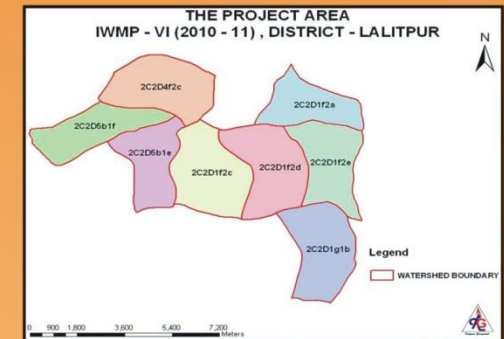
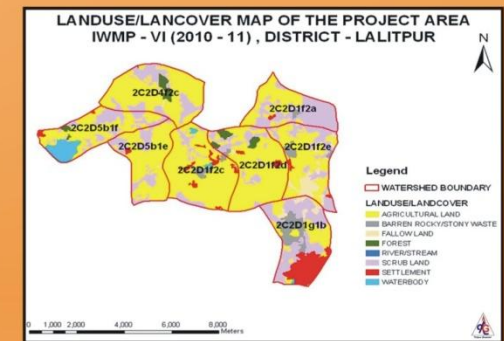
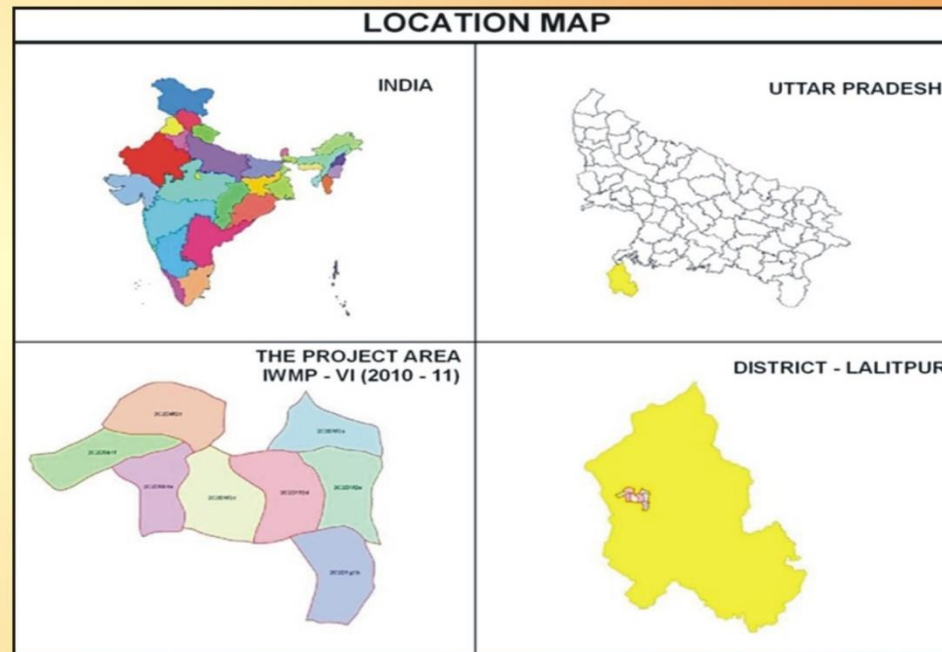
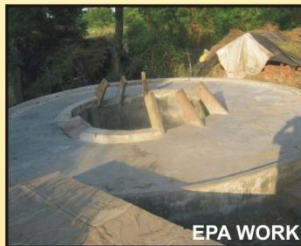
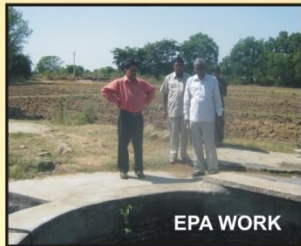


DETAILED PROJECT REPORT

OF INTEGRATED WATERSHED MANAGEMENT PROGRAMME- VI LALITPUR (2010-11)




Prepared by :
Bhoomi Sanrakshan Adhikari
L.D.W.R., LALITPUR-02

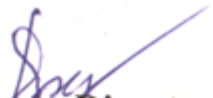


Submitted to :
Dept. of Land Development &
Water Resources, U.P.

CERTIFICATE

It is certified that the proposed IWMP-VI project comprising eight micro-watersheds of district Lalitpur, Uttar Pradesh has been selected for its sustainable development on watershed basis under Integrated Watershed Management Programme. The land is physically available for proposed interventions and is not overlapping with any other schemes. It will be developed as per Common Guidelines for Watershed Development Project-2008, GOI, New Delhi. The significant results will be achieved through proposed interventions on soil and water conservation, ground water recharge, availability of drinking and irrigation water, agricultural production systems, livestock, fodder availability, livelihoods of asset-less, capacity building, etc. The proposed Detailed Project Report of IWMP-VI for financial year 2010-11 is submitted for its approval implementation.


Bhoomi Sanrakshan Adhikari
IWMP-VI
Deptt. Of LDWR , Lalitpur-2 U.P.


Deputy Director
LDWR Jhanshi- 2 ,
At Lalitpur U.P.


Project Director
DRDA , Lalitpur U.P.

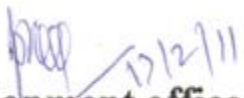

Chief Development officer
District- Lalitpur U.P.

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EXECUTIVE SUMMARY

About 90% of the area of Bundelkhand consists of hard rock with very poor yield of aquifer, fast depletion of water table and inadequate rate of recharging. Development of ground water resources is not very dependable or attractive and aquifer water should be prioritized and preserved for drinking purpose.

The broad objective of the study is to overall economic development and improvement of the socio-economic conditions of the resource for poor sections of people inhabiting the programme areas. A comprehensive programme named Integrated Watershed Management Programme (I.W.M.P.) has been implemented under Common Guidelines on Watershed Development in 2008.

*Area of R.B. Betwa, Kherar, Shahzad –Jamini watershed covers thirteen villages namely Silgan, Kargan, Amarpur, Madawara, Kalapahad, Jarwara, Nayagawan Khurd, Gangoura, Budwar, Dewara, Durjanapura, Sevani Khurd in Jakhora block, Lalitpur district, Uttar Pradesh. This watershed has been identified by the proper state department under N.W.D.P.R.A. scheme by proper prioritization of different parameters for watershed selection criteria. Watershed is located in the West-middle portion of Lalitpur district. It lies between the longitude 78°16'30"E to 78°24'41"E and latitudes 24°40'43"N to 24°46'38"N. The study area is a cluster of 8 (Eight) micro- watershed, with code No **2C2D1f2c, 2C2D1f2d, 2C2D1g1b, 2C2D1f2e, 2C2D1f2a, 2C2D4f2c, 2C2D5b1e, 2C2D5b1f**, having total geographical area of 6373.00.00 ha, out of which treatable area is 5200 hectares. Its altitude ranges from 346 to 391 above the mean sea level (MSL) and surrounded by Vindhyan hills.*

The climate of the region is characterized by long and intensive hot summer, low and irregular rainfall and short mild winter. The catchment of R.B. Betwa, Kherar and Shahzad-Jamini River is covered by undulating land with slope ranges between (0.5 to 10%) and hillocks spreading all around. The project area has a runoff about 430mm per year.

The soils of the study area can be divided into two broad groups namely red and black soils with three distinct soil associations (i) Bundelkhand coarse grained reddish brown soils, (ii) Bundelkhand coarse grained grey to grayish brown soils and (iii) Bundelkhand clay loam black soils. In local parlance these soils are termed as Rakar, Parwa Kabar and mar, the watershed area has undulating terrain with scattered hills, crossed by the numerous streams and tributaries.

*Agriculture practices in the project area are **mono cropping** due to **Annapratha**. The farmers generally leave their fields fallow for free range grazing system in Kharif season, which makes cultivation difficult. These livestock, generally sheep, goat and indigenous cattle, having low productivity are let loose for grazing. This needs changing mindset which needs massive extension efforts to address increasing demands on the land, rainfall and water resources and non- manageable condition of mar and kabar soil of the district.*

Though no organized orchards are present in the watershed, homestead planting of fruit trees of Lime and guava has been practiced by farmers. The sub-tropical fruits and vegetable have very good potential in the watershed. Organized orchard, commercial vegetable cultivation,

All the thematic maps pertaining to the project area have been attached along with the action plan map. Finally an attempt has been made to prepare individual project wise files for all the MWS.

TABLE 1: PROJECT AT A GLANCE

1.	Name of Project	IWMP-VI, Lalitpur
2.	Name of Block	Jakhora
3.	Name of District	Lalitpur
4.	Name of State	Uttar Pradesh
5.	Name of Watershed	R.B. Betwa, Kherar, Shahzad- Jamini River
6.	Name of Concern Village	Silgan, Sivni Khurd, Durjanpur, Budwar, Kargan, Dailwara, Amarpur, Gangora, Kuwatala, Nayagaon Khurd, Jarwara, Madawari, Kalapahad
7.	Code of Micro Watershed	2C2D1f2c, 2C2D1f2d, 2C2D1g1b, 2C2D1f2e, 2C2D1f2a, 2C2D4f2c, 2C2D5ble, 2C2D5b1f
8.	Total Geographical Area of Project	6373.00 ha
9.	Proposed Area for Project	5200 ha
10.	Rain fed area in the project	3670.50 ha
11.	Cost Per ha	Rs. 12000/-
12.	Period of Project	2010-11 to 2013-14
13.	Total cost of Project	624.00 Lacs.
14.	Proposed Man days	32330 Nos.

TABLE 2: YEAR WISE PHASING (PHYSICAL & FINANCIAL) OF IWMP-VI, LALITPUR (U.P.)

Area : ha Amount : In Lacs

S. No	Particulars	2010-11		2011-12		2012-13		2013-14		Total	
		Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy
1	Administrative cost-10%	12.48		17.16		17.16		15.60		62.40	-
2	Monitering-1%	1.25		1.71		1.71		1.56		6.24	-
3	Evaluation-1%	1.87		1.41		1.41		1.56		6.24	-
4	Entry Point Activity-4%	24.96		-		-		-		24.96	-
5	Institution & Capacity Building-5%	18.72		6.24		6.24		-		31.20	-
6	DPR-1%	6.24		-		-		-		6.24	-
7	Watershed Dev. Work-56%	52.42	780	82.12	1222	82.12	1222	132.79	1976	349.44	5200
8	Livelihood Activity-9%	5.62		25.27		25.27		-		56.16	-
9	Production System & Micro Enterprises-10%	6.24		28.08		28.08		-		62.40	-
10	Consolidation-3%	-		-		-		18.72		18.72	-
	Total	129.79	780	161.99	1222	161.99	1222	170.23	1976	624.00	5200

Component wise Graph of IWMP-VI, Lalitpur

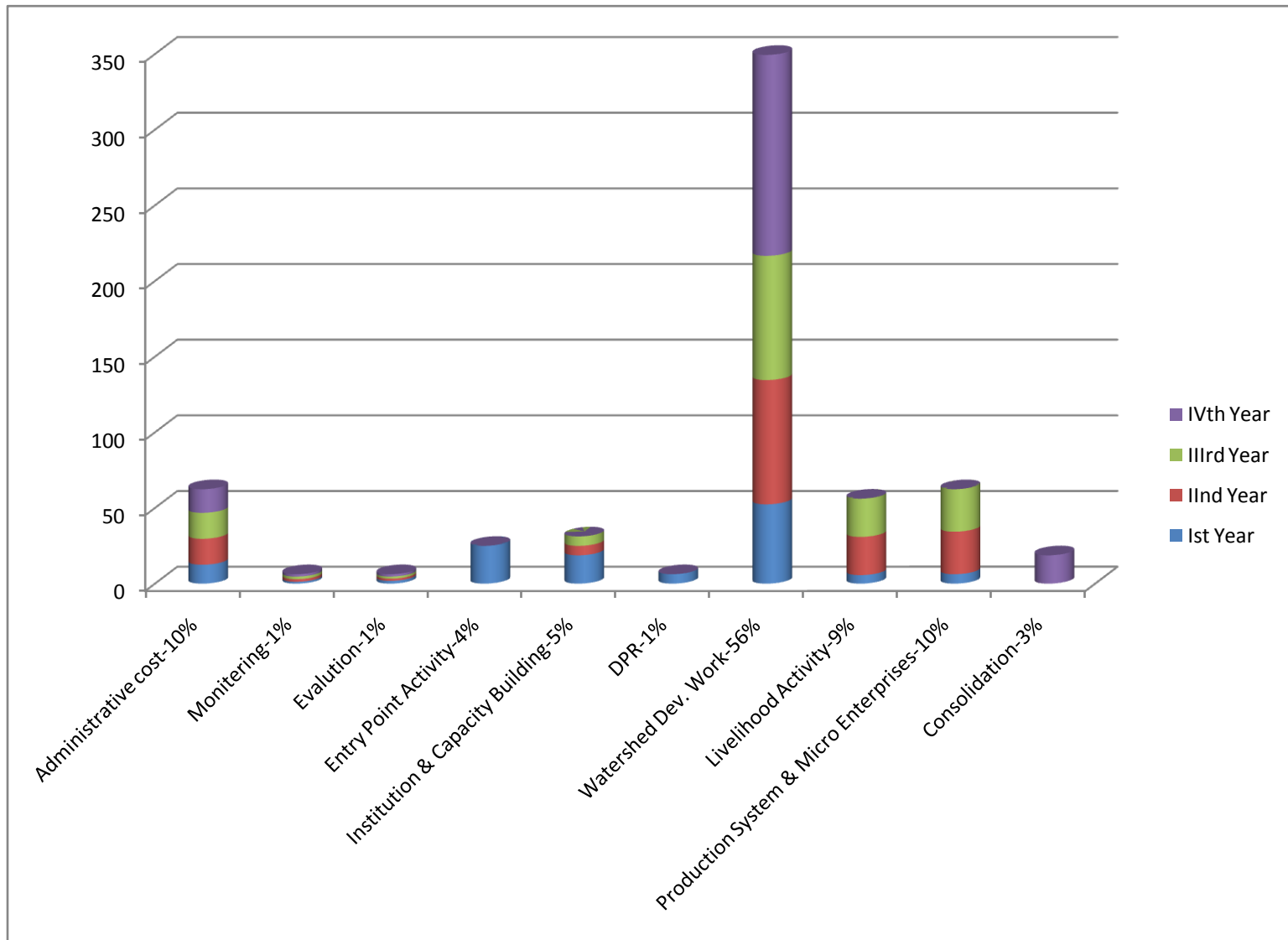


Table 3: Budget for Various Components (IWMP-VI, LALITPUR)

S. No.	Budget Component	%	Total (lacs)
A.	1. Administrative	10	62.40
	2. Monitoring	1	6.24
	3. Evaluation	1	6.24
B.	PREPARATORY PHASE		
	1. Entry point activities	4	24.96
	2. Institution and capacity building	5	31.20
	3. Detailed Project Report(DPR)	1	6.24
C.	WATERSHED WORKS PHASE		
	1. Watershed development works,	56	349.44
	2. Livelihood activities for the asset less persons	9	56.16
	3. Production system and micro enterprises.	10	62.40
D.	CONSOLIDATION PHASE	3	18.72
	GRAND TOTAL	100	624.00

CHAPTER-1

INTRODUCTION & BACKGROUND

INTRODUCTION

The proposed watershed area IWMP-VI, in Jakhora block of Lalitpur district (U.P.) is located on Lalitpur -Rajghat road. The project area is surrounded by an area in the periphery of 10 km from Lalitpur city. It lies between the longitude 78°16'30" E to 78°24'41"E and latitudes 24°40' 43"N to 24°46'38"N. Eight watersheds with code Nos. **2C2D1f2c, 2C2D1f2d, 2C2D1g1b, 2C2D1f2e, 2C2D1f2a, 2C2D4f2c, 2C2D5ble, 2C2D5b1f**, are included in the project. It covers 13 villages namely Silgan, Sivni Khurd, Durjanpur, Budwar, Kargan, Dailwara, Amarpur, Gangora, Kuwatala, Nayagaon Khurd, Jarwara, Madawari, Kalapahad. Total area of Watershed is **6373.00** ha out of which **5200.00** ha is proposed to be treated under IWMP Programme.

The watershed is proposed to be taken by Bhoomi Sanrakshan Adhikari, Department of Land Development & Water Resources, Lalitpur for IWMP programme starting from 2010-11. It is proposed to be completed by 2013-14.

The Status of Integrated Watershed Management Programme, as approved by Steering Committee, Govt. of India for Lalitpur district, Uttar Pradesh, is given in Table Nos. 1.1, 1.2 and 1.3.

TABLE 1.1: STATUS OF WATERSHED PROGRAMME – IWMP- VI, DISTRICT- LALITPUR

Details	No.	Area (ha.)
1	2	3
Total Micro watersheds in the district	713	503900
Workable Micro Watersheds	525	370858
Micro Watersheds already treated by DLWR & other agencies	343	241876
Balance Micro Watersheds (MWS) for treatment (Before start of IWMP in distt.)	182	128982

Source: PPR 2010-11

TABLE 1.2: APPROVED PLAN (PPRS) BY STEERING COMMITTEE (SC)/GOV. OF INDIA, DISTRICT- LALITPUR

Year	Project/Phase IWMP.....	MWS (Nos)	Area (ha)	Project Cost Rs. In lakh	Name of PIA	S.C. Meeting Date	
1	2	4	5	6	7	8	
2010-11	IWMP- V	8	5300	636.00	BSA, LDWR, Lalitpur	18.8.2011	
2010-11	IWMP- VI	8	5200	624.00	BSA, LDWR, Lalitpur		
2010-11	IWMP- VII	7	5000	600.00	BSA, LDWR, Lalitpur		
2010-11	IWMP- VIII	7	4500	540.00	BSA, LDWR, Lalitpur		
2010-11	IWMP- IX	7	4500	540.00	BSA, LDWR, Lalitpur		
2010-11	IWMP- X	10	5350	642.00	BSA, LDWR, Lalitpur		
2010-11	IWMP- XI	9	5650	678.00	BSA, LDWR, Lalitpur		
2010-11	IWMP- XII	11	4600	552.00	BSA, LDWR, Lalitpur		
Total		65	40100	4812.00			

TABLE 1.3: STATUS OF PREVIOUS DPRS, DISTRICT- LALITPUR

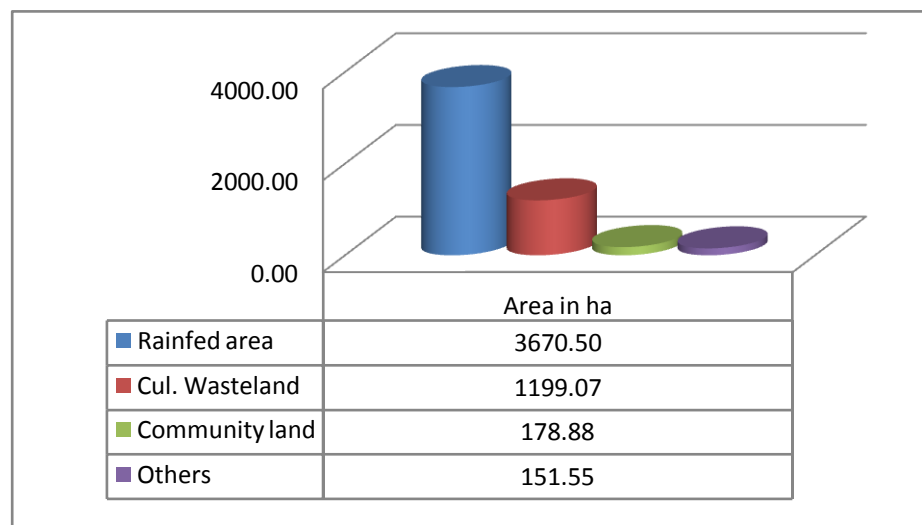
S. No.	Approved Project (IWMP- I,II,)	Status of DPR under preparation/ prepared/approved by SLNA with date	Project Area ha	Treatable Area ha	Project cost Rs.(Lakh)	Project period (Fin. Year from.....to.....)	PIA
1	2	3	4	5	6	7	8
1	IWMP- V	Prepared/under revision	5815	5300	636.00	2010-11 to 2013-14	BSA, LDWR, Lalitpur
2	IWMP- VI	Prepared/ under revision	5710	5200	624.00		
3	IWMP- VII	Prepared/ under revision	5490	5000	600.00		
4	IWMP-VIII	Prepared/ under revision	4930	4500	540.00		
5	IWMP- IX	Prepared/ under revision	4935	4500	540.00		
6	IWMP- X	Prepared/ under revision	5710	5350	642.00		
7	IWMP- XI	Prepared/ under revision	5980	5650	678.00		
8	IWMP- XII	Prepared/ under revision	4890	4600	552.00		

Source: PPR 2010-11

TABLE 1.4: DETAILS OF IWMP FOR WHICH THIS DPR IS PREPARED

Watershed project IWMP -VI	Micro Watersheds (MWS) detail	Micro watersheds code	Treatable Area(ha)	Name of Watershed in which MWS is falling (River / Nala name)
IWMP- VI, Lalitpur	Madwari	2C2D5b1f	565.00	R.B. Betwa, Kherar and Shahzad-Jamini River
	Jarwara I st	2C2D4f2c	720.00	
	Naiguwan Khurd	2C2D5b1e	540.00	
	Gangaura	2C2D1f2c	670.00	
	Silgan I st	2C2D1f2e	754.00	
	Silgan II nd	2C2D1f2d	735.00	
	Dailwara	2C2D1f2a	496.00	
	Shivani Khurd	2C2D1g1b	720.00	

Details of Treatment Area, IWMP-VI, Lalitpur



MAIN OBJECTIVES FOR WATERSHED DEVELOPMENT

- (a) Conservation, development and sustainable management of natural resources including their uses.
- (b) Enhancement of agricultural production and productivity in a sustainable manner.
- (c) Restoration of ecological balance in the degraded and fragile rain-fed ecosystem.
- (d) Reduction in regional disparity between rain-fed and irrigated areas.
- (e) Creation of sustainable employment opportunities for the rural community for livelihood.

The main problem in a watershed is the soil erosion by rainfall. The runoff water transport the sediments which may block the channel head, dam, reservoir and storage structures, etc. Which in turn affect the agriculture production in the area.

TABLE 1.5: PROBLEM IDENTIFICATION AND PRIORITIZATION FOR WATERSHED

S. No.	Problem	Rank
1	Low production of field crops	5
2	Lack of drinking water	3
3	Lack of irrigation water	1
4	Lack of fodder availability and low annual productivity	8
5	Non-availability of Sufficient school	7
6	Lack inputs like quality seeds, fertilizer, pesticides etc.	4
7	Lack of market facility	9
8	Lack of medical, educational and transportation facilities	2
9	Medical and health care facilities for milking animals and low productivity	6

Strength, Weakness, Opportunity and Threat (Swot) Analysis is a Useful Decision Support Tool and detailed below.

Table 1.6: A SWOT analysis of watershed is presented as below:

Strength (S)	Weakness(W)
<ul style="list-style-type: none"> 1- Cooperative work culture is traditional activities 2- Close ethnic tier 3- Road at the top as well as outlet of the watershed 4- Hard working man power 5- Resource pool of crop genetic diversity 6- Awareness of farmers about watershed management program 7- Well established CPR maintaining and sharing system 8- good productivity of soil. 9- Social outlook of the community towards landless 	<ul style="list-style-type: none"> 1- Poor water management 2- Resource poor farmers 3- Out migration of youth 4- Low and erotic rainfall 5- Fragile geography 6- Fragmented land holding. 7- Heavy infestation of wild animals 8- Problem of fuel and fodder 9- ANNA-PRATHA
Opportunities(O)	Threats (T)
<ul style="list-style-type: none"> 1- Wide range of annual and perennial crops 2- Scope of regular employment opportunity to check out migration 3- Strengthening of existing irrigation system 4- Conducive climate for rain fed crop diversification 5- Good scope for agro-forestry and dry land horticulture. 6- Potential for collective active action and management of CPRs. 	<ul style="list-style-type: none"> 1- Prone to adverse climate like drought 2- High market risk 3- Social conflicts owing to PRI & WSM policies and local policies. 4- Weak coordination among line departments. 5- Lack of expertise of implementing agencies in different aspect of WSM.

Weightage of the Project

Food insufficiency, economic growth and environmental security were identified as the major issues to be addressed in the watershed area. The area has Undulating topography hence highly prone to soil erosion. Lack of irrigation water is the greatest problem experienced by the people followed by low function of field crops, lack of fodder availability and low animal productivity.

Problems identified and prioritized during the transact walk and PRA exercises in all villages namely Silgan, Kargan , Amarpur, Madawara, Kalapahad, Jarwara, Nayagawan Khurd, Gangoura, Budwar, Dewara, Durjanapura, Sevani Khurd were pooled and a list of nine problems representing the whole watershed was prepared. Problems were ranked as per their total weightage in these villages.

