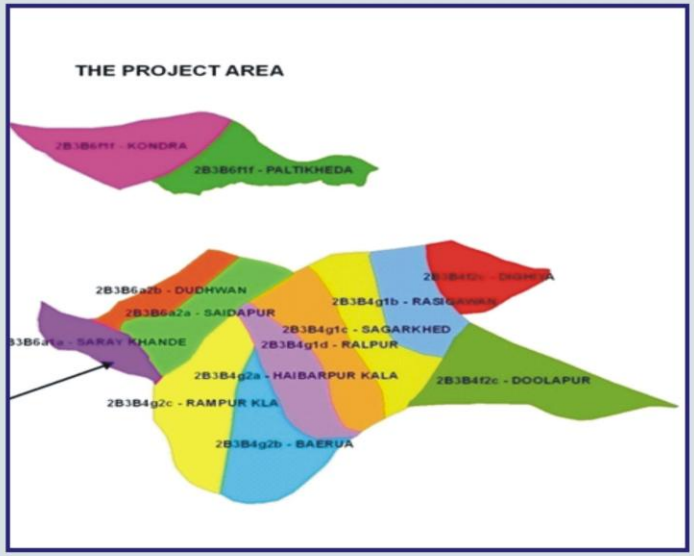
DETAILED PROJECT REPORT

OF

INTEGRATED WATERSHED MANAGEMENT PROGRAMME-III

RAEBARELI (2010-11)



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

CERTIFICATE

This is to certify that the proposed watershed (IWMP-III), Raebareli, 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, agriculture production system, livestock, fodder availability, livelihoods of asset less capacity building etc. The proposed Detailed Project Report of IWMP-III, Raebareli is approved for its implementation.

Bhoomi Sanrakshan Adhikari
IWMP-III
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Deputy Director
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Project Director
DRDA, Raebareli

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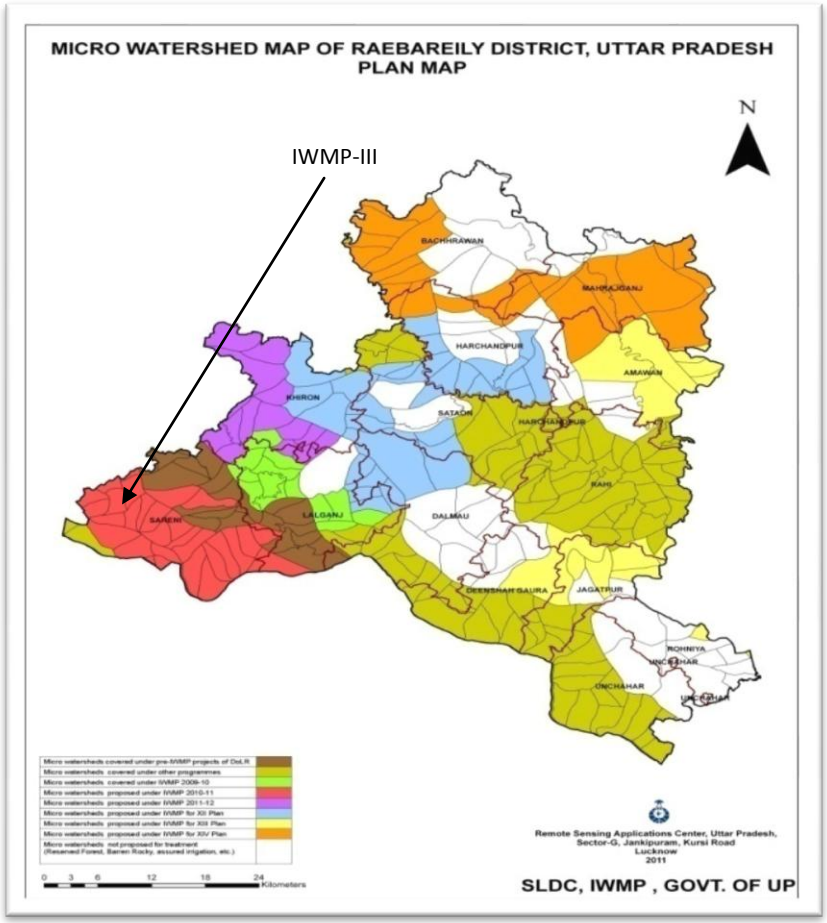
IWMP-III (2010-11) DISTRICT – Raibareili

Name of the project	Weigh-tage	No.of MWS	Geographial Area (ha)	Rainfed Area (ha)	Treatable area (ha)
I.W.M.P.III	83	14	11062	5250	4739



PROJECT AT A GLANCE

1.	Name of Block	**Sareni**
2.	No. of Gram Panchayats	35
3.	Four reasons for selection of Watershed	i. Major % of SC Population ii. Water table down critical (Semi) iii. Low productivity of land iv. Waste land
4.	Date of approval of watershed Development Plan by DRDA/DPC	22 Feb 2011
5.	Area proposed to be treated (ha.)	4739.00
6.	Date of sanction of PPR & Date of release of Ist Instalment	22-09-2010 & 29-09-2010
7.	Project duration	2010-2011 to 2014-2015
8.	Project Cost (in lac.)	**569.88**
9.	Proposed mandays	275000

EXECUTIVE SUMMARY

1. Breif about area

Integrated Watershed Management Programme IIIrd, Raebareli located In Block- Sareni of Raebareli Disrdrict in Uttar Pradesh, has been taken up by Deptt. of Land Development and Water Resources, Raebareli (UP) For Development under Integrated Watershed Management Programme Funded Jointly By Deptt. Of Land Resources, Miniiirdry of Rural Development, Government Of India (Share 90%) and the Government of Uttar Pradesh (Share 10%). The IWMP IIIrd, Raebareli has been also taken up Program Implementation Comprising of Development and Management Plan during Next Five Years (2010-11 to 14-15). The details of the project plan are described as follows:

- Restoration of health of watershed through reducing the volume and velocity of run-off water so that soil erosion can be checked
- To increase per capita availability of drinking water through increased ground water level by insito conservation measures, water harvesting structure and planting work in watershed ground water recharge through in situ conservation measures, water harvesting structures and plantations in watershed.
- Conservation, development and sustainable management of natural resources including their uses.
- To ensure foods security through increased agricultural production and productivity by popularizing improved varieties, INM, IPM and improved agricultural implements.
- Restoration of ecological balance in the degraded and fragile ecosystem through forestation.

- To discourage migration of villagers/rural community by creating sustainable employment opportunities for livelihood security in the watershed villages.

The Project area is having precipitous slopes and drains into the river Ganga through Lon Nadi (Mathana Nala>Jakhuwa Nala> Paharuwa Nala>Pure Hazi Nala>Kotiya Nala & Lon Nadi). The top of the watershed exhibits extremely precipitous and manifesting moderate to severe erosion class. The lower portion of the watershed has moderate slopes. At the outlet of the watershed small gullies are noticed, covered with sparse vegetation. Total 69 numbers of streams of different orders are found in the watershed, with total stream length of 81500m.

Land degradation control is essential if future rural production is to be maintained and improved. Land restoration measures, involving soil erosion control, enhanced vegetative cover and water run-off management will help to preserve the remaining soil and vegetation resources and assist in mitigating the severity of natural disasters. However, much of the land degradation is already irreparable and no amount of effort can overcome the existing damage. Any productive soil which is already lost through erosion has already permanently left the system.

If land degradation is to be checked, there is a need for careful planning in the approach to the development and use of the land. In many countries, the need for planning is urgent because the effects of inappropriate practices of land utilization and its over-exploitation are already irreversible or rapidly approaching that state. Many practices used in the past have contributed to the present degraded state of the environment and should be discontinued if the land is to contribute to the continued prosperity of the individual countries. Any delay in implementing a comprehensive and coordinated system of land management will further exacerbate the situation.

Land management strategies should aim to achieve sustainability of natural resources - land, water, vegetation and fauna - by balancing development and the use of these resources with conservation. To be effective however, land-use management should not be restricted to isolated areas but should be applied to total watersheds. This approach is called "integrated watershed management" and is based on the concept that the components of natural resource systems, such as watersheds, are inter-connected so that changes to one part of the system will influence other parts.

The watershed is located along National Highway, about 7-8 Km from the district Head quarter. It lies between the longitude of 79^0 55'08" to 79^0 58'56"and latitudes 28^0 19' 36" to 28^0 28' 40", having watershed code no. **2B3B6f1 ,*2B3B6a1a, 2B3B6a2b ,2B3B6a2a ,2B3B4g2c ,2B3B6f1f ,2B3B4g2a ,2B3B4g2b 2B3B4g1d,2B3B4g1c ,2B3B4g1b ,2B3B4f2c ,2B3B4f2c 2B3B4f2c.*** Its altitude ranges from 101 to 107 m from mean sea level (MSL). The total area of watershed is 11062 Ha. These micro watersheds are surrounded by the catchment of river Ganga. This watershed is located in the South-East of Raebareli District.

The waterdsed comprises of 90 Villages namely Kondra, Chhitaona, Ghooremau, Khanpur, Hullapur, Murarmau, Mahrajpur,Rampur Khurd, Mangadpur, Katikha, Bithooli,Palti Kheda, Sotwakheda, Kutiya Ahatmali, Saray Khande, Ahatmali, Gonda, Dudhwan, Bhawnipur, Raypur, Saray Pandey Mustkil Pooranpur, Saidepur, Ghoorikheda, Hameergawan, Jadupur, Saray Khande Mustkil, Rampur Kla, Chhiwlaha, Madhurpur Mustkil, Madhurpur Ahatmali, Hilaoli, Dafpura, Firojpur, Rampur Kla Mustkil, Rampur Kla Ahatmali, Paltikheda, Sareni, Lakhnapur Dhanpalpur, Ramipur Kla, Gaotaman Kheda, Haidarpur Kla, Raotapur, Rayalpur Ahatmali, Sahnipur, Bairua Mustkil, Bairua Bairua Ahatmali, Ralpur, Tejgawan, Pasankheda, Dariyapur, Kalhigawan, Gopali Kheda, Devkheda, Bheeta, Kanjas, Ralpur Mustkil, Ralpur Ahatmali, Sagarkheda, Ramgawan, Sidhartara Mustkil, Sidhartara, Ahatmali, Malkigawan, Rashigawan, Lakhangawan, Gajiyapur, Ramipur Khurd, Moosapur, Teela, Meethapur, Bathhaya, Gangaso Mustkil, Bajpeipur Ahatmali, Gangaso , hatmali, Janewakheda Ahatmali, Khajoorgawan Ahatmali, Saray Bahriya, Kankapur, Udraharpur, Parwatkheda, Dighiya, Bairuahar, Gajiyapur,

Chakchorhiya, Daolapur, Ranikheda, Neebi, Murdipur Maghgawan, Rawatpur Kla of Block – Block- Sareni, District - Raebareli (U.P.). This watershed has been identified by the state department under IWMP scheme by proper prioritization of different parameters for watershed selection criteria.

The watershed lies in the semi-arid region having tropical climate. The average annual precipitation is more than 1000 mm. Most of the annual rain fall (about 90%) is received during the rainy season (July to September) accompanied with high intensity storm. The temperature in the area rarely goes up to 44.5 Ċ in the May-June to as low as 40 Ċ during December-January.

In the watershed area mainly four typos of soil named.Sloopy or sandy loam (50 %) dader (Clay soil 20%), gurmuta or lateritic silt (10%) and lateric (Sandi 20%) are the main soil type of the watershead. Main crops are oilseeds and pulses which are grown in soils having poor fertility. The soil of this region or brown for dificiancy of esssentioal nutrions as well much low content of organic matter. Due to moderate to slopes and presence of a number of drainage lines, drainage is adequate. The watershed forms part of Ganga basin.

Agriculture is the main source of income of the farmers of the watershed. In Kharif the main crops i.e. Rice , Bajra, Til, Arhar and Urd. Some of the lands are kept fallow because maximum areas are rainfed and the main Rabi crop is taken with the conserved moisture of rainfall. In Rabi the main crops are Gram, Wheat, Pea, Lentil, Mustard, Barley and linseed, the wheat and lentil crops are taken in the irrigated fields while the other crops are mostly taken in the rain fed conditions. In Zaid season the main crops are urd, moong. Maize. The Horticultural crops are occupied with well developed like mango, guava, Banana and other fruits orchard. Only some vegetable crops are taken for domestic purpose.

Animal Husbandry is not in good condition because of local breeds. Their milk production is low due to poor feeding and management.

Natural vegetation of the watershed is medium to poor. The forest vegetation is predominant with palas, followed by Bamboo, tendu patta, mahua etc. There are occasional occurrence of neem plants (Azadirachta indica) and Shisham (Dalbergia sissoo) with no grass land in the watershed but bushy shrubs can be seen throughout watershed.

The problem of erosion of the watershed is to be tackled by harvesting additional water in existing water harvesting structures, which have lost most of their capacity due to siltation and creating new water bodies. Water stored in the water harvesting structures shall be properly recycled to provide supplemental irrigation at critical growth stages of crops and for the establishment of fruit orchards and forest trees. The agricultural land will be treated with bunding along with minor leveling. Waste land will be treated with the engineering measures like staggered trenches and aforestation etc.

2. Institutional arrangement

This watershed has been identified by the state department under NWDPRA scheme by proper prioritization of different parameters for watershed selection criteria

The area of watersheds is proposed to be taken by Bhoomi Sanrakshan Adhikari, Department of land development & water resources, Raibareili for integrated watershed management programme (IWMP) starting from the year 2010-11. The project will be completed by 2014-15.

3. Salient project activities

The area is prone to soil degradation due to environmental impact and over exploitation of natural resources therefore it is an urgent need to restore the ecological balance for the sustainability. Fodder

shortage, lack of inputs and market facility are some of the major constraints being experienced by the farmers.

It is proposed that the soil conservation and check in run-off water is required urgently. Therefore the certaine measures like contour bund, marginal bunds, peripheral bunds are urgently required. On the other hand to control the run-off water the water management practices like drainage treatment, check dams and other practices have been propsed according to general geology of the project area.

The agricultural land will be treated with bunding along with minor levelling. Waste land will be treated with the engineering measures like staggered trenches and a forestation etc.

Table – 2 : Watershed Development works including proposed engineering structures

Component	Total (Lakhs) Amount	% of the bugdet
(a) Construction of bunds (Field Bund,Contour Bund, Submergence Bund, Marginal Bund and Peripheral Bund)	113.81	50%
(b)Renovation of Existing bunds for in-situ soil moisture conservation	123.99	
(c) New and renovation of Existing Water Harvesting bunds/Gully plug/Check dam	28.45	
(d) Rainfed Horticulture with Fencing	4.20	
(e) **Rainfed Horticulture without Fencing**	5.550	
(f) **Aforestation and Development of Silvi-pastoral System**	8.24	
Total	**284.54**	**50%**

Livelihood Activities (community Based)

Component	Total (Lakhs) Amount	% of the bugdet
(a) Establishment of Nadef-Compost Units.	22.91	10%
(b)Dairy Work	5.00	
(c) Goating Keeping	3.50	
(d) Genaral Merchant Shop	1	
(e) Live Stock Activities	13.64	
Total	**28.45**	10%

Table – 3 : YEAR WISE PHASING (PHYSICAL & FINANCIAL) OF I.W.M.P. III, RAIBAREILI (U.P.)

