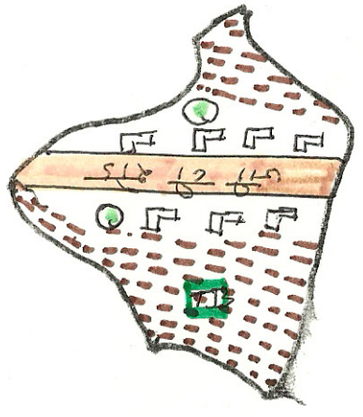

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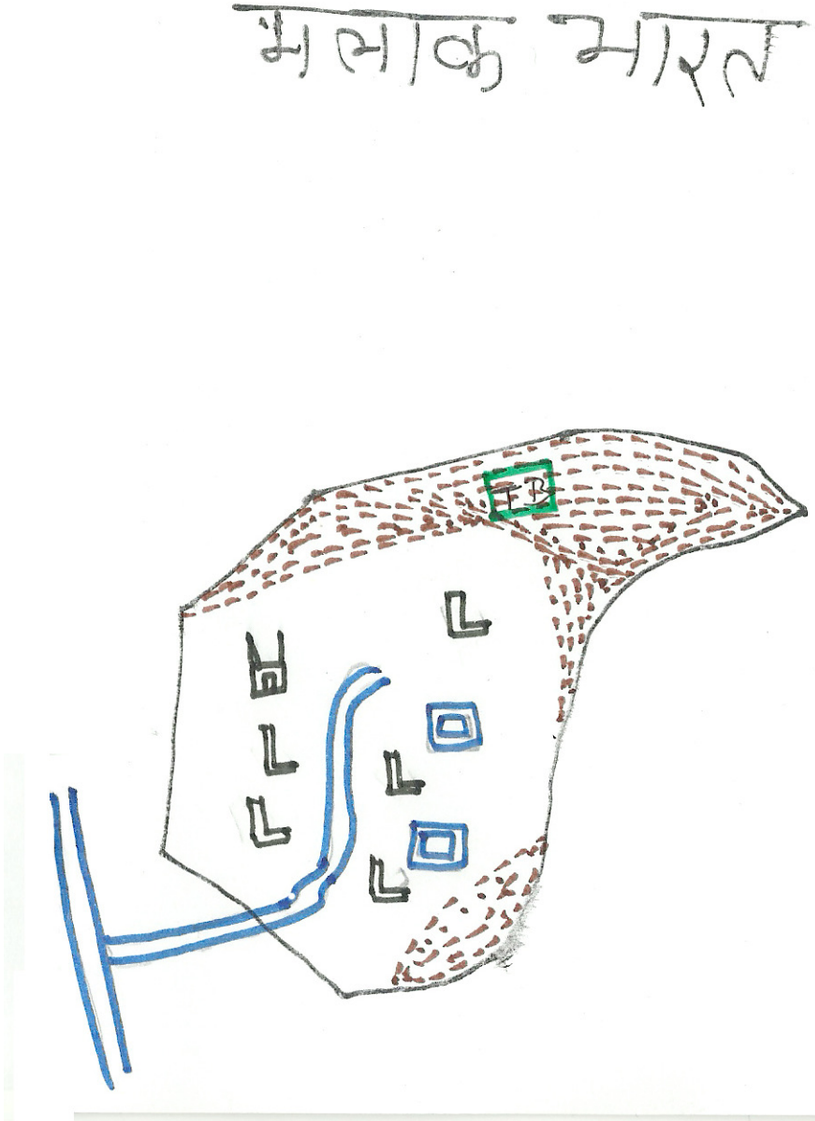

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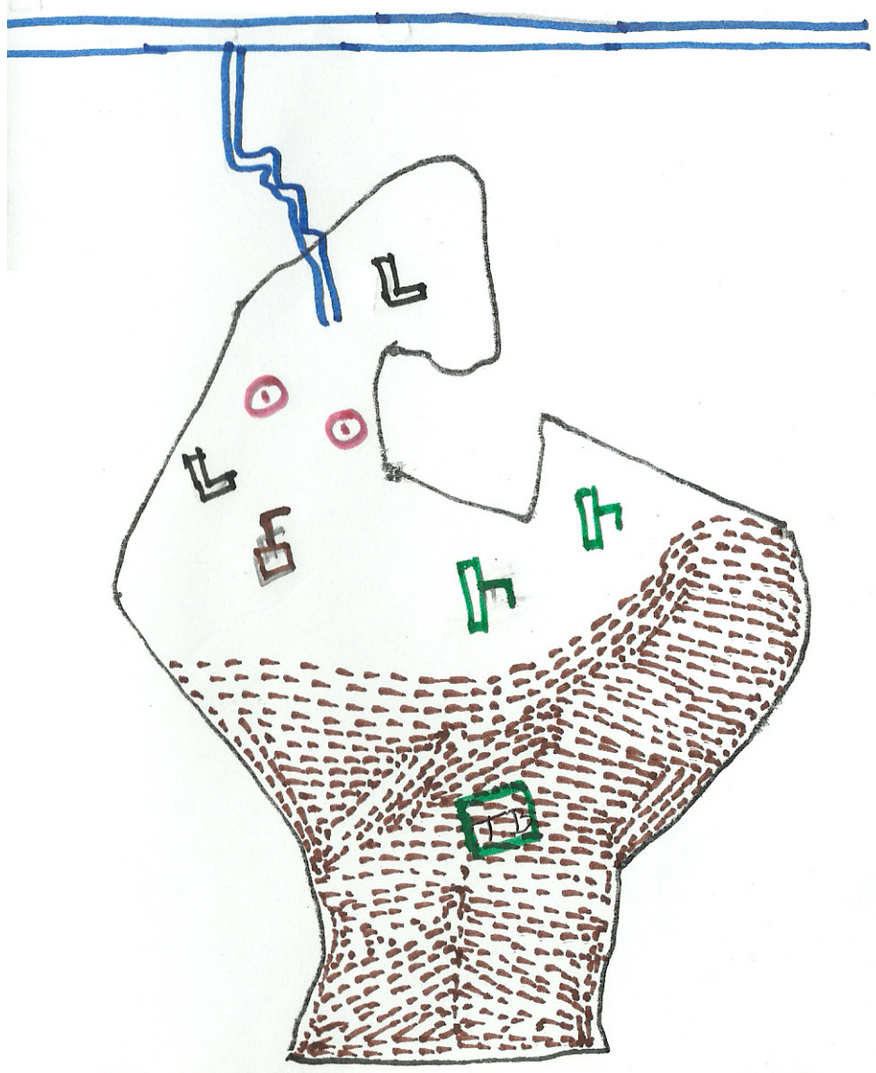

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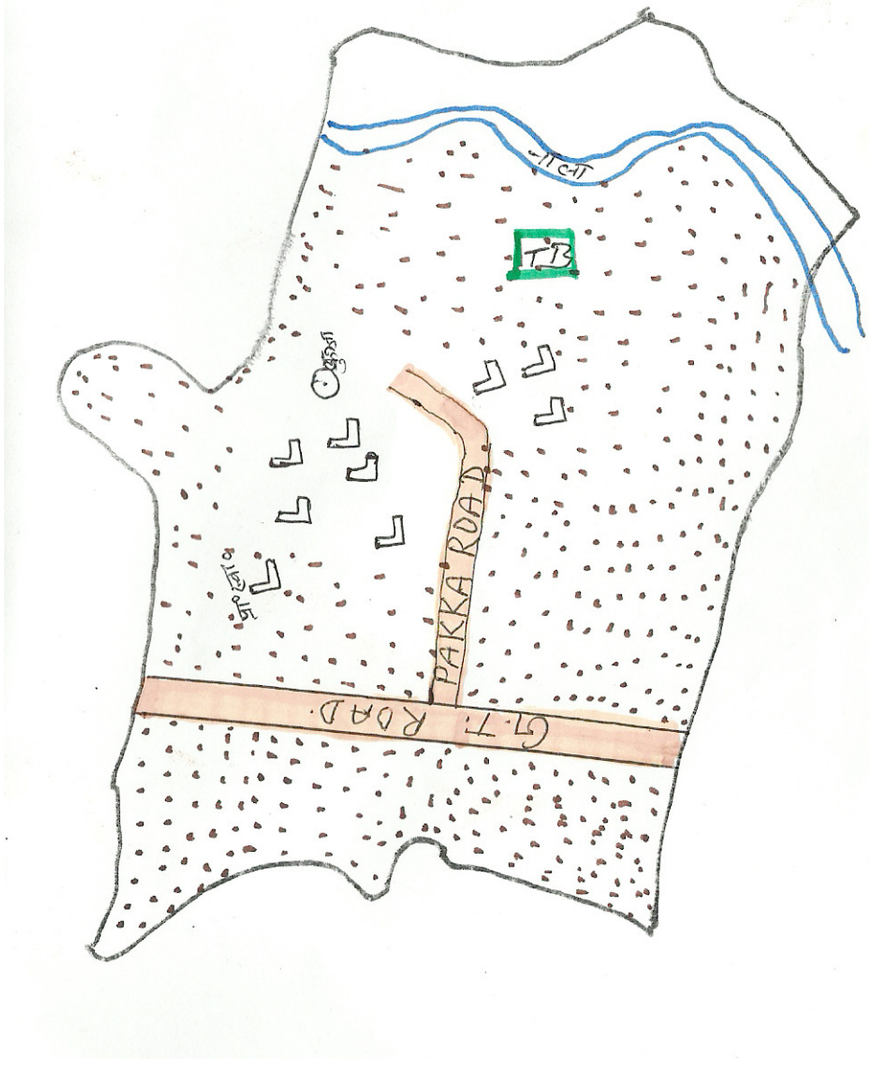

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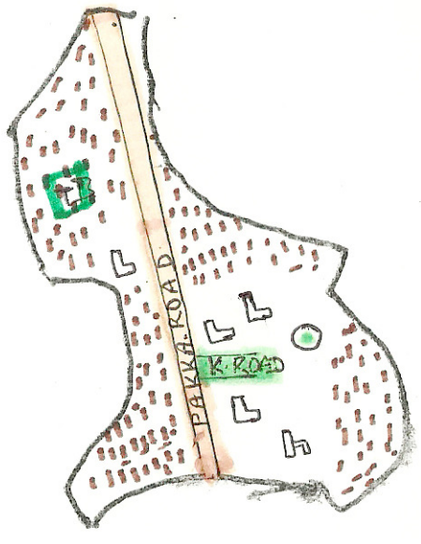

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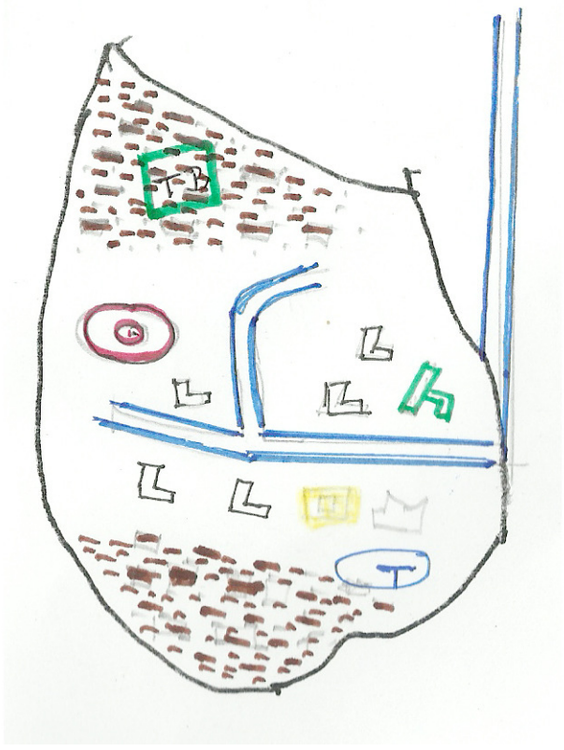

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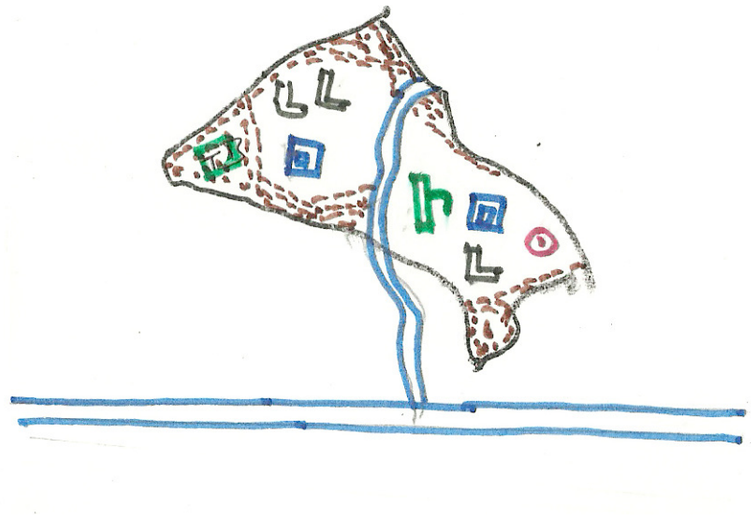