Table 1.7: Weightage of the Project

Project Name	Project Type	Weightage													
		i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	Total
IWMP-VI Lalitpur	IWMP	7.5	5	5	10	0	0	10	7.5	10	15	0	15	N.A	85

Table 1.8: Criteria and weightage for selection of watershed

S. No.	Criteria	Maximum Score	Ranges & Scores			
i	Poverty index (% of poor to population)	10	Above 80% (10)	80 to 50% (7.5)	50 to 20% (5)	Below 20% (2.5)
ii	% of SC/ ST population	10	More than 40% (10)	20 to 40% (5)	Less than 20% (3)	
iii	Actual wages	5	Actual wages are significantly lower than minimum wages (5)	Actual wages are equal to or higher than minimum wages (0)		
iv	% of small and marginal farmers	10	More than 80% (10)	50 to 80% (5)	Less than 50% (3)	

v	Ground water status	5	Over exploited (5)	Critical (3)	Sub critical (2)	Safe (0)
vi	Moisture index/ DPAP/ DDP Block	15	-66.7 & below (15) DDP Block	-33.3 to -66.6 (10) DPAP Block	0 to -33.2 (0) Non DPAP/ DDP Block	
vii	Area under rain-fed agriculture	15	More than 90% (15)	80 to 90% (10)	70 to 80% (5)	Above 70% (Reject)
viii	Drinking water	10	No source (10)	Problematic village (7.5)	Partially covered (5)	Fully covered (0)
ix	Degraded land	15	High – above 20% (15)	Medium – 10 to 20% (10)	Low- less than 10% of TGA (5)	
x	Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable efforts (15)	Lands with moderate production & where productivity can be enhanced with reasonable efforts (10)	Lands with high production & where productivity can be marginally enhanced with reasonable efforts (5)	
xi	Contiguity to another watershed that has already been developed/ treated	10	Contiguous to previously treated watershed & contiguity within the 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)	
xii	Cluster approach in the plains (more than one contiguous micro- watersheds in the project)	15	Above 6 micro-watersheds in cluster (15)	4 to 6 micro watersheds in cluster (10)	2 to 4 micro watersheds in cluster (5)	
xiii	Cluster approach in the hills (more than one contiguous micro- watersheds in the project)	15	Above 5 micro-watersheds in cluster (15)	3 to 5 micro watersheds in cluster (10)	2 to 3 micro watersheds in cluster (5)	
	Total	150	150	90	41	2.5

CHAPTER – 2
GENERAL DESCRIPTION OF PROJECT
AREA

GENERAL DESCRIPTION OF THE PROJECT AREA

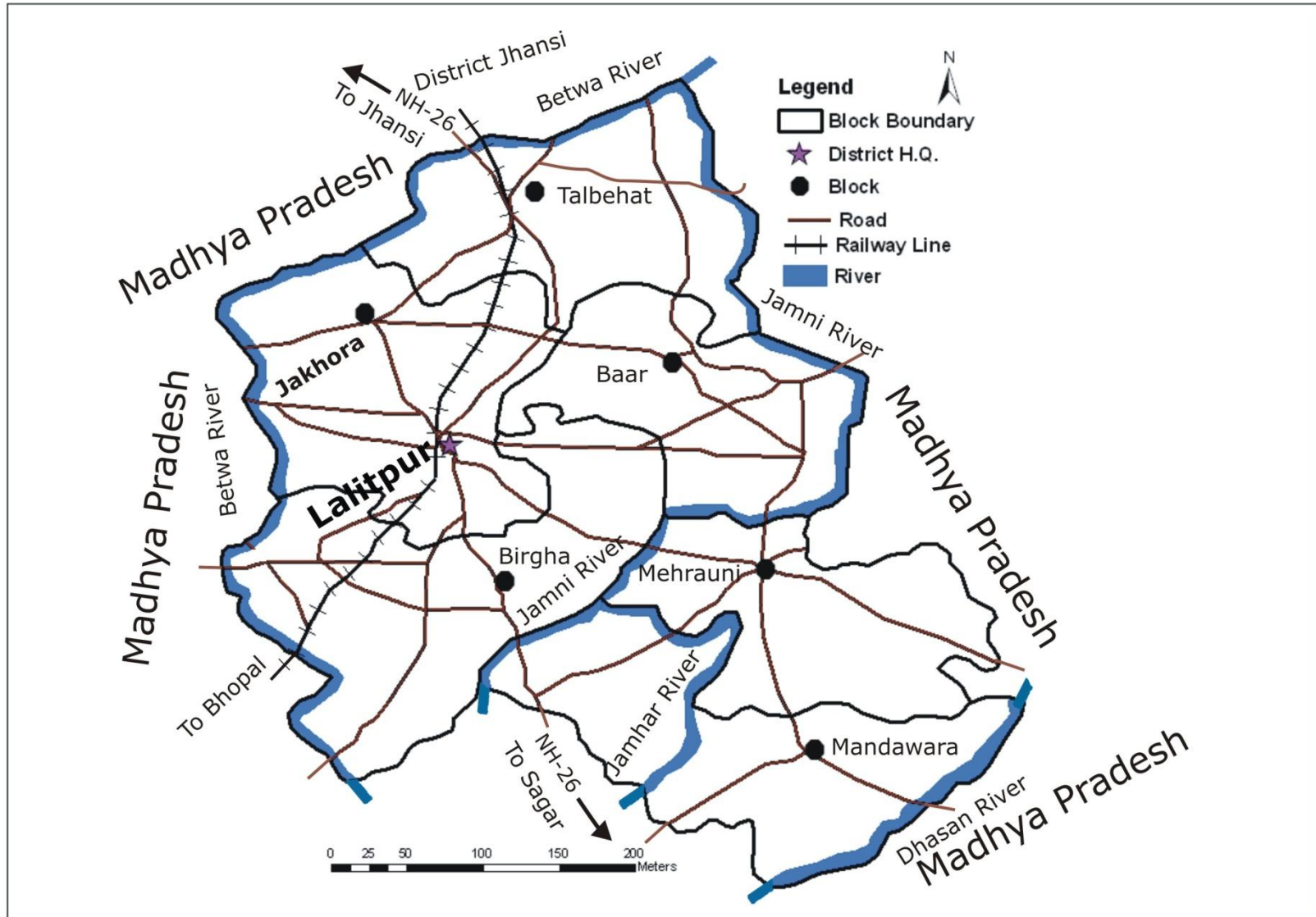
Location:-

The proposed watershed area of IWMP- VI, in Jakhora block of Lalitpur district (U.P) is located on Lalitpur- Rajghat road. The project area is surrounded by radius of about 10 km from Lalitpur city. It lies between the longitude 78°16'30" - 78°24'41" and latitudes 24°40'43" - 24°46'38". The details about micro-watersheds, their geographical location (lat/long), Gram Panchayat, villages and its geographical area, etc. is given in Table 2.1

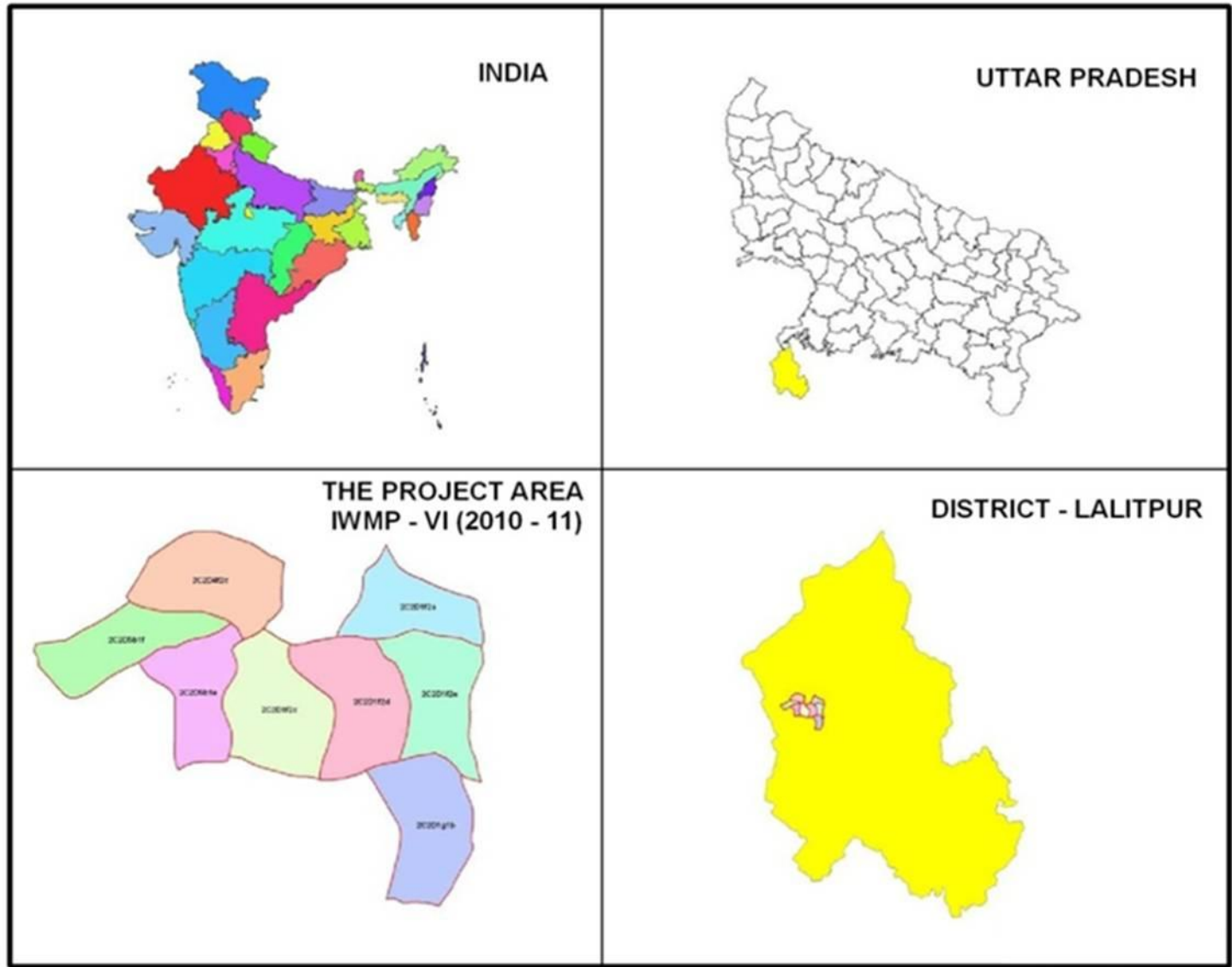
TABLE 2.1: MICRO-WATERSHED WISE DETAILS OF LOCATION, GRAM PANCHAYAT, VILLAGES AND GEOGRAPHICAL AREA OF IWMP- IWMP- VI, DISTRICT- LALITPUR

S. No.	Name of micro watershed with Code	Latitude / Longitude	Name of Gram Panchayat	Names of villages	Name of Block	Area of village included in MWS	Details of important /approach road with distance km
1	2	3	4	5	6	7	8
1	Madwari 2C2D5b1f	24°43'58"N to 24°45'37"N 78°17'7"E to 78°20'25"E	Madwari	Kala Pahar, Madwari, Toriya, Naigaon,Kalan	Jakhora	565.00	Rajghat Road, Lalitpur Road Map Attached
2	Jerwara I st 2C2D4f2c	24°44'54"N to 24°46'44"N 78°18'42"E to78°21'18"E	Jarwara	Toriya,Madwari,Gangaur a Dailwara, Kaikhara		720.00	
3	NigaonKhurd 2C2D5b1e	24°42'52"N to 24°45'15"N 78°18'53"E to 78°20'38"E	NigaonKhurd	Madwari, Naigaon Kalan, Gangaura , NigaonKhurd, Burhwar		540.00	
4	Gangaura 2C2D1f2c	24°42'43"N to 24°45'12"N 78°20'17"E to 78°22'10"E	Gangaura	Gangaura , Naigaon Kalan, Nigaon Khurd, Kuantala, Silgan		670.00	
5	Silgan I st 2C2D1f2e	24°42'46"N to 24°45'13"N 78°22'53"E to 78°24'39"E	Silgan	Khura, Amarpur, Hasanwara, Silgan, Siwani Khurd		754.00	
6	Silgan II nd 2C2D1f2d	24°42'45"N to 24°45'6"N 78°21'24"E to 78°23'26"E	Silgan	Gangaura , Khura, Silgan, Dailwara		735.00	
7	Dailwara 2C2D1f2a	24°44'50"N to 24°46'33"N 78°22'8"E to 78°24'39"E	Dailwara	Dailwara, Kargan, Amarpur, Khura		496.00	
8	Sevani Khurd 2C2D1g1b	24°40'48"N to 24°43'18"N 78°22'43"E to 78°24'33"E	SevaniKhurd	Silgan, Siwani Khurd,Durjnpura, Lalitpur Rural, Lalitpur(MB)		720.00	

Road Map



WS location maps: - Map showing- U.P. in India, District in U.P., Watershed in District and Block
LOCATION MAP



Area under major land uses:

Total geographical area of I.W.M.P. – 6 of Lalitpur project is 6373 ha, Rainfed area is 3670.50 ha, Out of which 5200 ha area is proposed for treatment. Elevation ranges from 369 to 370 m above the mean sea level. Altogether thirteen villages namely as Silgan, Kargan, Dailwara, Amarpur, Madwari, kalapahar, Nigaon Khurd, Jarwara, Gangaura , Kuantala, Burhwar, Siwani Khurd, Durjanpur are located in the watershed area. Details of present land-use are given in Table 2.2. Micro-watershed-wise details of the land use/land cover are depicted in Table 2.3.

Table 2.2: Present land use of the watershed

S. No.	Name of micro watershed with Code	Name of village	Cultivated and wasteland				Area details (ha)									
			area of the village (ha)				(falling within the projects)									
			Cultivated rainfed area	Cultivated irrigated area	Uncultivated wasteland/ fallow		Pvt. Agri. Land					Forest Land	Community land	Others	Total area (ha)	
Temp.	Permanent	Gen			SC	ST	OBC	Total	(Pl. specify)							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	Madwari 2C2D5b1f	Kala Pahar, Madwari, Toriya, Naigaon Kalan	345.37	18.21	121.83	77.93	2.16	1.52	-	2.67	6.35	14.59	9.72	17.21	611.21	
2	Jarwara 1 st 2C2D4f2c	Toriya, Madwari, Gangaura , Dailwara, Kaikhara	462.18	24.33	116.71	61.76	2.76	1.95	-	3.41	86.91	0.00	5.86	123.25	881.00	
3	Nigaon Khurd 2C2D5b1e	Madwari, Naigaon Kalan, Gangaura , Nigaon Khurd, Burhwar	408.49	30.53	103.30	69.15	6.77	4.78	-	8.37	19.92	40.04	0.00	0.00	671.43	

4	Gangaura 2C2D1f2c	Gangaura , Naigaon Kalan, Nigaon Khurd, Kuantala, Silgan	669.66	53.57	84.26	48.50	8.93	6.30	-	11.03	26.26	0.45	43.42	11.09	937.21
5	Silgan I st 2C2D1f2e	Khura, Amarpur, Hasanwara, Silgan, Siwani Khurd	469.30	25.40	147.92	92.26	3.94	2.78	-	4.87	11.59	0.00	10.65	0.00	757.12
6	Silgan II nd 2C2D1f2d	Gangaura , Khura, Silgan, Dailwara	612.20	34.65	89.32	45.47	8.11	5.73	-	10.02	23.86	46.06	16.70	0.00	868.26
7	Dailwara 2C2D1f2a	Dailwara, Kargan, Amarpur, Khura	243.58	12.82	218.77	112.47	2.81	1.98	-	3.47	8.25	0.76	5.41	0.00	602.06
8	Sevani Khurd 2C2D1g1b	Silgan, Siwani Khurd, Durjnpura, Lalitpur Rural, Lalitpur (MB)	459.72	10.77	316.96	162.49	2.60	1.84	-	3.21	7.65	0.00	87.12	0.00	1044.71
	Total		3670.50	210.28	1199.07	670.03	38.08	26.88		47.05	190.79	101.90	178.88	151.55	6373.00

LAND CAPABILITY CLASSIFICATION (LCC)

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

TABLE 2.3: AREA UNDER DIFFERENT LAND CAPABILITY CLASS (LCC)

Land Capability Class	Area (ha)	Main Problem
II	4329.00	Sheet Erosion
III	1168.00	Sheet and Rill Erosion
IV	556.00	Gully Erosion
V	320.00	High Gully Erosion
VI	-	Sevier Gully Erosion
VII	-	Sevier Gully Erosion due to water logging
Others	-	-
Total	6373.00	

Total area of the I.W.MP-6 watershed is 6373.00ha, treated area 5200 ha. Elevation ranges from 346 to 391 m above the mean sea level.

Table 2.4: Elevation Range, Longitude/ Latitude, Relief Height Difference of the MWS

S. No.	Watershed Name & Code	Location	Elevation of watershed from Mean Sea level		
		Latitude (N)/Longitude (E)	Highest (M)	Lowest (M)	Relief (M)
1	Madwari 2C2D5b1f	24°43'58" N to 24°45'37" N 78°17'7" E to 78°20'25" E	391	362	29
2	Jerwara I st 2C2D4f2c	24°44'54" N to 24°46'44" N 78°18'42" E to 78°21'18" E	384	362	22
3	NigaonKhurd 2C2D5b1e	24°42'52" N to 24°45'15" N 78°18'53" E to 78°20'38" E	386	368	18
4	Gangaura 2C2D1f2c	24°42'43" N to 24°45'12" N 78°20'17" E to 78°22'10" E	384	362	22
5	Silgan I st 2C2D1f2e	24°42'46" N to 24°45'13" N 78°22'53" E to 78°24'39" E	369	346	23
6	Silgan II nd 2C2D1f2d	24°42'45" N to 24°45'6" N 78°21'24" E to 78°23'26" E	383	353	30
7	Dailwara 2C2D1f2a	24°44'50" N to 24°46'33" N 78°22'8" E to 78°24'39" E	374	346	28
8	Sevani Khurd 2C2D1g1b	24°40'48" N to 24°43'18" N 78°22'43" E to 78°24'33" E	374	356	18

Slope:

Slope map of the micro watershed was prepared using Arc GIS software. Slope was divided into different class viz. 0-0.5%, 0.5-1.0%, 1-3%, 3-5% and more than 5% and data is presented in Table 2.5 below. The maximum slope area, in the micro-watershed, falls in the category were 1-3% (3497.70 ha) followed by 3-5% (1702.70 ha)

Table 2.5: Slope range in the project area

S. No.	Name of MWS & code	Slope range wise area (ha)						
		0-0.5%	0.5-1.0%	1-3%	3-5%	>5%		Others Specify 15-35%
						Undulating 5-10%	Terraced 10-15%	
1	2	3	4	5	6	7	8	9
1.	Madwari 2C2D5b1f	22.653	54.339	382.037	187.941	46.338	1.143	-
2.	Jarwara I st 2C2D4f2c	33.065	77.769	496.083	233.922	50.997	0.038	-
3.	Nigaon Khurd 2C2D5b1e	21.298	54.203	385.231	175.641	35.501	0.058	-
4.	Gangaura 2C2D1f2c	28.201	67.961	490.247	277.331	72.946	0.796	-
5.	Silgan I st 2C2D1f2e	33.237	69.918	456.593	170.504	39.620	-	-
6.	Silgan II nd 2C2D1f2d	31.133	76.847	484.965	259.122	62.335	0.134	-
7.	Dailwara 2C2D1f2a	17.040	48.027	330.614	171.882	49.282	0.090	-
8.	Sevani Khurd 2C2D1g1b	29,880	70.290	471.937	226.358	84.086	5.892	0.32
	Total	216.507	519.354	3497.707	1702.70	441.105	8.151	0.32

Climate:

The watershed falls under the semi-arid region of tropical climate. The average annual precipitation is 750 mm spreading over 35 rainy days. Most of the rainfall (about 90 %) is received during July to September. The rainfall is of moderate to high intensity. The area receives no or scanty rainfall in the winter season. The temperature variation ranges from as high as 48° C in the month of May - June to as low as 4° C in December - January.

Table 2.6: Average monthly rainfall of the last five years:-

Month	Year/Rainfall in mm.					
	2006	2007	2008	2009	2010	Average
January	0	0	0	26	3	5.8
February	0	49.6	0	-	9.5	11.82
March	75	0	0	1.5	0	15.3
April	0	1	10.4	44.5	0	11.18
May	25.6	0	514.5	216.5	0	151.32
June	63.7	78.5	142.2	184.5	22	98.18
July	309.5	176.9	64	121.5	322	198.78
August	183.1	199.2	11.5	96.5	201	138.26
September	67.4	88.1	4	50	119	65.7
October	0	0	-	11.5	29	8.1
November	0	-	-	-	47	9.4
December	0	-	-	-	1.5	0.3
Total	724.3	593.3	746.6	752.5	754	714.14

AGRO-CLIMATE CONDITIONS

The Agro-Climate condition of the project area including the Agro-Climate Zone of the project area, soil type, rainfall, major crops etc., of Lalitpur district is briefly given below.

Table 2.7: DETAILS OF AGRO-CLIMATE CONDITIONS

S. No.	Name of Project	Name of Agro-climate Zone covered	Area (Ha)	Major Soil Type	Topography	Average Rainfall (mm)	Major crops	
							Name	Area (ha)
1	IWMP -VI, LALITPUR	Bundelkhand Zone	5200.00	Parwa, Kabar, Mar	Undulating with moderate slope	714.14 mm	Maize, Jowar, Til, Arhar, Wheat, Gram, Pulses, Mustered	3880.78

The Wind velocity of the Project area ranges from 4-17 Km/hr. The open pan evaporation varied in the range of 0.5 to 20 mm/day during the year with average of about 5 mm/day. Average relative humidity varied in the range of 25% to 98%. The details of flood and drought in the project area have been given in Table 2.7.

Table 2.8: Details of Flood and Drought in the Project Area

Name of Micro-Watershed	Particulars	Villages	Periodicity		Not affected
			Annual	Any other (please specify)	
Madwari 2C2D5b1f Jarwara I st 2C2D4f2c Nigaon Khurd 2C2D5b1e Gangaura 2C2D1f2c Silgan I st 2C2D1f2e Silgan II nd 2C2D1f2d Dailwara 2C2D1f2a Sevani Khurd 2C2D1g1b		No. of villages	-	-	
		Name(s) of villages	-	-	
	Drought	No. of villages: 13			
		Name(s) of villages: Silgan, Kargan, Amarpur, Madawara, Kalapahad, Jarwara, Nayagawan Khurd, Gangoura, Budwar, Dewara, Durjanapura, Sevani Khurd		Alternate after every 2-3 years	

Watershed Characteristic:-

The shape of watershed (IWMP - VI, Lalitpur) is more or less Semi-circular in shape. The direction of the slope in the project area is north-west to south- east. The maximum length and width of IWMP -VI watersheds, are 12464 m and 8364 m, respectively with the length: width ratio 1.49:1

Table- 2.9: SHAPE AND SIZE OF WATERSHED

S. No.	Micro watershed Code	Area (ha)	Shape	Approximate size in meter	
				Length	Width
1	2C2D5b1f	692.65	Rectangle	4614	1564
2	2C2D5b1e	670.91	Rectangle	3479	1901
3	2C2D4f2c	889.04	Semi-circular	3906	2615
4	2C2D1f2a	615.92	Cone	3639	1976
5	2C2D1f2c	934.37	Rectangle	3858	2991
6	2C2D1f2d	912.51	Rectangle	3831	3186
7	2C2D1f2e	767.86	Rectangle	3542	1669
8	2C2D1g1b	889.74	Semi-circular	4204	2254

GEOMORPHOLOGY

The area lies in the middle of the District-Lalitpur of Bundelkhand region. The soil is mainly clay, which is easily transportable after detaching causing soil erosion. Topography is Moderate and Undulating with steep slopes.

Table-2.10: DETAIL OF SOIL EROSION (I.W.M.P-VI) LALITPUR

S. No.	Name of the Project	Water Erosion (Ha)				Run-Off (mm/yr)	Average Soil Loss in tons/ha/yr	Wind Erosion
		Sheet	Rill	Gully	Total			
1	IWMP - VI	3066	1761	373	5200.00	430	25 to 30	N.A.

CHAPTER-3

BASELINE SURVEY

Socio-Economic Condition

In the proposed watershed management plan of proper blending of bio- engineering measures will be applied. Based on the results of studies conducted in this region, it is estimated that more than 50% of the watershed area will be treated and consequently the soil loss and runoff from the area is expected to be reduced by 40% and 65% respectively. The proposed land use plan will improve the land utilization index and crop diversification index significantly as compared to the existing one. It will help in maintaining ecosystem integrity on sustained basis along with improving the livelihood security of the farming community.

Economic analysis 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 namely 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 employed to judge the economic efficiency of each enterprise, sector and project as a whole.

Details of the population of the micro watershed are given in Table 3.1. About 30% population is scheduled caste. Due to hard life and low seasonal income in the area a large number of people migrate to large cities where they work as daily labor / rickshaw puller.

The I.W.M.P – VI, watershed project has a total population of **36598** out of which **17405** are male and **14901** are female.

TABLE 3.1: DEMOGRAPHIC FEATURES IN THE PROJECT AREA

S. No.	Name of village	Population				Percentage			Total Family no.	SC family no.
		Male	Female	Children	Total	Male	Female	Children		
1	2	4	5	6	7	8	9	10	11	12
1	Madwari	1560	1305	334	3199	49	40	11	2865	789
2	Kalaphad	327	276	179	782	42	35	23	603	103
3	Jarwara	911	742	280	1933	47	38	15	1653	665
4	Nayagaon Khurd	-	-	-	-	-	-	-	-	-
5	Gangora	1045	891	345	2281	46	39	15	1936	397
6	Kuwatala	806	679	296	1781	45	39	16	1485	287
7	Dailwara	7373	6353	995	14721	50	43	07	13726	3135
8	Amarpur	243	189	104	539	45	35	20	432	170
9	Silgan	1656	1423	589	3668	46	39	16	3079	624
10	Kargan	409	341	144	894	46	38	16	750	225
11	Durjanpur	-	-	-	-	-	-	-	-	-
12	Sevani Khurd	529	461	225	1215	44	38	18	2322	348
13	Budwar	2546	2241	798	5585	46	40	14	4787	1480
	Total	17405	14901	4289	36598	48	41	11	33638	8223

EMPLOYMENT GENERATION

Labor migration in search of gainful employment is one of the major problems in the remote watershed in particular. Causal employment opportunities to the tune of more than 0.35 lacs will be generated during the implementation of the project activities. However, the changes in land use pattern and adoption of other subsidiary enterprises will generate employment opportunities for persons in the watersheds.

Table 3.2: Details of Employment Generation

S. No.	No. of the Villages	Wage employment										Self employment				
		No. of mandays (Lakhs)					No. Of beneficiaries					No. Of beneficiaries				
		SC	ST	Others	Women	Total	SC	ST	Others	Women	Total	SC	ST	Others	Women	Total
1	13	1.129	0	1.448	0.230	2.807	1129	0	1148	230	2807	101	0	136	27	264

TABLE 3.3: DETAILS OF SEASONAL MIGRATION FROM PROJECT AREA: PRE-PROJECT STATUS

S. No.	No. of the villages	No. of persons migrating	No. of days per year of migration	Main reason for migration	Expected reduction in no. of persons migrating
1	13	214	150	Poverty & Unemployment	118

Table 3.4: SOURCE OF INCOME

S. No.	Name of village watershed area	Income sources/no. of family						
		Agriculture	Labour	Pri. Sector Service	Govt. Sector Service	Shop	Land less labour	Other
1	Madwari	179	103	5	4	6	25	-
2	Kalapahad	52	28	1	-	2	12	-
3	Jarwara	168	62	4	1	3	20	-
4	Nayagaon Khurd/Kalan	42	16	1	-	1	12	-
5	Gangora	250	72	4	2	8	31	-
6	Kuwatala	212	35	8	4	7	42	-
7	Delwara	535	302	25	16	28	152	-
8	Amarpur	38	22	1	-	3	24	-
9	Silgan	345	205	22	7	11	72	-
10	Kargan	45	22	1	-	3	12	-
11	Durjanpur	-	-	-	-	-	-	-
12	Sevani Khurd	155	32	11	10	4	27	-
13	Budwar	299	150	30	18	20	95	-
	Total	2320	1049	113	62	96	524	-

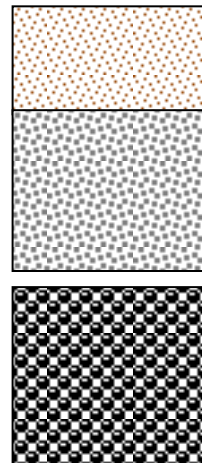
Soil and land Capability Classification

Soil Morphology:

The selected area is situated in the middle of District- Lalitpur. The entire watershed is topographically divided into two major land forms. Accordingly, the soils of watershed have been grouped in the two major categories.

- 1- Slope land
- 2- sloppy and Heavy sloppy land

Soil Profile: A Representative Soil Profile



1-1.5 (Heavy texture clay-soil
Blackish Brown in color)

5 -8m (Locally called "Padua soil")

7 -8 m [Bed rock (red sand stone)]

Table 3.5: Typical soil profile of the watershed (dominant soil)

Horizon	Depth(Cm)	Morphology
A	0-150	Blackish brown in color, clay content > 80%, soft and easily erodible when moist, hard when dry, high elasticity, Cracks occur when dried.
B	150-800	whitish brown in colour, very hard when dry, clay content > 60%
C	>800	Bedrock (Red and White sand stone)

Soil Texture:

Light brown loam to clay, generally structure less, average in water holding capacity and organic matter, moderately alkaline, restricted drainage, surface soil poor in lime content but the middle layer is calcareous, medium in soluble salts.

Table 3.6: Details of Soil texture, IWMP- VI, District- Lalitpur

S. No.	MWS Project	Area in different Soil Group (ha)				
		Light textured soil (sand, loamy sand)	Medium textured soil (Sandy loam, loam, silt loam)	Heavy textured soil (Clayey)	Geographic Area	Others specify
1	Madwari 2C2D5b1f	18.20	98.30	448.50	611.22	Rakar, Kabar, Mar, Padwa
2	Jarwara I st 2C2D4f2c	22.40	122.20	575.40	881.00	Rakar, Kabar, Mar, Padwa
3	Nigaon Khurd 2C2D5b1e	16.10	85.50	438.40	671.44	Rakar, Kabar, Mar, Padwa
4	Gangaura 2C2D1f2c	22.30	88.20	559.50	937.21	Rakar, Kabar, Mar, Padwa
5	Silgan Ist 2C2D1f2e	19.50	124.30	610.20	757.12	Rakar, Kabar, Mar, Padwa
6	Silgan II nd 2C2D1f2d	22.20	118.40	594.40	868.26	Rakar, Kabar, Mar, Padwa
7	Dailwara 2C2D1f2a	16.40	88.50	391.10	602.06	Rakar, Kabar, Mar, Padwa
8	Sevani Khurd 2C2D1g1b	23.60	124.80	571.60	1044.71	Rakar, Kabar, Mar, Padwa
	TOTAL	160.70	850.20	4189.10	6373.00	

Soil Characteristics and Fertility Status:

Four types of soils are present in the watershed area. The fertility status is about normal range due to production of major pulses crops. There is scarcity of phosphorus due to continuous growing of pulses. The four soil samples of each village, three for nutrients analysis and one for sulphur and micro nutrients analysis have been send to laboratory. After receiving the analysis report effort will be made to motivate the farmers to use nutrients and micronutrients according to the any analysis report. This demonstration of crop in Kharif and Rabi both seasons have been proposed under agriculture production activity. Receipts of sending samples are enclosed

Table 3.7: Soil characteristics and fertility status

Soil proterties	LCC II	LCC III	LCC IV	LCC VII/VIII
Sand (%)	47.04	47.88	75.04	73.04
Silt (%)	24.6	15.75	18.6	20.3
Clay (%)	28.36	11.37	6.36	6.66
Texture	Sandy clay loan	Sandy Loam	Loamy sand	Loamy sand
pH (1:2)	8.41	6.42	8.67	6.85
EC (ds m-1)	0.47	0.20	0.12	0.16
Organic carbon (%)	0.37	0.17	0.12	0.19
Available N (kg ha-1)	316	173	173	224
Available P (kg ha-1)	29	14	15	5-8
Available K (kg ha-1)	189	202	325	230

LAND HOLDING PATTERN

Majority of the farmers are in the category of marginal (< 1 ha) and small (1-2 ha) with average land holding of about 2.4 ha. These small land holding are further scattered at different places, which makes cultivation very difficult. Distribution of farm families according to the size of the land holdings are given in the Table below.

