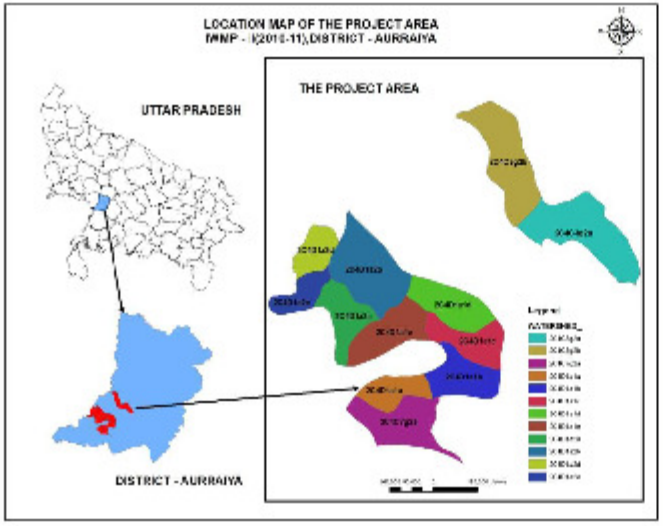
DETAILED PROJECT REPORT
IWMP II (2010-11) AURAIYA



SUBMITTED TO,

Department of Land Development and Water Resourses

Govt. of UP, Lucknow

SUBMITTED BY,

Bhoomi Saraskshan Adhikari, LDWR

Block-Ajeetmal, Auriya

Chapter- Ist

Project Background

1.1 Project Back Ground:-

The Project of IWMP-II district of Etah U.P. The Micro water shed code No are-**2B3D463, 2B3D4C2** which area 8585.83 hector is locate in North-East Part of Etah distric. It's lie between latitude 27° 25' 7.98"N to 27° 33' 29.37"N and Longitude 79° 1' 18.63"E to 79° 13' 0.306"E. The Micro watershed has been taken up by Bhoomi Sanrakshan Adikari Bhoomi Vikas & Jal Sansadhan Vibhag Etah (U.P.) for development of national water shed scheme under I.W.M.P. Project. For the Rein fed area N.W.D.P.R.A. scheme funded by ministry of Rural Development Govt. of India. The water shed has been also taken up program implication, completion of development & Management plan during next 5 year (2010-11 to 2013-14).

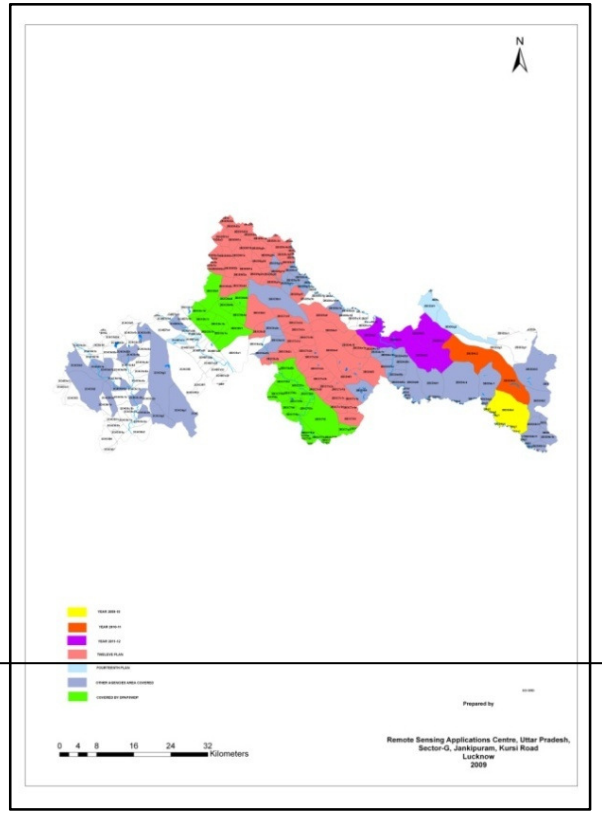
IWMP-II (2010-11) District – Etah *PROJECT AT A GLANCE*

1.	**Name of Block**	**ALIGANJ & JAITHARA**
2.	**Name of Watershed**	**Kali nadi**
2.	**No. of Gram Panchayats**	**41**
3.	**Four reasons for selection of Watershed**	i. Unemployment ii. Low Productivity iii. Upgrading Land. iv. Poverty.
4.	**Date of approval of watershed Development Plan by DRDA/DPC**	22 Feb. 2011
5.	**Area proposed to be treated (ha.)**	**6954.00**
6.	**Date of sanction of PPR** **Date of release of Ist Instalment**	**22 Sept. 2010** **29 Sept. 2010**
7.	**Project duration**	**2010-2011** **to** **2014-2015**

8.	Project Cost (in lac.)	834.48
9.	Proposed Mandays	459000

Name of the project	Weightage	No.of MWS	Geographial Area (ha)	Treatable area (ha)
I.W.M.P. - II (2010-11)	87.50	2	8585.83	6954.00

Year- 2010-11



1.2 Need & Scope of Watershed Development Programme-

Measure reasons for selection of Water shed as follows-

1- Small & Marginal farmers more than 80%.

2- Area under Rain fed agriculture more than 80%.

3- Degraded land more than 10 to 20%.

4- Productivity potential of the land with moderate production.

5- Unemployment problem.

6- Soil erosion.

7- Migration.

8- Drinking water problem.

9- Irrigation water & low production.

The above I to 9 reasons for solve project plan are describe as follows:-

Project Objectives:-(a)- Conservation, development and sustainable management of natural resources Including their uses.

(b)- Enhancement of agriculture production and productivity in sustainable manner.

(c)- Restoration of ecological balance in the degrade and fragile rain fed ecosystem.

(d)- Reduction in regional disparity between rain fed and irrigated areas.

(e)- Creation if sustainable employment opportunities for the rural community for livelihood security.

TABLE NO. 1: WEIGHTAGE OF THE PROJECT

Project name	Project type	Weightage												
IWMP	Desert	I	Ii	iii	Iv	v	Vi	Vii	viii	Ix	X	Xi	Xii	Xiii
Etah (IWMP-2)	Platue	7.5	05	05	05	02	10	15	7.5	10	10	10	05	NA

TABLE NO. 2.1 CRITERIA AND WEIGHTAGE FOR SELECTION OF WATERSHED-

S.No	Criteria	Maximum Score	Range & 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 microwater sheds 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**

1.3 Water shed Information:-

Water shed No. 2B3D4b4 & 2B3D4c2 is situated in Aliganj & Jaithara Vikash Khand Distt. Etah in U.P. Coordinate of Aliganj & Jaithara 27° 25' 7.98”N to 27° 33' 29.37"N and Longitude 79° 1' 18.63"E to 79° 13' 0.306"E. East.

1.3.1 Population:-

In the Aliganj & Jaithara Vikash Khand have 54% males & 46% female, 18% Population in under age 6 year.

1.3.2 Literacy-

In the water shed project Etah IInd in Vikash khand Jaithara literacy as follows-

1- Rate of literacy 61%

2- Male Literacy 68%.

3- Female Literacy 53%.

Stream-

A body of running water moving to a lower level of in a channel of land Burhi Ganga Nala. (41 Km. from Jaithara)

There are two natural streams in the water shed. First drain stream length is 6750 m. & IInd stream length is 5500 m. total Stream length is 12250 m.

Table -3

Stream Characteristics in water shed-

Stream Order	Stream Number	Mean Stream Length (m.)
1st Order	2	6750
2nd Order	1	5500
Total	3	12250

1.4 Other development projects/schemes running in the project area

Status of Previous water shed programmes & other development project in the area.

1- Previous water shed under I.W.D.P. scheme was taken by P.I.A. Etah in year 2006. These water shed are situated in Nidholi Kalan & Sakeet Vikas Khand in Distt. Etah. These 12 Water shed on process in year 2010-11.

2- In 2009-10, three water shed are sanction in Aliganj Vikas Khand in Etah Distt. In that water shed E.P.A. work is complete & D.P.R is sanction by S.L.N.A. other works are in progress.

3- In year 2010-11 two water shed 2B3D4b3 & 2B3D4c2 are sanction by Government of India & S.L.N.A. & E.P.A. work in progress & D.P.R. writing in progressive.

Chapter-2

Project Implementing Agency

Table: 4

2.0 PROECT IMPLEMENTING AGENCY (PIA)			
LAND Development And Water Resources Department section -1Lucknow has nominates as PIA to Bhoomi Sanrakshan Unit, Land development and water resources Development Etah vide letter no-666(10)/54-1-10-1(9)02008 Dated 25-5-2010.			
DETAIL OF P.I.A.			
S.NO.	**NAME**	**DEGINATION**	**QUALIFICATION**
1	Sri B.K. Upadhyay	B.S.A./DD	B.Tech. Agri.
2	Sri V.S. Chaudhari	J.E.	Diploma in Civil Engg.
3	Sri P.K. Sharma	J.E.	Diploma in Ag.Engg.
4	Sri Ram Bhajan Singh	Seech Parveksh	Intermediate
5	Sri Bharat Singh Yadav	Seech Parveksh	Intermediate
6	Sri Shivraj Singh	Seech Parveksh	Intermediate
7	Sri P.K. Bhadauriya	Seech Parveksh	Intermediate
8	Sri Ujagar Singh	Seech Parveksh	Intermediate

9	Sri Chaman Singh	Asst. S.C.I.	B.Sc. Ag.
10	Sri Vishambhar Dayal	Seech Pal	High School
11	Sri Suresh Chandra	Seech Pal	High School
12	Sri R.K. Nimesh	Seech Pal	B.Sc.
13	Sri Abhay Kumar Tiwari	Munshi	M.Com.

Table: 5 DETAIL OF WATERSHED COMMITTEE of Code No.- 2B3D4b3, 2B3D4c2

Sr no.	Name of project	Name of chair person	Secretary	Member	Remarks
1	Junedpur	Smt. Meera Devi	Sri Vishmbher Dayal	Sri Subedar Singh	UGS
				Sri Mohan Lal	UGS
				Sri Omkar	UGS
				Sri Suresh	UGS
				Sri Shishupal	SHG
				Sri Ran Singh	SHG
				Sri Jasvir	G.P.

				Sri Shiv Singh	G.P.
				Sri Surja Devi	S.C.
				Sri Mamta Devi	G.P.
				Sri Ram Niwas	G.P.
2	Agonapur	Sri Azad	Sri Vishmbher Dayal	Sri Kishan Ji	UGS
				Sri Vishnu Dayal	UGS
				Sri Vinod	UGS
				Sri Mukesh	UGS
				Sri Devesh	UGS
				Sri Vijendra	HGS
				Km Reena	GP
				Smt. Radhika	GP
				Smt. Vimlesh	GP
				Smt. Riyana	GP
				Sri Shyampal	SC
3	Harisingh Pur	Sri Syam Singh	Sri Vishmbher Dayal	Sri Ram Das	UGS
				Sri Kuwarpal	UGS

				Sri Ahivar Singh	UGS
				Sri Khetpal	SHG
				Sri Kanheya Lal	SHG
				Sri Mansharam	SHG
				Sri Vinod Kumar	UGS
				Sri Prabhu Dayal	GP
				Smt. Vasnta Devi	GP
				Smt. Dhandevi	GP
				Smt. Maniram	SC
4	KUDESIYA HRIDAYPUR	RANIPAL	VISHMBHER DAYAL	Smt. Chameli Devi	UGS
				Sri Brijpal Singh	UGS
				Sri Satish Chandra	UGS
				Sri Sone Lal	UGS
				Sri Rajendra	SHG
				Sri Pradeep	SHG
				Sri Damodar	GP
				Sri Bhanupratap	GP

				Smt. Shakuntla Devi	GP
				Smt. Ramkali	GP
				Sri Mahaveer	SC
5	MIHUTA	SRI SHYAM SINGH	VISHMBHER DAYAL	Sri Hukum Singh	UGS
				Sri Lajjaram	UGS
				Sri Javar Singh	UGS
				Sri Ramotar	SHG
				Sri Manoj Kumar	SHG
				Sri Ashok	UGS
				Smt. Jagrani	GP
				Smt. Seema Devi	GP
				Smt. Chandravati	GP
				Sri Deshraj	SC
6	BHALOL	JYOTI KUMAR	UJAGAR SINGH	Sri P,K, Sharma	WDT
				Sri Bhupal	UGS
				Sri Basant	UGS
				Sri Man Singh	UGS

				Sri Durgpal	UGS
				Sri Bhupati	UGS
				Sri Man Singh	UGS
7	DAUDGANJ	BRAJESH KUMAR	NIMESH	Sri Ram Chandra	UGS
				Sri Lajjaram	UGS
				Sri Arvind Kumar	SHG
				Sri Virendra Singh	SHG
				Sri Ramotar Singh	SHG
				Sri Ranjeet	LAND LESS
				Sri Brajesh	SC
				Smt. Naseeba Devi	LADIES
				Sri P.K. Sharma	WDT
8	ALINGAJ	Pappu Khan	NIMESH	Sri Sri Niwas	UGS
				Sri Ram Gulam	UGS
				Sri Balvir Singh	SHG
				Smt. Shavana	SHG

				Sri Mahendra Singh Smt Sona Begum Sri Harnath Sri Harish Chandra Sri P.K. Sharma	SHG LADIES Land Less SC WDT
9	BUNDUPURA	Shri Manoj Mishra s/o Ram Sanehi mishra	UJAGAR SINGH	Sri Vipin Sri Vot Singh Sri Sukhvir Sri Ram Sanehi Sri Dayara Sri Khetpal Sri Sadhuram Sri Pradeep Kumar	SHG SHG SHG UGS UGS UGS SC WDT
10	TIGRA BAMHORA	MOTI SINGH	UJAGAR SINGH	Sri P.K. Sharma Smt. Shashi Sri Rinku Smt. Reena	WDT LADIES SHG SHG

				Sri Pannalal	SHG
				Sri Amir	UGS
				Sri Neksu	UGS
				Sri Ram Sewak	SHG
11	GUHETIA KHURD	Shri Prem Pal singh s/o Jagan Nath singh	UJAGAR SINGH	Sri P.K. Sharma	WDT
				Sri Shivraj	SHG
				Sri Tara Singh	SHG
				Sri Durg Vijay	SHG
				Smt. Shashi	SHG
				Sri Radhey Shyam	UGS
				Sri Shivpal	UGS
				Sri Anar Singh	UGS
12	Raya	Shri Ravindra singh S/o Shri Jay singh	Sri Bharat Singh	Sri Ram Saran	UGS
				Sri Surendra	UGS
				Sri Sandeep	SHG
				Sri Ravindra Singh	SHG
				Smt. Saroj	LADIES

				Sri Pradeep Sri Ashok Sri B.S. Chaudhary	SC LAND LESS WDT
13	KAKORA	RAM BHAROSE	BHARAT SINGH	Sri Girdhari Sri Pakham Sri Siyaram Sri Ram Prakash Smt. Shakuntla Sri Naresh Sri Sunil Sri B.S. Chaudhary	UGS UGS SHG SHG LADIES SC LAND LESS WDT
14	KULHAPUR BUJURG	Shri Yadunath singh S/o Shri Niranjan singh	BHARAT SINGH	Sri Shish Ram Sri Subodh Kumar Sri Parath Singh Sri Long Shree Sri Umray Singh	UGS SGH SHG LADIES SC

				Sri Abhilakh Sri B.S. Chaudhary	LAND LESS WDT
15	JAJALPUR	SMT REKHA	SURESH CHANDRA	Sri Sukhvasi Lal Sri Ram Singh Sri Khushiram Sri Rani Devi Sri Ramveer Singh Sri Rajveer Singh Sri Subhash Chandra Smt. Santosh KumarI Sri Ram Babu Sri Rajveer Singh Sri P.K. Sharma	SC SHG SHG SHG SHG UGS UGS LADIES UGS LAND LESS WDT
16	BHARAPURA	SMT PHOOL SHREE	SURESH CHANDRA	Sri Rajaram Sri Salikram	UGS UGS

				Sri Virendra Singh	UGS
				Sri Sunedar Singh	UGS
				Sri Geetam Singh	UGS
				Sri Raju	SHG
				Sri Khetpal	UGS
				Sri Shivpal Singh	SHG
				Sri Ram Narayan	UGS
				Sri P.K. Sharma	WDT
17	ALIYAPUR DANDA	SHREE AJAY SINGH	A K TIWARI	Sri Ravindra Singh	SHG
				Smt. Sarita devi	SHG
				Sri Amar Singh	SC
				Sri Badam Singh	Landless
				Sri Badri	UGS
				Sri Mani Ram	UGS
				Sri BS Chaudhari	WDT
18	BITHARA	SMT.RESHAMA DEVI	A K TIWARI	Sri Pratap Bhanu	SHG
				Km. Shakuntla	SHG

				Sri Devendra Singh Sri Kishan Lal Sri Krishan Pal Sri Hakim Singh Sri B S Chaudhri	Landless SC UGS UGS WDT
19	UBHAI ASHAD NAGAR	SRI DEVENDRA SINGH	AK TIWARI	Smt. Munni Devi Sri Abhdesh Sri Nandlal Sri Gopal Sri Veer Pal Sri Khushi Ram Sri BS Chaudhri	SHG SHG Landless SC UGS UGS WDT
20	KALIJAR	SHREE SANTOSH KUMAR	AK TIWARI	Sri Prem Chandra Smt. Mithlesh Sri Ram Charan Sri Shaukin Singh Sri Shyam Charan	SHG SHG SC Landless UGS

				Sri Champat Sri BS Chaudhri	UGS WDT
21	FARD PUR	SHREE RAM ASHARE	AK TIWARI	Sri Harischandra Smt. Kanti Devi Sri Abdhesh Sri Mahesh Singh Sri Ram Bharose Sri Mukesh Sri B.S. Chaoudhary	SHG SHG SC Landless UGS UGS W.D.T.
22	Tisori	Shri Yatendra Singh sharma	Chaman Singh	Sri Ramprakash Sri Diwakar Sri Bahori Lal Sri Shobharam Sri Deepak Sri Pravesh Kumar Smt. Premwati	UGS UGS SHG SHG SC Land Less Woman
23	Angria Gangai	Shri Jagdish Singh Yadav	Chaman Singh	Sri Radhey Shyam	UGS

				Sri Ashok	UGS
				Sri Narendra	SHG
				Sri Ajay	SHG
				Sri Kishan Lal	SC
				Sri Radhey	Land Less
				Smt. Geeta Devi	Woman
24	Nagla Ummed	Shri LokPal singh	Sri Chaman Singh	Sri Bankilal	UGS
				Sri Badan Singh	UGS
				Sri Awadesh	SHG
				Sri Madan Pal	SHG
				Sri Satendra	SC
				Sri Kishan Veer	Land Less
				Smt. Suman Shakya	Woman
25	Angraia Jamunai	Sri Rajjak Khan	Sri Chaman Singh	Sri Jan Muhhamad	UGS
				Sri Sher Muhhamad	UGS
				Sri Jabbar Ahamad	SHG

				Sri Navi Hasan Sri Aunil Kumar Sri Dafedar Smt Jarina Begam	SHG SC Land Less Woman
26	Lohari Gavi	Sri Ashif Khan	Sri Chaman Singh	Sri Kabir Ahamd Sri Mohhamd Ahamd Sri Raj Kumar Sri kadir Khan Sri Ratan Lal Sri Aarif Khan Smt Ram Narayan	UGS UGS SHG SHG SC Land Less Woman
27	Kachhiyabada	Sri Satyapal Yadav	Sri Chaman Singh	Sri Parwat Singh Sri Ram Prakash Sri Ram Sharan Sri Rajendra Singh Sri Dya Ram	UGS UGS SHG SHG SC

				Sri Jasveer Smt Rekha Devi	Land Less Woman
28	Kella	Sri Arvind Kumar	Sri Ram Bhajan	Sri Ram Pal Sri Radhe shyam Sri kumar Pal Sri Shobha Ram Sri Jay Singh Sri Jagat Pal Smt Kusum	UGS UGS SHG SHG SC Land Less Woman
29	Ram Nagar	Sri Babu	Sri Ram Bhajan	Sri Amar Singh Sri Ashok Sri Ram Pal Sri Narendra Sri Jagat Pal Sri Jagveer Smt Ram Wati	UGS UGS SHG SHG SC Land Less Woman
30	Bachhora Ganj	Sri Ram Naresh	Sri Ram Bhajan	Sri Ram Pal	UGS

				Sri Badan Singh	UGS
				Sri Ram Singh	SHG
				Sri Abdesh	SHG
				Sri Jag Pal	SC
				Sri Brajpal	Land Less
				Smt Ram Beti	Woman
31	Naktai khurd	Sri Gaj Raj Singh	Sri Ram Bhajan	Sri Bahadu Singh	UGS
				Sri Parwat Singh	UGS
				Sri Brajpal	SHG
				Sri Rajendra	SHG
32	Dharoli	Shri Ram bharose	Shri Shiv raj singh	Sri Yograj	SC
				Sri Shyam Singh	Land Less
				Smt Ram Katori	Woman
				Shri P.K Sharma.Je	W.D.T
33	Khiriya Banar	Shri Uday Pratap s/o Rameshwar Prasad	Shri Shiv raj singh	,, Mubarak Ali	SHG
				,, Satay bir	SHG

34	Dahelia Puth	Shri Bal bir singh s/o ,, Tej singh	Shri Vishbambhar dayal	,, Abed Ali Smt Husnara vegam ,, Panna Lal ,, Satay Pal ,, Bhisham Pal singh ,, Shiv singh ,, Suresh Chandra Smt Reena devi Shri Ravendra singh ,, Abdhesh singh ,, Hari Krishna ,, Ram Charan ,, Ramesh Chandra	SHG Ladies UGS UGS Land less SHG SHG Ladies UGS UGS UGS Land less SC
35	Gadhi Roshan	Shri Ajay kumar S/o ,, Netra Pal singh	Shri Shiv raj singh	,, Pradeep kumar sharma Shri Jagdish chandra ,, Santosh kumar s/o	WDT UGS

				Shri Ram deen	
				,,Manoj kumar s/o Shri	
				Radhe shyam	
				,, Surendra s/o Shri Vidhya Ram	
				,, Ram Chandra s/o shri Pyare Lal	
				,, Hari shankar s/o Shri	
				Har Pal	
				,, Sanjay kumar s/o shri Lankush	SHG
				,, Sumit kumar s/o shri Ram Nibas	Ladi
				,,Upendra s/o shri Ujagar	SHG
				Smt Rama devi w/o Radhe shyam	UGS
				Smt Shri devi w/o Raghuvir singh	UGS
					Land less

				Shri Lakhmi Chandra s/o shri Gokul Shri Manoj singh Smt Rasmi Shri Raju singh Shri Netra Pal singh ,, Umesh singh ,, Ram Pal singh ,, Shyam Pal singh ,, Chandra Prakash singh Shri Pradeep kumar sharma Shri Ram Katheria	UGS WDT SC

Sub watershed committee of watershed

1	Galar Pur	Shri Satish Chandra s/o Shri Rameshwar singh yadav	Shri Vishbambhar dayal	P.K Sharma J.e	WDT
				Shri Amrat singh s/o Shri Jay singh yadav	UGS
				,, Subesh kumar s/o Jay singh	SHG
				Shri Sone Lal s/o Nathu	Land less
				Shri Khushi Ram s/o Hote Lal yadav	UGS
				Shri Umesh s/o Shyam singh	UGS
				Shri Jiledar s/o Natthu yadav	SHG
				Shri Sobran singh s/o	SHG
				Jay vir singh	Ladies
2	Palra	Shri Ran vir singh s/o Ram Chandra singh	Shri Vishbambhar dayal	Shri Satendra singh s/o	Ladies UGS

3	Dehlai	Shri Kra Pal singh s/o Munshi singh yadav	Shri Suresh chandra	Darbari Lal Smt Meera devi w/o Satish Chandra Smt Geeta devi w/o Sudesh kumar Shri Nek Ram s/o Pyare Lal Shri Daya Ram s/o Kamta Prasad Shri Ram singh s/o Bachan singh Shri Kaptan singh s/o Har Pal singh Shri Virendra Pal singh s/o Maharaj singh Shri Ram sebak s/o Kaddi Shri Pramod s/o Ram Naresh	 UGS SHG SHG UGS Land less UGS Ladies Ladies UGS UGS UGS

				Smt Sudama devi w/o Ram Naresh	
				Smt Meera devi w/o Devendra singh	
				Shri Fool singh s/o Raja ram	
				Shri Abhdhesh s/o Lala ram	
			Shri Shiv raj singh	Shri Pradeep kumar s/o Raksh Pal singh	
4	Kukrama Ratan Pur	Shri Shyam lal S/o Bhabani		Shri Shiv kesh s/o Putlu singh yadav	WDT
				Shri Jiledar singh s/o Govind ram	WDT
				Shri Ram sebak s/o Ram charan yadav	SHG
					Ladi
				Shri Ram vir s/o Lakshman shakay	SHG
				Shri Jay vir singh s/o Seeta ram	UGS
			Shri Shiv raj singh		UGS
				Shri Balak ram s/o Bachchan lal	UGS
5	Lal Hat	Shri Ram s/o Ram bharose			

6	Dharra	Shri Jay singh s/o Tota ram Rajudeen s/o Sarparank	Ujagar singh Ujagar singh s/o Ram deen singh	Shri Rekha rani s/o Kausal Shri Badan singh s/o Mitthu lal Shri Suresh Chandra s/o Atbari lal Shri Pradeep kumar sharma Shri Pradeep kumar sharma Shri Ramesh Chandra s/o Kanhai lal Smt Meena w/o Nes bal Shri Satay Pal s/o Munshi lal Shri Megh Nath s/o Ajuddi Prasad Shri Genda lal s/o Banbari Shri Jay singh s/o Duarika Prasad Shri Naubat singh s/o	Land less WDT SHG SHG UGS UGS UGS Land less Ladi WDT WDT

7	Sokha			Munshi lal	
				P.K Sharma	
				Shri Tilak singh s/o Lag vir	
				Shri Hari ram s/o Ram Pal singh	WDT
				Shri Durvesh kumar s/o Ram charan	
			Ujagar singh		
				Shri Bal bir singh s/o Sukhbas singh	
		Shri Raghubir singh s/o Ram singh			
				Shri Satish Chandra s/o Kubar Pal	WDT
8	Maya chak				
				Shri Mohan s/o Rameshwar dayal	
				Shri Kishan Pal s/o Mitthu Lal	
					WDT
				Smt Pinki w/o Tilak singh	
			Chaman singh		
		Shri Ved ram singh s/o seeta ram		P.K Sharma	
				Shri Subhash chandra	
9	Puranjala				

10	Gulsana bad	Subhan khan s/o Amir khan	Chaman singh	s/o Pyare lal Smt Seema w/o Vikas Shri Om Prakash s/o Nababa singh Shri Lok Pal s/o Mangali Prasad Shri Ram Chandra s/o Bhupal Shri Satish s/o Netra Pal Shri Prem pal s/o Lakh pati P.K Sharma Smt Kanti devi w/o Suksh Pal Shri Sudhir s/o Rameshwar Shri Anom s/o Rajendra Shri Rajendra s/o Rameshwar	UGS UGS SHG SHG SC Land less Ladi UGS UGS SHG SHG SC Land

				Shri Ram babu s/o Subedar Shri Ram Prakash s/o Chandra Prakash Shri Rajendra s/o Ram lote P.K Sharma Shri Kishan s/o Natthu Shri Vinod s/o Pokh Pal Shri Shishu Pal s/o Narayan Subodh s/o Netra Pal Ram Pal s/o Ram sah Kitab shri w/o Maha vir Jiledar s/o Saktoo Rajani w/o Pankaj Shri Raghuraj singh s/o Bhagban singh Jay singh s/o Mano har	less Ladi

				singh Raja ram s/o shya ram Ram datt s/o Sundar singh Ram Naresh s/o Shyamu Lal Desh raj singh s/o Ram khiladi Smt Ram suti w/o Kanoji Rajesh kumar s/o Badri Prasad Raksh pal singh s/o Narayan lal Barar khan s/o Anbar khan Punas khan s/o Ejral khan Pradeep kumar s/o Munna lal Guddu khan s/o Ala	

				udeen khan Jarina vegam w/o Ryaj mohamad	

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

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 the crop gentic diversity 6-awarness of farmers about watershed management program 7-well estalished 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 fules and fodder.

