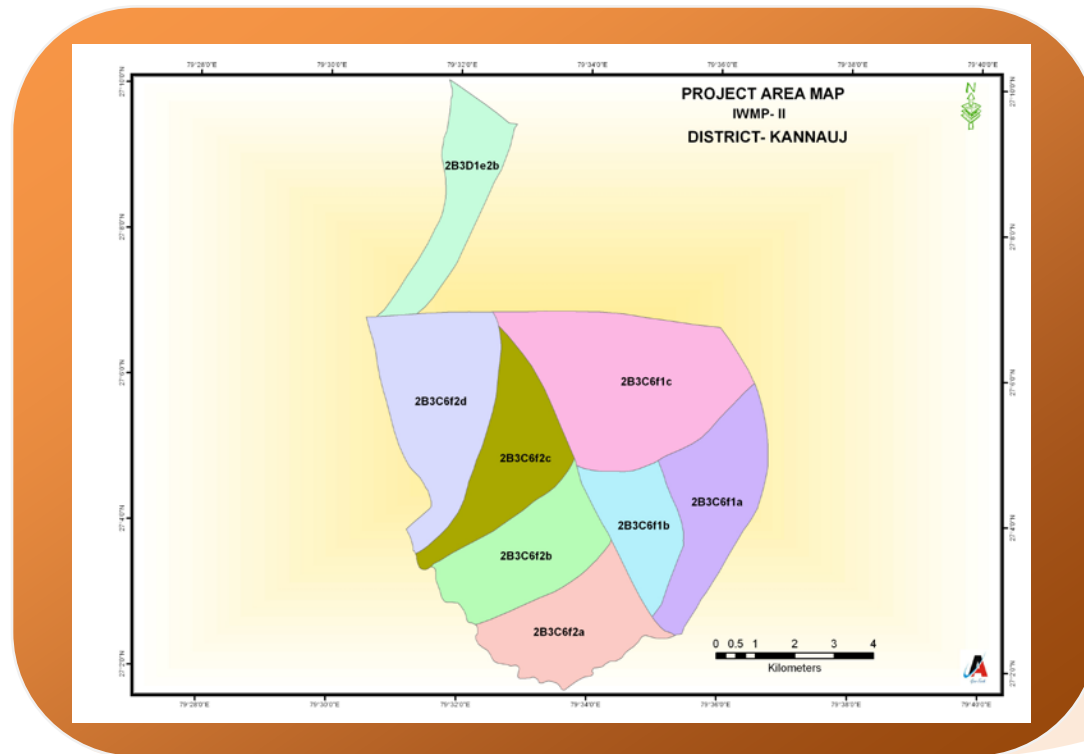


DETAILED PROJECT REPORT (D.P.R.)

(I.W.M.P. 2nd - KANNAUJ)

INTEGRATED WATERSHED MANAGEMENT PROGRAMME, BLOCK- CHHIBRAMAU
DISTRICT - KANNAUJ (UTTAR PRADESH)



Submitted to: -
Department of Land Development &
Water Resources, Lucknow (U.P.)



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Land Development & Water Resources Government of U. P.

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EXECUTIVE SUMMARY

The Isan & Kali nadi watershed comprises of twenty six villages namely Bhikampur Sani, Behta Khas, Jalalpur Dildarpur, Medepur, Khanpur Kasava, Madaripur Kasava, Kasava, Bhawalpur, Hathin, Mudaiya, Teur, Behta, Aseh, Chanderpur, Paliyabuchpur, Jagdishpur, UdhranpurDhingpur, KunwarpurJunu, SaraiSunder, Khudava, Patrajpur, Kamalpur, Rasoolpur, Bikupur, Anantpur , Vinayakpur.. block- Chibramau of Kannauj district of Uttar Pradesh. This watershed has been identified by the state department under NWDPRAs scheme by proper prioritization of different parameter for watershed selection criteria The watershed is located in the west of Kannauj district. It lies between 27°-0' latitude 79°-30' longitude (Code No. 2B3D1e2b, 2B3C6f2d, 2B3C6f2c, 2B3C6f1a, 2B3C6f2b, 2B3C6f1b, 2B3C6f2a, 2B3C6f1c) Its altitude ranges from 130 to 135 m above the mean sea level (MSL). The total area of watershed is 7831.00 ha .It is situated in the Right catchments of the river Isan.

The climate of the region is characterized as arid to semi-arid with average annual rainfall less than 335 mm annually with an average of 35 rainy days. Out of which about 85 percent is received during the monsoon season from July to September. The area receives very less rainfall in the winter season. Temperature ranges from as high as 49⁰C in the May-June to as low as 4⁰C during December-January. The trend of rainfall is highly erratic and maximum (65%) water goes as runoff.

The top most portion of the watershed is river Isaan of Slopy land. The soils of the area are sandy loam . The soil is Brown in colour and are inherently high in fertility status. Soil texture is sandy loam .

Agriculture is the main source of income of the farmers of the watershed. In Kharif the main crops are Jawar, Bajra, and Makka Most of the lands are kept fallow because maximum areas are rainfed and the main Rabi crop is taken with the conserved moisture of rainfall. In Rabi the main crops are Gram, Wheat, Pea, Mustard, Barley .The wheat and Pea crops are taken in the irrigated fields while the other crops are mostly taken in the rainfed conditions. In Zaid season there is no cropping due to hot weather. Horticultural crops are taken in very less area. Only some vegetable crops are taken for domestic purpose and some fruit trees in scattered manner.

Animal Husbandry is not in good condition because of local breeds. Their milk production is low. Unavailability of green fodder with poor feeding and health management.

Natural vegetation of the watershed area is very poor. There are occasional occurrence of Neem plants (*Azadirachta indica*), Pipal, Bargad. There is no grass land in the watershed. Grass patches are seen only on the bunds, road sides and other such places. The principal grass is Moonj.

The problem of erosion of the watershed is to be tackled by bunding, harvesting additional water in existing water harvesting structures, Water stored in the water harvesting structures shall be properly recycled to provide supplemental irrigation at critical growth stages of crops and for the establishment of fruit orchards and forest trees. The agricultural land will be treated with bunding along with minor leveling. Waste land will be treated with the engineering measures like bunds and afforestation etc

PROJECT AT A GLANCE

Name of Project	I.W.M.P. –IIInd Kannauj
Name of Block	Chibramau
Name of District	Kannauj
Name of State	Uttar Pradesh
Name of watershed	River Isan & Kali
Name of Concern villages	Bhikampur Sani, Behta Khas, Jalalpur Dildarpur, Medepur, Khanpur Kasava, Madaripur Kasava, Kasava, Bhawalpur, Hathin, Mudaiya, Teur, Behta, Aseh, Chanderpur, Paliyabuchpur, Jagdishpur, UdhranpurDhingpur, KunwarpurJunu, SaraiSunder, Khudava, Patrajpur, Kamalpur, Rasoolpur, Bikupur, Anantpur , Vinayakpur
Code of Micro Watershed	2B3D1e2b, 2B3C6f2d, 2B3C6f2c, 2B3C6f1a, 2B3C6f2b, 2B3C6f1b, 2B3C6f2a, 2B3C6f1c
Total area of Project	7831.00 ha
Proposed area for treatment	5760.00 ha
Total Cost per hectare	Rs. 12000.00/ha
Project period	2010-11 to 2014-15
Total Cost of Project	Rs. 691.20 Lacs
Proposed Mandays	345600 Nos.

CHAPTER -1

PROJECT BACKGROUND

1.1 Project background

The watershed , withCode No. 2B3D1e2b, 2B3C6f2d, 2B3C6f2c, 2B3C6f1a, 2B3C6f2b, 2B3C6f1b, 2B3C6f2a, 2B3C6f1c having area of 7831.00 ha is located in South West Part of Kannauj district of U.P. The area of watershed is proposed to be taken up by Bhoomi sanrakshan Adhikari, Department of land development and water resource project Kannauj for integrated watershed management programme (IWMP) starting from the year 2010-11 The project will be completed by 2014-15.

The River Isaan watershed in Chibramau Block of Kannauj district (U.P.) is Located near Chibramau about 50 Km from Kannauj. The watershed at Chibramau Block comprise of 26 village namely Bhikampur Sani, Behta Khas, Jalalpur Dildarpur, Medepur, Khanpur Kasava, Madaripur Kasava, Kasava, Bhawalpur, Hathin, Mudaiya, Teur, Behta, Aseh, Chanderpur, Paliyabuchpur, Jagdishpur, UdhranpurDhingpur, KunwarpurJunu, SaraiSunder, Khudava, Patrajpur, Kamalpur, Rasoolpur, Bikupur, Anantpur , Vinayakpur. The area lies between 27° -0 ‘ latitude and 79°-30’ longitude .

Total Area of the watershed is 7831.00 ha (Treatable area 5760.00 ha) Elevation ranges from 130 to 135 m above mean sea level . The soil of the area are Sandy loam. The soil is Brown in color.

Table no.1 Basic Project information

S No	Name of the project	Villages	Gram panchayat	Tehsil	District	Total are of the project	Area proposed to be treated	Total project cost(Rs in Lack)	PIA
1	I.W.M.P IInd Kannauj	Bhikampur Sani, Behta Khas, Jalalpur Dildarpur, Medepur, Khanpur Kasava, Madaripur Kasava, Kasava, Bhawalpur, Hathin, Mudaiya, Teur, Behta, Aseh, Chanderpur, Paliyabuchpur, Jagdishpur, UdhranpurDhingpur, KunwarpurJunu, SaraiSunder, Khudava, Patrajpur, Kamalpur, Rasoolpur, Bikupur, Anantpur , Vinayakpur	Bhikampur Sani, Behta Khas, Jalalpur Dildarpur, Medepur, Khanpur Kasava, Madaripur Kasava, Kasava, Bhawalpur, Hathin, Mudaiya, Teur, Behta, Aseh, Chanderpur, Paliyabuchpur, Jagdishpur, UdhranpurDhingpur, KunwarpurJunu, SaraiSunder, Khudava, Patrajpur, Kamalpur, Rasoolpur, Bikupur, Anantpur , Vinayakpur	Chibramau	Kannauj	7831 ha	5760 ha	691.20	Bhoomi Sanrakshan Adhikari Department of land Development and water resource

1.2 NEED OF WATERSHED DEVELOPMENT PROGRAMME:-

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

The soil of project area is mainly Kabar, mar Padwa & Rakar. Middle portion of the project has average slope. There are some relief in the project area. Agriculture is the main occupation of the people of project area. The main crops are Gram, lentil, Arhar, Bajra. Most of the fields are kept fallow during Kharif season. In this season ,Green Manuring is proposed to minimize the runoff and to enhance the soil fertility of the soil.

Table no. 2: Weightage of the project

Project name	Project Type	Weightage													
		I	Ii	Iii	Iv	V	Vi	Vii	Viii	Ix	X	Xi	Xii	Xiii	xiv
IWMP Ind Kannauj	IWMP	7.5	5	5	10	0	0	10	7.5	10	15	10	15	0	95

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

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

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

Cluster approach in the plains (more than one contiguous micro-watersheds in the project)	15	Above 6 micro-watersheds in cluster (15)	4 to 6 micro watersheds in cluster (10)	2 to 4 micro watersheds in cluster (5)	
Cluster approach in the hills (more than one contiguous micro-watersheds in the project)	0	Above 5 micro-watersheds in cluster (15)	3 to 5 micro watersheds in cluster (10)	2 to 3 micro watersheds in cluster (5)	
	95	150	90	41	2.5

TABLE NO.3: WATERSHED INFORMATION

Name Of the Project	No.of water sheds to be treated	Watershed Code	Watershed regime/type/order
IWMP IInd Kannauj	8	2B3D1e2b, 2B3C6f2d, 2B3C6f2c, 2B3C6f1a, 2B3C6f2b, 2B3C6f1b, 2B3C6f2a, 2B3C6f1c	Micro Watershed

1.3 Other Developmental Projects/Schemes Running in the IWMP-II Kannauj Project Villages.

These villages being back ward, has been on top priority of a number of developmental projects. These programmes are

- Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS),
- Total Sanitation Campaign (TSC),
- Swarnajayanti Gram Swarojgar Yojana (SGSY),
- Indira Awas Yojana (IAY) and
- Sarv Shiksha Abhiyan (SSA).

CHAPTER – 2

PROJECT IMPLEMENTING AGENCY

2.1 PROJECT IMPLEMENTING AGENCY (PIA)

U.P. Government, Land Development And Water Resources Department section -1 Lucknow has nominated as PIA to Bhoomi Sanrakshan Unit, Land development and water resources Department Kannauj Dist- Kannauj for IWMP-IInd Kannauj.

2.2 ABOUT DISTRICT RURAL DEVELOPMENT UNIT (DRDU) KANNAUJ

2.2.1 THE ORGANIZATION AND ITS OBJECTIVES:

PROJECT IMPLEMENTING AGENCY (PIA)

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

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

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

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

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

or Watershed Committee (WC) unless the composition of the WDT has been clearly indicated in the MOU/contract and the team members are fully in place.

2.2.2 PROGRAMMES/PROJECTS OF IWMP-II, KANNAUJ:

The project Implementing Agency(PIA) will provide necessary technical guidance to the Gram Panchayat for preparation of development plans for the watershed through Participatory Rural Appraisal(PRA) exercise, undertake community organization and training for the village communities, supervise watershed development activities, inspect and authenticate project accounts, encourage adoption of low cost technologies and build upon indigenous technical knowledge, monitor and review the overall project implementation and set up institutional arrangements for post-project operation and maintenance and further development of the assets created during the project period. The PIA, after careful scrutiny, shall submit the action plan for watershed development project for approval of the DRDA and other arrangements. The PIA shall submit the periodical progress report to DRDA. The PIA shall also arrange physical, financial and social audit of the work undertaken. It will facilitate the mobilization of additional financial resource from other government programmes, such as NREGA, BRGF, SGRY, National Horticulture Mission, Tribal, Welfare Schemes Artificial Ground Water Recharging, Greening India, etc.

2.3 SWOT ANALYSIS OF THE PIA:-

STRENGTH:

- (1) Dedicated and experienced staff and a multidisciplinary team
- (2) Independent District Level Nodal Agency.
- (3) Strong linkages with national and state level institutions, agricultural universities, and NGOs for capacity building and technical guidance .
- (4) Scientific planning in watershed projects with the help of D. D.U.G.V.Institute Baxi Tal Lucknow.
- (5) District level monitoring, coordination & Co-operation Committee

WEAKNESS:

- (1) No permanent office building.
- (2) Project area is located adjoining to very hard Hill Area.

OPPORTUNITIES:

- (1) A number of different other development schemes of the government are running; so, there can be horizontal integration and convergence of Programmes
- (2) Better financial provision under IWMP.
- (3) Usage of new ICT tools like GIS, GPS

THREATS:

- (1) Rainfall being very scarce and unreliable in the project area, the activities planned to be taken up may yield limited impact
- (2) Irregularities in fund flow can derail the smooth functioning.
- (3) Lack of contribution and cooperation from local people
- (4) Low literacy rate in the project area .

TABLE NO. 6 & 7: DETAILS OF STAFF AT PIA LEVEL:

DETAIL STAFFING PATTERN OF PIA:

S.No.	Name	Desingnation	Qualification
1	2	3	4
1)	Shree Sudarshan Yadav	D.D	B.tech. Ag. Engg.
2)	„ N.M. Diwakar	B.S.A	Ag. Engg. Diploma
3)	„ Ramendra Singh Kushwaha	Junior Engineer	Civil Engg. Diploma
4)	„ Akil Ahamd	Junior Engineer	Ag. Engg. Diploma.
5)	„ Ramautar Shukla	Draughtsman	M.A.
6)	„ Ajay Kumar Gupta	Accountant	B.com
7)	„ Babulal	Sr. Clerk	B.A.
8)	„ Shailendra Kumar	Jr. Clerk	B.sc., B.ed.
9)	„ Prabhudayal	Tracer	Intermediate
10)	„ Mukhtiyar Khan	ASCI	High ag. Diploma
11)	„ Anil Kumar Katiyar	Irrigation Sup.	Intermediate
12)	„ Bheem Shanker Yadav	Irrigation Sup.	M.A.
13)	„ Babu Singh Verma	Irrigation Sup.	Intermediate
14)	„ Prem Shanker Mishra	Irrigation Sup.	B.A.
15)	„ Amar Singh Kuril	Munshi	B.A.