Table 3.8: Distribution of farm families according to their size of Land Holdings

S. No.	Micro watershed Code	Name of Concern village	land holding classification				percentage		
			Marginal	Small	Others	Total	Marginal	Small	Others
1	2C2D5b1f	Madwari	280	125	40	445	63	28	9
2	2C2D5b1e	Nayagaon Khurd	55	110	15	180	30	61	9
3	2C2D4f2c	Jarwara I	99	141	60	300	33	47	20
4	2C2D1f2a	Dailwara	415	350	70	835	50	42	8
5	2C2D1f1c	Silgan I	260	225	45	530	49	42	9
6	2C2D1f2d	Silgan II	0	0	0	0	0	0	0
7	2C2D1g1b	Sewni Khurd	95	70	12	177	53	40	7
8	2C2D1f2e	Gangora	135	180	55	370	36	49	15
	Total		1339	1201	297	2837			

Major Crops, their Productivity and Production

Food crop production is a major land based activity in the watershed. Traditional cultivation practices, coupled with poor quality seeds and long duration crops varieties result in low crop yields. Crops are taken under rainfed as well as irrigated conditions. The yield levels of rainfed crops are particularly very poor. Large variation has been noticed in productivity of wheat and Jowar under rainfed and irrigation, condition respectively. At present level of rainfed farming, the total produce from Rabi and Kharif crops obtained by a medium size of holding owning family can meet food requirements for up to 6 to 7 months only.

Mono cropping, Anna Pratha and non manageable condition of mar and kabar soil are the specific characteristics of the district. Mono cropping is the most common farming system. Mixed farming in the combination of agriculture and live stock is also quite common in all the areas. Micro-watershed wise grown crops, their productivity and production are given below:

Table 3.9: Major Crops, their Productivity and Production

S. No.	Crop.	Area (ha)		Productivity (q/ha)		Production (q)			
		Irrigated	Rainfed	Irrigated	Rainfed	Grain/Main product		Fodder/Fuel/other Product	
						Irrigated	Rainfed	Irrigated	Rainfed
A	Kharif								
3	Arhar	12.00	232.10	0.00	7.87	0.00	1826.63	0.00	2739.94
4	Urd/Mung	80.58	859.30	0.00	5.08	0.00	4365.24	0.00	4365.24
5	vegetables (Cropwise)	11.50	0.00	0.00	220.40	0.00	12518.72	0.00	12518.72
6	Fodder	20.20	56.80	0.00	0.00	0.00	0.00	0.00	0.00
..	Other, specify	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	124.28	1148.20		233.35		18710.59		19623.90
B	Rabi								
1	Wheat	125.25	1835.60	25.00	18.00	3131.25	33040.80	1890.00	49561.20
2	Barley	0.00	227.60	0.00	10.47	0.00	2382.97	0.00	3574.46
3	Masoor	0.00	273.50	0.00	4.80	0.00	1312.80	0.00	1641.00
4	Gram	0.00	422.80	0.00	6.56	0.00	2773.57	0.00	3466.96
5	Pea	36.35	272.90	0.00	10.43	0.00	2846.35	0.00	2846.35
6	Mustard	41.25	196.30	0.00	4.26	0.00	836.24	0.00	1254.36
8	vegetables (Cropwise)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Fodder	0.00	12.70	0.00	0.00	0.00	0.00	0.00	0.00
..	Other, specify	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	202.85	3241.40		54.52		43192.73		62344.32
C	Zaid	0.00	0.00		0.00		0.00		0.00
	Cultivable Area	3880.78		Cropping Intensity		121.54			

Summary

It was found that the productivity of wheat, Gram, Urd and Moong are mainly grown in the project area. Overall cropping intensity of the project area is 121.54%.

Horticulture Status

There is no systematic agro forestry and orchard in the project area, however scattered trees like Amla, Ber, Mango, Guava, Jamun, Citrus, Mahua etc are found in the study area Like. The details are given below:

Table 3.10: Horticulture Status

S No	Name of micro watershed with code	Name of village	Name of Important horticultural crop							
			Whole Fruit Crop				Scattered Fruit Crop			
			Name	Area (ha)	Productivity (q/ha)	Production	No	Productivity (q/No)	Production (q)	
(q)										
1	2	3	4	5	6		7	8.00		
1	Madwari 2C2D5b1f	Kala Pahar, Madari, Toriya, Naigaon Kalan	Amla	-	-	-	-	17	2.50	42.50
			Ber,					22	2.00	44.00
			Mango,					60	2.70	162.00
			Guava,					24	1.20	28.80
			Jamun, Citerus					42	0.70	29.40
2	Jarwara I st 2C2D4f2c	Toriya, Madwari, Gangaura , Dailwara, Kaikhara	Amla	-	-	-	-	27	2.50	67.50
			Ber,					35	2.00	70.00
			Mango,					65	2.70	175.50
			Guava,					56	1.20	67.20
			Jamun, Citerus					42	0.70	29.40
3	Nigaon Khurd 2C2D5b1e	Madwari, Naigaon Kalan, Gangaura , Nigaon Khurd,	Amla	-	-	-	-	16	2.50	40.00
			Ber,					22	2.00	44.00
			Mango,					40	2.70	108.00
			Guava,					35	1.20	42.00
			Jamun,					40	0.70	28.00

		Burhwar	Citerus						
4	Gangaura 2C2D1f2c	Gangaura , Naigaon Kalan, Nigaon Khurd, Kuantala, Silgan	Amla Ber, Mango, Guava, Jamun, Citerus	-	-	-	28 40 45 48 36	2.50 2.00 2.70 1.20 0.70	70.00 80.00 121.50 57.60 25.20
5	Silgan I st 2C2D1f2e	Khura, Amarpur, Hasanwara, Silgan, Siwani Khurd	Amla Ber, Mango, Guava, Jamun, Citerus	-	-	-	32 30 48 51 48	2.50 2.00 2.70 1.20 0.70	80.00 60.00 129.60 61.20 33.60
6	Silgan II nd 2C2D1f2d	Gangaura , Khura, Silgan, Dailwara	Amla Ber, Mango, Guava, Jamun, Citerus	-	-	-	22 40 62 49 38	2.50 2.00 2.70 1.20 0.70	55.00 80.00 167.40 58.80 26.60
7	Dailwara 2C2D1f2a	Dailwara, Kargan, Amarpur, Khura	Amla Ber, Mango, Guava, Jamun, Citerus	-	-	-	32 36 61 53 49	2.50 2.00 2.70 1.20 0.70	80.00 72.00 164.70 63.60 34.30
8	Sevani Khurd 2C2D1g1b	Silgan, Siwani Khurd, Durjnpura, Lalitpur Rural, Lalitpur (MB)	Amla Ber, Mango, Guava, Jamun, Citerus	-	-	-	32 38 62 50 52	2.50 2.00 2.70 1.20 0.70	80.00 76.00 167.40 60.00 36.40
Total of project							1625		2919.20

FOREST/VEGETATIVE COVER RELATED OUTCOMES

Forest area in UP-Bundelkhand is around 8.16 % with higher concentration in Lalitpur (15%), about 3.72% of the land is barren and is not cultivable.

Table 3.11: Forest, Vegetative Cover/Grass Land

S. No.	Name & Code of Micro watershed	Name of Village	Forest (Area ha)			Grass Land (Area ha)		Other vegetative cover (Area ha)	
			Reserve	Gram Samaj (Natural/Planted)	Total	Gram Samaj	Private	Gram Samaj	Private
1	2	3	4	5	6	7		8	9
1	Madwari 2C2D5b1f	Kala Pahar, Madari, Toriya, Naigaon Kalan	14.00	-	14.00	-	-	-	-
2	Jarwara I st 2C2D4f2c	Toriya, Madwari, Gangaura, Dailwara, Kaikhara	-	-	-	-	-	-	-
3	Nigaon Khurd 2C2D5b1e	Madwari, Naigaon Kalan, Gangaura, Nigaon Khurd, Burhwar	40.04	-	40.04	-	-	-	-
4	Gangaura 2C2D1f2c	Gangaura, Naigaon Kalan, Nigaon Khurd, Kuantala, Silgan	0.45	-	0.45	-	-	-	-
5	Silgan I st 2C2D1f2e	Khura, Amarpur, Hasanwara, Silgan, Siwani Khurd	-	-	-	-	-	-	-
6	Silgan II nd 2C2D1f2d	Gangaura, Khura, Silgan, Dailwara	46.06	-	46.06	-	-	-	-
7	Dailwara 2C2D1f2a	Dailwara, Kargan, Amarpur, Khura	0.76	-	0.76	-	-	-	-
8	Sevani Khurd 2C2D1g1b	Silgan, Siwani Khurd, Durjnpura, Lalitpur Rural, Lalitpur (MB)	-	-	-	-	-	-	-
Total of project			101.31		101.31				

Livestock Population

The information on live stock collected through PRA Levels .Total livestock population of the watershed is 10880. Buffalo is preferred as milch animal compared to cow, but milk yield is very low. Goats are also kept for milk as well as for meat purpose. The breakup of livestock population is as follows.

Table 3.12: Livestock Population

S. No.	Name of villages	Livestock Resolution					
		Buffaloes	Cows	Bullocks	Goats	Others	Total
1	Madwari	350	100	70	170	100	790
2	Kalapahad	250	70	50	300	150	820
3	Jarwara	300	50	60	450	200	1060
4	Nayagaon Khurd	-	-	-	-	-	-
5	Gangaura	250	50	40	100	50	490
6	Kuwatala	300	60	80	160	20	620
7	Dailwara	600	200	120	1000	350	2270
8	Amarpur	100	25	20	150	20	315
9	Silgan	400	150	100	500	250	1400
10	Kargan	125	50	60	150	50	435
11	Sawni Khurd	200	50	30	250	-	530
12	Durjanpur	-	-	-	-	-	-
13	Budwar	650	250	150	800	300	2150
	Total	3525	1055	780	3730	1490	10880

Table 3.13: Details of Livestock Productivity

S. No.	Name of Village	Milk Production (Liter Per day)				Goatry	Poultry		Piggeries weight Kg/Pig
		Cows		Buffalos		Weight in Kg/goat	Broiler Weight in Kg/Brl	Layers No. of eggs/day	
		Desi	Crossed	Desi	Murrah				
1	2	3	4	5	6	7	8	9	10
1	Madwari	1.6	2.8	2.6	5.1	28	-	-	-
2	Kalapahad	1.6	2.8	2.6	5.1	28	-	-	-
3	Jarwara	1.6	2.8	2.6	5.1	28	-	-	-
4	Nayagaon Khurd	1.6	2.8	2.6	5.1	28	-	-	-
5	Gangaura	1.6	2.8	2.6	5.1	28	-	-	-
6	Kuwatala	1.6	2.8	2.6	5.1	28	-	-	-
7	Dailwara	1.6	2.8	2.6	5.1	28	-	-	-
8	Amarpur	1.6	2.8	2.6	5.1	28	-	-	-
9	Silgan	1.6	2.8	2.6	5.1	28	-	-	-
10	Kargan	1.6	2.8	2.6	5.1	28	-	-	-
11	Sawni Khurd	1.6	2.8	2.6	5.1	28	-	-	-
12	Durjanpur	1.6	2.8	2.6	5.1	28	-	-	-
13	Budwar	1.6	2.8	2.6	5.1	28	-	-	-
	Average	1.6	2.8	2.6	5.1	28	-	-	-

LIVELIHOOD STATUS OF LANDLESS PEOPLE

Agriculture is the primary source of livelihood for medium and large farmer, whereas landless, marginal & small farmers depend on daily wage during more than 6 months every year. The secondary source of livelihood for landless & very poor families are shifting cultivation, animal husbandry and collection & marketing due to unsystematic agricultural practice, erratic rain and absence of technical know-how, people lack in agriculture sector, people have shifted from agriculture based livelihood towards non-agriculture based livelihood. Mostly it is found that, people do prefer to go for daily labour work to nearby towns for earning.

Table 3.14: SUMMARY OF LIVELIHOOD

S. No.	Names of the villages	Existing livelihood activities	Possible livelihood interventions under the project	Current status of migration (No. of people)	Main reasons for migration
1-	Silgan, Sivni Khurd, Durjanpur, Budwar, Kargan, Dailwara, Amarpur, Gangora, Kuwatala, Nayagaon Khurd, Jarwara, Madawari, Kalapahad	1-Dairy 2-Agriculture	1-Horticulture 2-Vegitable Production S. Fisheries S. Vermi Culture 5- Poultry 6- Food Processing	2148	For Better Livelihood

According to CGWB study, the total ground water resources of the Bundelkhand region in Uttar Pradesh are 4632 MCM. Utilizable potential for irrigation is 3544 MCM. There are 4604 (3.60%) deep tubewells, 44870 (35%) shallow tube wells and 78476 (61.30%) dugwells. Present level of utilization in Uttar Pradesh is 1019 MCM and balance ground water available for future development is thus 2525 MCM (53%). Present level of development is reported at 26%.

Table 3.15: Ground water Resource and Irrigation Potential in the Lalitpur

S. No.	District	Total Replenish able ground water recharge (MCM)	Utilizable GW Resources for irrigation (MCM)	Net Draft (1998) (MCM)	Balance GW Resource (MCM)	Level of Development (%)	Corresponding Utilizable Irrigation Potential (ha)
1	Lalitpur	600.45	459.35	191.69	267.66	37.56	1148.30
Total		600.45	459.35	191.69	267.66	37.56	1148.30

(Source-Central Ground Water Deptt., Govt. of India)

Table 3.16: Ground Water Status

S. No.	Name & Code of Micro watershed	Name of Village	Depth of Ground Water Table (Below Ground level) in Meter		No. of Observation well	Remarks
			Before Monsoon	After Monsoon		
1	2	3	4	5	6	7
1	Madwari 2C2D5b1f	Kala Pahar, Madari, Toriya, Naigaon Kalan	Avg. 18.50	Avg. 17.50	5	
2	Jarwara I st 2C2D4f2c	Toriya, Madwari, Gangaura , Dailwara, Kaikhara	Avg. 17.40	Avg. 16.40	7	
3	Nigaon Khurd 2C2D5b1e	Madwari, Naigaon Kalan, Gangaura , Nigaon Khurd, Burhwar	Avg. 16.20	Avg. 15.20	7	
4	Gangaura 2C2D1f2c	Gangaura , Naigaon Kalan, Nigaon Khurd, Kuantala, Silgan	Avg. 16.80	Avg. 15.80	5	
5	Silgan I st 2C2D1f2e	Khura, Amarpur, Hasanwara, Silgan, Siwani Khurd	Avg. 18.25	Avg. 17.25	7	
6	Silgan II nd 2C2D1f2d	Gangaura , Khura, Silgan, Dailwara	Avg. 16.00	Avg. 15.00	5	
7	Dailwara 2C2D1f2a	Dailwara, Kargan, Amarpur, Khura	Avg. 16.20	Avg. 15.20	7	
8	Sevani Khurd 2C2D1g1b	Silgan, Siwani Khurd, Durjnpura, Lalitpur Rural, Lalitpur (MB)	Avg. 16.50	Avg. 15.50	7	

Hard-Soft drinking water is available for about 8 months/year. It is expected that after completion of the proposed project soft water would be available for about 10 months.

INFRASTRUCTURE SOCIAL FEATURES

The watershed has moderate communication facilities and all 13 villages and Concern majra are approachable through motorable road. Mostly villages are electrified and have TV & telephonic connection. Nearest small market is about 8-15 km and nearest big market is about 12-15 km from the watershed. Religious and ritual features are almost common as in other part of the U.P. Small land holding (average less than 0.46 ha) with large family size (average 7 person) and more than 25 % of the labor force of the total population living below poverty line indicate poor socio economic status of the watershed community. However, strong community spirit among the villager's show positive indication for the success of any programmed to be implemented in participatory mode. Traditionally the entire village community participates in the individual works; map of the watershed villages drawn by villagers themselves, depicting various village features is shown in Table as below:

Table 3.17: Details of infrastructure in the project areas

S.N	Name of village which cover's in watershed area	Pakka Road	Electric city	Primary School	Jun. high School	Inter College	Post Office	Public Health Center	Bank	Vetnary hospital	Co-op Society	Market	Agri. Service centre.
1	Madwari	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
2	Kalapahad	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
3	Jarwara	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
4	Nayagaon Khurd	No	No	No	No	No	No	No	No	No	No	No	No
5	Gangora	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
6	Kuwatala	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
7	Delwara	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No		No	No
8	Amarpur	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No

9	Silgan	Yes	Yes	Yes	Yes	No		No	No	No	No	No	No
10	Kargan	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
11	Durjanpur	No	No	No	No	No	No	No	No	No	No	No	No
12	Sevani Khurd	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No
13	Budwar	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No

PARTICIPATORY RURAL APPRAISAL (PRA)

The past experience of watershed has given tremendous input to focus on creating accountability of the stakeholders towards the program. 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, and monitoring and post-withdrawal activities with a complete accountability of the stakeholders. Various PRA techniques like resource mapping, social mapping, and season calendars were used to understand the physical and social orientation of the village in general and watershed in specific. These tools put the villagers in ease than the complicated questionnaires. Various tools like matrix ranking, venn diagram were used to identify various local vegetations (apt for afforestation), fodders crops.

The details of PRA exercise in the Project Area Photographs



CHAPTER-4
INSTITUTIONAL BUILDING AND
PROJECT MANAGEMENT

Project Implementing Agency: The Project Implementing Agency (PIA) for IWMP- VI, Lalitpur is BSA, Land Development and Water Resources Department, District Lalitpur, Uttar Pradesh. The project implementing agency was selected by State Level Nodal Agency (SLNA) for Integrated Watershed Management Program (IWMP) in Lalitpur district. The PIA was given responsibility to develop the micro-watershed by District Watershed Development Unit (DWDU) and State Level Nodal Agency (SLNA) considering its vast experiences in handling land and water management issues in the region. The PIA has well experienced trained and sufficient staff to handle the watershed management programme efficiently.

The PIA will put dedicated Watershed Development team and will provide necessary technical guidance to the Gram Panchayat for preparation of Development Plans for the Watershed Projects through Participatory Rural Appraisal exercise. PIA will also undertake **a)** Community Organization, **b)** Trainings for the village communities, **c)** supervise Watershed development Activities, **d)** inspect & authenticate project accounts, **e)** monitor & review the overall project implementation, **f)** set up institutional arrangements for post project operations and **g)** maintenance and further development of the assets created during the project period.

Table 4.1: Details of Project Implementing Agency (PIA)

Project- IWMP – VI

District – Lalitpur

S. No.	Particulars of PIA	
1	2	3
1	Date of selection of PIA	
2	Type of organization	Govt. Department
3	Name of organization	Land Development and Water Resources Department, District Lalitpur
4	Designation & Address	B.S.A., Bhoomi Sanrakshan Unit, Land Development and Water Resources Department, District Lalitpur
5	Telephone	
6	Fax	
7	E-mail	

Table 4.2: Details of Staff at PIA

S. NO.	Designation	Name	M/F	Qualification
1	2	3	4	5
1.	B.S.A.	Sri V.P. Shrivastava	M	Civil Engg. Diploma
2.	J.E.	Sri Shahzad Ahmad	M	Civil Engg. Diploma
3.	Accountant	Sri Ajay Kumar	M	B.Com
4.	Senior clerk	Sri Sujan Singh	M	B.Sc
5.	Draftsman	Sri R.C. Singh	M	B.Sc. D/M. Diploma
6.	T.A.C.	Sri K.S. Sharura	M	Agriculture Diploma
7.	T.A.C.	Sri Indva Sen Shahi	M	B.S.C. Ag.
8.	Tracer	Sri Rakesh Sharma	M	M.A.
9.	Junior clerk	Sri M.P. Singh	M	High school
10.	Zileadar	Sri Shankar Lal Beghel	M	
11.	Seech – Parvakshak	Sri Shridhar Pandey	M	High school
12.	Munshi	Smt. Archana Sharma	M	Intermediate
13.	Driver	Sri Khajan Singh	M	Illiterate
14.	Seech-Pal	Sri Vinod Kumar Dubey	M	High school
15.	Seech –Pal	Sri Manoj Kumar	M	B.A.
16.	Seech –Pal	Sri Naresh Kumar	M	High school
17.	Seech –Pal	Sri Nem Singh	M	Intermediate

The Watershed Development Team (WDT):

It is an integral part of the PIA. WDT will assist gram Sabha in a) constitution of Watershed Committee and its functioning, b) organize and strengthening User groups, Self Help Groups, c) conducting participatory baseline survey, d) training and Capacity Building, e) preparing detailed resource development plan including Soil & Water Conservation, f) undertake engineering surveys, g) prepare engineering drawings and cost estimate for structure to be built.

Table 4.3: Details of Watershed Development Team (WDT) in the project area

Project- IWMP –VI				PIA- BSA, LDWR,		District – Lalitpur
1	2	3	4	5	6	7
S. No.	Name of WDT member	M/F	Age	Qualification / Experience	Description of professional training	Role/ Function
1	Dr. R.K. Rajput	M	62	B. Sc. Ag.	Agriculture Science	Land resource Planning
2	Sri Gaurav Tripathi	M	27	B. Sc. Ag.	Agriculture Science	Soil Conservation Work
3	Sri Anshul Jain	M	28	M. A.	Economic	Resource survey
4	Smt. Abhilasha Parashar	F	30	B.A. (Sociology)	Social Science	Social Mobilizer

Watershed Committees:

Watershed committees are being formed in all villages. Each committee would consist of at least of 10 members. Their representation will be as under:

- Minimum of 50% members from SHGs and UGs, SCs, women and landless
- One member from Watershed Development Team, especially women member (subject matter specialist in Social Science).

Watershed Committee would nominate one of their members as Watershed Secretary to perform the following duties:

1. Convening meetings of Watershed Committee, Gram Sabha.
2. Maintaining all records and proceedings of the meetings.
3. Follow up action on all decisions taken in the meetings.
4. Ensuring people's participation.

Watershed Secretary will be imparted training in maintaining the accounts as well other activities related to Project.

Table 4.4: Details of Watershed Committee (WC), IWMP- VI, District- Lalitpur

1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16	17		
S. No.	Name of Gram Sabha/ GP	Date of Constitution/ Registration as a Society (dd/mm/yyyy)	Name	Designation	M/F	SC	ST	SF	MF	LF	Land-less	UG	SHG	GP	Any other	Educational qualification	Function(s) assigned#		
1	Gangaura 2C2D1f2c		Sri Amol Singh	President	M														
			Sri Jagbhan Singh	Secretary	M														
			Sri Bahadur	Member	M									UG					
			Sri Harcharan	Member	M									UG					
			Sri Jagana	Member	M									UG					
			Sri Rajaram	Member	M									UG					
			Sri Kailash	Member	M										SHG				
			Sri Kalyan Singh	Member	M										SHG				
			Smt. Halki Bahoo	Member	F											GP			
			Sri Sukh Singh	Member	M											GP			
			Sri K.S. Sharma	Member	M										A.S.C.I.				
2	Madwari 2C2D5b1f		Bhawani Singh	President	M														
			Devendra Singh	Secretary	M														
			Sri Chimma	Member	M									UG					
			Sri Khushi Lal	Member	M									UG					
			Sri Jay Ram	Member	M									UG					
			Sri Sarman	Member	M									UG					
			Smt. Ram Sakhi	Member	F										SHG				
			Ashok Kumari	Member	F										SHG				
			Sri Nathoo	Member	M											GP			
			Sri Trilok	Member	M											GP			
			Sri Shankerlal Baghel	Member	M														
3	Dailwara 2C2D1f2a		Sri Bhoopendra Singh	President	M														
			Sri Awadhesh Pratap Singh	Secretary	M														
			Sri Dayaram	Member	M									UG					
			Sri Battu Lal	Member	M									UG					
			Sri Bhola	Member	M									UG					
			Sri Luxmi Narain	Member	M									UG					
			Smt. Munni Devi	Member	F										SHG				
			Smt. Babita Raja	Member	F										SHG				
			Smt Ashok	Member	F											GP			
			Sri Bhagwan Das	Member	M											GP			
			Sri Nagesh Kumar	Member	M									GP					

			Sri Naresh Upadhyay	Member	M															
4	Kuwatala (2C2D1f2c)		Smt Deshkali	President	F															
			Sri Pawan Kumar	Secretary	M															
			Sri Ramcharan	Member	M						UG									
			Sri Bhaiyalal	Member	M						UG									
			Sri Malkhan	Member	M						UG									
			Sri Kalyan	Member	M						UG									
			Sri Hanna	Member	M						UG									
			Smt Rajkumari	Member	F							SHG								
			Smt Halki	Member	F							SHG								
			Sri Dinansh	Member	M									GP						
			Smt Shashi	Member	F									GP						
5	Silgan 2C2D1f2d		Sri K.S. Sharma	Member	M													A.S.C.I.		
			Sri Phool Singh	President	M															
			Sri Prem Narain	Secretary	M															
			Sri Asharam	Member	M						UG									
			Sri Kashiram	Member	M						UG									
			Sri Shyamlal	Member	M						UG									
			Sri Ashraf	Member	M						UG									
			Sri Sukha	Member	M							SHG								
			Sri Prakash	Member	M							SHG								
			Sri Raja Sahab	Member	M									GP						
			Sri Parmanand	Member	M									GP						
6	Durjanpura 2C2D1g1b		Sri Indrasen Sahi.	Member	M													A.S.C.I.		
			Sri Asharam	President	M															
			Sri dharmendra Kumar	Secretary	M															
			Sri Prakash Chandra Sharma	Member	M						UG									
			Sri Balram Yadav	Member	M						UG									
			Sri Jagdish Kushwaha	Member	M						UG									
			Smt Kiran	Member	F							SHG								
			Smt Aarti	Member	F							SHG								
			Smt Rajani	Member	F							SHG								
			Smt Ram Kumari	Member	F									GP						
			Smt Ram Devi	Member	F									GP						
7	Sivni Khurd 2C2D1g1b		Smt Uttara Devi	President	F															
			Sri Ramkumar	Secretary	M															
			Sri Mohan	Member	M						UG									
			Sri Roop Singh	Member	M						UG									
			Sri Govardhan	Member	M						UG									
			Sri Krishna Kumar	Member	M						UG									
			Sri Vonod Kumar	Member	M						UG									
			Smt Janki	Member	F							SHG								
			Smt Kiran	Member	F							SHG								
			Sri Nathuram	Member	F									GP						
			Sri Harun	Member	F									GP						
8	Jarwara		Smt SarojRaja	President	F															

2C2D4f2c	Sri Jitendar Singh	Secretary	M															
	Sri Nanhu	Member	M						UG									
	Sri Roshan	Member	M						UG									
	Sri Malkhan	Member	M						UG									
	Sri Sheetal	Member	M						UG									
	Sri chhoteRaja	Mwmbwe	M						UG									
	Sri Veer Singh	Member	M							SHG								
	Smt. Meera	Member	F							SHG								
	Sri Gajraj	Member	M								GP							
	Sri Nathu Singh	Member	M								GP							
Sri K.S. Sharma	Member	M											A.S.C.I.					
9	Budwar 2C2D5b1e	Smt Shakuntala Chobe	President	F														
		Sri Jahar Singh	Secretary	M														
		Sri Kashiram Namdev	Member	M						UG								
		Sri Sure Rajak	Member	M						UG								
		Sri Kapure Prajapati	Member	F						UG								
		Sri sher Singh	Member	M						UG								
		Smt Pyari Bahu	Member	F						UG								
		Smt Pragati Bharghav	Member	F							SHG							
		Smt Sharda	Member	F							SHG							
		Sri Shivraj Pal	Member	M								GP						
		Sri Vansh Kushwaha	Member	M								GP						
Sri Manoj Kumar	Member	M																

Note: WC to be constituted for each GP included in the MWS

Formation of Self Help Groups:

The formation of SHGs in all watershed villages is underway. It is proposed to form at least 2 SHGs in each village. Each SHG will consist of 12/15 members. The members would be mainly from landless, SCs and women, small and marginal farmers. Few groups exclusively of unemployed youth have also been identified. These groups will be homogeneous having common goal for increasing their income by establishing micro enterprise. Under the Project, each SHGs would be given a revolving fund of Rs.20000/25000 each after 6 months from the date of formation (subject to qualifying the 1st grading and meeting the laid down norms). After having discussions with the village community The SHGs may opt any of the Income Generating Activities from the list given below.