Opportunitias(o)	Threats(t)
1-wide range of animal and personal crops. 2-scrope of regular imployment oppprtunity to check out migration. 3-strengthening of existing irrigation system 4-conductive climate for rainfed crop diversification 5-good scope for agro forestry and drive land horticulture. 6-protentian for collective active action and managment 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-6 DETAIL OF W.D.T.

S NO.	NAME OF MEMBER	DESIGNATION	QUALIFICATION	EXPERIECE (IN YEAR)
1	Dr. Dinesh Singh	S.M.S. AG. ENGG.	M.Sc.(Ag.) Engg., Ph.D. K.V.K. Awagarh, Etah	14 Years

2	Dr. (Smt.) A. Nidhi	S.M.S. Home Sce.	M.A. (Home Sce.) Ph.D.	20 Years
3	Sri V.S. Chaudhari	J.E. Soil & Water Development Etah	Diploma in Civil Engg.	30 Years
	Sri P.K. Sharma	J.E. Soil & Water Development Etah	Diploma in Agg. Engg.	30 Years.
4	Sri Chaman Singh	A.S.C.I.	B.Sc. Ag.	3 Years.

Table -7, Staff at PIA Level

STAFF OF P.I.A.			
S.NO.	**NAME**	**DEGINATION**	**QUALIFICATION**
1	Sri B.K. Upadhyay	B.S.A./DD	B.Tech. Agri.
2	Sri V.S. Chaudhari	J.E.	Diploma in Civil Engg.
3	Sri P.K. Sharma	J.E.	Diploma in Ag.Engg.

4	Sri Ram Bhajan Singh	Seech Parveksh	Intermediate
5	Sri Bharat Singh Yadav	Seech Parveksh	Intermediate
6	Sri Shivraj Singh	Seech Parveksh	Intermediate
7	Sri P.K. Bhadauriya	Seech Parveksh	Intermediate
8	Sri Ujagar Singh	Seech Parveksh	Intermediate
9	Sri Chaman Singh	Asst. S.C.I.	B.Sc. Ag.
10	Sri Vishambhar Dayal	Seech Pal	High School
11	Sri Suresh Chandra	Seech Pal	High School
12	Sri R.K. Nimesh	Seech Pal	B.Sc.
13	Sri Abhay Kumar Tiwari	Munshi	M.Com.

Chapter-3

Basic Information of the Project Area

3.1 Location:-

The Kali Nadi Water Shed in Aliganj Block of Etah distric in U.P. is Locate on Etah, Aliganj, Farrukhabad road about 50 Km. from Etah & water shed start 40 Km. from Etah location data's given as below:-

Longitude -79° 1' 18.63"E to 79° 13' 0.306"E and

Latitude - 27° 25' 7.98”N to 27° 33' 29.37"N

District - Etah

State - U.P

Block - Aliganj, Jaithara

Taluk - Jaithara

3.2- Area:-

Total area water shed is 8585.83 Ha. & treatable area is 6954.00 ha. sanction by S.L.N.A. Lucknow capital of U.P. Rain fed area 7727 ha. Irrigated area by Cannel is '0' (Zero) & forest area is Zero in the water shed. Major area of water shed used in Agriculture.

3.3- Shape:-

Water shed No. 2B3D4b3 shape along with South to North. Length & width of water shed is 13057m. & 4060m. respectively with the length wide width ratio is 3.813:1 water shed No. 2B3D4c2 is in shape of near about rectangular which length is East to West & width in North to South is near about 11065m. 3066 meter respectively with the length wide width ratio is 2.456:1.

3.4- Stream:-

A body of running water moving to a lower level of in channel on land Burhi ganga Nala (41 km from Jaithara).

Table -8

Stream Characteristics in water shed No. 2B3D4b3 & 2B3D4c2

Stream Order	Stream Number	Mean Stream Length (m.)
1st Order	2	6750
2nd Order	1	5500
Total	3	12250

3.2 Geography and Geo-hydrology

3.2.1 Land Use Pattern

1-Present Land Use in the Watershed:

The watershed has diversified land uses namely agriculture, waster land (open scrub), seasonal water bodies etc. The varied present land use and area under different categories in watershed is shown in the following table. The mixed land use followed in the watershed is almost similar in other parts of the UP. During PRA exercise, the villagers prepared land use. One such map of village of the watershed is shown in table.

Table:-9

SN	Name of watershed code no.	Name of concern village	Land use				
			Agriculture	Wasteland all type	Forest/ pastures	Other	Total
1	2B3D4b3	Ubhai AsadNagar	93.434	10.260	-	15.306	119.000
2		Jahangirpur	12.910	4.090	-	-	17.000
3		Randhirpur	73.840	3.880	-	3.280	81.000
4		Bithara	73.840	3.880	-	12.900	28.000
5		Dandha	67.532	7.630	-	5.837	80.999
6		Tungai	76.274	11.376	-	2.350	90.000
7		Kalinjar	16.450	2.150	-	1.500	20.000
8		Nagria Urf Sikandarpur	121.682	12.592	-	10.812	145.086
9		Aliyapur	146.585	10.713	-	03.000	160.298
10		Fardpura	176.085	11.604	-	19.895	207.584

11		Galalpur	42.412	2.000	-	3.588	48.000
12		Mihuta	244.000	7.000	-	25.000	276.000
13		Harsinghpur	145.000	4.000	-	1.9000	150.900
14		Junedpur	25.000	1.000	-	0.644	26.644
15		Palara	87.200	9.739	-	3.061	100.000
16		Dehliyapooth	70.000	8000	-	1.800	79.800
17		Jhakrai	353.785	45.660	-	99.595	499.000
18		Akbarpur kot	41.500	1.000	-	0.500	43.000
19		Piam jhheta Chak No-1	108.341	5.758	-	110.091	244.190
20		Piam jhheta Chak No-2	32.809	0.340	-	1.811	34.960
21		Daudganj	80.905	12.196	-	2.833	95.934
22		Sadhira	72.050	2.120	-	5.830	80.000
23		Kudessiya Hridaypur	31.900	3.500	-	0.600	36.000
24		Agounapur	18.659	4.000	-	0.508	23.167
25		Aliganj MB	-	-	-	-	-
26		Aliganj Dehat	386.876	230.380	-	72.784	690.040
27		Bharapura	146.409	28.647	-	24.944	200.00
28		Jajalpur	102.210	134.991	-	12.799	250.00
29		Dehlai	87.330	4.557	-	7.961	99.848
30		Ram Nagar	56.300	02.200	-	11.500	70.000
31	2B 3D 4c2	Ladsiyapur Urf Lutfullapur	70.400	10.100	-	11.500	92.000
			44.300	2.000	-	8.700	55.000
32		Naktai Kalan	23.100	2.300	-	4.600	30.000
			15.000	1.500	-	3.500	20.000
33		Nagla Ummed	59.900	4.600	-	10.500	75.000
34		Gulshnabad	25.400	0.500	-	2.100	28.000

35		Purjala	20.000	32.000	-	8.000	60.000
36		Tisora	12.500	4.000	-	3.500	20.000
37		Angriya Jamnai	169.200	10.500	-	27.300	207.000
38		Angriya gangai	199.500	30.000	-	12.500	242.000
39		Bachhora ganj	80.000	8.500	-	16.500	105.000
40		Naktai khurd	192.890	12.500	-	69.610	280.000
41		Kaila	14.800	1.500	-	3.700	20.000
42		Arjunai Simri	30.900	2.100	-	6.000	39.000
43		Khetiya	15.900	1.150	-	3.500	23.000
44		Raya	721.500	17.500	-	99.000	838.000
45		Kakora	30.400	3.500	-	4.100	38.000
46		Kulhapur Khurd	38.900	5.000	-	6.100	50.000
47		Kulhapur Bujurg	259.500	6.500	-	32.000	298.000
48		Luhari Gavi	57.500	4.000	-	8.500	70.000
49		Chak Dhaudhau	53.000	06.000	-	2.000	61.000
50		Kukraiya Ratanpur	201.196	17.983	-	33.101	252.280
51		Lalhat	16.273	3.173	-	2.565	22.011
52		Gari Roshan	290.011	22.706	-	22.137	334.851
53		Dharauli	64.397	9.213	-	2.337	75.947
54		Bandupura	119.575	8.266	-	17.163	145.000
55		Khiriya Banar	397.279	22.737	-	39.984	460.000
56		Dharra	96.892	7.472	-	45.636	150.000
57		Kachhiya bara	41.000	4.000	-	5.000	50.000
58		Bhalaul	164.500	10.537	-	44.963	220.000
59		Guhaitiya khurd kala	63.724	1.011	-	16.265	81.000
60		Sokaha	20.467	0.405	-	-	20.872

61		Maya Chak Jaithara	112.275	8.004	-	4.101	124.380
66		Tigra Bhamora	20.323	1.153	-	0.563	22.039
	Total		**6676.874**	**869.302**	**-**	**1039.654**	**8585.83**

3.2.2 - Present land use of the watershed

The present land use in the watershed project as use as follows:-

S.No.	Land use	Present (ha)
1	Agriculture	6150.95
	a) Rainfed	4384.00
	i) Crops	6150.95
	ii) Agro-forestry	-
	b) Irrigated	-
	i) Assured	-
	ii) Partial	
2	Waste Land	966.00
	a) Afforestation	-
	b) Pasture	334.88
	c) Untreatable	-
3	Village Land	1138.00
	Total	**8585.83**

3.2.3 **PROPOSED LAND USE**

Watershed management plan for Kali nadi watershed is proposed with specific objectives of food efficiency and income and employment generation with environment with security, in plan preparation due importance is given to topology ,land suitability ,irrigation potentiality ,prevailing forming system , microfarming situation,farmers preferences and priorities along with economic and enviromental securities , crop and tree selection and area distribution is done as per farmers priorities revealed through PRA exercise.Technological option is blended with the indigenous knowledge based on the latest available research/exprimental findings for this region. Due attention is given to resource of the farmers and the resource poor farmers.Emphasis is given on maximum use of farmyard manure and green manuring the proposed land use plan of watershed is give as below.

Table: 10 Land use plan of present and proposed selected watershed:

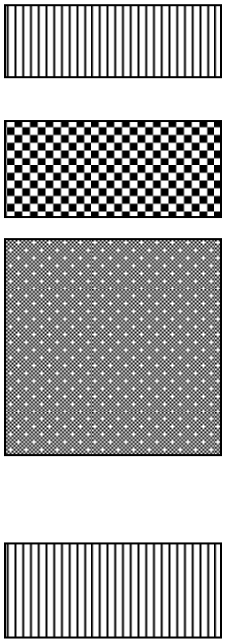
S.N.	Land use	Present(ha)	proposed(ha)
1	Agriculture	6150.95	6981.83
a	Rainfed	4384.00	3884.00
	(1) Crop	6150.95	6981.83
	(2) Agro-forestry	-	-

b	Irrigated	-	-
	(1) Assured	-	-
	(2) Partial	-	-
2	Wasteland	966.00	466.00
	(A) Afforestation	-	-
	(B) Pasture	-	-
	(C) Untreatable	-	-
3	Village land	1138.00	1138.00
	Total	**8585.830**	**8585.83**

3.2.4 Soil and Topography

The selected area is suited in Alinganj of Etah district (U.P.) on Aliganj-Farukhabad Highway about 52 km. from Etah H.Q. and degree of watershed 27.5^0 North and 79.18^0 East. It has an average elevation of 154 mtrs. above the MSL. The entire watershed is topographically divided into two landforms first. The area lies in North-East portion of district Etah (U.P) near Etah, Aliganj, Farrukhabad Road. Water shed there are mainly one type of soil named-Course loamy.

Soil Profile- (collected datas from Rajveer Singh S/o Hawaldar Singh R/o Khiriya Banar)



(0 – 120cm Course Loamy)

(121-400cm yellow soil)

(401-1900cm Course loamy sandy clay soil)

(1901-2200cm concrete with clay soil)

WATER SOURCE

Table: 11 Morphology of typical Solid Profile of Paisuni & Ohan Watershed

Horizon	Depth (cm)	Morphology
A	**0-120**	**Course Loamy**
B	**121-400**	**YELLOW SOIL**
C	**401-1900**	**Course loamy sandy clay soil**
D	**1901-2200**	**Concrete with clay soil**

3.2.5 Soil Characteristics and Fertility Status

Two type of solis are in the watershed area in that 99% area of course loamy soil. The fertility status is about normal range due to production of major pulses crops. There is scarcity of phosphorus due to continuous growing of pulses. the four soil samples of each village, three for nutrients analysis and one for sulphur and micro nutrients analysis have been send to laboratory. After receiving the analysis report effort will be made to motivate the farmers to use nutrients and micronutrients according to the any analysis report. For this demonstration of crop in Kharif and Rabi both seasons have been proposed under agriculture production Activity.

3.2.6 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 Kali Nadi watershed brought out the prevailing LCC classes as I, II, III, IV.

Table: -12

LCC Class	Area Ha
I	761.000
II	3755.000
III	1399.000
IV	1039.000
TOTAL	6954.000

3.2.7 Climatic Condition:-

The water shed falls under the South western semi arid zone average annual rain fall 686 mm. The maximum temperature 40 to 45^0 and minimum its down aprox. 5^0 Most of the rain fall about 85% is received during June to September. The rain fall is of moderate to high intensity the area receive no or secondary rain fall in the winter season.

3.2.8 Physiography and Relief:-

The water shed elevation range from 154 m. above the M.S. Level all together 66 villages. The water shed is the bank of Kali Nadi near border of Mainpuri district & Farrukhabad Dist. Water Shed slope having moderate slope.

3.2.9 Soil Erosion:

Total water shed area effected by water soil erosion, 4932 ha. area is effected by sheet erosion 2390 ha. effect by rill erosion & 405 ha. area is effected by gully erosion.

3.3 Land and Agriculture

Maximum area above 60%of water shed has slop up to 3% and 20% area has slope up to 1% and 20% area has slope 3 to 5%. Various agricultural land uses in the watershed are extended to diversified land capabilities starting from marginal to good class II lands. The watershed distinctly has three types of lands i.e. leveld, sloping and degraded and undulating. The agriculture is practiced on all these soil types though the productivity considerably varies. The total area under agriculture in the watershed is about 6676.874 ha in which 7727 ha is under rain-fed agriculture. The water (both irrigated 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

framers of watershed forcing them to carry drinking water from out side the watershed area. The agricultural field bunds are common in the watershed, however, they frequently breach on heavy rains adversely affecting the *in situ* percolation of rain water in the soils.

The agriculture soils in the watershed have diversified texture i.e. loan sand, salty clay loam and boulder mixed textures which are located in patches through out the watershed. The heavy soils are almost kept fallow during rainy season. The agricultural soils also have hard calcium pan at variable depths. The irrigation water is conveyed in earthen channels and surface irrigation methods following mainly border method or flood method of irrigation by the farmers in the watershed. These factors substantially reduce the water use efficiency of limited available and valuable irrigation water in the watershed. The quality of irrigation water needs to be tested for assessing fitness of the quality for irrigation and other purposes.

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

One year rotation

Single cropping

Wheat/Tobacco/Potato (Winter Vegetable)/Bajara/Jowar/Arahar

Double cropping

Bajra/Jwar/Wheat/Penuts/Wheat/Maize-Wheat, Maize-Potato (Winter Vegetable)

Irrigated Agriculture

One year Rotation-

Bajara, Wheat, Mustard, Maize-Potato, Paddy-Potato (Winter Vegetable)

3.3.1 Crop productivity:-

The agricultural productivity is primarily driven by the amount and distribution of rain water specifically during two cropping seasons i.e. rabi and kharif. Productivity of kharif crops is also affected by the late onset or early withdrawal of monsoon as well as intermittent droughts of variable duration and intensity. The farmers also do not have suitable cropping systems to deal aberrant weather. Weeds impose considerable constraint in productivity of both kharif and rabi crops under irrigated as well as rain-fed production system. Farmers undertake

normally one manual weeding in mustard and other valuable crops however, practice is energy and time consuming. Use of weedicide is rare in the watershed.

The mixed cropping is in practice in limited area with kharif crops like bajra and jowar but it is not only irrational but also unscientific and beset with low productivity. Subsequent rabi crops in general and mustard crop in particular are raised on residual soil moisture under rain-fed crops in general and mustard crop in particular are raised on residual soil moisture under rain-fed production system during post monsoon season. Imbalanced use of fertilizers is common in not only rabi and kharif crops but also in rain-fed and irrigated production system. The recommended deep plowing for enhanced in situ residual soil moisture conservation and higher production is also not followed in the watershed. The shallow plowing tractor drawn tillage implements are available with the farmers in the watershed. The shallow plowing tractor drawn tillage implements are available with the farmers in the watershed but deep plowing implements yet need to be introduced.

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

3.3.2 Indigenous Technological knowledge (ITK)

The agriculture is an old traditional practice of farmers in the watershed who have improved themselves with passage of the time according o their domestic need and technological reforms in the nearby areas. The villagers have their traditional village ponds, practice of field bonding which typically constitute agriculture related ITKs in the watershed. The mustard being a cash/fire wood crop of the watershed is being cultivated in self designed manner by the farmers. However, limited fertilizer application specifically the DAP came in to practice since about 20 years.

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

Organic farming system: Organic farming system will be achieved in the following manner:

1-Maximum use of crop residues in the cropping system.

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.

3.4. Mulching and crop residue management: Source of mulch material includes weeds, pruning from agro-foresting trees and in situ grown legumes and green manure crops. the concept of life mulching is based on the principle of mixed cropping whereby a fast growing legumes is established before of 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 mulch. application of organic mulch material 4-5 t/ ha is recommended.

3.4.1. Green maturing ; To improve the organic matter and physical condition of the soils , green maturing crops like dhaincha and sun hemp which supply 20-30 t/ ha of green matter and 85-125 kg / ha of nitrogen cell be raised in incorporated in to the soil.

3.4.2. Seed treatment with rhyzobium culture : The seed of leguminous crop like ,wheat ,pea, etc. should be treated with rhyzobium culture before sowing.

3.4.3. Tillage operation : It is advisable to carry out tillage operation like ploughing followed by planking just after the harvest of kharif crops. this will be help ful in conserving moisture for sowing and germination of rabi crop in addition , coverage of soil surface with mulch material is also recommended to insure the soil moisture.

3.4.4. Introduction of improved seeds/varieties :Short duration and high yielding varities suitable for this region have been proposed in long duration varities. domnstrations of high yielding varities (HYVs) of different crops in planned in the watershed however for self sufficiency in seed requirment farmers of the watershed will be involved to produce required quantity of seed of the recommended crop varities .

3.4.5. 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 fertilizers below the seeds will help in enhancing the crop yields without invoiving monetary inputs.

3.4.6. Control of insects pest and diseases : Pod borer in gram is the major insect in the water shed 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.

3.4.6. Dry land Horiculture : In the selected area 305 ha land is plammed for horticulture and agro horticultar. species like amla , guava , ber , bel , lemon will be planted at suitable spacing in the watershed .

3.4.7 Geography and soils:-

The area lies in North-East portion of district Etah (U.P) near Etah, Aliganj, Farrukhabad Road. Water shed there are mainly one type of soil named-Course loamy.

3.4.8 Water shed character stics:-

The Water shed shape is mostly rectangular in the shape which have seen by attached water shed map.

3.5 Vegetation :-

3.5.1 Natural Vegetation-

a- Natural vegetation of the watershed is very poor. The forest vegetation is predominant with vilayti babul(prosopis juliflor) followed by babool (acacia nilotica). there are sufficient no. of neem plant (azadirachta indica) shisham(dalberga sisso) safeda(eucalyptus) are also present at some places.

b- **Horticulture :**

Mango(46%), guava (50%), citrus (4%), are main fruits in watershed.

c- **Agro forestry :**

The agriculture fields of the village do not have any forest or horticultural plantation. at places some isolated trees of Africa mitotic can be seen whose frequency is less than one tree per running length of 100m. to 150m.

3.6 Agriculture horticulture and Agro-forestry

The agriculture land use constitutes about 74% of the total watershed area. Both rain fed and irrigated agriculture are practiced in the watershed mono cropping is dominant in the rain fed production system while double cropping is limited to be irrigated lands, which constitutes about 7.46% of the total area under agriculture . rain-fed agriculture is mostly mono cropping with invariably low productivity. these areas constitute about 70% of total agriculture area. the food and livelihood security is primarily driven by the natural weather factors of rain and its distribution specifically across the cropping season. only about 37.8% area under agriculture is cropped during kharif season in the watershed among various crops bajra shares maximum area (11%), followed by sesame (2.1%) jowar (0.7%) maize (13%), paddy(1.3%),arhar(2.6%), ground nut(2.1%). farmers use high yielding varieties of bajra (Jk, pioneer , Aarti, Boss, PAC,9444,Mahyco Bajra)and Sea some(Nitya)which are mostly truthfully labeled based from private seed companies. The productivity of Kharif crops is low and fluctuates depending upon rainfall pattern, use of fertilizers and incidence of diseases and insect pests . Low yielding local verities of jowar are grown without fertilization for graqin and fodder production in the watershed, The green jowar verities are one of the various sources

like crops, grasses, and limited forest trees is clearly inadequate for maintaining proper health of existing animals.

Watershed has good scope for lowland and semi deep water rice cultivation in seasonally submerged area, which remains unutilized during kharif season, Almost in all three village of the watershed , no compost pits exists and fresh to semi like dhaincha, sun-hemp, neel have good potential in the watershed however the practice of green manure is meager and unpopular in the watershed, in spite of the fact that organic matter status as well as fertility of the agriculture soils are poor to fairly good. The cultivation fallow lands dominate in the watershed which contributes to soil erosion as well as runoff yield in the watershed.

Among rabi crops, wheat occupies the largest area under agriculture 55 to 60% followed by Tobacco 6% and pulses like gram1.3%. Farmers are using high yielding varieties of rabi crops like PBW 343,UP182,PBW154,UP343, UP2329, UP2338, HD2009, and even very old verities like Lok-1 in wheat crop. Imbalanced fertilizers use in the rabi crops both under rain-fed and irrigated areas, absence of S containing fertilizers and inadequate pest control measures with respect to aphid .

In majority of farmers of watershed are lacing considerable problem of fire wood, fodder due to meagre or almost bnegligible forest area, lack of traditional agro- forestry practices and pastures,. Cow dung, stover of mustard, sesame and dhaincha,and scattered trees of prosopis juliflora are main source of fire of wood specially to small, marginal and landless farmers in the watershed. The watershed has a agood potential of fruit and forest trees species like Mango, Papaya,Guava,Citrus species, lasoda, Karonda, ramda,

shisam, Gular, Neem, ,Acacia, palash, prosopis, juliflora, as agro- forestry system both under rain-fed and irrigated production systems on leveled to slopping agriculture lands as well as on degraded lands provided proper planting techniques involving appropriate termite control measures are used. The multipurpose trees have also very good potential for supplementing fuel and fodder demands in the watershed and may be included in appropriate land use options. Sole forestry plantation of prosois juliflora on degraded and marginal lands also have good potential in the watershed to cater the need of firewood demand . The main source of green fodder for animals is limited to Jowar, berseem and grasses in the watershed. Though the vegetables have good potential in the watershed however, their cultivation is limited mostly to kitchen gardens. Almost all tropical/sub tropical vegitable may bhe successfully grown in the watershed. The vegetables grown in the watershed are Okra, Radish , Tomato, Cauliflower, Cabbage, Garlic, Onion, Brinjal, and Chilly.

3.6.1 Forest

The selected watershed has not resources of forest area.

3.7 Irrigation

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. there for more area will be irrigated by the available irrigation water. Pumping Set Main sources of irrigation are the seasonal water bodies irrigation only.

3.8 Crop Details

Present & Proposed Quantity of Production in Kharif & Rabi crops in watershed area of Aliganj & Jaithara Blok in Distt Etah (UP)-

Table:14

DETAIL OF PRODUCTIVITY			
SL NO.	**AME OF CROPS**	**PRODUCTIVITY**	
		PRESENT	**PROPOSED**
1	**Kharif**		
	1-Jwar	7.55 to 8 qut.	9 to 10 qut.
	2-Arhar	6.5 to 7 qut.	8.61 to 9.15 qut.
	3-Paddy	18 to 20 qut.	20 to 22.5 qut.

	4-Bzara	12 to 13 qut.	16 to 16.50 qut.
	5-Maize	13 to 15 qut.	17 to 18.60 qut.
2	**Rabi**		
	1-wheat	25 to 26 qut.	28 to30.5 qut.
	2-Lentil	10 to 12 qut.	11 to 13 qut.
	3-Musterd	11 to 12 qut.	13 to 14.50 qut.
	4-ground nut	6.68 to 7 qut.	8.23 to 8.73 qut.
	5-tobacco	56 to 59 qut.	60 to 66 qut.
	6-potato	187 to 190 qut.	200 to 218 qut.