16)	,, Kamlesh Kumar	Seenchpal	Intermediate
17)	,, Manoj Sharma	Seenchpal	Intermediate
18)	,, Ajay Kumar	Seenchpal	B.Sc. Ag.
19)	,, Anil Kumar Katiyar	Seenchpal	Intermediate
20)	,, Vikas Chandra Katiyar	Seenchpal	Intermediate
21)	,, Sishupal Singh	Driver	Literate
22)	,, Virendra Kumar	4 th Class	Jr. High School
23)	,, Hari Prakash	4th Class	Jr. High School
24)	,, Mahmood	4th Class	Literate
25)	,, Satish Chandra	4th Class	Jr. High School
26)	,, Ramautar	4th Class	Jr. High School

CHAPTER – 3

**BASIC INFORMATION OF THE
PROJECT AREA**

3.1 GEOGRAPHY AND GEO-HYDROLOGY

3.1.1 LAND USE PATTERN:

The watershed has diversified land uses namely agriculture, waste land (open scrub), seasonal water bodies etc. The varied present land use and area under different categories in watershed. The mixed land use followed in the watershed is almost similar in other parts of the UP. During PRA exercise,

TABLE NO. 8: LAND USE PATTERN:

S. No.	Name of watershed/ Code no.	Name of Concern villages	Land Use					Total
			Agriculture	Wasteland all type	Pasture	Forest	Others	
1	2B3C6f2a	Bhikampur Sani, Behta Khas, Jalalpur Dildarpur	660.72	114.52	-	-	105.72	880.96
2	2B3C6f2b	Medepur, Khanpur Kasava, Madaripur Kasava.	672.94	116.64	-	-	107.67	897.25
3	2B3C6f2c	Kasava, Bhawalpur, Hathin,	643.28	111.50	-	-	102.92	857.70
4	2B3C6f1b	Mudaiya, Teur, Behta,	427.13	74.04	-	-	68.34	569.50
5	2B3C6f1a	Teur, Aseh	699.46	121.24	-	-	111.91	932.61
6	2B3C6f1c	Chanderpur, Paliyabuchpur, Jagdishpur, UdhranpurDhingpur,	1321.41	229.04	-	-	211.43	1761.88
7	2B3D1e2b	KunwarpurJunu, SaraiSunder, Khudava, Patrajpur, Kamalpur,	498.98	86.49	-	-	79.84	665.31
8	2B3C6f2d	Rasoolpur, Bikupur, Anantpur , Vinayakpur.	949.34	164.55	-	-	151.89	1265.79
		Total	5873.25	1018.03	-	-	939.72	7831.00

3.1.2 - SOIL AND TOPOGRAPHY:

The selected area lies in the last border of District- Kannauj & Etawah & Kanpur Dehat. The soil is mainly Mar Padawa soil which is easily transportable after detaching causing to several soil erosion. In the watershed area mainly four types of soil are found named as - Mar, Padawa, Kaber, & Roker which are also the main soil of Bundelkhand and plainy region Region. There is main showing crop in the area are pulses which consume more phosphorous. Therefore, serious deficiency of phosphorous is in this area.

TABLE NO. 9: SOIL TYPE AND TOPOGRAPHY:

Sl. No.	Name of the Agro-climatic zone covers project area	Area in ha	Names of Watershed	Major soil types		Topography
				a)Type	b) Area to be treated in ha	
1.	Tropical Climate	7831.00	IWMP II Kannauj	Mar Padwa Soil	5760.00	Flat to moderate slope

TABLE NO. 10: FLOOD AND DROUGHT CONDITION:

Sl.No	Names of Watershed	Flood (Incidence)	Drought (Incidence)
1.	IWMP II Kannauj	Nil	Very rare chances

TABLE NO. 11: SOIL EROSION

Cause	Type of erosion	Area affected (ha)	Run off (mm/ year)	Average soil loss (Tonnes/ ha/ year)
	Water erosion			
A	Sheet	3887.00	393.00	17.00
B	Rill	1395.00		
C	Gully	698.00		
Sub-Total		5980.00		
Wind erosion		-	NA	
Total		5980.00	393.00	17.00

TABLE NO.12: CLIMATIC CONDITIONS-

Sl. No.	Year	Rainfall (in mm)	Temperature (°C)		Highest intensity of Rainfall (mm in a day)
			Max.	Min.	
1.	2008	480.00	45*c.	6* c.	100 MM
2	2009	582.00	46*c.	5* c.	105 MM
3	2010	530.00	48*c.	4* c.	110 MM

The rainfall is scanty which has resulted in recurrent phenomenon of drought in every two to three years. The average rainfall of this area is about 459 mm (from past five year data) with a highest intensity of 88 mm within span of a day. This uneven distribution is leading to run off of soil every year to the streams, rivulets and depressed area of Kannauj.

TABLE NO. 13: PHYSIOGRAPHY AND RELIEF

Project name	Elevation(MSL)	Slope range (%)	Major streams
IWMP-II	Modrate	1% to 5%	Betawa & Yamuna

TABLE NO. 13: PHYSIOGRAPHY AND RELIEF

Project name	Elevation(MSL)	Slope range (%)	Major streams
IWMP-II, Kannauj	Modrate	1% to 5%	Chibramau

3.1.3 LAND AND AGRICULTURE-

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 two types of lands i.e. 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 5873.25 ha out of which 6265.00 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 farmers of watershed forcing them to carry drinking water from outside 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. loam sand, which are located in patches throughout the watershed. The soils are almost kept fallow during rainy season. The irrigation water is conveyed in earthen channels and surface irrigation methods following mainly 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.

Waste lands suitable for 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 upliftment of farmers in the watershed.

TABLE NO. 15:-AGRICULTURE

Sl.No	Project/Village	Net Sown Area(ha)		
		One time	Two times	Three times
01	IWMP-II	5873.25	6265.00	NA

TABLE NO 16- ONE YEAR CROP ROTATION:-

Sl.No	kharif season	Rabi season
1	Padday,	Wheat
2	Jwar + Arhar	Arhar
3	Bazra+ Arhar	Arhar
4	Urd +Bazra	Gram
5	Mung + Bazra	Potato.
6	Urd + Til + Mazie	Lentil,
7	Fallow	Wheat, Potato.

IRRIGATION –

The total area in agriculture in the watershed is about 5873.25 ha, out of which 943.00 is irrigated by well & Pvt. tubewells. in which 5037.00 ha is under rainfed agriculture. The water (both for irrigation and drinking) is most scarceful. The operation of tube wells for irrigation of agricultural crops frequently leads to the drinking water problem to the farmers for watershed. The irrigation water is conveyed in earthen channels and surface irrigation methods following mainly border method of free flooding method of irrigation by farmers in the watershed. The factors substantially reduce the water use efficiency of limited available and valuable irrigation water in the watershed. To test the quality of irrigation water samples of water of each selected village has sent to laboratory for testing.

Table 17- CROP DETAIL:-

S. No.	Season	Crops
1	Kharif	Jwar+Urd, Bazra+Mung, Arhar, Paddy
2	Rabi	Wheat,Barly , Gram, Potato, Lentil,

3.1.4 LIVESTOCK:

Total livestock population of the watershed is 24132 Cows are preferred as milk animal, but milk yield is very low. Goatarys are also kept for milk as well as for meat purpose. The breakup of livestock population is as follows

Table 18 Livestock

S. No.	Name of Village	livestock Resolution					Total
		Buffaloes	Cows	Bullocks	Goatary	Other	
1	Bhikampur Sani	500	90	50	500	1	1141
2	Behta Khas	600	15	20	1100	-	1735
3	Jalalpur Dildarpur	200	100	6	200	-	506

4	Medepur	380	40	45	390	-	855
5	Khanpur Kasava	330	70	100	250	6	756
6	Madaripur Kasava	350	50	18	200	2	620
7	Kasava	1300	115	80	2000	10	3505
8	Bhawalpur	380	50	55	450	18	953
9	Hathin	300	100	20	250	70	740
10	Mudaiya,	400	60	50	500	20	1030
11	Teur	500	200	10	400	40	1150
12	Behta	300	50	17	200	-	567
13	Aseh	500	100	50	500	50	1200
14	Chanderpur	200	50	16	200	35	501
15	Paliyabuchpur	250	100	8	250	25	633
16	Jagdishpur	200	50	10	300	15	575
17	Udhranpur	150	100	12	350	25	637
18	KunwarpurJunu	200	150	10	200	35	595
19	SaraiSunder	150	100	8	100	40	398
20	Khudava	100	50	6	250	50	456
21	Patrajpur	200	100	6	300	15	621
22	Kamalpur	250	120	8	200	30	608
23	Rasoolpur	150	100	10	250	25	535
24	Bikupur	250	150	20	300	35	755
25	Anantpur	200	100	10	2000	27	2337
26	Vinayakpur	250	125	8	300	40	723
	Total	8590	2335	653	11940	614	24132

Sl. No.	Project name	Ground water table (m)	Source of drinking water	Availability in months	Quality
1	IWMP-II Kannauj	7 – 9	Well, Hand Pump, Tub-Well & Water Supply	12	High T.D.S

3.2. SOCIO-ECONOMIC PROFILE

SOCIO ECONOMIC ANALYSIS OF THE PROJECT

1-SUSTAINABILITY AND ENVIRONMENTAL SECURITY:

In the proposed watershed management plan of River Isan and Kali, proper blending of bio engineering measures will be applied. The proposed land use plan will improve the land utilization index and crop diversification index significantly as compared to existing one. It will help in maintaining ecosystem integrity on sustained basis.

2-ECONOMIC ANALYSIS:

Economic analysis of the project is carried out by taking direct benefits and costs, considering 30 year project life at 10% discount rate. For the purpose of economic analysis, whole watershed development plan is divided into four sectors as agriculture (rainfed and irrigated), pure horticulture, agro-horticulture and silvi pastoral (Silvi-Pastoral + sericulture). Net present value (NPV), Benefit Cost Ratio(BCR) , Payback Period(PBR) and internal rate of return(IRR) criteria is Applied to judge the economic efficiency of each enterprise, sector and project as a whole.

3.2.1 BENEFIT COST RATIO OF I.W.M.P.-II Kannauj

Year	Construction cost(00,000 Rs.)	Operation and maintenance cost(00,000 Rs.)	Benefit(00,000 Rs.)
1	131.904	06.35	15.89
2	197.856	15.89	63.59
3	131.904	22.25	97.37
4	197.856	31.80	318.00
5	0	31.80	318.00
6	0	31.80	318.00
7	0	31.80	318.00
8	0	31.80	318.00
9	0	31.80	318.00
10	0	31.80	318.00

BY BENEFIT, COST RATIO METHOD

S.No.	Item	1	2	3	4	5	6	7	8	9	10	
1	Discount factor 10%	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467	0.424	0.386	
2	Total cost (00,000 Rs.)	165.326	254.354	181.226	270.264	318.00	318.00	318.00	318.00	318.00	318.00	
3	Benefit (00,000 Rs.)	15.89	63.59	97.37	318.00	318.00	318.00	318.00	318.00	318.00	318.00	
4	\sum Cost	150.28	210.09	136.09	184.59	197.74	179.3	16.31	14.85	13.48	12.27	775.63
5	\sum Benefit	14.44	52.52	73.12	217.19	197.47	129.35	163.13	148.50	134.83	122.74	1303.29

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

$$= \frac{1303.29}{775.63}$$

$$= 1.68:1$$

Hence OK





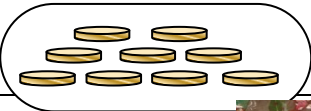









24-STATUS OF FOOD REQUIREMENT AND AVAILABILITY PER ANNUM IN

RIVER ISAN AND KALI WATERSHED

Sl.No.	Item	Requirement Q / yr.	Before Project		Proposed	
			Availability Q / yr.	Deficit or Surplus Q / yr.	Availability Q / yr.	Deficit or Surplus Q / yr.
1.	Cereals	50725	40580	- 10145	51740	+ 1015
2.	Pulses	25362	20290	- 5072	26882	+ 1520
3.	Oil Seeds	4227	3380	- 847	4437	+ 210
4.	Vegetables	25362	13950	-11472	26208	+ 846

SEASONAL ANALYSIS:-

Seasonal analysis has done with the help 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					5							

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 3.587 lakhs will be generated.

INFRASTRUCTURE FACILITIES:

IWMP-II watershed is well connected with Etawah & Kanpur with *pucca* roads. 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 Kannauj which is about 15 kilometres away. and higher education students go to Kannauj & Kanpur. This also contributes to lower education level of the people. The village do not have a Primary Health Centre for Chhibramau which is 15 Km. away.

TABLE NO. 22: LITERACY RATE

_SI No	Project/Village	Literacy					
		Total	%	Male	%	Female	%
01	IWMP-II	49953.00	60.14 %	15573.00	68.33 %	7218.00	31.67 %

3.2.3 INFRASTRUCTURE FACILITIES

The watershed has moderate communication facilities and all Twenty six villages and Concern majra are approachable through motorable road. Mostly villages are electrified and have TV & telephonic connection. Nearest small market is at Chibramau about 0-13 km and nearest big market Chibramau is about 28 km from the watershed. Religious and ritual features are almost common as in other part of the U.P. Small land holding (average less than 2 ha) with large family size (average 6 person) and more than 45 % of the labour force of the total population living below poverty line indicate poor socio economic status of the watershed community. However, strong community spirit among the villager's show positive indication for the success of any programmed to be implemented in participatory mode. Traditionally the entire village community participates in the individual works.

TABLE NO. 25 VILLAGE INFRASTRUCTURE

S.N	Name of village	Pakk Road	Electricity	Primary School	Jun. high School	Inter college	Post Offi.	P.H.C.	Bank	Vetnary hospital	Co-op. Society	Market	Agri. Service centre.
1		3	4	5	6	7	8	9	10	11	12	13	14
1	Bhikampur Sani	√	√	√	3	4	4	16	4	4	16	4	16
2	BehtaKhas	√	√	√	√	6	6	17	6	6	17	6	17
3	Jalalpur	√	√	√	2	7	7	18	7	7	18	√	18
4	Medepur	√	√	√	2	3	3	15	3	3	15	3	15
5	Khanpur	√	√	√	√	3	3	16	3	3	16	√	16
6	Madaripur	√	√	√	1	2	2	15	2	2	15	2	15
7	Kasava	√	√	√	√	√	√	√	√	√	14	√	14
8	Bhawalpur	√	√	√	2	4	4	13	4	4	13	4	13
9	Hathin	√	√	√	√	6	√	6	6	6	6	6	6
10	Mudaiya,	√	√	√	√	3	3	15	3	3	15	3	15
11	Teur	√	√	√	√	9	9	9	9	9	9	9	9
12	Behta	√	√	√	√	6	6	6	6	6	6	6	6
13	Aseh	√	√	√	√	8	8	8	8	8	8	8	8
14	Chanderpur	√	√	√	3	3	5	5	5	5	5	5	5
15	Paliyabuchpur	√	√	√	√	11	11	11	11	11	11	11	11

16	Jagdishpur	√	√	√	3	6	6	6	6	6	6	6	6
17	Udhranpur	√	√	√	4	4	4	4	4	4	4	4	4
18	Kunwarpur	√	√	√	3	3	3	3	3	3	3	3	3
19	SaraiSunder	√	√	√	3	3	3	3	3	3	3	3	3
20	Khudava	√	√	1	1	1	1	4	4	4	4	4	4
21	Patrajpur	√	√	√	3	4	4	4	4	4	4	4	4
22	Kamalpur	√	√	√	3	5	5	5	5	5	5	5	5
23	Rasoolpur	√	√	√	1	5	5	5	5	5	5	5	5
24	Bikupur	√	√	√	3	3	3	7	3	3	7	7	7
25	Anantpur	√	√	√	2	6	2	6	6	6	6	6	6
26	Vinayakpur	√	√	√	2	7	2	7	7	7	7	7	7

Historical time line for village Bhikampur Sani.