1. Bakery Products 2. Soap & Detergent making 3. Cutting and Tailoring 4. Embroidery 5. Fisheries 6. Mushroom cultivation 7. Household wiring, Motor winding 8. Plumbing 9. Carpentry 10. Bee keeping 11. Pickles, sauces, jam, jelly etc. 12. Two wheelers repairing 13. Animal husbandry 14. Backyard poultry 15. Vermi compost

However, decision for adopting Economic Activities would rest with respective SHGs. Accordingly; these SHGs would be imparted trainings in the IGAs they opt for. Preliminary survey reveals reasonable potentials for the above mentioned Economic Activities and these could prove to be beneficial to poor people residing in selected Watershed villages.

Table 4.5: Details of Self Help Groups (SHGs) in the project area

Project- IWMP -VI			District - Lalitpur															
1	2	3	4				5				6			7			8	
S. No.	Name of MWS	Names of villages	Total no. of Constituted/registered SHGs				No. of members				No. of SC/ST in each category			No. of BPL in each category			Date of formation of SHGs	
			With only Men	With only Women	With both	Total	Cate-gories	M	F	Total	M	F	Total	M	F	Total		
1	Gangaura 2C2D1f2c	Gangaura , Naigaon Kalan, Nigaon Khurd, Kuantala, Silgan	2			2												
2	Madwari 2C2D5b1f	Kala Pahar, Madwari, Toriya, Naigaon Kalan			2	2												
3	Dailwara 2C2D1f2a	Dailwara, Kargan, Amarpur, Khura		2		2												
4	Silgan I st 2C2D1f2e	Khura, Amarpur, Hasanwara, Silgan, Siwani Khurd			2	2												
5	Silgan II nd 2C2D1f2d	Gangaura , Khura, Silgan, Dailwara	2			2												
6	Sevani Khurd 2C2D1g1b	Silgan, Siwani Khurd, Durjnpura, Lalitpur Rural, Lalitpur (MB)		2		2												
7	Jarwara I st 2C2D4f2c	Toriya, Madwari, Gangaura , Dailwara, Kaikhara			2	2												
8	Nigaon Khurd 2C2D5b1e	Madwari, Naigaon Kalan, Gangaura , Nigaon Khurd, Burhwar	2			2												
		Total	6	4	6	16												

(M – Male, F – Female)

User groups:

The members of User groups would be those persons who would directly derive benefits from Watershed Activities. Resource use agreements are being worked out. The User groups will be responsible for the operation and maintenance of all the assets created under the Project. Formation of User groups is under process in all the villages covered under the Project. The members of User Groups would be imparted training by PIA for effectively managing the assets created.

Table 4.7: Details of User Groups

1 S N	2 Name of Micro watershed with code	3 Names of villages	4 Total no. of UGs				5 No. of members				6 No. of SC/ST in each category			7 No. of BPL in each category			8 Date of formation of UGs	
			Men	Women	Both	Total	Categories	M	F	Total	M	F	Total	M	F	Total		
1	Gangaura 2C2D1f2c	Gangaura , Naigaon Kalan, Nigaon Khurd, Kuantala, Silgan	10	2		12	(i) Landless											
							(ii) SF	√	√									
							(iii) MF	√	√									
							(iv) LF											
2	Madwari 2C2D5b1f	Kala Pahar, Madwari, Toriya, Naigaon Kalan	9	2	1	12	(i) Landless											
							(ii) SF	√	√									
							(iii) MF	√	√									
							(iv) LF											
3	Dailwara 2C2D1f2a	Dailwara, Kargan, Amarpur, Khura	9	2		11	(i) Landless											
							(ii) SF	√	√									
							(iii) MF	√	√									
							(iv) LF											
4	Silgan 1 st 2C2D1f2e	Khura, Amarpur, Hasanwara, Silgan, Siwani Khurd	10	1	1	12	(i) Landless											
							(ii) SF	√	√									
							(iii) MF											
							(iv) LF											

5	Silgan II nd 2C2D1f2d	Gangaura , Khura, Silgan, Dailwara	10	1		11	(i) Landless																	
							(ii) SF	√	√															
							(iii) MF																	
							(iv) LF																	
6	Sevani Khurd 2C2D1g1b	Silgan, Siwani Khurd, Durjnpura, Lalitpur Rural, Lalitpur (MB)	12	1	1	14	(i) Landless																	
							(ii) SF	√	√															
							(iii) MF																	
							(iv) LF																	
7	Jarwara I st 2C2D4f2c	Toriya, Madwari, Gangaura , Dailwara, Kaikhara	10	1	1	12	(i) Landless																	
							(ii) SF	√	√															
							(iii) MF																	
							(iv) LF																	
8	Nigaon Khurd 2C2D5b1e	Madwari, Naigaon Kalan, Gangaura , Nigaon Khurd, Burhwar	9	2		11	(i) Landless																	
							(ii) SF	√	√															
							(iii) MF																	
							(iv) LF																	
Total																								

(M – Male, F – Female)

Table 4.9: Details of Fund flow of Watershed Committee Accounts (Amount in Rs.)

Name of Project IWMP - VI

District – Lalitpur

S. No.	Name of MWS with code	Name of watershed committee (WC)	Opening Balance	Deposit			Withdrawal			Interest accrued	Closing balance
				DRDA/ ZP cheque No./date	Amount / Date of deposit in WC Account	Total amount available in WC Account	Amount withdrawn by Cash/ Cheque	Date of withdrawal	Purpose of withdrawal		
1	2	3	4	5	6	7	8	9	10	11	12
1	Silgan II nd 2C2D1f2d	Silgan		94531700098705	3/3/2012	10.50					
2	Dailwara 2C2D1f2a	Dailwara		94531700098723	3/3/2012	6.15					
3	Jarwara I st 2C2D4f2c	Jarwara		94531700098680	3/3/2012	6.00					
4	Nigaon Khurd 2C2D5b1e	Budwar		94531700098662	3/3/2012	-					
5	Sevani Khurd 2C2D1g1b	Durjanpura		94531700098732	3/3/2012	-					
6	Gangaura 2C2D1f2c	Gangaura		94531700098741	3/3/2012	12.50					
7	Madwari 2C2D5b1f	Madwari		94531700098671	3/3/2012	6.50					
8	Gangaura 2C2D1f2c	Kuwatala		94531700098699	3/3/2012	5.15					
9	Sevani Khurd 2C2D1g1b	Sevani Khurd		94531700098714	3/3/2012	-					
1	Total for Project					46.80					

Convergence in IWMP-VI, Lalitpur: Several Central and State Govt. sponsored programmes are running in the district Lalitpur. Some of them are listed below.

Table 4.10: List of Central/State sponsored schemes

S.No.	Name of Programme	Implementing Agency	Objectives of the Programme
1.	Seed Distribution Programme (Pulse Development & ISOPAM)	U.P. Agriculture Deptt.	To increase seed replacement ratio for higher productivity
2.	Pump set Distribution (Food Security Mission)	Agriculture Deptt.	To Provide irrigation facilities
3.	Training Programme	Agriculture Deptt.	To increase Capacity building of the farmers
4.	HDPE pipe	Agriculture Deptt.	-
5.	National Horticulture Mission (NHM)	Horticulture Deptt.	To Increase fruits & vegetable production
6.	Sanitation Programme	Gram Vikash	To make hygienic condition in the rural areas
7.	Mid Day Meal	Gram Panchayat (DSO)	To provide education to school children without hunger
8.	MGNERGA (Bunding, Farm Pond, Adarsh Jalashay, Blast well, Chakroad, etc.)	Gram Panchayat	To provide work to all village personnel under the Rojgar Guarantee Yojana
9.	ATMA	U.P. Ag. Deptt.	Horizontal spread of improved technologies
10.	Dept. of Animal Husbandry	U.P. Animal Husbandry	To improve the productivity of livestock

Table 4.11: Details of Convergence of IWMP with other Schemes in IWMP- VI, Lalitpur

S. No.	Name of Micro Watershed	Names of Departments with Schemes converging with IWMP	Fund made available to IWMP due to convergence (Rs. in lakh)	Was this fund included in Rs.12,000/15,000 per ha.		Name of activity/task/structure undertaken with converged funds	Reference no. of activity/ task/ structure in DPR [@]	Level at which decision for convergence was taken ^{\$}
				Yes	No			
1	2	4	5	6	7	8	9	10
1	Gangaura 2C2D1f2c	MNREGA	5.60			Structures		
2	Madwari 2C2D5b1f	MNREGA	6.32			Structures		
3	Dailwara 2C2D1f2a	MNREGA	4.36			Structures		
4	Silgan I st 2C2D1f2e	MNREGA	7.65			Structures		
5	Silgan II nd 2C2D1f2d	MNREGA	8.25			Structures		
6	Sevani Khurd 2C2D1g1b	MNREGA	2.35			Structures		
7	Jarwara I st 2C2D4f2c	MNREGA	6.96			Structures		
8	Nigaon Khurd 2C2D5b1e	MNREGA	6.81			Structures		
	Total for project		48.30					

CHAPTER-5

MANAGEMENT/ACTION PLAN

ENTRY POINT ACTIVITY (EPA)

EPA activities are taken up under watershed projects to newly build or repair the already existing structures with the consultation of 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 24.96 Lakhs was allotted for EPA activity, which was 4 per cent of total allocated budget. The villagers discussed various activities which they felt is important but after a brief discussion it was conveyed to them that only those activities can be taken, which revive the common natural resources. It was also taken into priority that there should be an instrument of convergence which will result in sustainability of activities.

In total 18 EPA activities were executed in the project area with an budget of Rs. 24.96 Lakhs. Photographs of Entry Point Activities done in the project are given below:

Table 5.1: Entry point activities (EPA)

S. No.	Name of The Project	Amount Earmarked for EPA	Entry Point Activities	Location/ villages	Estimated Cost (Rs. in Lakh)
1	Sevani Khurd 2C2D1g1b	24.96	Bathroom & Soakpit, Bathroom-II, Well Maintenance with platform Pucca Nali. Rapair kharanja	Shivni Khurd At Sahariya Basti, Shivni Khurd, At village entrance At village road	24.96
2	Gangaura 2C2D1f2c		Bathroom -1 & Handpump Platform Bathroom – II & Soakpit C.D. Maintenance Krishak munch & Kharanja	Gangaura Near House of Kmla Prasad Near House of Paltoo Near Dayaram field Gangaura Near House of Ratirqam at Raogarh	
3	Jerwara I st 2C2D4f2c		Krishak munch Krishak munch & Well Maintenance	Jairwara Village Temple Jairwara Ahirwar basti Jairwara	
4	Nigaon Khurd 2C2D5b1e		Krishak munch-I Krishak munch-II Krishak munch-III & Kharanja work	Nayagaun Near House of Gokul Sahariya Near House of Pyarelal teacher Near House of Hariram	
5	Gangaura 2C2D1f2c		Krishak munch	Kuatala In front of Primary School, Kuatala	
6	Dailwara 2C2D1f2a		Krishak munch-I Krishak munch-II Kharanja work	Dailwara Near Kali Mandir at village Dailwara Sahariya Basti, Dailwara	
7	Silgan I st 2C2D1f2e Silgan II nd 2C2D1f2d		Krishak munch-I Krishak munch-II Kharanja work Hand Pump Bathroom platform-2	Silgan Sahariya Basti, Silgan Kushwaha Basti, near road side at village silgan	
8	Silgan I st 2C2D1f2e		Krishak munch-I Bathroom platform-3 Kharanja work – 20 m	Khura Sahariya Basti, Khura and other at village	
			Total		24.96

Details of Livelihood Activities in the project area

During discussions with the village communities by our Livelihood experts, several activities were discussed with them. The main objectives of these discussions were:

- Assure one livelihood option to poor families
- Assured livelihood for at least 300 days in a year
- At least one daily job per family SCs/BPL/ very poor families.

Form SHGs would be imparted skill training on identified Economic Activities and it is proposed to impart them trainings. It is proposed to lend revolving fund of Rs. 25000/- to each SHG/individuals formed in the watershed villages. Since the members from SHGs/landless are very poor, they do not have resources to start micro enterprises. It is envisaged that they should be assisted and given loan of this amount in the shape of Revolving Fund Assistance (RFA) so that they do not get trapped by money lenders. Funds thus given on loan are recoverable from SHGs/individuals in easy installments. It is also proposed to impart skill training to at least 10 unemployed youth from each village and give them trainings of their choice so that they establish some small enterprises. It is further proposed to give them interest free loan of Rs. 12000/- each as Revolving Fund Assistance (RFA) to meet their urgent needs of funds for establishing micro enterprises. Such funds recovered could either be back to SHGs/ individuals so some other SHGs/ individuals depending upon assessment of their respective needs. It is proposed to form 2 SHGs in each village and identify at least 10 youths in each village for imparting training and giving Revolving Fund.

Activities that is likely to be taken up by SHGs/ individuals

Table 5.2: LIVELIHOOD ACTION PLAN-LAP
GRAM PANCHAYAT WISE FINANCIAL BREAK UP OF LIVELIHOOD ACTIVITIES
IWMP-VI, DISTRICT- LALITPUR

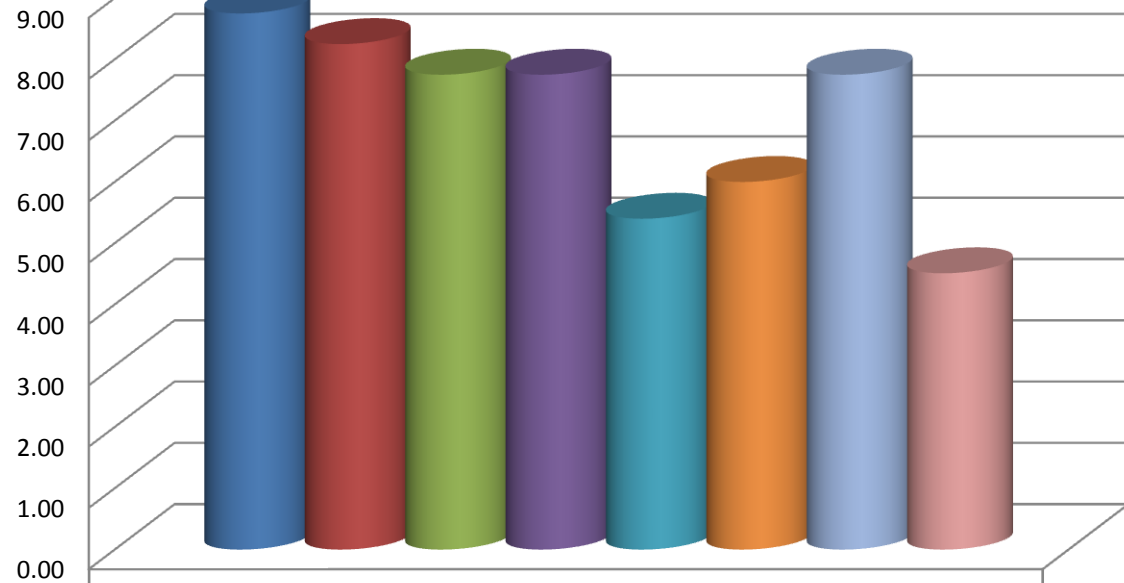
Amount in Lacs

S. No.	Gram Panchayat	Proposed Amount	Livelihood Activities 9% of the Total project Cost				
			2010-11	2011-12	2012-13	2013-14	TOTAL
1	Madwari	6.10	0.92	1.53	1.65	2.01	6.10
2	Jaikhara	6.65	1.00	1.66	1.80	2.19	6.65
3	Lalitpur Rural	6.05	0.91	1.51	1.63	2.00	6.05
4	Siwani Khurd	6.95	1.04	1.74	1.88	2.29	6.95
5	Burhwar	4.56	0.68	1.14	1.23	1.50	4.56
6	Silgan	5.90	0.89	1.48	1.59	1.95	5.90
7	Gangora	6.05	0.91	1.51	1.63	2.00	6.05
8	Kargan	7.30	1.10	1.83	1.97	2.41	7.30
9	Dailwara	6.60	0.99	1.65	1.78	2.18	6.60
	TOTAL	56.16	8.42	14.04	15.16	18.53	56.16

DETAILS OF LIVELIHOOD ACTIVITIES AT GLANCE UNDER IWMP-VI, DISTRICT- LALITPUR

S. No	Gram Panchayat	General Merchant Shop					Goat Keeping					Poultry					Diary				
		2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total
1	Madwari		1	2	1	4		1	2	1	4		1	2	1	4		1	2	1	4
2	Jaikhara		2	1	1	4		1	2	1	4		1	1	1	3			1	1	2
3	Lalitpur Rural		1	2	1	4		2	1	1	4		1	1	1	3		1	1	1	3
4	Siwani Khurd		1	1	2	4		1	2	1	4		2	1	1	4		2	1	1	4
5	Burhwar		1	1	1	3			1	1	2		1	1	1	3		1	1	1	3
6	Silgan		1	1	1	3		2	1	1	4		1		1	2		2	2		4
7	Gangora		1	2	1	4		1	1	1	3		2	1	1	4		1	1	1	3
8	Kargan		2	1	1	4		2	2	1	5		1	2	1	4		2	1	1	4
9	Dailwara		1	2	2	5		2		1	3		1	2	1	4		1	2	1	4
S. No	Gram Panchayat	Tailoring					Piggeries					Sculpture					Dona Pattal				
		2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total
1	Madwari		2			2		1	1	1	3			1	1	2		1	1	1	3
2	Jaikhara		2	1	1	4		1	2		3		2	3		5		1	2	1	4
3	Lalitpur Rural		2	1		3		1		1	2		2	1	1	4		1	1	1	3
4	Siwani Khurd			2	1	3		1	2		3		2	1	1	4		1	2	1	4
5	Burhwar		2		1	3				1	1		2			2		1	1	1	3
6	Silgan		1	2		3		1		2	3		2	1	1	4		1		1	2
7	Gangora		2		1	3		1	2		3		2		1	3		1	1	1	3
8	Kargan		1	1	1	3		1	1	1	3		2	2	1	5		1	1	1	3
9	Dailwara		1	1	1	3		1	2		3			1	1	2		1	3	1	5

Livelihood Expenditure on Different Activities



	Amount in Lacs
General Merchant Shop	8.75
Goat Keeping	8.25
Poultry	7.75
Diary	7.75
Tailoring	5.40
Piggeries	6.00
Sculpture	7.75
Dona Pattla	4.51

Approx Rate:

General Merchant Shop @ Rs. 25000/- per shop.

Goat Keeping @ Rs. 25000/- per Goat and 02 Goat will be given per beneficiary costing Rs. 3000/- per number

Poultry -(Chuja, feed and other support item) per beneficiary @ Rs.25000/-

Diary @ Rs. 25000/- per beneficiary

Tailoring @ Rs. 20000/- per beneficiary

Piggeries @ Rs. 25000/- per beneficiary, Sculpture @ 25000/-, Dona Pattla @ 15000/- per beneficiary

ACTIVITIES RELATED TO SHGs: Activities relating to income generation have been identified after several discussions with village communities. However final discussion in this regard will be taken after SHGs matures for 1st grading. Some of the activities identified are as under:

- Cutting & Tailoring
- Household wiring, motor winding
- Carpentry
- Bee keeping
- Pickles, sauces, jam, jelly, etc.
- Two wheelers repairing
- Animal husbandry/ Dairy
- Goat Rearing.
- General store shops, etc.
- Bakery products
- Embroidery
- Vermi compost
- Backyard poultry
- Mushroom cultivation

There appears to be great potential for these activities and these activities are likely to generate income of Rs.2000/- to Rs.2500/- per member/per month. However no activities would be forced upon any SHGs and they would be free to decide the activity they would like to opt for their additional income. Based on their choice, Project report for the specified activity would be prepared and revolving fund of Rs.20000/Rs.25000/- per SHG would be given for running their respective micro enterprise. If need arises

for more funds for their Income Generation Activities at later stage, they would be assisted in getting loan from banks. SHGs thus formed would be provided all possible assistance to uplift for their Socio-Economic upliftment.

The following table gives expected income likely to be generated by SHGs:

Farm Production System (10%)

GRAM PANCHAYAT WISE FINANCIAL BREAK UP OF PRODUCTION & MICRO ENTERPRISES, IWMP-VI, DISTRICT-LALITPUR

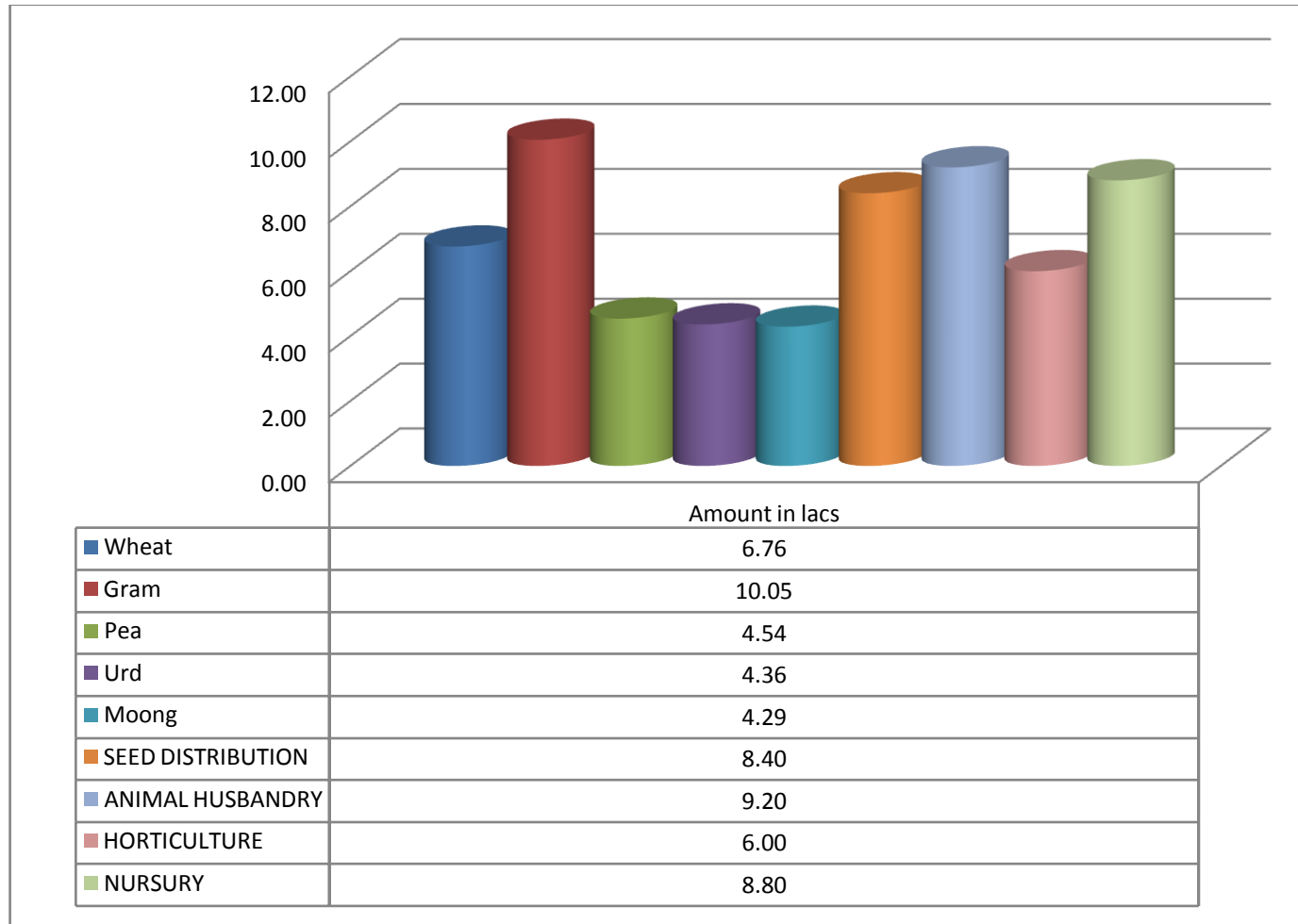
Amount in Lacs

S. No.	Gram Panchayat	Proposed Amount	Production System & Microenterprises 10% of the Total Project Cost				
			2010-11	2011-12	2012-13	2013-14	TOTAL
1	Madwari	7.42	0.00	1.85	2.60	2.97	7.42
2	Jaikhara	6.98	0.00	1.74	2.44	2.79	6.98
3	Lalitpur Rural	7.05	0.00	1.76	2.47	2.82	7.05
4	Siwani Khurd	7.11	0.00	1.78	2.49	2.84	7.11
5	Burhwar	6.55	0.00	1.64	2.29	2.62	6.55
6	Silgan	6.68	0.00	1.67	2.34	2.67	6.68
7	Gangora	6.75	0.00	1.69	2.36	2.70	6.75
8	Kargan	6.74	0.00	1.69	2.36	2.70	6.74
9	Dailwara	7.14	0.00	1.79	2.50	2.86	7.14
	TOTAL	62.40	0.00	15.60	21.84	24.96	62.40

**DETAILS OF PRODUCTION SYSTEM & MICRO ENTERPRISES ACTIVITIES AT GLANCE UNDER
IWMP-VI, DISTRICT- LALITPUR**

S. N o.	Gram Panchayat	CROP DEMONSTRATION																								
		Wheat					Gram					Pea					Urd					Moong				
		2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total
1	Arwari Naudiya	0	2	3	2	7	0	2	3	2	7	0	3	2	2	7	0	3	2	3	8	0	2	3	2	7
2	Bamburi	0	2	2	2	6	0	3	2	2	7	0	2	2	3	7	0	2	3	3	8	0	3	2	3	8
3	Biyawal Mustkil	0	1	2	3	6	0	2	2	2	6	0	2	3	2	7	0	3	2	2	7	0	2	3	2	7
4	Chhataini Mafi	0	2	3	2	7	0	2	2	3	7	0	3	2	2	7	0	2	2	3	7	0	3	2	2	7
5	Chhiolaha	0	3	1	2	6	0	2	2	2	6	0	2	2	3	7	0	3	2	3	8	0	2	3	2	7
6	Gadhawa	0	1	2	1	4	0	2	3	2	7	0	2	3	2	7	0	2	3	2	7	0	3	2	3	8
7	Konpa	0	2	1	3	6	0	2	2	2	6	0	3	2	2	7	0	3	2	3	8	0	2	3	2	7
8	Kotara Khambha	0	1	1	2	4	0	3	2	2	7	0	2	3	2	7	0	2	2	3	7	0	3	2	2	7
9	Man Kunwar Mustakil	0	2	3	1	6	0	2	2	3	7	0	2	3	2	7	0	3	2	2	7	0	2	3	3	8
S. N o.	Gram Panchayat	ANIMAL HUSBANDRY					HORTICULTURE					NURSURY					SEED DISTRIBUTION									
		2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total	2010-11	2011-12	2012-13	2013-14	Total					
1	Arwari Naudiya	0	2	1	2	5	0	2	1	2	5	0	2	1	2	5	0	2	1	2	5	0	2	1	2	5
2	Bamburi	0	1	2	2	5	0	1	2	1	4	0	1	2	1	4	0	2	2	1	5	0	2	2	1	5
3	Biyawal Mustkil	0	2	2	1	5	0	2	1	2	5	0	2	1	2	5	0	2	1	2	5	0	2	1	2	5
4	Chhataini Mafi	0	2	2	2	6	0	1	2	2	5	0	1	2	1	4	0	1	1	2	4	0	1	1	2	4
5	Chhiolaha	0	1	2	2	5	0	1	2	1	4	0	2	1	1	4	0	1	2	1	4	0	1	2	1	4
6	Gadhawa	0	2	2	1	5	0	2	1	1	4	0	1	2	2	5	0	2	1	1	4	0	2	1	1	4
7	Konpa	0	2	1	2	5	0	1	1	2	4	0	2	1	1	4	0	1	2	2	5	0	1	2	2	5
8	Kotara Khambha	0	1	2	2	5	0	2	2	1	5	0	1	2	1	4	0	2	1	2	5	0	2	1	2	5
9	Man Kunwar Mustakil	0	2	2	1	5	0	1	1	2	4	0	2	1	2	5	0	2	1	2	5	0	2	1	2	5

Crop Demonstration



Crop demonstration is wheat @ Rs. 13000/ha, Gram @ Rs.16800/ha, Pea @ Rs. 7200/ha, Urd @ Rs. 6500/ha, Moong @ Rs. 6500/ha, Seed Distribution @ Rs. 20000/-, Horticulture toolkit @ Rs. 15000/- and Nursery @ Rs. 22000/- , Animal Husbandry @ 20000/-

The above action plan has been prepared according to the need and resources available in the project area. Individual activity fund distribution has been made the details would be given beneficiary wise in the project file. Demonstration of crop, animal husbandry camp distribution of seed and plantation of fruit trees are the essential requirement of the project area. Therefore the above plan has been constituted according to the aforesaid activity and the funds were allocated as per the norms. The above activity map has been attached in the respective chapter.