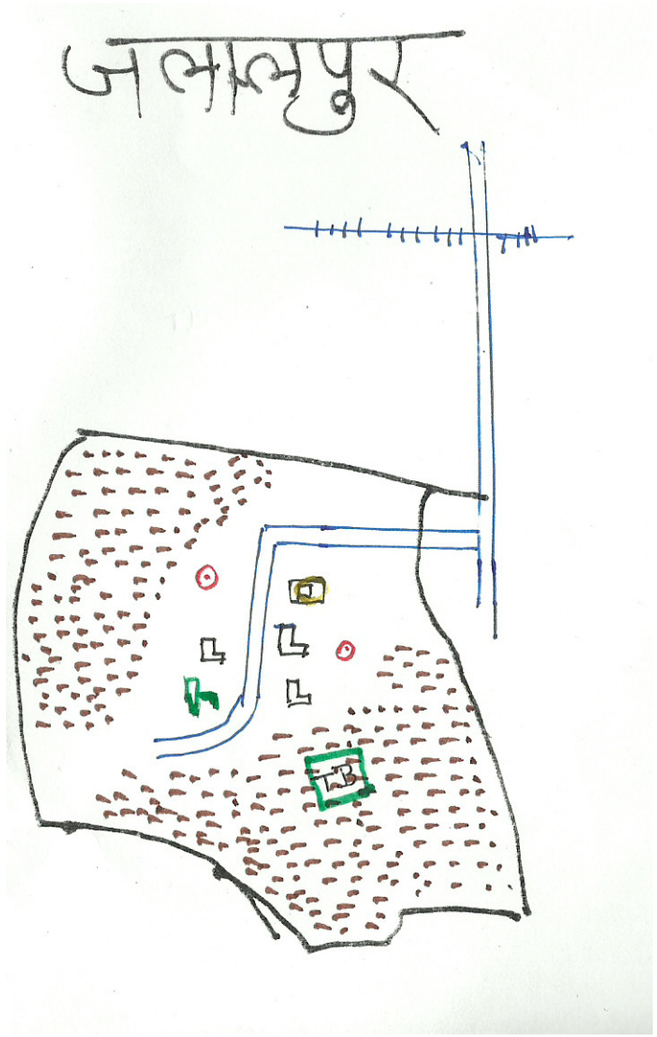
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परसा की
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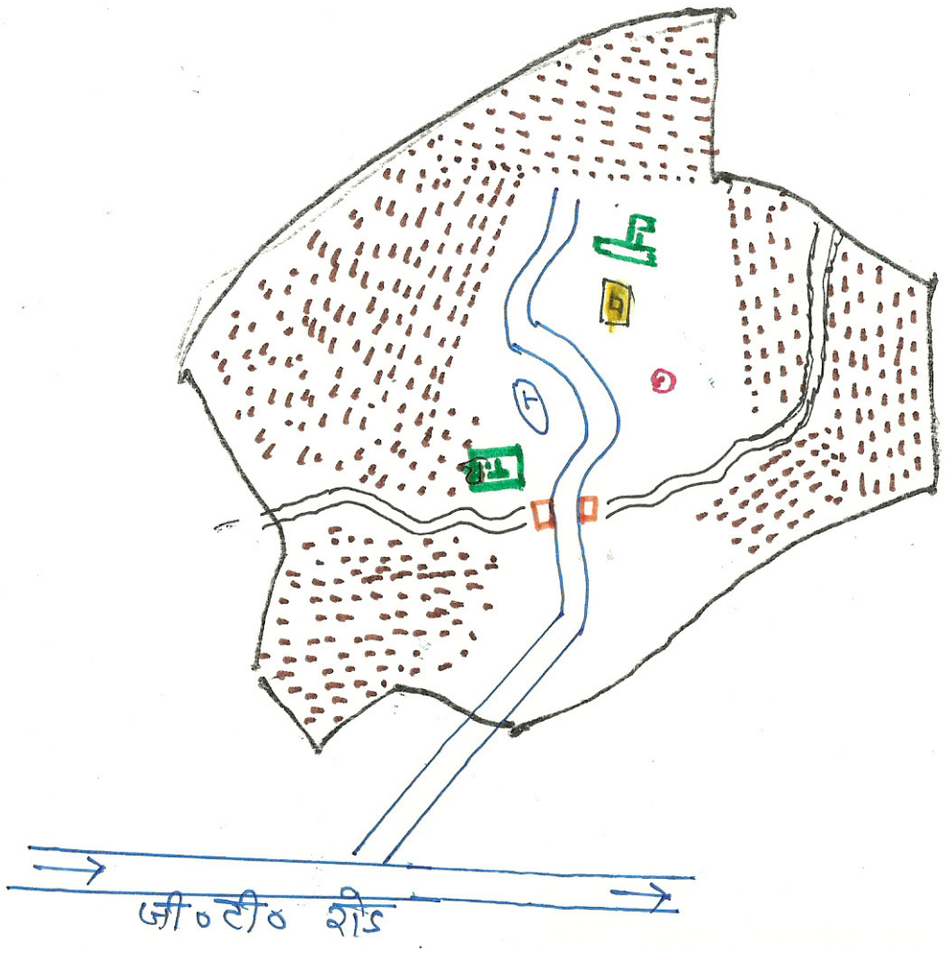

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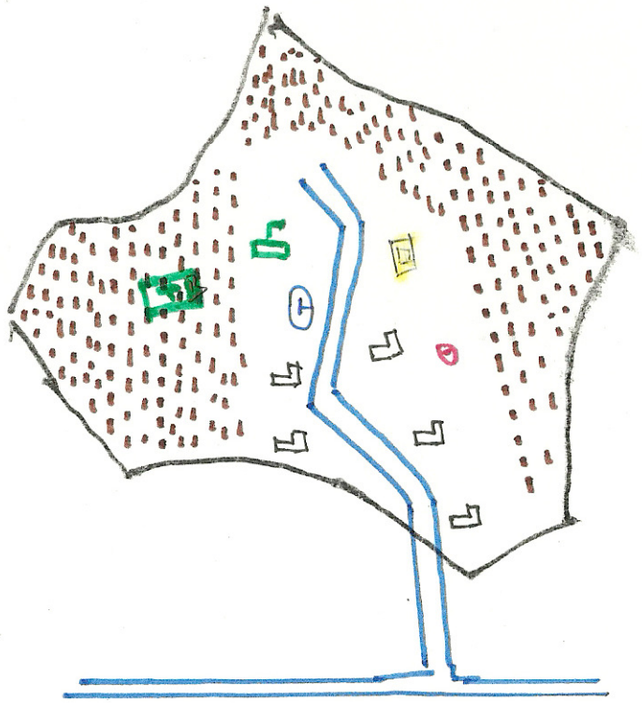

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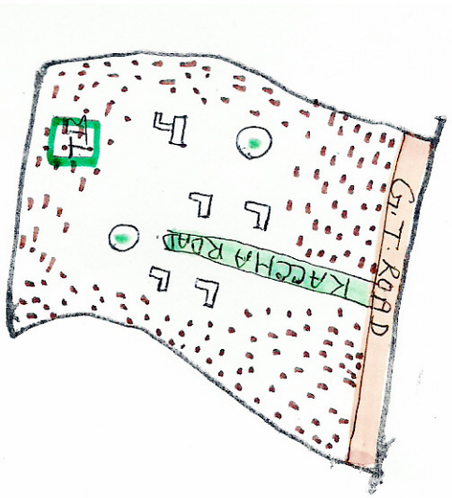

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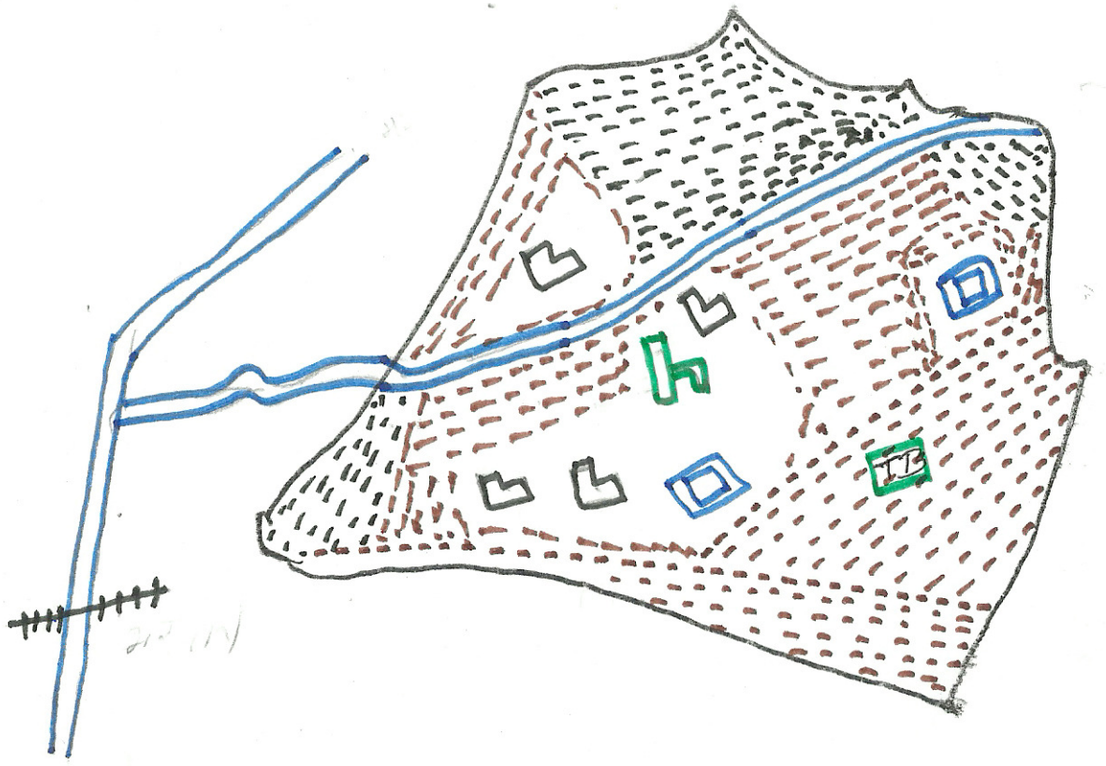

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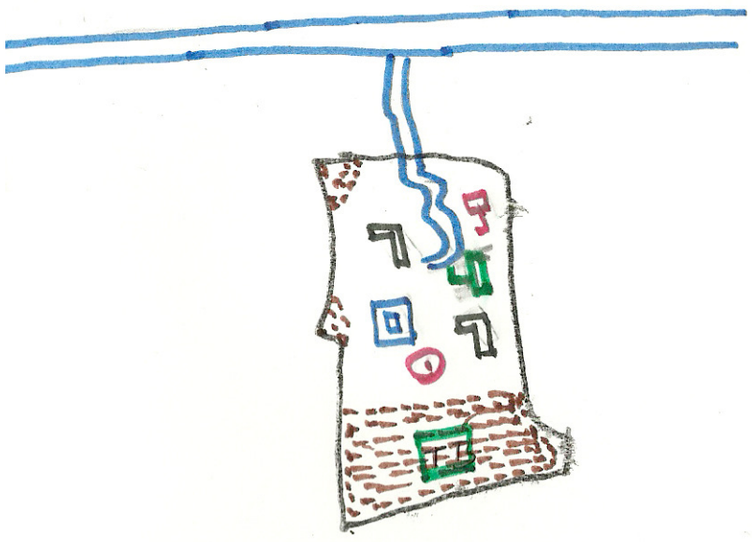

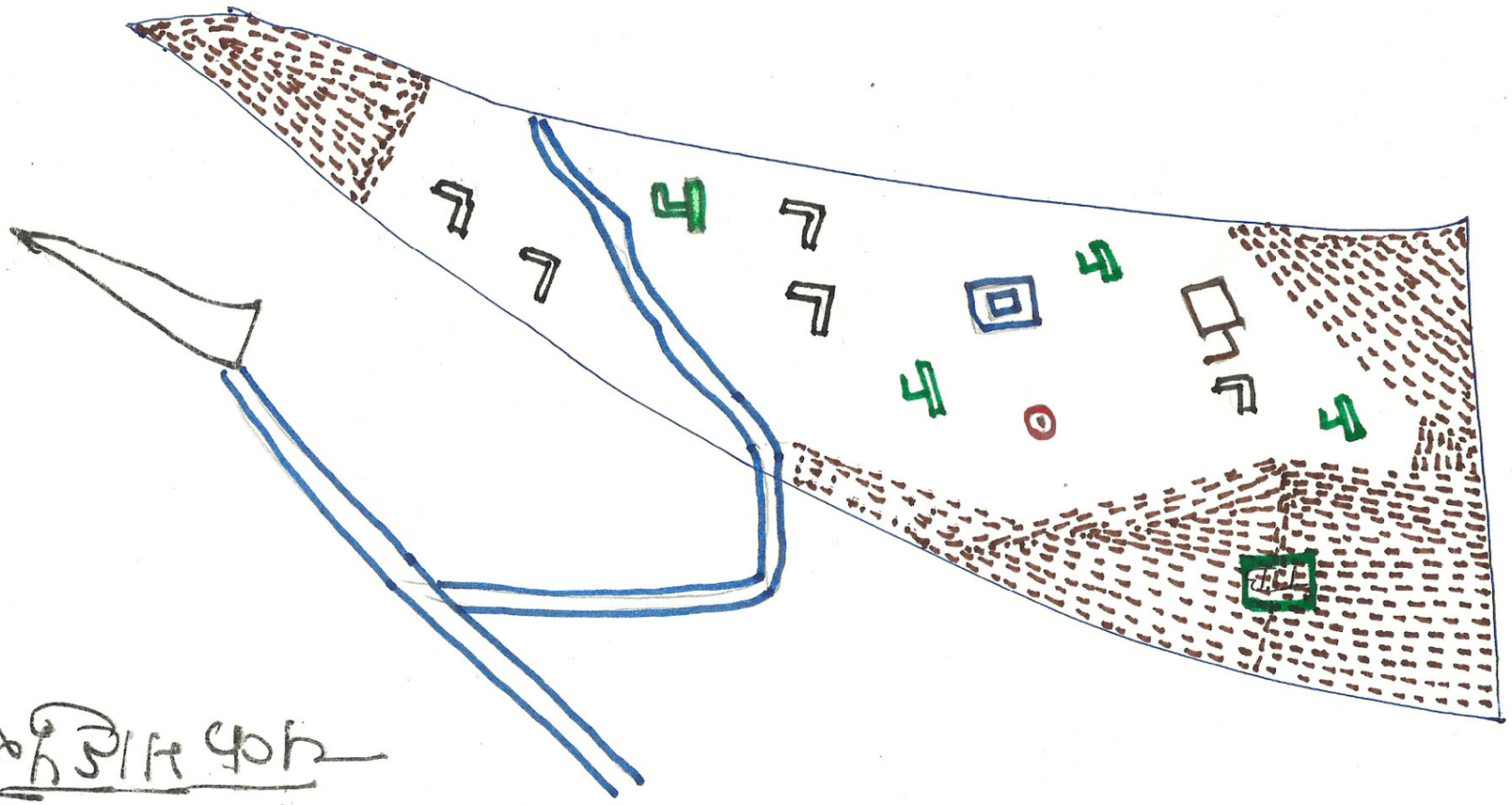

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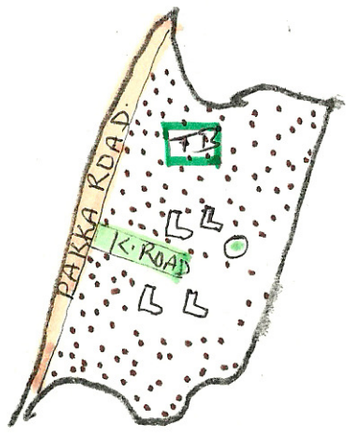