S.No.	Activities	Year
1	Established	1580
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1955
4	Introduction of Tractor	1954
5	Establishment of P.H.C.	-
6	Kacha road	1978
7	Introduction of thresher	1988
8	First Tube well /Diesel pump set	1990
9	First Motorcycle	1989
10	TV and DVD player	1991/2001
11	Over head water tank	-
12	Electricity in the village	1997
13	Bituminous road	-
14	Temple renovation	1879
15	Planning for watershed project	2010

Historical time line for village Behta Khas

S.No.	Activities	Year
1	Established	1715
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1957
4	Introduction of Tractor	1976
5	Establishment of P.H.C.	-
6	Kacha road	-
7	Introduction of thresher	1989
8	First Tube well /Diesel pump set	1972
9	First Motorcycle	1988
10	TV and DVD player	1995/2002
11	Over head water tank	-
12	Electricity in the village	2000
13	Bituminous road	-
14	Temple renovation	1976
15	Planning for watershed project	2010

Historical time line for village Jalapur Dildarpur.

S.No.	Activities	Year
1	Established	1868
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1958
4	Introduction of Tractor	1978
5	Establishment of P.H.C.	-
6	Kacha road	1975
7	Introduction of thresher	1989
8	First Tube well /Diesel pump set	1971
9	First Motorcycle	1984
10	TV and DVD player	1991/2004
11	Over head water tank	-
12	Electricity in the village	2002
13	Bituminous road	-
14	Temple renovation	1979
15	Planning for watershed project	2010

Historical time line for village Medepur.

S.No.	Activities	Year
1	Established	1745
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1970
4	Introduction of Tractor	1981
5	Establishment of P.H.C.	-
6	Kacha road	1978
7	Introduction of thresher	1992
8	First Tube well /Diesel pump set	1976
9	First Motorcycle	1989
10	TV and DVD player	1996/2003
11	Over head water tank	-
12	Electricity in the village	2002
13	Bituminous road	-
14	Temple renovation	1968
15	Planning for watershed project	2010

Historical time line for village Khanpur Kasava

S.No.	Activities	Year
1	Established	1678
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1957
4	Introduction of Tractor	1978
5	Establishment of P.H.C.	-
6	Kacha road	1972
7	Introduction of thresher	1989
8	First Tube well /Diesel pump set	1972
9	First Motorcycle	1988
10	TV and DVD player	1995/2001
11	Over head water tank	-
12	Electricity in the village	2006
13	Bituminous road	-
14	Temple renovation	1971
15	Planning for watershed project	2010

Historical time line for village Madaripur Kasava.

S.No.	Activities	Year
1	Established	1682
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1985
4	Introduction of Tractor	1989
5	Establishment of P.H.C.	-
6	Kacha road	1980
7	Introduction of thresher	1995
8	First Tube well /Diesel pump set	1971
9	First Motorcycle	1995
10	TV and DVD player	1996/2001
11	Over head water tank	-
12	Electricity in the village	2000
13	Bituminous road	-
14	Temple renovation	1905
15	Planning for watershed project	2010

Historical time line for village Kasava.

S.No.	Activities	Year
1	Established	1667
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	-
4	Introduction of Tractor	1973
5	Establishment of P.H.C.	-
6	Kacha road	1968
7	Introduction of thresher	1978
8	First Tube well /Diesel pump set	1987
9	First Motorcycle	1990
10	TV and DVD player	1991/2001
11	Over head water tank	2004
12	Electricity in the village	1980
13	Bituminous road	-
14	Temple renovation	-
15	Planning for watershed project	2010

Historical time line for village Bhawalpur.

S.No.	Activities	Year
1	Established	1782
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	-
4	Introduction of Tractor	1971
5	Establishment of P.H.C.	-
6	Kacha road	1968
7	Introduction of thresher	1976
8	First Tube well /Diesel pump set	1989
9	First Motorcycle	1991
10	TV and DVD player	1992/2002
11	Over head water tank	-
12	Electricity in the village	2000
13	Bituminous road	-
14	Temple renovation	1966
15	Planning for watershed project	2010

Historical time line for village Hathin.

S.No.	Activities	Year
1	Established	1810
2	Construction Bandhi (water harvesting structure)	2004
3	Opening up Primary school	1980
4	Introduction of Tractor	1986
5	Establishment of P.H.C.	-
6	Kacha road	1975
7	Introduction of thresher	1986
8	First Tube well /Diesel pump set	1984
9	First Motorcycle	1990
10	TV and DVD player	1988
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	1982
14	Temple renovation	1980
15	Planning for watershed project	2010

Historical time line for village Mudaiya.

S.No.	Activities	Year
1	Established	1800
2	Construction Bandhi (water harvesting structure)	2005
3	Opening up Primary school	1980
4	Introduction of Tractor	1986
5	Establishment of P.H.C.	-
6	Kacha road	1976
7	Introduction of thresher	1992
8	First Tube well /Diesel pump set	1986
9	First Motorcycle	1994
10	TV and DVD player	1996
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	1981
14	Temple renovation	1984
15	Planning for watershed project	2010

Historical time line for village Teur.

S.No.	Activities	Year
1	Established	1503
2	Construction Bandhi (water harvesting structure)	2005
3	Opening up Primary school	1985
4	Introduction of Tractor	1987
5	Establishment of P.H.C.	-
6	Kacha road	1981
7	Introduction of thresher	1990
8	First Tube well /Diesel pump set	1975
9	First Motorcycle	1985
10	TV and DVD player	1993/1998
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	1981
14	Temple renovation	1978
15	Planning for watershed project	2010

Historical time line for village Behta.

S.No.	Activities	Year
1	Established	1597
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1975
4	Introduction of Tractor	1975
5	Establishment of P.H.C.	-
6	Kacha road	1990
7	Introduction of thresher	1980
8	First Tube well /Diesel pump set	1972
9	First Motorcycle	1980
10	TV and DVD player	1992/1998
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	1995
14	Temple renovation	1815
15	Planning for watershed project	2010

Historical time line for village Aseh.

S.No.	Activities	Year
1	Established	1725
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1960
4	Introduction of Tractor	1978
5	Establishment of P.H.C.	-
6	Kacha road	1976
7	Introduction of thresher	1989
8	First Tube well /Diesel pump set	1968
9	First Motorcycle	1992
10	TV and DVD player	1998/2003
11	Over head water tank	-
12	Electricity in the village	2006
13	Bituminous road	-
14	Temple renovation	1822
15	Planning for watershed project	2010

Historical time line for village Chanderpur.

S.No.	Activities	Year
1	Established	1732
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1965
4	Introduction of Tractor	1979
5	Establishment of P.H.C.	-
6	Kacha road	1966
7	Introduction of thresher	1987
8	First Tube well /Diesel pump set	1972
9	First Motorcycle	1981
10	TV and DVD player	1992/2000
11	Over head water tank	-
12	Electricity in the village	1995
13	Bituminous road	-
14	Temple renovation	1860
15	Planning for watershed project	2010

Historical time line for village Paliyabuchpur.

S.No.	Activities	Year
1	Established	1495
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1967
4	Introduction of Tractor	1970
5	Establishment of P.H.C.	1985
6	Kacha road	1965
7	Introduction of thresher	1980
8	First Tube well /Diesel pump set	1970
9	First Motorcycle	1977
10	TV and DVD player	1994/1998
11	Over head water tank	1995
12	Electricity in the village	1997
13	Bituminous road	1965
14	Temple renovation	1805
15	Planning for watershed project	2010

Historical time line for village Jagdishpur.

S.No.	Activities	Year
1	Established	1525
2	Construction Bandhi (water harvesting structure)	1995
3	Opening up Primary school	1975
4	Introduction of Tractor	1990
5	Establishment of P.H.C.	-
6	Kacha road	1980
7	Introduction of thresher	1992
8	First Tube well /Diesel pump set	1976
9	First Motorcycle	1986
10	TV and DVD player	1996/1998
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	1980
14	Temple renovation	1995
15	Planning for watershed project	2010

Historical time line for village Udharmpur Dhingpur.

S.No.	Activities	Year
1	Established	1505
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1980
4	Introduction of Tractor	2000
5	Establishment of P.H.C.	-
6	Kacha road	1985
7	Introduction of thresher	2001
8	First Tube well /Diesel pump set	1977
9	First Motorcycle	1995
10	TV and DVD player	1996/1998
11	Over head water tank	-
12	Electricity in the village	2002
13	Bituminous road	1985
14	Temple renovation	1860
15	Planning for watershed project	2010

Historical time line for village Kunwarpur Junu.

S.No.	Activities	Year
1	Established	1660
2	Construction Bandhi (water harvesting structure)	1995
3	Opening up Primary school	1975
4	Introduction of Tractor	1987
5	Establishment of P.H.C.	-
6	Kacha road	1980
7	Introduction of thresher	1988
8	First Tube well /Diesel pump set	1975
9	First Motorcycle	1985
10	TV and DVD player	1994/1998
11	Over head water tank	-
12	Electricity in the village	2003
13	Bituminous road	1980
14	Temple renovation	1945
15	Planning for watershed project	2010

Historical time line for village Sarai Sunder.

S.No.	Activities	Year
1	Established	1670
2	Construction Bandhi (water harvesting structure)	1995
3	Opening up Primary school	1965
4	Introduction of Tractor	1970
5	Establishment of P.H.C.	2005
6	Kacha road	1965
7	Introduction of thresher	1978
8	First Tube well /Diesel pump set	1970
9	First Motorcycle	1980
10	TV and DVD player	1994/1998
11	Over head water tank	-
12	Electricity in the village	2000
13	Bituminous road	1965
14	Temple renovation	1845
15	Planning for watershed project	2010

Historical time line for village Khudava.

S.No.	Activities	Year
1	Established	1507
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1990
4	Introduction of Tractor	1995
5	Establishment of P.H.C.	-
6	Kacha road	1990
7	Introduction of thresher	1998
8	First Tube well /Diesel pump set	1990
9	First Motorcycle	1992
10	TV and DVD player	1996/1998
11	Over head water tank	-
12	Electricity in the village	2007
13	Bituminous road	1990
14	Temple renovation	1865
15	Planning for watershed project	2010

Historical time line for village Patrajpur.

S.No.	Activities	Year
1	Established	1545
2	Construction Bandhi (water harvesting structure)	1995
3	Opening up Primary school	1990
4	Introduction of Tractor	1980
5	Establishment of P.H.C.	-
6	Kacha road	1992
7	Introduction of thresher	1982
8	First Tube well /Diesel pump set	1977
9	First Motorcycle	1995
10	TV and DVD player	1996/1998
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	1992
14	Temple renovation	1970
15	Planning for watershed project	2010

Historical time line for village Kamalpur.

S.No.	Activities	Year
1	Established	1550
2	Construction Bandhi (water harvesting structure)	1996
3	Opening up Primary school	1970
4	Introduction of Tractor	1990
5	Establishment of P.H.C.	-
6	Kacha road	1992
7	Introduction of thresher	1992
8	First Tube well /Diesel pump set	1977
9	First Motorcycle	1997
10	TV and DVD player	1996/1998-
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	1992
14	Temple renovation	1975
15	Planning for watershed project	2010

Historical time line for village Rasoolpur

S.No.	Activities	Year
1	Established	1742
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1957
4	Introduction of Tractor	1989
5	Establishment of P.H.C.	-
6	Kacha road	1982
7	Introduction of thresher	1998
8	First Tube well /Diesel pump set	1978
9	First Motorcycle	1993
10	TV and DVD player	1991/1999
11	Over head water tank	-
12	Electricity in the village	2004
13	Bituminous road	-
14	Temple renovation	1809
15	Planning for watershed project	2010

Historical time line for village Bikupur

S.No.	Activities	Year
1	Established	1509
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1953
4	Introduction of Tractor	1983
5	Establishment of P.H.C.	-
6	Kacha road	1978
7	Introduction of thresher	1996
8	First Tube well /Diesel pump set	1969
9	First Motorcycle	1991
10	TV and DVD player	1991/1997
11	Over head water tank	-
12	Electricity in the village	2003
13	Bituminous road	-
14	Temple renovation	1965
15	Planning for watershed project	2010

Historical time line for village Ananatpur

S.No.	Activities	Year
1	Established	1609
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1955
4	Introduction of Tractor	1983
5	Establishment of P.H.C.	-
6	Kacha road	1978
7	Introduction of thresher	1996
8	First Tube well /Diesel pump set	1969
9	First Motorcycle	1991
10	TV and DVD player	1991/1997
11	Over head water tank	-
12	Electricity in the village	2005
13	Bituminous road	-
14	Temple renovation	1960
15	Planning for watershed project	2010

Historical time line for village Vinayakpur

S.No.	Activities	Year
1	Established	1575
2	Construction Bandhi (water harvesting structure)	-
3	Opening up Primary school	1957
4	Introduction of Tractor	1983
5	Establishment of P.H.C.	-
6	Kacha road	1978
7	Introduction of thresher	1996
8	First Tube well /Diesel pump set	1969
9	First Motorcycle	1991
10	TV and DVD player	1991/1997
11	Over head water tank	-
12	Electricity in the village	2003
13	Bituminous road	-
14	Temple renovation	1865
15	Planning for watershed project	2010

3.3 LIVELIHOOD PATTERN

Out of the total population of 49953 in the watershed, a majority *i.e.* more than 78 % has farming as their major source of livelihood followed by 18 % laborers and 2 % service + business class.+ 2% landless.

TABLE NO. 27: PER CAPITA INCOME

S. No.	Project Name	Agriculture (in Rs.)	Animal husbandry (in Rs.)	Casual labour (in Rs.)	Others (in Rs.)	Total (in Rs.)
01	IWMP-II	5765.00	975.00	2392.00	997.00	10129.00

3.3.1 Dependence on Common Property Resources

TABLE NO.28: DEPENDENCE ON FOREST/CPR

Sl. No.	Project/Village	Forest Wood marketing		Fodder		Total income (Rs)
		% sells	Income (Rs)	% sells	Income	
01	IWMP-II	0	Self Consumption	0.00	Self Consumption	0.00

3.4. COMPARATIVE DATA OF THE CROP PRODUCTIVITY OF THE AREA: PROJECT AREA VS. DISTRICT VS. STATE VS. COUNTRY VS. WORLD:

“The term productivity in general means the total output per unit of factor input. For example land productivity means output per hectare of land. Productivity is an average and is calculated by dividing the total output of a particular crop by the total cultivated area under that crop.”

Data are made available by the Baseline survey (for IWMP-II), Handbook of Agriculture, ICAR publication 2001(For Censex data), and Final district plan (DAP) of Dept. of Agriculture . The results indicate that IWMP-II village has very low productivity compared to world, India, U.P & Kannauj.

The productivity is low not only because that the land is unproductive or the farmer’s lack the skills to manage their crop but also due lack to of source of irrigation, salty water and scarcity of rain.

The IWMP-II village comes under arid zone. So farmers grow crop according to the rainfall. If they get good rainfall they generally grow high value crops like mustard, Arhar,Alsi,Barli Bengal gram etc. In case of low rainfall they go for sorghum, castor, and pearl millet. So we can say that monsoon decides cropping patterns of IWMP-II village.

CHAPTER – 4

WATERSHED ACTIVITIES

4.1. SCIENTIFIC PLANNING:

1. Cluster Approach :-

This envisages integrated development of Geo-hydrological unit ie. Treatment of cluster of micro –watershed The IWMP IInd Kannauj Project consist of 8 micro 2B3D1e2b, 2B3C6f2d, 2B3C6f2c, 2B3C6f1a, 2B3C6f2b, 2B3C6f1b, 2B3C6f2a, 2B3C6f1c.