MAJOR PROBLEMS OF THE WATERSHEDS

- Moisture stress-Drought conditions
- Erosion hazard
- Excess runoff .
- Land degradation
- Low fertility of soil
- Ground water depletion/Low ground water table, poor quality of groundwater
- Low cropping intensity
- Lack of technical knowledge
- Lack of irrigation facilities
- Low productivity of crops
- Low availability of drinking water for human as well as animals
- Overgrazing
- Poor vegetative cover
- Poor/low productive breeds of milch animals
- Lower milk production
- Lack of feed & fodder availability
- Non availability of wood/fuel
- Lack of proper market facilities
- Lack of educational, transportation, medical & health care facilities
- Low wages

- Small land holdings
- Low income of the households
- Lack of employment opportunity.
- Migration from the project area.

An annual action plan for the entire activity of the project according to availability of budget has been proposed for the annual schedule from 2010-11 to 2013-14. The details given below.

Gram Panchayat wise Breakup of Watershed Development Work, Livelihood and Production System & Micro Enterprise

S. No.	GRAM PANCHAYAT	AREA	Watershed Development Work	Livelihood Activities	Production System & Micro Enterprises	Total	Remarks
1	Madwari	513	34.47	6.10	7.42	47.99	
2	Jaikhara	435	29.23	6.65	6.98	42.86	
3	Lalitpur Rural	540	36.29	6.05	7.05	49.38	
4	Siwani Khurd	296	19.89	6.95	7.11	33.95	
5	Burhwar	249	16.73	4.56	6.55	27.84	
6	Silgan	1011	67.94	5.90	6.68	80.52	
7	Gangora	1444	97.04	6.05	6.75	109.84	
8	Kargan	259	17.40	7.30	6.74	31.44	
9	Dailwara	453	30.44	6.60	7.14	44.18	
	TOTAL	5200	349.44	56.16	62.40	468.00	

Financial Break up of Watershed Development Works For Project Proposed 2009-10

Fin. : in Lacs

Name & Code of MWS	Activity	Gram Panchayat	Target as AAP				
			2010-11	2011-12	2012-13	2013-14	Total
Madwari 2C2D5b1f, Jarwara I st 2C2D4f2c, Naiguwan Khurd 2C2D5b1e, Gangaura 2C2D1f2c, Silgan I st 2C2D1f2e, Silgan II nd 2C2D1f2d, Dailwara 2C2D1f2a, Shivani Khurd 2C2D1g1b	Land Development	Madwari Jaikhara Lalitpur Rural Siwani Khurd Burhwar Silgan Gangora Kargan Dailwara					
	Afforestation		0.00	4.97	4.80	5.82	15.58
	Horticulture		0.00	2.03	1.96	2.37	6.35
	Agriculture						
	SMC						
	Contour Bonding		0.00	34.88	33.68	40.79	109.34
	Bench terracing						
	Others FB/MB/PFB		0.00	26.61	25.67	31.10	83.38
	Veg. & Engg. Structures						
	Earthen Checks		0.00	13.77	13.30	16.10	43.17
	Gully Plugs		0.00	4.85	4.69	5.68	15.23
	Loose Boulders						
	Gabion Structures						
	Others		0.00	1.19	1.16	1.40	3.74
	WHS						
	Farm Ponds		0.00	1.84	1.76	2.14	5.73
	Check dams/Tanks		0.00	13.12	12.70	15.36	41.18
	Nallah Bunds		0.00	2.56	2.46	2.99	8.00
	Percolation Tanks						
	Ground Water Recharge Structures		0.00	2.23	2.16	2.61	7.00
Others WHB/SB	0.00	3.42	3.32	4.01	10.74		
Sub Total			0.00	111.47	107.64	130.35	349.44

Name & Code of MWS	Livelihood	Gram Panchayat	G M S	G K	P	D	T	P	S T	D P	Amount	
Madwari 2C2D5b1f, Jarwara I st 2C2D4f2c, Naiguwan Khurd 2C2D5b1e, Gangaura 2C2D1f2c, Silgan I st 2C2D1f2e, Silgan II nd 2C2D1f2d, Dailwara 2C2D1f2a, Shivani Khurd 2C2D1g1b	General Merchant Shop @ Rs. 25000/- per shop. Goat Keeping @ Rs. 25000/- per Goat and 02 Goat will be given per beneficiary costing Rs. 3000/- per number Poultry -(Chuja, feed and other support item) per beneficiary @ Rs.25000/- Diary @ Rs. 25000/- per beneficiary Tailoring @ Rs. 20000/- per beneficiary Piggeries @ Rs. 25000/- per beneficiary, Stone Working @ 25000/-, Dona Pattla @ 15000/- per bebeficiary	Madwari	4	4	4	4	2	3	2	3	6.10	
		Jaikhara	4	4	3	2	4	3	5	4	6.65	
		Lalitpur Rural	4	4	3	3	3	2	4	3	6.05	
		Siwani Khurd	4	4	4	4	3	3	4	4	6.95	
		Burhwar	3	2	3	3	3	1	2	3	4.56	
		Silgan	3	4	2	4	3	3	4	2	5.90	
		Gangora	4	3	4	3	3	3	3	3	6.05	
		Kargan	4	5	4	4	3	3	5	3	7.30	
Dailwara	5	3	4	4	3	3	2	5	6.60			
Sub Total			35	33	31	31	27	24	31	30	56.16	
Name & Code of MWS	Production System & Microenterprises	Gram Panchayat	Crop Demonstration					S D	A H	H T	N	Total
			W	G	P	Urd	M					
Madwari 2C2D5b1f, Jarwara I st 2C2D4f2c, Naiguwan Khurd 2C2D5b1e, Gangaura 2C2D1f2c, Silgan I st 2C2D1f2e, Silgan II nd 2C2D1f2d, Dailwara 2C2D1f2a, Shivani Khurd 2C2D1g1b	Crop demonstration is wheat @ Rs. 13000/ha, Gram @ Rs.16800/ha, Pea @ Rs. 7200/ha, Urd @ Rs. 6500/ha, Moong @ Rs. 6500/ha, Seed Distribution @ Rs. 20000/-, Horticulture toolkit @ Rs. 15000/- and Nursery @ Rs. 22000/- , Animal Husbandry @ 20000/-	Madwari	7	7	7	8	7	5	5	5	5	7.42
		Jaikhara	6	7	7	8	8	5	5	4	4	6.98
		Lalitpur Rural	6	6	7	7	7	5	5	5	5	7.05
		Siwani Khurd	7	7	7	7	7	4	6	5	4	7.11
		Burhwar	6	6	7	8	7	4	5	4	4	6.55
		Silgan	4	7	7	7	8	4	5	4	5	6.68
		Gangora	6	6	7	8	7	5	5	4	4	6.75
		Kargan	4	7	7	7	7	5	5	5	4	6.74
Dailwara	6	7	7	7	8	5	5	4	5	7.14		
Sub Total			52	60	63	67	66	42	46	40	40	62.40
Grand Total												468.00

CHAPTER – 6
CAPACITY BUILDING PLAN

The total amount in this activity is Rs 31.20 Lacs have been allocated. According to distribution of fund in different level, a comprehensive detail action plan has been prepared for proper execution of human resource development in the project activities.

Year-wise bifurcation of capacity building activities IWMP-VI, Lalitpur

			First Year				Second Year					
S. No.	Level	Total no of person	No of person to be trained	No of training to be conduct	Training day	Total Cost	No of person to be trained	No of training to be conduct	Training day	Total Cost		
1	SLNA					0.75					0.50	
2	WCDC	12	12	4	4	1.87	12	3	3	1.25		
3	PIA	20	20	3	3	1.72	15	3	4	1.15		
4	WDT	4	4	10	3	0.86	4	4	4	0.57		
5	SHG	90	90	1	2	2.15	80	1	2	1.44		
6	UG	120	120	1	2	3.01	150	1	2	2.01		
7	WC	175	175	1	1	0.86	200	1	1	0.57		
	TOTAL					11.23					7.49	
			Third Year				Fourth Year					
S. No.	Level	Total no of person	No of person to be trained	No of training to be conduct	Training day	Total Cost	No of person to be trained	No of training to be conduct	Training day	Total Cost	Grand total	
1	SLNA					0.62				0.00	1.87	
2	WCDC	12	10	3	4	1.56	0	0	0	0.94	5.62	
3	PIA	20	12	2	4	1.44	10	2	4	0.44	4.74	
4	WDT	4	4	4	5	0.72	4	2	5	0.22	2.37	
5	SHG	90	80	1	2	1.79	50	1	1	0.55	5.93	
6	UG	120	175	1	2	2.51	75	1	1	0.76	8.30	
7	WC	175	210	1	1	0.72	200	1	1	0.22	2.37	
	TOTAL					9.36				3.12	31.20	

CHAPTER -7
PHASING OF PROGRAMME
& BUDGETING

**FINANCIAL BREAKUP OF VARIOUS COMPONENT IN TERMS OF % OF IWMP-VI,
DISTRICT- LALITPUR**

Amount in Lacs

S. No	Micro Watershed	Project Area	Proposed Amount	Administrative 10%	EPA 4%	Institution and CB 5%	DPR 1%	Watershed development work 56%	Livelihood for asset less 9%	Production system and Microenterprises 10%	Monitoring 1%	Evaluation 1%	Consolidation 3%	Total 100%
1	Madwari	565	67.80	6.78	2.71	3.39	0.68	37.97	6.10	6.78	0.68	0.68	2.03	67.80
2	Jarwara I st	720	86.40	8.64	3.46	4.32	0.86	48.38	7.78	8.64	0.86	0.86	2.59	86.40
3	Naiguwan Khurd	540	64.80	6.48	2.59	3.24	0.65	36.29	5.83	6.48	0.65	0.65	1.94	64.80
4	Gangaura	670	80.40	8.04	3.22	4.02	0.80	45.02	7.24	8.04	0.80	0.80	2.41	80.40
5	Silgan I st	754	90.48	9.05	3.62	4.52	0.90	50.67	8.14	9.05	0.90	0.90	2.71	90.48
6	Silgan II nd	735	88.20	8.82	3.53	4.41	0.88	49.39	7.94	8.82	0.88	0.88	2.65	88.20
7	Dailwara	496	59.52	5.95	2.38	2.98	0.60	33.33	5.36	5.95	0.60	0.60	1.79	59.52
8	Shivani Khurd	720	86.40	8.64	3.46	4.32	0.86	48.38	7.78	8.64	0.86	0.86	2.59	86.40
	Total	5200	624.00	62.40	24.96	31.20	6.24	349.44	56.16	62.40	6.24	6.24	18.72	624.00

YEARWISE PHYSICAL AND FINANCIAL BREAK UP OF WORK COMPONENT OF IWMP-VI, DISTRICT-LALITPUR

Phy. in ha. Amount in Lacs

Watershed Development Works

S. No.	Micro Watershed	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Madwari	565	37.97	75.65	5.09	164.98	11.09	161.42	10.85	162.95	10.95	565.00	37.97
2	Jarwara Ist	720	48.38	96.41	6.48	210.24	14.13	205.70	13.82	207.65	13.95	720.00	48.38
3	Naiguwan Khurd	540	36.29	72.31	4.86	157.68	10.59	154.28	10.37	155.74	10.47	540.00	36.29
4	Gangaura	670	45.02	89.71	6.03	195.64	13.15	191.42	12.86	193.23	12.98	670.00	45.02
5	Silgan Ist	754	50.67	100.96	6.79	220.17	14.79	215.42	14.48	217.45	14.61	754.00	50.67
6	Silgan IInd	735	49.39	98.42	6.62	214.62	14.42	209.99	14.11	211.97	14.24	735.00	49.39
7	Dailwara	496	33.33	66.41	4.46	144.83	9.73	141.71	9.52	143.05	9.61	496.00	33.33
8	Shivani Khurd	720	48.38	96.41	6.48	210.24	14.13	205.70	13.82	207.65	13.95	720.00	48.38
	Total	5200	349.44	696.28	46.80	1518.40	102.02	1485.64	99.84	1499.68	100.78	5200.00	349.44

**GRAM PANCHAYAT WISE PHYSICAL AND FINANCIAL BREAK UP OF WORK
COMPONENT OF IWMP-VI, DISTRICT-LALITPUR**

MWS Code-2C2D5b1f (Madwari)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Madwari	441	29.64	59.05	3.97	128.77	8.65	125.99	8.47	127.18	8.55	441	29.64
2	Gangora	124	8.33	16.60	1.12	36.21	2.43	35.43	2.38	35.76	2.40	124	8.33
	Total	565	37.97	75.65	5.09	164.98	11.09	161.42	10.85	162.95	10.95	565	37.97

MWS Code-2C2D4f2c (Jarwara Ist)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Dailwara	158	10.62	21.16	1.42	46.14	3.10	45.14	3.03	45.57	3.06	158	10.62
2	Jaikhara	435	29.23	58.25	3.92	127.02	8.53	124.28	8.35	125.45	8.43	435	29.23
3	Madwari	50	3.36	6.70	0.45	14.60	0.98	14.29	0.96	14.42	0.97	50	3.36
4	Gangora	77	5.17	10.31	0.69	22.48	1.51	22.00	1.48	22.21	1.49	77	5.17
	Total	720	48.38	96.41	6.48	210.24	14.13	205.70	13.82	207.65	13.95	720	48.38

MWS Code- 2C2D5b1e (Nigaon Khurd)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Madwari	22	1.48	2.95	0.20	6.42	0.43	6.29	0.42	6.34	0.43	22	1.48
2	Gangora	460	30.91	61.59	4.14	134.32	9.03	131.42	8.83	132.66	8.91	460	30.91
3	Burhwar	58	3.90	7.77	0.52	16.94	1.14	16.57	1.11	16.73	1.12	58	3.90
	Total	540	36.29	72.31	4.86	157.68	10.59	154.28	10.37	155.74	10.47	540	36.29

MWS Code- 2C2D1f2c (Gangora)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Gangora	398	26.75	53.29	3.58	116.22	7.81	113.71	7.64	114.78	7.71	398	26.75
2	Silgan	81	5.44	10.85	0.73	23.65	1.59	23.14	1.56	23.36	1.57	81	5.44
3	Burhwar	191	12.84	25.57	1.72	55.77	3.75	54.57	3.67	55.08	3.70	191	12.84
	Total	670	45.02	89.71	6.03	195.64	13.15	191.42	12.86	193.23	12.98	670	45.02

MWS Code- 2C2D1f2e (Silgan I)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Silgan	540	36.29	72.31	4.86	157.68	10.59	154.28	10.37	155.74	10.47	540	36.29
2	Siwani Khurd	214	14.38	28.65	1.93	62.49	4.20	61.14	4.11	61.72	4.15	214	14.38
	Total	754	50.67	100.96	6.79	220.17	14.79	215.42	14.48	217.45	14.61	754	50.67

MWS Code- 2C2D1f2d (Silgan II)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Dailwara	58	3.90	7.77	0.52	16.94	1.14	16.57	1.11	16.73	1.12	58	3.90
2	Gangora	385	25.87	51.55	3.47	112.42	7.55	109.99	7.39	111.03	7.46	385	25.87
3	Silgan	292	19.62	39.10	2.63	85.26	5.73	83.42	5.61	84.21	5.66	292	19.62
	Total	735	49.39	98.42	6.62	214.62	14.42	209.99	14.11	211.97	14.24	735	49.39

MWS Code- 2C2D1f2a (Dailwara)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Dailwara	237	15.93	31.73	2.13	69.20	4.65	67.71	4.55	68.35	4.59	237	15.93
2	Kargan	259	17.40	34.68	2.33	75.63	5.08	74.00	4.97	74.70	5.02	259	17.40
	Total	496	33.33	66.41	4.46	144.83	9.73	141.71	9.52	143.05	9.61	496	33.33

MWS Code- 2C2D1g1b (Siwani Khurd)

S. No.	Gram Panchayat	Project Area	Proposed Amount	2010-11		2011-12		2012-13		2013-14		TOTAL	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Silgan	98	6.59	13.12	0.88	28.62	1.92	28.00	1.88	28.26	1.90	98	6.59
2	Siwani Khurd	82	5.51	10.98	0.74	23.94	1.61	23.43	1.57	23.65	1.59	82	5.51
3	Lalitpur Rural	540	36.29	72.31	4.86	157.68	10.59	154.28	10.37	155.74	10.47	540	36.29
	Total	720	48.38	96.41	6.48	210.24	14.13	205.70	13.82	207.65	13.95	720	48.38

CHAPTER -8

CONSOLIDATION / EXIT STRATEGY

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 fund generated.

USER CHARGES

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

SUSTAINABILITY AND ENVIRONMENT SECURITY

In the proposed watershed management plan of I.W.M.P.-3 Lalitpur watershed, proper blending of bio engineering measures will be applied on 60% of the total watershed area. Based on the results of studies conducted in this region, it is estimated that more 50% of the watershed area will be treated and consequently the soil loss and runoff from the area is expected to be reduced by 70% and 65% respectively. The proposed land use plan will improve the land utilization index and crop diversification index significantly as compared to the existing one. It will help in maintaining ecosystem integrity on sustained basis along with improving the livelihood security of the farming community.

ECONOMIC ANALYSIS

Economic analysis of the project was carried by taking direct benefits and costs considering 25 year project life at 10 per cent discount rate. For this purpose of economic analysis, whole watershed development plan was divided into three sectors namely,

Agriculture, horticulture and forest/fuel wood plantation. Net present value (NPV), Benefit cost ratio (BC) ratio criteria were employed to judge the economic efficiency of each enterprise and sector.

AGRICULTURE

In rainfed agriculture the development cost can be recovered within one year as the present rainfed agriculture is being done on well maintained field, therefore, does not require much investment.

CHAPTER -9
EXPECTED OUTCOME

EMPLOYMENT

Employment has always been a problem in the village. The principal occupations of the people are dry land agriculture, animal husbandry and casual labour work. Animal husbandry does not keep them engaged full time, thus the people mainly depend upon casual labour, either in the village itself or outside it.

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

Labour migration in search of gainful employment is one of the major problems in the remote watershed in particular. Casual employment opportunities will be generated during the implementation of the project activities. However, the changes in land use pattern and adoption of other subsidiary enterprises will generate employment opportunities for persons in the watershed.

MIGRATION

On account of agriculture and animal husbandry providing only part time employment for some part of the year, the people migrate for a better half of the year for wage labour. Employment opportunities in the local area as mentioned above will ensure lessening seasonal migration from the area.

DRINKING WATER

As a result of the watershed activities, it is expected that the quantity and quality of drinking water would be improve. The ground water quality of the project area is normal to good, the average Ph value is 6.7 to 7.8, the Electric conductivity of the ground water is about 957 to 1125 μ . The overall analysis of the ground water shows that the water is good for the drinking purpose. The water level in the project area ranges from 14.0 to 17.0 meters.

VEGETATIVE COVER

There is negligible area under tree cover. The village has a negligible forest area which consists of only Prosopis Juliflora (babool). Trees like Neem and Alianthus are seen just here and there, not concentrated in any area.

AGRICULTURE

Food crop production is a major land based activity in the watershed. Traditional cultivation practices, coupled with poor quality seeds and long duration crops varieties result in low crop yields. Crops are taken under rainfed as well as irrigated conditions. The yield levels of rainfed crops are particularly very poor. Large variation has been noticed in productivity of wheat and Jowar under rainfed and irrigation, condition respectively. At present level of rainfed farming, the total produce from Rabi and Kharif crops obtained by a medium size of holding owning family can meet food requirements for up to 6 to 7 months only.

The farmers also do not have suitable cropping systems to deal aberrant weather. Weeds impose considerable constraints in producing of both Kharif and rabi crops under irrigation as well as rain-fed production system. Use of weedicide is rare in the watershed. It is expected that the post project period would see a substantial increase in agriculture production and yield from them.

LIVESTOCK

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

ABTRACT OF OUTCOMES

The overall assessment of the project certain parameters have been evaluated on the present and future basis. As mentioned in the above the food grain production according to the expenditure has been analyzed after the completion of the project.

Ratio of Cost and Profit

S. No.	Name of Cereal	Area in ha	Production /ha in q	Invest Cost/ha	Rate/q	Net profit/ha	Total Net profit
1	Pea	272.90	16.77	4000	1000	12770	3484933.00
2	Arhar	232.10	7.87	2300	4500	33115	7685991.50
3	Urd/Mung	859.30	5.08	3300	3600	14988	12879188.40
4	Wheat	1835.60	22.30	4200	1000	18100	33224360.00
5	Mustard	196.30	4.26	2600	2000	5920	1162096.00
	Total	3396.20					58436568.90

Status After Work:

S. No.	Name of Cereal	Area in hectare	Production /ha in q	Invest Cost/ha	Rate/q	Net profit/ha	Total Net profit
1	Pea	325.20	20.00	4000	1000	16000	5203200.00
2	Arhar	256.20	8.00	2300	4500	33700	8633940.00
3	Urd/Mung	910.20	7.50	3600	3600	23400	21298680.00
4	Wheat	1859.20	24.50	4200	1000	20300	37741760.00
5	Mustard	203.20	12.00	2600	2000	21400	4348480.00
	Total	3554.00					77226060.00

Bhoomi Sanrakshan after the treatment of Land	77226060.00
Bhoomi Sanrakshan before the treatment of Land	58436568.90
Net Profit	18789491.10
Ratio of cost and profit	1.32

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

SUMMARY OF EXPECTED /ESTIMATED OUTCOMES OF IWMP-VI of District- Lalitpur (2010-2011)

S. No.	Name of the District	Item	Unit of Measurement	Pre-project Status	Expected Post-project Status
1	2	3	4	5	6
1	Lalitpur	Status of water table	Meter	16.00-17.00	14.00-15.00
2		Grand water structure repaired/ rejuvenated	-	-	-
3		Quality of drinking water	Good	Good	Good
4		Availability of drinking water	Meter	09 months	11 Months
5		Increase in irrigation potential			
6		Change in cropping/land use pattern	-	Urd/Moong	Double Cropping
7		Area under agriculture crop	Hector	1832	2200
8		i- Area under single crop	Hector	1180	1652
9		ii- Area under double crop	Hector	1914	2400
10		iii- Area under multiple crop	Hector	-	50
11		iv-Cropping Intensity	Ha	121.54	132.25
12		Increase in area under vegetation	Hector	35	50
13		Increase in area under horticulture	Hector	65	85
14		Increase in area under fuel & fodder	Hector	3.5	9
15		Increase in milk production	%	3	4
16		No. of SHGs	No.	16	25
17		Increase in no. of livelihoods	No.	-	54
18		Migration	No.	260	150
19		SHG Federation formed	No.	-	-
20		Credit Linkage with banks	-	-	-

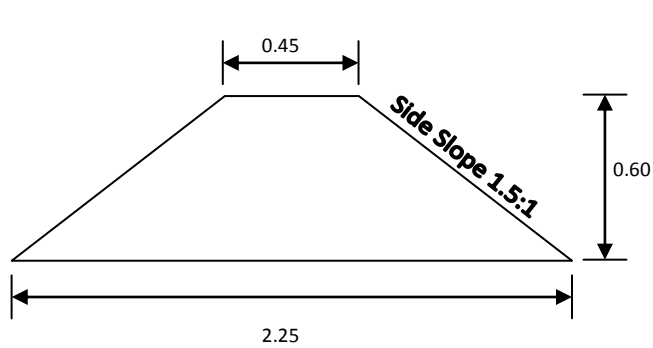
Chapter-10

COST NORMS & DESIGN OF STRUCTURE

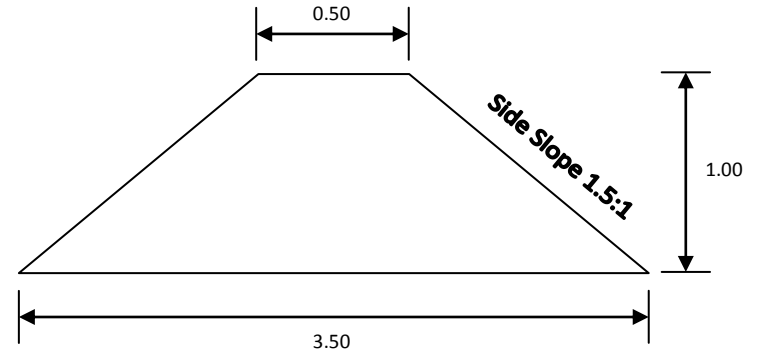
PROPOSED

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

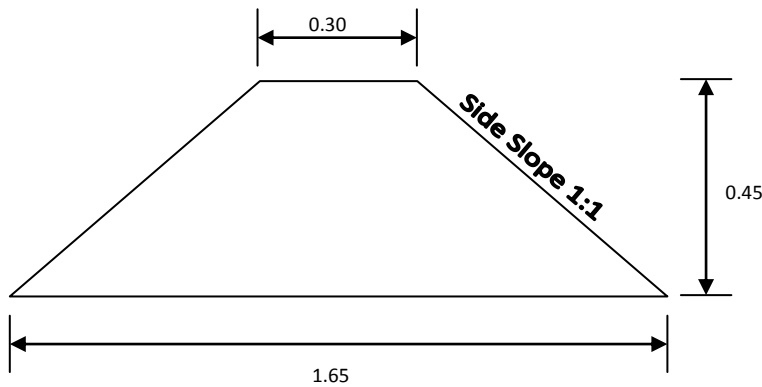
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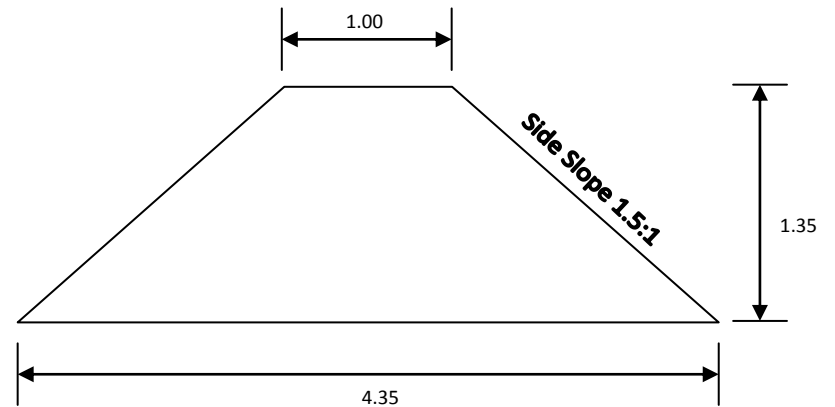
(C.B., Cross-Section – 1.081 m²)



(S.B., Cross-Section – 2.00m²)