3.9 Live Stock

Total livestock population of the watershed is 22135. Buffalo is preferred as mulch animal compared to cow, but milk yield is very low. Goats are also kept for milks as well as for meat purpose and Draught animals of Ox and He Buffalo are use in agricultural work other animal keep Poultry and Piggery for the meat purpose. The breakup of live stock population is as following Table:15

S. No.	Name of Village	Mulch Animals				Draught Animal		Other	
		Buffalo	Cow	Goat	Sheep	Ox	He Buffalo	Poultry	Piggery
1	Ughai Asadnagar	523	52	414	-	197	22	22	18
2	Jhakrai	200	20	50	-	10	-	-	-
3	Randhirpur	105	65	35	-	36	4	-	-
4	Vithra	104	10	28	-	40	04	06	05
5	Danda	69	7	19	-	27	03	04	03
6	Tungai	78	8	21	-	77	03	05	04
7	Kalinjar	201	20	54	-	77	08	13	10
8	Nagaria Urf Sikandar	113	11	31	-	44	05	06	05
9	Aliapur	133	13	36	-	50	05	06	05
10	Fardpur	167	17	46	-	63	07	07	06
11	Galarpur	25	10	150	-	5	-	-	-
12	Mihuta	350	11	3000	-	50	100	-	-
13	Harsingpur	250	06	1000	-	30	10	-	-
14	Junedpur	400	25	3000	-	8	30	-	-

15	Palra	100	30	700	-	20	6	-	20
16	Dahelia Puth	150	15	175	22	20	-	-	-
17	Jahagirpur	48	8	13	-	27	-	-	-
18	Akbarpur Kot	110	45	35	-	30	6	-	-
19	Padamjheta Chak No.1	-	-	-	-	-	-	-	-
20	Padamjheta Chak No.2	-	-	-	-	-	-	-	-
21	Daudganj	249	26	69	-	93	04	10	9
22	Sadhira	65	25	15	-	20	3	-	-
23	Kudesia Hrdaypur	200	14	300	-	8	10	-	20
24	Agonapur	150	5	200	-	4	6	-	50
25	Aliganj M.B.	-	-	-	-	-	-	-	-
26	Aliganj Dehat	537	55	149	-	201	8	30	12
27	Bharapura	301	28	76	-	106	12	15	15
28	Jajalpur	308	30	81	-	113	13	12	-
29	Ladsia Urf Lutfullapur	115	12	32	-	45	13	12	-
30	Dehlai	106	26	22	-	18	4	-	-
31	Ram Nagar	86	36	200	-	20	5	-	-
32	Naktai Kala	74	24	30	-	22	7	-	-
33	Nagla Ummed	520	300	-	-	50	250	-	-
34	Gulsanabad	50	10	100	-	10	5	-	-
35	Purnjala	70	30	-	-	5	5	-	-
36	Tisori	400	100	-	-	50	50	-	-
37	Angraya Gangai	600	100	-	-	100	100	-	-
38	Angraya Jamunai	150	50	200	-	20	10	-	-
39	Bahoraganj	76	30	40	-	33	5	-	-
40	Naktai Khurd	154	74	65	-	30	7	-	-

41	Kaila	100	50	150	-	40	10	-	-
42	Ajunai Simari	305	60	80	-	95	03	30	-
43	Khetia	195	65	40	-	40	06	45	-
44	Raya	640	160	400	-	358	180	50	-
45	Kakora	260	50	80	-	125	05	30	-
46	Kulhapur Khurd	180	60	70	-	130	05	40	-
47	Kulhapur Bujurg	251	50	60	-	160	06	60	-
48	Luhari Gavi	200	20	300	-	10	2	-	-
49	Chakdhodho	-	-	-	-	-	-	-	-
50	Kukreya Ratanpur	67	7	18	-	24	2	15	5
51	Lalhat	37	4	10	-	13	2	8	4
52	Garhi Roshan	129	14	34	-	45	7	27	14
53	Bandupura	133	13	36	-	39	3	6	12
54	Khiriya Banar	286	29	79	-	106	4	11	10
55	Dhara	40	04	11	-	15	1	2	2
56	Kachiyawara	10	-	10	-	-	-	-	-
57	Bhalol	186	19	51	-	60	02	15	16
58	Guhatia Khurd Kila	261	25	70	-	80	06	16	08
59	Sokha	12	04	03	-	04	01	2	-
60	Maya Chak Jaithara	72	06	19	-	26	2	3	1
61	Tigra Bamhora	119	11	32	-	43	3	5	3
62	Dharoli	209	21	57	-	27	3	11	12
	Total	**11029**	**2020**	**12015**	**22**	**3199**	**973**	**524**	**254**

3.10 Hydrology and Water Resources:-

In the watershed area of Aliganj & Jaithara Hydrologycal as per following table as per showing bellow table:-

Table:15 Hydrological Data in the watershed area-

S.No.	Name of Village	Ground water stata in in month April to June.	Particular Place
1	Ughai Asadnagar	12-13	Ramphal S/o Karan Singh
2	Jhakrai	14-15	Shri Ajay Pal Singh S/o Prithvi Raj Singh
3	Randhirpur	14-15	Shri Shyam Lal S/o Fateh Singh
4	Vithra	15-16	Shri Dhanpal singh S/o Jodha Singh
5	Danda	12-13	Shri Tota Ram S/o Laturi Singh
6	Tungai	15-16	Shri Dhanpal Singh S/oJodha Singh
7	Kalijar	14-15	
8	Nagaria Urf Sikandar	14-15	
9	Aliapur	12-13	Shri Tota Ram S/o Laturi Singh

10	Fardpur	16-17	Shri Shyam Singh S/o Subedar Singh
11	Galarpur	13-14	Shri Shyam Singh S/o Subedar Singh
12	Mihuta	13-15	Shri Shyam Singh Rajput
13	Harsingpur	14-15	Shri Shyam Singh Rajput
14	Junedpur	13-15	Meera Devi W/o Shyam Singh
15	Palra		
16	Dahelia Puth	13-14	Shri Ramrup S/o Ram Sanehi
17	Jahagirpur	14-15	Shri Shyam Lal S/o Fateh Singh
18	Akbarpur Kot		
19	Padamjheta Chak No.1	-	-
20	Padamjheta Chak No.2	-	-
21	Daudganj	12-13	Shri Mohar S/o Shri Ramveer singh
22	Sadhira		
23	Kudesia Hrdaypur	14-15	Shri Chandra Prakash
24	Agonapur	14-15	Shri Ajad
25	Aliganj M.B.	12-13	Shri Anek Sihgh

			S/o Vishnu Dayal
26	Aliganj Dehat	12-13	Shri Anek Sihgh S/o Vishnu Dayal
27	Bharapura	14-15	Smt. Omwati W/o Ram dulare
28	Jajalpur	14-15	Shri Kirpa Ram S/o Ram Charan
29	Ladsia Urf Lutfullapur		
30	Dehlai	14-15	Shri Ram Chanddra S/oRam Singh
31	Ram Nagar		
32	Naktai Kala		
33	Nagla Ummed	11-12	Shri Rachhapal S/o Narayanlal
34	Gulsanabad	11-12	Shri Jamadar S/o Amir Khan
35	Purnjala	12-13	Shri Ramsharan S/o Ved Ram
36	Tisori	12-13	Shri Ratanlal S/o Ram Fal
37	Angraya Gangai	12-13	Shri Jabba Ahmad S/o Kallu khan
38	Angraya Jamunai	12-13	Shri Janmuhmmad

			S/o Washir
39	Bahoraganj		
40	Naktai Khurd		
41	Kaila		
42	Ajunai Simari	11-12	Shri Isendra Singh S/o Jugendra
43	Khetia	11-12	Shri Siyaram S/o Biharilal
44	Raya	11-12	Shri Ravindra S/o Jay Singh
45	Kakora	11-12	Shri Brajpal S/o Malikhan Singh
46	Kulhapur Khurd	11-12	Shri Jadunath Singh S/o Abhilakh
47	Kulhapur Bujurg	11-12	Shri Rambhrode S/o Ganesh Ram
48	Luhari Gavi	12-13	Shri Mhommd khan S/o Jiledar
49	Chakdhodho	-	-
50	Kukreya Ratanpur	14-15	Shri Shyam Lal S/o Bhawani
51	Lalhat	13-14	Shri Ram Bharose S/o Lala Ram
52	Garhi Roshan	12-13	Shri Netra Pal

			S/o Ram Swarap
53	Bandupura	13-14	Shri Satya Prakash S/o Muneesh Dayal
54	Khiriya Banar	14-15	Shri Rajveer singh S/o Hawaldar Singh
55	Dhara	15-16	Shri Ramprakash S/o Mohan
56	Kachiyawara	12-13	Shri Pawat Singh S/o Brandavan
57	Bhalol	12-13	Shri Laturi S/o Ram Swarup
58	Guhatia Khurd Kila	13-14	Shri Ramautar S/o kaptan Singh
59	Sokha	14-15	Shri Ram singh S/o Bhu Dayal
60	Maya Chak Jaithara	15-16	Shri Man Singh S/o Chandra Pal
61	Tigra Bamhora	11-12	Shri Moti Singh S/o Vishnu Dayal
62	Dharoli	10-12	Shri Rambharode S/o Lalman

3.10.1 Natural Resource Base-

Out of total area 8585.83 ha area of Water Shed an area of 4384.00 ha (90.33%) is under rain fed, agriculture land is covering 6150.95 ha, under waste land 966.00 ha. occupying area from 1138.00 ha village land road etc. Pumping Set Main sources of irrigation are the seasonal water bodies irrigation only.

3.11 WATER RESOURCES DEVELOPMENT AND SOIL CONVERSATION MEASURES

Status of present water resources utilization ; There is no natural water body in the selected area which may used for irrigation. present assured/partial irrigation is done by private tub wells.

Propsed 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. there for more area will be irrigated by the availablr irrigation water.

New water harvesting structures ; In the 500 ha area new and removation of existing water shed harvesting structure/ gully plug/earthen C.D. will be constructed for water harvesting.

3.11.1 GROUND WATER RECHARGE: In order to augment the flow drainage line, it is necessary to undertake moisture and water recharge measure in the watershed area for the purpose of ground water recharge sock pit, recharge filler& contour bund/marginal bund.

3.12 Socio-Economic Profile

3.12.1 Sustainability and environment Security:-

In the proposed watershed management plan of watershed security of the farming community. Proper blending of bio engineering measures will be applied on 81% of the total watershed area. Based on the results of studies conducted in this region, it is estimated that more than 70% of the watershed area will be treated and consequently the soil loss and runoff from the area is expected to be reduced by 80% and 75% respectively. The proposed land use plan will improve the land utilization index and crop diversification index significantly as compared to the existing one. It will help in maintaining ecosystem integrity on sustained basis along with improving the livelihood security of the forming community.

3.12.2 Economic Analysis:-

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

Table: 16

S. no.	Name of villages	Agriculture		Agriculture Labor	pri.sector service	Govt. sector service	Trade commerce	Marginal worker	Non worker
		Total	Cultivaters						
1	Ughai Asadnagar	1003	816	118	157	-	12	67	2443
2	Jhakrai	851	794	41	15	-	1	32	1822
3	Randhirpur	83	81	2	-	-	-	-	221
4	Vithra	202	172	18	12	-	-	-	593
5	Danda	131	129	-	2	-	-	66	268
6	Tungai	155	148	-	2	5	-	-	378
7	Kalinjar	423	332	43	24	-	24	-	1050

8	Nagaria Urf Sikandar	207	207	-	-	-	-	-	587
9	Aliapur	218	209	9	-	-	-	-	643
10	Fardpur	333	320	05	8	-	-	-	656
11	Galarpur	188	139	31	14	-	4	-	660
12	Mihuta	267	264	02	-	-	1	-	660
13	Harsingpur	133	171	09	-	-	-	-	415
14	Junedpur	318	233	49	32	-	4	-	564
15	Palra	134	112	14	4	-	4	-	360
16	Dahelia Puth	250	193	21	22	-	14	-	804
17	Jahagirpur	147	145	-	1	1	-	104	366
18	Akbarpur Kot	508	377	68	49	6	8	155	1042
19	Padamjheta Chak No.1	-	-	-	-	-	-	-	-
20	Padamjheta Chak	-	-	-	-	-	-	-	-

	No.2								
21	Daudganj	498	477	2	16	1	2	27	1080
22	Sadhira	79	73	-	1	-	5	-	274
23	Kudesia Hrdaypur	536	320	178	29	-	9	-	1283
24	Agonapur	642	477	94	42	-	29	1	1781
25	Aliganj M.B.	-	-	-	-	-	-	-	-
26	Aliganj Dehat	918	549	82	159	-	128	-	2241
27	Bharapura	578	515	26	21	-	16	169	1156
28	Jajalpur	190	178	-	11	-	1	-	426
29	Ladsia Urf Lutfullapur	191	180	11	-	-	-	15	537
30	Dehlai	170	169	-	1	-	-	-	421
31	Ram Nagar	177	150	5	8	-	14	-	495
32	Naktai Kala	129	127	-	-	2	-	-	301

33	Nagla Ummed	423	381	26	14	1	-	1	1278
34	Gulsanabad	174	173	-	-	-	1	59	466
35	Purnjala	148	148	-	-	-	-	1	296
36	Tisori	269	251	8	9	-	1	25	296
37	Angraya Gangai	347	287	12	24	24	-	-	932
38	Angraya Jamunai	963	777	115	39	32	-	3	2774
39	Bahoraganj	188	177	-	11	-	-	1	378
40	Naktai Khurd	320	307	-	13	-	-	42	747
41	Kaila	759	679	43	30	-	7	1	1557
42	Ajunai Simari	297	205	54	21	-	17	99	612
43	Khetia	89	79	-	1	09	-	-	294
44	Raya	926	717	157	46	-	26	110	2220
45	Kakora	336	287	23	3	16	2	-	1011
46	Kulhapur Khurd	82	68	6	1	6	1	-	254

47	Kulhapur Bujurg	457	416	22	4	14	1	-	1075
48	Luhari Gavi	455	373	61	3	17	1	-	1079
49	Chakdhodho	-	-	-	-	-	-	-	-
50	Kukreya Ratanpur	157	155	-	1	1	-	2	395
51	Lalhat	70	57	01	-	10	2	-	210
52	Garhi Roshan	331	288	19	5	14	5	8	747
53	Bandupura	297	297	4	3	3	-	-	667
54	Khiriya Banar	592	399	120	28	39	6	-	1511
55	Dhara	90	85	4	-	1	-	14	205
56	Kachiyawara	536	468	57	1	9	1	25	1128
57	Bhalol	384	308	34	7	32	3	-	993
58	Guhatia Khurd Kila	585	548	24	2	11	-	-	1500
59	Sokha	32	32	-	-	-	-	-	70

60	Maya Chak Jaithara	144	140	2	-	2	-	-	414
61	Tigra Bamhora	260	243	5	3	8	1	-	683
66	Dharoli	483	421	17	20	23	2	102	1019

3.12.2 SEASONAL ANALYSIS:-

Seasonal analysis has done with the helf of farmers about rainfall rattern, cultivated crops, employment income availability of fuel, fodder migration transport & helth hazards etc with respect to seasonal variation in a year which is shown as below.

Month Item	January	February	March	April	May	June	July	August	September	October	November	December
Festivals			Holi	Baisakhi			Rakshabandhan			Dashara	Diwali	Guru Parv
Sowing crops/ harvesting			Mustard			Maize, Paddy				Wheat		
				Wheat, Arhar					Maize, Paddy			
Disease	Cough & Cold					Gastro Intestinal/ Loose-motion.			Fever			
Purchase/ Expending					☺☺☺☺☺						☺☺☺☺☺☺☺☺☺☺	
Rains												
Fodder Scarcity												
Fuel/ wood scarcity												
Loaning period (required)												
Marriage Period												
Drinking Water Scarcity												
Irrigation Water Scarcity												

Migration					

3.12.1 MIGRATION PATTERN:

Labour migration in search of gainful employment is one of the major problems in the remote watershed in particular. People migrate during summer season to different parts of the state. Casual employment opportunities to the tune of more than 4.021 lakhs will be generated.

3.12.2 INFRASTRUCTURE FACILITIES:

IWMP-II watershed is well connected with Etah & Mainpuri. The village has electricity connectivity under *Jyotigram Yojana* of the State Government. Nearly 75 per cent of households in the village have their personal electric meters. IWMP-II village has a primary school with all facilities. For middle and higher secondary education, the students have to go to Etah which is about kilometres away.and higher education students go to Mainpuri & Agra. This also contributes to lower education level of the people. The village do not have a Primary Health Centre for Etah which is 20 Km. away.

IWMP-II watershed project has a total of 12865 households with a population of 88182 (*as per base-line survey)* out of which 48299 are male and 49883 female .The sex ratio is 903 female to 1000 male. There are 2442 BPL families. The average family size is 5. The literacy rate is Mediam *i.e.* 60.14 %; male literacy rate is 60.14% (of total male population) and female literacy rate is as low as 31.67% (of total female population). The major castes in the village are Kol, Yadav, Patel, Brahmin, Chatri & Lodhi Caste . Majority of population is involved in agriculture and animal husbandry.

TABLE NO. 17: LITERACY RATE

Sl No	Project/Village	Literacy				
		Total	Male	%	Female	%
01	IWMP-II	88182	48299	54.77 %%	39883	45.22 %

3.12.3 MIGRATION PATTERN:

People migrate during summer season to different parts of the state. agricultural labours and construction workers. Lack of fodder availability and grazing land for smaller ruminant force these people to migrate to other places.

TABLE NO. 18: MIGRATION DETAILS

Sl. No.	Project/Village	Total population	Migration			Migration by months			Main reason for migration	Income during migration / month
			Total	Male	Female	Up to 3 months	3-6 months	More than 6 months		
01	IWMP-II	88182	3112.00	1929.00	1183.00	912.00	1364.00	836.00	Lack of fodder	3500.00/month

TABLE NO. 19: POVERTY-

Sl. No.	Project/Village	Total BPL Household	BPL			% of BPL HH	Total Land less HH	% of land less HH
			0-16	16-20	Total			
01	IWMP-II	2225.00	597.00	1628.00	2225.00	35.01 %	1792.00	28.20

3.13 Importance of development Institutions-

In the venn diagram, framers perception was recorded for importance and role of different development intuition in relation to infrastructure in the villages. Importance has been depicted with size of the circle and role with distance from village circle.

Historical Timeline-

An historical timeline is the chronological record of important events in the history of the village which is useful in understanding its background in the context of the watershed. Historical timeline depicting important events in respect of different villages of the watershed was prepared through PRA. Historical timeline for village wise in Aliganj Block is given in Table. 20

Historical timeline for Village Randhirpur

S.No.	Activities	Years
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	2003
4	Introduction of Tractor	1984
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2003
7	Introduction of thresher	1992
8	First Tube well/Diesel pump set	1971
9	First Motorcycle	1991
10	TV and DVD player	2002
11	Over head water tank	Not

12	Electricity in the village	2009
13	Bituminous road	1999
14	Temple renovation	Not
15	Planning for watershed project.	2010-11

Historical timeline for Village Bithara

S.No.	Activities	Years
1	Established	Ancient time
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1995
4	Introduction of Tractor	1989
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	1991
7	Introduction of thresher	1975
8	First Tube well/Diesel pump set	1975
9	First Motorcycle	1985
10	TV and DVD player	1990
11	Over head water tank	Not
12	Electricity in the village	2000
13	Bituminous road	1965
14	Temple renovation	Ancient
15	Planning for watershed project.	2010-11

Historical timeline for Village Danda

S.No.	Activities	Years
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1995
4	Introduction of Tractor	1995
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	1980
7	Introduction of thresher	1985
8	First Tube well/Diesel pump set	1988
9	First Motorcycle	1990
10	TV and DVD player	2002
11	Over head water tank	Not
12	Electricity in the village	1980
13	Bituminous road	1990
14	Temple renovation	1995
15	Planning for watershed project.	2010-11

Historical timeline for Village Tungai

S.No.	Activities	Years
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	2000
4	Introduction of Tractor	1993
5	Establishment of Gobar gas plant.	Not

6	Kacha Road	1992
7	Introduction of thresher	1993
8	First Tube well/Diesel pump set	1968
9	First Motorcycle	1984
10	TV and DVD player	1991
11	Over head water tank	Not
12	Electricity in the village	2007
13	Bituminous road	1965
14	Temple renovation	1944
15	Planning for watershed project.	2010-11

Historical timeline for Village Kalijar

S.No.	**Activities**	**Years**
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1950
4	Introduction of Tractor	1981
5	Establishment of Gobar gas plant.	1985
6	Kacha Road	1991
7	Introduction of thresher	1985
8	First Tube well/Diesel pump set	1960
9	First Motorcycle	1989
10	TV and DVD player	1989
11	Over head water tank	1989
12	Electricity in the village	2006
13	Bituminous road	2003

14	Temple renovation	Ancient
15	Planning for watershed project.	2010-11

Historical timeline for Village Sikandarpur

S.No.	Activities	Years
1	Established	Ancient Time
2	Construction Bandhi (Water harvesting structure)	Ancient
3	Opening up Primary School	2000
4	Introduction of Tractor	1981
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	1991
7	Introduction of thresher	1985
8	First Tube well/Diesel pump set	1970
9	First Motorcycle	1985
10	TV and DVD player	1990
11	Over head water tank	Not
12	Electricity in the village	1995
13	Bituminous road	1995
14	Temple renovation	Ancient
15	Planning for watershed project.	2010-11

Historical timeline for Village Aliapur

S.No.	Activities	Years
1	Established	Ancient Time
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1995
4	Introduction of Tractor	1997
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2000
7	Introduction of thresher	1985
8	First Tube well/Diesel pump set	1982
9	First Motorcycle	1989
10	TV and DVD player	1999
11	Over head water tank	Not
12	Electricity in the village	2006
13	Bituminous road	Not
14	Temple renovation	1996
15	Planning for watershed project.	2010-11

Historical timeline for Village Pharadpura

S.No.	Activities	Years
1	Established	Ancient time
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1995
4	Introduction of Tractor	1989
5	Establishment of Gobar gas plant.	Not

6	Kacha Road	2001
7	Introduction of thresher	1975
8	First Tube well/Diesel pump set	1963
9	First Motorcycle	1980
10	TV and DVD player	1995
11	Over head water tank	Not
12	Electricity in the village	4980
13	Bituminous road	2009
14	Temple renovation	2000
15	Planning for watershed project.	2010-11

Historical timeline for Village Mihuta

S.No.	**Activities**	**Years**
1	Established	1782
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1995
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1995
7	Introduction of thresher	1981
8	First Tube well/Diesel pump set	1985
9	First Motorcycle	1989
10	TV and DVD player	1985
11	Over head water tank	not
12	Electricity in the village	1996
13	Bituminous road	2001

14	Temple renovation	1975
15	Planning for watershed project.	2010-11

Historical timeline for Village Harsingpur

S.No.	Activities	Years
1	Established	1780
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1995
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1995
7	Introduction of thresher	1981
8	First Tube well/Diesel pump set	1985
9	First Motorcycle	1989
10	TV and DVD player	1985
11	Over head water tank	not
12	Electricity in the village	1996
13	Bituminous road	2001
14	Temple renovation	1975
15	Planning for watershed project.	2010-11

Historical timeline for Village Daheliya Pooth

S.No.	Activities	Years
1	Established	Ancient Time
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1975
4	Introduction of Tractor	1986
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	1982
7	Introduction of thresher	1975
8	First Tube well/Diesel pump set	1985
9	First Motorcycle	1972
10	TV and DVD player	1970
11	Over head water tank	1985
12	Electricity in the village	1980
13	Bituminous road	1975
14	Temple renovation	1970
15	Planning for watershed project.	2010-11

Historical timeline for Village Junedpur

S.No.	Activities	Years
1	Established	Ancient Time
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1998
4	Introduction of Tractor	1978
5	Establishment of Gobar gas plant.	Not

6	Kacha Road	1980
7	Introduction of thresher	1987
8	First Tube well/Diesel pump set	1985
9	First Motorcycle	1972
10	TV and DVD player	1985
11	Over head water tank	1975
12	Electricity in the village	1980
13	Bituminous road	1975
14	Temple renovation	1975
15	Planning for watershed project.	2010-11

Historical timeline for Village Palra

S.No.	**Activities**	**Years**
1	Established	Ancient Time
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1942
4	Introduction of Tractor	1972
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	1977
7	Introduction of thresher	1976
8	First Tube well/Diesel pump set	1967
9	First Motorcycle	1989
10	TV and DVD player	1991
11	Over head water tank	Not
12	Electricity in the village	Not
13	Bituminous road	1979

14	Temple renovation	1980
15	Planning for watershed project.	2010-11

Historical timeline for Village Akbarpur Koat

S.No.	Activities	Years
1	Established	1850
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	Not
4	Introduction of Tractor	1990
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	Not
7	Introduction of thresher	1990
8	First Tube well/Diesel pump set	1980
9	First Motorcycle	1968
10	TV and DVD player	1997
11	Over head water tank	Not
12	Electricity in the village	2003
13	Bituminous road	Not
14	Temple renovation	1978
15	Planning for watershed project.	2010-11

Historical timeline for Village Daudganj

S.No.	Activities	Years
1	Established	1610
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1999
4	Introduction of Tractor	1974
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2000
7	Introduction of thresher	1989
8	First Tube well/Diesel pump set	1980
9	First Motorcycle	1974
10	TV and DVD player	1970
11	Over head water tank	1989
12	Electricity in the village	1980
13	Bituminous road	1975
14	Temple renovation	1980
15	Planning for watershed project.	2010-11

Historical timeline for Village Sadhira

S.No.	Activities	Years
1	Established	1660
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1991

4	Introduction of Tractor	1990
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	1975
7	Introduction of thresher	1981
8	First Tube well/Diesel pump set	1969
9	First Motorcycle	1990
10	TV and DVD player	1995
11	Over head water tank	Not
12	Electricity in the village	Not
13	Bituminous road	Not
14	Temple renovation	2004
15	Planning for watershed project.	2010-11

Historical timeline for Village Kudesia Hirdaypur

S.No.	**Activities**	**Years**
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	1940
4	Introduction of Tractor	1975
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2003
7	Introduction of thresher	1990
8	First Tube well/Diesel pump set	1965
9	First Motorcycle	1990
10	TV and DVD player	2001
11	Over head water tank	Not

12	Electricity in the village	2009
13	Bituminous road	2003
14	Temple renovation	1935
15	Planning for watershed project.	2010-11

Historical timeline for Village Agonapur

S.No.	Activities	Years
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	2003
4	Introduction of Tractor	1984
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2003
7	Introduction of thresher	1992
8	First Tube well/Diesel pump set	1971
9	First Motorcycle	1991
10	TV and DVD player	2002
11	Over head water tank	Not
12	Electricity in the village	2009
13	Bituminous road	1999
14	Temple renovation	Not
15	Planning for watershed project.	2010-11

Historical timeline for Village Jahangirpur

S.No.	Activities	Years
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	2003
4	Introduction of Tractor	1984
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2003
7	Introduction of thresher	1992
8	First Tube well/Diesel pump set	1971
9	First Motorcycle	1991
10	TV and DVD player	2002
11	Over head water tank	Not
12	Electricity in the village	2009
13	Bituminous road	1999
14	Temple renovation	Not
15	Planning for watershed project.	2010-11

Historical timeline for Village Aliganj Dehat

S.No.	Activities	Years
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	Not
3	Opening up Primary School	2003
4	Introduction of Tractor	1984
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2003

7	Introduction of thresher	1992
8	First Tube well/Diesel pump set	1971
9	First Motorcycle	1991
10	TV and DVD player	2002
11	Over head water tank	Not
12	Electricity in the village	2009
13	Bituminous road	1999
14	Temple renovation	Not
15	Planning for watershed project.	2010-11