2. 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 *Talati –cum mantri*. Household census survey includes a detailed questionnaire which has 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.,

3 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.

4.2 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 Geomorphological, 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 0.3 meter at a scale of 1:4000 was used for identifying various locations for soil and water conservation structures.

c) Hydrological modelling

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

TABLE NO. 30: DETAILS OF SCIENTIFIC PLANNING AND INPUTS IN IWMP-II PROJECTS

S.No.	Scientific criteria / input used	Whether scientific criteria was used
	(A) Planning	
	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
		Yes

	(2) DRDA and SLNA	
	(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	No
	3. Vermicompost	Yes

	4. Bio-fertilizer	Yes
	5. Water saving devices	Yes
	6. Mechanized tools/ implements	Yes
	7. Bio-fencing	Yes
	8. Nutrient budgeting	Yes
	9. Automatic water level recorders & sediment samplers	NO
	Any other (please specify)	NO

4.2. INSTITUTION BUILDING

4.2.2 SELF HELP GROUP:-

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

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

TABLE NO.32 SHG DETAIL

S. No.	Name of Micro Watershed	Code No. (M.W.S.)	Name of S.H.G.	Occupation of S.H.G.	Name of Chairman &	No. Members
1	2	3	4	5	6	7
1.	Bhikampur Sani	2B3C6f2a	Jai Santoshi Maa	Dairy	Shri Mukesh Kumar	11
2	Khanpur Kasava	2B3C6f2b	Viklang	Dairy	Shri Ravindra	10
3	Kasava	2B3C6f2c	Dugavati	Dairy	Shri ShyamLal	11
4	Mudaiya	2B3C6f1b	Jai Mata Di	Dairy	Smt. Reeta Devi	10
5	Teur	2B3C6f1a	Maa Laxmi	Goatry	Shri NanheLal	10
6	Aseh	2B3C6f1c	Jai Maa Kali	Dairy	Shri Pala Singh	10

7.	Kamalpur	2B3D1e2b	Jai Maa Bhagvati	Dairy	Shri Ranveer Singh	11
8	Ananatpur	2B3C6f2d	Jai Durga	Goatry	Shri Badam Singh	11

4.2.3 USER GROUP:

User Groups are normally formed to manage an activity or asset created under the programme on a long term basis. The user group collect user charges from their members, oversee the works and manage the benefits. It was decided that each group would formulate certain internal rules and have a feeling of ownership with community spirit.

Table No. 33: USER GROUP DETAIL

S.No.	Name Of Micro Watershed	Code No.	Area Of Micro Watershed Ha	Selected Area For Treatment	No. Of User Group Constituted
1	Bhikampur Sani	2B3C6f2a	880.96	648.00	34
2	Khanpur Kasava	2B3C6f2b	897.25	660.00	44
3	Kasava	2B3C6f2c	857.70	631.00	32
4	Mudaiya	2B3C6f1b	569.50	419.00	24
5	Teur	2B3C6f1a	932.61	686.00	36
6	Aseh	2B3C6f1c	1761.88	1296.00	72
7	Kamalpur	2B3D1e2b	665.31	489.00	24
8	Ananatpur	2B3C6f2d	1265.79	931.00	45
	Total		7831.00	5760.00	311

4.3. PHYSICAL ACTIVITIES TO BE UNDERTAKEN UNDER-IWMP-III

4.3.1 ENTRY POINT ACTIVITY (EPA)

EPA activities are taken up under watershed projects to build a rapport with the village community at the beginning of the project; generally, certain important works which are in urgent demand of the local community are taken up. A group Discussion was conducted with watershed Development Committee regarding the EPA activity, It was conveyed to the WC that an amount of Rs. 27.65 Lakh was allotted for EPA activity, which was 4 percent of total allocated budget.

TABLE NO.34: ENTRY POINT ACTIVITIES (EPA) (ALL FINANCIAL FIGURES IN LAKH RS.)

S.No.	No. of Villages	Amount earmarked for EPA	Entry Point Activities Planned	Estimated Cost (Rs.in Lakh)
1	26	27.65	(A) Krishak Vikas Munch	7.54
			B) Soaking Pit	4.50
			C) Repairing of Culverts, Roads, Drainge, Community building etc.	15.61
			Total	27.65

4.3.2 Watershed Development Work

Watershed Development works are proposed to be taken up from 2nd year of the initiation of the project .These work are proposed to be taken up from ridge to village .And allocation of Rs 345.60 Lakh that is 50% of the total cost has been made for watershed development works .

Area Treatment Plan

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

1. Contractions of bunds (Field bund, contour bund, submergence bund, Marginal & peripheral.
2. Rain fed Horticulture fencing.
3. Afforestation
4. Spillway

Table No.35: Detail of activities of preparatory phase

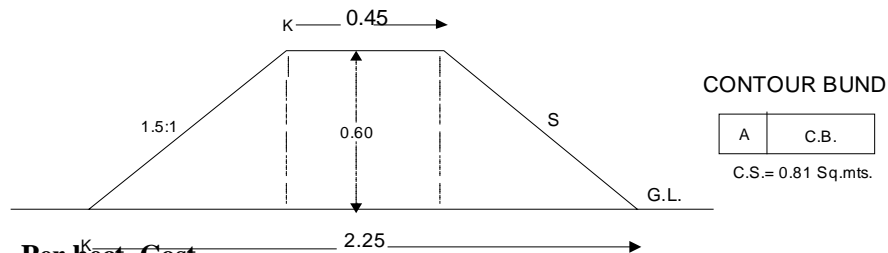
No. of micro watershed	Institutional and capacity buildings	Detailed project report	Total estimated cost
8	34.56	6.91	41.47

TYPICAL DESIGN OF CONTOUR BUND

1. Field slop – 1%
2. Type of Soil – Sandy loam
3. Rain fall – 24 hr. Rain fall in cm. = 20 cm.
4. Vertical Interval in two bunds – V.I. = $S+2/6.6= 1+2/6.6=0.454$ mt.
5. Horizontal Interval in two bunds- H.I. = $100 \text{ V.I./}S=100 \times 0.454/1.00=45.40$ mts.
6. Hight of bund = $H=\sqrt{Re \times Vi/ 50z} = \sqrt{20 \times 0.454/50}=0.426$ mts

Where Re = 24 hrs. Rain fall in 20 cm.

7. Free board 20% or minimum 15 cm.= $0.426+0.15=0.576$ mts.Or 0.60 mts
8. Lenth of bund per hact. = $100 \times S/Vi=100 \times 1/0.454=220.26$ mts.
9. Lenth of laterals = $100Vi/2=100 \times 0.454/2=22.50$ mts.
10. Total lenth of bund = $220.26+22.50=242.76$ Or 243 mts.
11. C.S. of bund –



12. Per hect. Cost –

$$CS=0.81 \text{ m}^2$$

$$\text{Earth work} = 243 \times 0.81 = 196.83 \text{ m}^3$$

Output for labour = 3.25 m³

Cost of Earth work @ Rs. 30.77 per/m³=Rs. 6054.49

7.5% Dressing Charge extra = Rs. 454.08

Total Rs. 6508.57 per ha.

Design of Drop Spillway Catchment area – 5 Hect. for Contour bund.

1. Catchment area : 5 hect.
2. Rain fall intency : 120 mm/hr.
3. Run off coefficient : 0.3
4. Hight of bund : 1 mt.
5. Depth of storage h : 0.60 mt.

1. **Hydrologic Design:**

Q = CIA./360 By Rational formula.

Where Q = Discharge in Cumee.

C = Run off Coefficient.

I = Intency of Rainfall

A = Area in hect.

$$= \frac{0.30 \times 120 \times 5.00}{360} = 0.50 \text{ Cumee}$$

2. **Hydroulic Design :**

Maximum discharge through

$$Q = \frac{1.711 LH^{3/2}}{1.1 + .01 f.}$$

Where L = Length of Crest

H = Head over the crest

F = Drop 0.60 mt.

$$0.5 = \frac{1.711 \times L \times (4)^{3/2}}{1.1 + 0.01 \times 0.60}$$

$$0.5 = \frac{1.711 \times L \times 0.253}{1.106} = \frac{0.433 L}{1.106}$$

$$0.433 \times L = 0.50 \times 1.106$$

$$L = \frac{0.553}{0.433} = 1.277 \text{ mt} \quad \text{Sa } 1.30 \text{ mt.}$$

0.433

Length of Crest L = 1.30 ML

Hight of Crest F = 0.60 ML

Head Over th Crest = 0.40 ML

3. **Structural Design:**

A. Menimum Length of head wall Exn. $E = (3 H + 0.60)$ or 1.5 f.
 $3 H + .60$ or = 1.5 f.
 $3 \times 0.40 + .60 = 1.50 \times 0.60$
1.80 mt. = 0.90 mt. Say 1.00 mt.

B. Length of Apron : $LB = f (2.28 H/F + 0.54)$
 $= 0.6 (2.28 \times \frac{.40}{.60} + 0.54)$
 $= 1.23$ Sa 1.30 mt.

C. Hight of Side wall at the Joint of wing wall Exn.
 $J = 2 H$ or
 $= 2 \times 0.4 = 0.80$ mt.

d – M = Length of side wall = sloppy portion

$$M = 2 (f + 1.33 H - J)$$
$$= 2 (0.60 + 1.33 \times 0.40 - 0.80)$$
$$= 0.66 \text{ Say } 0.65 \text{ mt.}$$

K = Length of side wall straight portion
 $= (LB + 0.1) - M$
 $= (1.30 + 0.1) - 0.65$
 $= 1.40 - 0.65 = 0.75$ mt.

D. **Depth of Foundation**

$$\text{Menimum depth} = 0.473 \times (Q/F)^{1/3}$$
$$= 0.473 \times (0.50)^{1/3}$$
$$0.60$$
$$= 0.473 \times 0.83^{1/3}$$
$$= 0.473 \times 0.94 = 0.444 \text{ Sa } 0.45 \text{ mt.}$$

$$\text{Maximum depth} = 1.5 \times 0.44 = 0.66 \text{ Sa } 0.70 \text{ mt.}$$

Main Dimension of structure.

Length of head wall = 1.30 mt.

Hight of Crest = 0.60 mt.

Head over the Crest = 0.40 mt.

Menimum top width of head wall = 0.45 mt.

Bottom width of head wall = $\frac{1}{2} \times \text{ht. crest} + \text{Top width}$
= $0.50 \times 0.6 = 0.75$ Say 0.70 mt.

Head wall Exn. = 1.80 mt.

Length of Apron = 1.30 mt.

Estimate of Drop Spillway for 5 hect. Catchment.

S. No.	Item	Nos.	Length	Width	Hight/ depth	Qt.
1	2	3	4	5	6	7
1	E/W in foundation					
	Head wall Exn	2	2.00	0.35	0.70	1.540
	Side wall	2	1.65	0.55	0.70	1.270
	Side wall Exn.	2	1.00	0.55	0.70	0.770
	Crest wall	1	1.30	0.80	0.70	0.728
	Toe wall	1	1.30	0.55	0.70	0.500
	Apron	1	1.30	1.30	0.40	<u>0.676</u>
					Total	5.484
2	Sand filling work					
	Head wall Exn.	2	2.00	0.55	0.10	0.220
	Side wall	2	1.65	0.55	0.10	0.181
	Side wall Exn.	2	1.00	0.55	0.10	0.110
	Crest wall	1	1.30	0.80	0.10	0.104
	Toe wall	1	1.30	0.55	0.10	<u>0.071</u>
					Total	0.686
3	C.C work in 1:3:6					
	Head wall Exn.	2	2.00	0.55	0.15	0.330

	Side wall	2	1.65	0.55	0.15	0.272
	Side wall Exn.	2	1.00	0.55	0.15	0.165
	Crest wall	1	1.30	0.80	0.15	0.156
	Toe wall	1	1.30	0.55	0.15	<u>0.107</u>
					Total	<u>1.030</u>
	1:2:4 in Apron	1	1.30	1.30	0.20	0.338
4	Khanda Manag wall					
	Head wall Exn.	2	1.80	0.45	1.40	0.268
	Side wall upto Toe Exn. Top	2	1.55	0.45	0.65	0.906
	Side wall above to ,,	2	<u>1.55+0.65</u>	0.45	0.80	2.120
			2			
	Crest wall up to Apron	1	1.30	0.70	0.25	0.227
				<u>0.45 + 0.70</u>	0.80	0.598
	Crest wall above to Apron	1	1.30	2		
	Side wall Exn.	1	0.90	0.45	0.65	0.526
	Toe wall	1	1.30	0.45	0.45	<u>0.263</u>
					Total	<u>6.908</u>
5	Plastring 1:4					
	Head wall Exn top	2	1.80	0.45	-	1.620
	Crest top	1	1.30	0.45	-	0.585
	Crest U/S	1	1.30	-	0.60	0.780
	,, D/S	1	1.30	-	0.84	1.092
	Side wall top	2	(0.65+1.20)	0.45	-	1.665

	Side wall Exn	2	0.90	0.45	-	0.810
	Toe wall top	1	1.30	0.45	-	0.585
	Toe wall in side	1	1.30	-	0.20	0.260
	Side above the toe wall	2	-	0.45	0.40	0.180
	Side above the Crest	2	-	0.45	0.40	<u>0.360</u>
					Total	7.937
6	Pointing 1:3					
	Head wall U/S	1	1.30	-	0.60	0.780
	Head wall Exn. U/S	2	1.80	-	1.00	3.600
	Side wall inside (Bottam)	2	1.55	-	0.40	1.240
	Side wall inside (Top)	2	<u>1.55 + 0.65</u>	-	0.80	<u>1.760</u>
			2		Total	<u>7.380</u>
	Deduction for Crest	2	-	0.20	0.60/2	<u>0.12</u>
					Net	7.26

Analysis of material

S. No.	Item	Unit	Qty.	Cement	Sand	Bolder	Balast
1	2	3	4	5	6	7	8
1	Sand filling work	Cmt.	0.686	-	0.686	-	-
2	C.C work 1:3:6	Cmt.	1.03	4.64	0.486	-	0.972
	„ 1:2:4		0.338	2.06	0.143	-	0.287

3	Bolder Massonary work 1:4	Cmt.	6.908	22.10	3.58	6.90	-
4	Plastering 1:4	Sq. mt.	7.937	0.873	0.199	-	-
5	Pointing 1:3	Sq. mt.	7.26	0.340	0.035	-	-
	Total			30.01	4.577	6.90	1.259