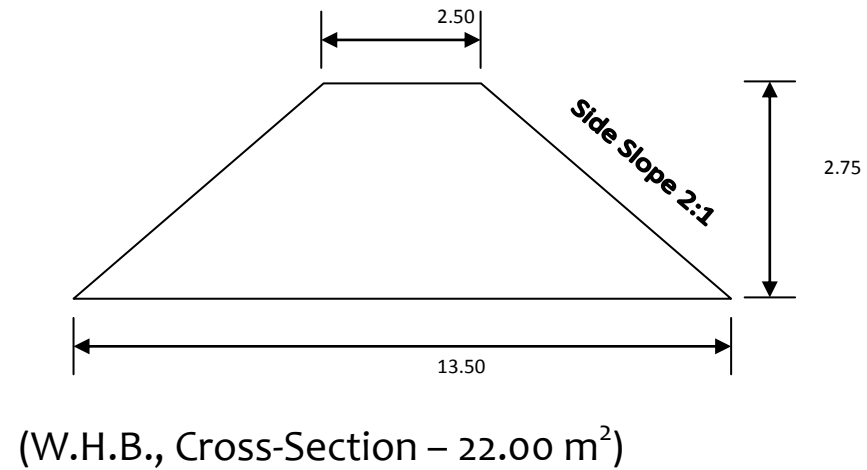
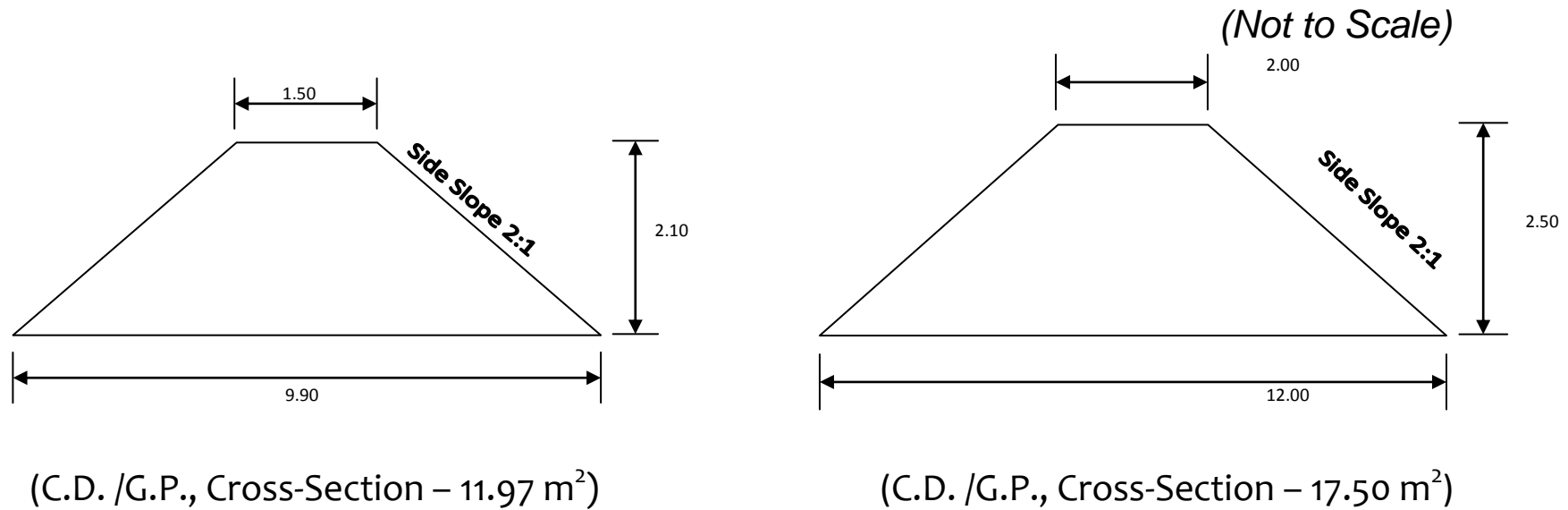
(Field Bund, Cross-Section – 0.438 m²)



(P.B. /M.B., Cross-Section – 3.60 m²)

(All dimensions in Meter)

DRAWING OF EARTHEN CHEKDAM / GULLY PLUG



(All dimensions in Meter)

DESIGN OF CONTOUR BUND

Type of Soil	-Loam, Sandy Loam	
Rain fall	-24 hr in cm -10 cm	
Field -1%		
Vertical Interval (VI)	$= [s/3+2] \times 0.3$ $= [1/3+2] \times 0.3$ $= 0.70 \text{ m}$	
Horizontal Interval (HI)	$= 100 \times V.I/s$ $= 100 \times 0.7/1$	
Height of bund h	$= \sqrt{(Re \times VI)/50}$ $= \sqrt{(10 \times 0.7)/50}$ $= \sqrt{0.37}$ = 0.40 Say 0.60 m	Re=maximum rainfall in cm
Free board	=15% of height minimum -20 cm	
Height	$= 0.60 + 0.10$ $= 0.60 \text{ m}$	
Taking top width of bund 0.50 m and side slope 1.5:1		
Then base of Bund	$= 0.45 + (1.50 d) \times 2$ $= 2.60 \text{ m}$	
Cross-Section of bund	$= (0.50 + 2.60) \times 0.70 / 2$ $= 1.085 \text{ m}^2$	
Length of bund	$= 100 \text{ s} / V.I.$ $= 100 \times 1 / 0.70$ =142.85 m/ha Say 150 m/ha	
Earth work/ha	$= 150 \times 1.085$ $= 162.75 \text{ cum}$	
Cost Rs. / ha	$= 162.75 \times 39.16 = 6373.29$ Say 6375.00	

DESIGN OF SUBMERGENCE BUND

Types of soil – -Loam, Sandy Loam	Rainfall intensity for 24 hrs – 10cm
Field slope 3%	$V.I. = [s/3+2] \times 0.30$ $= 0.90 \text{ m}$
Horizontal Interval = $(100 \times V.I.) / s$	$= (100 \times 0.90) / 3$ $= 30 \text{ m}$
Height of bund $h = \sqrt{(Re \times V.I.) / 50}$	$= \sqrt{(10 \times 0.90) / 50} = \sqrt{0.18} = 0.42 \text{ m. Say } 0.4\text{m}$
Free board 20% of height minimum 20cm	
Total Height	= 0.90m
Taking top width of bund 0.70m and side slope 1.5:1	
Bottom of bund	$= 0.70 + 2 \times 1.5d$ $= 0.70 + 2.70$ $= 3.40$
Cross Section of Submergence Bund	$= (0.50 + 3.40) \times 1.00 / 2$ $= 2.00\text{m}^2$
Length of bund	$= 100 s / V.I.$ $= (100 \times 3) / 0.90$ $= 333 \text{ m}$
Feasible length	$100 + 25 + 25$ $= 150 \text{ m}$
Earth work/ha	$= 150 \times 1.845$ $= 276.75$
Cost per ha	$= 276.75 \times 39.16$ $= 10,837.53$ Say 10,850=00

TYPICAL SECTION OF FIELD BUND

Top width	= 0.50 m
Side slope	= 1:1
Height of bound	= 0.50 m
Bottom Width	= 1.50 m
Cross section	= $(0.50+1.50) \times 0.50 / 2 = 0.50 \text{ m}^2$
Length per hectare	= 200 m
Earthwork	= $200 \times 0.50 = 100 \text{ cum}$
Cost 39.16/cum	= Rs. 3916.00
Cost per hectare	= Rs. 3916.00

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

Top width	= 0.70 m
Side slope	= 1.5:1
Height	= 1.30 m
Bottom	= 4.60 m
Cross section	= $(0.70+4.60) \times 1.30 / 2$ = 3.60 m^2
Cost/ meter	= Rs. 142.00

TYPICAL SECTION OF EARTHEN CHECK DAM / GULLY PLUG

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

TYPICAL SECTION OF CHECK DAM / GULLY PLUG

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

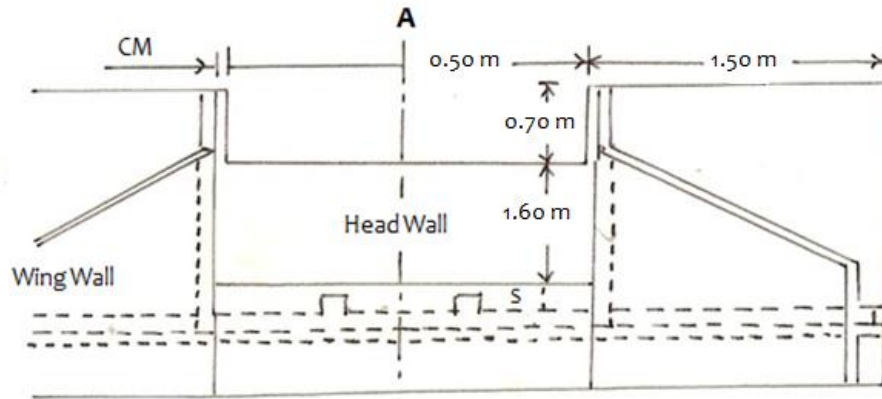
TYPICAL SECTION OF W.H.B

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

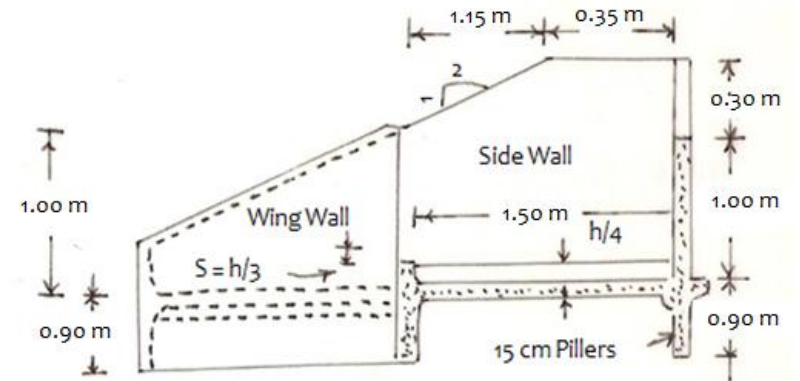
DRAWING OF SPILLWAY OF CREST LENGTH 0.5 m

All Dimensions in Meter

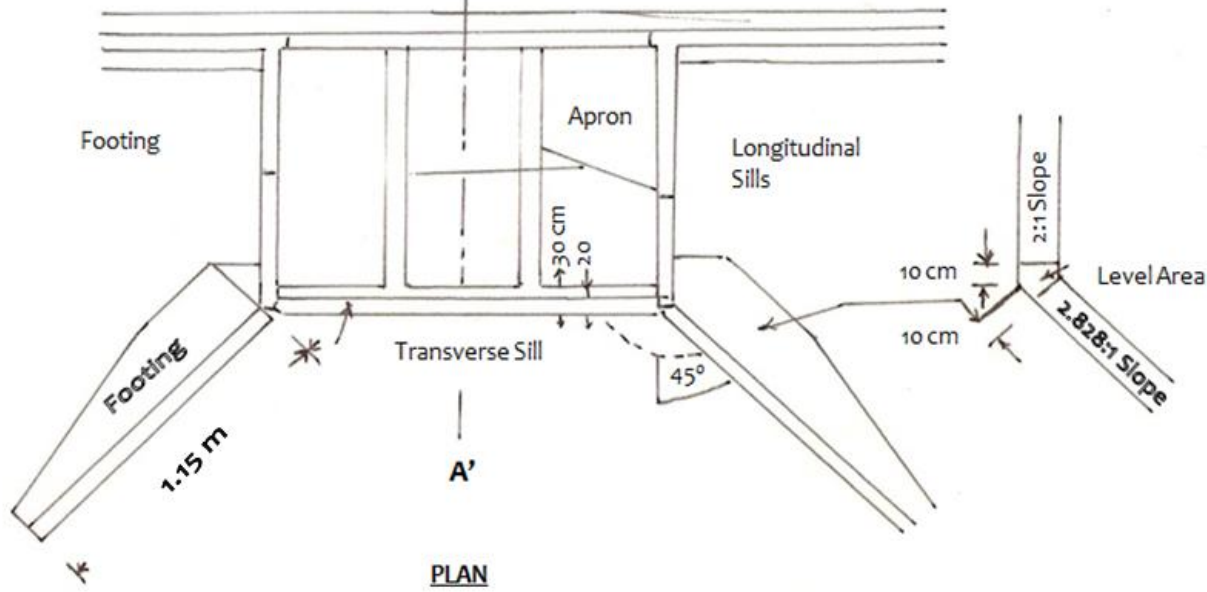
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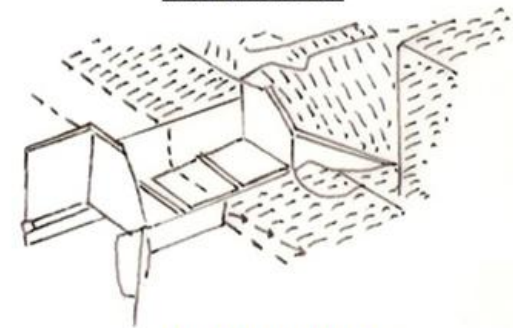
DOWNSTREAM ELEVATION



SECTION ON A-A'



PLAN



PERSPECTIVE VIEW

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

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

given as:

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

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

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

To find suitable value of L & H

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

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

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

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

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

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

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

3. Structural design –

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

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

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

Adopted 2.10 m

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

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

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

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

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

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

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

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

adopt $J = 1.00 \text{ m}$

$$\begin{aligned} 5- \quad M &= 2(f + 1.33h - J) = 2(0.50 + 1.33 \times 0.25 - 1.00) \\ &= 2 \times (-0.167) = -0.335 \text{ m} \end{aligned}$$

$$\begin{aligned} 6- \quad K &= (L_B + 0.1) - M = (1.37 + 0.1) - 0.335 \\ &= 1.47 - 0.335 \\ &= 1.135 \text{ m} \end{aligned}$$

Toe and cut off walls

$$\begin{aligned} \text{Normal scour depth (N S D)} &= 0.473 \times (Q/f)^{1/3} \\ &= 0.473 \times (0.1/1)^{1/3} \\ &= 0.473 \times 0.464 \\ &= 0.219 \end{aligned}$$

$$\begin{aligned} \text{Maximum Scour depth (M S D)} &= 1.5 \times \text{N S D} \\ &= 1.5 \times 0.219 \\ &= 0.328 \text{ m} \\ &\text{says } 0.35 \text{ m} \end{aligned}$$

$$\text{Depth of cutoff /Toe wall} = 0.35 \text{ m}$$

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

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

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

CHAPTER -11

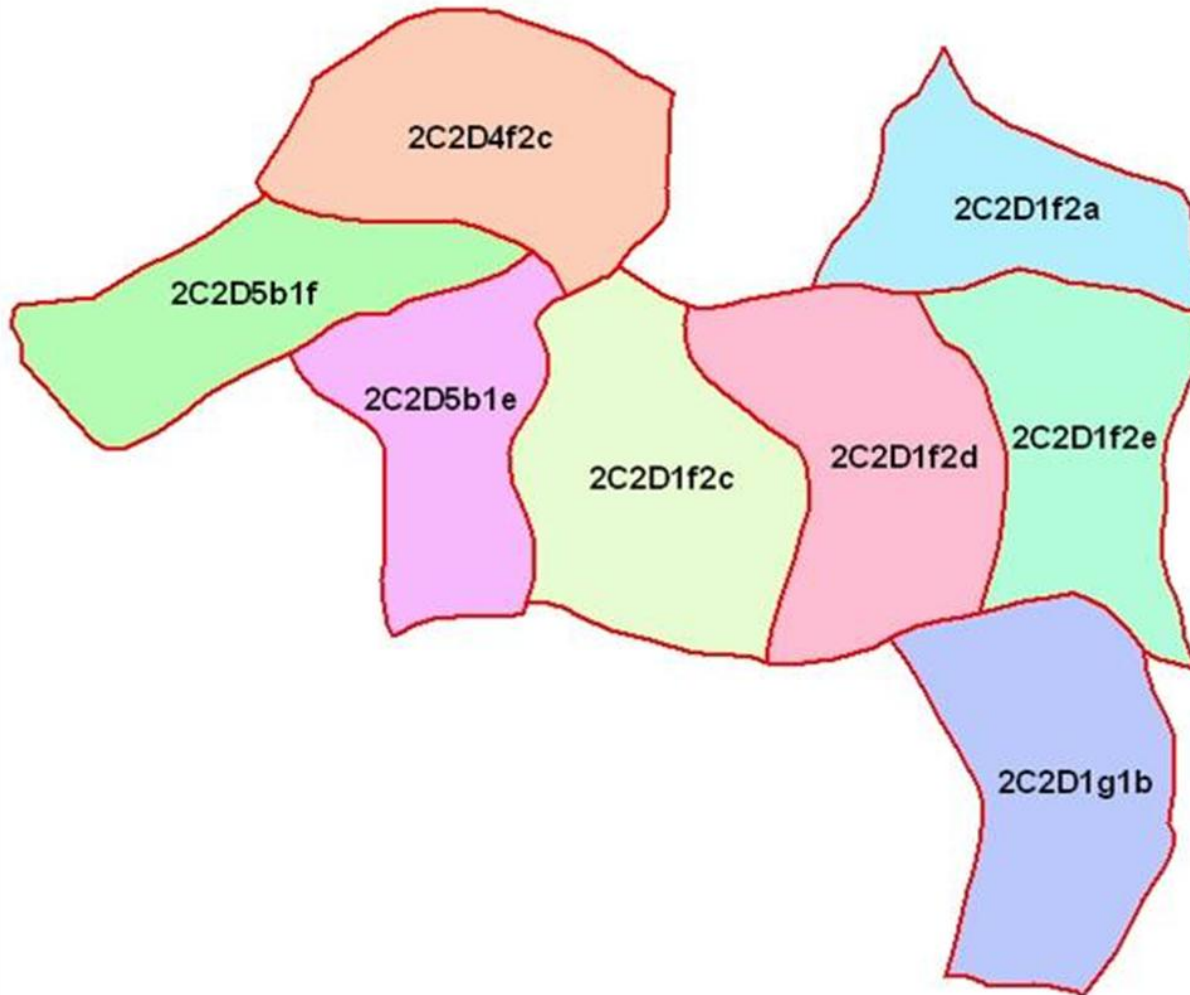
MAPS

MAPS

An attempt has been made to map the surface details of the project area, as per the instruction of the common Guide lines-2008, All the thematic maps of the study area have been prepared through using remote sensing and geographical information system(G.I.S.) technique, following the fundamental norms of the National Map Policy-2006. The details of the thematic maps have been given below.

1. Project Area Map
2. Base Map
3. Cadastral Map
4. Contour Map
5. Slope Map
6. Land use/ Land cover map
7. Soil Depth Map
8. Soil Erosion Map
9. Crop Demonstration Map
10. Treatment Area Action Plan Map viz- 2C2D1f2a, 2C2D1f2d, 2C2D4f2c, 2C2D5b1e, 2C2D5b1f

THE PROJECT AREA IWMP - VI (2010 - 11) , DISTRICT - LALITPUR



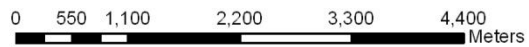
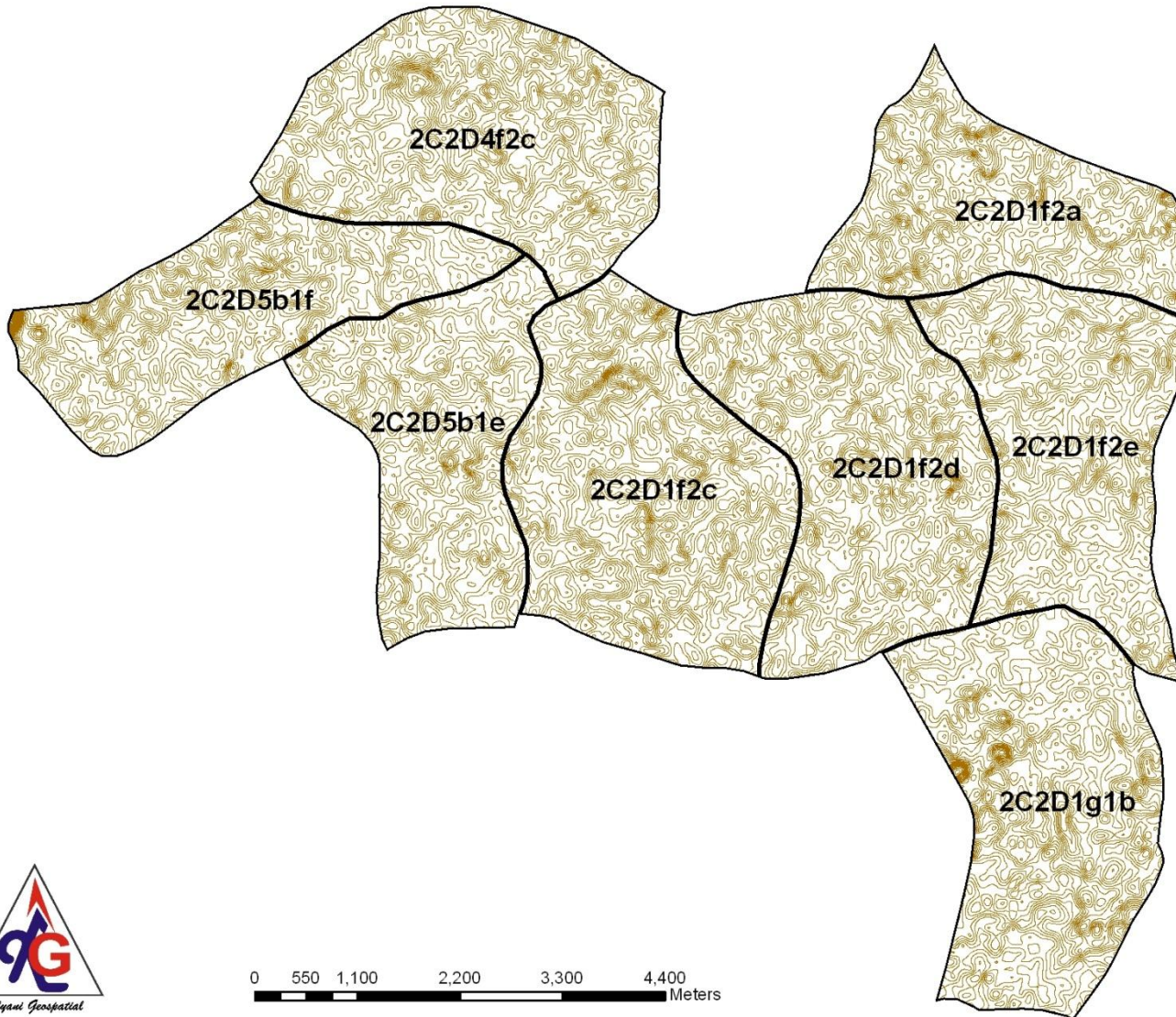
Legend

 WATERSHED BOUNDARY



0 900 1,800 3,600 5,400 7,200 Meters



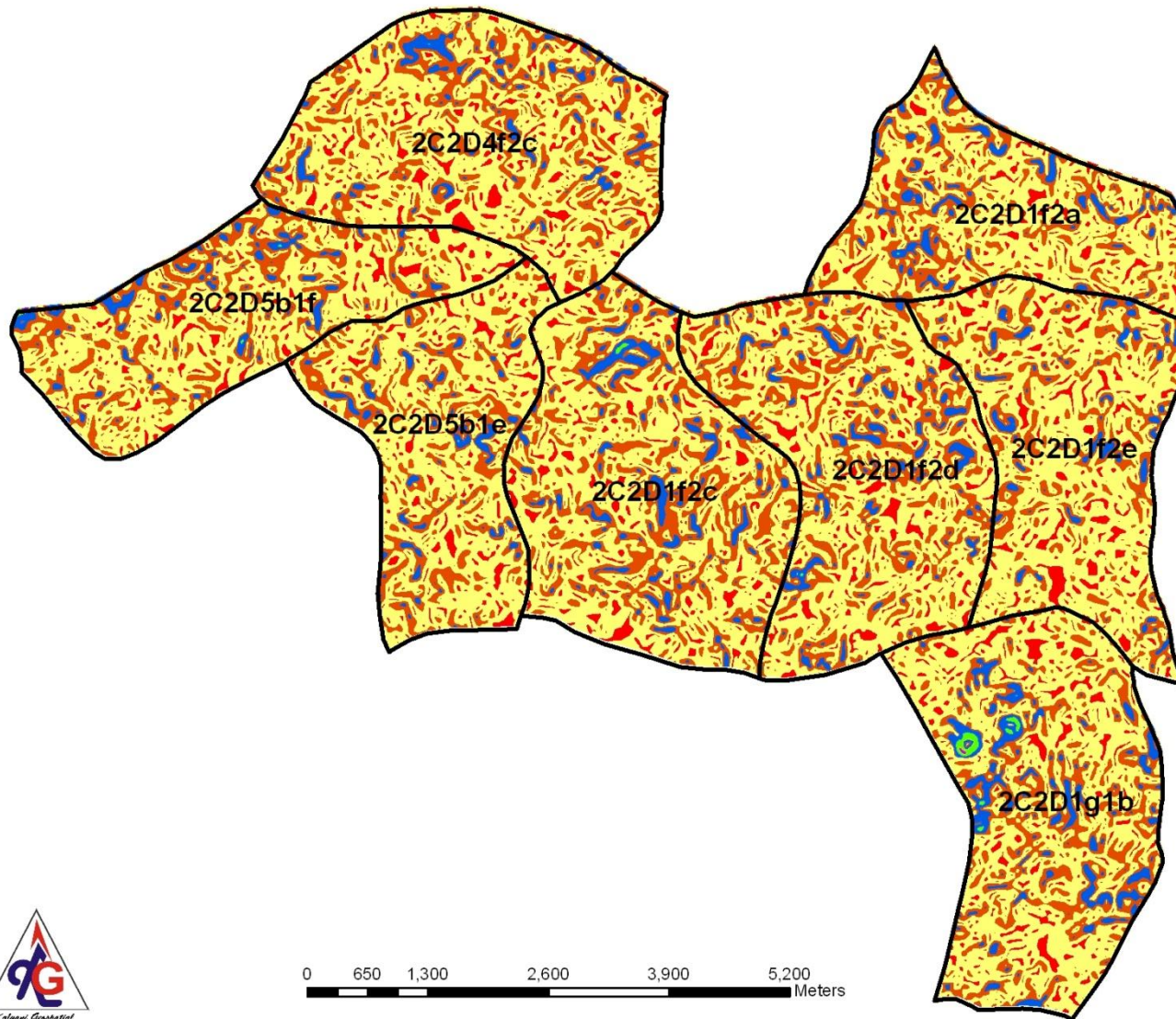
CONTOUR MAP OF THE PROJECT AREA, IWMP - VI (2010 - 2011), DISTRICT - LALITPUR



Legend

-  Watershed Boundary
-  Contour at 1m interval

SLOPE MAP OF THE PROJECT AREA, IWMP - VI (2010 - 2011), DISTRICT - LALITPUR



Legend

WATERSHED BOUNDARY

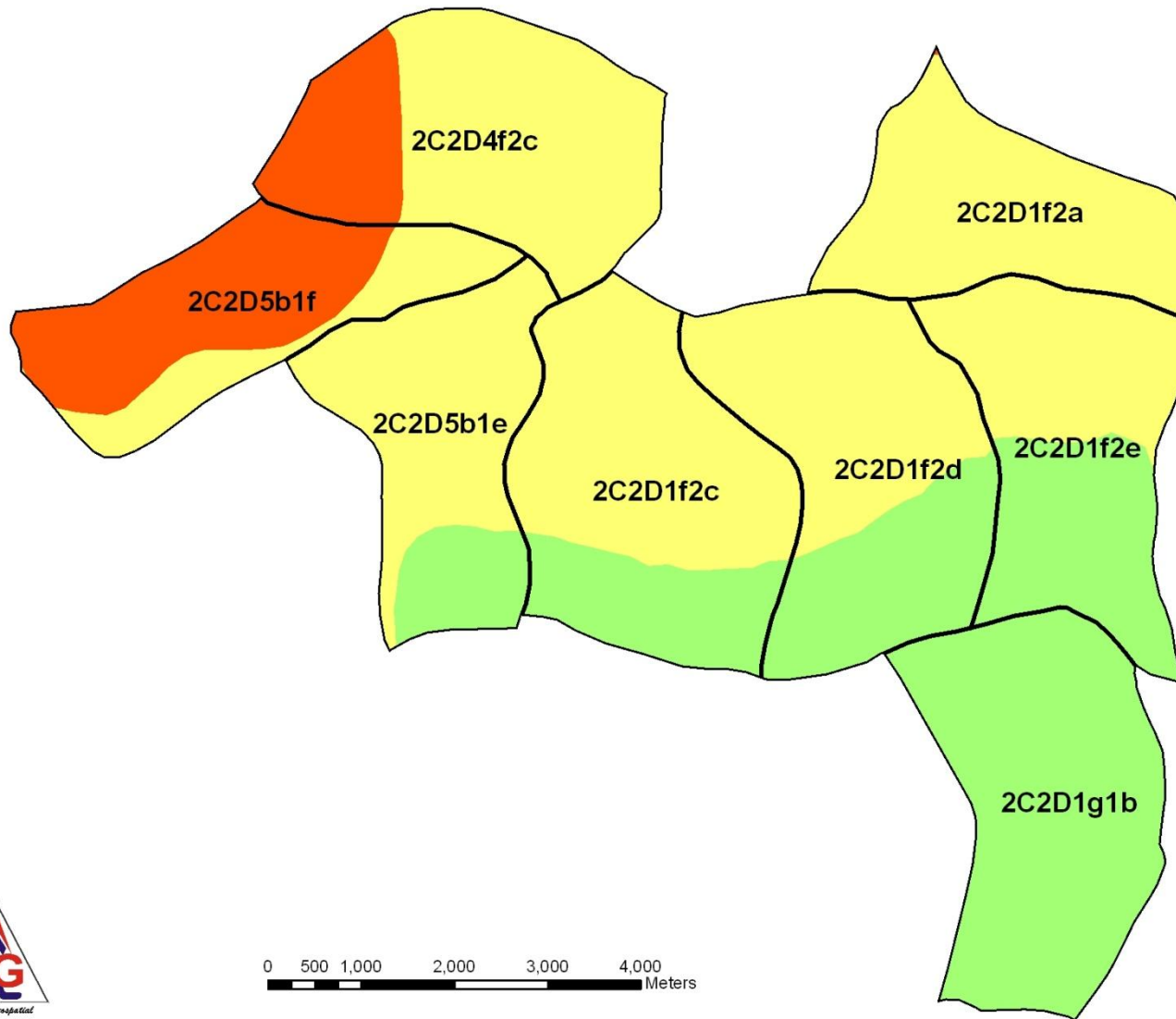
SLOPE VALUE

- 0 % to 1% (Nearly Level)
- 1 % to 3% (Very gently sloping)
- 10 % to 15 % (Strong sloping)
- 15 % to 35 % (Moderate steep to steep sloping)
- 3 % to 5 % (Gently sloping)
- 5 % to 10 % (Moderate sloping)