Area in ha & Rs. in lakh

S. No.	Item	1st Year (2010-11)		IInd Year (2011-12)		IIIrd Year (2012-13)		1Vth Year (2013-14)		Vth Year (2014-15)		Total	
		Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.
1	Administrative 10%	-	-	11.398	-	15.102	-	15.102	-	15.386		56.988	-
2	Monitoring 1%	-	-	1.14	-	1.14	-	1.14	-	2.279		5.699	-
3	Evaluation 1%	-	-	0.709	-	1.995	-	1.995	-	1.00	-	5.699	-
4	Entry Point Activity 4%	22.795	-	-	-	-	-	-	-	-	-	22.795	-
5	Institutional and Capacity building 5%	5.699	-	11.397	-	5.699	-	5.699	-	-	-	28.494	-
6	D.P.R Preparation 1%	5.699	-	-	-	-	-	-	-	-	-	5.699	-
7	Watershed Dev. Works 50%	-	-	42.741	457	150.733	2552.50	91.466	1739.50	-	-	284.94	4749
8	Livelihood & Income Generating 10%	-	-	5.699		28.494	-	22.795	-	-	-	56.988	-
9	Production System development 13%	-	-	5.699		25.589	-	22.796	-	20.00	-	74.084	-
10	Consolidation Phase 5%	-	-	-		-	-	-	-	28.494	-	28.494	-
	Total	34.193	-	78.783	457	228.752	2552.50	160.993	1739.50	67.159	-	569.88	4749

Budget for the various components is given below (I.W.M.P.- II, RAEBARELI)

Sl.No.	Budget Component	Total (Lakhs)
A	1. Administrative	56.988
	2. Monitoring	5.699
	3. Evaluation	5.699
B.	Preparatory Phases	56.988
C.	Watershed Works	284.94
(i)	Livelihood Programme	56.988
(ii)	Production System and Micro Enterprises	74.084
D.	Consolidation Phase	28.494
	Grand Total	**569.88**

5. Treatment area and details

The main objectives of the project area are: to control damage by run-off, to manage and utilize run-off for useful purpose or soil conservation and to increase infiltration of rain water.

The main problem in a watershed is the soil erosion by rainfall. The run off water transport the sediments which may block the channel head, dam, reservoir and storage structures are the major problems faced in the

project area and attempts made so far to overcome them. The other main problems in the selected watershed are : lack of awareness amongst the villagers about the deteriorating environmental condition of the area, 75% of the run off water makes it away to way towards Mala river carrying fertile soil which has nutrients and this decreases soil fertility, there is a decline in the productivity of cereals, pulses and vegetable crops, dependency of farmers on the rain water. Therfore it is an urgent need, that rainwater should be harvested for crops and re-charged to improve the quality of the water.

Table – 4 : WATERSHED WISE TREATMENT AREA

S.no	***Name of Water shade***	***Avialable area for treatment***			
		Personal	***Governent***	***PRE***	***other***
1	*2B3B6f1f Kondra*	-	-	-	
2	*2B3B6a1a Saray Khande*	*486*	*36*	-	-
3	*2B3B6a2b Dudhwan*	*410*	*58*	-	-
4	*2B3B6a2a Saidapur*	*541*	*60*	-	-
5	*2B3B4g2c Rampur Kla*	*272*	*28*	-	-
6	*2B3B6f1f Paltikheda*	-	-	-	-
7	*2B3B4g2a Haibarpur Kala*	*334*	*38*	-	-
8	*2B3B4g2b Baerua*	-	-	-	-
9	*2B3B4g1d Ralpur*	*350*	*40*	-	-
10	*2B3B4g1c Sagarkhed*	*310*	*35*	-	-
11	*2B3B4g1b Rasigawan*	*359*	*40*	-	-
12	*2B3B4f2c Singhor Tara*	*618*	*70*	-	-
13	*2B3B4f2c Dighiya*	*535*	*60*	-	-
14	*2B3B4f2c Doolapur*	*618*	*70*	-	-

6. Fact sheet about benchmark indicators

Gradually increasing soil erosion, poor harvesting management,single cropping pattern,non treated land and water resources have been required to take immediate action for conservation of soil and moistures various type earthen bunds in the watershed field, necessity has been observed, Stabilize Disturbed Areas immediately. Permanentstructures, temporary or permanent vegetation, and mulch, or a combination of these measures, should be employed as quickly as possible after the land is disturbed. Retain or Accommodate Runoff. Runoff from the development should be safely conveyed to a stable outlet using storm drains.

Table – 5: Area Under Various LCC Classes

LCC class	Area ha
II	370
III	1400
IV	2295
V	400
VI	200
VII	200
Total	**4665.00**

7. Action plan at a glance

The preparation of detailed project report has been carried out by applying different steps for its compilation. A brief detail has been given below:-

Secondory or co-lateral data collection – During the field visit programme all available data spatial and non- spatial has been collected through village lavel from gram panchayat office and community block lavel office.

Paticipatry rural appraisal (PRA) has been conducted for detail survey of the village resource information.

Formation of User'group and self help group and different committees for the social awareness among the people of the study area have been formed.

Conducted watershed committee meetings at gram panchyat lavel, for the discussion of different problems and their appropriate solution according to need in the project area.

After gathering all required information compiled thoroughly discussed and finalized the expected out-comes and benefits specialy in the respect of livelihood for different segments.These are the target and and performers, indicators for the project area,

The draft of the detailed project report has been prepared for the approvel of the project. Following activities are taken up for implementation in the project area.

CHAPTER-1

INTRODUCTION & BACKGROUND

1. PROJECT BACKGROUND:-

The broad objective was the promotion of the overall economic development and improvement of the socio-economic conditions of the resource 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.

The main objectives of the IWMP are to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water. The outcomes are prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table. This enables multi-cropping and the introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area. In addition, there is a Scheme of Technology Development, Extension and Training (TDET) is also being implemented to promote development of cost effective and proven technologies to support watershed management.

The study area is a cluster of 14 (Fourteen) micro- watershed, with code No. *2B3B6f1f ,2B3B6a1a, 2B3B6a2b, 2B3B6a2a, 2B3B4g2c, 2B3B6f1f, 2B3B4g2a, 2B3B4g2b, 2B3B4g1d, 2B3B4g1c, 2B3B4g1b, 2B3B4f2c, 2B3B4f2c, 2B3B4f2c* having area of 11062.00 ha,out of which 4739.00 ha,has been proposed for the treatment. It is located in Block- Sareni of Raebareli Disrdrict Of Uttar Pradesh The area of watersheds is proposed to be taken by Bhoomi Sanrakshan Adhikari, Department of land development & water resources,

Raebareli for integrated watershed management programme (IWMP-III) starting from the year 2010-11. The project will be completed by 2014-15.

Most of the land comes under agriculture. The livelihood of these people is primarily based on rainfed agriculture, animal husbandry, wage labour and goat keeping. In the watershed area mainly four typos of soil named.Sloopy or sandy loam (50 %) dader (Clay soil 20%), gurmuta or lateritic silt (10%) and lateric (Sandi 20%) are the main soil type of the watershead. Main crops are oilseeds and pulses which are grown in soils having poor fertility. The soil of this region or brown for dificiancy of esssentioal nutrions as well much low content of organic matter**.**

Table 1.1: Basic Project Information

Sl.	Name of the Project	Villages	Block	District	Total area of The Project	Area proposed to be treated	Total Project cost (Rs. in Lacs)	PIA
1.	I.W.M.P.	Kondra, Chhitaona, Ghooremau, Khanpur, Hullapur, Murarmau, Mahrajpur,Rampur Khurd, Mangadpur, Katikha, Bithooli,Palti Kheda, Sotwakheda, Kutiya Ahatmali, Saray Khande, Ahatmali, Gonda, Dudhwan, Bhawnipur, Raypur, Saray Pandey Mustkil Pooranpur, Saidepur, Ghoorikheda, Hameergawan, Jadupur, Saray Khande Mustkil, Rampur Kla, Chhiwlaha, Madhurpur Mustkil, Madhurpur Ahatmali, Hilaoli,	Sareni	Raibareili	11062	4739	569.88	Bhoomi Sanrakshan Adhikari Department of Land Development and Water Resource

		Dafpura, Firojpur, Rampur Kla Mustkil, Rampur Kla Ahatmali, Paltikheda, Sareni, Lakhnapur Dhanpalpur, Ramipur Kla, Gaotaman Kheda, Haidarpur Kla, Raotapur, Rayalpur Ahatmali, Sahnipur, Bairua Mustkil, Bairua Bairua Ahatmali, Ralpur, Tejgawan, Pasankheda, Dariyapur, Kalhigawan, Gopali Kheda, Devkheda, Bheeta, Kanjas, Ralpur Mustkil, Ralpur Ahatmali, Sagarkheda, Ramgawan, Sidhartara Mustkil, Sidhartara, Ahatmali, Malkigawan, Rashigawan, Lakhangawan, Gajiyapur, Ramipur Khurd, Moosapur, Teela, Meethapur, Bathhaya, Gangaso Mustkil, Bajpeipur Ahatmali, Gangaso , hatmali, Janewakheda Ahatmali, Khajoorgawan Ahatmali, Saray Bahriya, Kankapur, Udraharpur, Parwatkheda, Dighiya, Bairuahar, Gajiyapur, Chakchorhiya, Daolapur, Ranikheda, Neebi, Murdipur Maghgawan, Rawatpur Kla						Raibareili

2. NEED AND SCOPE FOR WATERSHED DEVELOPMENT

The main objectives are

(a) To control damage by run-off.
(b) To manage and utilize run-off for useful purpose or soil conservation
(c) To increase infiltration of rain water

Main problem in watershed Area

The main problem in a watershed is the soil erosion by rainfall. The run off water transport the sediments which may block the channel head, dam, reservoir and storage structures are the major problems faced in the project area and attempts made so far to overcome them. Following are the main problem in the selected watershed.

(a) Lack of awareness amongst the villagers about the deteriorating environmental condition of the area.

(b) Due to over grazing, vegetative cover is declining on community land. There is no grasses and even shrub. Vegtation is vanishing, River carry a huge silt every year

(c) Due to continuous cutting of trees, overgrazing bushes and shrubs ecological balance of the area has been hardly distrubed.

(d) Due to increasing populasion pressure of man and animal there is camptition for collection of food, fodder and fuel resources.

(e) The ground water of the watershed area is smelly and oily hence irrigation is not possible by this ground water. A farmer depends on the rain water. Ther fore it is an urgent need, that rainwater should be harvested for crops and re-charged to improve the quality of the water.

3. WEIGHTAGE FOR SELECTION OF WATERSHED

Problem Identification and Prioritization

Soil and water conservation, Pood sufficiency, economic growth and environmental security has identified as the major issues to be addressed in the watershed area. The area has moderate to steep slope hence highly prone to soil erosion.

Problems identified and prioritized the transect walk and PRA exercise in all 17 villages have pooled and lIIIrd of 8 (eight) problems representing the whole watershed was prepared. Problems have ranked as per their total weightage in the 17 villages. Lack of drinking water is the greatest problem experienced by the people followed by, lack of irrigation water, lack of agri inputs, medical and health care facilities etc.

Problem identification and prioritization for watershed

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

Strength, Weakness, Opportunity And Threat (Swot) Analysis Is A Useful Decision Support Tool

A SWOT analysis of Garra and Mala watershed is presented as below:

Strength (S)	Weakness(W)
1- Cooperative work culture is traditional activities 2- Close ethnic tier 3- Hard working man power 4- Honesty 5- Awareness of farmers about watershed management programmes 6- Social outlook of the community towards developmental works 7- Less pollution of agro ecosystem 8- Rich biodiversity	1- Poor water management 2- Resource poor farmers 3- Migration of rural youth 4- Low and erratic rain fall 5- Fragile geography 6- Fragmented land holdings. 7- Heavy infestation of wild animals 8- Problem of fuel and fodder 9- Deforestation
Opportunities(O)	**Threats (T)**
1- Better scope for pulses and oilseeds crop production 2- Scope of regular employment opportunity to check out migration 3- Conductive climate for rainfed crop diversification 4- Good scope for agro forestry and dry land horticulture. 5- Good scope for medicinal crop cultivation	1- Prone to adverse climate like drought 2- High market risk 3- Weak coordination among line departments. 4- Lack of expertise of implementing agencies in different aspect of WSM. 5- Avoidance of rural people regarding the maintenance and proper use of water bodies

Table 1.2: Weightage of the project

Project Name	Project Type	Weightage													
Raibareili IWMP III[rd]	IWMP	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv
		7.5	10	5	10	10	0	15	7.5	10	5	5	15	5	83

Table – 1.3: 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**

Table – 1.4 : WATERSHED INFORMATION

Name of the Project	No. of water sheds to be treated	Watershed Code	Watershed regime/type/order
IWMP III[rd]	14	*2B3B6f1f ,2B3B6a1a, 2B3B6a2b, 2B3B6a2a, 2B3B4g2c, 2B3B6f1f, 2B3B4g2a, 2B3B4g2b, 2B3B4g1d, 2B3B4g1c, 2B3B4g1b, 2B3B4f2c, 2B3B4f2c, 2B3B4f2c*	Micro Watershed

4. OTHER DEVELOPMENTAL PROJECTS/SCHEMES RUNNING IN THE VILLAGES:

These villages of the project area being very backward therefore have been on top priority for a number of developmental projects. These programmes are Swarnajayanti Gram Swarojgar Yojana (SGSY) and Indira Awas Yojana (IAY). Integrated Watershed Management Programme in other areas of the district is under operation in the department of Agriculture DPAP Programme is also running in the project area.