Historical timeline for Village Ubhai Asadnagar

S.No.	Activities	Years
1	Established	Ancient
2	Construction Bandhi (Water harvesting structure)	2010-11
3	Opening up Primary School	2003
4	Introduction of Tractor	1984
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	2003
7	Introduction of thresher	1992
8	First Tube well/Diesel pump set	1971
9	First Motorcycle	1991
10	TV and DVD player	2002
11	Over head water tank	Not
12	Electricity in the village	2009
13	Bituminous road	1999
14	Temple renovation	Not
15	Planning for watershed project.	2010-11

Historical timeline for Village Glarpur

S.No.	Activities	Years
1	Established	1760
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2006
4	Introduction of Tractor	1975
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1990
7	Introduction of thresher	1976
8	First Tube well/Diesel pump set	1980
9	First Motorcycle	1985
10	TV and DVD player	1985
11	Over head water tank	not
12	Electricity in the village	2007
13	Bituminous road	2009
14	Temple renovation	1965
15	Planning for watershed project.	2010-11

Historical timeline for Village Jhakarai

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982

8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Bharapura

S.No.	**Activities**	**Years**
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Jajalpur

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Dehlai

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not

6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Ramnagar

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Ladisa urf Lutfullapur

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Naktai Kalan

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005

4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Nagla Ummed

S.No.	**Activities**	**Years**
1	Established	1600
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1962
4	Introduction of Tractor	1986
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1986
8	First Tube well/Diesel pump set	1975
9	First Motorcycle	1985
10	TV and DVD player	2000

11	Over head water tank	not
12	Electricity in the village	Not
13	Bituminous road	Not
14	Temple renovation	Unknown
15	Planning for watershed project.	2010-11

Historical timeline for Village Gulsanabad

S.No.	Activities	Years
1	Established	1300
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2000
4	Introduction of Tractor	1970
5	Establishment of Gobar gas plant.	not
6	Kacha Road	Yes
7	Introduction of thresher	1980
8	First Tube well/Diesel pump set	Yes
9	First Motorcycle	1988
10	TV and DVD player	2000
11	Over head water tank	not
12	Electricity in the village	Yes
13	Bituminous road	Yes
14	Temple renovation	Yes
15	Planning for watershed project.	2010-11

Historical timeline for Village Purnjila

S.No.	Activities	Years
1	Established	1388
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2001
4	Introduction of Tractor	Not
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	Yes
7	Introduction of thresher	Not
8	First Tube well/Diesel pump set	1970
9	First Motorcycle	1990
10	TV and DVD player	1990
11	Over head water tank	Not
12	Electricity in the village	2003
13	Bituminous road	Yes
14	Temple renovation	Not
15	Planning for watershed project.	2010-11

Historical timeline for Village Tisouri

S.No.	Activities	Years
1	Established	1388
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1980

4	Introduction of Tractor	1976
5	Establishment of Gobar gas plant.	not
6	Kacha Road	Yes
7	Introduction of thresher	1976
8	First Tube well/Diesel pump set	1975
9	First Motorcycle	1985
10	TV and DVD player	1993
11	Over head water tank	Not
12	Electricity in the village	Yes
13	Bituminous road	Not
14	Temple renovation	Yes
15	Planning for watershed project.	2010-11

Historical timeline for Village Angaria Gangai

S.No.	**Activities**	**Years**
1	Established	1600
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2010
4	Introduction of Tractor	1920
5	Establishment of Gobar gas plant.	not
6	Kacha Road	Yes
7	Introduction of thresher	1980
8	First Tube well/Diesel pump set	1984
9	First Motorcycle	1994
10	TV and DVD player	1990

11	Over head water tank	Yes
12	Electricity in the village	Not
13	Bituminous road	Not
14	Temple renovation	Yes
15	Planning for watershed project.	2010-11

Historical timeline for Village Angrai Jamunai

S.No.	**Activities**	**Years**
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1985
4	Introduction of Tractor	Not
5	Establishment of Gobar gas plant.	Not
6	Kacha Road	-
7	Introduction of thresher	Not
8	First Tube well/Diesel pump set	Not
9	First Motorcycle	1980
10	TV and DVD player	2001
11	Over head water tank	not
12	Electricity in the village	2005
13	Bituminous road	1960
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Bichhoraganj

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Naktai Khurd

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005

4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Kaila

S.No.	**Activities**	**Years**
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not

12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Arjunai Simrai

S.No.	Activities	Years
1	Established	1560
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1970
4	Introduction of Tractor	1990
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1990
7	Introduction of thresher	1990
8	First Tube well/Diesel pump set	1985
9	First Motorcycle	1990
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2007
13	Bituminous road	2001
14	Temple renovation	1994
15	Planning for watershed project.	2010-11

Historical timeline for Village Khetia

S.No.	Activities	Years
1	Established	1560
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1965
4	Introduction of Tractor	1999
5	Establishment of Gobar gas plant.	not
6	Kacha Road	Not
7	Introduction of thresher	1985
8	First Tube well/Diesel pump set	1987
9	First Motorcycle	1990
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	1992
14	Temple renovation	1980
15	Planning for watershed project.	2010-11

Historical timeline for Village Raaya

S.No.	Activities	Years
1	Established	1960
2	Construction Bandhi (Water harvesting structure)	Not

3	Opening up Primary School	1965
4	Introduction of Tractor	1990
5	Establishment of Gobar gas plant.	not
6	Kacha Road	Not
7	Introduction of thresher	1995
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	1995
14	Temple renovation	1960
15	Planning for watershed project.	2010-11

Historical timeline for Village Kakora

S.No.	**Activities**	**Years**
1	Established	1560
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1995
4	Introduction of Tractor	1995
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1980
8	First Tube well/Diesel pump set	1975

9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	1996
14	Temple renovation	1990
15	Planning for watershed project.	2010-11

Historical timeline for Village Kulhapur Khurd

S.No.	**Activities**	**Years**
1	Established	1560
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1993
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1995
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	1999
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Kulhapur Bujurg

S.No.	Activities	Years
1	Established	1560
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	1965
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1975
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	1999
14	Temple renovation	1975
15	Planning for watershed project.	2010-11

Historical timeline for Village Luhari Gavi

S.No.	Activities	Years
1	Established	1710
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2000

4	Introduction of Tractor	1970
5	Establishment of Gobar gas plant.	not
6	Kacha Road	-
7	Introduction of thresher	1980
8	First Tube well/Diesel pump set	Yes
9	First Motorcycle	1988
10	TV and DVD player	2000
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	Not
14	Temple renovation	Unknown
15	Planning for watershed project.	2010-11

Historical timeline for Village Kukraia Ratanpur

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987

10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Lalhat

S.No.	**Activities**	**Years**
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2005
4	Introduction of Tractor	1980
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1982
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1990
11	Over head water tank	not
12	Electricity in the village	2006
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Historical timeline for Village Gadhi Roshan

S.No.	Activities	Years
1	Established	1765
2	Construction Bandhi (Water harvesting structure)	not
3	Opening up Primary School	2010
4	Introduction of Tractor	1970
5	Establishment of Gobar gas plant.	not
6	Kacha Road	1991
7	Introduction of thresher	1985
8	First Tube well/Diesel pump set	1981
9	First Motorcycle	1987
10	TV and DVD player	1986
11	Over head water tank	not
12	Electricity in the village	1965
13	Bituminous road	2009
14	Temple renovation	1979
15	Planning for watershed project.	2010-11

Table 21 Distribution Of Farm Families According To Their Size Of Landings

S.No.	Name & Code No. of micro water shed	Name of concern village	Land holding classification				Percentage		
			Margi nal	Small	Others	Total	Marginal	Small	Others
1	2B 3D 4b3	Ubhai AsadNagar	512	115	47	674	75.96	17.06	6.95
2	2B 3D 4b3	Jahangirpur	80	30	3	113	70.80	26.55	2.65
3	2B 3D 4b3	Randhirpur	95	23	8	126	75.39	28.98	6.35
4	2B 3D 4b3	Bithara	104	24	09	137	75.91	17.51	6.58
5	2B 3D 4b3	Dandha	69	15	06	91	75.82	17.58	6.60
6	2B 3D 4b3	Tungai	78	17	07	102	76.47	16.66	6.87
7	2B 3D 4b3	Kalinjar	200	45	18	263	76.04	17.11	6.85
8	2B 3D 4b3	Nagria Urf Sikandarpur	114	25	10	149	76.51	16.77	6.72
9	2B 3D 4b3	Aliyapur	131	29	12	172	76.16	16.86	6.98
10	2B 3D 4b3	Fardpura	163	37	15	215	75.81	17.20	6.99
11	2B 3D 4b3	Galarpur	130	80	25	235	55.32	34.04	10.64
12	2B 3D 4b3	Mihuta	90	100	08	198	45.45	50.50	4.05
13	2B 3D 4b3	Harsinghpur	50	80	06	136	36.76	58.82	4.42
14	2B 3D 4b3	Junedpur	60	90	05	155	38.70	58.06	3.24
15	2B 3D 4b3	Palara	30	40	01	071	42.25	56.33	1.41
16	2B 3D 4b3	Dehliyapooth	530	227	54	811	65.35	28.00	6.65
17	2B 3D 4b3	Jhakrai	49	67	5	121	40.50	55.37	4.13
18	2B 3D 4b3	Akbarpur kot	261	68	48	377	69.23	18.04	12.73

19	2B 3D 4b3	Piam jhheta Chak No-1	-	-	-	-	-	-	-
20	2B 3D 4b3	Piam jhheta Chak No-2	-	-	-	-	-	-	-
21	2B 3D 4b3	Daudganj	241	54	24	319	75.54	16.92	7.54
22	2B 3D 4b3	Sadhira	55	13	5	73	75.34	17.81	6.84
23	2B 3D 4b3	Kudessiya Hridaypur	50	100	02	152	32.89	65.78	1.33
24	2B 3D 4b3	Agounapur	20	100	01	121	16.52	82.64	0.84
25	2B 3D 4b3	Aliganj MB	-	-	-	-	-	-	-
26	2B 3D 4b3	Aliganj Dehat	522	116	49	687	75.98	16.88	7.14
27	2B 3D 4b3	Bharapura	296	71	19	386	76.68	18.39	4.93
28	2B 3D 4b3	Jajalpur	302	64	17	383	78.85	16.71	4.44
29	2B 3D 4b3	Dehlai	112	16	04	132	84.84	12.12	3.04
30	2B 3D 4b3	Ram Nagar	112	27	11	150	74.67	18.00	7.33
31	2B 3D 4b3 2B 3D 4c2	Ladsiyapur Urf Lutfullapur	137	32	11	180	76.11	17.78	6.11
32	2B 3D 4b3 2B 3D 4c2	Naktai Kalan	97	21	9	127	76.38	16.54	7.08
33	2B 3D 4c2	Nagla Ummed	290	67	24	381	76.12	17.59	6.30
34	2B 3D 4c2	Gulshnabad	132	29	12	173	76.30	16.76	6.94
35	2B 3D 4c2	Purjala	113	25	10	148	76.35	16.89	6.76
36	2B 3D 4c2	Tisori	191	45	15	251	76.09	17.93	5.98
37	2B 3D 4c2	Angriya Jamnai	591	140	46	777	76.06	18.02	5.92
38	2B 3D 4c2	Angriya gangai	218	52	17	287	75.95	18.12	5.92
39	2B 3D 4c2	Bachhora ganj	135	32	10	177	76.27	18.08	5.65
40	2B 3D 4c2	Naktai khurd	230	54	23	307	74.92	17.59	7.49

41	2B 3D 4c2	Kaila	514	119	46	679	75.70	17.53	6.77
42	2B 3D 4c2	Arjunai Simri	24	5	3	32	75.00	15.62	9.37
43	2B 3D 4c2	Khetiya	27	6	2	35	77.14	17.14	5.71
44	2B 3D 4c2	Raya	499	135	36	670	74.48	20.15	5.37
45	2B 3D 4c2	Kakoda	14	6	2	22	63.63	27.27	9.09
46	2B 3D 4c2	Kulhapur Khurd	58	17	5	80	72.50	21.25	6.25
47	2B 3D 4c2	Kulhapur Bujurg	143	36	11	190	75.26	18.94	5.79
48	2B 3D 4c2	Luhari Gavi	281	68	24	373	75.34	18.23	6.43
49	2B 3D 4c2	Chak Dhaudhau	-	-	-	-	-	-	-
50	2B 3D 4c2	Kukraiya Ratanpur	205	120	17	342	59.94	35.08	4.98
51	2B 3D 4c2	Lalhat	33	21	03	57	57.89	36.84	5.27
52	2B 3D 4c2	Gari Roshan	235	137	20	392	59.94	34.94	5.12
53	2B 3D 4c2	Dharauli	119	65	12	196	60.71	33.16	6.13
54	2B 3D 4c2	Bandupura	144	84	12	240	60.00	35.00	5.00
55	2B 3D 4c2	Khiriya Banar	415	242	35	692	59.97	34.97	5.06
56	2B 3D 4c2	Dharra	261	152	22	435	60.00	34.94	5.06
57	2B 3D 4c2	Kachhiya bara	351	84	33	468	75.00	17.95	7.05
58	2B 3D 4c2	Bhalaul	209	122	18	349	59.88	34.95	5.17
59	2B 3D 4c2	Guhaitiya khurd kala	90	52	08	150	60.00	34.66	5.34
60	2B 3D 4c2	Sokaha	30	17	03	50	60.00	34.00	6.00
61	2B 3D 4c2	Maya Chak Jaithara	135	79	11	225	60.00	35.11	4.89
62	2B 3D 4c2	Tigra Bhamora	45	26	04	75	60.00	34.66	5.34

3.14 - Livelihood Pattern:-

Livelihood-

Out of the total population of 88182 in the watershed, a majority i.e. more than 70% has farming as their major source of livelihood followed by 17% laborers and 2% service + business class.

Dependency on forest for fuel wood and fodder-

(a) Fuel Wood- Villagers in the village do not use LPG to meet their cooking energy requirements. The main source of fuel is from buffalo, He buffalo and cow dung cake, woody stem of Arhar crop and Mustard. About 60 to 65 percent of the domestic energy requirement is met from the agro byproduct and buffalo, his buffalo and cow dung cake. Rest is met out from the outside the village and watershed boundary. Most preferred fuel wood is Vilayati Babool. Fuel wood is obtained from the forest of Prosopis Juliflora standing along the Kali Nadi situated outside the watershed boundary.

(b) Fodder- Villagers do not have any significant dependency on forest based fodder as these resources are not available in the forests.

Labour Requirement-

Labour requirement was found to be the maximum during Oct.-Nov., when the harvesting of Kharif and sowing of Rabi crops are done simultaneously. The crucial periods are March/April coinciding harvesting and threshing of rabi crops and July/August when sowing of Kharif crops take place. Other income generating enterprises having potential during the remaining period can be planned.

3.14.1 Crop Calendar-

The present crop calendar in the watershed comprise of fallow-maize, fallow-wheat, bajra-wheat, bajra-mustard, Barley-wheat, Barley-mustard, Jowar-wheat, Jowar-mustard, Potato Ground-Nut Fallow-mustard is the most prevailing crop rotations on the agricultural lands both in rain-fed and irrigated conditions in the watershed. Organized vegetable cultivation, fruit plantation and traditional agro-forestry systems are lacking widely in the watershed. The limited vegetable cultivation in the watershed is confined either to kitchen gardens or to the irrigated conditions in a scattered manner on extremely small area with view to meet out the domestic demand for vegetables. The cultivation of cash crops other than the Bajara also lacks in the watershed.

3.14.2 Farmer Preferences

Agriculture: Wheat Bajra and Ground-Nut are the most preferred agricultural crop in the watershed followed by Tubacco.

Fruit trees: Mango, Guava, Lasoda

Fooder 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 crops having potential in the watershed, socio-economical factors etc were found to be most important factors deciding the preferences of farmers pertaining to selection and cultivation of agricultural crops, fruits, MPTs or other fodder trees in the watershed.

CHAPTER 4

WATERSHED ACTIVITIES

4.1. SCIENTIFIC PLANNING:

I) CLUSTER APPROACH

This envisages a broader vision of Geo-hydrological unit which involves treating a cluster of micro-watershed. District Etah (IWMP-II) project is located in Kurara Block is a cluster of 2 micro-watersheds with 2B3D4 b3, 2B3D4 c2 being 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 from *Censex Data.* 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. Contour Map of vertical interval of 1 meter at a scale of 1:8000 was used for identifying various locations for soil and water conservation structures.

4.2 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 NO. 22: DETAILS OF SCIENTIFIC PLANNING AND INPUTS IN IWMP-II PROJECTS

Sl.No.	Scientific criteria/ inputs used	Whether scientific criteria was used
	(A) Planning	Yes
	Cluster approach	Yes
	Whether technical back-stopping for the project has been arranged? If yes, mention the name of the Institute	
	Baseline survey	Yes
	Hydro-geological survey	Yes
	Contour mapping	Yes
	Participatory Net Planning (PNP)	Yes
	Remote sensing data-especially soil/ crop/ run-off cover	
	Ridge to Valley treatment	

	Online IT connectivity between	
	(1) Project and DRDA cell/ZP	Yes
	(2) DRDA and SLNA	Yes
	(3) SLNA and DoLR	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#	No
	Integrated coupled analyzer/ near infrared visible spectroscopy/ medium spectroscopy for high speed soil nutrient analysis	No
	Normalized difference vegetation index (NDVI)#	No
	Weather Station	
	(B) Inputs	No

	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	Yes
	8. Nutrient budgeting	No
	9. Automatic water level recorders & sediment samplers	No
	Any other (please specify)	

4.3 INSTITUTION BUILDING

Table no. 23: Watershed Committee details

Sr no.	Name of project	Name of chair person	Secretary	Member	Remarks
1	Junedpur	Smt. Meera Devi	Sri Vishmbher Dayal	Sri Subedar Singh Sri Mohan Lal	UGS UGS

				Sri Omkar	UGS
				Sri Suresh	UGS
				Sri Shishupal	SHG
				Sri Ran Singh	SHG
				Sri Jasvir	G.P.
				Sri Shiv Singh	G.P.
				Sri Surja Devi	S.C.
				Sri Mamta Devi	G.P.
				Sri Ram Niwas	G.P.
2	Agonapur	Sri Azad	Sri Vishmbher Dayal	Sri Kishan Ji	UGS
				Sri Vishnu Dayal	UGS
				Sri Vinod	UGS
				Sri Mukesh	UGS
				Sri Devesh	UGS
				Sri Vijendra	HGS
				Km Reena	GP

				Smt. Radhika Smt. Vimlesh Smt. Riyana Sri Shyampal	GP GP GP SC
3	Harisingh Pur	Sri Syam Singh	Sri Vishmbher Dayal	Sri Ram Das Sri Kuwarpal Sri Ahivar Singh Sri Khetpal Sri Kanheya Lal Sri Mansharam Sri Vinod Kumar Sri Prabhu Dayal Smt. Vasnta Devi Smt. Dhandevi Smt. Maniram	UGS UGS UGS SHG SHG SHG UGS GP GP GP SC
4	KUDESIYA	RANIPAL	VISHMBHER	Smt. Chameli Devi	UGS

	HRIDAYPUR		DAYAL	Sri Brijpal Singh	UGS
				Sri Satish Chandra	UGS
				Sri Sone Lal	UGS
				Sri Rajendra	SHG
				Sri Pradeep	SHG
				Sri Damodar	GP
				Sri Bhanupratap	GP
				Smt. Shakuntla Devi	GP
				Smt. Ramkali	GP
				Sri Mahaveer	SC
5	MIHUTA	SRI SHYAM SINGH	VISHMBHER DAYAL	Sri Hukum Singh	UGS
				Sri Lajjaram	UGS
				Sri Javar Singh	UGS
				Sri Ramotar	SHG
				Sri Manoj Kumar	SHG
				Sri Ashok	UGS

				Smt. Jagrani	GP
				Smt. Seema Devi	GP
				Smt. Chandravati	GP
				Sri Deshraj	SC
6	BHALOL	JYOTI KUMAR	UJAGAR SINGH	Sri P,K, Sharma	WDT
				Sri Bhupal	UGS
				Sri Basant	UGS
				Sri Man Singh	UGS
				Sri Durgpal	UGS
				Sri Bhupati	UGS
				Sri Man Singh	UGS
7	DAUDGANJ	BRAJESH KUMAR	NIMESH	Sri Ram Chandra	UGS
				Sri Lajjaram	UGS
				Sri Arvind Kumar	SHG
				Sri Virendra Singh	SHG
				Sri Ramotar Singh	SHG

				Sri Ranjeet	LAND LESS
				Sri Brajesh	SC
				Smt. Naseeba Devi	LADIES
				Sri P.K. Sharma	WDT
8	ALINGAJ	HAJARI	NIMESH	Sri Sri Niwas	UGS
				Sri Ram Gulam	UGS
				Sri Balvir Singh	SHG
				Smt. Shavana	SHG
				Sri Mahendra Singh	SHG
				Smt Sona Begum	LADIES
				Sri Harnath	Land Less
				Sri Harish Chandra	SC
				Sri P.K. Sharma	WDT
9	BUNDUPURA	SARLA DEVI	UJAGAR SINGH	Sri Vipin	SHG
				Sri Vot Singh	SHG
				Sri Sukhvir	SHG

				Sri Ram Sanehi	UGS
				Sri Dayara	UGS
				Sri Khetpal	UGS
				Sri Sadhuram	SC
				Sri Pradeep Kumar	WDT
10	TIGRA BAMHORA	MOTI SINGH	UJAGAR SINGH	Sri P.K. Sharma	WDT
				Smt. Shashi	LADIES
				Sri Rinku	SHG
				Smt. Reena	SHG
				Sri Pannalal	SHG
				Sri Amir	UGS
				Sri Neksu	UGS
				Sri Ram Sewak	SHG
11	GUHETIA KHURD	SANGEETA	UJAGAR SINGH	Sri P.K. Sharma	WDT
				Sri Shivraj	SHG
				Sri Tara Singh	SHG

				Sri Durg Vijay	SHG
				Smt. Shashi	SHG
				Sri Radhey Shyam	UGS
				Sri Shivpal	UGS
				Sri Anar Singh	UGS
12	Raya	Smt. Suman	Sri Bharat Singh	Sri Ram Saran	UGS
				Sri Surendra	UGS
				Sri Sandeep	SHG
				Sri Ravindra Singh	SHG
				Smt. Saroj	LADIES
				Sri Pradeep	SC
				Sri Ashok	LAND LESS
				Sri B.S. Chaudhary	WDT
13	KAKORA	RAM BHAROSE	BHARAT SINGH	Sri Girdhari	UGS
				Sri Pakham	UGS
				Sri Siyaram	SHG

				Sri Ram Prakash Smt. Shakuntla Sri Naresh Sri Sunil Sri B.S. Chaudhary	SHG LADIES SC LAND LESS WDT
14	KULHAPUR BUJURG	SMT GEETA	BHARAT SINGH	Sri Shish Ram Sri Subodh Kumar Sri Parath Singh Sri Long Shree Sri Umray Singh Sri Abhilakh Sri B.S. Chaudhary	UGS SGH SHG LADIES SC LAND LESS WDT
15	JAJALPUR	SMT REKHA	SURESH CHANDRA	Sri Sukhvasi Lal Sri Ram Singh Sri Khushiram Sri Rani Devi	SC SHG SHG SHG

				Sri Ramveer Singh	SHG
				Sri Rajveer Singh	UGS
				Sri Subhash Chandra	UGS
				Smt. Santosh KumarI	LADIES
				Sri Ram Babu	UGS
				Sri Rajveer Singh	LAND LESS
				Sri P.K. Sharma	WDT
16	BHARAPURA	SMT PHOOL SHREE	SURESH CHANDRA	Sri Rajaram	UGS
				Sri Salikram	UGS
				Sri Virendra Singh	UGS
				Sri Sunedar Singh	UGS
				Sri Geetam Singh	UGS
				Sri Raju	SHG
				Sri Khetpal	UGS
				Sri Shivpal Singh	SHG
				Sri Ram Narayan	UGS

				Sri P.K. Sharma	WDT
17	ALIYAPUR DANDA	SHREE AJAY SINGH	A K TIWARI	Sri Ravindra Singh Smt. Sarita devi Sri Amar Singh Sri Badam Singh Sri Badri Sri Mani Ram Sri BS Chaudhari	SHG SHG SC Landless UGS UGS WDT
18	BITHARA	SMT.RESHAMA DEVI	A K TIWARI	Sri Pratap Bhanu Km. Shakuntla Sri Devendra Singh Sri Kishan Lal Sri Krishan Pal Sri Hakim Singh Sri B S Chaudhri	SHG SHG Landless SC UGS UGS WDT
19	UBHAI ASHAD	SRI DEVENDRA	AK TIWARI	Smt. Munni Devi	SHG

	NAGAR	SINGH		Sri Abhdesh Sri Nandlal Sri Gopal Sri Veer Pal Sri Khushi Ram Sri BS Chaudhri	SHG Landless SC UGS UGS WDT
20	KALIJAR	SHREE SANTOSH KUMAR	AK TIWARI	Sri Prem Chandra Smt. Mithlesh Sri Ram Charan Sri Shaukin Singh Sri Shyam Charan Sri Champat Sri BS Chaudhri	SHG SHG SC Landless UGS UGS WDT
21	FARD PUR	SHREE RAM ASHARE	AK TIWARI	Sri Harischandra Smt. Kanti Devi Sri Abdhesh	SHG SHG SC

				Sri Mahesh Singh Sri Ram Bharose Sri Mukesh Sri B.S. Chaoudhary	Landless UGS UGS W.D.T.
22	Tisori	Smt. Nilesh W/o Yatendra Singh	Chaman Singh	Sri Ramprakash Sri Diwakar Sri Bahori Lal Sri Shobharam Sri Deepak Sri Pravesh Kumar Smt. Premwati	UGS UGS SHG SHG SC Land Less Woman
23	Angria Gangai	Sri Jagdish Singh Yadav	Chaman Singh	Sri Radhey Shyam Sri Ashok Sri Narendra Sri Ajay Sri Kishan Lal	UGS UGS SHG SHG SC

				Sri Radhey Smt. Geeta Devi	Land Less Woman
24	Nagla Ummed	Smt Kitab Shree	Sri Chaman Singh	Sri Bankilal Sri Badan Singh Sri Awadesh Sri Madan Pal Sri Satendra Sri Kishan Veer Smt. Suman Shakya	UGS UGS SHG SHG SC Land Less Woman
25	Angraia Jamunai	Sri Rajjak Khan	Sri Chaman Singh	Sri Jan Muhhamad Sri Sher Muhhamad Sri Jabbar Ahamad Sri Navi Hasan Sri Aunil Kumar Sri Dafedar Smt Jarina Begam	UGS UGS SHG SHG SC Land Less Woman