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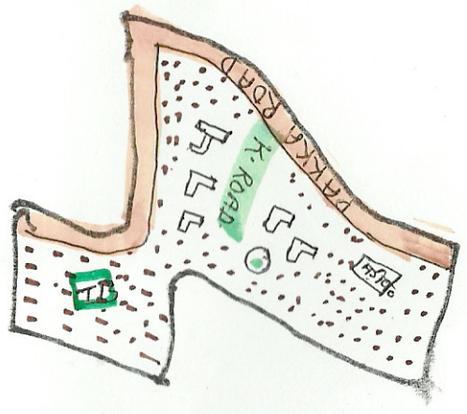

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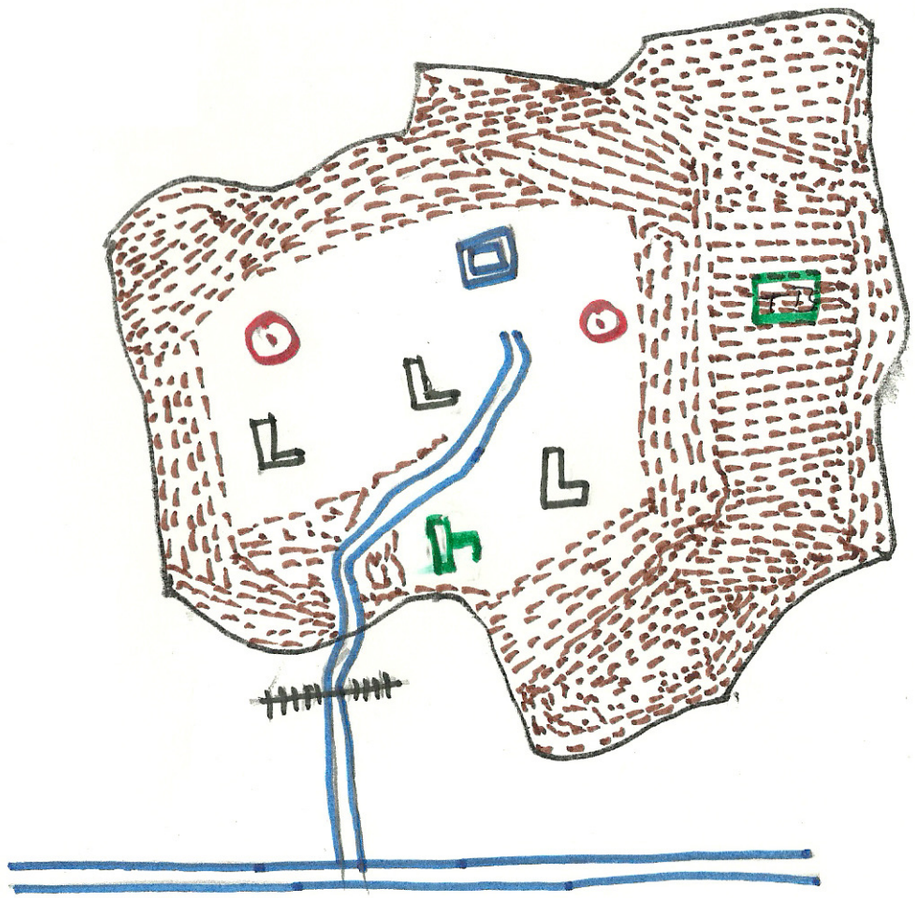

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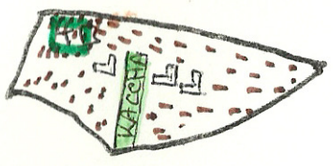

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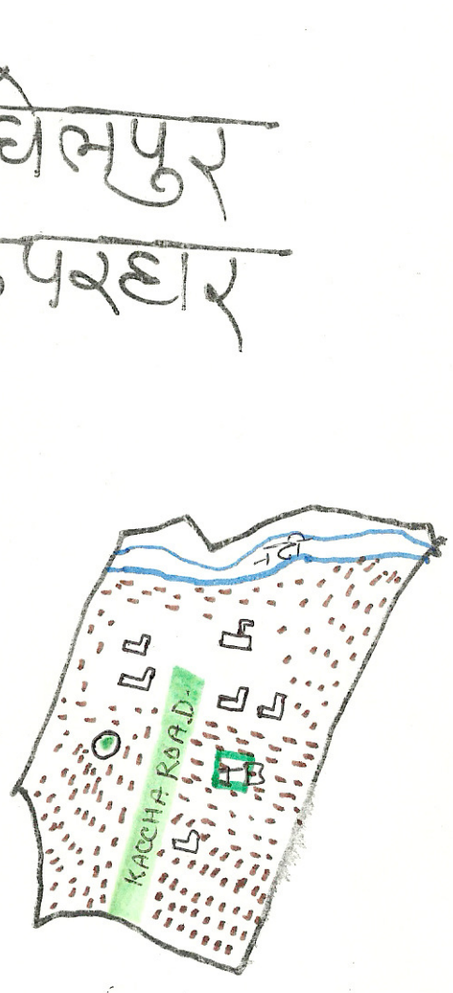
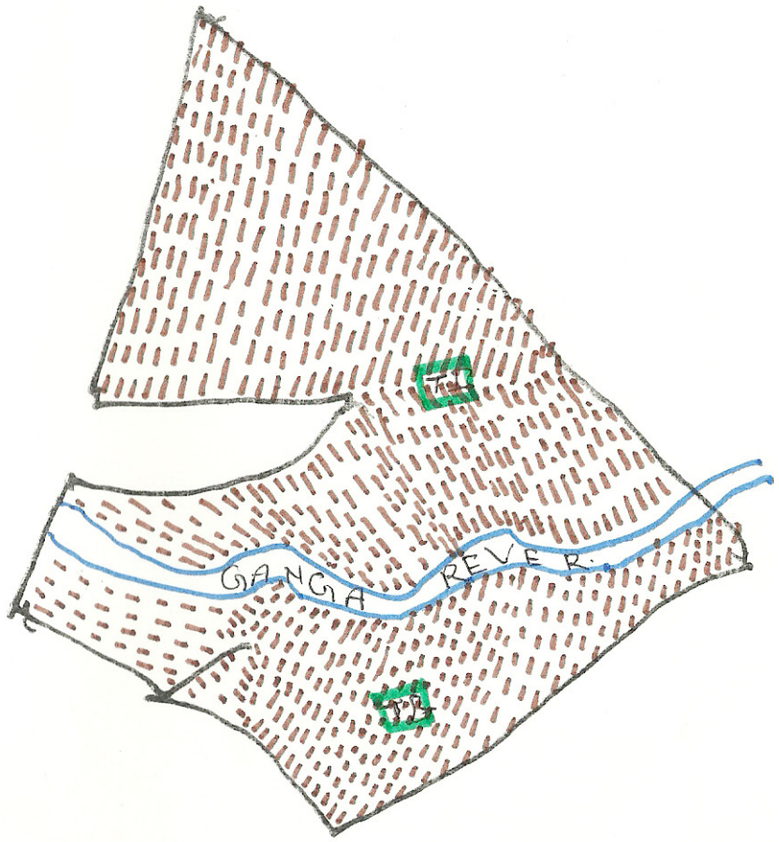
बघेलपुर उपरहार





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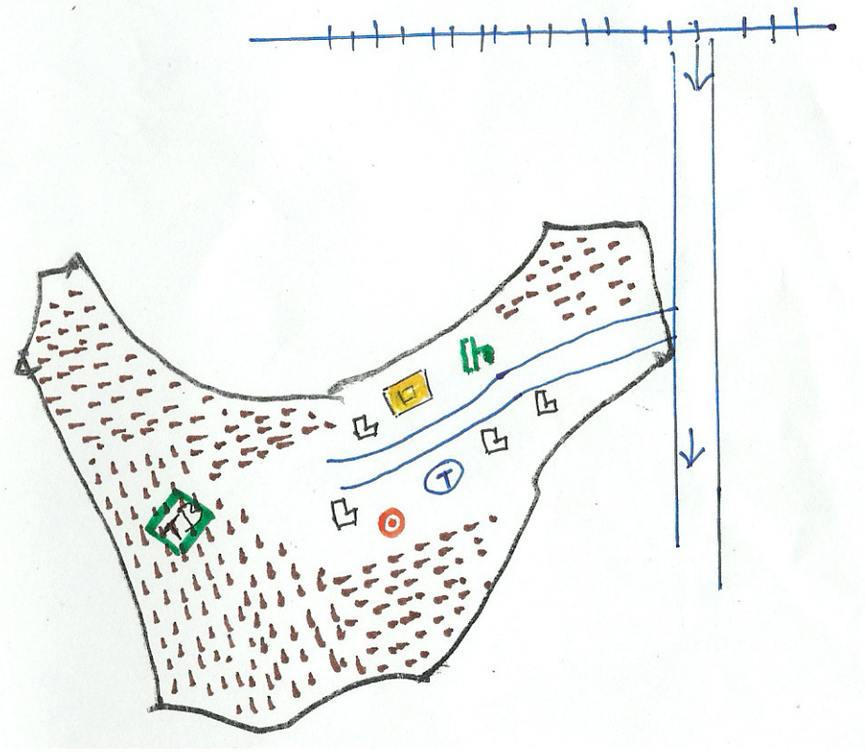

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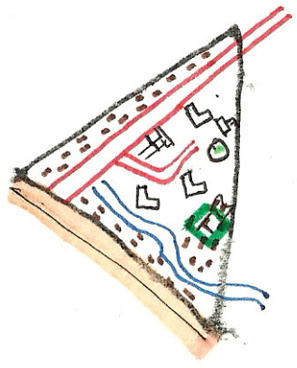

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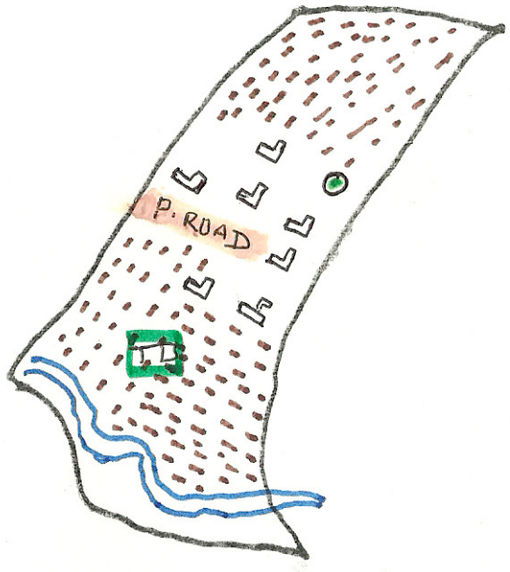