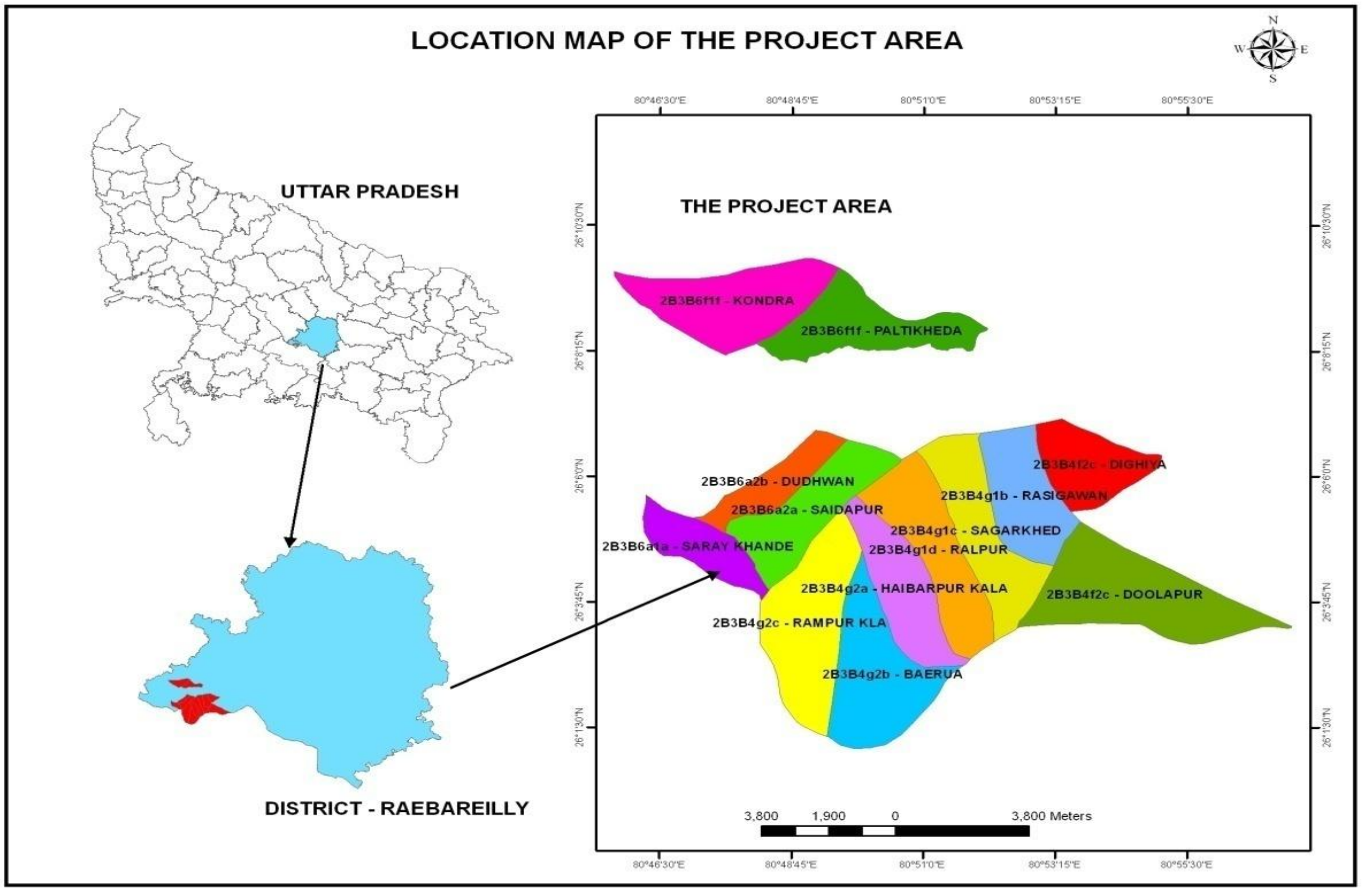
CHAPTER – 2

GENERAL DESCRIPTION OF PROJECT AREA

1. LOCATION

The selected watershed IWMP-III of Raibareili located in Sareni block of Raibareili district (U.P.) It is situated in (Raibareili - Lalganj - Sareni Road) about 55 km from district head quarter, It lies between the longitude of $80^0$41’ 10” to $80^0$47’ 44”E and latitudes $26^0$04’ 21” to $26^0$10’ 47”N. There are 35 gram panchayat and 90 revenue villages in the project.

LOCATION MAP OF THE PROJECT AREA



2. AREA

The project is a cluster of Twelve (14) micro- watersheds with code No. *2B3B6f1f ,2B3B6a1a, 2B3B6a2b, 2B3B6a2a, 2B3B4g2c, 2B3B6f1f, 2B3B4g2a, 2B3B4g2b, 2B3B4g1d, 2B3B4g1c, 2B3B4g1b, 2B3B4f2c, 2B3B4f2c, 2B3B4f2c* having an area of 11062.00 ha out of which 4739.00 ha, has been undertaken to be treated under Integrated Watershed Management Programme (IWMP) starting year 2010-2011. There are 35 gram panchayat and 90 revenue villages in the project.

Table- 2.1 : LANDUSE PATTERN OF THE PROJECT AREA

S. No	Name of District	No. of Micro-watershed	No. of Villages	Geographical Area (ha)	Rainfed Area (ha)	Traetable Area (ha)	Forest Area (ha)	Land under agricultural use (ha)	Plantation (ha)	Wasteland (ha)	Fallow Land (ha)
1	Raibareili	14	90	11062.00	5250	4739	59.80	7101	32.81	27.36	57.76

3. AGRO-CLIMATE CONDITIONS

The Agro-Climate Condition of the project area including the Agro-Climate Zone of Vindhyan. The soil type, rainfall, major crops etc., of Raibareili district is briefly described below:

Table- 2.2 : DETAILS OF AGRO-CLIMATE CONDITIONS

S. No.	Name of Project	Name of Agro-climate Zone covered	Area (Ha)	Major Soil Type (Ha)		Topography	Average Rainfall (mm)	Major crops	
				Type	Area (ha)			Name	Area (ha)
1	IWMP -III, Raibaleili	Central Zone	4739	Sandy Loam	3336.00	Undulating with Affected	765 mm	Paddy, Wheat, Gram, Maize, Arhar	2575.00

4. PHYSIOGRAPHY

The watershed is in the mid of the Vindhyan mountainous terrain having precipitous slopes and drains into the river Ganga through Lon Nadi. (Mathana Nala>Jakhuwa Nala> Paharuwa Nala>Pure Hazi Nala>Kotiya Nala & Lon Nadi). The top of the watershed exhibits extremely precipitous and manifesting moderate to severe erosion class. The lower portion of the watershed has moderate slopes. At the outlet of the watershed small gullies are noticed, covered with sparse vegetation. Total 69 numbers of streams of different orders are found in the watershed, with total stream length of 81500m. Stream characterIIIrdics of the watershed are presented in the bellow table:

STREAMS OF THE IWMP III, RAEBARELI

Stream Order	Number of Stream	Stream Length(M)
1st order	55	34500
2nd order	12	32000
3rd order	2	15000
Total	69	81500

5. SLOPE ANALYSIS

The Project area has an uneven terrain with higher elevations on the south to South-West side of the watershed. Since slope is the most important terrain characteristic and plays a vital role in geomorphological and runoff processes, soil erosion and land use planning, it is very important to have an understanding of the spatial distribution for the development and management of both land and water resources. The general slope of the watershed is towards south - East. In the present study Seven (7) Slope classes were identified through the analysis of Aster Digital Elevation Model. One such map of Slope of the watershed is shown in Annexure Map.

6. CLIMATE

The watershed comes under the semi-arid region having temperate climate. The average annual rainfall is 765 mm. Most of the annual rainfall (about 90%) is received during the rainy season (July to September) accompanied with high intensity storm. The temperature in the area rarely goes up to 48^{o} C in the May-June to as low as 4^{0}C during December-January.

The project area experiences three distinct seasons: summer, monsoon and winter. Typical summer months are from March end to June, with maximum temperatures ranging from 42 °C to 48 °C. The area, starts receiving heavy thundershowers with sharp downpours in Mid June. Though the temperatures plunge in this month, the summer heat accompanied by high humidity can be occasionally quite oppressive.

Monsoon winds blowing from the south India are a welcome relief in mid of June, bringing with them heavy showers in July, August. The area receives excessive rainfall in the month of August & September, with an annual rainfall of 989 mm, mainly between June and September as the result of southwest monsoon. August is the wettest month of the year. The spells of continuous rainfall may stretch to many days or even a few weeks.

As the monsoon winds recede, the day temperatures starts decline in October with cooler nights signalling the onset of winter. The project area experiences winter from November to February. It experience pleasant windy days, clear skies and cool nights in the month of November till February ends, which makes it the most enjoyable time of the year. The day temperature hovers around 14 °C while night temperature is below 7 °C for most of December and January, often dropping to 3 °C or 4 °C. On particularly cold days, wind may appear to be very chilly due to the dryness of air. Rain is very expected in month of February. During the monsoon and the post monsoon seasons the relative humidity are high ranging between 70 and 85 per cent. In the winter months humidity decreases and in summer the air is comparatively drier.

6. WIND VELOCITY

The Wind velocity of the Project area ranges from 4-18 Km/hr.

7. WATERSHED CHARACTERISTICS

Shape and Size

The watershed (IWMP IIIrd, Raibareili) shape is elongated type. The maximum length and width of the watershed is 19000 m and 13000 m, respectively with the length: width ratio of 1.46.1

Table- 2.4 : SHAPE AND SIZE OF WATERSHED

S. No.	Micro Watershed Code No.	Micro ershed Area Wat (ha.)	Shape of Micro Watershed	Approx size in Meter		Ratio Length : Width
				Length	Width	
1	*2B3B6f1f Kondra*	-	Elongated	3000	2500	1.20: 1
2	*2B3B6a1a Saray Khande*	*486*	Quadrilateral	3250	1500	2.17 :1
3	*2B3B6a2b Dudhwan*	*410*	Quadrilateral	2250	1500	1.50 :1
4	*2B3B6a2a Saidapur*	*541*	Triangular	2000	1750	1.14 :1
5	*2B3B4g2c Rampur Kla*	*272*	Elongated	3500	1500	1.14 :1
6	*2B3B6f1f Paltikheda*	-	Elongated	4000	1250	3.2 :1
7	*2B3B4g2a Haibarpur Kala*	*334*	Quadrilateral	2500	2000	1.25 :1
8	*2B3B4g2b*	-	Quadrilateral	3000	2250	1.33 :1

	Baerua					
9	*2B3B4g1d Ralpur*	*350*	Elongated	3750	1250	3.00 :1
10	*2B3B4g1c Sagarkhed*	*310*	Elongated	5500	1500	3.67 :1
11	*2B3B4g1b Rasigawan*	*359*	Quadrilateral	2250	1750	1.28 :1
12	*2B3B4f2c Singhor Tara*	*618*	Triangular	2750	2000	1.37 :1
13	*2B3B4f2c Dighiya*	*535*	Quadrilateral	4000	1750	2.28 :1
14	*2B3B4f2c Doolapur*	*618*	Triangular	3500	1500	2.33 :1

8. GEOMORPHOLOGY AND SOILS

Geomorphology:

The watershed is located in the southern end of the district Raebareli of Avadh plain. The soil is mainly Clay to sandy loam which is easily transportable after detachment causing severe erosion of fertile layer of the soil.

Soils:

In the watershed four kind of soils namely, Sigwa or red sandy-loam (50%) Dader (black clay soil 20%), Gurmuta or Lateritic silt (10%) and Lateric (Lalmitti 20%) are found. Main crops are oilseeds and pulses which are grown in soils having poor fertility. The soils of the watershed having low content of organic matter, poor in fertility due to low content of nitrogen, phosphorous, potash as well as micronutrients.

Table- 2.5: DETAIL OF SOIL EROSION (I.W.M.P-II) RAEBARELI

1	2	3	4	5
Cause	Type of erosion	Area affected (ha)	Run off (mm/ year)	Average soil loss (Tonnes/ ha/ year)
Water erosion				
a	Sheet	2100	552	15.60
b	Rill	2200		
c	Gully	450		
Sub-Total		-	-	-
Wind erosion		NA	-	-

9. HUMIDITY

During the monsoon and the post monsoon seasons the relative humidity are high ranging between 70 and 85 per cent. In the winter months humidity decreases and in summer the air is comparatively drier.

10. VEGETATION

(a) Natural Vegetation:

Natural vegetation of the watershed is medium to poor. The forest vegetation is predominant with palas, followed by Bamboo, tendu patta, mahua etc. There are occasional occurrence of neem plants (*Azadirachta indica*) and Shisham (*Dalbergia sissoo*) with no grass land in the watershed but bushy shrubs can be seen throughout watershed.

(b) Horticulture:

Though no organized orchards are present in the watershed, homestead planting of fruit trees of mango, guava, bael, sharifa, karonda etc. has been practiced by farmers.

(c) Agro-forestry:

The agriculture fields of the villages do not have any kind of forest or horticultural plantation. At some places isolated trees of Mahua, subabool etc. can be seen, whose frequency is one tree per running length of 200 mtr.

CHAPTER-3

BASELINE SURVEY

1. SOCIO-ECONOMIC ANALYSIS OF THE PROJECT

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 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.

2. ECONOMIC ANALYSIS

Economic analysis of the project is carried out by taking direct benefits and costs, considering 30 year project life at 10% discount rate. For the purpose of economic analysis, whole watershed development plan is divided into four sectors 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.

3. DEMOGRAPHIC INFORMATION

HUMAN AND LIVESTOCK POPULATION

The I.W.M.P – III, watershed project has a total population of **218857.**

Table – 3.1: HUMAN POPULATION OF THE PROJECT AREA IWMP-II RAIBAREILI, U.P.