26	Lohari Gavi	Sri Ashif Khan	Sri Chaman Singh	Sri Kabir Ahamd	UGS
				Sri Mohhamd Ahamd	UGS
				Sri Raj Kumar	SHG
				Sri kadir Khan	SHG
				Sri Ratan Lal	SC
				Sri Aarif Khan	Land Less
				Smt Ram Narayan	Woman
27	Kachhiyabada	Sri Satyapal Yadav	Sri Chaman Singh	Sri Parwat Singh	UGS
				Sri Ram Prakash	UGS
				Sri Ram Sharan	SHG
				Sri Rajendra Singh	SHG
				Sri Dya Ram	SC
				Sri Jasveer	Land Less
				Smt Rekha Devi	Woman
28	Kella	Sri Arvind Kumar	Sri Ram Bhajan	Sri Ram Pal	UGS
				Sri Radhe shyam	UGS

				Sri kumar Pal Sri Shobha Ram Sri Jay Singh Sri Jagat Pal Smt Kusum	SHG SHG SC Land Less Woman
29	Ram Nagar	Sri Babu	Sri Ram Bhajan	Sri Amar Singh Sri Ashok Sri Ram Pal Sri Narendra Sri Jagat Pal Sri Jagveer Smt Ram Wati	UGS UGS SHG SHG SC Land Less Woman
30	Bachhora Ganj	Sri Ram Naresh	Sri Ram Bhajan	Sri Ram Pal Sri Badan Singh Sri Ram Singh Sri Abdesh	UGS UGS SHG SHG

				Sri Jag Pal Sri Brajpal Smt Ram Beti	SC Land Less Woman
31	Naktai khurd	Sri Gaj Raj Singh	Sri Ram Bhajan	Sri Bahadu Singh Sri Parwat Singh Sri Brajpal Sri Rajendra Sri Yograj Sri Shyam Singh Smt Ram Katori	UGS UGS SHG SHG SC Land Less Woman

4.4 SELF HELP GROUP

Table no.24: SHG details:

Sr. No.	Name of the Village	Name of Group	Date of Formation	Members				Saving per head/ month	Remarks
				SC	BC	Gen	Total		

								(Rs.)	
1	Junedpur	Maharani Laxmibai	5-3-11	6		-	6	50/-	Dairy
2	Agonapur	Raidas	19-02-11	1	-	5	6	50/-	Dairy
3	Harsinghpur	Awantibai	28-2-11	-	6	-	6	50/-	Dairy
4	Kudesia Hridaypur	Jai Maa Kali	10-3-11	2	3	1	6	50/	Dairy
5	Mihuta	Jai Hanuman	23-2-11	-	4	2	6	50/	Dairy
6	Bhalol	Jai Bhole	3-03-11	-	10	-	10	50/	Dairy
		Jai Hanuman	3-03-11	-	10	-	10	50/	Dairy
		Balmik	3-03-11	10	-	-	10	50/	Dairy
7	Bendupura	Ambedkar	3-03-11	10	-	-	10	50/	Dairy
		Pooja	15-3-11	-	10	-	10	50/	Dairy
		Durge	15-3-11	-	10	-	10	50/	Dairy
8	Sokha	Jai Hanuman	4-3-11	-	-	10	10	50/	Dairy
		Jai Durge	4-3-11	-	-	10	10	50/	Dairy
		Annpurna	5-3-11	-	10	-	10	50/	Dairy
9	Tigra Bhamora	Shiv Shakti	3-3-11	-	10	-	10	50/	Dairy

		Pooja	3-3-11	-	10	-	10	50/	Silai
		Kali Maa	4-3-11	10	-	-	10	50/	Silai
		Jai Maa	4-3-11	10	-	-	10	50/	Dairy
10	Guhetiya Khurd	Ambedkar	1-3-11	10	-	-	10	50/	Dairy
		Laxmi	2-3-11	-	10	-	10	50/	Dairy
		Jai Durge	2-3-11	-	10	-	10	50/	Dairy
11	Gari Roshan	Karmath	6-3-11	-	-	10	10	50/	Dona Pattal
		Santoshi	6-3-11	-	-	10	10	50/	Dairy
		Sudesh	6-3-11	10	-	-	10	50/-	Dairy
12	Tharoli	Sahshi	9-3-11	-	-	10	10	50/-	Dairy
		Bhole	9-3-11	10	-	-	10	50/-	Dairy
		Rashid	9-3-11	-	-	10	10	50/-	Dairy
		Jai Bhole	10-03-11	-	-	10	10	50/-	Dairy
		Husnara	9-3-11	-	-	10	10	50/-	Dairy
13	Khiriya Vanar	Samrat Prathviraj	8-3-11	-	-	10	10	50/-	Dairy

		Sahyog	8-3-11	-	10	-	10	50/	Dairy
		Reena	8-3-11	-	10	-	10	50/	Dairy
		Shakti	8-3-11	-	-	10	10	50/	Dairy
14	Daudganj	Virendra Samuh	12-01-11	-	8	-	8	50/	Dairy
		Arvind	13-1-11	5	-	-	5	50/	Dairy
15	Payam Ghheta	Ramotar	14-1-11	-	7	-	7	50/	Candle
16	Aliganj	Balbir	24-1-11	-	8	-	8	50/	Dairy
		Banjara Mia	25-1-11	-	7	-	7	50/	Silai
		Mahendra	28-1-11	-	7	-	7	50/	Carpentry
17	Raya	Morcha	5-1-11	-	-	7	7	50/	Khad Beez
		Maa Bhagwati	7-1-11	-	-	7	7	50/	Dairy
		Bajrang	9-1-11	7	-	-	7	50/	Dairy
18	Koolhapur Bujurg	Krishna	10-1-11	7	-	-	7	50/	Dairy
		Rama	12-1-11	-	7	-	7	50/	Dairy
		Bhole	14-1-11	-	7	-	7	50/	Dairy

19	Kakora	Radha	15-1-11	7	-	-	7	50/	Dairy
		Shyam	17-1-11	7	-	-	7	50/	Dairy
		Radhey	18-1-11	7	-	-	7	50/	Dairy
20	Jajalpur	Durga	14-1-11	-	10	-	10	50/	Dairy
		Maa	15-1-11	-	8	-	8	50/	Silai
21	Bharapura	Bajrangi	3-2-11	-	8	-	8	50/	Dairy
		Paropkar	4-2-11	-	9	-	9	50/	Satring
22	Aliyapur	Ma Durge	12-2-11	6	-	-	6	50/	Dairy
		Jay Bhole	12-2-11	-	6	-	6	50/	Calf Palan
23	Bithara	Jay Gopal	4-3-11	-	6	1	7	50/	Calf Palan
		Jay Laxmi Ma	5-3-11	-	6	-	6	50/	Housework
24	Ubhai AshadNager	Jay Shankar	15-1-11	-	3	4	7	50/	Dairy
25	Kalijar	Jay Bajrang bali	20-2-11	-	-	8	8	50/	Shop
		Jay Santosima	21-2-11	-	6	-	6	50/	House work
26	Fardpura	Jay Bhole	28-2-11	-	8	-	8	50/	Furniture / Agriculture

		Ma Durge	28-2-11	-	8	-	8	50/	Housework
27	Angriya Gangai	Jay Bhim	4-2-11	4	4	1	9	50/	Dairy
		Jay Shankar	6-2-11	-	5	3	8	50/	Dairy
28	Kachiya Bada	Jay Sai	4-2-11	-	10	-	10	50/	Dairy
29	Agraiya Jamunai	Mukeem khan	8-2-11	-	-	10	10	50/	Goat
30	Tisori	Ragvee Grup	15-2-11	9	-	1	10	50/	Goat
		Raja Ram Grup	16-2-11	5	7	-	12	50/	Goat
31	Nagala Ummed	Abdesh Grup	13-1-11	5	6	-	11	50/	Goat
		Banke Lal Grup	3-2-11	4	6	1	11	50/	Goat
32	Lohari Gavi	Ramsharan Grup	8-2-11	-	10	1	11	50/	Goat
33	Ram Nagar	Rampal Grup	4-2-11	6	4	-	10	50/	Dairy
34	Kela	Kuwarpal Grup	6-2-11	4	8	-	12	50/	Dairy
35	Bachhora Ganj	Ram Singh Grup	8-2-11	4	8	-	12	50/	Dairy
36	Naktai Khurd	Brajpal Grup	10-2-11	4	8	-	12	50/	Dairy

4.5 USER GROUP

Table no. 25: UG Details:

Sr.No.	Code No. of Micro water Shed	Concern Villages	Number of UGs.	Number of Member
1	"	Junedpur	3	50
2	"	Agonapur	3	47
3	"	Harsinghpur	3	47
4	"	Kudesia Hirdaypur	3	46
5	"	Mihuta	3	44
6	"	Bhalol	5	50
7	"	Bandupura	4	40
8	"	Sokha	3	30
9	"	Tigra Bhamora	3	30
10	"	Guhetia Khurd	3	30
11	"	Garhi Roshan	6	60

12	"	Dharoli	6	60
13	"	Khiriya Vanar	6	60
14	"	Daudganj	3	29
15	"	Aliganj	3	30
16	"	Delhai	2	24
17	"	Bharapura	2	21
18	"	Raya	14	630
19	"	Koolhapur Bujurg	4	140
20	"	Kakoda	3	65
21	"	Arjunai Simri	1	15
22	"	Khetia	1	17
23	"	Fardpur	2	20
24	"	Kalijar	2	20
25	"	Ubhai AsadNagar	2	21
26	"	Bithara	2	20

27	"	Aliyapur	2	20
28	"	Agraiya Jamunai	4	60
29	"	Agraiya Gangai	3	60
30	"	Nagala Ummed	2	30
31	"	Tisori	1	10
32	"	Lohari Gavi	2	40
32	"	Kachiya Bada	1	15
33	"	Ram Nagar	1	10
34	"	Kela	1	10
35	"	Bachhora Ganj	2	40
36	"	Naktai Khurd	1	20
37	"	Jahangir Pur	1	15

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

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

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

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

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

Financial Component

S.No.	Component	Amount
1.	Cost of 10 goats of improved breed (not less than 6 months of age) @ Rs. 3000.00 each	30000.00

2.	Cost of 1 buck of improved breed @ Rs. 5000.00	5000.00
3.	Cost of insurance @ 11.63 / unit	4070.00
4.	Feed cost for 3 months @ 250 gm/ day for goats @ Rs. 11.84/ 250 gm	2930.40
5.	Provision of deworming, mineral and vitamin supplement, treatment, vaccination @ Rs.160/ animal	1760.00
6.	The expense including monitoring expenses, register and records @ Rs. 170.00/ unit	170.00
	Total	**Rs. 43,930.40**
		Say Rs. 43,950.00

Estimate of Livestock Development Activities

Total number of female animals: Buffalo - 11029

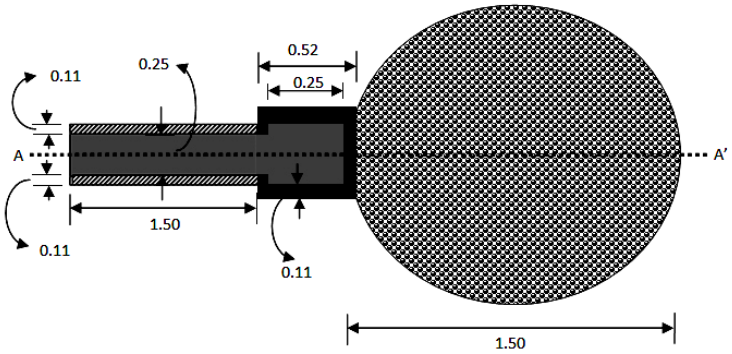
Cow - 2020

Total - 13049

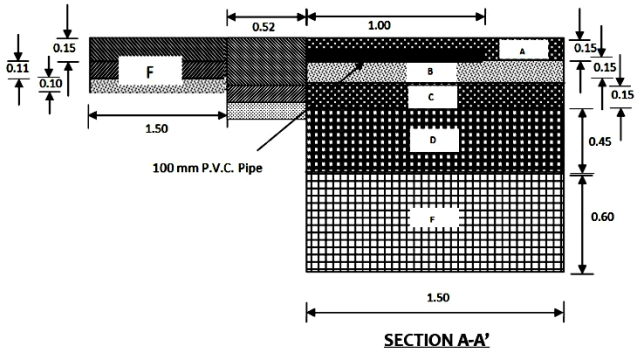
4.6 ENTRY POINT ACTIVICTY (EPA):

Entry point activities in the watershed area villages as in given below table :

1- SOAKING PIT WITH CHANNEL 1.5 MTR LENGTH WITH SILTING TANKS DESIGNES



PLAN OF SOAKING PITS WITH SILTING TANKS



SECTION A-A'

DESCRIPTION.

A – 0.10 x 0.20 Grit.
B – Coarse Sand.

C - 0.10 x 0.20 Grit.

D – 025 x 0.50 Grit.

E – Cut Stone / Random Rubble.

F – Brick wall 0.11 m x 0.25 m Width channel

Table no.26: Enrty Point activities (EPA) (All financial figures in Lakh Rs.)

DETAIL ESTIMATE OF SOAKING PIT & CHANNEL OF LENGTH 1.50 M

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

ABSTRACT OF MEASUREMENT

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

CONSUMPTION OF MATERIAL

S.No.	Description of work	Quantity	Cement (bag)	Brick (nos)	Khanda (cum)	G.S.B. 25-50 mm (cum)	G.S.Grit 10-20 mm (cum)	Coarse Sand
1.	Laying of khanda/Bricks	1.059 cum	-	-	1.059	-	-	-
2.	Laying of G.S.B.	1.058 cum	-	-	-	1.058	-	-
3.	Laying of G.S.Grit	0.264 cum	-	-	-	-	0.264	-
4.	Laying of coarse sand	0.334 cum	-	-	-	-	-	0.334
5.	Brick work 1:4	0.126 cum	0.17	60	-	-	-	0.030
6.	Plastering 1:4	1.680 m^2	0.18	-	-	-	-	0.025

Total	**0.35**	**60**	**1.059**	**1.058**	**0.264**	**0.389**

COST OF MATERIALS

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

LABOUR CHARGES

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth work	2.94 cum	36.66/cum	107.78
2.	Khanda/Bricks laying	1.059 cum	33.33/cum	35.29
3.	G.S.B. laying	1.058 cum	33.33/cum	35.26
4.	G.S.Grit laying	0.264 cum	33.33/cum	8.79
5.	Laying of sand	0.334 cum	33.33/cum	11.13
6.	Brick work 1:4	0.126 cum	370.00/cum	46.66
7.	Plastering 1:4	1.680 m^2	40.00/m^2	67.20
8.	Curing	0.126 cum	25.00/cum	3.15
	Total			**Rs. 315.22**

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

4.7 WATERSHED DEVELOPMENT WORKS:

Watershed development works are to be done during Ist to IInd phase of watershed project. A multi-tier ridge to valley sequence approach should be approached towards implementation of watershed development projects. A net budget of 60 percent is allotted for this work.

4.7.1 RIDGE AREA TREATMENT PLANS:

It is very important to treat the ridge as this is where the major water resources originate. This involves mainly hilly and forest region in IWMP-II watershed. For the ridge area treatment of IWMP-II watershed following structure are been Proposed after interaction between the watershed committee,

1. Morginal Bunding
2. C.D & W.H.B
3. Contour Trenching with Tree plantations
4. Grass seeding

1. MORGINAL BUNDING

A bund constructed along the contour or across the stream is called as M.Bl.

· Control of erosion by reducing the slope of the cultivated land
· Increasing the infiltration of rainwater
· It is self – stabilizing

2. C.D & W.H.B-

Trenches are any form of depression or micro pit constructed over the land surface in order to prevent soil erosion and to absorb rainwater in non arable lands. Trenches are constructed along the contours (called contour trenches) on hill slopes above 15% with vegetative supports for forestry and horticulture land uses. Contour trenches are used both on hill slopes as well as on degraded

and barren waste lands for soil and moisture conservation and afforestation purposes. The trenches break the slope and reduce the velocity of surface runoff. It can be used in all slopes irrespective of rainfall conditions (i.e. in both high and low rainfall conditions), varying soil properties. For vegetative support forage grasses as well as economic trees can be planted. Periodical maintenance by way of unearthing of the trenches and depositing on the downhill side ought to be given due attention by the beneficiaries themselves. SCT are been planned to be drawn in the hilly terrain where slope is not so steep.

2. BORDER CONTOUR TRENCHING:

It is planned to draw a border contour trench with the following specifications (table no.40.4 and 40.5) to collect the runoff below the hills so that plantation of trees can be taken up.

4.7.2 SLOPE TREATMENT:

The second tier treatment is the slope treatment. This is generally done on agricultural land or waste land. This generally includes water conservation or surface water storage structures. This being highly labour intensive, will involve more of manual labour. Following structures are been proposed in these areas

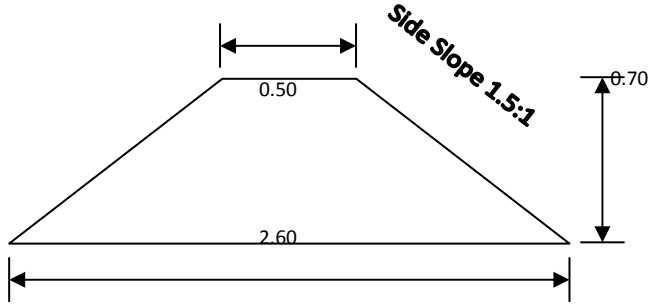
a. Earthen Bund

b. Waste Weir

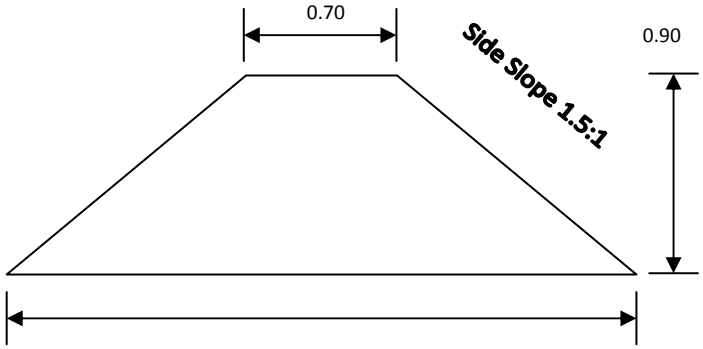
c. Afforestation

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

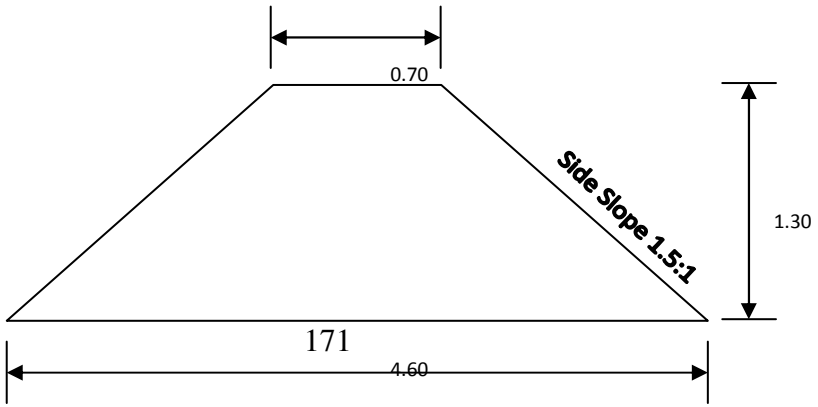
(Not to Scale)



(C.B., Cross-Section – 1.085 m^2)



(S.B., Cross-Section – 1.845m^2)

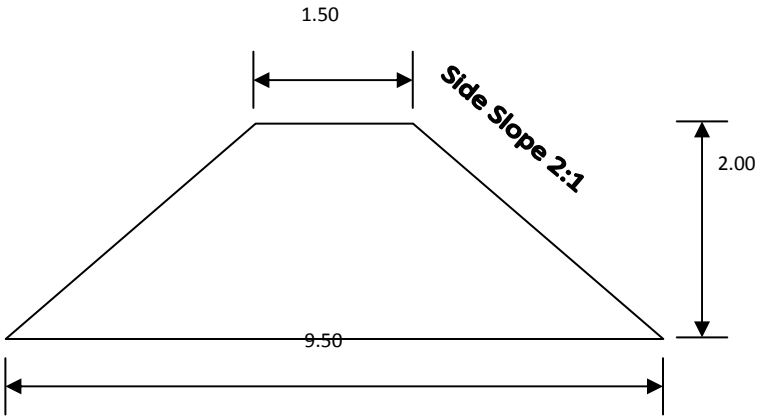


(S.B. /P.B. /M.B., Cross-Section – 3.445 m^2)

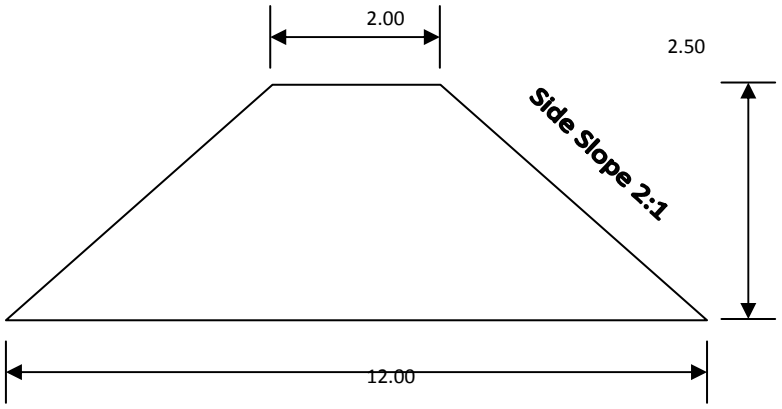
(All dimensions in Metre)

DRAWING OF EARTHEN CHEKDAM / GULLY PLUG

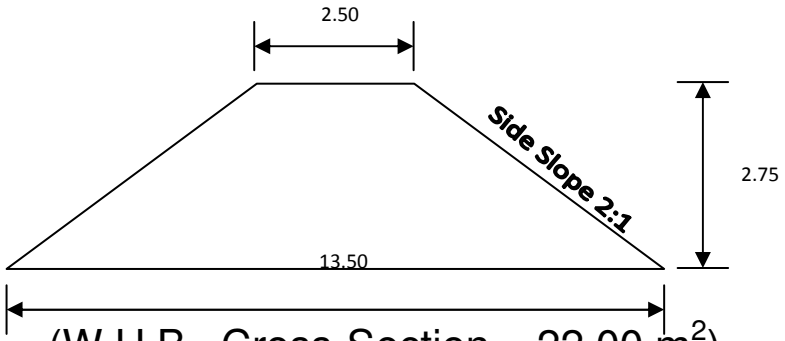
(Not to Scale)



(C.D. /G.P., Cross-Section – 11.00 m2)



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



(W.H.B., Cross-Section – 22.00 m^2)

DESIGN OF CONTOUR BUND/ FIELD 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	$= \sqrt{(\text{Re x VI})/50}$	Re=maximum rainfall in cm

$= \sqrt{(25 \text{ x } 0.7)/50}$

$= \sqrt{0.35}$

= 0.59

Say 0.60 m

Free board =15% of height minimum -10 cm

Height = 0.60 + 0.10

= 0.70 m

Taking top width of bund 0.50 m and side slope 1.5:1

Then base of Bund = 0.50 + (1.50 d) x 2 = 2.60 m

Cross-Section of bund = (0.50 + 2.60) x 0.70 / 2

= 1 .085 m^2

Length of bund = 100 s / V.I.

= 100 x 1 / 0.70

=142.85 m/ha

Feasible lengh/ha. = 100m

Earth work/ha = 100x 1.085

= 108.50 cum

Cost Rs. / ha = 108.50 @ Rs.39.16 = 4248.86 **Say Rs.4200.00**

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=$\sqrt{(\text{Re x V. I.})/50}$ =$\sqrt{(25 \text{ x } 0.90)/50}$ =$\sqrt{0.45}$ = 0.67 m. **Say 0.70m**

Free board 20% of height minimum 20cm

Total Height =0.90m

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

Bottom of bund = 0.70+2 x 1.5d = 0.70+2.70= 3.40

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

Length of bund = 100 s / V.I.

= (100 x 3) /0.90 = 333 m

Feasible length/ha	100 m
Earth work/ha	=100x 1.845
	=184.50 cum
Cost per ha	=184.50 @ Rs. 39.16
	=7225.02 **Say Rs. 7200=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
Feasible length/ha	75m
Earthwork	75x 3.445=258.375 cum
Cost/ ha	= Rs. 258.375@ Rs. 41.22 = Rs.10650.21 **Say Rs. 10500.00**

TYPICAL SECTION OF EARTHEN CHECK DAM / GULLY PLUG

Top width	= 1.50 m
Side slope	= 2:1
Height	= 2.00m
Bottom Width	= 9.50 m
Cross section	= (1.50 + 9.50) x 2.00 / 2 = 11.00 m^2
Feasible length/ha	= 25 m
Earthwork	= 25x 11=275.00cum
Cost / ha	= 275.00@ Rs. 4433= Rs.12190.75 **Say Rs. 12000.00**

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

Feasible length/ha = 20 m

Earthwork = 20x 17.50= 350.00 cum

Cost /ha = 350@Rs. 47.95= Rs.16782.50

Say Rs. 16000./ha

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 2.75 / 2 = 22.00 m^2	= (2.50 + 13.50) x
Feasible length/ha	= 15m
Earthwork 330.00cum	= 15x 22=
Cost/ha 48.95= Rs.16153.50	= 330@ Rs.
	Say Rs. 16000.00

4.8 HORTICULTURE DEVELOPMENT FOR WATERSHED MANAGEMENT

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

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

(A) BASIC CONSTRAINTS

1- Lack of suitable agro-techniques for degraded lands

2- Lack of trained resource persons

3- Inadequate dissemination of the technologies

4- Lack of community approach

5- High biotic interference

6- Lack of infrastructure including marketing.

(B) SOIL CONSTRAINTS

1- Poor nutrient status of the soil

2- Physical impediment

3- Moisture stress.

(C) PLANT RELATED CONSTRAINTS

1- Unsurvial zone

2- Problem of plant establishment

3- Physiological disorders

4- Fruit drop and poor productivity

5- Incidence of insects-pests.

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

4.9 CONCEPTS AND ADVANTAGES OF CONSERVATION HORTICULTURE

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

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

4.10 CONSERVATION HORTICULTURE PRACTICES

Some of the important practices are given below

1- SELECTION OF SUITABLE FRUITS VARIETY: For the success of conservation horticulture, selection of hardy varieties resistant to diseases and pests and use of local or other hardy root stocks for raising fruit-trees is of great importance. The major part of the reproductive cycle ie. Period from flowering to fruiting must also fall during maximum water availability period and the root ripening must be completed before the onset of dry summer (April-May).Ber, Guava, Karonda, Bel, Amla, Lemon, and Phalsa etc. are the plants which fulfill this requirement and all these fruit plants are most suitable for Bundelkhand region.