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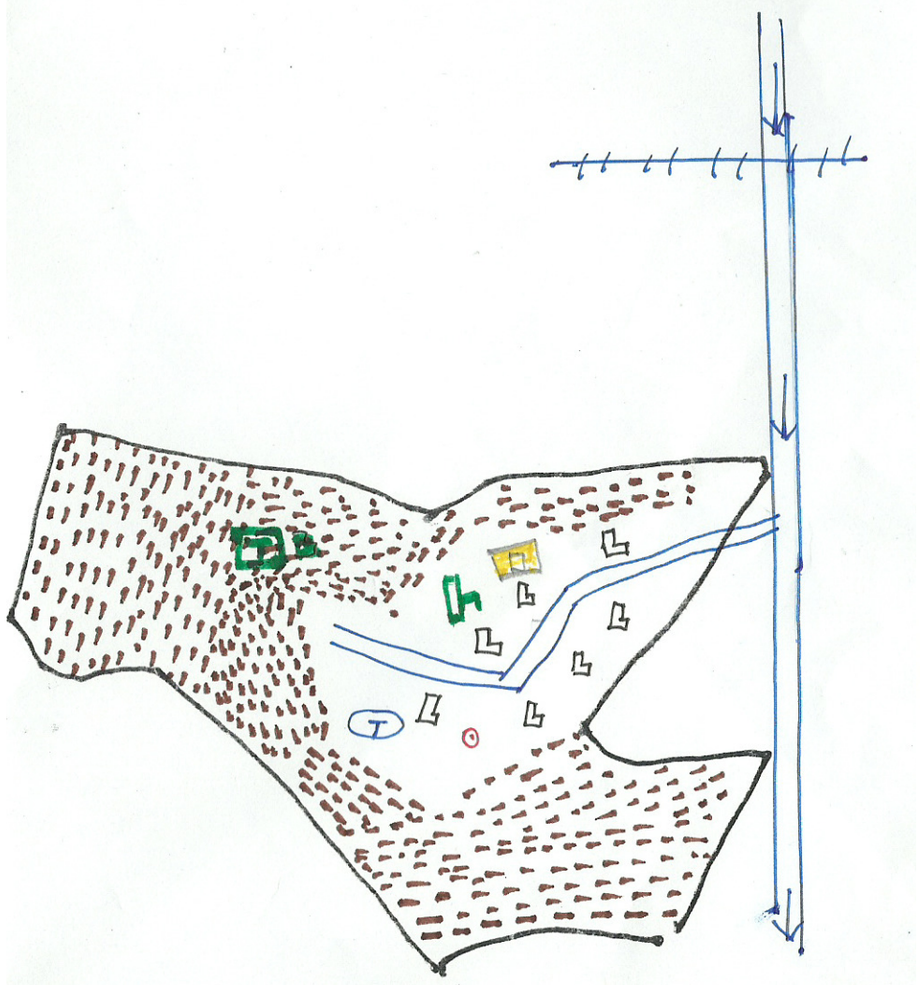

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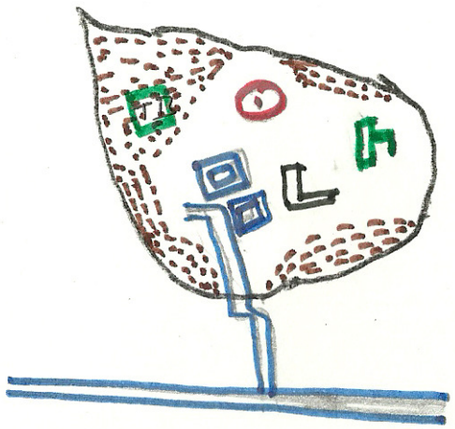

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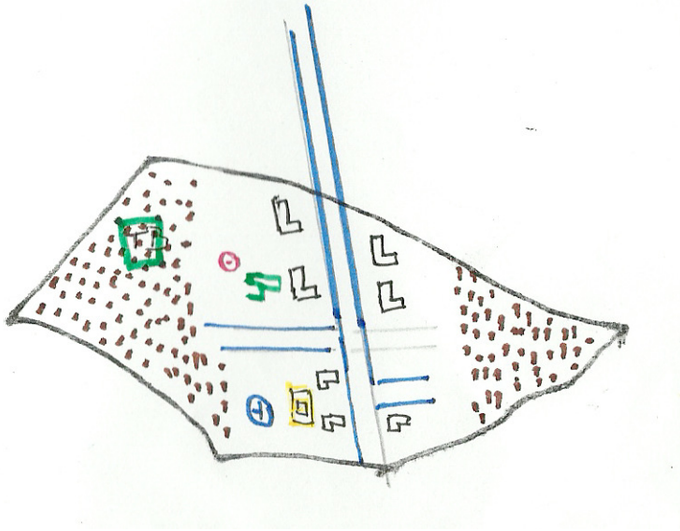

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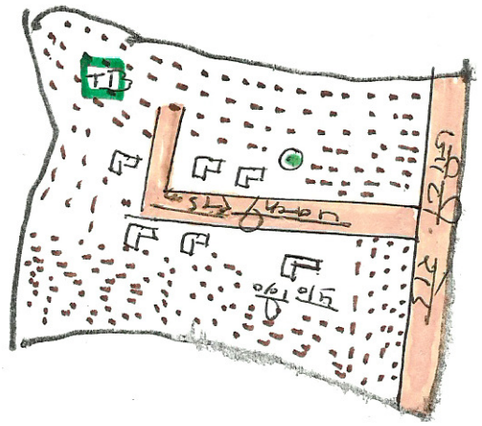

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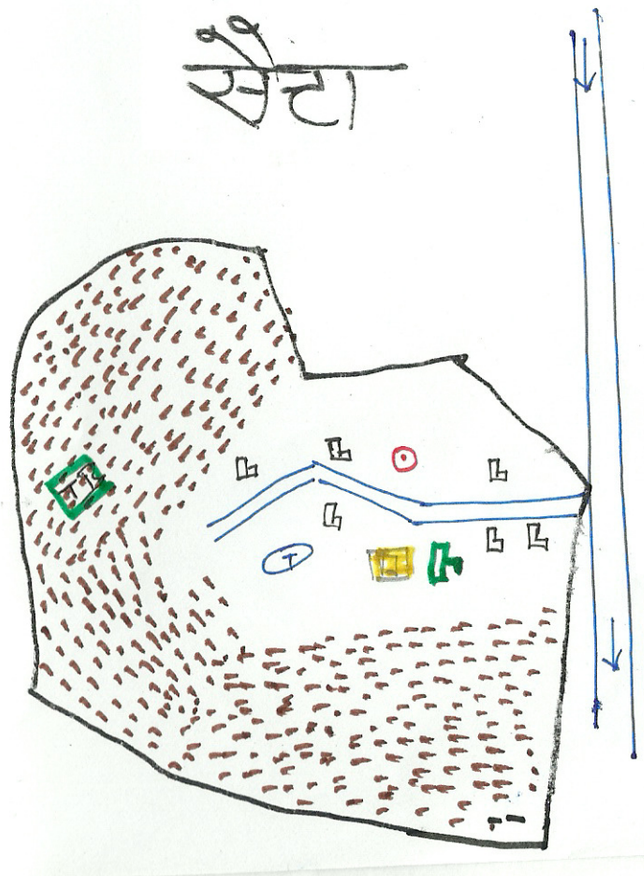

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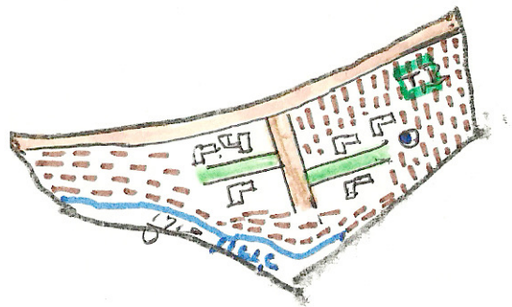

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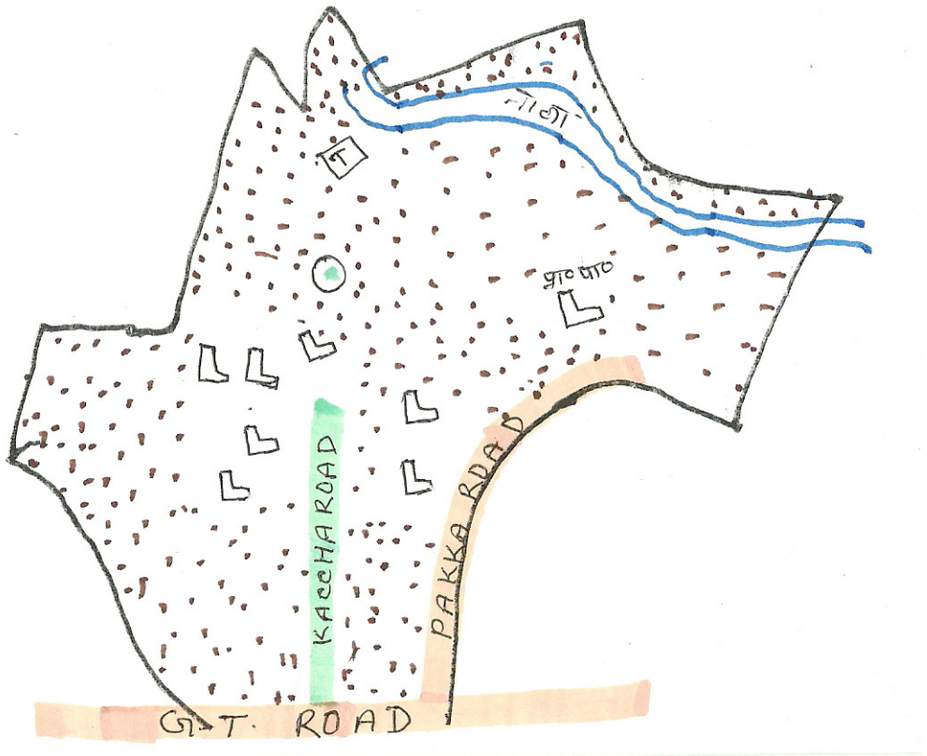
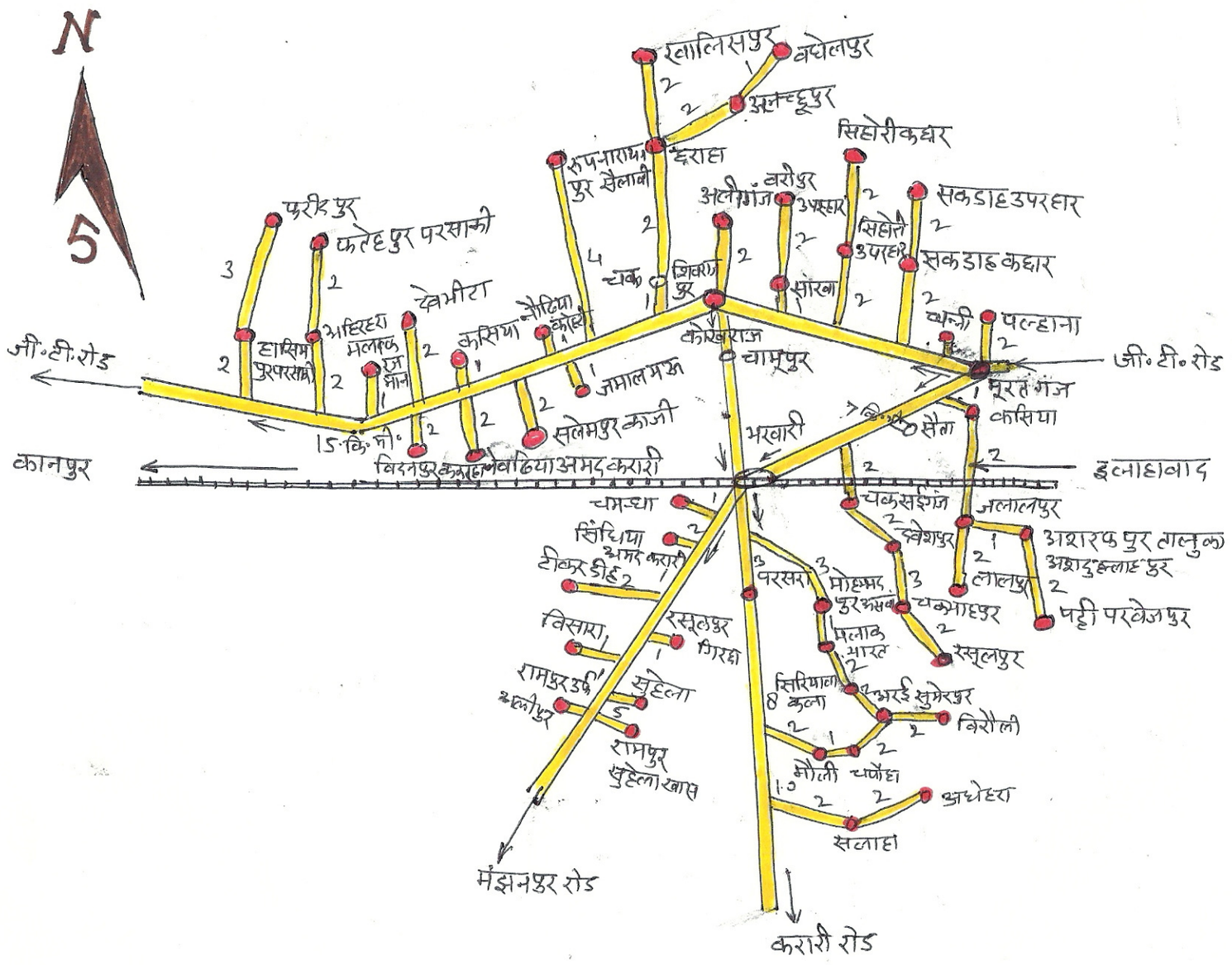


ROAD MAP OF IWMP-Ist KOUSHAMBI WATERSHED PROJECT



Present Land Use In The Watershed :-

The watershed has diversified land uses, namely agriculture Waste land (open serub), 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	Unculti vable	
1	2	3	4	5	6	7	8	9	10	11	12
1	I.W.M.P. Ist. Koushambi	09	66	10171	0	6945	5696	0	2160	175	5126

Agriculture: **Various agriculture land uses in the watershed are extended to diversified land capabilities starting from marginal to good class IInd lands. The watershed distinctly has three types of land i.e. 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 6945.00 ha. The water (both for irrigation and drinking) is most scarce natural resource in the watershed. The operation of tube wells 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. Sandy, Sandy Loam, sand mixed with gravel and loam which are located in patches throughout the watershed. 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 irrigation by farmers in the watershed. The factors substantially reduce the water use efficiency of limited available and valuable irrigation water in the watershed.