S no	Water shade / village in water shade	census						Childr en 0 to 14	total	literate		Work force			
		total		B.C.		S.C.				M	F	Ag	industry	service	other
		M	F	M	F	M	F								
1	Kondra	970	934	156	141	197	181	220	2104	637	369	195		10	
2	Chhitaona	130	119	12	17	52	47	82	331	101	53	75		33	
3	Ghooremau	139	164	11	23	12	12	100	403	100	77	62		17	
4	Khanpur	306	401	51	73	129	132	125	832	180	172	56		13	
5	Hullapur	2033	1912	291	303	384	373	1270	5215	1462	863	376		24	
6	Murarmau	664	1542	297	275	558	501	650	3856	1100	650	232		20	
7	Mahrajpur	542	528	76	52	211	203	300	1370	410	288	96		12	
8	Rampur Khurd	1910	1794	298	284	421	413	900	4604	1287	778	362		37	
9	Mangadpur	496	509	109	83	99	106	240	1245	287	199	88		13	
10	Katikha	866	887	156	157	123	112	430	2183	495	284	177		24	
11	Bithooli	1948	2025	408	364	557	623	800	4773	1154	758	368		32	
12	Palti Kheda	393	419	77	77	210	238	225	1037	264	180	81		12	
13	Sotwakheda	688	728	89	126	268	256	250	1666	487	333	175		19	
14	Kutiya Ahatmali	487	505	95	93	180	201	300	1292	317	221	168		21	
15	Saray Khande Ahatmali	1361	1311	266	227	448	438	550	3222	783	428	280		31	

16	*Gonda*	*2776*	*2776*	*477*	*419*	*600*	*646*	*1500*	*7052*	*1861*	*1306*	*550*		*162*	
17	*Dudhwan*	*325*	*265*	*50*	*40*	*46*	*40*	*125*	*715*	*219*	*117*	*98*		*26*	
18	*Bhawnipur*	*574*	*635*	*118*	*124*	*315*	*387*	*335*	*1544*	*369*	*237*	*209*		*15*	
19	*Raypur*	*210*	*166*	*34*	*25*	*41*	*33*	*80*	*456*	*144*	*70*	*52*		*5*	
20	*Saray Pandey Mustkil*	*424*	*399*	*84*	*53*	*141*	*156*	*255*	*1078*	*303*	*181*	*92*		*7*	
21	*Pooranpur*	*296*	*307*	*52*	*54*	*153*	*132*	*195*	*798*	*171*	*131*	*67*		*12*	
22	*Saidepur*	*921*	*992*	*179*	*148*	*182*	*204*	*310*	*2223*	*631*	*526*	*192*		*27*	
23	*Ghoorikheda*	*761*	*681*	*116*	*110*	*210*	*185*	*324*	*1766*	*559*	*370*	*181*		*16*	
24	*Hameergawan*	*156*	*167*	*45*	*32*	*62*	*59*	*80*	*403*	*79*	*46*	*38*		*7*	
25	*Jadupur*	*2268*	*2239*	*405*	*351*	*653*	*650*	*1250*	*5757*	*1480*	*950*	*508*		*46*	
26	*Saray Khande Mustkil*	*1709*	*1728*	*324*	*309*	*524*	*537*	*625*	*4062*	*1066*	*636*	*461*	*02*	*71*	
27	*Rampur Kla*	*4128*	*3961*	*773*	*777*	*852*	*831*	*2400*	*10489*	*2512*	*1326*	*712*	*02*	*112*	
28	*Chhiwlaha*	*1217*	*1320*	*251*	*261*	*104*	*131*	*625*	*3162*	*660*	*672*	*311*		*41*	
29	*Madhurpur Mustkil*	*955*	*989*	*201*	*182*	*304*	*312*	*570*	*2514*	*613*	*427*	*128*		*23*	
30	*Madhurpur Ahatmali*	*1265*	*1165*	*190*	*175*	*300*	*304*	*530*	*2960*	*915*	*632*	*252*		*27*	
31	*Hilaoli*	*351*	*358*	*49*	*49*	*83*	*78*	*230*	*939*	*245*	*164*	*98*		*29*	
32	*Dafpura*	*3601*	*3463*	*603*	*603*	*1329*	*1211*	*1550*	*8614*	*2207*	*1298*	*817*		*52*	
33	*Firojpur*	*571*	*522*	*75*	*83*	*150*	*150*	*175*	*1214*	*422*	*267*	*129*		*18*	
34	*Rampur Kla Mustkil*	*599*	*570*	*100*	*93*	*108*	*111*	*225*	*1394*	*438*	*318*	*167*		*27*	

35	*Rampur Kla Ahatmali*	*916*	*976*	*159*	*175*	*262*	*303*	*425*	*1317*	*609*	*415*	*235*		*38*	
36	*Paltikheda*	*520*	*472*	*102*	*89*	*80*	*70*	*145*	*1137*	*299*	*134*	*169*		*18*	
37	*Sareni*	*56*	*61*	*08*	*11*	*32*	*36*	*28*	*145*	*36*	*31*	*52*		*2*	
38	*Lakhnapur*	*165*	*151*	*28*	*22*	*0*	*0*	*275*	*591*	*106*	*63*	*102*		*3*	
39	*Dhanpalpur*	*391*	*363*	*59*	*48*	*72*	*83*	*235*	*989*	*298*	*182*	*261*		*32*	
40	*Ramipur Kla*	*970*	*934*	*156*	*141*	*197*	*181*	*220*	*2104*	*637*	*369*	*195*		*10*	
41	*Gaotaman Kheda*	*130*	*119*	*12*	*17*	*52*	*47*	*82*	*331*	*101*	*53*	*75*		*33*	
42	*Haidarpur Kla*	*139*	*164*	*11*	*23*	*12*	*12*	*100*	*403*	*100*	*77*	*62*		*17*	
43	*Raotapur*	*306*	*401*	*51*	*73*	*129*	*132*	*125*	*832*	*180*	*172*	*56*		*13*	
44	*Rayalpur Ahatmali*	*2033*	*1912*	*291*	*303*	*384*	*373*	*1270*	*5215*	*1462*	*863*	*376*		*24*	
45	*Sahnipur*	*664*	*1542*	*297*	*275*	*558*	*501*	*650*	*3856*	*1100*	*650*	*232*		*20*	
46	*Bairua Mustkil*	*542*	*528*	*76*	*52*	*211*	*203*	*300*	*1370*	*410*	*288*	*96*		*12*	
47	*Bairua*	*1910*	*1794*	*298*	*284*	*421*	*413*	*900*	*4604*	*1287*	*778*	*362*		*37*	
48	*Bairua Ahatmali*	*496*	*509*	*109*	*83*	*99*	*106*	*240*	*1245*	*287*	*199*	*88*		*13*	
49	*Ralpur*	*866*	*887*	*156*	*157*	*123*	*112*	*430*	*2183*	*495*	*284*	*177*		*24*	
50	*Tejgawan*	*1948*	*2025*	*408*	*364*	*557*	*623*	*800*	*4773*	*1154*	*758*	*368*		*32*	
51	*Pasankheda*	*393*	*419*	*77*	*77*	*210*	*238*	*225*	*1037*	*264*	*180*	*81*		*12*	
52	*Dariyapur*	*688*	*728*	*89*	*126*	*268*	*256*	*250*	*1666*	*487*	*333*	*175*		*19*	
53	*Kalhigawan*	*487*	*505*	*95*	*93*	*180*	*201*	*300*	*1292*	*317*	*221*	*168*		*21*	
54	*Gopali Kheda*	*1361*	*1311*	*266*	*227*	*448*	*438*	*550*	*3222*	*783*	*428*	*280*		*31*	

55	*Devkheda*	*2776*	*2776*	*477*	*419*	*600*	*646*	*1500*	*7052*	*1861*	*1306*	*550*		*162*	
56	*Bheeta*	*325*	*265*	*50*	*40*	*46*	*40*	*125*	*715*	*219*	*117*	*98*		*26*	
57	*Kanjas*	*574*	*635*	*118*	*124*	*315*	*387*	*335*	*1544*	*369*	*237*	*209*		*15*	
58	*Ralpur Mustkil*	*210*	*166*	*34*	*25*	*41*	*33*	*80*	*456*	*144*	*70*	*52*		*5*	
59	*Ralpur Ahatmali*	*424*	*399*	*84*	*53*	*141*	*156*	*255*	*1078*	*303*	*181*	*92*		*7*	
60	*Sagarkheda*	*296*	*307*	*52*	*54*	*153*	*132*	*195*	*798*	*171*	*131*	*67*		*12*	
61	*Ramgawan*	*921*	*992*	*179*	*148*	*182*	*204*	*310*	*2223*	*631*	*526*	*192*		*27*	
62	*Sidhartara Mustkil*	*761*	*681*	*116*	*110*	*210*	*185*	*324*	*1766*	*559*	*370*	*181*		*16*	
63	*Sidhartara Ahatmali*	*156*	*167*	*45*	*32*	*62*	*59*	*80*	*403*	*79*	*46*	*38*		*7*	
64	*Malkigawan*	*2268*	*2239*	*405*	*351*	*653*	*650*	*1250*	*5757*	*1480*	*950*	*508*		*46*	
65	*Rashigawan*	*1709*	*1728*	*324*	*309*	*524*	*537*	*625*	*4062*	*1066*	*636*	*461*	*02*	*71*	
66	*Lakhangawan*	*4128*	*3961*	*773*	*777*	*852*	*831*	*2400*	*10489*	*2512*	*1326*	*712*	*02*	*112*	
67	*Gajiyapur*	*1217*	*1320*	*251*	*261*	*104*	*131*	*625*	*3162*	*660*	*672*	*311*		*41*	
68	*Ramipur Khurd*	*955*	*989*	*201*	*182*	*304*	*312*	*570*	*2514*	*613*	*427*	*128*		*23*	
69	*Moosapur*	*1265*	*1165*	*190*	*175*	*300*	*304*	*530*	*2960*	*915*	*632*	*252*		*27*	
70	*Teela*	*351*	*358*	*49*	*49*	*83*	*78*	*230*	*939*	*245*	*164*	*98*		*29*	
71	*Meethapur*	*3601*	*3463*	*603*	*603*	*1329*	*1211*	*1550*	*8614*	*2207*	*1298*	*817*		*52*	
72	*Bathhaya*	*571*	*522*	*75*	*83*	*150*	*150*	*175*	*1214*	*422*	*267*	*129*		*18*	
73	*Gangaso Mustkil*	*599*	*570*	*100*	*93*	*108*	*111*	*225*	*1394*	*438*	*318*	*167*		*27*	

74	*Bajpeipur Ahatmali*	*916*	*976*	*159*	*175*	*262*	*303*	*425*	*1317*	*609*	*415*	*235*		*38*	
75	*Gangaso Ahatmali*	*520*	*472*	*102*	*89*	*80*	*70*	*145*	*1137*	*299*	*134*	*169*		*18*	
76	*Janewakheda Ahatmali*	*56*	*61*	*08*	*11*	*32*	*36*	*28*	*145*	*36*	*31*	*52*		*2*	
77	*Khajoorgawan Ahatmali*	*165*	*151*	*28*	*22*	*0*	*0*	*275*	*591*	*106*	*63*	*102*		*3*	
78	*Saray Bahriya*	*391*	*363*	*59*	*48*	*72*	*83*	*235*	*989*	*298*	*182*	*261*		*32*	
79	*Kankapur*	*970*	*934*	*156*	*141*	*197*	*181*	*220*	*2104*	*637*	*369*	*195*		*10*	
80	*Udraharpur*	*130*	*119*	*12*	*17*	*52*	*47*	*82*	*331*	*101*	*53*	*75*		*33*	
81	*Parwatkheda*	*139*	*164*	*11*	*23*	*12*	*12*	*100*	*403*	*100*	*77*	*62*		*17*	
82	*Dighiya*	*306*	*401*	*51*	*73*	*129*	*132*	*125*	*832*	*180*	*172*	*56*		*13*	
83	*Bairuahar*	*2033*	*1912*	*291*	*303*	*384*	*373*	*1270*	*5215*	*1462*	*863*	*376*		*24*	
84	*Gajiyapur*	*664*	*1542*	*297*	*275*	*558*	*501*	*650*	*3856*	*1100*	*650*	*232*		*20*	
85	*Chakchorhiya*	*542*	*528*	*76*	*52*	*211*	*203*	*300*	*1370*	*410*	*288*	*96*		*12*	
86	*Daolapur*	*1910*	*1794*	*298*	*284*	*421*	*413*	*900*	*4604*	*1287*	*778*	*362*		*37*	
87	*Ranikheda*	*496*	*509*	*109*	*83*	*99*	*106*	*240*	*1245*	*287*	*199*	*88*		*13*	
88	*Neebi*	*866*	*887*	*156*	*157*	*123*	*112*	*430*	*2183*	*495*	*284*	*177*		*24*	
89	*Murdipur Maghgawan*	*1948*	*2025*	*408*	*364*	*557*	*623*	*800*	*4773*	*1154*	*758*	*368*		*32*	
90	*Rawatpur Kla*	*393*	*419*	*77*	*77*	*210*	*238*	*225*	*1037*	*264*	*180*	*81*		*12*	

4- EMPLOYMENT GENERATION

Labour migration in search of employment is one of the major constraints in the remote watershed in particular. Causal employment opportunities to the tune of more than Rs. 3.25 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 of Rs. 3.75 lacs in the watershed.

5- MIGRATION PATTERN

Labour migration in search of gainful employment is one of the major problems in the remote watershed in particular. People migrate during summer season to different parts of the state as daily wagers, agricultural labours and construction workers. The detail is given below.

Table- 3.2: DETAILS OF MIGRATION (I.W.M.P-II) RAEBARELI

No. of Villages	No. of Persons migrating	No. of days per year of migration	Reason for migration	Expected reduction in no of persons migrating
90	385	165	Poverty & better employment	75%

6- SOIL AND LAND CAPABILITY CLASSIFICATION

Soil morphology

The selected area is situated in the southern part of DIIIrdrict-Raebareli. The entire watershed is topographically divided into four major land forms. Accordingly, the soils of watershed have been grouped in the four major categories.

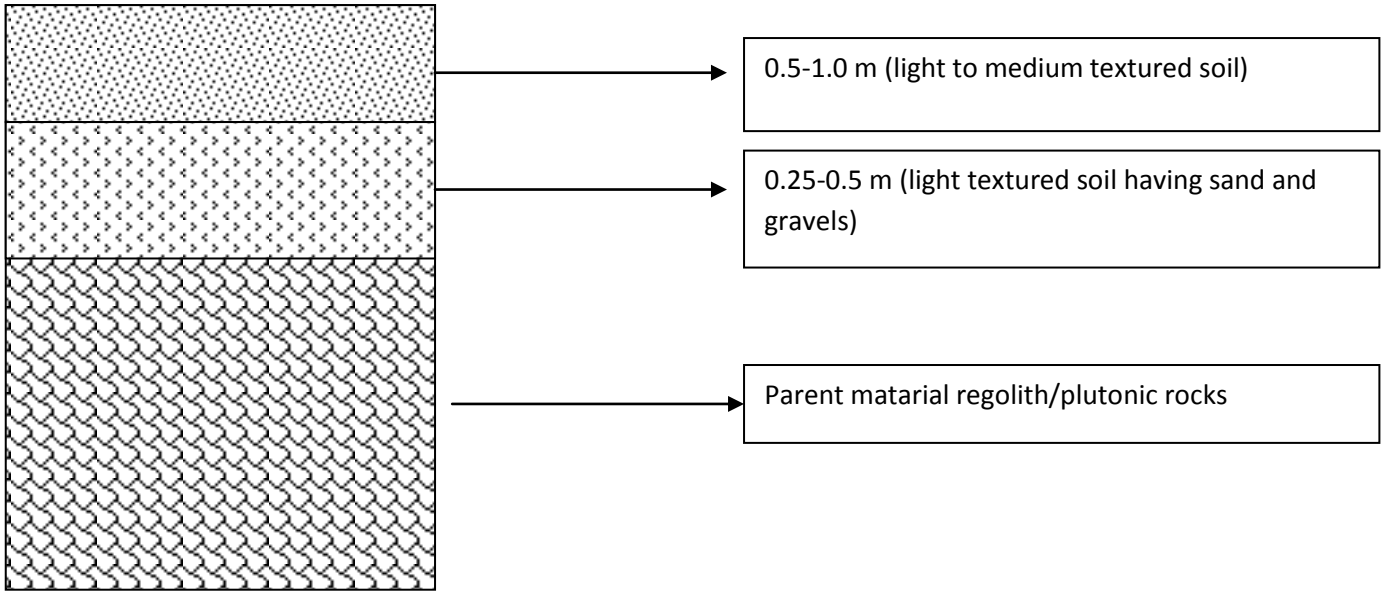
1- Moderate sloppy land

2- sloppy land

3- Ravinous land.