Cost of material

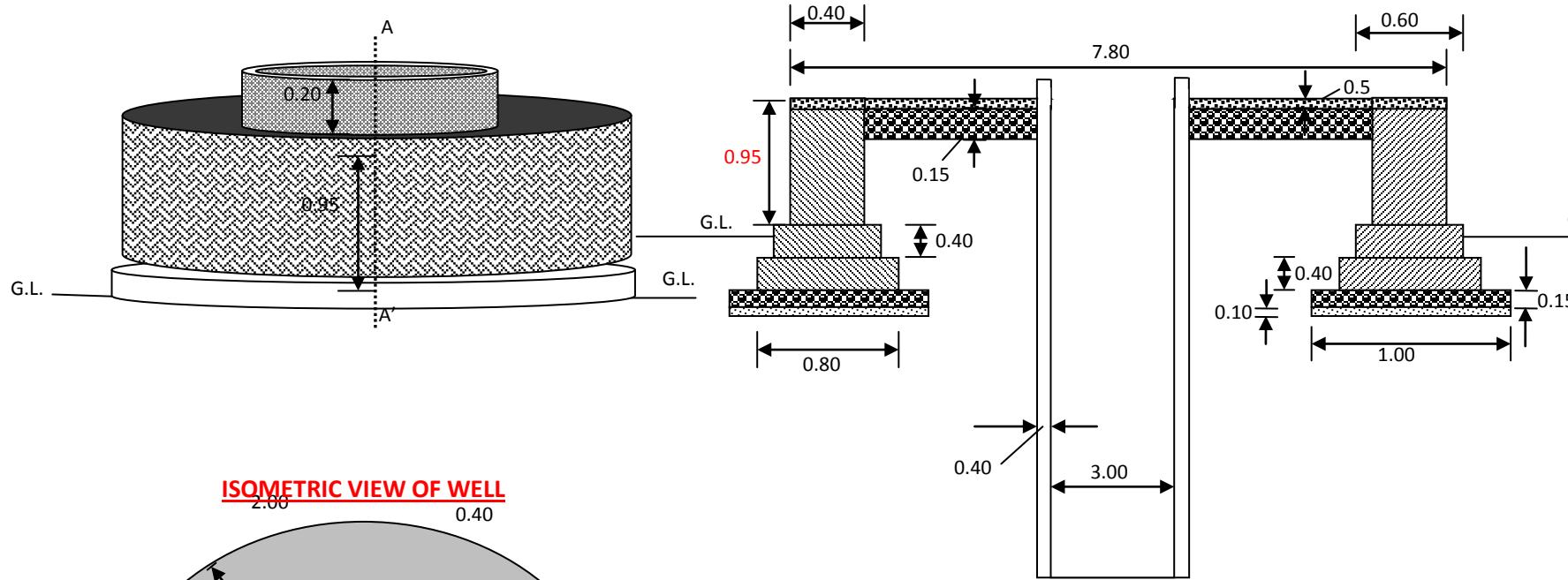
S. No	Item	Qty	Rate	Amount
1	2	3	4	5
1	Cement	30 bag	250/-	8400.00
2	Sand	4.60 cmt	950/-	4370.00
3	Bolder	6.90 cmt.	600/-	4140.00
4	Stone Ballast	1.26 cmt.	700/-	882.00
	Total	-	-	17792.00

Analysis of labour charges

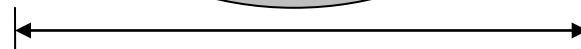
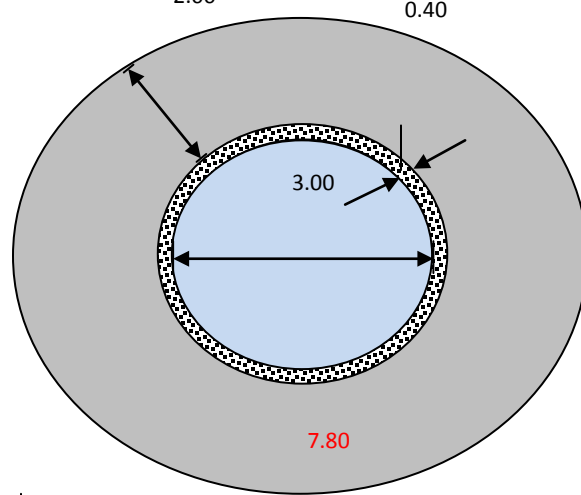
S. No	Item	Qty	Rate	Amount
1	2	3	4	5
1	E/W in foundation	5.48 cmt.	33.33/-	182.64
2	Sand filling	0.686 cmt.	25/-	17.15
3	C.C works	1.368 cmt.	497/-	679.89
4	Bolder Massanary	6.91 cmt.	385/-	2660.35
5	Plasterring	7.94 m ²	41.87/-	332.44
6	Pointing	7.26 m ²	28.50	206.91
7	Curing ½ labour	3.50 mandays	100/-	350.00
8	Extra watering 3% Cost of material	-	-	533.76
	Total			4963.16

Total Cost of Structure Rs. 22755.16 say Rs. 23000.00

DRAWING OF WELL



ISOMETRIC VIEW OF WELL



PLAN

DESCRIPTION

SECTION AT A-A'

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

DETAIL ESTIMATE OF JAGAT OF WELL

S.No.	Description of Work	No.	L	B	D/H	Quantity
1.	Earth work in foundation	1	3.14 x 7.4	1.20	1.00	27.88
2.	Laying of sand	1	3.14 x 7.4	1.00	0.10	2.32
3.	C.C.W. 1:4:8	1	3.14 x 7.4	1.00	0.15	3.48
4.	R/R Stone masonry 1:4	1	3.14 x 7.4	0.80	0.40	7.43
			3.14 x 7.4	0.60	0.40	5.57
			3.14 x 7.4	0.40	0.90	8.36
			3.14 x 3.4	0.40	0.20	0.85
						22.21
5.	Filling of earth work	1	3.14 x 5.4	1.60	0.75	20.34
6.	C.C.W. 1:4:8	1	3.14 x 5.4	1.60	0.15	4.06
7.	C.C.W. 1:2:4	1	$\{(3.14 \times 7.8 \times 7.8)/4 - (3.14 \times 3.8 \times 3.8)/4\} \times 0.05$			1.821
8.	Raised pointing	1	3.14 x 7.8	-	0.90	22.04

CONSUMPTION OF MATERIALS

S.No.	Description of Work	Quantity	Cement Bags	Coarse Sand (cum)	Khanda (cum)	G.S.B. 25-40 mm (cum)	Grit 10-20 mm (cum)
1.	Sand Laying	2.32 cum	-	2.320	-	-	-
2.	C.C.W. 1:4:8 (4.06 + 3.48)	7.54 cum	25.63	3.393	-	7.012	-
3.	Stone masonry 1:4	22.21 cum	53.30	7.551	22.21	-	-
4.	C.C.W. 1:2:4	1.821 cum	11.10	0.764	-	-	1.547
5.	Raised Pointing	22.04 m ²	1.01	0.103	-	-	-
Total			91.04	14.131	22.21	7.012	1.547
Say			91 bags	14.13 cum	22.20	7.01	1.55

COST OF MATERIALS

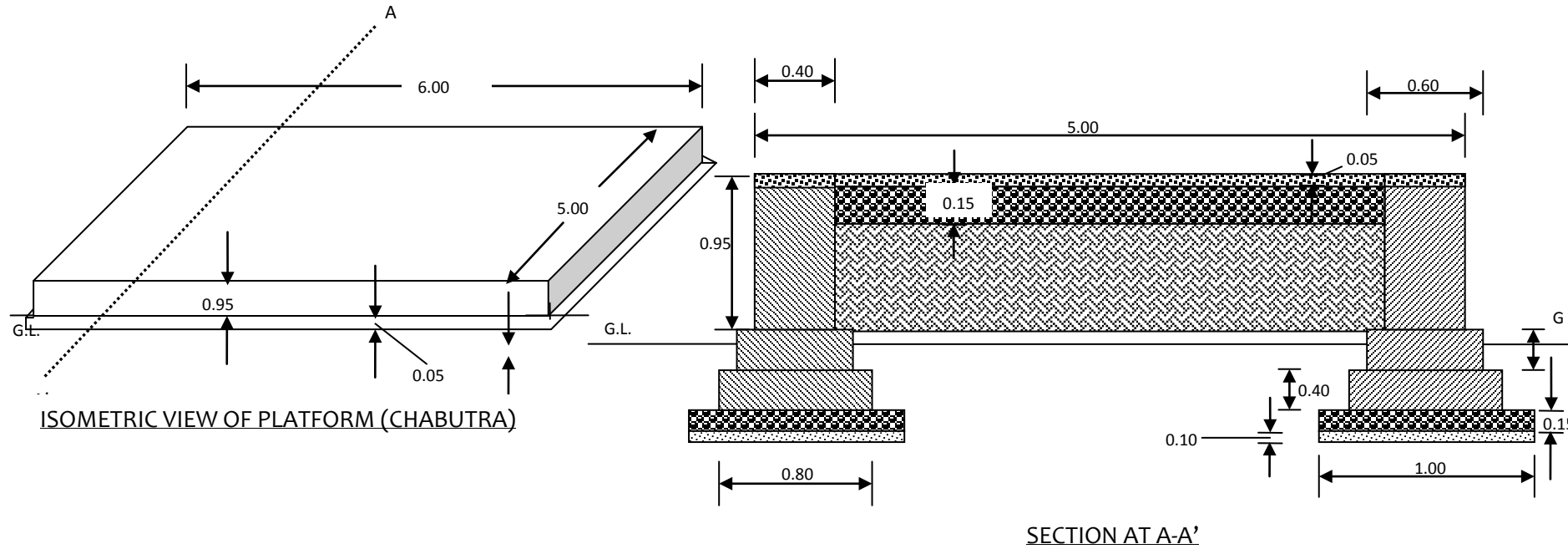
S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	91 Bags	255.00/bag	23205.00
2.	Coarse Sand	14.13 cum	910.00/cum	12858.30
3.	Khanda	20.20 cum	1025.00/cum	22755.00
4.	Granite Stone Ballast 25-40 mm	7.01 cum	855/cum	5993.55
5.	Granite Stone Grit 10-20 mm	1.55 cum	1250.00/cum	1937.50
Total				Rs. 66,749.00

LABOUR CHARGES

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	48.22 cum	36.66/cum	1769.01
2.	Sand Laying	2.32 cum	33.33/cum	77.32
3.	C.C.W. 1:4:8	7.54 cum	492.00/cum	3709.68
4.	C.C.W. 1:2:4	1.821 cum	492.00/cum	894.11
5.	Stone Masonary	22.210 cum	370.00/cum	8217.70
6.	Raised Pointing	22.04 m ²	51.61/m ²	7.48
7.	Curing 22.21	22.210 cum	25.00/cum	555.25
8.	Chowkidar	13 Man days	100.00/man day	1300.00
9.	Head load & transportation charges 10% of cost of materials			6674.90
Total				Rs. 24,335.45

TOTAL EXPENDITURE Of Floor of Well	
1. Cost of materials	66,749.00
2. Labour charges & transportation	24,335.45
Total	Rs. 91,084.45
Say Rs. 91,100.00 only	

DRAWING OF KRISHAK VIKAS MANCH



DESCRIPTION

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

DETAIL ESTIMATE OF KRISHAK VIKAS MANCH

S.No.	Description of Work	No.	L.	B.	D/H	Quantity
1.	Earth work in foundation					
	Long Wall	2	8.00	1.20	1.10	21.12
	Short Wall	2	4.00	1.20	1.10	10.56
Total						31.68 cum
2.	Laying of Sand					
	Long Wall	2	6.60	1.00	0.10	1.32
	Short Wall	2	3.60	1.00	0.10	0.72
Total						2.04 cum
3.	C.C.W. 1:4:8					
	Long Wall	2	6.60	1.00	0.15	1.98
	Short Wall	2	3.60	1.00	0.15	1.08
Total						3.06 cum
4.	Stone masonry work 1:4 in foundation & super structure					
	1st Footing.					
	Long Wall	2	6.40	0.80	0.40	4.096
	Short Wall	2	3.80	0.80	0.40	2.432
	2nd Footing					
	Long Wall	2	6.20	0.60	0.40	2.976
	Short Wall	2	4.00	0.60	0.40	1.920
	Super Structure					
	Long Wall	2	6.00	0.40	0.90	4.320
	Short Wall	2	4.20	0.40	0.90	3.024

Total						18.768 cum
5.	Earth work in filling	1	5.20	4.20	0.75	16.38 cum
6.	C.C.W. 1:4:8	1	5.20	4.20	0.15	3.276 cum
7.	C.C.W. 1:2:4	1	6.00	5.00	0.05	1.500 cum
8.	Raised Pointing 1:3					
	Long Wall	2	6.00	-	0.90	10.80
	Short Wall	2	5.00	-	0.90	9.00
Total						19.80 m²

ABSTRACT OF WORK

1.	Earth Work	31.68 + 16.38	48.06 cum
2.	Sand Laying		2.040 cum
3.	C.C.W. 1:4:8	3.060 + 3.276	6.336 cum
4.	Stone masonry 1:4		18.568 cum
5.	C.C.W. 1:2:4		1.500 cum
6.	Raised Pointing 1:3		19.80 m ²

CONSUMPTION OF MATERIALS

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

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	77 Bags	255/Bag	19635.00
2.	Coarse Sand	12.00 cum	910.00/cum	10920.00
3.	Khanda	18.768 cum	1025.00/cum	19237.20
4.	G.S.B. 25-40 mm	5.900 cum	855.00/cum	5044.00
5.	G.S. Grit 10-20 mm	1.280 cum	1250.00/cum	1600.00
Total				Rs. 56,436.20

LABOUR COST

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

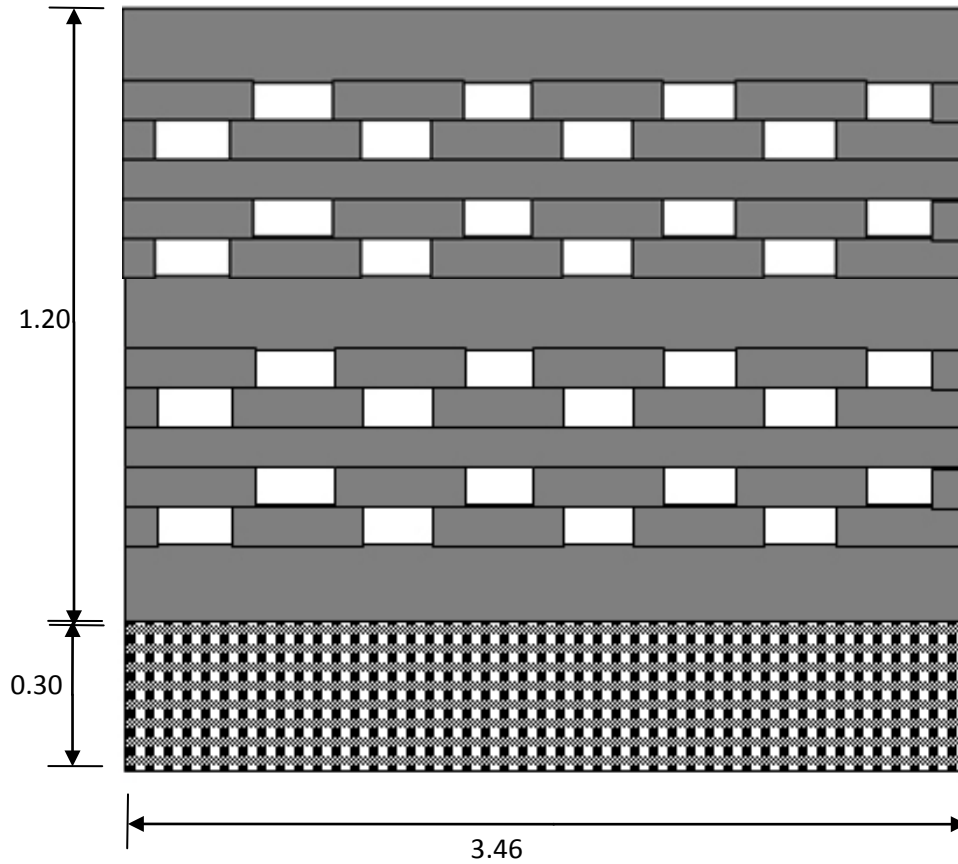
Total		Rs. 14,736.73
Total Expenditure		
1. Cost of Materials	56,436.20	
2. Labour Charges	14,736.73	
Total	Rs. 71,172.93	
Say	Rs. 71,200 only	

DETAIL ESTIMATE OF INDIA MARK-II HAND PUMP

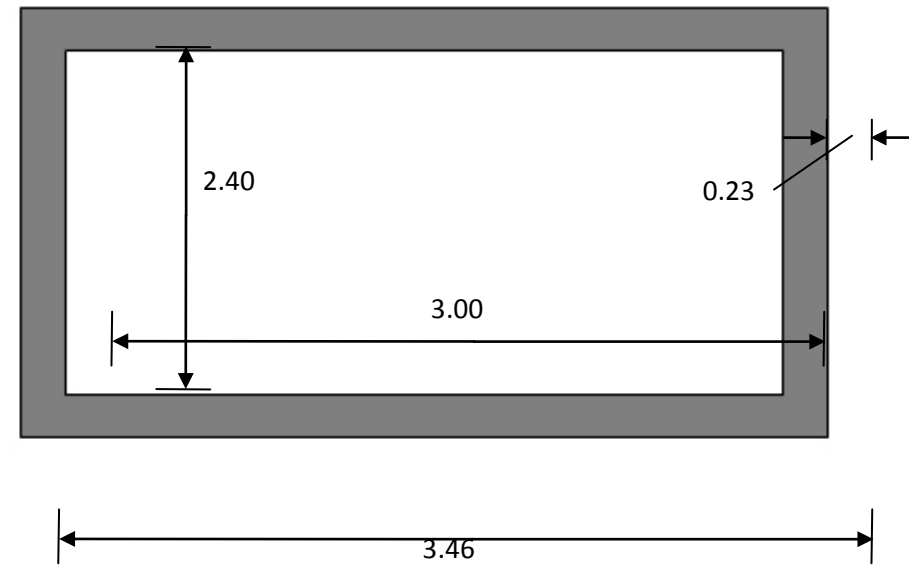
DISTRICT – KANNAUJ U.P.