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

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

4- INSITE WATER HARVESTING: Since on slopy lands, runoff water is considerably higher, therefore, it should be harvested and used. The run off can be utilized for growing fruit plants in such a way that each tree in the established plants is at the time of fruit setting and fruiting. Moisture available at this critical period improves the fruit yield. Runoff water will be harvested and stored in tanks during the rains. The stored water will be utilized at the time when the fruit trees show moisture stress during dry months. Counter trenches will dug between the rows of fruit trees because this is effective in conserving moisture and providing soil erosion.

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

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

ESTIMATE OF ORCHARD DEVELOPMENT IN THE WATERSHEDS PER HECTARE (WITHOUT FENCING) Table: 27

S. N.	Particulars	Quantity	Rate	Amount	Project Share	Beneficiary Share 40%
A. Horticulture						
1.	Soil working 1m x1mx1m size pits (27onos.) including cost of refilling .	270.00 cum	36.66/cum	9898.00	4533.00	5365.00
2.	Application of Farmyard Manure including cost.		L.S.	450.00	-	450.00
3.	Cost of NPK mixture , neemicide @ 250gm/plant		L.S.	400.00	-	400.00
4.	Cost of plants (Including 15% extra for mortality) including transportation and planting.	310 nos	15.00/plant	4650	4650.00	-
5.	Cosualty replacement @ 10% of item no.4	-	-	465.00	465.00	-
6.	Cost of 2 weedings and hoeing	-	1.00/plant	540.00	-	540.00
7.	Contingency and unforeseen (3%)			492.00	492.00	-
	Total			**Rs.16895.00**	**10140.00**	**6755.00**
			Say	**16900.00**	**10140.00**	**6760.00**
	Maitenance cost2nd year onwards – 15% of 1st year cost R**s.900**		-	-		
	For nest 5 year i.e. Rs. 900x5			4500.00	2700.00	1800.00
	Total cost			**21400.00**	**12840.00**	**8560.00**
	Say			**21400.00**	**12840.00**	**8560.00**
B. Agro – Horticulture (cost per ha)						
1	Cost of raising 270 plants up to 5 year @ rs. 10500			21400.00	12840.00	8560.00
2	Cost of agricultural cropsing @ Rs. 5000 per ha. year			5000.00	3000.00	2000.00
	Total			**26400.00**	**15840.00**	**10560.00**

ESTIMATE OF ORCHARD DEVELOPMENT IN THE WATERSHEDS PER HECTARE (WITHOUT FENCING) Table: 28

S. N.	Particulars	Quantity	Rate	Amount	Project Share	Beneficiary Share 40%
A. Horticulture						
1.	Soil working 1m x1mx1m size pits (27onos.) including cost of refilling .	270.00 cum	36.66/cum	9898.00	-	9898.00
2.	Application of Farmyard Manure including cost.		L.S.	450.00	-	450.00
3.	Cost of NPK mixture , neemicide @ 250gm/plant		L.S.	400.00	-	400.00
4.	Cost of plants (Including 15% extra for mortality) including transportation and planting.	310 nos	15.00/plant	4650	4650.00	-
5.	Cosualty replacement @ 10% of item no.4	-	-	465.00	465.00	-
6.	Cost of 2 weedings and hoeing	-	1.00/plant	540.00	-	540.00
7.	Contingency and unforeseen (3%)			492.00	492.00	-
	Total			**Rs.16895.00**	**5607.00**	**11288.00**
			Say	**16900.00**	**5610.00**	**11290.00**
	Maitenance cost2nd year onwards – 15% of 1st year cost **Rs.900**		-	-		
	For nest 5 year i.e. Rs. 900x5			4500.00	2700.00	1800.00
	Total cost			**21400.00**	**8310.00**	**13090.00**
	Say			**21400.00**	**8310.00**	**13090.00**
B. Agro – Horticulture (cost per ha)						
1	Cost of raising 270 plants up to 5 year @ rs. 10500			21400.00	8310.00	13090.00
2	Cost of agricultural cropsing @ Rs. 5000 per ha. year			5000.00	3000.00	2000.00
	Total			**26400.00**	**11310.00**	**15090.00**
	Says				**11000.00**	

ESTIMATE OF ORCHARD DEVELOPMENT IN THE WATERSHEDS PER HECTARE (WITH FENCING) Table: 29

S.N.	Particulars	Quantity	Rate	Amount	Project Share	Beneficiary Share
A. Horticulture						
1.	Soil working 1m x1mx1m size pits (27onos.) including cost of refilling .	270.00 cum	36.66/cum	9898.00	4533.00	5365.00
2.	Application of Farmyard Manure including cost.		L.S.	450.00	-	450.00
3.	Cost of NPK mixture , neemicide @ 250gm/plant		L.S.	400.00	-	400.00
4.	Cost of plants (Including 15% extra for mortality) including transportation and planting.	310 nos	15.00/plant	4650	4650.00	-
5.	Cosualty replacement @ 10% of item no.4	-	-	465	465.00	-
6.	Cost of 2 weedings and hoeing	-	1.00/plant	540	-	540.00
7.	Contingency and unforeseen (3%)			492.00	492.00	-
	Total			**Rs.16895.00**	**10140.00**	**6755.00**
			Say	**16900.00**	**10140.00**	**6760.00**
	Maitenance cost2nd year onwards – 15% of 1st year cost **Rs.900**		-	-		
	For nest 5 year i.e. Rs. 900x5			4500.00	2700.00	1800.00
	Total cost			**21400.00**	**12840.00**	**8560.00**
	Say			**21400.00**	**12840.00**	**8560.00**
1	Cost of raising 270 plants up to 5 year @ rs. 10500			21400.00	12840.00	8560.00
2	Cost of agricultural cropsing @ Rs. 5000 per ha. year			5000.00	3000.00	2000.00
3	Fencing			45300.00	27180.00	18120.00
	Total			**71700.00**	**43020.00**	**28680.00**

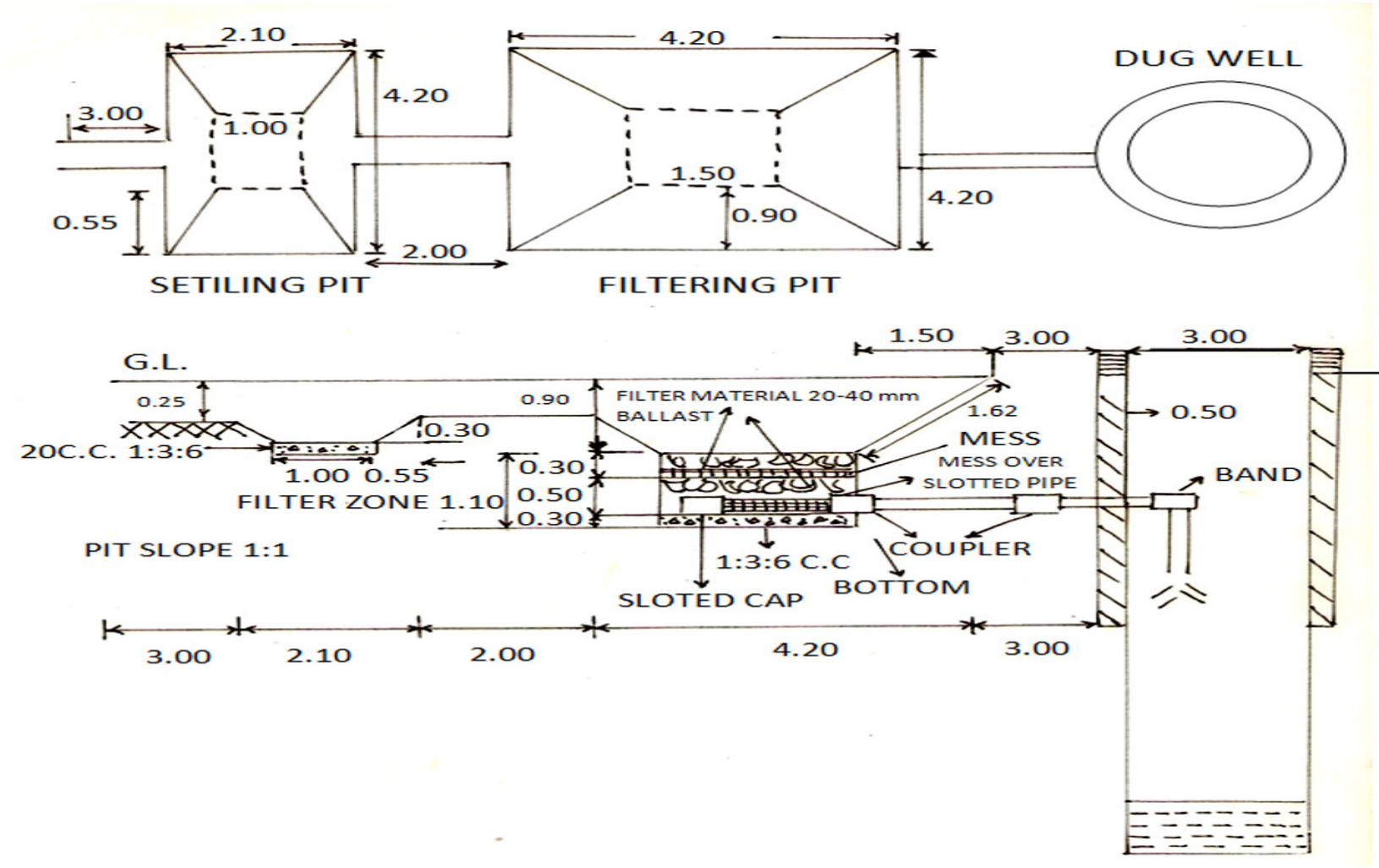
COST IN PLANTING ONE PLANT WITH DIGGING, FILLING MIXED WITH FYM AND COST OF PLANT Table: 30

S. N.	Particulars	Unit	Quantity	Rate (Rs.)	Amount	Material cost	Labour component	Project Share	Beneficiary Share
1	Lay Out	No.	1	0.51	0.51	-	0.51	0.51	-
2	E.W. in digging	Cum	1	36.66	36.66	-	36.66	23.41	13.25
3	Showing of plant s	No.	1	2.75	2.75	-	2.75	-	2.75
4	Manuring in pits.	No.	1	6.45	6.45	6.45	-	6.45	-
5	E.W. filling in pits .	No.	1	5.60	5.60	-	5.60	-	5.60
6	Cost of plants.	No.	1	18.00	18.00	18.00	-	18.00	-
7	Local Transpotations of plant.	No.	1	2.05	2.05	-	2.05	2.05	-
	Total	**-**	**1**	**-**	**72.02**	**24.45**	**47.57**	**50.42**	**21.60**
	Say				**72.00**	**24.45**	**47.55**	**50.40**	**21.60**

ESTIMATE FOR SILVI-PASTORAL SYSTEM PLANTATIONS (665PLANTS ha) Table: 31

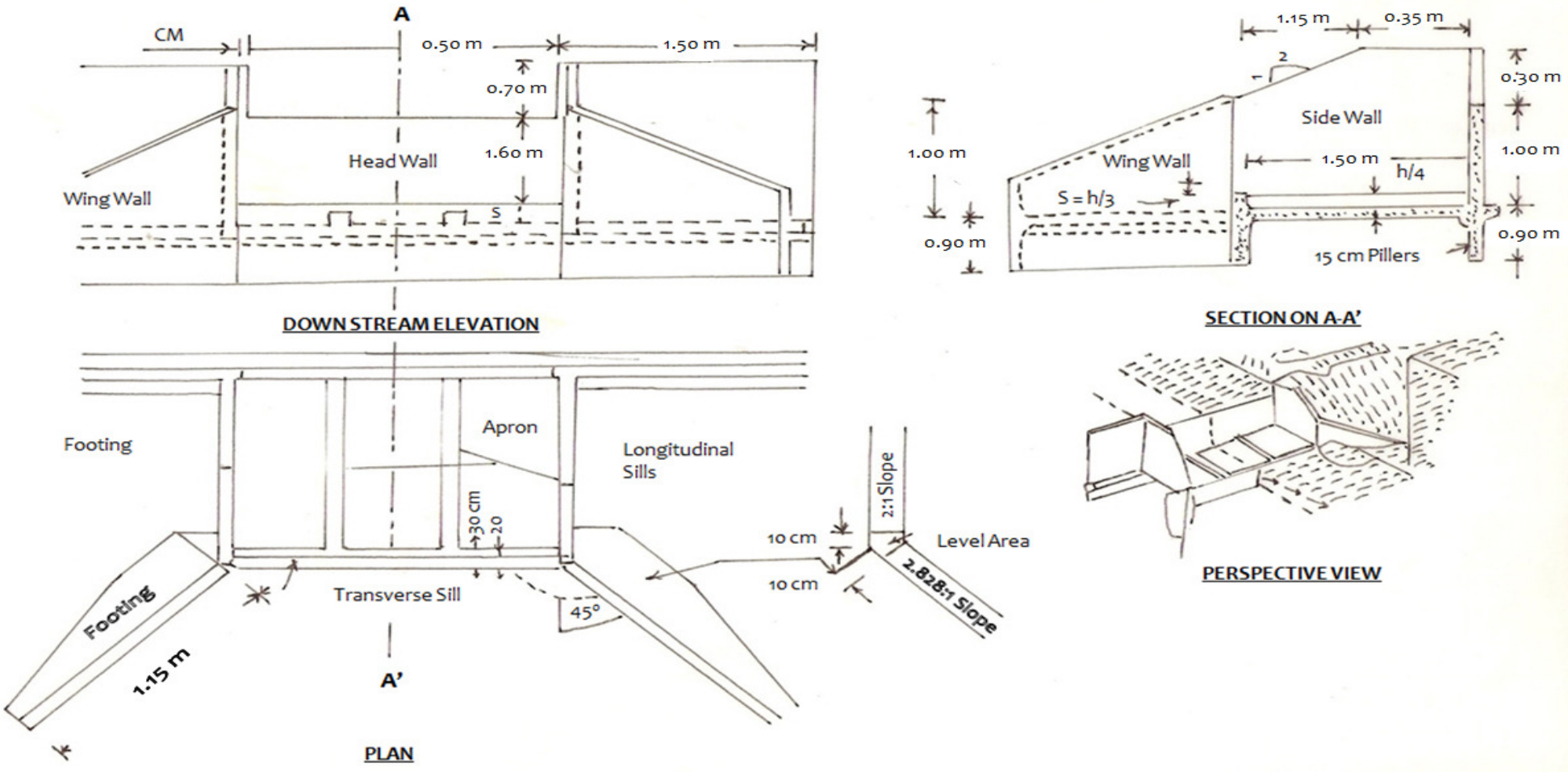
S.N.	Particulars of Work		Unit	Quantity	Rate	Cost	Project 60%	Benificiary 40%
1	Site Clearing		hect.	1.00	172.50	172.50	-	172.50
2	Lay Out	Plant	No.	665	21.25/100	133.00	133.00	-
		Trench	mt.	400	51.25/100	205.00	205.00	-
3	E.W.	0.60X0.60X0.60 Of Plant	cum.	135.00	33.33	4500.00	-	4500.00
		400x3x0.60x0.45 Trench		324.00	33.33	10798.92	8048.92	2750.00
4	Cost of Plants		No.	665	5.00	3125.00	3125.00	-
5	Showing of plant		No.	665	2.75	1718.75	-	1718.75
6	Showing of Seed with Cost of Seed		No.	400x3=1200mt	2.05	2460.00	2460.00	-
7	Weeding And Hoing (2no)			L.S.	-	300.00	-	300.00
8	Irigation of plant		No.	665	0.90	566.50	-	566.50
	Total					23975.67	13971.92	10003.75
9	Maintinance second year of the I year expandi in cluding beiry up of year					3596.35	2529.00	997.00
Grand Total						27572.02	16500.92	11000.75
Say Rs.						**27500.00**	**16500.00**	**11000.00**

DRAWING OF RECHARGING DUG WELL



39.2 - DRAWING OF SPILLWAY OF CREST LENGTH 0.5 m

All Dimensions in Metre



DETAILS OF MEASUREMENT (DUG WELLS RECHARGING) Table: 32

S.No.	Name of Work	No.	L B D/H	Unit	Quantity
1.	Earth work in excavation hard soil mixed with *kanker* gravel, etc. in foundation.				
a	Settling pit (i) Long Wall	4	0.65 x 1.75 x 0.10/2	M^3	0.09
		2	1.50 x 0.66 x 0.75	M^3	1.39
	(ii) Short Wall	4	0.55 x 0.75/2 x 0.10	M^3	0.08
		2	1.00 x 0.55 x 0.75	M^3	0.82
b	Filtering pit	8	1.85 x 1.00 x 1.00 x /2 x 0.10	M^3	1.19
		2	1.50 x 1.66 x 0.90	M^3	4.37
c	Drain-Filter zone	1	1.50 x 1.50 x 1.10	M^3	2.47
		1	7.10 x 0.75 x 0.25	M^3	1.86
d	Excavation for laying of P.V.C. pipe & filling after laying of P.V.C. pipe				
		1	4.35 x 2.00 x 0.80	M^3	6.96
		1	1.35 x 0.90 x 2.00/2	M^3	1.21
		1	3.00 x 2.00 x 0.90	M^3	5.40
	Total				25.84
2	C.C. in 1:3:6 settling pit	1	1.00 x 1.50 x 0.20	M^3	0.30
	Filtering pit filter zone	1	1.50 x 1.50 x 0.30	M^3	0.67

	Drain –Filter Zone	1	7.00 x 0.75 x 0.10	M^3	0.52
				M^3	1.49
3	Cut- Stone work 1:4				
a	Settling pit Long wall	4	1.05 x 0.55 x 0.10/2		0.11
		2	1.50 x 0.66 x 0.05		0.09
	Settling pit Short wall	4	0.55 x 0.55 x 0.10/2		0.06
		2	1.00 x 0.66 x 0.05		0.06
b	Filtering pit	8	1.85 x 1.66 x 0.05/2		0.60
		2	1.50 x 1.66 x 0.05		0.24
				M^3	1.16
4	Plaster work 1:2				
	Drain-Bottom	1	7.00 x 0.25	M^2	1.75
	Drain-Side	2	7.00 x 0.25	M^2	3.50
	Selting base	1	1.50 x 1.00	M^2	1.50
	Filtering base	1	1.50 x 1.50	M^2	2.25
	Total			M^2	9.00
5	Supply & Fixing of 110 mm P.V.C. Pipe	1	6.00	M	6.00
6	Slotted cap of 110 mm P.V.C.	1		No.	1.00
7	P.V.C. Bend 110 mm	1		No.	1.00
8	P.V.C. coupler 110 mm	1x2		No.	2.00
9	Mesh ss S/F between	1x2		Job	2.00
10	S/O Stone sign board	1		Job	1.00

11	Filter Material of 20-40 mm blast	1	1.50 x 1.50 x 0.80	M^3	1.80
12	Slotted pipe P.V.C. 110 mm	1	1 x 1	M	1.00

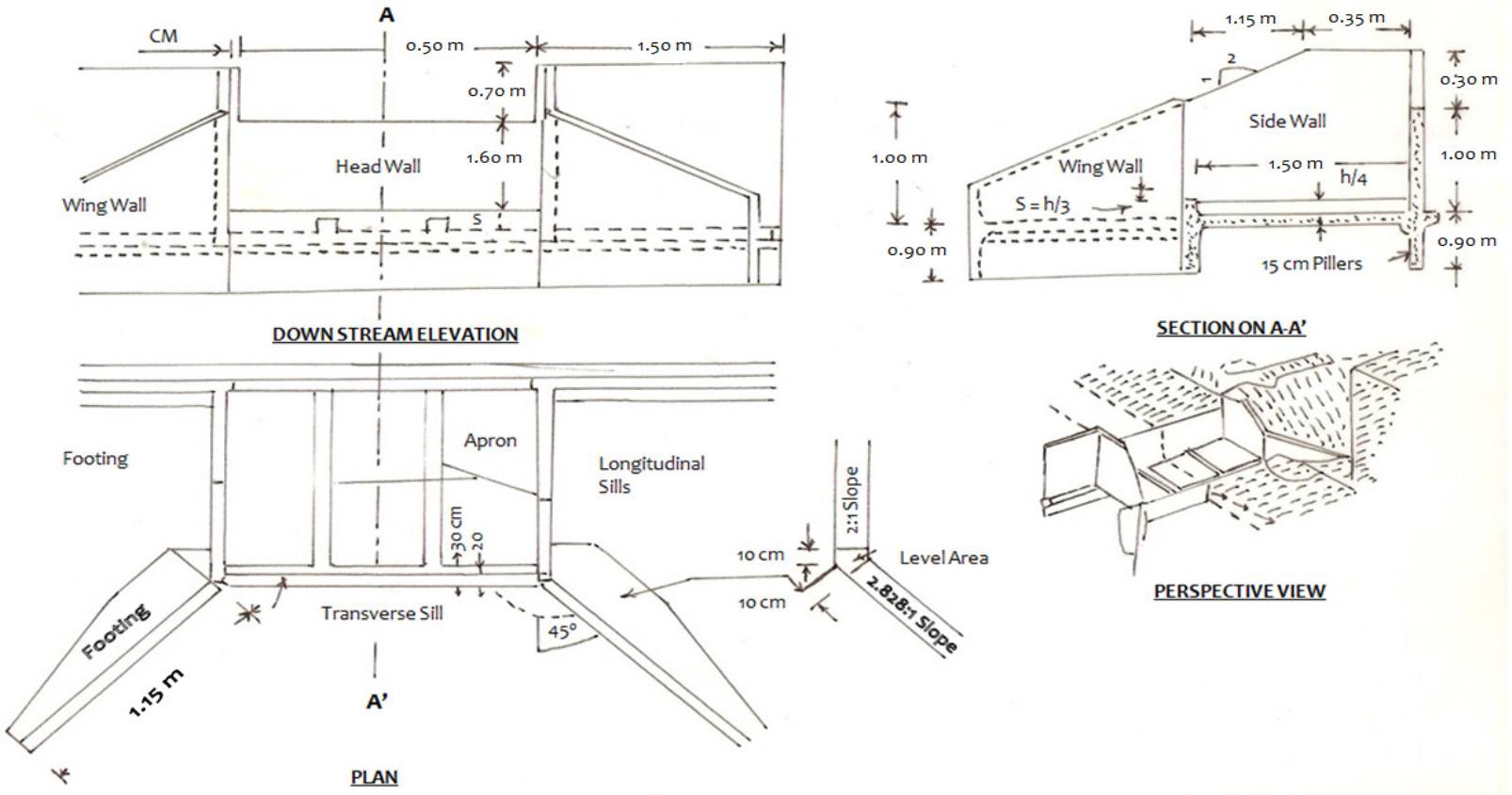
ABSTRACT OF COST OF THE RECHARGING WELL Table: 34

S.No.	Name of Work	Quantity	Unit	Rate	Amount
1.	Earth Work	25.84	M^3	36.36	947.29
2.	C.C.W. Work in 1:3:6	1.49	M^3	2766.00	4121.34
3.	Laying Stone Supply & fixing	1.16	M^3	4000.00	4640.00
4.	Plaster work in 1:2	9.00	M^3	81.98	737.80
5.	S/F of 110 mm P.V.C. pipe	6.00	R.M	150.00	900.00
6.	Slotted Cap 110 mm P.V.C	1	No.	150.00	150.00
7.	P.V.C. bend 10 mm	1	No.	130.00	130.00
8.	P.V.C. Coupler 110 mm	2	No.	100.00	200.00
9.	Mesh ss S/F between	2	Job	100.00	200.00
10.	S/O fixing of sign board	1	Job	1850.00	1850.00
11.	Filter material 20-40 mm blast	1.8	M^3	855.00	1539.00
12.	Slotted P.V.C. pipe 110 mm	1	R.M.	250.00	250.00
Total					**Rs. 15,665.43**
Say					**Rs.15,670.00 only**

DRAWING OF SPILLWAY OF CREST LENGTH 0.5 m

All Dimensions in Metre

Not to Scale



DESIGN OF DROP SPILLWAY FOR 1.00 HA CATCHMENT AREA

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

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

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

2. HYDRAULIC DESIGN- The maximum discharge capacity of the rectangular weir given by

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

To find suitable value of L & H

Let us assume L = 0.50 m (since width of gulley is 1.00 m)

$$0.10 = \frac{1.711\ L\ H^{3/2}}{(1.10+0.01 \times 0.5)} = \frac{1.711\ L\ H^{3/2}}{(1.105)}$$

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

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

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

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

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

3. STRUCTURAL DESIGN –

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

E = 3x0.5+0.6 or 1.5x0.50

E = 2.10 m or 0.75 m

Adopted 2.10 m

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

= 0.50 x 2.74 = 1.37 m says 1.40 m

3- Height of end sill , S = $\frac{h}{3}$ = $\frac{0.50}{3}$ = 0.16 m says 0.20 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 0.50 or [0.50+0.50+0.16 – (1.37+0.10)/2]

= 1.0 or [1.16 – 0.735]

= 1.0 or 0.425

adopt J = 1.00 m

5- M = 2 (f + 1.33 h - J) = 2 (0.50 + 1.33 x 0.25 – 1.00)

= 2 x (- 0.167) = - 0.335 m

6- K = (L_B + 0.1) - M = (1.37 + 0.1) – 0.335

= 1.47 – 0.335

= 1.135 m

Toe and cut off walls

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

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

$= 0.473 \times 0.464$

$= 0.219$

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

$= 1.5 \times 0.219$

$= 0.328$ m

says 0.35 m Depth of cutoff /Toe wall = 0.35 m

APRON THICKNESS : For an over fall of 0.5 m. The Apron thickness in concrete construction is 0.20 m since the structure is constructed in masonry, the Apron thickness will be 0.20 x 1.50 = 0.30 m

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

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

DETAIL ESTIMATE OF DROP SPILLWAY OF CREST LENGTH 0.5 METRE

1. Earth work in cutting in foundation

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

2. LAYING OF SAND IN THE BED OF FOUNDATION

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

3. C.C.W. 1: 3: 6 IN FOUNDATION

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

4. R/R STONE MASONRY 1:4

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Cut off wall	1	4.70	0.80	0.45	1.692
		1	4.70	0.60	0.45	1.269
2	Head wall	1	0.50	1.10	0.45	0.247
		1	0.50	1.00	0.45	0.225
		1	0.50	(0.40 + 1.00) /2	0.60	0.180
3	Head wall extension	2	2.10	0.80	0.45	1.512
		2	2.10	0.60	0.45	1.134
		2	2.10	0.60	0.60	1.512
		2	2.10	0.40	0.70	1.176

4	Side wall	2	1.50	1.00	0.45	1.350
		2	1.50	0.80	0.45	1.080
		2	1.50	0.80	0.60	1.440
		2	1.50	0.60	0.40	0.720
		2	(0.35 + 1.50) /2	0.40	0.30	0.222
5	Wing wall	2	1.15	0.80	0.45	0.828
		2	1.15	0.60	0.45	0.661
		2	1.15	0.40	(1.00 + 0) /2	0.460
6	Toe wall	1	0.50	0.80	0.45	0.180
		1	0.50	0.60	0.45	0.135
		1	0.50	0.40	0.20	0.040
7	Apron	1	0.50	1.50	0.45	0.337
	Total					16.360 cum

5. C.C.W. 1:2:4 ON THE WALL

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Head wall	1	0.50	0.40	0.025	0.005
2	Side wall	2	0.35	0.40	0.025	0.007
		2	1.18	0.40	0.025	0.023
3	Head wall extension	2	2.10	0.40	0.025	0.042
4	Wing wall	2	1.52	0.40	0.025	0.030

5	Toe Wall	1	0.50	0.40	0.025	0.005
6	Apron	1	0.50	1.50	0.025	0.018
Total						0.130 cum

6. RAISED POINTING 1:3

S.No.	Description of work	No.	L	B	D/H	Quantity
1	Head wall	1	0.50	-	0.60	0.30
		1	0.50	-	0.84	0.42
2	Side wall	2	1.50	-	1.00	3.00
		2	(0.35 + 1.50) /2	-	0.30	0.55
3	Head wall extension	2	2.10	-	1.00	4.20
4	Wing wall	2	1.15	-	(1.00 + 0) /2	1.15
Total						9.66 m^2

CONSUMPTION OF MATERIALS

S.No.	Particulars	Quantity	Cement (Bags)	Coarse Sand (cum)	Khanda (cum)	G.S.B 25-40 mm (cum)	G.S. Grit 10-20 mm (cum)
1.	Sand laying	0.995 cum	-	0.995	-	-	-
2.	C.C.W. 1:3:6	1.492 cum	6.41	0.671	-	1.342-	-
3.	R/R Stone Masonry	16.360 cum	39.26	5.566	16.36	-	-

4.	C.C.W. 1:2:4	0.130 cum	0.79	0.054	-	-	0.110
5.	Raised Pointing 1:3	9.66 m^2	0.44	0.045	-	-	-
Total			**46.90**	**7.327**	**16.36**	**1.342**	**0.110**
Say			**47 Bags**				

COST OF MATERIALS

S.N0	Name of materials	Quantity	Rate	Amount
1.	Cement	47 Bags	255.00/bag	11985.00
2.	Coarse sand	7.327 cum	910.00/cum	6667.57
3.	Stone Khanda	16.36 cum	1025.00/cum	16769.00
4.	G.S.B. 25-40 mm	1.342 cum	855.00/cum	1147.41
5.	Grit 10-20 mm	0.110 cum	1250.00/cum	137.50
Total				**Rs. 36,706.48**

LABOUR CHARGE

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	13.23 cum	36.66/cum	485.01
2.	Sand Laying	0.995 cum	33.33/cum	33.16
3.	C.C.W. 1:3:6	1.492 cum	494/cum	737.04
4.	Stone masonry	16.36 cum	370/cum	6053.20
5.	C.C.W. 1:2:4	0.130 cum	494/cum	64.22
6.	Raised Pointing	9.66 m^2	51.61/m^2	496.48
7.	Curing	16.36 cum	25.00/cum	409.00
8.	Chowkidar	6 Man Days	100.00/Man Day	600.00
9.	Head load & local transportation cost 10% cost of material	-	-	3670.64
	Total			Rs. 12,548.75

Total Expenditure of 0.50 m Crest wall	
1. Cost of materials	36706.48
2. Labour Charges	12548.75
Total	**Rs. 49,255.23**

Say Rs. 49,300.00 only

Dependency on forest for fuel wood and fodder-

(a) Fuel Wood- Villagers in the village do not use LPG to meet their cooking energy requirements. The main source of fuel is from buffalo, He buffalo and cow dung cake, woody stem of Arhar crop and Mustard. About 60 to 65 percent of the domestic energy requirement is met from the agro byproduct and buffalo, his buffalo and cow dung cake. Rest is met out from the outside the village and watershed boundary. Most preferred fuel wood is Vilayati Babool. Fuel wood is obtained from the forest of Prosopis Juliflora standing along the Kali Nadi situated outside the watershed boundary.