4- Rocky soil

Soil profile- A representative soil profile.



Morphology of a typical soil profile of the watershed (dominant soil)

Horizon	Depth (cm)	Morphology
A	0-20 cm	Drack yellowish Brown in color, Silty loam faint friable non calcareous midly alkaline in reaction, lucky structure.
B	20-151 cm.	Silty clay loam midly alkaline in reaction sticky and plastic when wet, abundant medium pores.
C	More than 151 cm.	Silty clay loam midly alkaline in reaction sticky and plastic when wet, abundant medium pores.

SOIL CHARACTERIIIRDICS AND FERTILITY STATUS:

Fatility status of four kind of soil mentioned above in ranges between medium to poor. There are scarcity of essential nutrients due to continuous soil erosion. Demonstration of pulses and oilseeds crops in Kharif and Rabi seasons and green manuring of leguminous crops has been proposed under agriculture production activity so that organic matter content and fertility status of soil can be enhanced.

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Soil properties	LCCII	LCC IV	LCC VII/VIII
Sand (%)	26.80	54.00	71.95
Silt (%)	25.10	18.50	21.30
Clay (%)	45.90	25.21	6.65
Texture	Clay Loam	Loamy Sand	Sandy Loam
pH (1:2)	7.25	7.30	7.16
EC (dSm^{-1})	0.15	0.13	0.14
Organic carbon (%)	0.36	0.32	0.22
Available N ($kg\ ha^{-1}$)	368	310	241
Available P ($kg\ ha^{-1}$)	12	10.00	7.85
Available K ($kg\ ha^{-1}$)	310.10	292.70	266

* Values correspond to soil fraction < 2mm

LAND CAPABILITY CLASSIFICATION (LCC)

Land capability classification was done to classify the soils in different groups based upon the limitations and to emphasize the hazards prevailing in the watershed under different kinds of soils. Initially reconnaissance survey was carried out for entire watershed in order to find out the different topo-sequences, landforms, soil depth and erosion hazards. This was followed by the detailed investigation of selected landforms to b'ing out the LCC classes of the Watershed. Seven classes of land capability namely I, II, III, IV,

V, VI, VII were demarcated in the watershed. The areas under different classes are sown in table and Annexure map.

LCC class	Area ha
II	370
III	1400
IV	2295
V	400
VI	200
VII	200
Total	**4665**

6. LAND CAPABILITY CLASSIFICATION (LCC)

Land capability classification is an interpretative grouping of lands made to show their relative suitabilities for various crops, pasture, forestry and wildlife and recreation. The inherent characteristics, limitations and risk of damage to the soils and also their response to manage-ment are taken into consideration for classifying them under various land capability classes.

Land capability class is the broadest category in the land capability classification system. Class codes I, II, III, IV, V, VI, VII, and VIII are used to represent arable and non-arable land as defined below.

Class I lands have slight limitations that restrict their use.

Class II lands have moderate limitations that reduce the choice of plants or require Land capability classification is an interpretative grouping of lands made to show their relative suitabilities for various crops, pasture, forestry and wildlife and recreation. The inherent characteristics, limitations and risk of damage to the soils and also their response to management are taken into consideration for classifying them under various land capability classes.

Land capability class is the broadest category in the land capability classification system. Class codes I, II, III, IV, V, VI, VII, and VIII are used to represent arable and non-arable land as defined below.

Class I lands have slight limitations that restrict their use.

Class II lands have moderate limitations that reduce the choice of plants or require moderate conservation practices

Class III lands have severe limitations that reduce the choice of plants or require special conservation practices, or both.

Class IV lands have very severe limitations that restrict the choice of plants or require very careful management, or both.

Classes V to VII cover lands that are unsuitable for agriculture but suitable for pasture.

Class VIII lands are suitable neither for agriculture nor for forestry and are best left for wildlife and recreation.

Land capability classes are divided into land capability subclasses, groupings of soils that have the same kind of limitations for agricultural use. Subclass codes used are e, w, s and c.

'e' represents susceptibility to erosion by water or wind,

'w' represents drainage difficulties including wetness or overflow,

's' represents soil limitations for plant growth and

'c' represents climatic limitations.

Land capability subclasses are subdivided into land capability units that are groupings of one or more individual soil map units having similar limitations or hazards. They are denoted by appending a numeral from 0 to 9 to the land capability subclass to specify the kind of limitation. The specific limitations are

– Stony or rocky (0),

– Erosion hazard/slope (1),

– Coarse texture (2),

– Fine texture (3),

– Slowly permeable subsoil (4),

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

Conclusions:

The land capability classification of the IWMP IIIrd Raebareli watershed provides reasonable good information with regard to capability of soil, that could be used for agriculture and agri-horticulture. The majority of land form is coming under class IV, which give an idea that agriculture production in such land is no more profitable because cultivation can cause soil erosion if not managed properly therfore forestry should be promoted. Soils under class V can be used once in 5-6 years because continuous cultivation of crops can cause severe erosion, agro-forestry will be proper approach of land utilization for this class. Under class II, crop production with crop rotation, water control systems or special tillage practices to control soil erosion, should be practiced, under class III and IV, successful crop production can be carried out regularly if adequate plant cover will be maintained. Further the productivity of these lands could be enhanced by adoption of simple soil & water conservation measures like contour bunding, *in-situ* moIIIrdure conservation techniques. In class III submergence bund, marginal and peripheral bund are planned and in class IV, gully plugging structures,

earthen check dam and water harvesting bunds are proposed with permanent Pucca Drop Spill Way structures and Pucca Check Dams.

PRESENT LAND USE IN THE WATERSHED

Spatial information on land use/land cover is a necessary prerequisite in planning, utilizing and management of natural resources. In the current days context of development planning, information on land use/land cover and the changes over a period of time attain prominence because of its primary requirement in all the planning activities. The present watershed have varied land/use land cover categories as shown in table below. One such map of land use/ land cover of the watershed is shown in Annexure Map. The details of the Landuse/Landcover catagories in the project area is given in below

Table- 3.3: THE LAND UNDER DIFFERENT CATEGORIES

S. No.	Name of Project	No of Micro Watershed	No of Villages	Geographical Area of The Watershed	Forest Area	Land under Agriculture Use	TreatebuleArea	Permanent Pastures	Wasteland		Treatable Area
									Cultivable	Uncultivable	
1	I.W.M.P. IIIrd Raebareli	14	90	11652	59.80	11652	4749	0	2736	26.45	4749

PRESENT AND PROPOSED LAND USE PLAN OF THE IWMP IIIrd RAEBARELI

S.No.	Land use	Present (ha)	Proposed area (ha)
1.	Agriculture		
a.	Rainfed	**7101**	**6391**
	I Crops	6153	4401
	II Horticulture	Nil	50
	II Agro-forestry	Nil	115
b.	Irrigated		
	Partial	Nil	1500
2.	Waste land	**2736**	**26.45**
a.	Forest	59.80	333
b.	Pasture	Nil	Nil
c.	Untreatable	26.45	26.45

DESCRIPTION

The present LU/LC map has been depicted through the satellite data of January, 2010 (Google). A total no. of 7 major categories of LU/LC has been mapped.

BUILT-UP LAND

All the major settlement areas have been mapped under this category and the total area under category is 69.3 Hectare which is 1.04 % of the total mapped area. Under this category road network and other built-up area has also been included.

WASTE LAND

Land which is deteriorating for lack of appropriate water and soil on account of natural causes comes under this category. The total area under this category comes about 37.74Hectare which is 0.62 % of the total mapped area. The sub categories are like Salt affected land, Gullied/Ravenous Land, Scrub Land etc.

WATER BODIES

This category comprises area with surface water either impounder in the form of ponds, lake & reservoirs. The total area under this category comes about 17.01Hectare which is 0.29 % of the total mapped area.

AGRICULTRAL LAND

These are the lands primarily used for farming and for production of food; it includes land under the (irrigated and un-irrigated). Areas with standing crop as on the date of satellite overpass. Cropped areas are in varying shape and size in a contiguous and non contiguous pattern. They are widely distributed in different terrains; prominently appear in the irrigated areas irrespective of the source of irrigation. The study area is

predominantly paddy producing area being its flatness in 2007-08 maximum production of paddy recorded in this region under the double crop area, sugarcane belt capture 561 Hectare total agriculture land. It is important to know that the project area has maximum **two crop areas** i.e. **Kharif and Rabi**. The average size of the agricultural field is less than 0.5 Hectare. The total area under this category comes about 2689.66 Hectare which is 44.53 % of the total mapped area.

PLANTATION

These areas are separable from crop land especially with the data acquired during rabi/zaid season. Plantations appear with different size and regular and sharp edges indication the presence of a fence around it. Depending on the location, they exhibit a disbursed or contiguous pattern. The total area under this category comes about 12.81 Hectare which is 0.21 % of the total mapped area.

FOREST

These are the areas bearing an association predominantly of trees and other vegetation types (within the notified forest boundaries) capable of producing timber and other forest produce. The total area under this category is 52.86 % of the total mapped area.

FALLOW LAND

These are the lands, which are taken up for cultivation but are temporarily allowed to rest, uncropped for one or more seasons but not less than one year. The total area under this category h is 0.45 % of the total mapped area.

AGRICULTURE

Various agricultural land uses in :he watershed are extended to diversified land capabilities starting from small to marginal lands. The watershed distinctly has three types of lands i.e. leveled, sloping and some

undulating. The agriculture is practiced on all these soil types though the productivity consideraDiy varies. The wa:er (both irrigated and drinking) is most scarce natural resource in the watershed. The operation of tube weiis for irrigation of agricultural crops frequently leads to the drinking water. The agricultural field bunds are common in the watershed, however, they frequently breach on heavy rains adversely affecting the *in situ* percolation of rain water in the soils.

The agriculture soils in the wateshed have diversified texture i.e. loam sand, silty loam and mixed textures which are located in patches throughout the watershed. Tie irrigation water is conveyed in earthen channels and surface irrigation methods following mainry flood method of irrigation by the farmers in the watershed. These factors substantially reduce the water use efficiency of limited available and valuable irrigation water in the watershed. The quality of irrigation water needs to be tested for assessing fitness of the quality for irrigation and other purposes.

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

ONE YEAR CROP ROTATION:

Single Cropping: Fallow-Til, Fallow-Bajra, Fallow-Urd, Fallow- Arhar,

Double Cropping: Bajra/Til-Lentil, Jowar-Mustard, Urd-Wheat, Maize-Linseed.

RAINFED AGRICUTURE

Single cropping in first year.

Fallow-mustard/ Wheat /gram/Pea/ lentil/ winter vegetables. Arhar.

Double cropping

Paddy/wheat/Mustard/sugarcane/moong/cTJ/ winter vegetables

Irrigated agriculture

One year rotation

Paddy-Wheat/Sugarcane/Greengram-WheaVPaddy-LenDl/Amar

Crop productivity

The food crop productivity is prima-ily driven by the amount and distribution of rain water specifically during two cropping seasons i.e. rabi and kharif. Productivity of kharif crops is affected by the late onset or eariy withdrawal of monsoon as well as intermittent droughts of variable duration and intensity. Traditional cultivation practices coupled with poor quality seeds result in low crop yield. The farmers also do not have suitable cropping systems to deal aberrant weather. Weeds impose considerable constraint in productivity of kharif crops under irrigated as well as rain-fed production system.

The mixed cropping is in some rabi crop like lentil and mustered while in practice in limited area with kharif crops like Arhar and jowar but it is not only irrational but also unscientific and beset with iow productivity. Imbalanced use of fertilizers is common in rabi and kharif crops both in rain-fed and irrigated production system, "he recommended deep Ploughing for enhanced in situ residual soil moisture conservation and higher production is also not followed in the watershed. The shallow plowing tractor drawn tillage implements are available with the farmers in the watershed but *deep* plowing implements yet need to Ur inuoauced.

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

MAJOR CROPS GROWN AND THEIR PRODUCTIVITY IN THE PROJECT AREA

S.No.	Name of Crop	Productivity Before Treatment		Productivity After Treatment		Additional Benefits		Remark
		Aria (Ha.)	Productivity (Qunt.)	Aria (Ha.)	Productivity (Qunt.)	Aria (Ha.)	Productivity (Qunt.)	
1	Rabi	2000.00	7.50	3500.00	12.00	15.00	4.50	
2	Khareef	1500.00	2.50	3000.00	5.00	1500.00	2.50	
3	Jayad	-	-	700.00	2.75	700.00	2.75	

Indigenous technological knowledge (ITK)

Agriculture is an old traditional occupation, farmers in the watershed who have improves themselves with passage of the time according to their domestic need and technological reforms in the nearby areas. The villagers have their traditional village ponds, practice of field bunding which typically constitute agriculture related ITKs in the watershed.

Forest and Other Vegetation

Forests

There is considerable forest area 0.00 Hect. in the watershed.

Horticulture /Agro-forestry

Less horticulture and loss Agro forestry practices were observed in the watershed.

Agro forestry

The agro-forestry practices are highly lacking in the watershed though it has good potential under existing dispositions and may play a vital role particularly with respect to minimization of cropping risk, build up soil fertility and productivity, soil conservation- partly meeting out the fire wood demand of rrral community and moreover, optimizing the economical . The other agro-forestry systems like agri-silvi,agri-horti silvi-pastoral, and bind and boundary plantations also have good potential to cater the fire wood and fodder demands of the rural community in the watershed. The existing area under agro-forestry is almost negligible. Prosopis juliflora may be planted as block or sole plantation specifically on marginal and degraded lands in the watershed. The agro-forestry interventions comprising of ber. Bail, Aonla. Guava. Popular etc. may be applied for benefit of the farmers under rain-fed to irrigated production systems on leveled to sloppy and marginal

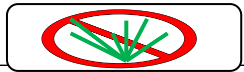
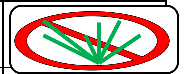
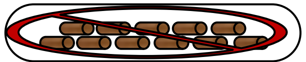
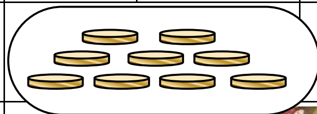
agricultural using proper planting techniques and termite control measures. The multipurpose trees may also help in supplementing fire wood and fodder demands of the rural community in the watershed and may be planted as hedge rows on rain-fed marginal and degraded lands.

Horticulture

The fruit trees are in limited in number like Mango, guava, papaya, lemon, lime, ber, aonla as well as vegetables like cucurbits, okra, radish, tomato, cauliflower, cabbcge, garlic, onion, brinjal, chilly but they are found surviving well in the watershed villages. The subtropical fruits and vegetables have very good potential in the watershed. Organized orchards, commercial vegetable cultivation, horti-agri and other systems of agro-forestry etc are lacking but have good potential in the watershed.