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

DRAWING OF NADEF COMPOST STRUCTURE



ELEVATION



PLAN

DESCRIPTION.

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

(Not to Scale)

ESTIMATE OF COMPOST BY NADEF METHOD

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

ABSTRACT OF WORK

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

CONSUMPTION OF MATERIALS

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

COST OF MATERIALS

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

LABOUR CHARGES

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

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

DETAIL ESTIMATE OF DEMONSTRATION OF HORTICULTURE AND MIXED CROPPING

For 1.00 Hectare

S.No.	Description of Work	No.	L.	B.	D./H.	Quantity
1.	Earth work in cutting	156	3.14 x 1.20	-	1.35	793.54
	Trench	156	1.50	0.75	0.75	131.62
	Fencing Poll	133	0.20	0.20	0.20	1.064
	Total					926.22 cum
2.	Farm yard manure	156x10				1560 kg
3.	Filling of earth work with farm yard manure	156	3.14 x 1.00	-	1.20	587.80 cum
4.	C.C.W. 1:2:4 for fencing poll	133	0.20	0.20	0.20	1.064 cum
5.	Angle iron for poll	133	1.80	-	-	239.40 m
6.	Barbed wire	3	400	-	-	1200.00 m
7.	Plants	156	-	-	-	156 nos.
8.	Plastic drums (200 litre)	156	-	-	-	156 nos.

CONSUMPTION OF MATERIALS

S.No.	Description of Work	Quantity	Farmyard Manure (kg)	Cement Bags (nos)	Coarse Sand (cum)	G.S.Grit 10-20 mm	Angle Iron (m)	Barbed Wire (kg)	Planting Drum (nos)
1.	C.C.W. 1:2:4	1.064 cum	-	6.49	0.446	0.883	-	-	-
2.	Angle iron	239.4 m	-	-	-	-	239.40	-	-
3.	Barbed wire	1200.0 m	-	-	-	-	-	1200.0	-
4.	Farmyard manure	1560.0 kg	1560 kg	-	-	-	-	-	-
5.	Plastic drum	156 nos.	-	-	-	-	-	-	156
	Total		1560.0 kg	6.49	0.446	0.883	239.40	1200.0	156
	Say		1560.0 kg	6.50 bags	0.450 cum	0.900 cum	239.40	1200.0 m	156

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Farm yard manure	1560.0 kg	10.00/kg	15600.00
2.	Barbed wire	1200.0 m/120.0 kg	60.50/kg	7260.00
3.	Angle iron	239.40 m/785 kg	40.50/kg	31792.50
4.	Plastic drum	156 nos	690.00 each	107640.00
5.	Cement	6.50 bags	255.00/bag	1657.50
6.	Coarse sand	0.450 cum	910.00/cum	409.50
7.	G.S.Grit 10-20 mm	0.900 cum	1250.00/cum	1125.00
8.	Plants	156 nos	18.00 each	2808.00
Total				Rs. 1,68,292.50

LABOUR CHARGES

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth work	1514.02 cum	36.66/cum	55503.97
2.	C.C.W. 1:2:4	1.064 cum	492.00/cum	523.88
3.	Fixing of angle iron	10 Man Days	100/Man Day	1000.00
4.	Fixing of barbed wire	15 Man Days	100/Man Day	1500.00
Total				Rs. 58,527.85
Total Expenditure				
1. Cost of materials		1,68,292.50		
2. Labour Charges		58,527.85		
Total		Rs. 2,26,819.50.00		
Say		Rs. 2,26,820.00 only		

Table No.38: Activity related to livelihood by self help groups (SHGS) in the project area

S.N.	Name Of Watershed	No. of Group		Total Groups
		Dairy	Goatary	
1.	Bhikampur Sani	2	1	3
2	Khanpur Kasava	1	-	1
3	Kasava	2	1	3
4	Mudaiya	2	-	2
5	Teur	3	-	3
6	Aseh	2	1	3
7	Kamalpur	2	-	2
8	Ananatpur	1	1	2

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.

CONCEPTS AND ADVANTAGES OF CONSERVATION HORTICULTURE

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

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

CONSERVATION HORTICULTURE PRACTICES

Some of the important practices are given below

1- SELECTION OF SUITABLE FRUITS 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 UP west 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 STOCKS: 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-IN SITE WATER HARVESTING: Since on slopy lands, runoff water is considerably higher, therefore, it should be harvested and used. The run off can be utilized for growing fruit plants in such a way that each tree in the established plants is at the time of fruit setting and fruiting. Moisture available at this critical period improves the fruit yield.

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

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 dryfarming 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.

CHAPTER – 5

BUDGETING

TABLE NO. 47: BUDGET AT A GLANCE

S.No.	Budget Component	Cost requirement
01	Net Project Cost	
	-Administrative Costs 10 %	69.12
	-Monitoring 1%	6.91
	-Evaluation 1 %	6.91
02	Preparatory phase:	69.12
03	Watershed Works Phase:	
	-Watershed Development works, 60 %	345.60
	-Livelihood activities for the asset less persons, 10 %	69.12
	-Production system and micro enterprises 5 %	89.86
04	Consolidation Phase 3 %	34.56
	Total	691.20

PHASING OF WORK (FINANCIAL & PHYSICAL)

1. Financial Outlays.

S. No.	Component	Unit	Quantity	Unit Cost (Lakhs)	1 st Year (Lakhs)	2 nd Year Lakhs	3 rd Year (Lakhs)	4 th Year (Lakhs)	5 th Year (Lakhs)	Total (Lakhs)
A.	MANAGEMENT COSTS									
	Administrative cost- TD & DA, POL/ Hiring of vehicles/ Office and payment of electricity and phone bill, etc. computer, stationary and office consumable and contingency	-	-	-	13.82	13.82	13.82	13.82	13.84	69.12
	Expert for monitoring and evaluation.	Nos	NA	NA	3.45	3.45	3.45	3.47	-	13.82
	Sub Total				17.27	17.27	17.27	17.29	13.84	82.94
B.	PREPARATORY PHASES									
	(1.) Entry point Activities									
	a. Soaking Pit	nos	30	0.15	4.50	-	-	-	-	4.50
	b. Reapairing of Culverts, Road, Drainage, Channel & Community Building etc.	nos	36	-	15.61	-	-	-	-	15.61
	c. Krishak Vikas Manch	nos	13	0.58	7.54	-	-	-	-	7.54
	Sub Total				27.65	-	-	-	-	25.66
	(2.) Institutional and Capacity Building									
			NA	-	13.83	6.91	6.91	6.91	-	34.56
	(3.) Detail Project Report									
					3.91	3.00	-	-	-	6.91
	Sub Total				17.74	9.91	6.91	6.91	-	41.47
C.	WATERSHED WORKS									

	(1.) Watershed Development Works									
	a. Construction of Bunds (Field Bund &, Contour Bund, . Marginal Bund, Marginal Bund and Peripheral Bund, Peripheral Bund/Submergence Bund	Ha	5204	0.06	-	46.84	124.90	124.90	15.60	312.24
	b Spillway	nos	166	0.04	-	1.61	3.11	3.11	0.40	7.78
	2. Afforestation	-								
	a. Agro forestry work	ha	556	0.046	-	3.84	10.23	10.23	1.28	25.58
	Sub Total		5760.00	-	-	51.84	138.24	138.24	17.28	345.60
	(2.) Livelihood Programme (Community Based)									
	Income Generating Activities through S.H.G.'s for Landless and Marginal Farmers									
	a. Establishment of NadeF-Compost Units	nos	78	0.102	0.80	3.18	3.18	0.79	-	7.95
	b. Dairy Work	nos	27	0.50	1.35	5.40	5.40	1.35	-	13.50
	c. Goat-keeping	nos	41	0.399	1.76	6.56	6.56	1.29	-	16.17
	d. General Merchant Shop	nos	126	0.25	3.00	12.50	12.50	3.50	-	31.50
	Sub Total				6.91	27.64	25.66	6.93	-	69.12
	(3.) Production System and Micro-Enterprises									
	a. Crop Production, Diversification of Agriculture	ha	245.00	0.06	-	1.13	4.52	4.52	4.53	14.70
	b. Introduction of Agro-forestry / Horticulture	ha	28.00	2.26	-	4.78	19.12	19.12	19.14	62.16
	c. Demonstration of Green Manuring	Ha	260.00	0.05	-	1.00	4.00	4.00	4.00	13.00
	Sub Total					6.91	27.64	27.64	27.67	89.86
D.	CONSOLIDATION PHASE	-	-	-	-	-	-	-	34.56	34.56
	GRAND TOTAL				69.57	113.57	217.70	197.01	93.35	691.20

Physical Targets.

Activities Related To	1 st Year (quantity)	2 nd Year (quantity)	3 rd Year (quantity)	4 th Year (quantity)	5 th Year (quantity)	Total (quantity)
ADMINISTRATIVE COSTS						
TD & DA, POL/ Hiring of vehicles/ Office and payment of electricity and phone bill etc. computer, stationary and office consumable and contingency.	√	√	√	√	√	√
Expert for monitoring and evaluation.	√	√	√	√	√	√
PREPARATORY PHASES						
Entry Point Activities improvement in Panchvati Drinking Water System, School, etc.	√	-	-	-	-	√
Institutional and capacity building	√	√	√	√	√	√
WATERSHED WORKS						
Watershed Development Works						
Construction of Bunds (Field Bund, Contour Bund, Submergence Bund, Marginal Bund and Peripheral Bund) Area(ha)	-	780.60	2081.60	2081.60	260.20	5204.00
Afforestation ha	-	83.40	222.40	222.40	27.80	556.00
LIVELIHOOD PROGRAMME (community based)						
Income generating activities through SHG's for landless and marginal farmers.						
a. Goat keeping. (nos)	4	15	15	7	-	41
b. Establishment of Nadev Compost Unit. (nos)	7	31	31	9	-	78
c. Dairy Work. (nos)	2	11	11	3	-	27

d. General Merchant Shop. (nos)	12	50	50	14	-	126
e. Livestock development activities	√	√	√	√	√	√
PRODUCTION SYSTEM AND MICRO ENTERPRISES						
Demonstration and assessment of improved composting system using alternate materials (118 Nadev-compost) and 100 nutrient analysis (Nos.)	-	17	82	82	11	192
Introduction of improved crop production practices. Agro Forestry/Horticulture	-	-	-	-	-	
CONSOLIDATION PHASE		-	-	√		√

S. No	Item	Physical Year wise (area in ha.)						Financial Year wise (Rs.in Lacs.)					
		2010-11	2011-12	2012-13	2013-14	2014-15	Total	2010-11	2011-12	2012-13	2013-14	2014-15	Total
1	Administrative	-	-	-	-	-	-	13.82	13.82	13.82	13.82	13.84	69.12
2	D.P.R Preparation	-	-	-	-	-	-	3.91	3.00	-	-	-	6.91
3	Monitoring & Evaluation	-	-	-	-	-	-	3.45	3.45	3.45	3.47	-	13.82
4	Entry Point Activity	-	-	-	-	-	-	27.65	-	-	-	-	27.65
5	Institutional and Capacity building	-	-	-	-	-	-	13.83	6.91	6.91	6.91	-	34.56
6	Watershed works	-	864.00	2304.00	2304.00	288.0	5760.00	-	51.84	138.24	138.24	17.28	345.60
7	Livelihood & Income Generating	-	-	-	-	-	-	6.91	27.64	27.64	6.93	-	69.12
8	Production System development	-	-	-	-	-	-	-	6.91	27.64	27.64	27.64	89.86
9	Consolidation Phase	-	-	-	-	-	-	-	-	-	-	34.56	34.56
	Total	-	864.00	2304.00	2304.0	288.0	5760.00	69.57	113.57	217.70	197.01	93.35	691.20

CHAPTER – 6

EXPECTED OUTCOMES

6.1 EXPECTED OUTCOMES

6.1.1 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. 52: 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	1165	-	23685	14523	49860	725	-	8012	6482	15219	105	-	2546	1628	4279

6.1.2. MIGRATION

Low rainfall results in very little fodder availability in the locality. The relatively well off farmers bring fodder 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. 53: 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	1285.00	337.00	185.00	60.00

6.1.3 GROUND WATER

TABLE NO. 54: DETAILS OF AVERAGE GROUND WATER TABLE DEPTH IN THE PROJECT AREAS

S.No.	Name of Micro Watershed	Ground water strata in month april to june (feet)	Perticular place
1	Bhikampur Sani	52	Shri Naresh Chandra s/o Gayadeen

2	Khanpur Kasava	48	Shri Mahesh Chandra s/o Shyamlal
3	Kasava	54	Near Vetnary Hospital
4	Mudaiya	47	Near Primary School
5	Teur	48	Near Primary School
6	Aseh	52	Shri Shivom s/o Chandra Prakash
7	Kamalpur	54	Near Primary School
8	Ananatpur	49	Shri Badam Shingh s/o Dwarika Prshad

6.1.4 DRINKING WATER

TABLE NO. 55: 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	Good	Good	-

6.1.5 CROPS

Agriculture primarily depends upon water; but this is what is lacking in IWMP-II village. The surface water is scanty due to low rainfall and ground water which is unfit for crop production.

All this can change with the integrated land and water management during the watershed project. The planned earthen bunds would prevent the water and also help percolate water underground, and preserve some moisture in the soil. This will help in additional area coming under cultivation and increasing productivity too. The farmers can take more than one season of crops. Different varieties of crops can be taken.

TABLE NO. 56 : DETAILS OF CROP AREA AND YIELD IN THE PROJECT AREA

Name of Project	Name of crops	Pre-project		Expected Post-project	
		Area (ha)	Average Yield (Qtl) per ha.	Area (ha)	Average Yield per ha (qtl)
IWMP-II	Kharif	-	-	-	-
	Jowar	-	5.44	-	6.00
	Bajra	-	11.37	-	12.10
	Arhar	-	8.21	-	9.30
	Rice	-	13.00	-	15.00
	Rabi	-	-	-	-

	Chana	-	6.20	-	8.25
	Masoor	-	7.65	-	8.65
	Wheat	-	12.85	-	14.05

6.1.6 HORTICULTURE

TABLE NO. 57: AREA UNDER HORTICULTURE

Sl. No.	Name of Project	Existing area under horticulture (ha)	Area under horticulture proposed to be covered through IWMP
01	IWMP-II	0	67.00

6.1.7 VEGETATIVE COVER

In the project area there are very few area under vegetative cover

TABLE NO. 58: FOREST/VEGETATIVE COVER

Sl. No.	Name of Project	Existing area under tree cover (ha)	Area under tree cover proposed
1	IWMP-II	1.6	3.00

6.1.8 LIVESTOCK

Total livestock population of the watershed is 24132 Cows are preferred as milk animal, but milk yield is very low. Goatarys are also kept for milk as well as for meat purpose. The breakup of livestock population is as follows.