(b) Fodder- Villagers do not have any significant dependency on forest based fodder as these resources are not available in the forests.

Labour Requirement-

Labour requirement was found to be the maximum during Oct.-Nov., when the harvesting of Kharif and sowing of Rabi crops are done simultaneously. The crucial periods are March/April coinciding harvesting and threshing of rabi crops and July/August when sowing of Kharif crops take place. Other income generating enterprises having potential during the remaining period can be planned.

4.10.1 Crop Calendar-

The present crop calendar in the watershed comprise of fallow-maize, fallow-wheat, bajra-wheat, bajra-mustard, Barley-wheat, Barley-mustard, Jowar-wheat, Jowar-mustard, Potato Ground-Nut Fallow-mustard is the most prevailing crop rotations on the agricultural lands both in rain-fed and irrigated conditions in the watershed. Organized vegetable cultivation, fruit plantation and traditional agro-forestry systems are lacking widely in the watershed. The limited vegetable cultivation in the watershed is confined either to kitchen gardens or to the irrigated conditions in a scattered manner on extremely small area with view to meet out the domestic demand for vegetables. The cultivation of cash crops other than the Bajara also lacks in the watershed.

4.10.2 Farmer Preferences

Agriculture: Wheat Bajra and Ground-Nut are the most preferred agricultural crop in the watershed followed by Tubacco.

Fruit trees: Mango, Guava, Lasoda

Fooder 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 crops having potential in the watershed, socio-economical factors etc were found to be most important factors deciding the preferences of farmers pertaining to selection and cultivation of agricultural crops, fruits, MPTs or other fodder trees in the watershed.

4.10.3 Importance of development Institutions-

In the venn diagram, framers perception was recorded for importance and role of different development intuition in relation to infrastructure in the villages. Importance has been depicted with size of the circle and role with distance from village circle.

4.11 CAPACITY BUILDING:

Institution and capacity building work of water shed area farmers and self helps groups, users group and PIA members WDT members for development in source of income and production of grain, water shed program knowledge through various types of institution. 1- CSA, Kanpur, 2- Distt. Kisan Vikas Kendra, 3- Departmental Priskhan Kendra, Belli Kalan Lucknow, 4- Agriculture Kisan Kendra.

Cost of Training
1- Training at Belli Kalan, Lucknow
20 Trainings of 05 days, 40 trainees/training expenditure Table:33

S.No.	Particulars	Rate (rs)/ Day/head	Amount (Rs.)
1	Tea, Breakfast, Lunch, Dinner	40x250x5	50000.00
2	Training material- Bag, Pen, Pad, Literature etc.	500x40	20000.00
3	Resource persons	1000x40x5	20000.00
4	Operator/Diesel	1500x5	7500.00
5	Vehicle	3000x5	15000.00
6	Photography	-	3000.00
7	Photocopy of Lecture	-	6000.00
8	TA/DA of Resource persons	-	10000.00
9	Lodging Rs. 50/perday	40x50x5	10000.00
10	Lecture Hall	5000x5	25000.00
11	Course Directory /Nodal Officer	1000x5	5000.00
12	Supporting Staff	1000x5	5000.00
13	Miscellaneous (Decoration, Water, Minor itmes, Audiovisuals etc.)	-	5000.00

14	Institutional Charge 10%	-	18150.00
	Rs. 1,99,650.00 for five days for 40 trainees (Rs. 998.25 per head/day)	-	**199650.00**

Cost of Training
2- Training at Block Level
02 Days, 100 trainees/training expenditure, Table: 34

S.No.	Particulars	Rate (rs)/ Day/head	Amount (Rs.)
1	Tea, Breakfast, Lunch, Dinner	100x150x2	30000.00
2	Training material- Bag, Pen, Pad, Literature etc.	400x100	40000.00
3	Resource persons	100x4x2	8000.00
4	Generator/Diesel/Chairs/Tent/Light/Mike etc	-	20000.00
5	Vehicle	-	5000.00
6	Photography	-	3000.00
7	Photocopy of Lecture	-	5000.00
8	TA/DA of Resource persons	-	3000.00
9	Lodging Rs. 50/perday	100x150x2	30000.00
10	Lecture Hall	5000x2	10000.00
11	Course Directory /Nodal Officer	1000x2	2000.00

12	Supporting Staff	1000x2	2000.00
13	Miscellaneous (Decoration, Water, Minor itmes, Audiovisuals etc.)	-	5000.00
14	Institutional Charge 10%	-	18150.00

Cost of Training
3- Watershed Level Two Days Training
02 Days, 100 trainees/training expenditure Table: 35

S.No.	Particulars	Rate (rs)/ Day/head	Amount (Rs.)
1	Tea, Breakfast, Lunch, Dinner	100x10x2	20000.00
2	Training material- Bag, Pen, Pad, Literature etc.	400x100	40000.00
3	Resource persons	100x4x2	8000.00
4	Generator/Diesel/Chairs/Tent/Light/Mike etc	-	10000.00
5	Vehicle	-	5000.00
6	Photography	-	3000.00
7	Photocopy of Lecture	-	5000.00
8	TA/DA of Resource persons	-	3000.00
9	Course Directory /Nodal Officer	1000x2	2000.00
10	Supporting Staff	1000x2	2000.00
11	Miscellaneous (Decoration, Water, Minor itmes, Audiovisuals etc.)	-	5000.00

12	Institutional Charge 10%	-	10300.00
	Total		**113300.00**

Chapter- 5

Budgeting

5.0 PHASING OF PROGRAMME AND BUDGETING

WATER SHED PROJECT - ETAH - II

5.1 Financial Outlays Year Wise Table: 36

S. no.	Component	Unit	Quantity.	1''Year	2''Year	3''Year	4''Year	Total
A	**Administrtive costs**							
	Administrtive costs-TA&DA,POL/Hiring of vehicles/office nd payment of electricity and phone bill etc. computer,stationary and cosumable and Contingency	Lakh	-	20.866	20.866	20.866	20.866	83.448
	D.P.R. PREPATION	-	-	8.3448	-	-	-	8.3448
	Expert for monitoring and evaluation	Nos	-	2.0866	2.0866	2.0866	-	8.3448
	Sub Total	-	-	**31.293**	**22.9482**	**22.9482**	**20.866**	**100.1376**
B	**PEREPARATORY PHASES**	-	-	-	-	-	-	-

	Entry Point Activities like improvement in drinking water system, school, water harvesting, solar light & approach road etc.	-	-	33.3792	-	-	-	33.3792
	Institutional an capacity building	-	-	16.69	16.69	8.344	-	41.7240
	Sub Total	-	**-**	**50.0692**	**16.69**	**8.344**	**-**	**75.1032**
C	**WATERSHED WORKS**	-	-	-	-	-	-	-
a	**Soil &water conservation works**	-	-	-	-	-	-	-
1	Contour & field bund, marginal bund	Hect.	4172	-	100.14	55.08	95.10	250.32
2	submergence bund							
3	Peripheral bund							
b	**Renovation of existing bund for soil and moisture control**	.	-	-	-	-	-	-
	Sub Total	**-**	4172	-	100.14	55.08	95.10	250.32
1	New & existing Water harvesting bund/earthen Submergence bund	Hect.	2086	-	50.04	27.54	47.58	125.16
c	**Afforestation works**	-						
1	Horticulture works	Hect.-	418	-	10.02	5.52	9.54	25.08
2	Afforestation works	Hect.	278	-	6.66	3.66	6.36	16.68

	Sub Total	-	2782	-	66.72	36.72	63.48	166.92
	total	Hect.	**6954**	**-**	**166.86**	**91.80**	**158.58**	**417.24**
D	**LIVILIHOOD PROGRAMME(Community based)**	-	-	50.0688	16.6896	16.6896	-	83.448
	Income generating activities through SHG's for lndless and marginal farmers and livestrocks development works.	-	-	-	-	-	-	-
E	**PRODUCTION SYSTEM AN MICRO ENTRPRISES**	-	-	33.3792	25.0344	25.0344	25.0344	108.4824
	Crop production,diversificion of agriculture and introduction of agro-forestry and Demonstration of improved composting system	-	-	-	-	-	-	-
F	**CONSOLIDATION PHASE**	-	-	-	-	-	41.7240	41.7240
	GRAND TOTAL	-	**6954**	**166.8964**	**250.3444**	**166.8954**	**250.3438**	**834.4800**

5.2 Physical plan

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

Physical plan phasing Table: 37

Activities related to	Unit	Qty	1 Year (quantity)	2Year (quantity)	3Year (quantity)	4Year (quantity)	Total
ADMINISTRATIVE COSTS							
TA&DA,POL/Hiring of vehicles/office and payment of electricity and phone bill etc. computer,stationary and cosumable and Contingency			□	□	□	□	
Expert for monitoring and evaluation			□	□	□	□	
PEREPARATORY PHASES			-	-	-	-	-
Entry Point Activities like improvement in drinking water system,school,water system,school,temple etc.			□	-	-	-	-
Institutional an capacity builiding			-	□	□	□	
WATERSHED WORKS			-	-	-	-	-
Watershed development works			-	-	-	-	-
Construction of bunds- Contour bund, Field bund, marginal bund, sub-marginal bund, peripheral bund.	Hect	4172	-	1669	918	1585	4172
Renovatin of the exisiting contore and field bunds and Periferal,marginal & Submurjenc bunds			-	-	-	-	
Renovation and new construaction of water harvesting works	Hect	2086	-	834	459	793	2086

and submergence bund.							
Dryland horticulture development	Hect	418	-	167	92	159	418
Afforestation and silvipastoral development (ha.)	Hect	278	-	111	61	106	278
LIVILIHOOD PROGRAMME (COMMUNITY BASED)			-	-	-	-	
Income generating activities through SHG's for landless and marginal farmers			-	-	-	-	
Livestock development activities			□	□	□	-	
PRODUCTION SYSATEM AND MICRO ENTERPRISE			-	-	-	-	
Demonstration and aesment of improved composting system using alternate material (36ermin compost) and nutrient nalysis (Nos.)	Nos		80	60	60	60	260
Introduction of improved crop production practices			-	-	-	-	
I) for kharif crops (ha)	Hect	-	30	20	20	20	90
ii)for rabi crops (ha)	Hect	-	50	40	40	40	170
CONSOLIDATION PHASE			**-**	**–**	**–**	□	

Chapter - 6

Expected Outcome

6.0 Expected Outcomes:

As per Common Guidelines of GoI, each Watershed Development Project is expected to achieve the following results by the end of the project period:

a. All the works/activities that are planned for the treatment and development of the drainage lines, arable and non-arable lands in the watershed area are completed with the active participation and contribution of the user groups and the community at large.

b. The user groups/panchayats have willingly taken over the operation and maintenance of the assets created and made suitable administrative and financial arrangements for their maintenance and further development.

c. All the members of the Watershed Committee and staff such as Watershed Secretary and Volunteers have been given orientation and training to improve their knowledge and upgrade technical/management and community organizational skills to a level that is appropriate for the successful discharge of their responsibilities on withdrawal of the Watershed Development Team from the Project.

d. The village community would have been organised into several, homogeneous self-help groups for savings and other income generation activities which would have achieved sufficient commitment from their members and built up financial resources to be self sustaining.

e. The increase in cropping intensity and agricultural productivity reflecting in overall increase in agriculture production.

f. Increase in income of farmers/ landless labourers in the project area.

g. Increase in groundwater table due to enhanced recharge by watershed interventions.

6.2 Abstract of Main Outcomes:

1. Status of Water Table
2. Water Harvesting structurtes repaired and rejuvenated.
3. Quality of drinking water.
4. Availability of drinking water.
5. increase in irrigation potential.
6. Change in cropping / land use pattern.
7. Crop-wise area under agriculture crops.
    - Area under single crop
    - Area under douible crop
    - Area under multiple crop
8. Net increase in crop production area.
9. Increase in:
    - area under vegetation.
    - Increase in area under horticulture.
    - Increase in area under fuel and fodder.

10. Seed replacement rate

11. Use of bio-fertiliser / organic fertiliser

12. Hotrticulture Development

13. Agro Froestry plantation

14. Change in the status of Animal Health/breed

15. Increase in milk production

16. No. of SHGs

17. SHG federations formed

18. Activities taken up by SHGs

19. Creadit linkages with banks

20. Increase in number of livelihoods

21. Increase in per capita income

22. Status of migration

23. Staus of local employment

24. No. of school going children

25. Resource use agreements/arrangements

26. WDF collection and management

27. Summary of lesson learnt.

28. Others

In case of any dispute, which may arise thereof, the decision of CEO, SLNA shall be final and binding for the organizations carrying out the assignment.

6.3 Employment

Employment has always been a problem in the village. The principal occupations of the people are dry land agriculture, animal husbandry and casual labour work. However, rain fall being very limited and erratic, agriculture suffers, i.e. at best they can take only a single crop, which keeps them partially engaged for about 4 months. Lack of fodder makes animal husbandry very difficult too. So, animal husbandry does not keep them engaged full time. Thus the people mainly depend upon casual labour, either in the village itself or outside it.

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

TABLE NO. 38: EMPLOYMENT IN PROJECT AREA

Sl. NO.	Names of Project	Wage employment										Self employment				
		No. of mandays					No. of beneficiaries					No. of beneficiaries				
		SC	ST	Others	Women	Total	SC	ST	Others	Women	Total	SC	ST	Others	Women	Total
01	IWMP-II	10223	-	18006	110250	28229	2452	-	702	1012	3154	307	-	95	205	402

6.4. Migration

Limited agriculture results in very little fodder availability in the locality. The relatively well off farmers bring fodder from other cities like Mainpuri and Agra (approximately 40 kms away) collectively; but the resource poor cannot afford it. On account of agriculture and animal husbandry providing only part time employment for some part of the year, the people migrate for a better half of the year for wage labour.

Employment opportunities in the local area as mentioned above will ensure lessening seasonal migration from the area.

TABLE NO. 39: DETAILS OF SEASONAL MIGRATION FROM PROJECT AREA

Sl. No.	Names of villages	No. of persons migrating		No. of days per year of migration	
		Pre-project	Expected post project	Pre-project	Expected post project
01	IWMP-II	1470.00	337.00	185.00	60.00

6.5 Ground Water Table

Rainfall has been scanty but demand for ground water has been increasing all the time. The ground water table thus has depleted over the years. Presently it stands at 18.00ft.

Proper water harvesting structures and percolation tanks would go a long way in increasing water table depth from 18.00ft in the pre-project level to 15.00ft in the post project period.

TABLE NO. 40: DETAILS OF AVERAGE GROUND WATER TABLE DEPTH IN THE PROJECT AREAS (IN METERS)

Sl. No.	Names of Villages	Sources	Pre-Project level	Expected Increase/decrease (Post- Project)
01	IWMP-II	Open wells	18.00ft	15.00
		Bore wells	78.00	75.00
		Others (specify)	Na	Na

6.6 DRINKING WATER

The villages has 10 dug wells on which they depend for their drinking water. Many an effort at finding sweet water at different other places in the same village has failed. India marka hand pump is constituted by State Govt. for avaibility of proper drinking water, due to lack of sufficient govt. handpumps people have their own.

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

TABLE NO. 41: STATUS OF DRINKING WATER

Sl. No.	Names of Project	Availability of drinking water (no. of months in a year)		Quality of drinking water		Comments
		Pre-project	Expected post project	Pre-project	Expected post project	
01	IWMP-II	11-12	12	Average TDS	Potable	

6.7 Horticulture

Economic analysisof horticulture plantation in agri-horticuture system at selected watershe. Project life is considered to be 25 years and discount rate for NPV estimation is 10%. Table: 42

S.no	**Common Name**	**Scientific Name**	**Area (ha)**	**NPV of Net Benefit (Rs)**	**B:C Ratio**
1	Mango	Mangifera Indica	105	7404075	3.97:1
2	Citerous	Citrous	10	503924	2.84:1

3	Guava	Sidium Guajava	160	29542800	2.50:1
4	Ber	Zyziphus Mauritiana	30	1019322	2.84:1
	Total		**305**	**38470121**	**3.03:1**

6.7.1 Forest/ Fuel Wood Plantation:

Economic analysis of fuel wood plantation at jagner watershed. project life is considerd to be 25 years and discount rate for NPV estination is 10%./ Table: 43

S.no	Common Name	Scientific Name	Area (ha)	NPV of Net Benefit (Rs)	B:C Ratio
	Vilayti Babool	**Prosopis juliflora**	**145**	**1991067**	**2.11:1**

6.8 LIVESTOCK

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

TABLE NO. 44: DETAILS OF LIVESTOCK IN THE PROJECT AREAS (FOR FLUIDS PLEASE MENTION IN LITRES, FOR SOLIDS PLEASE MENTION IN KGS. AND INCOME IN RS.)

S. No.	Name of Project	Type of Animal	Pre-Project			Expected Post-project			Remarks
			No.	Yield	Income	No.	Yield	Income	
01	IWMP-II	Milch-animals	-	-	-	-	-	-	
		Cow(per animal/day)	6153	2.00	24.00	6670.00	2.50	28.00	
		Buffalo(per animal/day)	4151	2.70	28.00	4320.00	3.00	30.00	
		Draught Purpose animals	-	-	-	-	-	-	
		Camel	-	-	-	-	-	-	
		Animals for other purpose	-	-	-	-	-	-	
		Goat (Meat: Rs/kg)	11607	-	225.00	12340.00	-	240.00	
		Sheep (Meat: Rs/kg))	-	-	-	-	-	-	

6.9 LINKAGES:-

The direct livelihood activities need good forward and backward support. Without such support system the activities may fail to deliver the desired results. These linkages would involve credit, machinery, input supply, marketing, etc.

TABLE NO. 45: BACKWARD-FORWARD LINKAGES

Sl. No.	Project	Type of Marketing Facility	Pre-project (no.)	During the project (no.)	Post-project (no.)
01	IWMP-II	Backward linkages			
		Seed certification			
		Seed supply system		1	1
		Fertilizer supply system			
		Pesticide supply system			
		Credit institutions			Bank-1, Post Office-5
		Water supply			
		Extension services			Kurara
		Nurseries			1
		Tools/machinery suppliers			
		Price Support system			
		Labour			
		Any other (please specify)			
		Forward linkages			
		Harvesting/threshing machinery			
		Storage (including cold storage)			
		Road network			
		Transport facilities			
		Markets / Mandis			Collective marketing system
		Agro and other Industries			1
		Milk and other collection centres			1

		Labour			
		Any other (please specify)			1
					3
					Animal vitamins (50 lt)

LOGICAL FRAMEWORK ANALYSIS Table: 46

Components	Activities	Outputs	Effect	Impact
Village Institution Formation	§ Formation of Watershed Committee, User Group	§ One Watershed Committee each village	§ Project can be implemented and managed in a democratic and participatory way ensuring equity.	§ Unity and prosperity in the village management.
		§ Number of User group depending on the coverage of particular intervention		§ People's Participation and positive perception towards the programme
Strengthening Village Institutions	§ Organise training and awareness programme for Village institutions	§ awareness camps to be organised.	§ Quality of management of common resources improved.	
	§ Capacity building workshops and exposure visits User Group and Watershed Committee	§ trainings and exposure visits UGs and WCs to be held	§ Quality of distribution of benefits between people improved.	
	§ Failitating and monitoring the functioning of UGs and WCs	§ Capacity building workshops to be organised	§ Increased awareness amongst women about village resources.	
	§ Strengthen linkages between UGs and WCs and Panchayat Institutions.	§ 1 Federations of UGs and WC to be formed.	§ Women participation enhanced in decision-making of GVCs.	

	§ Gender sensitisation of UGs and WCs to increase inclusiveness of samuh decision-making.		§ Involvement of youth and children in village development increased.	
	§ Sensitise village communities to involve children and youth in development.			

Fund Management	§ Improve management and utilisation of UGs and WCs.	§ UGs and WCs operating bank account and managing resources on their own	§ Purpose, frequency and volume of use of the fund enhanced.	
	§ Prepare communities to explore other sources of income for UGs and WCs.		§ Volume of funds generated for UGs and WCs from other sources of income increased.	
Ecological Restoration	§ Protection, treatment and regeneration of common and private lands	§ Common and private lands to be brought under new plantations and agro-horti-forestry like Neem, Adusa, prosopis, Banyan and Peepul	§ Fodder availability from common and private lands increased.	§ Better Ecological order in the area
	§ Protection, treatment and regeneration of forest lands	§ Forest lands to be brought under new plantations and protection	§ Accessibility to common and forest lands increased with removal of encroachments and resolution of conflicts.	§ Increase in the proportion of households having more security of fodder
	§ Plantation of fruits and forest species	§ Trainings, exposure visits and meetings to be organised for communities, village volunteers and		§ Reduction in drudgery of fodder and fuel collection, especially

		staff		women
	§ Impart trainings, conduct meetings and organise exposure visits for communities, village volunteers and staff to effectively plan, execute and monitor activities	§ Income generation intervention promoted		
	§ Identification and promotion of non-timber forest produce based income generation activities			

Rainfed Area Development	§ Treatment of land through improved soil and moisture conservation practices on watershed basis	§ Land to be brought under improved soil moisture conservation practices	§ Improved productivity of treated land	§ Increase in proportion of households having more security of food
	§ Promotion of good agricultural practices-horticulture, improved crop and vegetable	§ Good agricultural practices to be promoted	§ Increased availability of water in wells	
		§ Organic farming to be promoted	§ Increase in annual agriculture production	§ Increase in contribution of agricultural income to the household income
		§ Fodder banksto be established	§ Farmers adopt organic farming practices	
	§ Promotion of organic farming practices	§ Agriculture based livelihood income generation activities to be promoted	§ Fodder security of farmers enhanced.	

	§ Formation of Fodder banks to increase fodder security and promote dairy development among communities	§ Water harvesting structures to be constructed	§ Increase availability of water for 9 to 12 months	
	§ Identification and promotion of agri-produce based income generation activities like grading, processing and packaging.	§ Drip Irrigation facilities to be distributed among farmers	§ Increased availability of water for livestock	
	§ Promotion of better Irrigation practices like drip irrigation	§ Approx 15000 person days of employment to be generated	§ Availability of irrigation water established	
	§ Impart trainings, conduct meetings and organise exposure visits of communities, village volunteers and staff to effectively plan, execute and monitor activities	§ Trainings, exposure visits and meetings to be organized for communities, village volunteers and staff	§ Farmers take two crops in a year	
			agricultural productivity of land	
			§ Availability of drinking water enhanced	

Women's Socio-political and economic empowerment	§ Formation & Strengthening of women's SHG groups	§ Women's SHG groups to be formed	§ Enhanced capacities of leaders of women's group in taking initiatives to solve problems at different levels.	§ Position of women in household, community, society (politically, socially and economically) as perceived by women and community at large
	§ Capacity building of womenfolk	§ Federation of Women's SHGs to be formed	§ Improved access to credit for livelihood purposes.	§ Performance enhancement of SHGs in terms of participation, decision-making, leadership and fund management.
	§ Capacity building of SHG leaders and accountants	§ Trainings to be conducted for preparation of woollen products from sheep and goats	§ Increased household income.	§ Equality & Equity in gender relations at home (decision making, expenditure, children's education, health)
	§ Linking SHGs with external financial institutions			

CHAPTER -7

QUALITY AND SUSTAINABILITY ISSUES

7-QUALITY & SUSTAINABILITY ISSUES

7.1-PLANS FOR MONITORING & EVAUATION

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 20 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-based GIS system is the Mobile based Monitoring & Evaluation System, which will help the ground staff alias WDTs (Watershed Development Team) to transmit information from the ground level to the central server. Also, any higher-up official in charge of the project can obtain information regarding the project area on 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.