0 650 1,300 2,600 3,900 5,200 Meters



SOIL DEPTH MAP OF THE PROJECT AREA, IWMP - VI (2010 - 2011), DISTRICT - LALITPUR



Legend

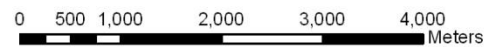
 WATERSHED BOUNDARY

SOIL DEPTH TYPE

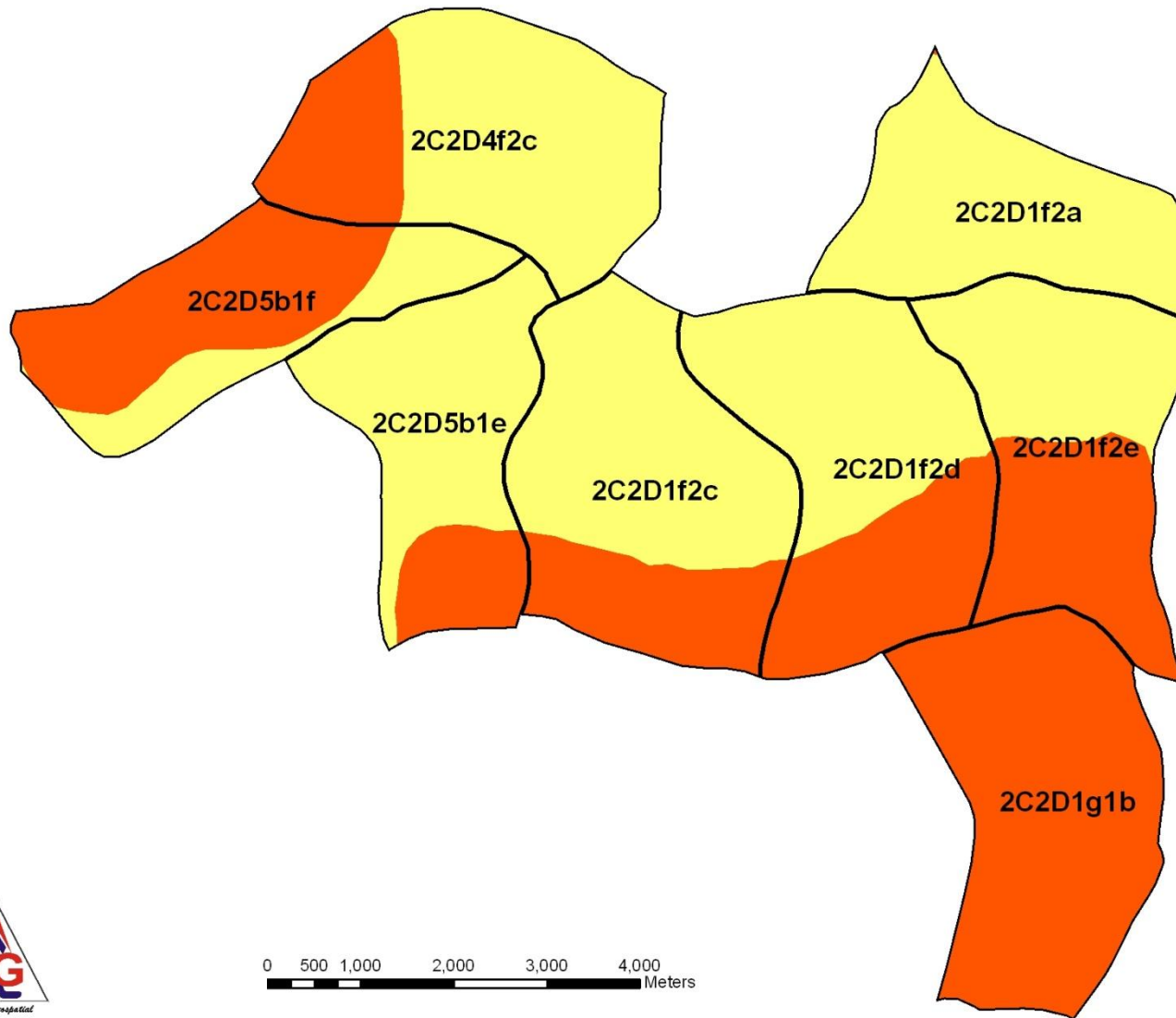
 MODERATE DEEP

 MODERATE SHALLOW

 SHALLOW



SOIL EROSION MAP OF THE PROJECT AREA, IWMP - VI (2010 - 2011), DISTRICT - LALITPUR



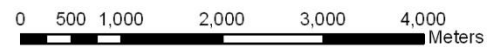
Legend

 WATERSHED BOUNDARY

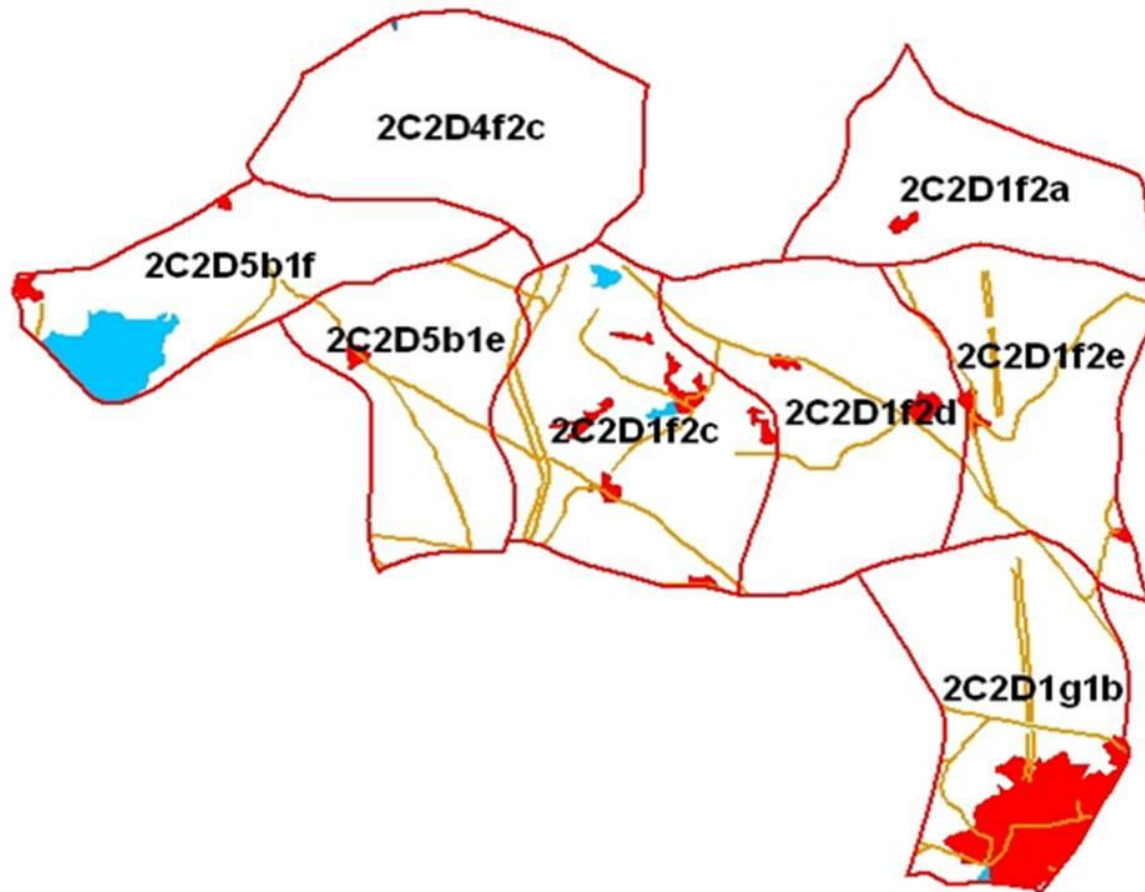
SOIL EROSION TYPE

 MODERATE

 SEVERE ER



BASE MAP OF THE PROJECT AREA IWMP - VI (2010 - 11) , DISTRICT - LALITPUR



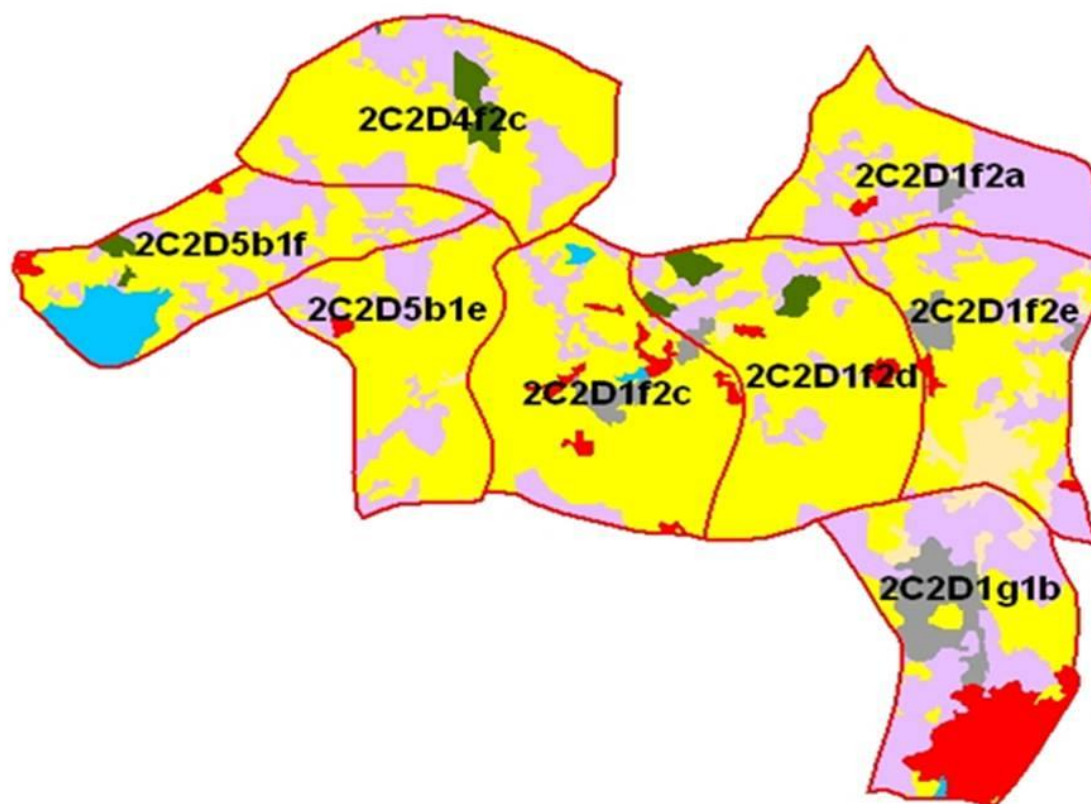
Legend

-  WATERSHED BOUNDARY
-  ROAD
-  RIVER/STREAM
-  SETTLEMENT
-  WATERBODY

0 950 1,900 3,800 5,700 7,600 Meters



LANDUSE/LANCOVER MAP OF THE PROJECT AREA IWMP - VI (2010 - 11) , DISTRICT - LALITPUR



Legend

-  WATERSHED BOUNDARY
- LANDUSE/LANCOVER**
-  AGRICULTURAL LAND
-  BARREN ROCKY/STONY WASTE
-  FALLOW LAND
-  FOREST
-  RIVER/STREAM
-  SCRUB LAND
-  SETTLEMENT
-  WATERBODY

0 1,000 2,000 4,000 6,000 8,000
Meters

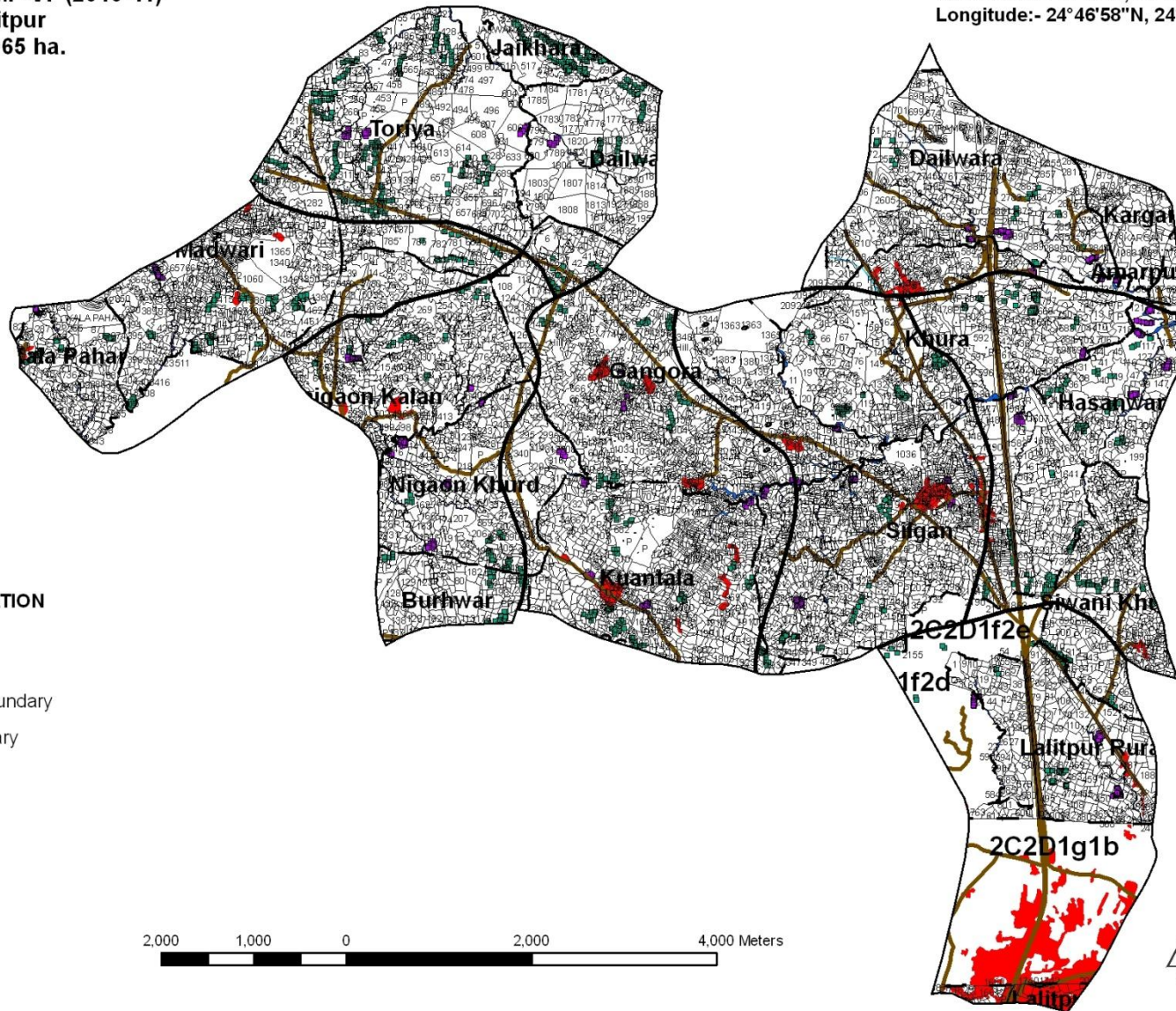


PROPOSED PLAN MAP OF CROP DEMONSTRATION

Project Name: IWMP-VI (2010-11)
 District Name: Lalitpur
 Total Area:- 6385.965 ha.

Extend of Study Area

Latitude:- 78°17'12"E, 78°24'49"E
 Longitude:- 24°46'58"N, 24°41'16"N



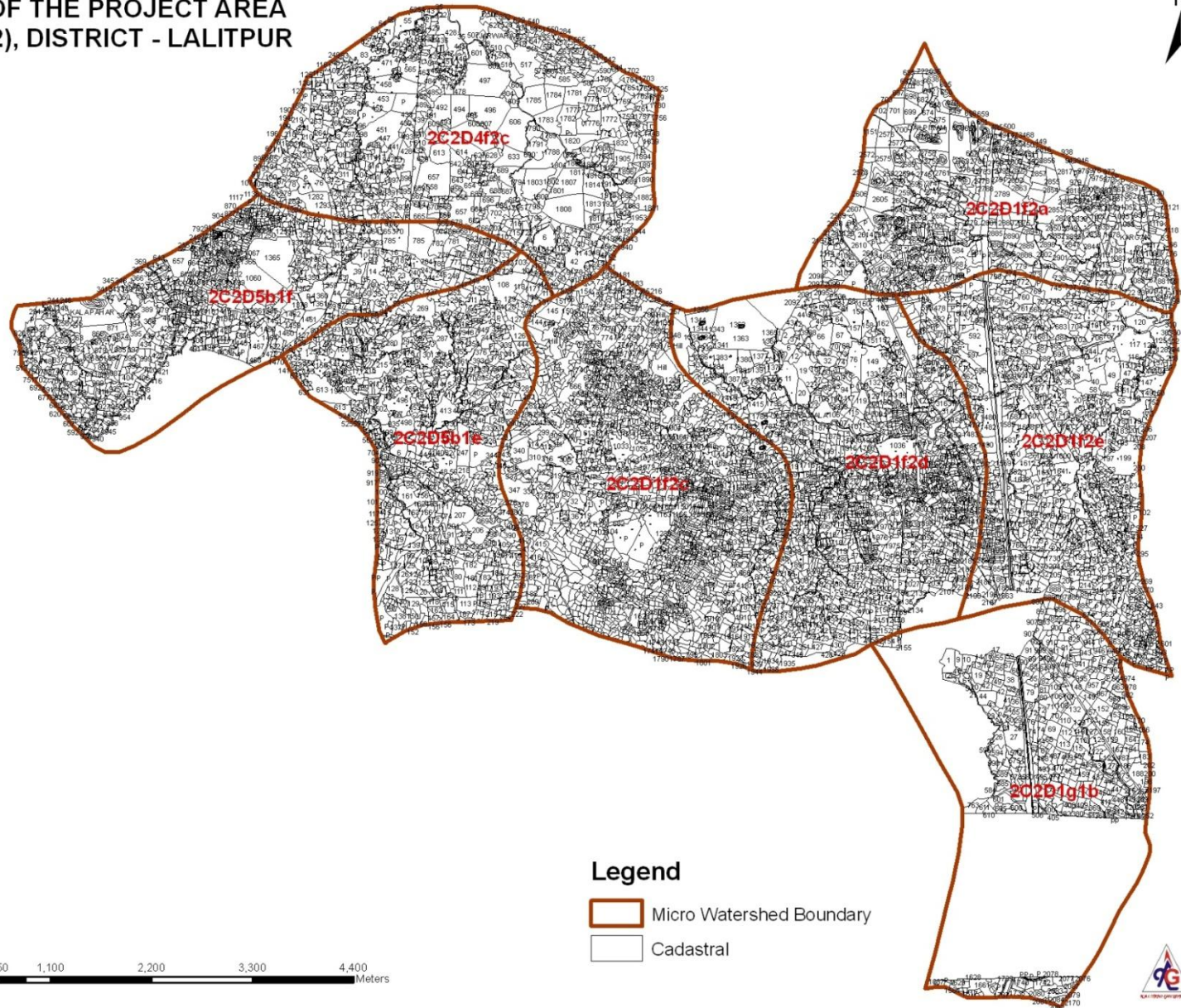
Legend

CROP DEMONSTRATION

- Kharif Crop
- Rabi Crop
- Watershed Boundary
- Village Boundary
- Cadastral Plot
- Road
- Settlement
- Canal
- River_WB
- Drain



**CADASTRAL MAP OF THE PROJECT AREA
IWMP - VI (2011-2012), DISTRICT - LALITPUR**



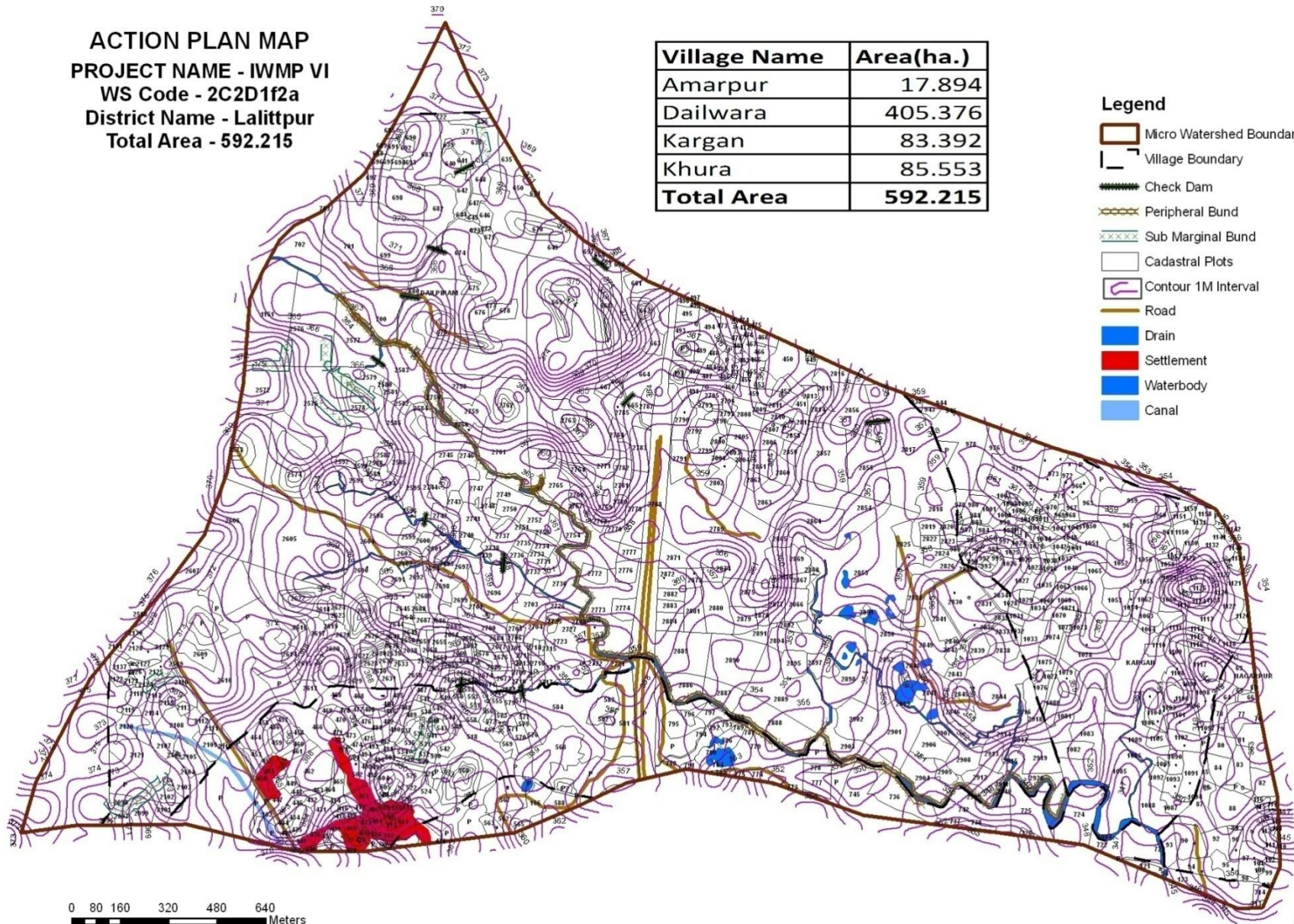
Legend
Micro Watershed Boundary
Cadastral

ACTION PLAN MAP
PROJECT NAME - IWMP VI
WS Code - 2C2D1f2a
District Name - Lalitpur
Total Area - 592.215

Village Name	Area(ha.)
Amarpur	17.894
Dailwara	405.376
Kargan	83.392
Khura	85.553
Total Area	592.215

Legend

-  Micro Watershed Boundary
-  Village Boundary
-  Check Dam
-  Peripheral Bund
-  Sub Marginal Bund
-  Cadastral Plots
-  Contour 1M Interval
-  Road
-  Drain
-  Settlement
-  Waterbody
-  Canal



ACTION PLAN MAP

Project Area- IWMP VI

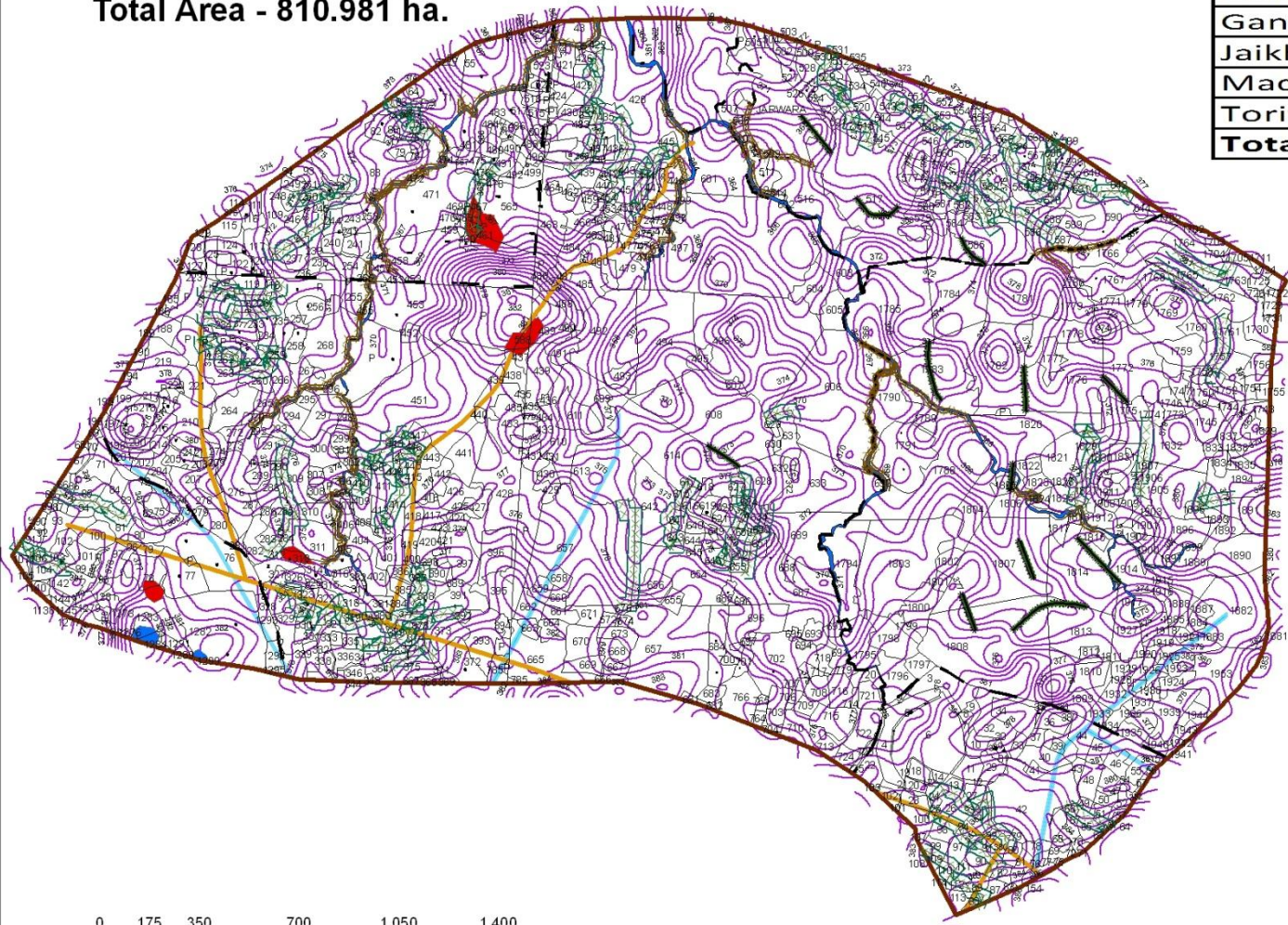
WS Code - 2C2D4f2c

District Name - Lalitpur

Total Area - 810.981 ha.