SEASONAL ANALYSIS

Seasonal analysis has done with the help of farmers about rainfall patterns, cultivated crops, employment, income, availability of fuel, fodder, migration, transport and health hazards, etc. with respect to seasonal variation in a year which is shown as below:

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

LAND HOLDING PATTERN

Majority of the watershed farmers are in category of marginal (< 1 ha) and small (1-2 ha). These small land holding are further scattered in different places which makes cultivation very difficult. The breakup of Land Holding is as follows

Table- 3.4 : LAND HOLDING POSITION

S. No.	Name of the Micro Watershed	Marginal (<1ha)	Small (1-2 ha)	Large (>2 ha)	Total
1	*2B3B6f1f Kondra*	205	72	29	**306**
2	*2B3B6a1a Saray Khande*	199	41	15	**255**
3	*2B3B6a2b Dudhwan*	178	31	18	**227**
4	*2B3B6a2a Saidapur*	165	26	12	**203**
5	*2B3B4g2c Rampur Kla*	205	32	18	**255**
6	*2B3B6f1f Paltikheda*	195	28	12	**235**
7	*2B3B4g2a Haibarpur Kala*	202	43	27	**272**
8	*2B3B4g2b Baerua*	245	35	11	**291**
9	*2B3B4g1d Ralpur*	135	97	45	**277**
10	*2B3B4g1c Sagarkhed*	182	35	20	**237**

11	*2B3B4g1b Rasigawan*	213	38	24	**275**
12	*2B3B4f2c Singhor Tara*	213	35	23	**271**
13	*2B3B4f2c Dighiya*	199	41	15	**255**
14	*2B3B4f2c Doolapur*	178	31	18	**227**
	Total	**2714**	**585**	**287**	**3586**

LIVESTOCK POPULATION

Total livestock population of the watershed is 5556. Cows are preferred as milk animal, but milk yield is very low. Goats are also kept for milk as weel as for meat purpose. The breakup of livestock population is as follows.

Table – 3.5: LIVESTOCK POPULATION IN WATERSHED

S no -	*Water shade / village in water shade*	*Milky animal*						*Labour animal*		*Total milk production (in lit.)*	*poultry*	*pigrey*	*Farder availability*	
		cow		*buffallo*		*Sheep/goat*		*bullock*	*He buffallo*					
		M	*F*	*M*	*F*	*M*	*F*						*Dry*	*green*
1	*Kondra*	*02*	*38*	*17*	*32*	*187*	*212*	*26*	*04*	*320*	*22*	*18*	*aaaadequate*	*less*
2	*Chhitaona*	*01*	*28*	*12*	*22*	*14*	*27*	*08*	*-*	*130*	*-*	*-*	*general*	*less*
3	*Ghooremau*	*02*	*36*	*08*	*24*	*12*	*26*	*06*	*-*	*210*	*-*	*-*	*general*	*less*

4	*Khanpur*	*03*	*42*	*06*	*32*	*26*	*38*	*12*	*01*	*320*	*10*	*-*	*general*	*less*
5	*Hullapur*	*02*	*51*	*12*	*48*	*126*	*157*	*28*	*01*	*600*	*-*	*-*	*general*	*less*
6	*Murarmau*	*01*	*72*	*26*	*43*	*142*	*166*	*32*	*02*	*700*	*60*	*32*	*general*	*general*
7	*Mahrajpur*	*02*	*85*	*32*	*62*	*86*	*105*	*26*	*02*	*1000*	*20*	*-*	*general*	*less*
8	*Rampur Khurd*	*03*	*98*	*47*	*96*	*240*	*229*	*46*	*02*	*1400*	*42*	*28*	*general*	*less*
9	*Mangadpur*	*02*	*67*	*22*	*76*	*52*	*37*	*08*	*01*	*400*	*-*	*-*	*general*	*less*
10	*Katikha*	*03*	*85*	*31*	*77*	*102*	*131*	*09*	*01*	*550*	*-*	*-*	*general*	*less*
11	*Bithooli*	*01*	*87*	*17*	*62*	*113*	*122*	*16*	*01*	*650*	*32*	*62*	*general*	*less*
12	*Palti Kheda*	*01*	*36*	*12*	*36*	*67*	*62*	*06*	*02*	*200*	*-*	*16*	*general*	*less*
13	*Sotwakheda*	*02*	*86*	*16*	*65*	*27*	*66*	*22*	*01*	*550*	*50*	*32*	*general*	*less*
14	*Kutiya Ahatmali*	*01*	*68*	*13*	*43*	*136*	*240*	*12*	*01*	*700*	*60*	*42*	*adequate*	*general*
15	*Saray Khande Ahatmali*	*02*	*16*	*12*	*48*	*85*	*96*	*16*	*01*	*400*	*40*	*62*	*adequate*	*general*
16	*Gonda*	*04*	*125*	*26*	*96*	*232*	*268*	*32*	*04*	*1600*	*200*	*167*	*adequate*	*general*
17	*Dudhwan*	*01*	*60*	*21*	*35*	*86*	*56*	*18*	*-*	*400*	*-*	*35*	*general*	*general*
18	*Bhawnipur*	*01*	*67*	*16*	*70*	*190*	*212*	*10*	*01*	*600*	*240*	*132*	*adequate*	*general*
19	*Raypur*	*-*	*46*	*12*	*63*	*112*	*193*	*13*	*-*	*450*	*100*	*-*	*general*	*general*
20	*Saray Pandey Mustkil*	*02*	*61*	*18*	*72*	*170*	*205*	*22*	*02*	*800*	*210*	*67*	*adequate*	*adequate*
21	*Pooranpur*	*03*	*65*	*22*	*42*	*126*	*107*	*18*	*02*	*700*	*100*	*137*	*general*	*less*
22	*Saidepur*	*01*	*92*	*18*	*47*	*90*	*102*	*22*	*01*	*1000*	*100*	*32*	*general*	*less*

23	*Ghoorikheda*	*01*	*67*	*14*	*51*	*82*	*76*	*12*	*-*	*400*	*80*	*26*	*general*	*less*
24	*Hameergawan*	*01*	*62*	*17*	*62*	*90*	*112*	*16*	*02*	*550*	*60*	*32*	*general*	*less*
25	*Jadupur*	*03*	*110*	*22*	*97*	*356*	*480*	*32*	*02*	*1000*	*250*	*150*	*general*	*less*
26	*Saray Khande Mustkil*	*01*	*125*	*36*	*110*	*240*	*410*	*28*	*01*	*800*	*150*	*85*	*general*	*less*
27	*Rampur Kla*	*02*	*120*	*33*	*125*	*632*	*332*	*16*	*02*	*900*	*3000*	*240*	*general*	*general*
28	*Chhiwlaha*	*01*	*62*	*21*	*36*	*92*	*67*	*10*	*01*	*300*	*200*	*22*	*general*	*less*
29	*Madhurpur Mustkil*	*-*	*76*	*18*	*45*	*60*	*67*	*12*	*01*	*350*	*100*	*18*	*general*	*less*
30	*Madhurpur Ahatmali*	*01*	*92*	*32*	*60*	*40*	*86*	*21*	*02*	*450*	*300*	*65*	*general*	*less*
31	*Hilaoli*	*01*	*12*	*27*	*60*	*38*	*42*	*14*	*01*	*250*	*50*	*22*	*general*	*less*
32	*Dafpura*	*04*	*45*	*62*	*105*	*30*	*282*	*24*	*02*	*500*	*600*	*87*	*general*	*less*
33	*Firojpur*	*-*	*22*	*48*	*72*	*18*	*70*	*13*	*-*	*400*	*200*	*32*	*general*	*less*
34	*Rampur Kla Mustkil*	*01*	*51*	*22*	*66*	*16*	*80*	*16*	*01*	*600*	*-*	*-*	*general*	*less*
35	*Rampur Kla Ahatmali*	*01*	*72*	*38*	*82*	*18*	*120*	*22*	*-*	*750*	*150*	*41*	*general*	*less*
36	*Paltikheda*	*01*	*58*	*27*	*42*	*32*	*80*	*18*	*01*	*500*	*-*	*-*	*general*	*less*
37	*Sareni*	*-*	*60*	*18*	*57*	*40*	*110*	*12*	*01*	*400*	*-*	*18*	*general*	*less*
38	*Lakhnapur*	*01*	*42*	*21*	*48*	*22*	*66*	*08*	*01*	*300*	*60*	*-*	*general*	*less*
39	*Dhanpalpur*	*02*	*87*	*36*	*86*	*67*	*147*	*16*	*01*	*500*	*100*	*67*	*general*	*less*
40	*Ramipur Kla*	*02*	*38*	*17*	*32*	*187*	*212*	*26*	*04*	*320*	*22*	*18*	*aaaadequat*	*less*

													e	
41	*Gaotaman Kheda*	*01*	*28*	*12*	*22*	*14*	*27*	*08*	*-*	*130*	*-*	*-*	*general*	*less*
42	*Haidarpur Kla*	*02*	*36*	*08*	*24*	*12*	*26*	*06*	*-*	*210*	*-*	*-*	*general*	*less*
43	*Raotapur*	*03*	*42*	*06*	*32*	*26*	*38*	*12*	*01*	*320*	*10*	*-*	*general*	*less*
44	*Rayalpur Ahatmali*	*02*	*51*	*12*	*48*	*126*	*157*	*28*	*01*	*600*	*-*	*-*	*general*	*less*
45	*Sahnipur*	*01*	*72*	*26*	*43*	*142*	*166*	*32*	*02*	*700*	*60*	*32*	*general*	*general*
46	*Bairua Mustkil*	*02*	*85*	*32*	*62*	*86*	*105*	*26*	*02*	*1000*	*20*	*-*	*general*	*less*
47	*Bairua*	*03*	*98*	*47*	*96*	*240*	*229*	*46*	*02*	*1400*	*42*	*28*	*general*	*less*
48	*Bairua Ahatmali*	*02*	*67*	*22*	*76*	*52*	*37*	*08*	*01*	*400*	*-*	*-*	*general*	*less*
49	*Ralpur*	*03*	*85*	*31*	*77*	*102*	*131*	*09*	*01*	*550*	*-*	*-*	*general*	*less*
50	*Tejgawan*	*01*	*87*	*17*	*62*	*113*	*122*	*16*	*01*	*650*	*32*	*62*	*general*	*less*
51	*Pasankheda*	*01*	*36*	*12*	*36*	*67*	*62*	*06*	*02*	*200*	*-*	*16*	*general*	*less*
52	*Dariyapur*	*02*	*86*	*16*	*65*	*27*	*66*	*22*	*01*	*550*	*50*	*32*	*general*	*less*
53	*Kalhigawan*	*01*	*68*	*13*	*43*	*136*	*240*	*12*	*01*	*700*	*60*	*42*	*adequate*	*general*
54	*Gopali Kheda*	*02*	*16*	*12*	*48*	*85*	*96*	*16*	*01*	*400*	*40*	*62*	*adequate*	*general*
55	*Devkheda*	*04*	*125*	*26*	*96*	*232*	*268*	*32*	*04*	*1600*	*200*	*167*	*adequate*	*general*
56	*Bheeta*	*01*	*60*	*21*	*35*	*86*	*56*	*18*	*-*	*400*	*-*	*35*	*general*	*general*
57	*Kanjas*	*01*	*67*	*16*	*70*	*190*	*212*	*10*	*01*	*600*	*240*	*132*	*adequate*	*general*
58	*Ralpur Mustkil*	*-*	*46*	*12*	*63*	*112*	*193*	*13*	*-*	*450*	*100*	*-*	*general*	*general*
59	*Ralpur Ahatmali*	*02*	*61*	*18*	*72*	*170*	*205*	*22*	*02*	*800*	*210*	*67*	*adequate*	*adequate*

60	*Sagarkheda*	*03*	*65*	*22*	*42*	*126*	*107*	*18*	*02*	*700*	*100*	*137*	*general*	*less*
61	*Ramgawan*	*01*	*92*	*18*	*47*	*90*	*102*	*22*	*01*	*1000*	*100*	*32*	*general*	*less*
62	*Sidhartara Mustkil*	*01*	*67*	*14*	*51*	*82*	*76*	*12*	*-*	*400*	*80*	*26*	*general*	*less*
63	*Sidhartara Ahatmali*	*01*	*62*	*17*	*62*	*90*	*112*	*16*	*02*	*550*	*60*	*32*	*general*	*less*
64	*Malkigawan*	*03*	*110*	*22*	*97*	*356*	*480*	*32*	*02*	*1000*	*250*	*150*	*general*	*less*
65	*Rashigawan*	*01*	*125*	*36*	*110*	*240*	*410*	*28*	*01*	*800*	*150*	*85*	*general*	*less*
66	*Lakhangawan*	*02*	*120*	*33*	*125*	*632*	*332*	*16*	*02*	*900*	*3000*	*240*	*general*	*general*
67	*Gajiyapur*	*01*	*62*	*21*	*36*	*92*	*67*	*10*	*01*	*300*	*200*	*22*	*general*	*less*
68	*Ramipur Khurd*	*-*	*76*	*18*	*45*	*60*	*67*	*12*	*01*	*350*	*100*	*18*	*general*	*less*
69	*Moosapur*	*01*	*92*	*32*	*60*	*40*	*86*	*21*	*02*	*450*	*300*	*65*	*general*	*less*
70	*Teela*	*01*	*12*	*27*	*60*	*38*	*42*	*14*	*01*	*250*	*50*	*22*	*general*	*less*
71	*Meethapur*	*04*	*45*	*62*	*105*	*30*	*282*	*24*	*02*	*500*	*600*	*87*	*general*	*less*
72	*Bathhaya*	*-*	*22*	*48*	*72*	*18*	*70*	*13*	*-*	*400*	*200*	*32*	*general*	*less*
73	*Gangaso Mustkil*	*01*	*51*	*22*	*66*	*16*	*80*	*16*	*01*	*600*	*-*	*-*	*general*	*less*
74	*Bajpeipur Ahatmali*	*01*	*72*	*38*	*82*	*18*	*120*	*22*	*-*	*750*	*150*	*41*	*general*	*less*
75	*Gangaso Ahatmali*	*01*	*58*	*27*	*42*	*32*	*80*	*18*	*01*	*500*	*-*	*-*	*general*	*less*
76	*Janewakheda Ahatmali*	*-*	*60*	*18*	*57*	*40*	*110*	*12*	*01*	*400*	*-*	*18*	*general*	*less*
77	*Khajoorgawan Ahatmali*	*01*	*42*	*21*	*48*	*22*	*66*	*08*	*01*	*300*	*60*	*-*	*general*	*less*
78	*Saray Bahriya*	*02*	*87*	*36*	*86*	*67*	*147*	*16*	*01*	*500*	*100*	*67*	*general*	*less*

79	*Kankapur*	*02*	*38*	*17*	*32*	*187*	*212*	*26*	*04*	*320*	*22*	*18*	*aaaadequate*	*less*
80	*Udraharpur*	*01*	*28*	*12*	*22*	*14*	*27*	*08*	*-*	*130*	*-*	*-*	*general*	*less*
81	*Parwatkheda*	*02*	*36*	*08*	*24*	*12*	*26*	*06*	*-*	*210*	*-*	*-*	*general*	*less*
82	*Dighiya*	*03*	*42*	*06*	*32*	*26*	*38*	*12*	*01*	*320*	*10*	*-*	*general*	*less*
83	*Bairuahar*	*02*	*51*	*12*	*48*	*126*	*157*	*28*	*01*	*600*	*-*	*-*	*general*	*less*
84	*Gajiyapur*	*01*	*72*	*26*	*43*	*142*	*166*	*32*	*02*	*700*	*60*	*32*	*general*	*general*
85	*Chakchorhiya*	*02*	*85*	*32*	*62*	*86*	*105*	*26*	*02*	*1000*	*20*	*-*	*general*	*less*
86	*Daolapur*	*03*	*98*	*47*	*96*	*240*	*229*	*46*	*02*	*1400*	*42*	*28*	*general*	*less*
87	*Ranikheda*	*02*	*67*	*22*	*76*	*52*	*37*	*08*	*01*	*400*	*-*	*-*	*general*	*less*
88	*Neebi*	*03*	*85*	*31*	*77*	*102*	*131*	*09*	*01*	*550*	*-*	*-*	*general*	*less*
89	*Murdipur Maghgawan*	*01*	*87*	*17*	*62*	*113*	*122*	*16*	*01*	*650*	*32*	*62*	*general*	*less*
90	*Rawatpur Kla*	*01*	*36*	*12*	*36*	*67*	*62*	*06*	*02*	*200*	*-*	*16*	*general*	*less*

LIVELIHOOD ACTIVITIES

Out of the total population 45480 in the watershed, a majority i.e. more than 45% has farming as their major source of livelihood followed by 33% engage in carpet making, labourer and remaining service+ business class.