7.2 PLANS FOR PROJECT MANAGEMENT:

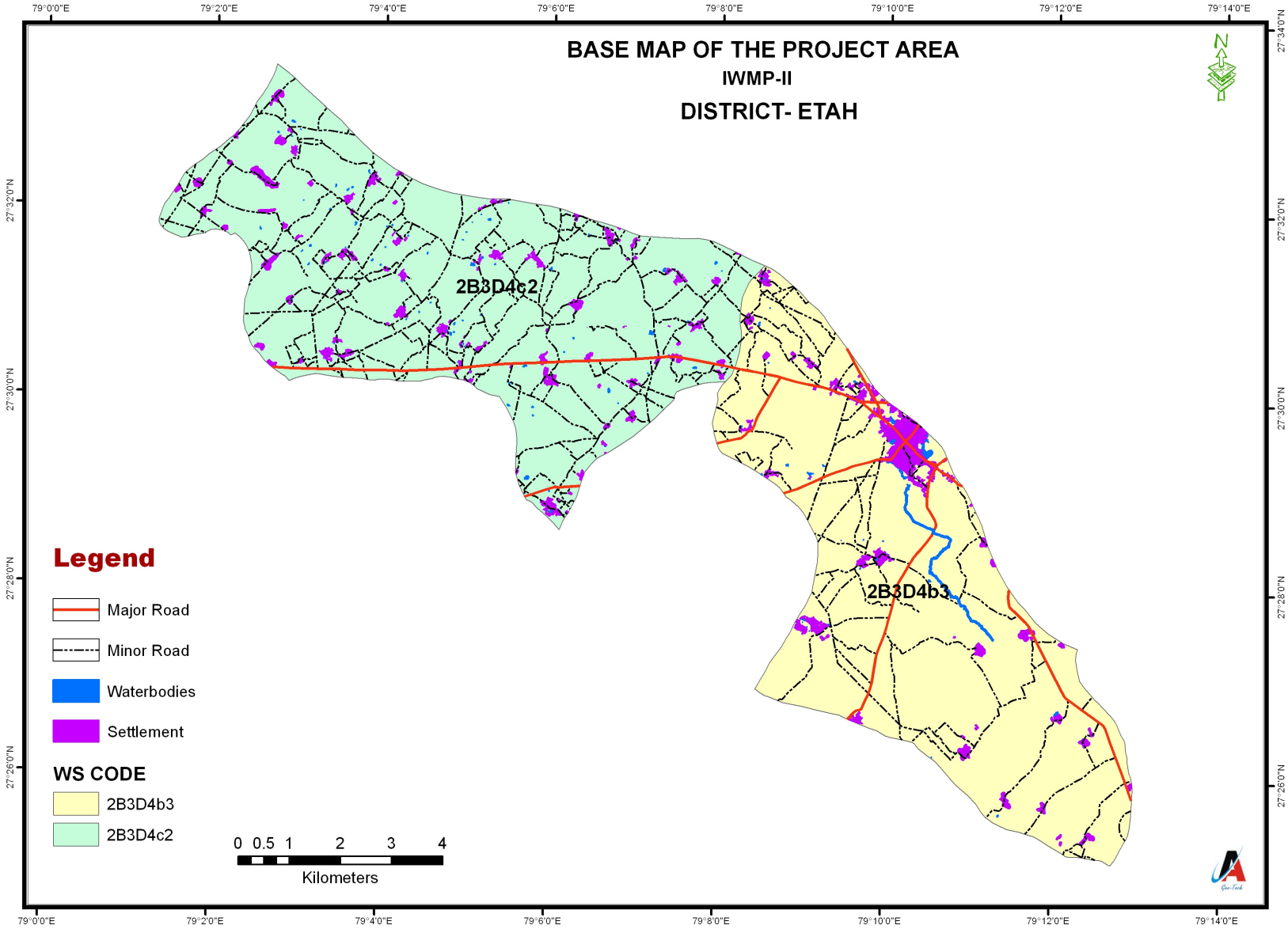
The Project management of any watershed programme is very important. It mainly depends upon the community organisation and the village level institutes.In Hameerpur, watershed committee and various user group have been formulated for post project operation and maintenance of assets created during project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

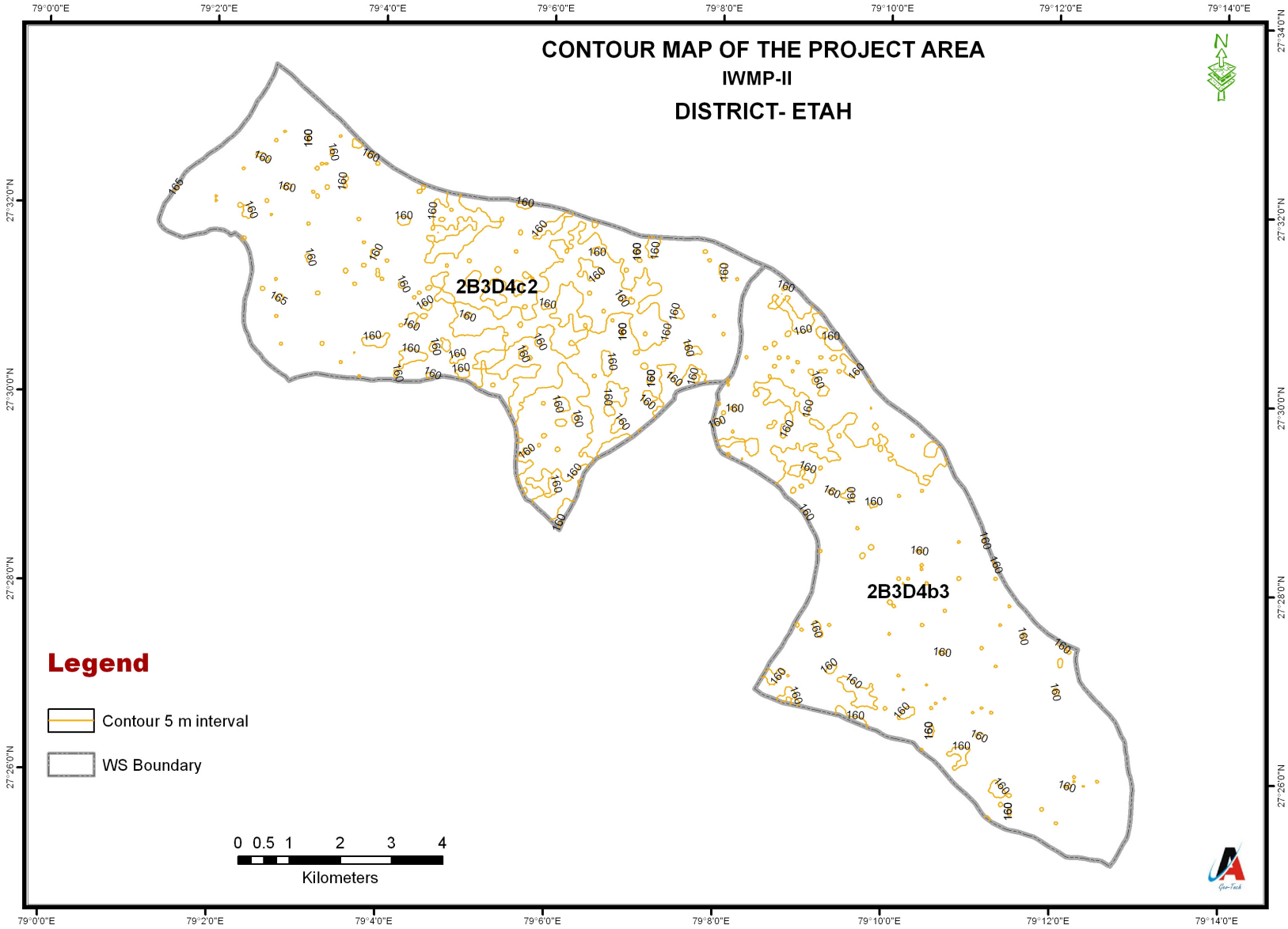
7.3 WATERSHED DEVELOPMENT FUND:

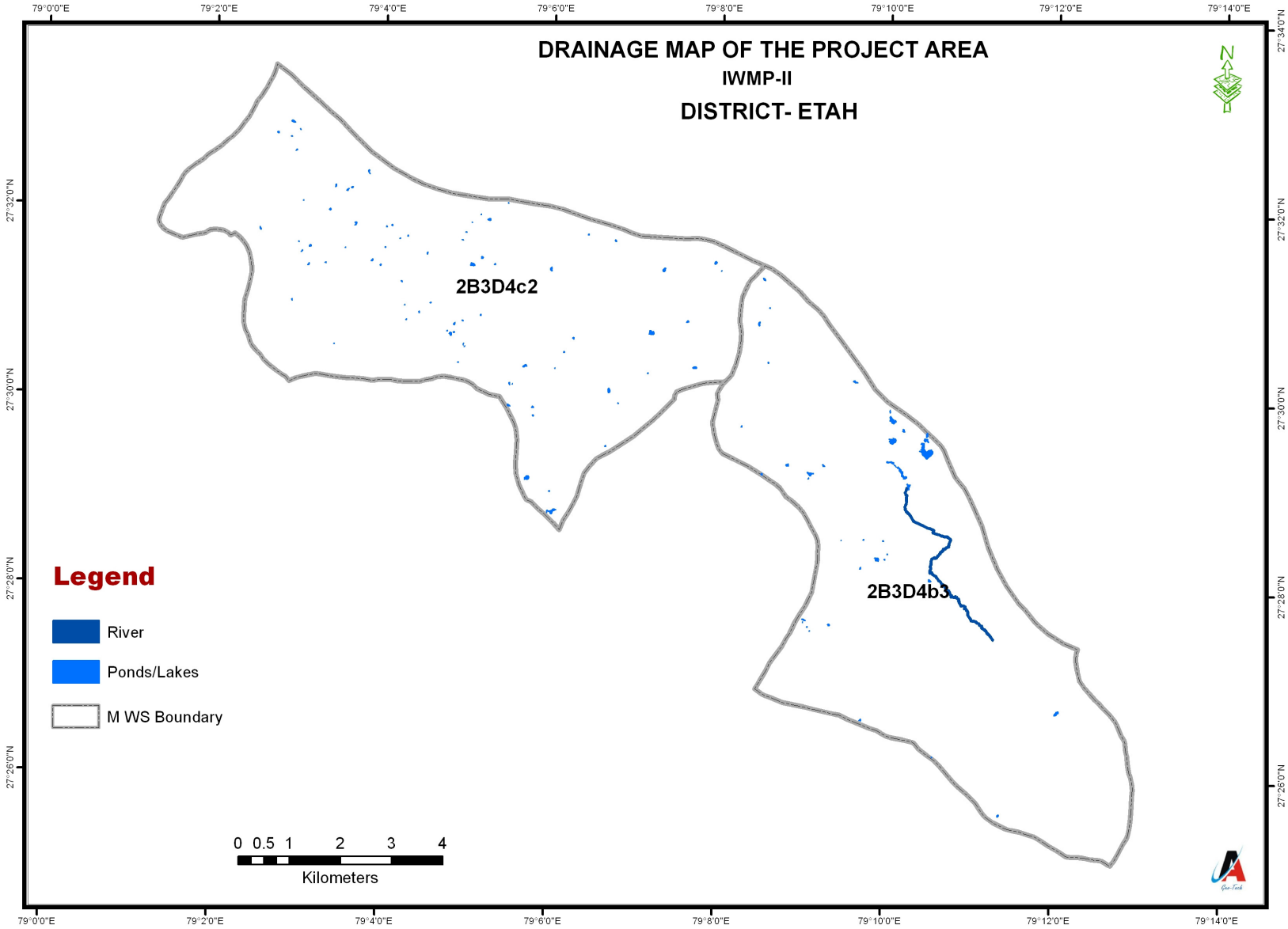
The major source of financial assistance after post implementation period is watershed Development Fund. The contribution of it will comes mainly fund the following:

7.4 USER CHARGES:

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


BASE MAP OF THE PROJECT AREA
IWMP-II
DISTRICT- ETAH
N
2B3D4c2
2B3D4b3
Legend
Major Road
Minor Road
Waterbodies
Settlement
WS CODE
2B3D4b3
2B3D4c2
0 0.5 1 2 3 4
Kilometers
79°0'0"E
79°2'0"E
79°4'0"E
79°6'0"E
79°8'0"E
79°10'0"E
79°12'0"E
79°14'0"E
27°34'0"N
27°32'0"N
27°30'0"N
27°28'0"N
27°26'0"N


CONTOUR MAP OF THE PROJECT AREA
IWMP-II
DISTRICT- ETAH
N
2B3D4c2
2B3D4b3
Legend
Contour 5 m interval
WS Boundary
0 0.5 1 2 3 4
Kilometers
79°0'0"E
79°2'0"E
79°4'0"E
79°6'0"E
79°8'0"E
79°10'0"E
79°12'0"E
79°14'0"E
27°34'0"N
27°32'0"N
27°30'0"N
27°28'0"N
27°26'0"N


DRAINAGE MAP OF THE PROJECT AREA
IWMP-II
DISTRICT- ETAH
N
2B3D4c2
2B3D4b3
Legend
River
Ponds/Lakes
M WS Boundary
0 0.5 1 2 3 4
Kilometers
79°0'0"E
79°2'0"E
79°4'0"E
79°6'0"E
79°8'0"E
79°10'0"E
79°12'0"E
79°14'0"E
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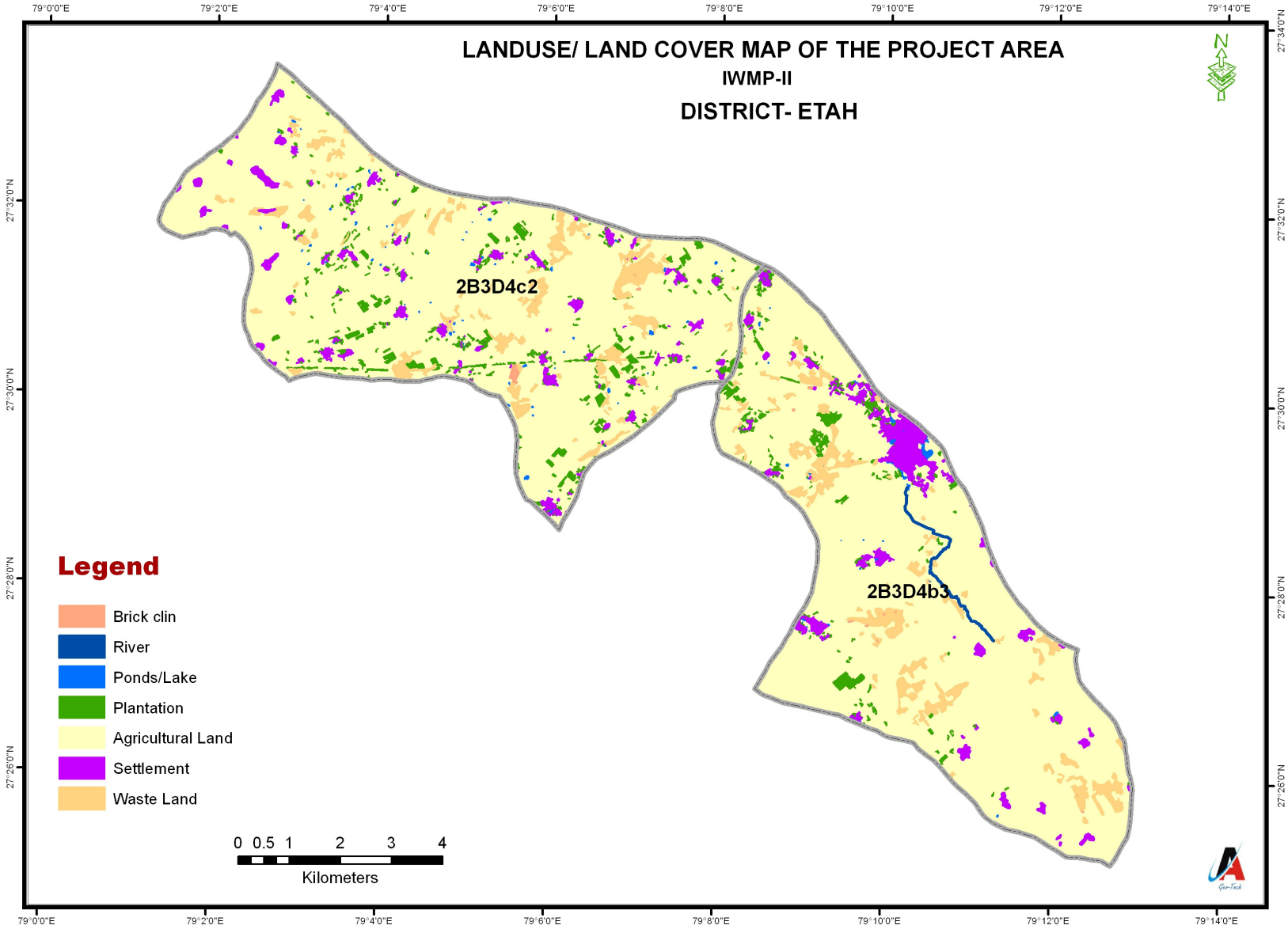
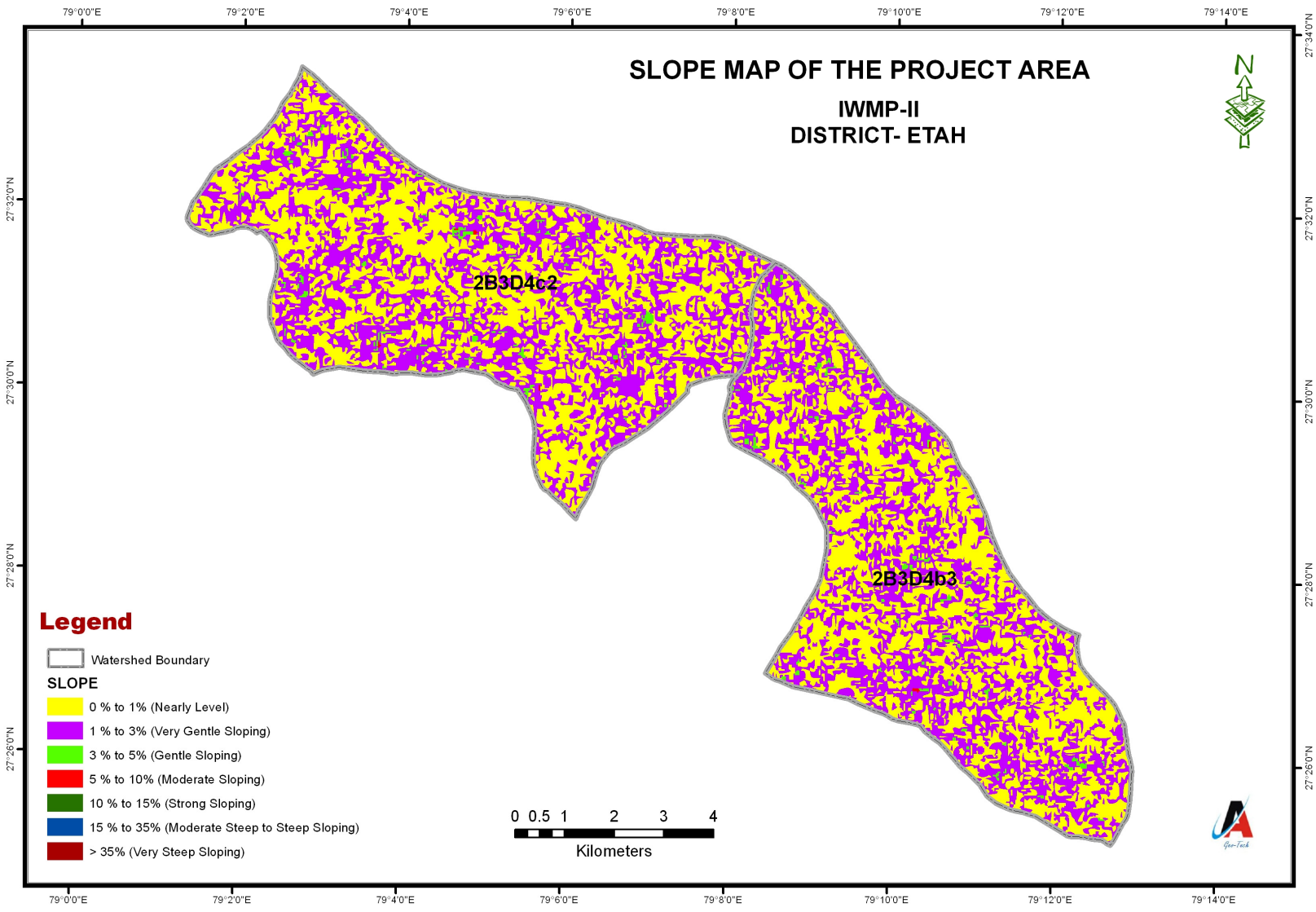
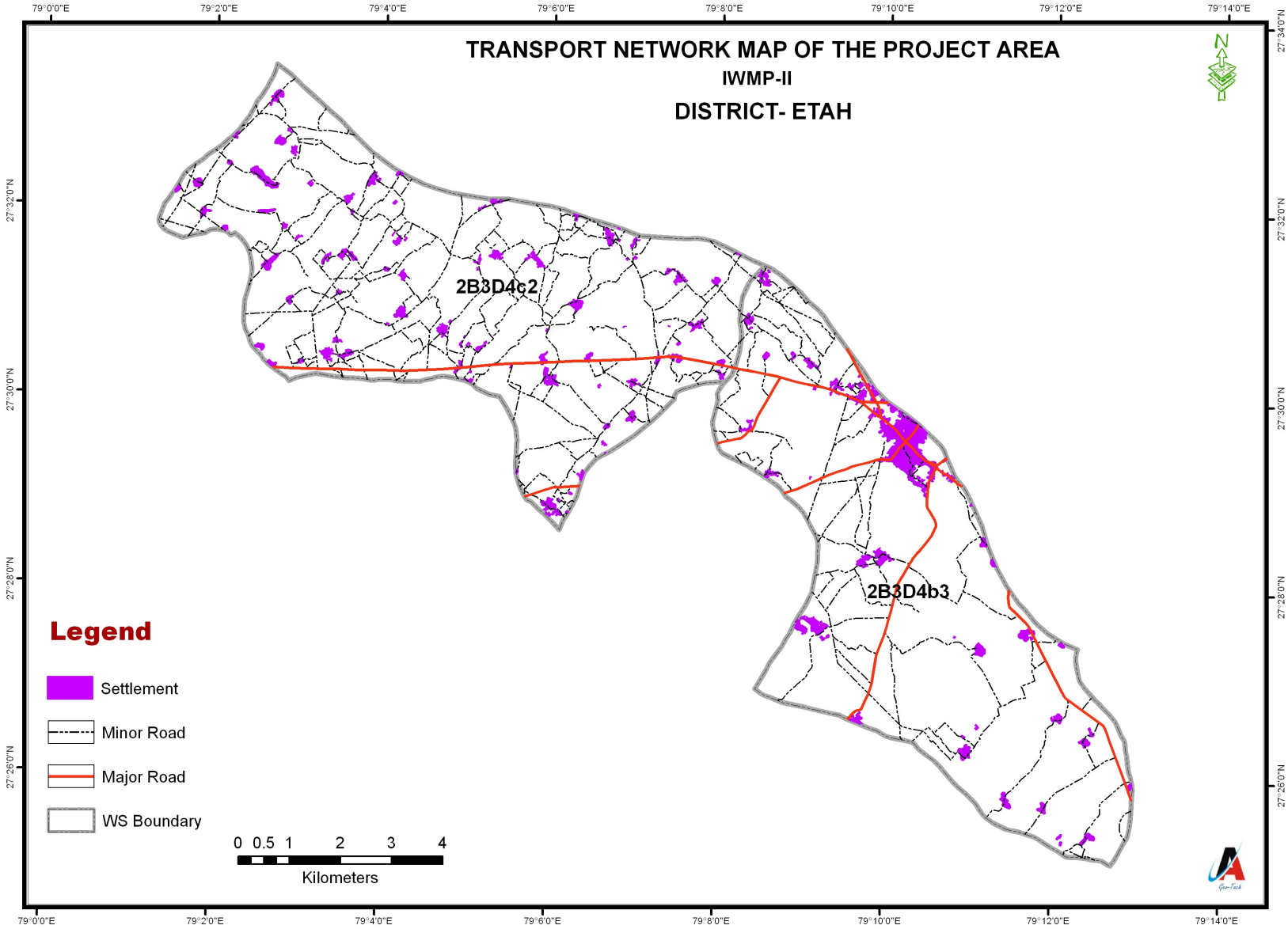
27°28'0"N
27°26'0"N


LANDUSE/ LAND COVER MAP OF THE PROJECT AREA
IWMP-II
DISTRICT- ETAH
N
2B3D4c2
2B3D4b3
Legend
Brick clin
River
Ponds/Lake
Plantation
Agricultural Land
Settlement
Waste Land
0 0.5 1 2 3 4
Kilometers
79°0'0"E
79°2'0"E
79°4'0"E
79°6'0"E
79°8'0"E
79°10'0"E
79°12'0"E
79°14'0"E
27°34'0"N
27°32'0"N
27°30'0"N
27°28'0"N
27°26'0"N


SLOPE MAP OF THE PROJECT AREA
IWMP-II
DISTRICT- ETAH
N
2B3D4c2
2B3D4b3
Legend
Watershed Boundary
SLOPE
0 % to 1% (Nearly Level)
1 % to 3% (Very Gentle Sloping)
3 % to 5% (Gentle Sloping)
5 % to 10% (Moderate Sloping)
10 % to 15% (Strong Sloping)
15 % to 35% (Moderate Steep to Steep Sloping)
> 35% (Very Steep Sloping)
0 0.5 1 2 3 4
Kilometers
79°0'0"E
79°2'0"E
79°4'0"E
79°6'0"E
79°8'0"E
79°10'0"E
79°12'0"E
79°14'0"E
27°34'0"N
27°32'0"N
27°30'0"N
27°28'0"N
27°26'0"N


TRANSPORT NETWORK MAP OF THE PROJECT AREA
IWMP-II
DISTRICT- ETAH
N
2B3D4c2
2B3D4b3
Legend
Settlement
Minor Road
Major Road
WS Boundary
0 0.5 1 2 3 4
Kilometers
79°0'0"E
79°2'0"E
79°4'0"E
79°6'0"E
79°8'0"E
79°10'0"E
79°12'0"E
79°14'0"E
27°34'0"N
27°32'0"N
27°30'0"N
27°28'0"N
27°26'0"N