BACKWORD-FORWORD 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. 59: 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)	-	-	-	-	-	-	

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. 60: 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	6
		Fertilizer supply system			
		Pesticide supply system			
		Credit institutions			Bank-1, Post Office-3
		Water supply			
		Extension services			Chhibra mau
		Nurseries			4
		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			2
	Milk and other collection centres			5
	Labour			
	Any other (please specify)			7
				6
				Animal vitamins (50 lt)

EXPECTED/ESTIMATED OUTCOMES OF IWMP-II,2010-11 KANNAUJ

Sl.No.	Item	Unit	Pre-Project Status	Post -Project Status
01	02	03	04	05
01	Status of water table	Meters BGL(m)	30.55	27.95
02	Ground water structures repaired rejuvenated	No's	23	68
03	Quality of drinking water	Quality	Normal	Improved
04	Availability of drinking water	No of days	300	365
05	Increase in irrigated area	Ha	-	-
	CHANGE IN CROPPING/LAND USE PATTERN			
06	Area under agricultural crop	Ha		
	I- Area under sinle crop	Ha	3745.00	2885.00

	II- Area under double crop	Ha	1292.00	2263.00
	III- Area under multiplele crop	Ha	-	832.00
	IV- Cropping Intensity	%	123.08	251.00
07	Increase in area under vegetation(tree cover)	Ha	795.00	1310.00
08	Increase in area under horticulture	Ha	0	67.00
09	Area under fuel& Fodder	Ha	0	0
10	Increase in milk production	Percapita per day/ltr	1.00 To 1.50	2.00 To 3.00
11	No. of SHGs	No's	0	52
12	Increase in livelihood	Rs./Capita/Annum	Approx 14000	Approx 42000
13	Migration	No's	1470	337
14	SHG federations formed	No's	0	52
15	Credit linkage with banks	No's	1470	1975
16	User Group	No's	0	39
17	No. of WSC Found	No's	0	13

6.2 LOGICAL FRAMEWORK ANALYSIS

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.	
	§ Facilitating 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		§ Involvement of youth and children in village development increased.	

	decision-making.			
	§ 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 staff		§ Reduction in drudgery of fodder and fuel collection, especially 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	
			§ Increased availability of water for livestock	
	§ Identification and promotion of agri-produce based income generation activities like grading, processing and packaging.	§ Drip Irrigation facilities to be distributed among farmers	§ Availability of irrigation water established	
	§ Promotion of better Irrigation practices like drip irrigation	§ Approx 15000 person days of employment to be generated	§ Farmers take two crops in a year	
§ Impart trainings, conduct meetings and organise exposure visits of communities,	§ Trainings, exposure visits and meetings to be organized for			

	village volunteers and staff to effectively plan, execute and monitor activities	communities, village volunteers and staff	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.

<p>§ Capacity building of SHG leaders and accountants</p>	<p>§ Trainings to be conducted for preparation of woollen products from sheep and goats</p>	<p>§ Increased household income.</p>	<p>§ Equality & Equity in gender relations at home (decision making, expenditure, children's education, health)</p>
<p>§ Linking SHGs with external financial institutions</p>			

CHAPTER -7

**QUALITY AND SUSTAINABILITY
ISSUES**

7-QUALITY & SUSTAINABILITY ISSUES

7.1-PLANS FOR MONITORING & EVALUATION

A Web-based GIS System is being developed for monitoring and evaluating the project in its planning & implementation phases.

The system would be available on a public domain and can be accessed by all the stakeholders of the project. The system shows the entire state of Uttar Pradesh and all of those areas selected over the next 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 Kannauj, 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:

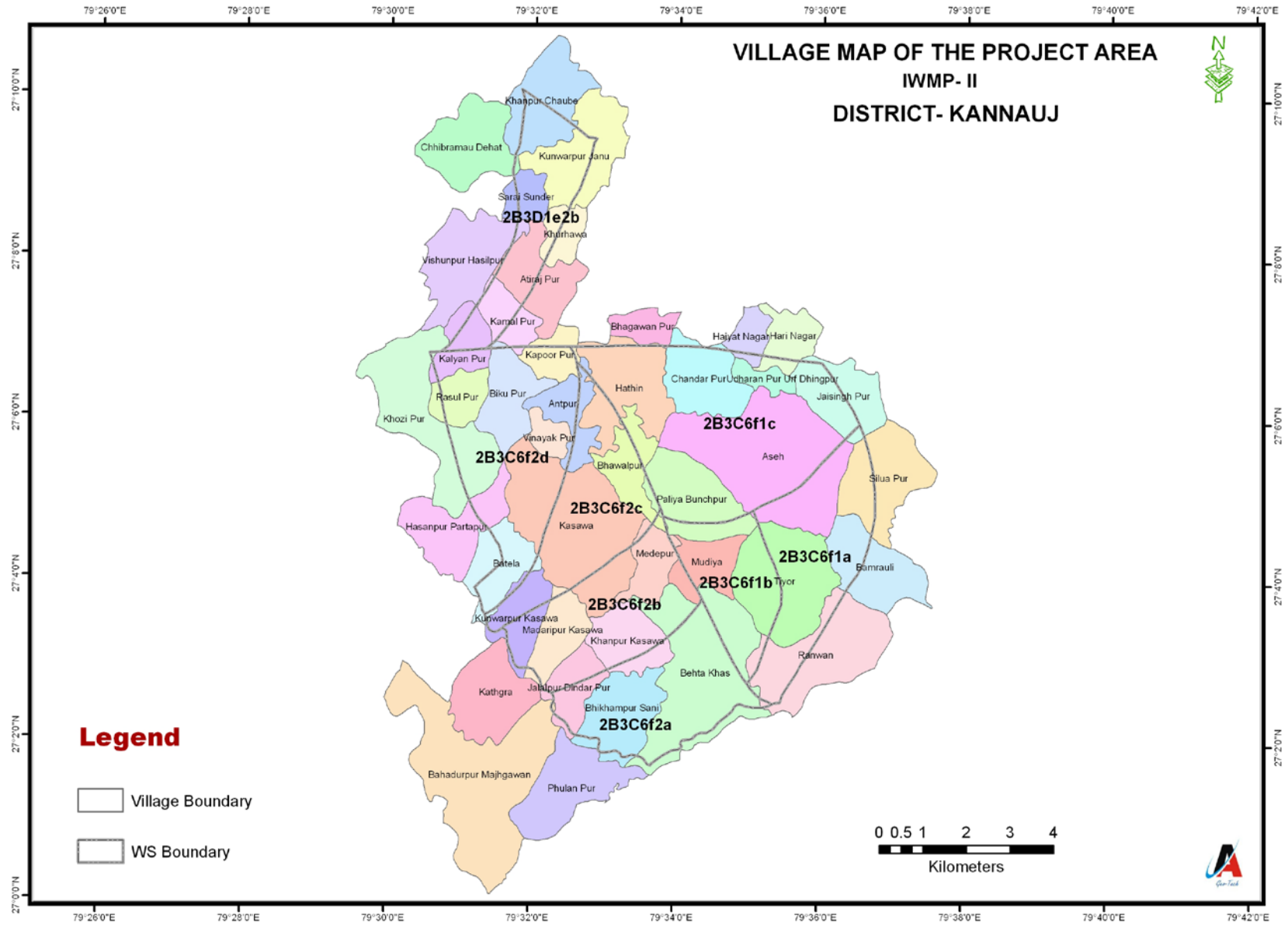
The major source of financial assistance after post implementation period is watershed Development Fund. The contribution of it will come mainly from the following:

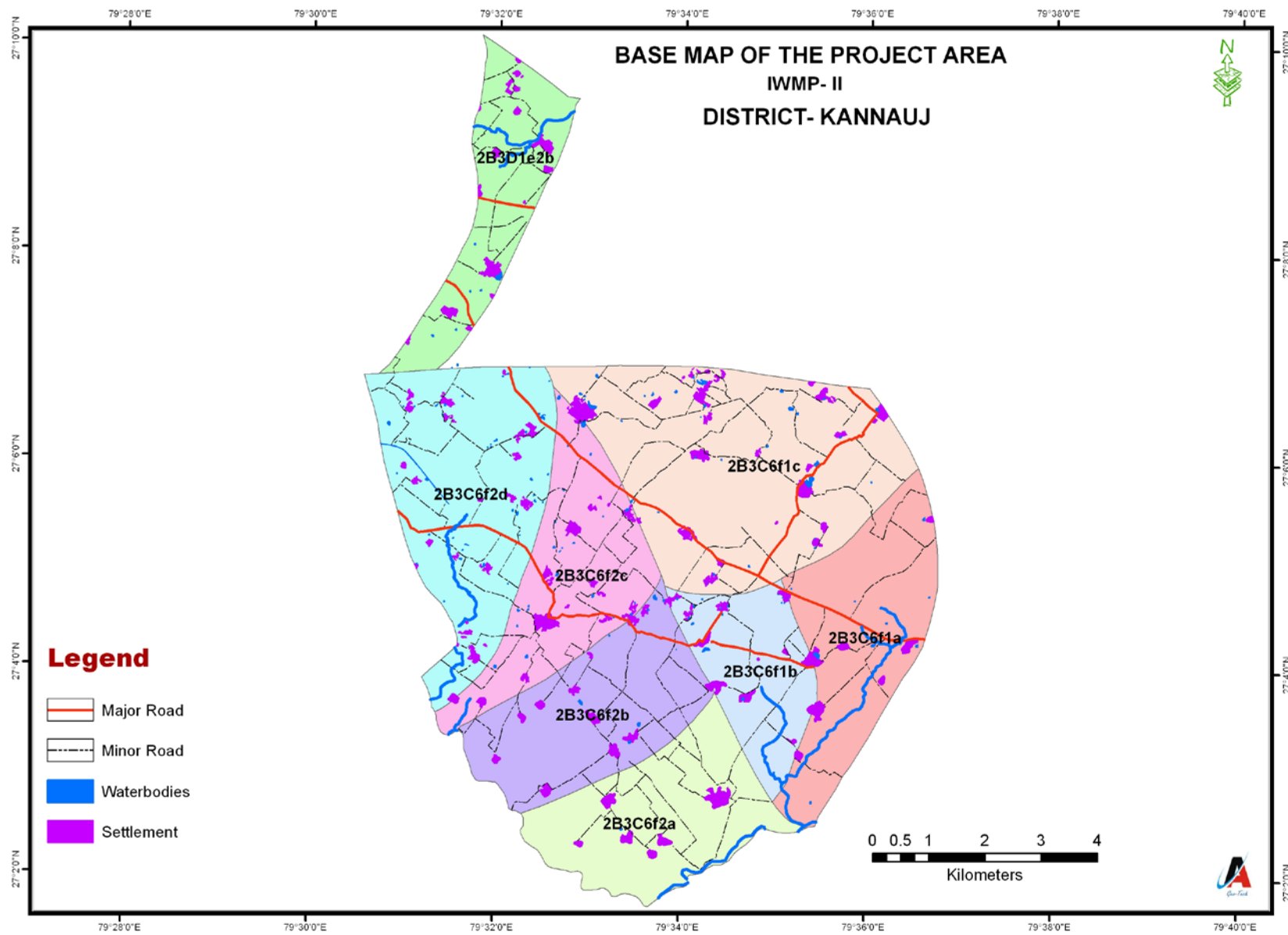
7.4 USER CHARGES:

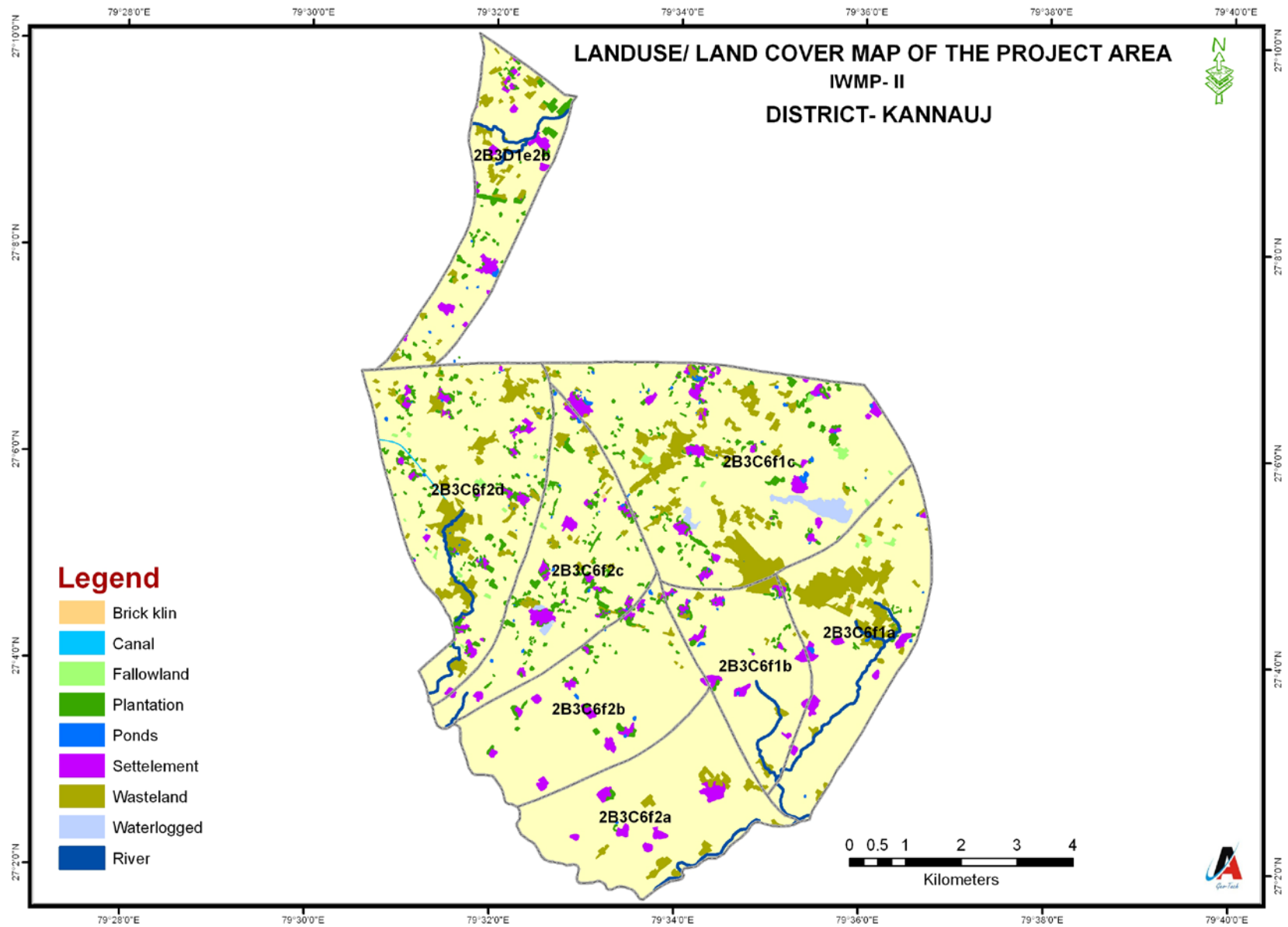
Various user groups will be formed in village. These user groups will collect user charges according to the designated rules formulated during the formation of user group. These funds will be transferred to the WDF funds as per these formulated rules. The secretary of watershed committee (WC) shall maintain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