Income generating activities through Self Help Group, landless and marginal farmers like farming, Animal husbandry, Fisheries, Carpentary, Barberry & Self-Help Group, Carpet etc. will be executed in the villages of

watershed through the involvement of Krishi Vigyan Kendra, Raebareli. Training of farmers, women, landless rural youth and field level workers will be given at Krishi Vigyan Kendra, Raebareli.

SUMMARY OF LIVLIHOOD

No. of Villages	Existing livelihood activities	Possible livelihood intervention under the project	Current status of migration(No. of people)	Main reason of migration
90	Agriculture	Animal husbandry, Fisheries, Agriculture labour, Horticulture	385	Due to Unemployment in village & Poverity

INFRASTRUCTURE SOCIAL FEATURES

The watershed has moderate communication facilities and all 90villages 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 than0.46 ha) with large family size (average 7 pe-son) and more than 25 % of the labor force of the totai 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 TaMe as below:

Table – 3.6: Details of infrastructure in the Project Area

S.no	Water shade	Type of facilities																		
		Educational institute					Serving institute													
		Anganbadi	Primary school	Secondry school	College	Commercial org	Bank	Post office	Hospital	Vetenary hospital	Market	Tubel/pump	Milk collection centre	Milk More than need	Joint from main road	Bus facility	Electric connection	Other	Availability of drinkig water	Seed distribution center	Other facility
1	2B3B6f1f Kondra	2	4	-	-	-	-	-	-	-	-	1	-	-	yes	-	135	-	85	-	-
2	2B3B6a1a Saray Khande	1	1	1	-	-	-	1	1	-	1	1/45	-	-	Yes	-	200	-	100	-	-
3	2B3B6a2b Dudhwan	5	4	1	-	-	-	1	-	-	1	-/26	-	-	Yes	-	400	-	400	-	-
4	2B3B6a2a Saidapur	3	1	1	-	-	-	1	-	-	1	-/32	-	-	Yes	-	410	-	390	-	-
5	2B3B4g2c Rampur Kla	3	3	-	1	-	-	1	-	-	1	-/86	-	-	Yes	Yes	400	-	299	-	-
6	2B3B6f1f Paltikheda	2	2	1	-	-	1	1	1	1	2	3/45	1	200	Yes	Yes	350	-	600	-	-
7	2B3B4g2a Haibarpur Kala	2	2	-	-	-	-	-	-	-	-	-/32	-	-	Yes	-	638	-	702	-	-
8	2B3B4g2b Baerua	3	5	1	-	-	-	1	-	-	-	-/28	-	-	Yes	-	114	-	300	-	-
9	2B3B4g1d Ralpur	3	4	-	-	-	-	1	-	-	-	-/29	-	-	Yes	Yes	240	-	256	yes	-
10	2B3B4g1c Sagarkhed	3	2	1	-	-	-	-	-	-	-	-/26	-	-	Yes	-	160	-	175	-	-
11	2B3B4g1b Rasigawan	3	3	2	-	-	-	1	-	-	-	1/33	-	-	Yes	No	452	-	396	-	-
12	2B3B4f2c Singhor Tara	2	1	1	-	-	-	-	-	-	-	-/36	-	-	Yes	No	212	-	218	-	-
13	2B3B4f2c Dighiya	3	3	1	-	-	-	-	1	1	1	1/45	-	-	Yes	Yes	1180	-	1215	yes	-
14	2B3B4f2c Doolapur	3	3	2	-	-	-	1	-	-	-	1/33	-	-	Yes	No	452	-	396	-	-

HISTORICAL TIME LINE OF VILLAGES OF THE PROJECT

The Historical Timeline is the chronological record of important events in the history of a village which is useful in understanding its background in the context of watershed development. Historical time line depicting important events in respect of different villages of the watershed has been prepared through PRA "Historical timeline" of the selected village are the following.

Historical Time Line of:

Watershed - *2B3B6f1f Kondra*

1-	Constructionof Kuchha road in 1960	1-	Constructionof Kachha Road in 1961
2-	Severe draught in 1967	2-	First radio in 1980
3-	First radio came in 1975	3-	Village was connected to Baruwa Village through Kuchha road in 1982 through the aid given by Jila Parishad
4-	Heavy damage due to storm in 1984	4-	Heavy damage due to storm in 1984
5-		5-	In 2008 first Television braught into the village
6-	In 2007 first Television braught into the village	6-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed
7-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed		

Watershed: *2B3B6a1a Saray Khande*

Watershed *2B3B6a2b Dudhwan*

1-	Constructionof Kuchha road in 1965
2-	Severe draught in 1967
3-	First radio came in 1975
4-	Heavy damage due to storm in 1982
5-	
6-	In 2007 first Television braught into the village
7-	In the year 2007 IIIrd ever eletrific flour mill (Aata Chakki) was installed

Watershed *2B3B6a2a Saidapur*

1-	Constructionof Kachha Road in 1969
2-	First radio in 1979
3-	Village was connected to Baruwa Village through Kuchha road in 1982 through the aid given by Jila Parishad
4-	Heavy damage due to storm in 1982
5-	In 2008 first Television braught into the village
6-	In the year 2007 IIIrd ever eletrific flour mill (Aata Chakki) was installed

Watershed *2B3B4g2c Rampur Kla*

1-	Constructionof Kuchha road in 1945
2-	Severe draught in 1967
3-	First radio came in 1975
4-	Heavy damage due to storm in 1984
5-	

Watershed: *2B3B6f1f Paltikheda*

1-	Constructionof Kachha Road in 1982
2-	First radio in 1980
3-	Village was connected to Baruwa Village through Kuchha road in 1982 through the aid given by Jila Parishad
4-	Heavy damage due to storm in 1984
5-	In 2008 first Television braught into the village

6-	In 2007 first Television braught into the village	6-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed
7-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed		

Watershed: *2B3B4g2a Haibarpur Kala*

Watershed: *2B3B4g2b Baerua*

1-	Constructionof Kuchha road in 1965	1-	Constructionof Kachha Road in 1955
2-	Severe draught in 1967	2-	First radio in 1980
3-	First radio came in 1975	3-	Village was connected to Baruwa Village through Kuchha road in 1982 through the aid given by Jila Parishad
4-	Heavy damage due to storm in 1984	4-	Heavy damage due to storm in 1984
5-		5-	In 2008 first Television braught into the village
6-	In 2007 first Television braught into the village	6-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed
7-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed		

Watershed: *2B3B4g1d Ralpur*

Watershed: *2B3B4g1c Sagarkhed*

1-	Constructionof Kuchha road in 1965	1-	Constructionof Kachha Road in 1955
2-	Severe draught in 1967	2-	First radio in 1980
3-	First radio came in 1975	3-	Village was connected to Baruwa Village through Kuchha road in 1982 through the aid given by Jila Parishad
4-	Heavy damage due to storm in 1984	4-	Heavy damage due to storm in 1984

5-		5-	In 2008 first Television braught into the village
6-	In 2007 first Television braught into the village	6-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed
7-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed		

Watershed: *2B3B4g1b Rasigawan*

Watershed: *2B3B4f2c Singhor Tara*

1-	Constructionof Kuchha road in 1965	1-	Constructionof Kachha Road in 1955
2-	Severe draught in 1967	2-	First radio in 1980
3-	First radio came in 1975	3-	Village was connected to Baruwa Village through Kuchha road in 1982 through the aid given by Jila Parishad
4-	Heavy damage due to storm in 1984	4-	Heavy damage due to storm in 1984
5-		5-	In 2008 first Television braught into the village
6-	In 2007 first Television braught into the village	6-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed
7-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed		

Watershed: *2B3B4f2c Dighiya*

Watershed: *2B3B4f2c Doolapur*

1-	Constructionof Kuchha road in 1965	1-	Constructionof Kuchha road in 1965
2-	Severe draught in 1967	2-	Severe draught in 1967
3-	First radio came in 1975	3-	First radio came in 1975
4-	Heavy damage due to storm in 1984	4-	Heavy damage due to storm in 1984

5-		5-	
6-	In 2007 first Television braught into the village	6-	In 2007 first Television braught into the village
7-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed	7-	In the year 2009 IIIrd ever eletrific flour mill (Aata Chakki) was installed

MEANS OF COMMUNICATION

The watershed can approached from one main road Raebareli-Puranpur. An idenpendent transporation map has been annexed in the map section.

IMPORTANCE OF DEVELOPMENT INSTITUTION

Farmer's perception was recorded for importance and role of different development institutions is relation to infrastructure development in the villages. Importance has been depicted with the size of the circle and role with distance from the village circle.

DEPENDENCY ON FOREST FOR FUEL WOOD AND FODDER

(a) Fuel wood

Some villagers of the selected village are using LPG to meet their cooking energy requirements. The main source of fuel is form cow dung cake, woody stem of Arhar crop and Mustard. About 65 to 70 percent of the domestic energy requirement is met from the Agro By-Product and cow dung cake. Rest is met out from the forest outside the village and watershed boundary.

(b) Fodder:

Villages do not have any significant dependency on forest based fodder as these sources are not available in the forests. There is shortage of green fodder in winter and summer due to inadequate irrigation

facility. Due to lack of fodder availability here is Anna Pratha in this area which is the most important reason for more mortality rate of planted trees also.

This also leads to low productivity. There is a lot of ignorance about the use of new farming methods and technologies such as multiple cropping. They don't use FYM and other input in a proper way; that is why they don't get 100% output. So these factors contribute to low productivity.

LACK OF ADEQUATE FARM MACHINERY

Even today a large number of farmers in water shade area use wooden ploughs and bullocks. They don't have adequate machinery like seed drill. So, old machineries take more time in tillage practices.

LACK OF FINANCES FOR FARMERS

In the project area most of the farmers are marginal and small. They do not have enough money to buy good quality seeds, machinery and other inputs.

LACK OF GOOD QUALITY SEEDS AND FERTILIZERS

Good quality seed, fertilizer and pesticide are important factor in agriculture productivity. The use of good quality leads to higher land productivity. In watershed, however, there are two limitations in the use of fertilizer. First these fertilizers are most useful in irrigated condition. But in watershed 100 per cent of land depend on rainfall. mostly farmers use nitrogenous fertilizers especially urea. This has resulted in disproportionate use of fertilizer depleting the quality of land.

LACK OF OTHER FACILITIES SUCH AS STORAGE AND MARKETING

5-10% of agriculture product damage after harvesting due to scarcity of proper storage and proper market for sale. So he sells to local traders at the low prices. Farmers mainly face proper means of transportation and roads. And second problem is farmers don't have proper storage facilities.

HYDROLOGY AND WATER RESOURCE CATEGORIES

Water resources are divisible into two distinct categories : the surface-water resources & the ground-water resources. Each of these categories is a part of the earth's water circulatory system,called the hydrologic cycle, & is ultimately derived from precipitation,which is rainfall plus snow. They are interdependent & frequently the loss of one is the gain of the other. The brief description of the run-off cycle,which is a part of the hydrologic cycle,will help us to understand the origin & the interdependence of these two categories of water resources.

The precipitation that falls upon land & is the ultimate source for both the categories of water resources is dispersed in several ways. A sizeable portion is intercepted by the vegetal cover or temporarily detained in surface depressions.Most of it is later lost through evaporation. When the available interception or the depression storage are completely exhausted & when the rainfall intensity at the soil surface exceeds the infiltration capacity of the soils, the overland flow begins.Once the overland flow reaches a stream channel, it is called surface run-off, which together with other components of flow, forms the total run-off.

Part of the water that infiltrates into the surface soil may continue to move laterally at shallow depth as interflow owing to the presence of relatively impervious lenses just below the soil surface & may eventually reach the stream channel when it is called the sub-surface runoff. A part of the sub-surface run-off may enter the stream promptly, whereas the remaining part may take a long time before joining the stream flow.

A second part of the precipitation which infiltrates is lost through evapo-transpiration via plant roots & thermal gradients just below the soil surface. A third part may remain above the water table in the zone of unsaturated flow.A fourth remaining part percolates deeply into the ground-water.Part of this ground-water

may eventually reach the stream channel & become the base flow of the stream. This portion is termed ground-water run-off or ground-water flow.

Apart from infiltrated rain-water, the seepage from canals,ponds,tanks,lakes,irrigated fields,etc.is also dispersed & accounted for in the same manner.

The total run-off in the stream channel includes the snow-melt, the surface run-off the sub-surface run-off, the ground-water run-off & the channel precipitation, i.e. the precipitation falling directly on the water surface of streams,lakes,etc. It constitutes what is known as the surface-water resources. The portion of the precipitation which, after infiltration,reaches the ground-water-table, together with the contribution made to ground water from a neighbouring basin, influent rivers,natural lakes,ponds,artificial storage reservoirs,canals,irrigation,& constitutes the ground-water resources.That quantity of water in the ground-water reservoir, which is not annually replenishable, is not taken into account, as it is a sort of dead storage which cannot be used on a continuing basis from year to year.