Rehabitation of waste lands with appropriate drought hardy species live introduction of suitable multipurpose tree, promoting agro foresting 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, Rehabitation of wasteland and substantial income generation for socio-economic uplift of farmers in the watershed.

<u>One Year Crop Rotation:</u>

<u>Single Cropping:</u> Fallow-Lentil, Fallow-gram, Fallow-Arhar, Fallow-Jawar, bajra.

<u>Double Cropping:</u> Bajra - Lentil, Arhar + Jowar, Mazie-Potato, Banana, Paddy-Wheat+Musturd.

<u>Irrigated Agriculture:</u>

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

<u>Crop Productivity:</u> 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 (18 Quintal/ha.) and rice (13.8 Kuintal/ ha.) under rainfed and irrigation, condition respectively. At present level of rainfed farming. The total produce from Rabi and Kharif crops obtained by a medium size of holding owning family can meet food requirements for upto 6 to 7 months only.

The farmers also do not have suitable cropping systems to deal aberrant weather. Weeds impose considerable constrant 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 jowar+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 in not only Rabi and Kharif crops but also in rainfed and irrigated production system the recommended deep ploughing for enhanced the 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 vermi-compost ,biofertilizers ,soil and water conservation measures, use of brought up or in situ mulches are widely lacking in the watershed. The soil and water conservation measures are limited to mechanical/earthen measures created by the state Govt. agencies. Conservation agronomical measures like seeding and ploughing across the slope, wed mulching, agro-forestry, vegetative barriers etc also completely lack in the watershed.

Indigenous Technological Knowledge: (I.T.K.) **Agriculture is an old age occupation which farmers have practiced and improved in their own manner to earn livelihood under the condition of area. The villagers have their traditional village ponds, practice of field bunding, production of Arhar crop on the bunds in paddy area which typically constitute agriculture related ITKs in the watershed. The indigenous farming technology in the watershed is observed to cover a vast spectrum of activities involving tillage, implement crop selection, storage of produce and value condition in the region line showing is in the traditional practice due to 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

Forests: **The selected watershed has no resource forest area.**

Horticulture / Agro-forestry:

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 bund 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 sole plantation especially 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.

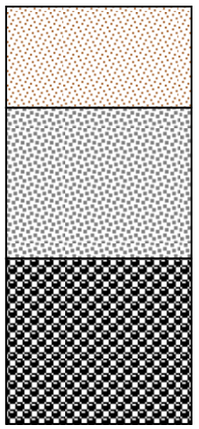
Horticulture: The watershed does not have organized orchards; however, farmers have fruit plants (mango, ber, bel, guava, mahua, amla etc.) near the homesteads and kitchen gardens. The climate and soil of the area is favorable for fruit growing for sub tropical fruits in the lower reaches. Organized orchards, commercial vegetable cultivation, agro horticulture, and other system of agro forestry etc. are lacking but have good potential in the watershed. The watershed is located near the national marg and has scope to transport the produce to the nearest market Bharwari.

Soil and land Capability Classification:

Soil Morphology: The selected area is situated in the North-east of District-Koushambi. 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: A Representative Soil Profile



1-1.20M (Sandy and Sandy Loam)

1.21-7.0M (Loam)

7 –8 m (Soil mix with kakar)

Morphology Of Typical Solid Profile Of Tones Watershed

Horizon	Depth(Cm)	Morphology
A	0-120	Yellow with mud colour, sandy content > 65%, soft and easily erodible when moist, hard when dry, high elasticity, Cracks occur when dried.
B	121-700	brown in colour, softy hard clay content > 20%
C	>700	Dark brown colour+lighty black kankar

Soil Characteristics and Fertility Status:

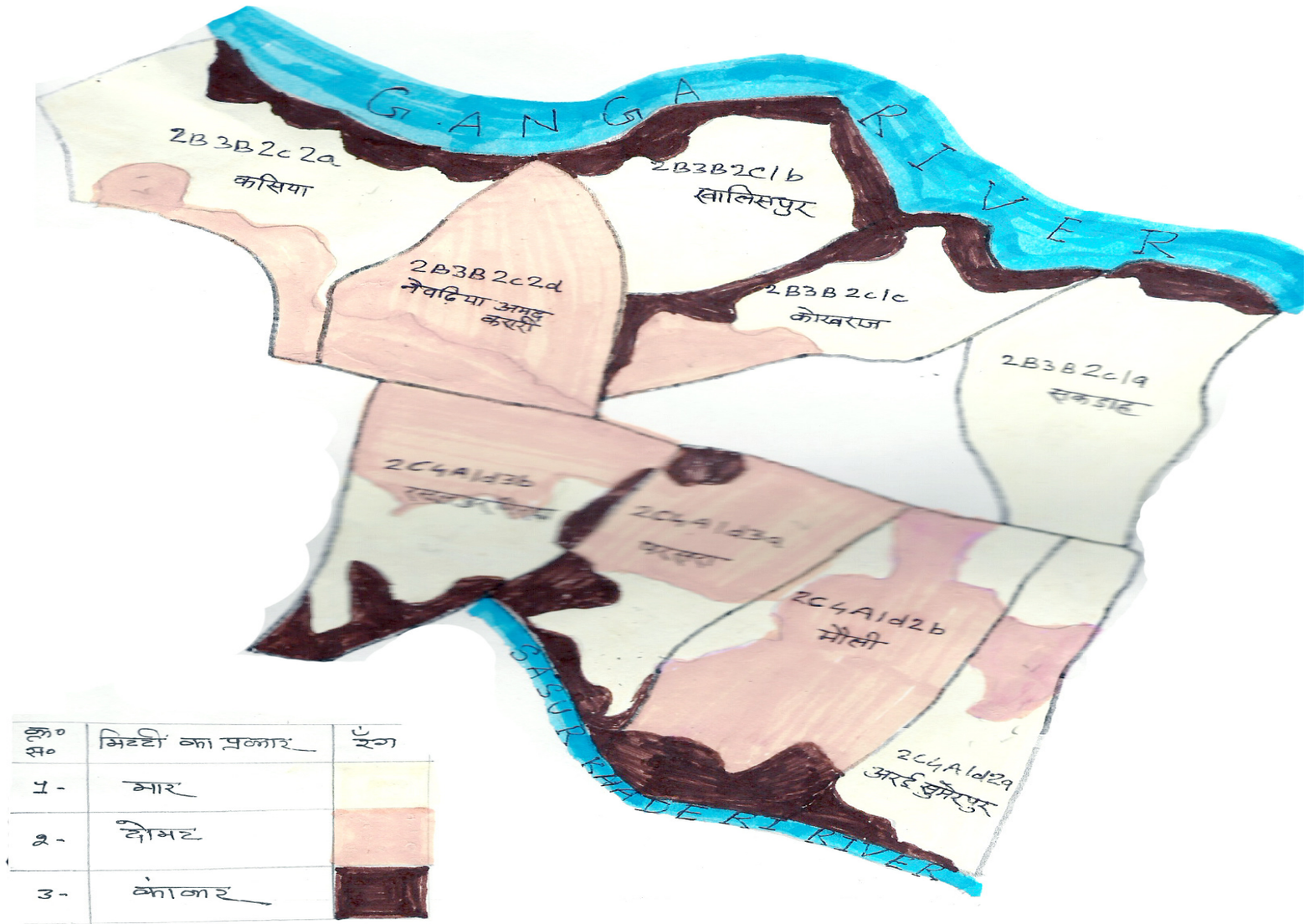
Four types of soils are in the watershed area. The fertility status is about normal range due to production of major pulses crops. There is scarcity of phosphorus due to continuous growing of pulses. For this demonstration of crop in Kharif and Rabi both seasons have been proposed under agriculture production activity.

Land Capability Classification (LCC):

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

Area Under Various LCC Classes of Ganga & Sasurkhaderi Watershed

LCC class	Area ha
I	769.00
II	2615.00
III	1742.00
Total	5126.00



L.C.C. MAP OF WATERSHED PROJECT

<u>Conclusion</u>: The land capability classification of the Ganga & Sasurkhaderi watershed provides reasonable good information with regard to capability of soil, that could be used for agriculture, agri-horticulture, 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 for moisture conservation practices. In class III submergence bund, marginal,peripheral bund gully plugging structures, earthen check dam and water harvesting bunds are proposed with permanent Pucca Drop Spill Way structures.

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 66 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 66 villages. Lack of drinking water is the greatest problem experienced by the people followed by, lack of irrigation water, lack of agri inputs, medical and health care facilities etc.

Table-17: PROBLEMS IDENTIFICATION AND PRIORITIZATION FOR IWMP Ist WATERSHED

S.No.	Problems	Rank
1	Low production of field crops & high soil erosion	3
2	Lack of irrigation water	2
3	Lack of drinking water	1
4	Non availability of fuel wood	6
5	Lack of inputs like quality seeds, fertilizers, pesticides etc.	4
6	Medical and health care facilities for milching animals and low productivity	8
7	Lack of fodder availability and low annual productivity	7
8	Lack of medical, educational and transportation facilities	5

PLANNING

PLANNING

Watershed Activities

Watershed management as a strategy has been adopted by Government of India especially in the rain-fed regions of semi-arid tropics. These regions are characterized by low and undependable rain, low soil fertility, poor infrastructure development, low literacy and high incidence of migration. Several studies have identified that there is a dire need of a systematic and scientific approach to deal with watershed development. The common guidelines generate a fresh and flexible framework for the next generation watershed development.

1. Scientific Planning:

i) Cluster Approach

This envisages a broader vision of Geo-hydrological unit which involves treating a cluster of micro-watershed. The Watershed Project consists of Nine micro- watersheds namely 2B3B2c2a, 2B3B2c2d, 2B3B2c1b, 2B3B2c1c, 2B3B2c1a, 2C4A1d3b, 2C4A1d3a, 2C4A1d2b and 2C4A1d2a as their respective codes.

ii) Base line Survey

To access the impact of any watershed development programme a detailed baseline survey has to be conducted. This acts a benchmark for any intervention during and post implementation of any development programme. A detailed baseline survey was undertaken which involved household census survey, Bio-physical survey and Village level data collection and government department. Household census survey includes a detailed questionnaire which was been filled by visiting each and every household in the village. This gave in the details of the demographic profile of the village, the literacy percentage, SC/ST population, number of BPL household, cattle population, net consumption rate in the village, average milk production of the cattle and various schemes running and their benefits.

Bio-physical survey was undertaken to identify various natural resources available in the village. It included the soil typology, well in the area, crop taken in the field, Cropping pattern, fertilizer used and various sources of irrigation in the field.

iii) Participatory Rural Appraisal (PRA)

The past experience of watershed has given tremendous input to focus on creating accountability of the stakeholders towards the programme. This has created an emphasis to include all the stakeholder communities and their local and indigenous Technological Knowledge (ITK) while planning for any activity. Participatory approach provides a new path for planning, implementing, monitoring and post- withdrawal activities with a complete accountability of the stakeholders. Various PRA techniques like resource mapping, social mapping, and season calendars were used to understand the physical and social orientation of the village in general and watershed in specific. These tools put the villagers in ease than the complicated questionnaires. Various tools like Matrix ranking, Venn Diagram were used to identify various local vegetations (apt for afforestation) , Fodders crops , various institution and their significance in the life of the farmers

iv) Use of GIS and Remote sensing for planning

Use of various high science tools has been promoted at various stages of watershed development.

a) Prioritization

Geographical Information System(GIS) has been used for prioritization process. Various layer maps were created like Geo-morphological, Soil, BPL Population, SC/ST population, Ground water Status, Drinking water situation Slope percent. These were all given proper weightage according to the DoLR specification. This helped in prioritization of various watershed areas.

b) Planning

A action plan matrix was formulated by State Level Nodal Agency (SLNA) taking into account various features like the slope percent, soil Depth, Soil Texture, Soil erosion in the area for wasteland,

forest land and agricultural land. Global positioning System (GPS) was used to identify each and every water conservation structures available in the project area. This was used to create a map.

c) Hydrological modelling

Hydrology modelling technique was used for locating drainage, stream length, flow direction, sink, Flow accumulation. This model overlaid over cadastral map to calculate the catchment area of each structures like the check dam etc. This has helped to remove the human error which generally occurs while calculating the catchment area of a check dam.