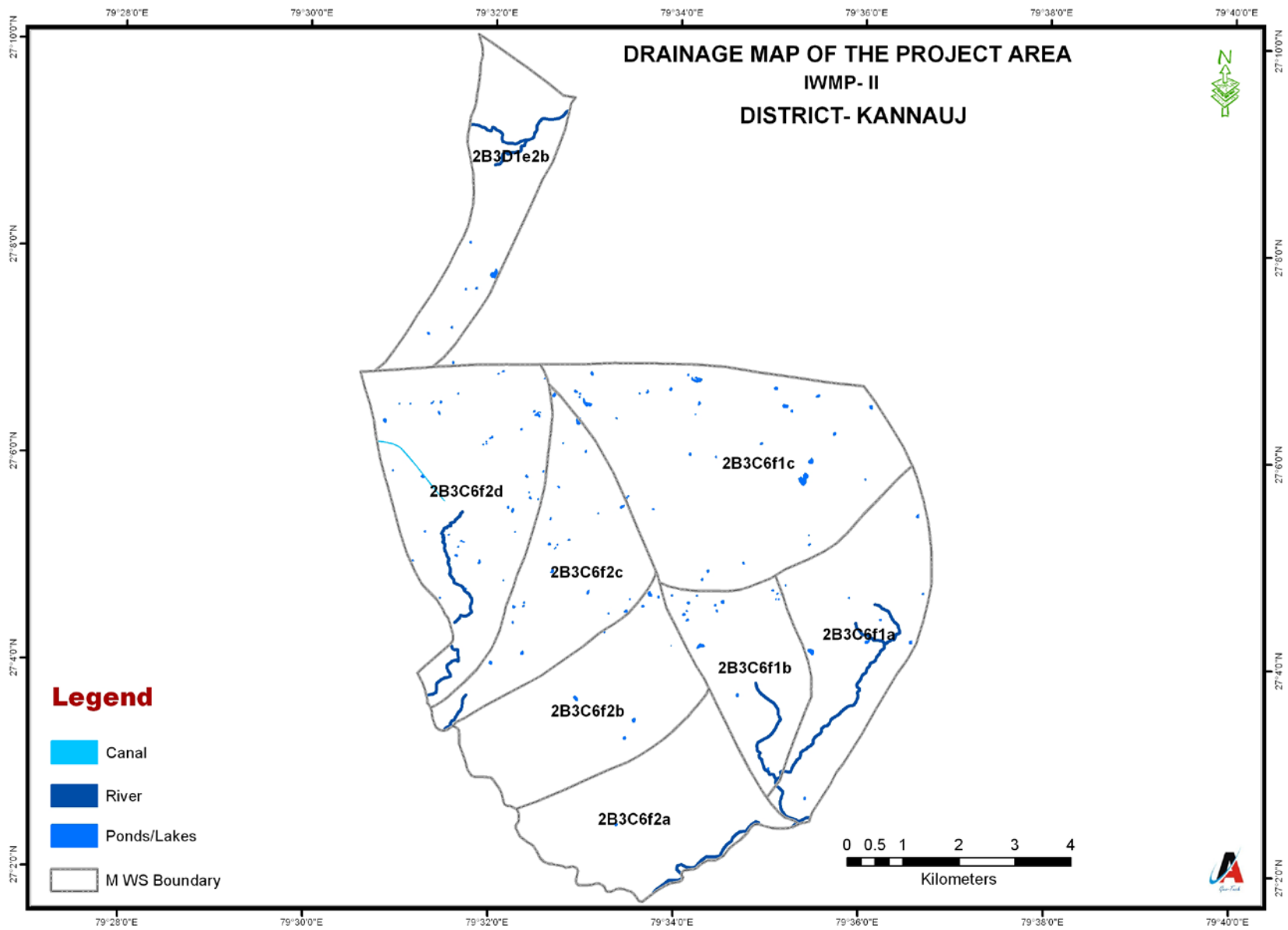
CHAPTER -8

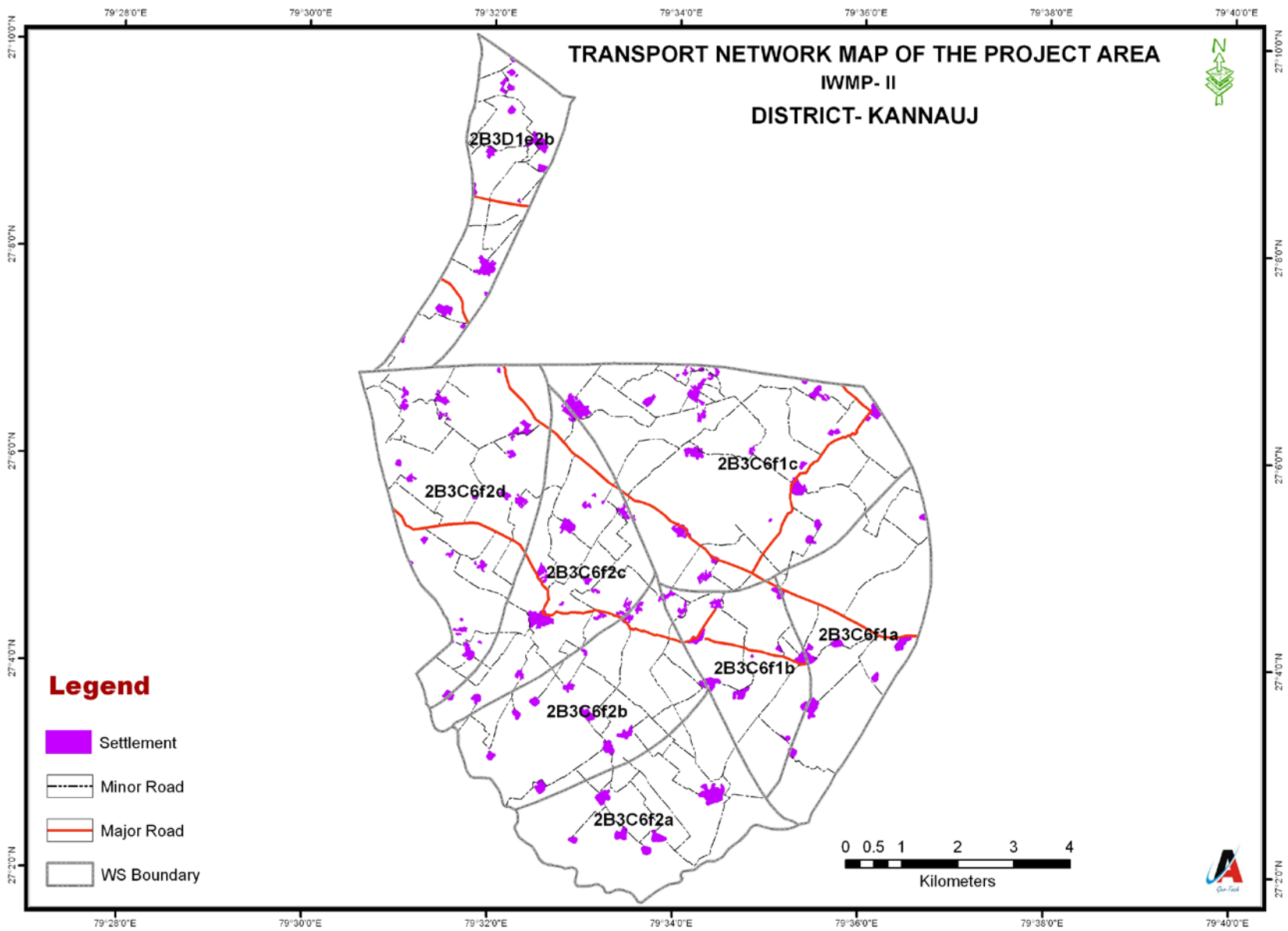
THEMATIC MAPS

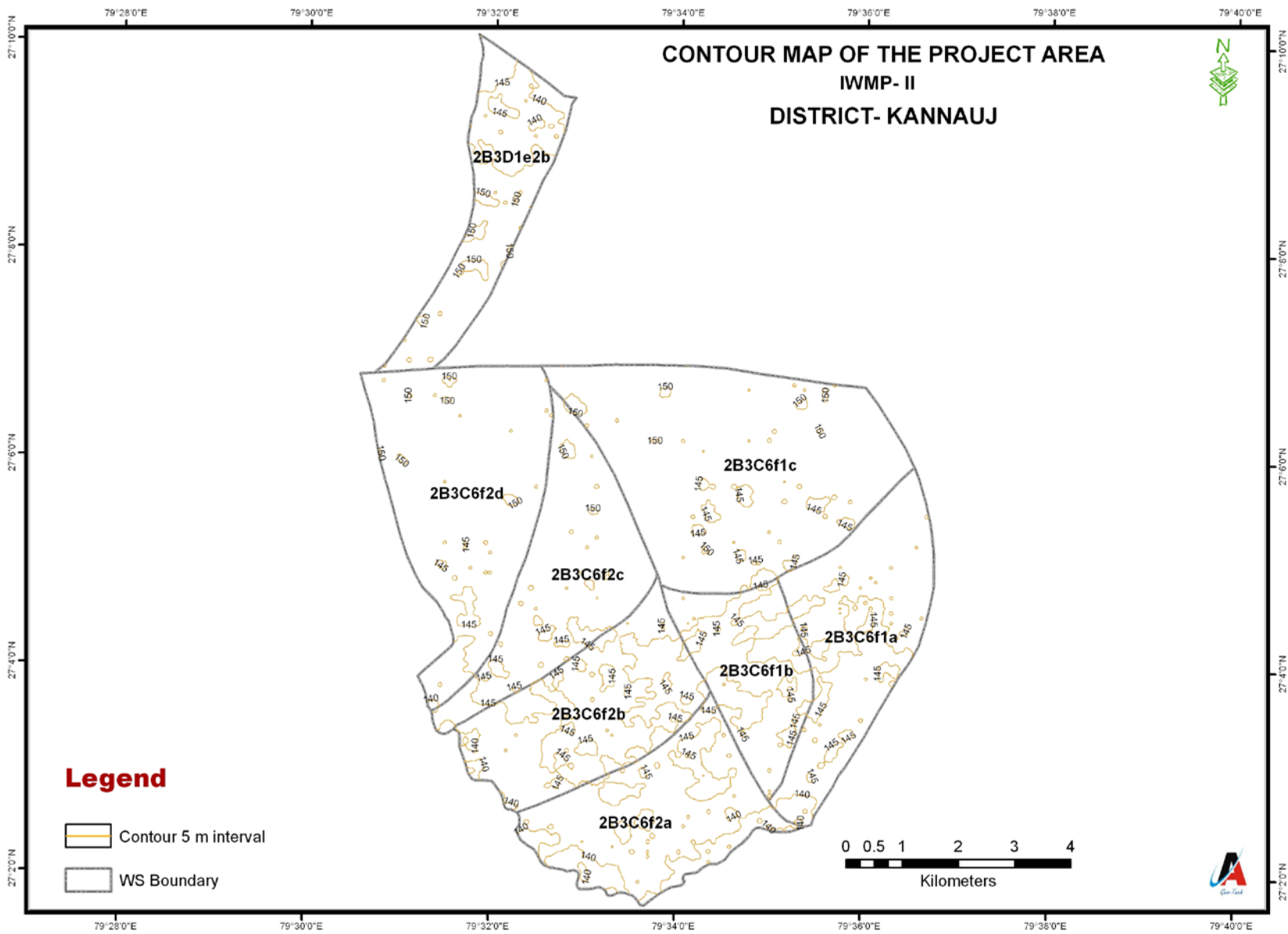


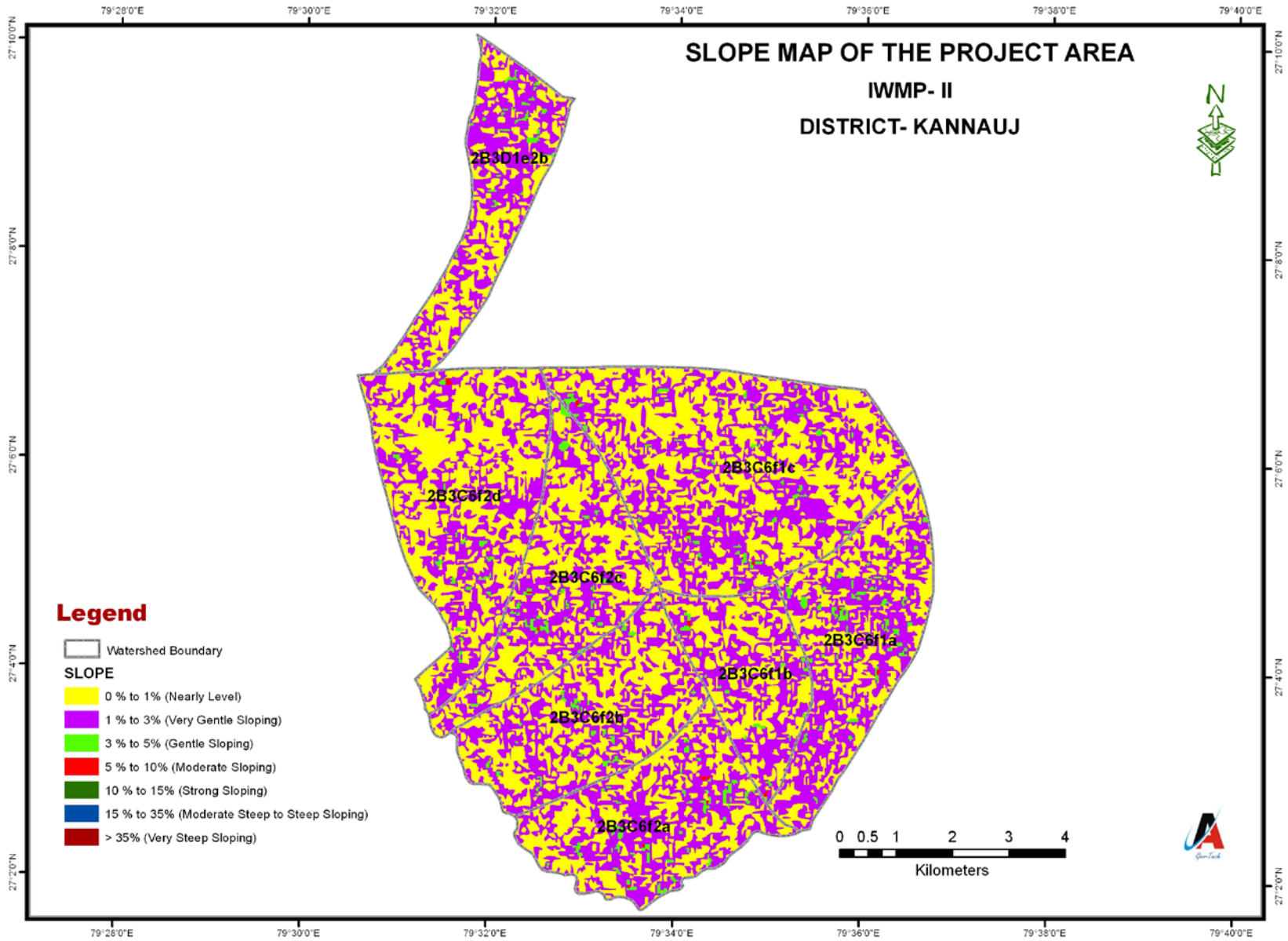












DETAIL PROJECT REPORT PREPARATION TEAM

Detail Project Report(DPR) of Integrated Watershed Management Programme IWMP-2nd had been prepared through base line/ Bench Mark Survey for Physiography Climate, Soil, Land use/Cover, Vegetation, Hydrology and Socio-Economic data analysis. PRA have been exercised to collect primary data, secondary data have been collected from Revenue, Statistics department, Statistical Magazine of the district, Kannauj, Toposheets (1:50000) Survey of India- Deheradoon and technical & specific input and health with preparation and drafting of detail project report.

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24.	„ Manoj Sharma	Seenchpal
25.	„ Ajay Kumar	Seenchpal
26.	„ Anil Kumar Katiyar	Seenchpal
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DPR PLAN ABSTRACT

The collection of all the relevant data of watershed area and the possible option and solution are described with the help of feedback of focused discussion and detailed perspective plan for the watershed area with year wise and activity wise summarized for the DPR plan abstract for 5 years (2010-11 to 2014-15).

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

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