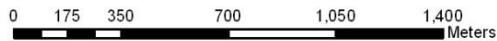


Village Name	Area(ha.)
Dailwara	232.085
Gangora	52.999
Jaikhara	74.988
Madwari	43.172
Toriya	407.738
Total Area	810.981



Legend

- Check Dam
- Peripheral Bund
- Sub Marginal Bund
- Micro Watershed Boundary
- cadastral
- Village Boundary
- Settlement
- Road
- Drain
- Waterbody
- Contour 1m Interval
- Canal

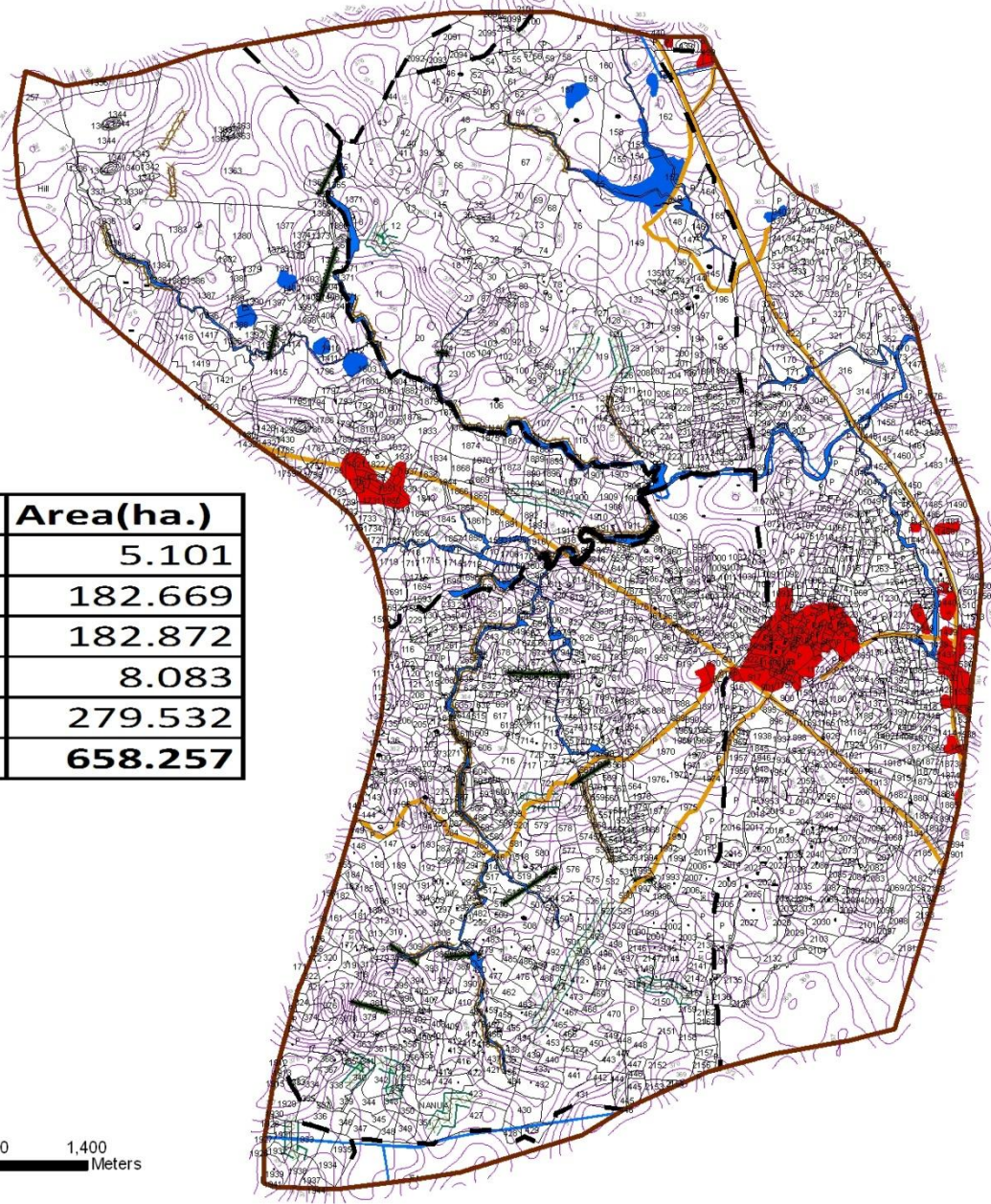


ACTION PLAN MAP

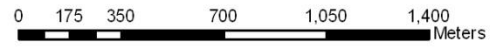
Project Area - IWMP VI
 ws Code - 2C2D1f2d
 District Name - Lalitpur
 Total Area - 658.257 ha.



Village Area	Area(ha.)
Dailwara	5.101
Gangora	182.669
Khura	182.872
Kuantala	8.083
Silgan	279.532
Total Area	658.257

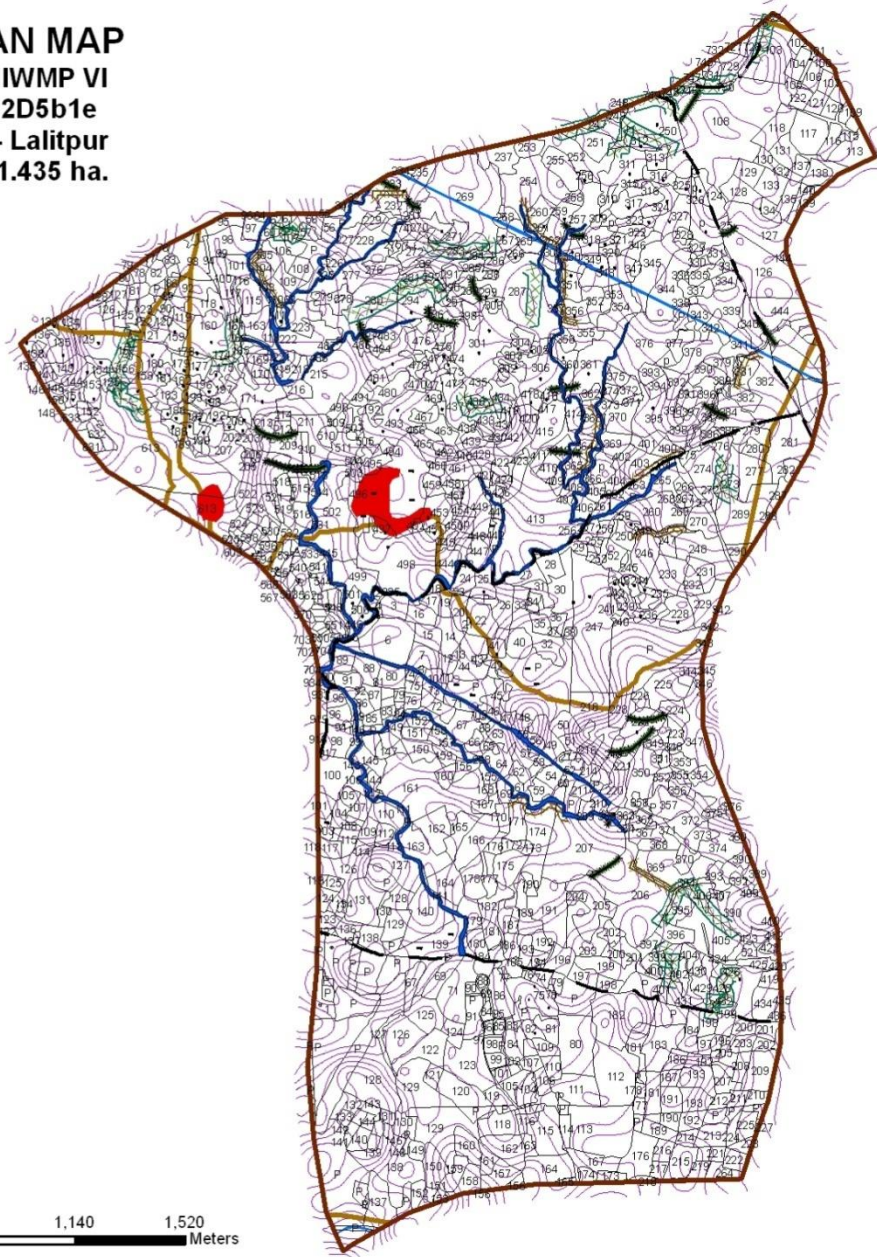


- Legend**
- Micro Watershed Boundary
 - Cadastral Plots
 - Settlement
 - Village Boundary
 - Road
 - Drain
 - Waterbody
 - Canal
 - Check Dam
 - Peripheral Bund
 - Sub Marginal Bund
 - Contour 1M Interval



ACTION PLAN MAP

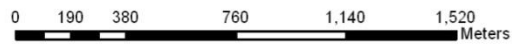
Project Area - IWMP VI
 WS Code - 2C2D5b1e
 District Name - Lalitpur
 Total Area - 671.435 ha.



Village Name	Area(ha.)
Burhwar	116.825
Gangora	41.493
Naigaon Kalan	288.499
Nigaon Khurd	221.820
Toriya	2.798
Total AREA	671.435

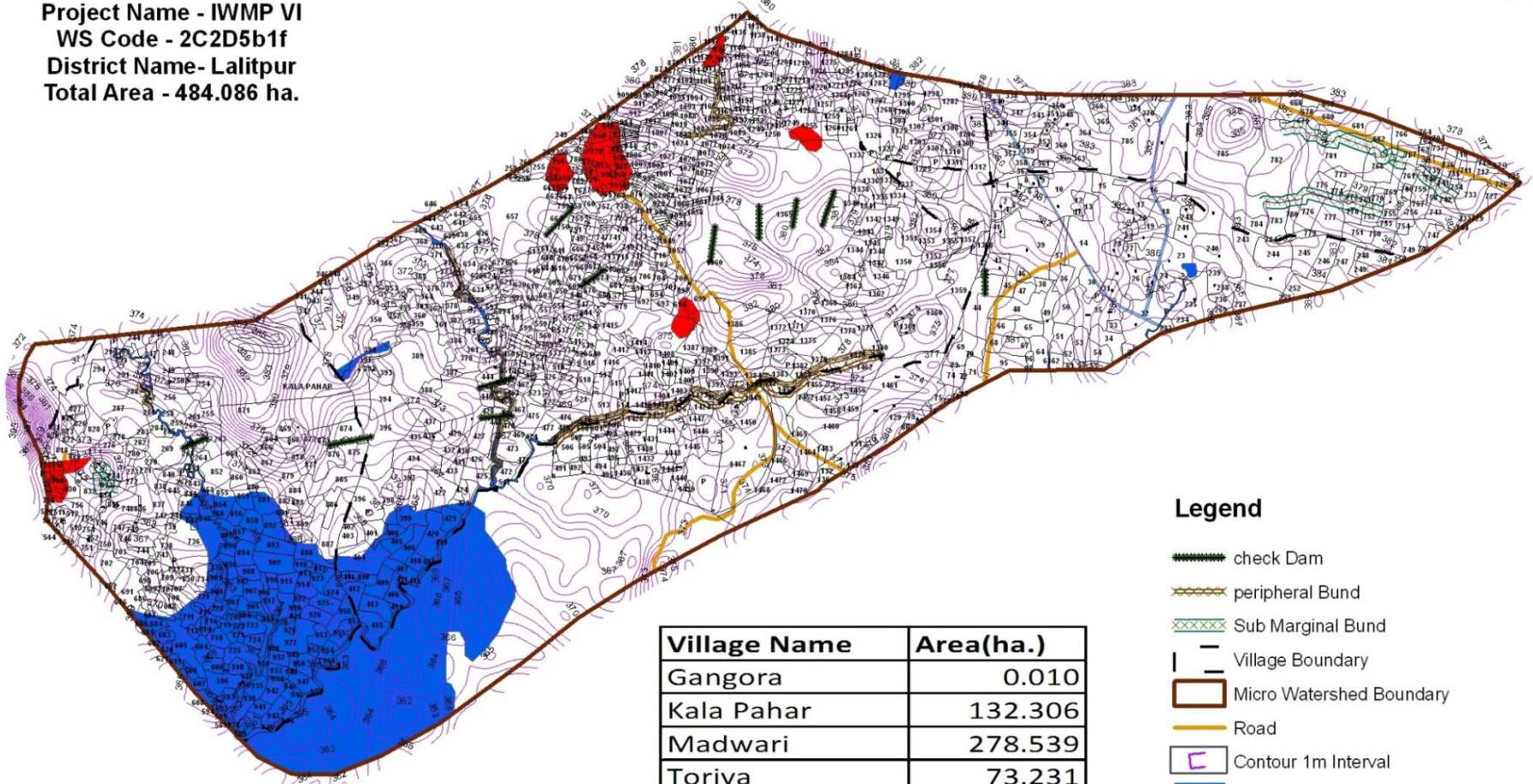
Legend

- Micro Watershed Boundary
- Cadastral
- Village Boundary
- Settlement
- Canal
- Drain
- Road
- Check Dam
- Peripheral Bund
- Sub Marginal Bund
- Contour 1M Interval



ACTION PLAN MAP

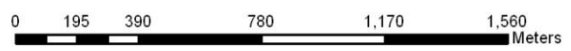
Project Name - IWMP VI
 WS Code - 2C2D5b1f
 District Name- Lalitpur
 Total Area - 484.086 ha.



Village Name	Area(ha.)
Gangora	0.010
Kala Pahar	132.306
Madwari	278.539
Toriya	73.231
Total Area	484.086

Legend

- check Dam
- peripheral Bund
- Sub Marginal Bund
- Village Boundary
- Micro Watershed Boundary
- Road
- Contour 1m Interval
- Waterbody
- settlement
- Canal
- Cadastral Plots
- Drain



Detail Cost Estimate of MWS 2C2D5b1e (NigaonKhurd)**Submergence Bund**

S. No.	Activity	Khasra No.	Area	Length (m)	Top width Cm	Breadth (cm)	Height Cm	Cross Section (m2)	E.W. (Cum)	Rate Per (cm)	Total Cost (in lacs)	Village Name
1	SB-1	121, 129, 155, 156, 157, 158, 613	23.70	350.00	0.70	4.75	1.35	3.68	1287.56	120	154508	Naigaon Kalan
2	SB-2	160, 161, 165, 173, 175	15.40	225.00	0.70	4.75	1.35	3.68	827.72	120	99326	Naigaon Kalan
3	SB-3	107, 57, 58, 59, 60, 61, 62	9.60	125.00	0.70	4.75	1.35	3.68	459.84	120	55181	Naigaon Kalan
4	SB-4	280, 281, 292, 293, 294	24.90	350.00	0.70	4.75	1.35	3.68	1287.56	120	154508	Naigaon Kalan
5	SB-5	269, 271, 272, 282, 283, 284	16.10	250.00	0.70	4.75	1.35	3.68	919.69	120	110363	Naigaon Kalan
6	SB-6	287	13.40	205.00	0.70	4.75	1.35	3.68	754.14	120	90497	Naigaon Kalan
7	SB-7	247, 249, 251, 252	12.30	175.00	0.70	4.75	1.35	3.68	643.78	120	77254	Naigaon Kalan
8	SB-8	250, 252, 311, 312, 313	24.30	350.00	0.70	4.75	1.35	3.68	1287.56	120	154508	Naigaon Kalan
9	SB-9	250	14.00	200.00	0.70	4.75	1.35	3.68	735.75	120	88290	Naigaon Kalan
10	SB-10	108, 729, 730, 731, 745, 746, 747, 748	19.50	250.00	0.70	4.75	1.35	3.68	919.69	120	110363	Toriya, Gangora
11	SB-11	103	11.20	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Gangora
12	SB-12	433, 434, 435, 436, 437	10.80	175.00	0.70	4.75	1.35	3.68	643.78	120	77254	Naigaon Kalan
13	SB-13	272, 273, 274, 276, 277, 289	11.30	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Nigaon Khurd
14	SB-14	395, 405, 394, 405	11.20	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Nigaon Khurd
15	SB-15	406, 394, 390, 405	12.50	200.00	0.70	4.75	1.35	3.68	735.75	120	88290	Nigaon Khurd
16	SB-16	402, 399, 403, 398	9.50	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Nigaon Khurd
17	SB-17	198, 405, 428, 432	12.30	200.00	0.70	4.75	1.35	3.68	735.75	120	88290	Nigaon Khurd, Burhwar
		कच्चा कार्य	252								1613500	
		पक्का कार्य									402500	
		कुल कार्य									2016000	

Peripheral Bund

S. No.	Activity	Khasra No.	Area (ha)	Length (m)	Top width (Cm)	Breadth (cm)	Height (Cm)	Cross Section (m2)	E.W. (Cum)	Rate Per (cm)	Total Cost (in lacs)	Village Name
1	PB-1	103, 104, 110, 111	14.30	256.86	0.70	4.75	1.35	3.68	944.92	120	113390	Naigaon Kalan
2	PB-2	232, 233	10.40	165.02	0.70	4.75	1.35	3.68	607.08	120	72850	Naigaon Kalan
3	PB-3	254, 257, 260, 261, 262	14.20	254.69	0.70	4.75	1.35	3.68	936.96	120	112435	Naigaon Kalan
4	PB-4	308, 350, 351, 355, 356, 357, 358, 381, 382	17.50	298.00	0.70	4.75	1.35	3.68	1096.28	120	131554	Naigaon Kalan
5	PB-5	400, 403	14.30	213.31	0.70	4.75	1.35	3.68	784.70	120	94164	Naigaon Kalan
6	PB-6	363, 364, 365, 366	18.30	266.42	0.70	4.75	1.35	3.68	980.09	120	117611	Naigaon Kalan
7	PB-7	246, 247, 249	14.20	231.41	0.70	4.75	1.35	3.68	851.28	120	102154	Nigaon Khurd
8	PB-8	207, 171, 174, 169	17.30	276.66	0.70	4.75	1.35	3.68	1017.74	120	122129	Nigaon Khurd
9	PB-9	206, 369	12.50	207.19	0.70	4.75	1.35	3.68	762.20	120	91464	Nigaon Khurd
		कच्चा कार्य	133								957751	
		पक्का कार्य									239249	
		कुल कार्य									1197000	

Check Dam

S. No.	Activity	Khasra No.	Area	Length (m)	Top width Cm	Breadth (cm)	Height Cm	Cross Section (m2)	E.W. (Cum)	Rate Per (cm)	Total Cost (in lacs)	Village Name
1	CD-1	233	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Naigaon Kalan
3	CD-3	287, 289, 299	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Naigaon Kalan
4	CD-4	294, 295, 296, 301, 476	8.50	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Naigaon Kalan
5	CD-5	485, 215, P, 280	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Naigaon Kalan
6	CD-6	308, 257, 262, P	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Naigaon Kalan
8	CD-8	125, 126, 125, 127	11.00	45.00	2.00	12.50	3.50	25.38	1141.88	120	137025	Gangora
9	CD-9	340, 444	9.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Gangora, Naigaon Kalan
12	CD-12	306, 360, p, 361, P	8.00	55.00	1.50	9.00	2.50	13.13	721.88	120	86625	Naigaon Kalan
13	CD-13	209, 212, 203, 213	9.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Naigaon Kalan
14	CD-14	208	12.50	98.00	1.50	9.00	2.50	13.13	1286.25	120	154350	Naigaon Kalan
15	CD-15	222	11.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Nigaon Khurd
16	CD-16	219, 222, 350	13.20	95.00	1.50	9.00	2.50	13.13	1246.88	120	149625	Nigaon Khurd
17	CD-17	362, 207, 208	5.00	35.00	1.50	9.00	2.50	13.13	459.38	120	55125	Nigaon Khurd
18	CD-18	206, 207	10.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Nigaon Khurd
		कच्चा कार्य	124								1488375	
		पक्का कार्य									371625	
		कुल कार्य									1860000	

Gram Panchayat wise Cost Estimate of MWS 2C2D5b1e (NigaonKhurd)

Submergence Bund

S. No.	Activity	Khasra No.	Area	Length (m)	Top width Cm	Breadth (cm)	Height Cm	Cross Section (m2)	E.W. (Cum)	Rate Per (cm)	Total Cost (in lacs)	Gram Panchayat
1	SB-1	121, 129, 155, 156, 157, 158, 613	23.70	350.00	0.70	4.75	1.35	3.68	1287.56	120	154508	Nigaon Khurd
2	SB-2	160, 161, 165, 173, 175	15.40	225.00	0.70	4.75	1.35	3.68	827.72	120	99326	Nigaon Khurd
3	SB-3	107, 57, 58, 59, 60, 61, 62	9.60	125.00	0.70	4.75	1.35	3.68	459.84	120	55181	Nigaon Khurd
4	SB-4	280, 281, 292, 293, 294	24.90	350.00	0.70	4.75	1.35	3.68	1287.56	120	154508	Nigaon Khurd
5	SB-5	269, 271, 272, 282, 283, 284	16.10	250.00	0.70	4.75	1.35	3.68	919.69	120	110363	Nigaon Khurd
6	SB-6	287	13.40	205.00	0.70	4.75	1.35	3.68	754.14	120	90497	Nigaon Khurd
7	SB-7	247, 249, 251, 252	12.30	175.00	0.70	4.75	1.35	3.68	643.78	120	77254	Nigaon Khurd
8	SB-8	250, 252, 311, 312, 313	24.30	350.00	0.70	4.75	1.35	3.68	1287.56	120	154508	Nigaon Khurd
9	SB-9	250	14.00	200.00	0.70	4.75	1.35	3.68	735.75	120	88290	Nigaon Khurd
10	SB-10	108, 729, 730, 731, 745, 746, 747, 748	19.50	250.00	0.70	4.75	1.35	3.68	919.69	120	110363	Nigaon Khurd
11	SB-11	103	11.20	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Nigaon Khurd
12	SB-12	433, 434, 435, 436, 437	10.80	175.00	0.70	4.75	1.35	3.68	643.78	120	77254	Nigaon Khurd
13	SB-13	272, 273, 274, 276, 277, 289	11.30	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Nigaon Khurd
14	SB-14	395, 405, 394, 405	11.20	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Nigaon Khurd
15	SB-15	406, 394, 390, 405	12.50	200.00	0.70	4.75	1.35	3.68	735.75	120	88290	Nigaon Khurd
16	SB-16	402, 399, 403, 398	9.50	150.00	0.70	4.75	1.35	3.68	551.81	120	66218	Nigaon Khurd
17	SB-17	198, 405, 428, 432	12.30	200.00	0.70	4.75	1.35	3.68	735.75	120	88290	Nigaon Khurd
		कच्चा कार्य	252								1613500	
		पक्का कार्य									402500	
		कुल कार्य									2016000	

Check Dam

S. No.	Activity	Khasra No.	Area	Length (m)	Top width Cm	Breadth (cm)	Height Cm	Cross Section (m2)	E.W. (Cum)	Rate Per (cm)	Total Cost (in lacs)	Gram Panchayat
1	CD-1	233	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Nigaon Khurd
3	CD-3	287, 289, 299	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Nigaon Khurd
4	CD-4	294, 295, 296, 301, 476	8.50	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Nigaon Khurd
5	CD-5	485, 215, P, 280	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Nigaon Khurd
6	CD-6	308, 257, 262, P	6.50	50.00	1.50	9.00	2.50	13.13	656.25	120	78750	Nigaon Khurd
8	CD-8	125, 126, 125, 127	11.00	45.00	2.00	12.50	3.50	25.38	1141.88	120	137025	Nigaon Khurd
9	CD-9	340, 444	9.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Nigaon Khurd
12	CD-12	306, 360, p, 361, P	8.00	55.00	1.50	9.00	2.50	13.13	721.88	120	86625	Nigaon Khurd
13	CD-13	209, 212, 203, 213	9.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Nigaon Khurd
14	CD-14	208	12.50	98.00	1.50	9.00	2.50	13.13	1286.25	120	154350	Nigaon Khurd
15	CD-15	222	11.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Nigaon Khurd
16	CD-16	219, 222, 350	13.20	95.00	1.50	9.00	2.50	13.13	1246.88	120	149625	Nigaon Khurd
17	CD-17	362, 207, 208	5.00	35.00	1.50	9.00	2.50	13.13	459.38	120	55125	Nigaon Khurd
18	CD-18	206, 207	10.20	75.00	1.50	9.00	2.50	13.13	984.38	120	118125	Nigaon Khurd
		कच्चा कार्य	124								1488375	
		पक्का कार्य									371625	
		कुल कार्य									1860000	

Peripheral Bund

S. No.	Activity	Khasra No.	Area (ha)	Length (m)	Top width (Cm)	Breadth (cm)	Height (Cm)	Cross Section (m2)	E.W. (Cum)	Rate Per (cm)	Total Cost (in lacs)	Gram Panchayat
1	PB-1	103, 104, 110, 111	14.30	256.86	0.70	4.75	1.35	3.68	944.92	120	113390	Nigaon Khurd
2	PB-2	232, 233	10.40	165.02	0.70	4.75	1.35	3.68	607.08	120	72850	Nigaon Khurd
3	PB-3	254, 257, 260, 261, 262	14.20	254.69	0.70	4.75	1.35	3.68	936.96	120	112435	Nigaon Khurd
4	PB-4	308, 350, 351, 355, 356, 357, 358, 381, 382	17.50	298.00	0.70	4.75	1.35	3.68	1096.28	120	131554	Nigaon Khurd
5	PB-5	400, 403	14.30	213.31	0.70	4.75	1.35	3.68	784.70	120	94164	Nigaon Khurd
6	PB-6	363, 364, 365, 366	18.30	266.42	0.70	4.75	1.35	3.68	980.09	120	117611	Nigaon Khurd
7	PB-7	246, 247, 249	14.20	231.41	0.70	4.75	1.35	3.68	851.28	120	102154	Nigaon Khurd
8	PB-8	207, 171, 174, 169	17.30	276.66	0.70	4.75	1.35	3.68	1017.74	120	122129	Nigaon Khurd
9	PB-9	206, 369	12.50	207.19	0.70	4.75	1.35	3.68	762.20	120	91464	Nigaon Khurd
		कच्चा कार्य	133								957751	
		पक्का कार्य									239249	
		कुल कार्य									1197000	

CHAPTER -12

ABBREVIATIONS/REFERENCES

LIST OF ABBRIVIATIONS/REFERENCES

DOLR	Department of Land Resources
IWMP	Integrated Watershed Management Programme
SLNA	State Level Nodal Agency
CGL	Common Guidelines
PIA	Project Implementing Agency
BSA	Bhoomi Sangrakshan Adhikari
WDT	Watershed Development Team
WC	Watershed Committee
UC	User Group
SHG	Self Help Group
CB	Contour Bund
MB	Marginal Bund
PFB	Peripheral Bund

REFERENCES

- Common Guideline of watershed development-2008.
- Jila Sankhikiya Patrika
- Census 2001
- www.LALITPUR.nic.in

Preparation of DPR

Detail Project Report of Integrated Watershed Management Programme IWMP-VI had been prepared through base line/ bench Mark survey for physiography climate, soil, land use, vegetation, and 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, Lalitpur, Topo sheet (1 : 50000) survey of India- Deheradoon and technical & specific input and health with preparation and drafting of detail project report.

S. NO.	Name	Designation
1	2	3
1	Sri V.P. Shrivastava	B.S.A.
2	Sri Shahzad Ahmad	J.E.
3	Sri Ajay Kumar	Accountant
4	Sri Sujan Singh	Senior clerk
5	Sri R.C. Singh	Draftsman
6	Sri K.S. Sharura	T.A.C.
7	Sri Indva Sen Shahi	T.A.C.
8	Sri Rakesh Sharma	Tracer
9	Sri A. K. Srivastava	MD, Kalyani Geospatial, Lucknow
10	Dr. A. K. Kulshetra	Consultant, Kalyani Geospatial, Lucknow
11	Sri Dipendra Kumar Sharma	Statistical Analyst, Kalyani Geospatial, Lucknow
12	Sri Rahul Sharma	Cad Expert, Kalyani Geospatial, Lucknow
13	Ku. Manju Lata	GIS Analyst, Kalyani Geospatial, Lucknow
14	Ku. Sunita Kothari	GIS Analyst, Kalyani Geospatial, Lucknow
15	Sri Uday Bhan Singh	Planning Expert, Kalyani Geospatial, Lucknow