Table- 18: Details of Scientific Planning and Inputs in IWMP project

List of scientific criteria/ inputs used	
(A) Planning	
Cluster approach	**Yes**
Whether technical back-stopping for the project has been arranged? If yes, mention the name of the Institute. **No**	
Baseline survey	**Yes**
Hydro-geological survey	**Yes**
Contour mapping	**Yes**
Participatory Net Planning (PNP)	**Yes**
Remote sensing data-especially soil/ crop/run-off cover	**Yes**
Ridge to Valley treatment	**Yes**
Online IT connectivity between Project and DRDA cell/ZP	**Yes**
Availability of GIS layers	
1. Cadastral map	**Yes**
2. Village boundaries	**Yes**
3. Drainage	**Yes**
4. Soil (Soil nutrient status)	**Yes**
5. Land use	**Yes**
6. Ground water status	**Yes**
7. Watershed boundaries	**Yes**

8. Activity	Yes
Crop simulation models#	Yes
Integrated coupled analyzer/ near infrared visible spectroscopy/ medium spectroscopy for high speed soil nutrient analysis	Yes
Normalized difference vegetation index (NDVI)#	No
Weather Stations	No
(B) Inputs	
1. Bio-pesticides	No
2. Organic manures	Yes
3. Vermicompost	Yes
4. Bio-fertilizer	Yes
5. Water saving devices	Yes
6. Mechanized tools/ implements	Yes
7. Bio-fencing	No
8. Nutrient budgeting	No
9. Automatic water level recorders & sediment samplers	No
Any other (please specify)	

CAPACITY BUILDING

CAPACITY BUILDING

Table-19: List of approved Training Institutes[@] for Capacity Building in the project area

1	2	3	4	5	6	7
S. No.	Name of the Training Institute	Full Address with contact no., website & e-mail	Name & Designation of the Head of Institute	Type of Institute[#]	Area(s) of speciali-zation[$]	Accredita-tion details
	State Institute Of Rural Development, Bakshi Ka Talab, Lucknow	State Institute Of Rural Development, Bakshi Ka Talab, Lucknow	Director General	State Institute Of Rural Development	Technical Soil & Water Conservation and Social	Department of Rural Developmen t, Govt. of UP
	UPLDWR Training Institute, Beli Kala, Lucknow	Beli Kala, Lucknow	Director	State Govt. Land Development & Water Resources	Technical Soil & Water Conservation and Social Capacity Building	
	Allahabad Agriculture University, Naini, Allahabad	Allahabad Agriculture University, Naini, Allahabad	V.C.	State Government	l Soil & Water Management etc.	
	State Institute Of Rural Development, Bakshi Ka Talab, Lucknow	State Institute Of Rural Development, Bakshi Ka Talab, Lucknow	Director General	State Institute Of Rural Development	Technical Soil & Water Conservation and Social	Department of Rural Developmen t, Govt. of UP

Table-20: Capacity Building activities in the project

1	2	3	4	5	6		7
S. No.	Project Stakeholders	Total no. of persons	No. of persons trained so far	No. of persons to be trained	Sources of funding for training		Name and Address of the Institute where trained
					a)DoLR	b)Any other (pl. specify)	
1	PIAs	29	13	8	DoLR		Gram Vikas Sansathan, Agriculture University & Departmental Institute
2	WDTs	6	3	3			
3	UGs	2359	-	2243	DoLR		
4	SHGs	680	-	564	DoLR		
5	WCs	580	-	580	DoLR		
6	GPs	40		40			
7	Community	5		5			
8	Others (Pl. specify)						

Table- 21: Information, Education & Communication (IEC) activities in the project area

1	2	3	4	5
S. No.	Activity	Executing agency	Estimated expenditure (Rs.)	Expected Outcome (may quantify, wherever possible)
	Video shows	PIA	30000	Awareness for the importance of watershed project
	Pamphlets and posters	PIA	16000	
	Banners, Hoardings	PIA	18000	

PREPARATORY PHASE

Preparatory phase

Physical activities to be undertaken under IWMP-Ist KOUSHAMBI
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. 24.6048 Lakh 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.

Table- 22: Entry point activities (EPA)
(All financial figures in lakh Rs.)

1	2	3	4	5	7
S. No.	No. of the villages	Amount earmarked for EPA	Entry Point Activities planned	Estimated cost	Name of agency which selected the EPA#
1	66	24.6048	Repair of Well	3.00	PIA
			Repair of hand Pump	6.00	PIA
			Repair of chabutra	4.00	PIA
			Maintenance of School Boundry	4.00	PIA
			Repair of kharanja	4.6048	PIA
			Calvert	3.00	PIA

Table-: 23 Other activities of preparatory phase*

1	2	3	4	5	6	7	8	9	10
S. No.	Item	Initiation of village level institution	Capacity building	IEC activities	Baseline survey	Hydro-geological survey	Identifying technical support agencies	Preparation and Evaluation of DPR	Total
1	Estimated cost	6.1512	15.378	6.1512	2.214	0.6151	3.0756	3.3221	36.9072

WATERSHED WORK PHASE

Watershed Works phase

PROPOSED LAND USE

Watershed management plan for Tones 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 forming 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 are 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 Vermi Compost and green manuring. The Present and proposed land use plan of watershed is given as below:

S.No.	Land use	Present (ha)	Proposed(ha)
1	Agriculture	6945.00	6945.00
a	Rainfed	5696.00	5126.00
	(i) Crop	5696.00	4768.00
	(ii) Agro-forestry	NIL	358.00
b	Irrigated	1249.00	1819.00
	(i)Assured	-	-
	(ii)Partial	1249.00	1819.00
2	Wasteland	175.00	175.00
	(a) Afforestation	-	-
	(b) Fodder	-	25.00
	(c) Untreatable	175.00	150.00
3	Village land	3051.00	3051.00
	Total	10171.00	10171.00

WATER RESOURCE DEVELOPMENT AND SOIL CONSERVATION MEASURES

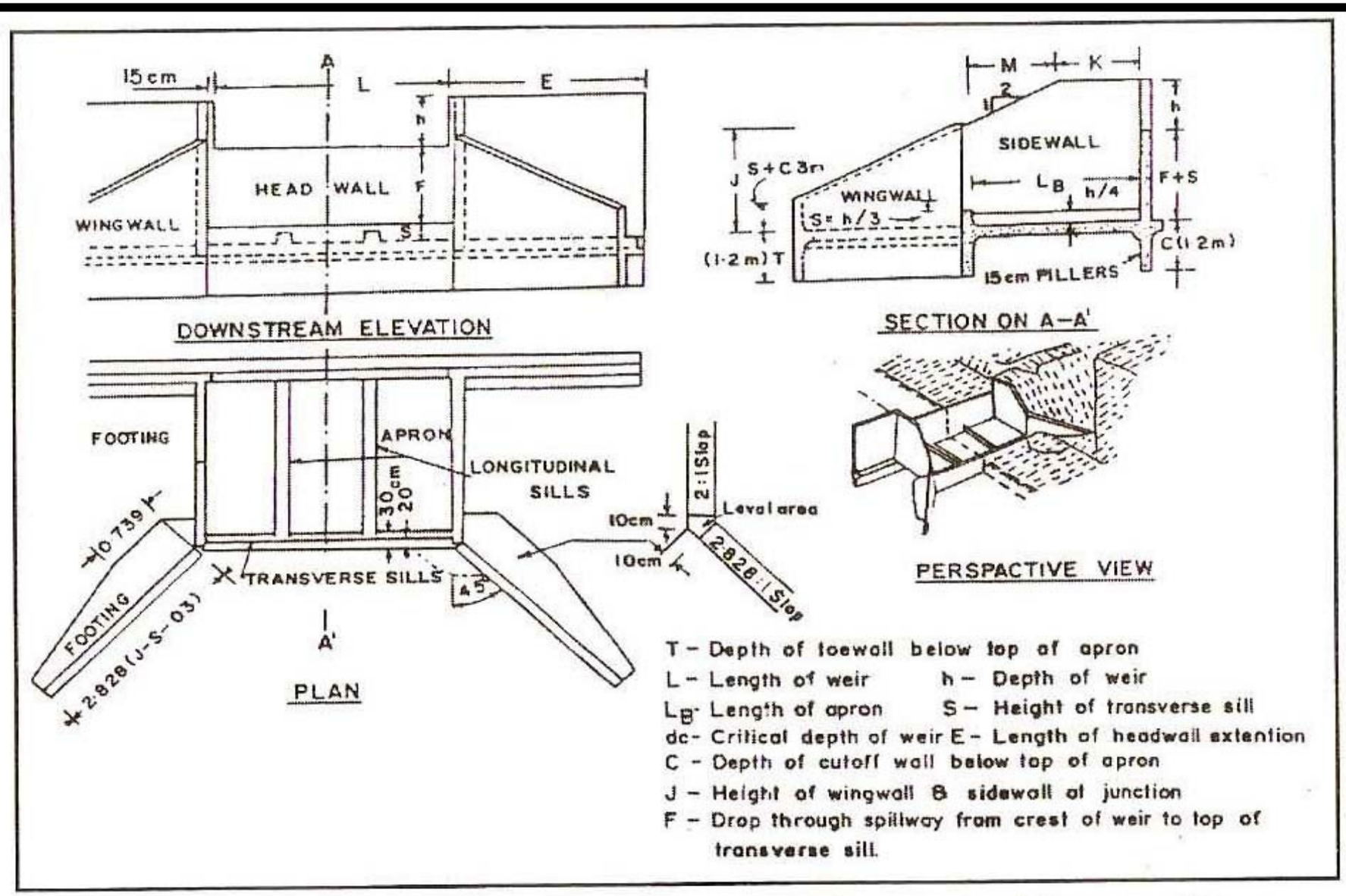
Status Of Present Water Resources Utilization: There is no natural water body in the selected area which may used for irrigation. Partial irrigation is done by private tub wells.

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 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.

New Water Harvesting Structures: In the 1025.00 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 72 nos of drop spillway and other structure are planned in the selected area.

DAIGRAM OF DROP SPILLWAY



Nomenclature and symbols of a typical drop spillway

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

$$Q = \frac{C.I.A.}{360} = \frac{0.3 \times 120 \times 30.0}{360} = 3.0\ m^3/s$$

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 = 3.0 m (since width of gulley is 4.00 m)

$$3.0 = \frac{1.711\ L\ H^{3/2}}{(1.1+0.01 \times 1.5)} = \frac{1.711\ L\ H^{3/2}}{(1.1+0.15)}$$

$$L\ H^{3/2} = \frac{3.00 \times 1.25}{1.711}$$

$$H^{3/2} = \frac{3.75}{1.711 \times 3} = 0.73$$

$$H = (0.73)^{2/3} = 0.80\ m$$

Test: $L / h = 3.00/0.80 = 3.75 \geq 2.0$ hence O.K.

$h / f = \frac{0.80}{1.50} = 0.53 \leq$ which is approximately 0.50. Hence, O.K.

Hence the designed hydraulic dimensions of the Spillway are:

Crest Length (L) = 3.00 m

Weir depth (h) = 0.80 m

3. Structural design –

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

E = 3x0.80+0.6 or 1.5x1.50

E = 3.0 m or 2.25 m

Head wall extension = 3.0 m

2- Length of apron basin L_B = f (2.28 h/f +0.54) = 1.5 (2.28 x $\frac{0.8}{1.5}$ + 0.54)

= 1.50 (1.216 + 0.54) = 1.5 x 1.756

= 2.634 m says 2.63 m

3- Height of end sill , S = $\frac{h}{3}$ = $\frac{0.80}{3}$ = 0.26 m

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

J = 2h or [f + h + S – (L_B + 0.10)/2] whichever is greater

= 2 x 0.80 or [1.50+0.80+0.26 – (2.63+0.10)/2]

= 1.6 or [2.56 – 1.365]

= 1.6 or 1.195

adopt J = 1.60 m

5- M = 2 (f + 1.33 h - J) = 2 (1.50 + 1.33 x 0.80 – 1.60) = 2 (2.564 – 1.60)

= 1.928 m

6- K = (L_B + 0.1) - M = (2.63 + 0.1) – 1.93

= 0.80 m

Toe and cut off walls

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

= 0.473 x $(3/1)^{1/3}$

= 0.473 x 1.442

= 0.68 m

Maximum Scour depth (M S D) = 1.5x N S D

= 1.5 x 0.68

= 1.02 m

Depth of cutoff /Toe wall = 1.02 m

Apron thickness: For an over fall of 1.50 m. The Apron thickness in concrete construction is 0.30 m since the structure is constructed in masonry, the Apron thickness will be 0.30 x 1.50 = 0.45 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	0.45	1.33
Side wall	0.30	1.10
Wing wall and head wall	0.30	0.80

extension		

DETAIL ESTIMATE OF DROP SPILLWAY OF CREST LENGTH 3.00 METRE

1. Earth work in cutting in foundation

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Side wall	2	3.40	1.20	1.15	9.38
2	Head wall	1	3.00	1.60	1.15	5.52
3	Head wall extension	2	3.00	1.00	1.15	6.90
4	Wing wall	2	1.80	1.20	1.15	4.96
5	Toe wall	1	3.00	1.00	1.15	3.45
6	Cut off wall	1	9.00	1.00	1.15	10.35
7	Apron	1	3.00	2.65	0.70	5.56
Total						46.12 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	3.40	1.00	0.10	0.680
2	Head wall	1	3.00	0.60	0.10	0.180
3	Wing wall	2	1.80	1.00	0.10	0.360

4	Toe wall	1	3.00	0.80	0.10	0.240
5	Cut off wall	1	9.00	1.00	0.10	0.900
6	Apron	1	3.00	2.65	0.10	0.795
Total						3.155 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	9.00	1.00	0.15	1.35
2	Head wall	1	3.00	0.60	0.15	0.27
3	Side wall	2	3.40	1.00	0.15	1.02
4	Wing wall	2	1.80	1.00	0.15	0.54
5	Toe wall	1	3.00	0.80	0.15	0.36
6	Apron	1	3.00	2.65	0.15	1.192
Total						4.732 cum

4. R/R Stone masonry 1:4

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Cut off wall	1	9.00	1.00	0.90	8.100
2	Head wall	1	3.00	1.50	0.90	4.050

		1	3.00	(1.50+0.50) /2	1.50	4.500
3	Head wall extension	2	3.00	0.80	0.45	2.160
		2	3.00	0.60	0.45	1.620
		2	3.00	0.60	0.60	2.160
		2	3.00	0.50	0.60	1.800
		2	3.00	0.40	1.30	3.120
4	Side wall	2	3.40	1.00	0.45	3.060
		2	3.60	0.80	0.45	2.592
		2	3.80	0.60	0.60	2.736
		2	3.90	0.50	1.00	3.900
		2	(4.00+1.40) /2	0.40	1.50	3.240
5	Wing wall	2	1.80	1.00	0.45	1.620
		2	1.80	0.80	0.45	1.296
		2	1.80	0.50	(1.60+0) /2	1.440
6	Toe wall	1	3.00	0.80	0.45	1.080
		1	3.00	0.60	0.45	0.810
		1	3.00	0.40	0.30	0.360
7	Apron	1	3.00	2.65	0.45	3.577
8	Longitudinal sill	2	2.60	0.20	0.45	0.468
				Total		53.689 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	3.00	0.50	0.025	0.037
2	Side wall	2	1.40	0.40	0.025	0.028
		2	3.00	0.40	0.025	0.060
3	Head wall extension	2	3.00	0.40	0.025	0.060
4	Wing wall	2	2.40	0.50	0.025	0.060
5	Longitudinal sill	2	2.65	0.20	0.025	0.026
6	Apron	3	2.65	0.86	0.025	0.170
Total						0.441 cum

6. Raised Pointing 1:3

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Head wall	1	3.00	-	1.00	4.56
		1	3.00	-	1.18	5.40
2	Side wall	2	3.40	-	1.60	10.88
		2	(1.40+3.40)/2	-	1.50	7.20
3	Head wall extension	2	3.00	-	1.50	9.00

4	Wing wall	2	1.80	-	(1.60+0)/2	2.88
Total						39.86 m^2

CONSUMPTION OF MATERIALS

S.No.	Particulars	Quantity	Cement (Bags)	Sand (cum)	Khanda (cum)	G.S.B 25-40 mm (cum)	G.S. Grit 10-20 mm (cum)
1	Sand laying	3.155 cum	-	3.155	-	-	-
2	C.C.W. 1:3:6	4.732 cum	20.34	2.129	-	4.258	-
3	C.C.W. 1:2:4	0.441 cum	2.69	0.185	-	-	0.374
4	S/M 1:4	53.689 cum	128.85	18.254	53.689	-	-
5	Raised Pointing 1:3	39.86 m^2	1.83	0.187	-	-	-
Total			153.71	23.910	53.689	4.258	0.374
Say			154	23.910	53.68	4.26	0.374

COST OF MATERIALS

S.N0	Name of materials	Quantity	Rate	Amount
1	Cement	154 Bags	285.00	43890.00
2	Coarse sand	23.91	910.00	21758.10
3	Khanda	53.68	950.00	50996.00
4	G.S.B. 25-40 mm	4.26	855.00	3633.75
5	Grit 10-20 mm	0.374	1250.00	467.50
Total				12,0745.35

LABOUR CHARGE

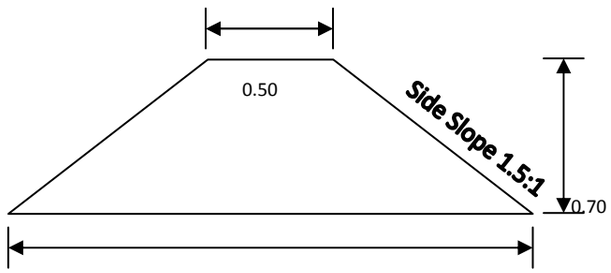
S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	46.12 cum	36.66/cum	1690.75
2.	Sand Laying	3.155 cum	33.33/cum	105.15
3.	C.C.W. 1:3:6	4.732 cum	494/cum	2337.60
4.	C.C.W. 1:2:4	1.441 cum	494/cum	217.85
5.	S/M 1:4	53.689 cum	370/cum	19864.93
6.	Raised Pointing	39.86 m^2	51.61/m^2	2057.17
7.	Curing	53.689 cum	25.00/cum	1342.22
8.	Chowkidar	13 Man Days	100.00/Man Day	1300.00
9.	Head load & local transportation cost 10% cost of material	-	-	12074.53
	Total			Rs. 40504.22

Total Expenditure	
1. Cost of materials	120745.35
2. Labour Charges	40504.22
Total	Rs. 1,61,735.57

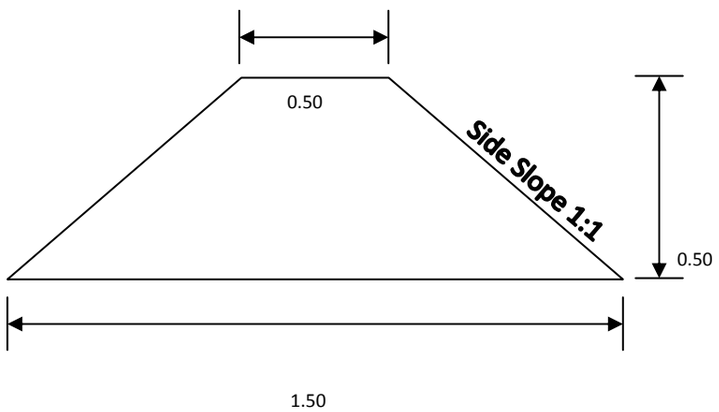
Say Rs. 1,61,700.00 only

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

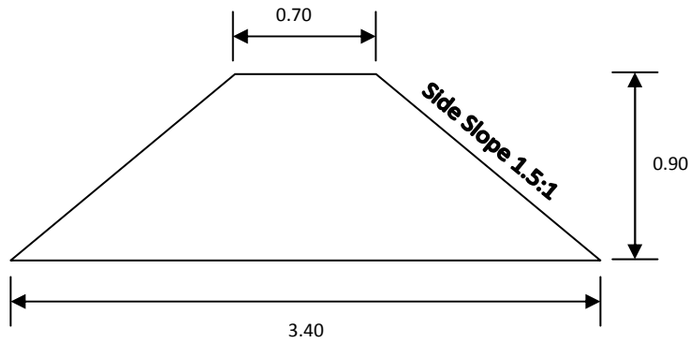
(Not to Scale)



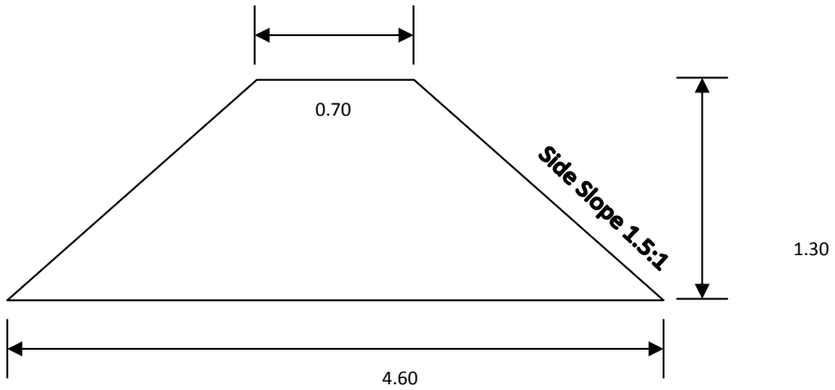
(C.B., Cross-Section – 1.085 m^2)



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



(S.B., Cross-Section – 1.845m^2)

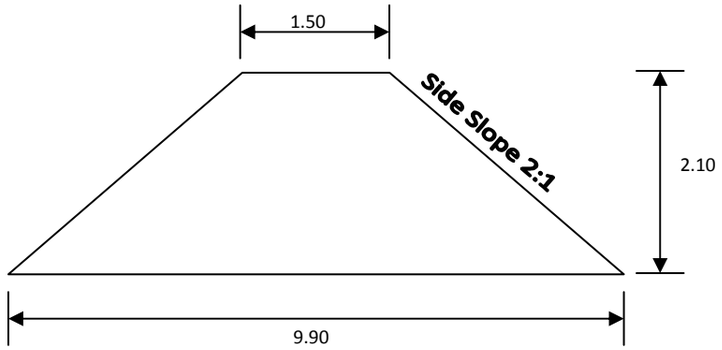


(S.B. /P.B. /M.B., Cross-Section – 3.445 m^2)

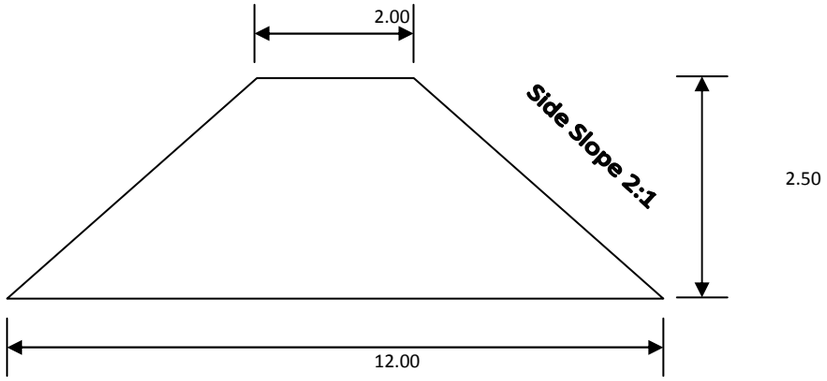
(All dimensions in Metre)

DRAWING OF EARTHEN CHEKDAM / GULLY PLUG

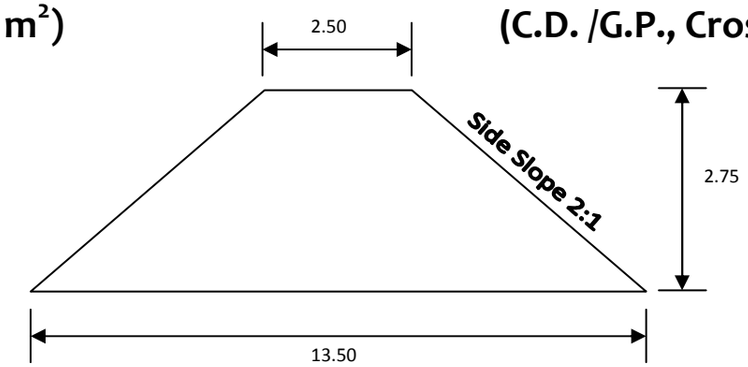
(Not to Scale)



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



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



(W.H.B., Cross-Section – 22.00 m^2)

(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] x 0.3
= [1/3+2] x 0.3
= 0.70 m
Horizontal Interval (HI) = 100 x V.I/s
= 100 x 0.7/1
Height of bund h = $\sqrt{(Re \times VI)/50}$ Re=maximum rainfall in cm
= $\sqrt{(25 \times 0.7)/50}$
= $\sqrt{0.35}$
= 0.59
Say 0.60 m
Free board =15% of height minimum -10 cm
Height = 0.60 + 0.10
= 0.70 m

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

= 100 x 1 / 0.70

=142.85 m/ha

Say 150 m/ha

Earth work/ha = 150x1.085

= 162.75 cum

Cost Rs. / ha = 162.75 x 39.16 = 6373.29

Say 6375.00

DESIGN OF SUBMERGENCE BUND

Types of soil –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= $\sqrt{(\text{Re} \times \text{V.I.})/50}$ **=** $\sqrt{(25 \times 0.90)/50}$ **=** $\sqrt{0.45}$ **= 0.67 m. Say 0.70m**

Free board 20% of height minimum 20cm

Total Height =0.90m

Taking top width of bund 0.70m and side slope 1.5:1

Bottom of bund = 0.70+2 x 1.5d

= 0.70+2.70

= 3.40

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

= 1.845 m^2

Length of bund = 100 s / V.I.

= (100 x 3) /0.90

= 333 m

Feasible length 100 + 25 + 25

= 150 m

Earth work/ha =150 x 1.845

=276.75

Cost per ha =276.75 x 39.16

=10,837.53

Say 10,850=00

TYPICAL SECTION OF FIELD BUND

Top width = 0.50 m

Side slope = 1:1

Height of bound = 0.50 m

Bottom Width = 1.50 m

Cross section = (0.50+1.50)x0.50/2 = 0.50 m^2

Length per hectare = 200 m

Earthwork = 200 x 0.50 = 100 cum

Cost 39.16/cum = Rs. 3916.00

Cost per hectare = Rs. 3916.00

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

Top width = 0.70 m

Side slope	**= 1.5:1**
Height	**= 1.30 m**
Bottom	**= 4.60 m**
Cross section	**= (0.70+4.60)x1.30/2**
	= 3.445 m^2
Cost/ meter	**= Rs. 142.oo**

TYPICAL SECTION OF EARTHEN CHECK DAM / GULLY PLUG

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

TYPICAL SECTION OF CHECK DAM / GULLY PLUG

Top width	**= 2.00m**
Side slope	**= 2:1**
Height	**= 2.50 m**
Bottom Width	**= 12.00 m**
Cross Section	**= (2.00 + 12.00) x 2.50 / 2**
	= 17.50 m^2
Cost /meter	**= Rs. 839.12**

TYPICAL SECTION OF W.H.B

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

<u>Crop Production:</u> **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:**

<u>Organic Farming System:</u> 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- **<u>Milching and Crop Residue Management:</u> 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 maize, and is incorporated into the soil at an appropriate stage to act on as a milch. Application of organic milch material 4-5 t / ha is recommended.**
6- **<u>Green Manuring:</u> 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 mutter and 85-125 kg/ha of Nitrogen shall be raised and incorporated in to the soil. In 25 ha area green manuring is planned.**
7- **<u>Seed Treatment With Rhyzobium Culture:</u> The seed of leguminous crop like black gram, soybean, pea, etc. should be treated with Rhyzobium culture before sowing.**

8- **Introduction Of Improved Seeds/Varieties:** Short duration and high yielding varieties suitable for this region have been proposed in long duration varities. Demonstrations of High Yielding Varieties (HYVs) of different crops in 208.00 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.

9- **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.

10- **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.

11- **Dry Land Horticulture:** In the selected area 143.00 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.

WORK PROPOSED FOR NATURAL RESOURSE CONSERVATION IN WATERSHED MANAGMENT:

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

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

1. A. Contour bunding :

Contour bunding is and effective in erosion control and moisture conservation measures in dry areas having less than 2% slop to reduce the length of slope. Contour bund will be constructed against the slope in 2193 ha. of land with total estimated cost of Rs. 65.79 Lacs.

B. Marginal, Submergence and Peripharal Bund:

Marginal bund are the engnering structure to reduce the volume and speed of runoff. Those locations where their is a change in slope and soil texcture. Submergence Bundhis will be constructed at middle reaches of the watershead have in lesser slop. Perifaral bund will constructed along with the nala bank. Total praposed treatable area is 1550.0 ha with fianancial outlay of Rs. 69.75 Lacs.

2. Gully plug , Check Dam and Water Harwesting Bundhi :

Gully plug sturcture has been praposed to be formed on upper reaches / Ist order stream. Check Dam is built of mossonary. Check dams have been proposed constructed in big gullies/revines carrying relatvely high run of and sediment load. Water stored in check dams will be utilized as source of irigation water during post mansoon season. Water harwesting bundhis are primaily aimed at collecting and storing any form of water either through rainfall, runoff or sub-surface flow for multipal purposes. Total proposed treatable area alongwith drop spillway structure on 1025.00 ha of land will be constructed on lower reaches of the watershead. Estimated financial outlay is Rs. 154.12 Lacs.

3. **Agro Forestry**

About 215.00 ha land will be taken in the watershed.

4. **Dry Land Horticulture**

About 143.00 ha. will be taken for the plantation of fruit trees like Banana, Aonla, Karaunda, Pea, Guava, Mango and Ber will be planted at suitable spacing in the watershed.

1. Benefit and cost ratio of watershed project

Year	Proposed cost (00,000 Rs.)	Operation and maintenance cost (00,000 Rs.)	Proposed Benefit (00,000 Rs.)
1	61.512	-----	30.00
2	61.5120	-----	60.00
3	252.1992	6.1512	100.00
4	162.3917	6.1512	125.00
5	75.5051	3.0756	140.00
6	-----	-----	150.00
7	-----	-----	150.00
8	-----	-----	150.00
9	-----	-----	150.00
10	-----	-----	150.00

2. Horticulture

Year	Proposed cost (00,000 Rs.)	Proposed Benefit (00,000 Rs.)
1	-----	-----
2	-----	-----
3	4.296	0.50
4	2.148	1.00
5	0.716	1.50
6	-----	2.00
7	-----	2.50
8	-----	2.50
9	-----	2.50
10	-----	2.50

3. Agro-forestry

Year	Proposed cost (00,000 Rs.)	Proposed Benefit (00,000 Rs.)
1	-----	-----
2	-----	-----
3	6.444	0.90
4	3.222	1.75
5	1.074	2.70
6	-----	3.60
7	-----	3.60
8	-----	3.60
9	-----	3.60
10	-----	3.60

BY BENEFIT, COST RATIO METHOD

Watershed Project

Table: 16

S.No.	Item	1	2	3	4	5	6	7	8	9	10	
1	Discount factor 10%	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	
2	Total cost (00,000 Rs.)	61.512	61.512	258.3504	168.5429	78.5807						
3	Benefit(00,000 Rs.)	30.00	60.00	100.00	125.00	140.00	150.00	150.00	150.00	150.00	150.00	
4	$\sum$ Cost	55.9144	50.8089	194.0211	115.1148	48.7986	0	0	0	0	0	464.6578
5	$\sum$ Benefit	27.27	49.56	75.10	85.375	86.94	84.60	76.95	70.05	63.60	57.90	677.345

$$\text{Benefit cost ratio} = \frac{\sum Benefit}{\sum Cost}$$

$$= 677.345/464.6578$$

$$= 1.46:1$$

Horticulture

S.No.	Item	1	2	3	4	5	6	7	8	9	10	
1	Discount factor 10%	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	
2	Total cost (00,000 Rs.)	0	0	4.296	2.148	0.716	0	0	0	0	0	
3	Benefit(00,000 Rs.)	0	0	0.50	1.00	1.50	2.00	2.50	2.50	2.50	2.50	
4	$\sum$ Cost	0	0	3.2263	1.4671	0.4446	0	0	0	0	0	5.1380
5	$\sum$ Benefit	0	0	0.3755	0.6830	0.9315	1.1280	1.2825	1.1675	1.0600	0.9650	7.5930

BCR=7.5930/5.1380 =1.48:1

Agro-forestry

S.No.	Item	1	2	3	4	5	6	7	8	9	10	
1	Discount factor 10%	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	
2	Total cost (00,000 Rs.)	0	0	6.444	3.222	1.074	0	0	0	0	0	
3	Benefit(00,000 Rs.)	0	0	0.90	1.75	2.70	3.60	3.60	3.60	3.60	3.60	
4	$\sum$ Cost	0	0	4.8394	2.2006	0.6670	0	0	0	0	0	7.7070
5	$\sum$ Benefit	0	0	0.6759	1.19525	1.6767	2.0304	1.8468	1.6812	1.5264	1.3896	12.0200

BCR=12.0200/7.7070=1.56:1

Table-:24- Details of engineering structures in watershed works

1	2	3			4			5	6
S. No.	Name of structures	Type of treatment			Type of land			Executing agency	Target
		(i) Ridge area (R)	(ii) Drainage line (D)	(iii) Land dev. (L)	(i) Private	(ii) Community	(iii) Others (pl. specify)	(i) UG (ii)SHG (iii) Others (pl. specify)	Estimated cost (Rs. in lakh)
									T
	Contour bunding	R				P		PIA	289.66
	Earthern checks			L		P		PIA	
	Gully plug		D			P		PIA	
	Field bunds			L		P		PIA	

Table-25-: Details of activities connected with vegetative cover in watershed works

1	2	3			4			5	6
S. No.	Name of structure/ work	Type of treatment			Type of land			Executing agency	Target
		(i) Ridge area (R)	(ii) Drainage line (D)	(iii) Land dev. (L)	(i) Private	(ii) Community	(iii) Others (pl. specify)	(i) UG (ii)SHG (iii) Others (pl. specify)	Estimated cost (Rs. in lakh)
	Afforestation	R		L	P	C		PIA	17.90
	Agro-forestry	R		L	P			PIA	
	Fuel wood			L		C		PIA	
	Fodder			L	P			PIA	
	Horticulture	R			P			PIA	
	Pasture dev.					C		PIA	

Table- 26: Details of allied / other activities

1	2	3			4	5
S. No.	Name of activity	Type of land			Executing agency	Target
		(i) Private	(ii) Community	(iii) Others (pl. specify)	(i) UG (ii)SHG (iii) Others (pl. specify)	Estimated cost (Rs. in lakh)
	Crop demonstration	P			PIA	79.9656
	Animal Husbandry	P			PIA	
	Vermi Compost	P			PIA	
	Animal Neutriant	P			PIA	

FUNDING OF THE PROJECT

FUNDING OF THE PROJECT

Table-27: Funding for the IWMP project * (all financial figures in lakh Rs.)

1	2	3		4										5
S. No.	Watershed Code	IWMP fund		Funds from other sources in addition to IWMP funds										Total
				Convergence funds		PPP		Community		Institutional finance		Others (pl. specify)		
		Central Share	State Share	Name of Scheme	Amount	Name of private sector	Financial contri-bution	Name	Financial contri-bution	Name	Financial contri-bution	Name	Financial contri-bution	
1	2B3B2c2a	43.20	4.80											48.00
2	2B3B2c2d	61.992	6.888											68.88
3	2B3B2c1c	61.884	6.876											68.76
4	2B3B2c1a	68.256	7.584											75.84
5	2B3B2c1b	46.656	5.184											51.84
6	2C4A1d3b	74.304	8.256											82.56
7	2C4A1d3a	63.288	7.032											70.32
8	2C4A1d2b	86.184	9.576											95.76
9	2C4A1d2a	47.844	5.316											53.16
	TOTAL	5530608	61.512											615.12

EXPECTED PROJECT OUTCOME

EXPECTED PROJECT OUTCOMES

Expected employment related outcomes:

Table-AP 28: Employment generation

1	2	3										4				
S. No.	No. of the villages	Wage employment										Self employment				
		No. of mandays(Lakh)					No. of beneficiaries					No. of beneficiaries				
		SC	ST	Others	Women	Total	SC	ST	Others	Women	Total	SC	ST	Others	Women	Total
1	23	0.98	0.0	2.10	0.154	3.08	2304	0	3142	1900	5446	304	0	136	45	440

Table- 29: (i).Details of seasonal migration from Project area: Pre-project status

1	2	3	4	5	6
Sl. No.	No. of villages	No. of persons migrating	No. of days per year of migration	Major reason(s) for migrating	Expected reduction in No. of persons migrating
	66	336	170	Unemployment Low Wages	180

Expected/Estimated Outcomes of IWMP-I Koushambi

S.No.	Item	Unit	Pre-Project Status	Post-Project Status
1	2	3	4	5
1	Status of water table	Meters BGL(M)	17	14
2	Ground water structure	No.'s	-	93
3	Quality of drinking water	Quality	Normal	Good
4	Availability of drinking water	No. of days	282	365
5	Increase in irrigated area	Ha.	1249	2177
Change in cropping/land use pattern				
6	Area under agriculture crop	Ha.	3533	3910
	I Area under single crop	Ha.	3180	2852
	Ii Area under double crop	Ha.	706	2116
	Iii Area under multiple crop	Ha.	0	0
	Iv Cropping Intensity	%	110	143
7	Increase in area under horticulture	Ha.	-	143
8	Area under fuel & fodder	Ha.	-	25
9	Increase in milk production	Per Capita Per Day/Ltr	1.50 to 2.00	2.00 to 3.00
10	No. of SHGs	No's	0	66
11	Increase in Livelihood	Rs./Capita/Annum	9600	15000
12	Migration	No's	336	156
13	SHG Federation formed	No's	0	0
14	Credit linkage with banks	No's	0	66

WATER RELATED OUTCOME

Water related outcomes:

Table-30: Details of average ground water table depth in the project areas (in meters)

1	2	3	4	5	6
S. No.	No. of villages	Sources	Pre-Project level	Expected post-project level	Remarks
	66	Open wells	17-18	14-15	
		Bore wells			
		Others (specify)			

Table- 31: Status of Drinking water*

1	2	3		4	
S. No.	No. of the villages	Availability of drinking water (no. of months in a year)		Quality of drinking water	
		Pre-project	Expected Post-project	Pre-project	Expected Post-project
1	66	9	12	Normal	Good

Table-32: Increase/ Decrease in area under horticulture*

1	2	3	4	
S. No.	No. of Villages	Existing area under horticulture (ha)	Expected Achievement (ha)	
			Area under horticulture proposed to be covered through IWMP	Change in area under horticulture
1	35	-	143	143

Table-33: Increase/ Decrease in area under fodder*

1	2	3	4
S. No.	No. of the villages	Existing area under fodder (ha)	Expected Achievement through IWMP(ha)
1	25	-	25

Production System-1: Fodder bank of Watershed Project

Introduction:

"The fodder bank technology is a farming practice whereby leguminous shrubs and grass species are grown on a farm to provide fodder for livestock sector." It provides a wide range of animal products that are rich in high quality proteins and have the potential as good and sustainable sources of income in many areas. However, lack of fodder in terms of quality and quantity, is one of the major constraints towards the low productivity of watershed Project.

The fodder bank ensures fodder availability which in turn reduces the distressed migration of the people resulting in sustainable livelihood opportunities and enhances natural resource security in the project area.

Objective of a fodder bank:

1. Build a local fodder bank and organize the distribution of fodder during drought and scarce situation.

2. Establish and maintain village fodder farm in the community grazing area, and allocate the community land for fodder production, in association with dairy co-operatives.

3. Control regulates and charge in the community grazing and pastures lands.

4. Undertake the distribution of fodder seeds and slips in the village.

Production System - 2: Vermicompost unit for watershed project

One of the important occupations of the villagers is animal husbandry. At present, the animal waste is not used by the villagers as agricultural input. If the farmers start realising the benefits of compost and vermicompost in particular, the productivity of their land can increase manifold. As part of direct livelihood support, the villagers (mainly land less) are going to receive cows, buffaloes and small ruminants. These animals in turn are going to produce more waste, which can be used to prepare vermicompost.

It is planned that a vermicompost unit by another SHG would be supported by the project. The SHG members, with the help of hired manpower, can collect animal-dung. They would process this dung to prepare vermicompost and sell it to the farmers in the village or outside, as per demand.

<u>Use</u>

Vermi compost has more nutrient compare to other manures and fertilizer; so, by the use of vermicompost we can reduce use of chemical fertilizer. Vermicompost not only supply nutrient but also improve quantity of hormones for plant growth, improves the soil structure leading to increase in water and nutrient holding capacities of soil.

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 Juneea*** **(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 Koushambi 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. Ist Project, efforts will be made to oblise the farmers for Green Manuring.

MONITORING AND EVALUATION

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 stakeholders of the project. The system shows the entire state of Uttar Pradesh and all of those areas selected over the next 5 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 evaluators for judging the efficacy of the project.

Yet another component of the Web-base 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 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.