The above phase of the run-off cycle pinpoints the inflow components for the surface-as well as for the ground-water resources. It has to be appreciated that there is always a balance between the inflow factors making up water resources of a region, whether surface or ground, & the outflow components. The surface water resource of a given basin in excess of the withdrawal use is accounted for on the outflow side by one or more of the following factors:

(i) Stream outflow from the basin;

(ii) loss through evaporation;and

(iii) the influent recharge to the ground water.

Similarly, the unutilised ground-water resource of a basin is accounted for by the following outflow factors:

(i) Evapo-transpiration from the ground-water-table;
(ii) outflow to the neighbouring ground-water basin;
(iii) the effluent discharge to the streams;and
(iv) the addition to the ground-water storage.

The interrelationship between the surface-water & the ground-water resources is evident from the above analysis.The surface-water resources contribute to the ground-water recharge in various ways:

(i)by influent recharge from the streams;

(ii)by seepage from natural lakes,ponds,etc;

(iii)seepage from artificial storage reservoirs,canal systems,etc, &

(iv)return flow from irrigation. These factors presently contribute to about 25 percent of the country's total ground-water resources.

On the other hand, the bulk of the base-flow in the rivers, which represents the sustained fair-weather run-off is contributed by the ground-water resources. This contribution,presently, is roughly assessed at about 25 percent of the total surface-water resources of the country.

Factors Affecting Water Resources

The water resources of a region,conceived as a dynamic phase of the hydrologic cycle, are influenced by the following three major groups of factors:

1. Climatic Factors

A. Rainfall : its intensity,duration & distribution.
B. Snow
C. Evapo-transpiration

2. Physiographic Factors

A. Basic characteristics.
    1. Geometric factors : drainage area,shape,slope & stream density.
    2. Physical factors : land use, surface infiltration conditions,soil types,etc.
B. Channel characteristics : carrying capacity & storage capacity.

3. Geological Factors

A. Lithologic including composition, texture, sequenceof rock types & the thickness of rock formations.
B. Structural, including chief faults & folds that interrupt the uniformity of occurence of rock types or sequence of rock types also beds, joints, fissures, cracks,etc.
C. Hydrologic characteristics of the aquifers permeability, porosity, transmissivity, storability,etc

The physiographic features (including geological factors) not only influence the occurence & distribution of water resources within a region but these, particularly the orography, play a significant role in influencing rainfall & other climatic factors, such as temperature, humidity & wind. However, within a geographical location & physiographic framework, it is primarily the rainfall (its intensity, duration & distribution) & the climatic factors affecting evapo-transpiration that determine the totality of water resources in the region.

SOIL AND MOISTURE CONVERSATION AND EFFICIENT USE OF WATER

Water is essential for all life and is used in many different ways - for food production, drinking and domestic uses and industrial use. It is also part of the larger ecosystem on which bio diversity depends. Precipitation, converted to soil and groundwater and thus accessible to vegetation and people, is the dominant pre-condition for biomass production and social development in drylands. The amount of available water is equivalent to the water moving through the landscape. It also fluctuates between the wet and dry periods. Fresh water scarcity is not limited to the arid climatic regions only. Even in areas with good supply, the access to safe water is becoming a critical problem. Lack of water is caused by low water storage capacity, low infiltration capacity, large inter-annual and annual fluctuations of precipitation and high evaporative demand.

A variety of essential soil moisture and water conservation technologies must be adopted to reduce the cost of irrigation, extend it throughout and promote sustainable small-scale irrigation on a watershed basis. These technologies are essential especially in drought-prone areas. Even though drought is a purely natural calamity caused by the failure of (monsoon) rain, it can be minimized by careful planning and operation. During good rainy years, excess rainwater should be stored in the soil and also underground using suitable soil moisture conservation measures and water harvesting structures on a watershed basis. This stored water can subsequently be used for irrigation.

Conceptual approach

Watershed development and management implies an integration of technologies within the natural boundary of a drainage area for optimum development of land, water and plant resources, to meet the people's basic needs in a sustained manner. A watershed is an area from which runoff resulting from precipitation flows past a single point into a large stream, river, lake or pond. Each watershed is an independent hydrological unit. It has become an acceptable unit of planning for optimum use and conservation of soil and water resources.

The concept of integrated watershed development refers to the development and management of the resources in the watershed to achieve higher sustainable production without deterioration in the resource base and any ecological imbalances. This concept requires the formulation and implementation of a package of programmes with activities for optimum resource use in the watershed without adversely affecting the soil and water base or life supporting system. The concept assumes more importance in the context of planning for sustained development. Watershed development aims at preventing watershed degradation resulting from the interaction of physiographic features. It eliminates unscientific land use, inappropriate cropping patterns and soil erosion, thereby improving and sustaining productivity of resources leading to higher income and living standards for the inhabitants in the watershed area. It therefore involves restoration of the ecosystem, protecting and utilizing the locally available resources within a watershed to achieve sustainable development.

Rainfall failure occurs once every 3 to 5 years and is usually below 50% of the average annual rainfall of the region. During periods of rainfall failure, the groundwater level lowers since fluctuations in the water table levels depend on the rainfall when both surface and groundwater availability becomes critical. Drought begins to prevail and there is difficulty to cope up with the water demand during this period. Similarly, in some locations or areas water shortage is observed just before the rainy season commences. These two situations can be managed if suitable soil and moisture conservation measures are systematically implemented on a small watershed basis.

There are always strong links between soil conservation and water conservation measures. Many actions are directed primarily to one or the other, but most contain an element of both. Reduction of surface runoff can be achieved by constructing suitable structures or by changes in land management. Further, this reduction of surface runoff will increase infiltration and help in water conservation.

Appropriate structures and their functions

To increase the period of water availability and overcome water scarcity in drought years, the following activities can be implemented in the field for a compact, viable watershed of about 200 - 500 ha.

Soil and water conservation can be approached through agronomic and engineering procedures. Agronomic measures include contour farming, off season tillage, deep tillage, mulching and providing vegetative barriers on the contour. These measures mainly prevent soil erosion but will also help in improving soil moisture availability in the watershed.

Soil and water conservation measures on a watershed basis

The engineering measures adopted differ with location, slope of the land, soil type, amount and intensity of rainfall. Depending on these parameters, the methods commonly used are contour trenching, contour stone walls, construction of temporary and permanent check dams and gully plugging structures. Additionally, percolation ponds, silt detention tanks and irrigation tanks are constructed to harvest water and recharge it to the groundwater for use in agriculture (irrigation). Farm ponds can also be constructed for every 4-5 ha in the watershed to provide protective/supplemental irrigation.

The above soil and water conservation management and water harvesting programme should be implemented in an integrated manner on a catchment/watershed basis.

Functions of the structures

Contour bunds, contour barriers (vegetative and stone), contour trenches and contour stone walls will not only prevent soil erosion but also obstruct the flow of runoff water. Consequently, the obstructed water will increase the soil moisture and recharge the groundwater in the area.

Check dams: This may be a temporary structure constructed with locally available materials. The various types are: Brush wood dam, loose rock dam and woven wire dam. The main function of the check dam is to impede the soil and water removed from the watershed. This structure is cheap, but lasts about 2-5 years. The

cost of the structure depends on the materials used, the size of the gully and the height of the obstruction (dam). A permanent check dam can be constructed using stones, bricks and cement. Small earth work is also needed on both sides. This water recharges the groundwater.

Percolation Pond: The percolation pond is a multipurpose conservation structure depending on its location and size. It stores water for livestock and recharges the groundwater. It is constructed by excavating a depression, forming a small reservoir or by constructing an embankment in a natural ravine or gully to form an impounded type of reservoir. The capacity of these ponds or tanks varies from 0.3 to 0.5 mcft (10 000 - 15 000 m^3). Normally 2 or 3 fillings are expected in a year (season) and hence the amount of water available in one year in such a tank is about 1 mcft to 1.5 mcft (30 000 - 45 000 m^3). This quantity of water, if it is used for irrigation, is sufficient to irrigate 4-6 hectares of irrigated dry crops (maize, cotton, pulse, etc.) and 2-3 hectares of paddy crop.

Irrigation Tank: The main function of this storage structure is irrigating crops. It is constructed below the above-mentioned structures in a watershed. Each tank can irrigates from 10 to 5 000 hectares. Earthen bunds are reinforced with masonry to collect and store rainwater for irrigation. The cost of this tank (dam) depends upon the size, location and site condition. Water from the tanks is normally used to grow paddy crop.

Apart from the above, to increase moisture availability to agricultural and tree crops, in situ moisture conservation techniques must be adopted in addition to the large scale soil and moisture conservation and water harvesting structures in the watershed.

The following are some of the *in situ* moisture conservation measures which can be practised in the watershed to increase production.

For agricultural crops, the measures adopted are forming ridges and furrows, broad bed and furrows, basins, tie ridging (random tie ridges) and water spreading.

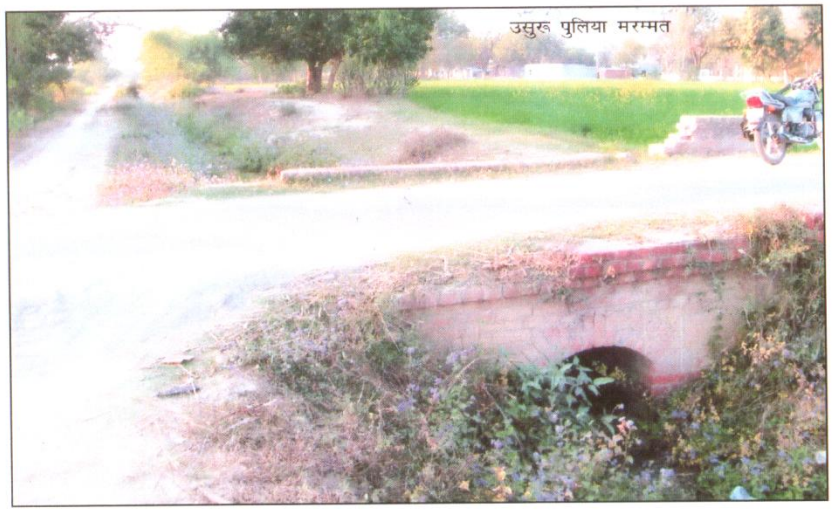
For tree crops micro catchment, saucer basin, semi-circular bund, crescent shaped bunds, V ditch technology, catch pits and deep pitting can be practised.

In addition to the above measures and structures, small storage structures with a water storage capacity for an area of about 0.4 to 0.5 ha can be constructed in large numbers one for every 10 to 20 ha catchment or watershed at the foot hills slopes and hilly areas. These storage facilities would attenuate the floods during storms. These measures will also ensure soil moisture for good growth of trees grown down stream recharging the groundwater in the region and making available more water for drinking and irrigation water.

PROBLEMS AND NEEDS

The main problem in a watershed is the soil erosion by rainfall. The run off water transport the sediments which may block the channel head, dam, reservoir and storage structures are the major problems faced in the project area and attempts made so far to overcome them. The other main problems in the selected watershed are : lack of awareness amongst the villagers about the deteriorating environmental condition of the area, 75% of the run off water makes it away to way towards Garra and Mala rivers carrying fertile soil which has nutrients and this decreases soil fertility, there is a decline in the productivity of cereals, pulses and vegetable crops, dependency of farmers on the rain water. Therfore it is an urgent need, that rainwater should be harvested for crops and re-charged to improve the quality of the water.

The details of PRA exercise in the Project Area



वॉटरशेड के नवनिर्वाचित ग्रामप्रधान

खण्ड विकास अधिकारी, सरेनी द्वारा योजना की जानकारी देते हुए

वाटरशेड के ग्रामप्रधान

ब्लाक प्रमुख द्वारा योजना कृषकों को जानकारी देते हुए


कृषक वॉटरशेड माधोपुर


मैलाशपुर कृषक गोष्ठी


वॉटरशेड मैलाशपुर


डब्ल्यू०डी०टी० सदस्य योजना की जानकारी देते हुए। डिघिया

हैबतपुर. कला जिला पंचायत द्वारा जानकारी

भू.सं.अ. द्वारा हैबतपुर खुर्द में बोलते हुए

हैबतपुर-कला के जागरूक कृषकों की गोष्ठी।

पल्टीखेडा में जागरूक कृषक गोष्ठी

CHAPTER - 4

INSTITUTION BUILDING & PROJECT MANAGEMENT

1. BRIEF DESCRIPTION ABOUT PIA:

PROJECT MANAGEMENT AGENCY (PIA):

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

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

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

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

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

ROLES AND RESPONSIBILITIES OF THE PIA:

The project Implementing Agency(PIA) will provide necessary technical guidance to the Gram Panchayat for preparation of development plans for the watershed through Participatory Rural Appraisal(PRA) exercise, undertake community organization and training for the village communities, supervise watershed development activities, inspect and authenticate project accounts, encourage adoption of low cost technologies and build upon indigenous technical knowledge, monitor and review the overall project implementation and set up institutional arrangements for post-project operation and maintenance and further development of the assets created during the project period.

The PIA, after careful scrutiny, shall submit the action plan for watershed development project for approval of the DWDU/DRDA and other arrangements. The PIA shall submit the periodical progress report to DWDU. The PIA shall also arrange physical, financial and social audit of the work undertaken. It will facilitate the mobilization of additional financial resource from other government programs, such as NREGA, BRGF, SGRY, National Horticulture Mission, Tribal Welfare Schemes, Artificial Ground Water Recharging, Greening India, etc.

STAFF AT PROJECT IMPLEMENTING AGENCY (PIA)

U.P. Government, Land Development And Water Resources Department section-1 Lucknow has nominated as PIA to Bhoomi Sanrakshan Unit, Land development and water resources Department Distt. – Raebareli for IWMP-II vide letter No. 666(10)/54-1-10-1(9) 02008 Dated 28.5.2010.

Table 4.1 : Details Staffing Pattern of PIA

Sl.No.	Name	Designation	
1	**2**	**3**	
1	Mr. Kamlesh Tripathi	B.S.A, Bhoomi Vikash & Jal Sansadhan Vibhag, Raibareli	
2	Mr. J.N. Gupta	J.E.	
3	Mr. Tejoosingh Yadav	J.E.	

WATERSHED DEVELOPMENT TEAM

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

As per new common guideline direction/instruction given in Para 5.3 point 40 P. I. A. has been constituted Watershed Development Team as given below.

S.No.	Officer/ Employee Name	Subject Specialist
1	Dr. Rohit Kumar Saini, Block-Sareni	Vatenory Officer

2	Eng. Kamlesh Tripathi,	Water Management
3	Eng. Tejushing Yadav	Soil conservation
4	Smt. Sanjulata Bajpei W/O Vipin Bihari	Social Organization
5	Mr. Nagendra Kumar Srivastava S/O	Social Organization

ROLES AND RESPONSIBILITIES OF WDT

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

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

l. Arranging physical, financial and social audit of the work undertaken.

m. Setting up suitable arrangements for post-project operation, maintenance and future development of the assets created during the project period.

WATERSHED COMMITTEE (WC)

It is committee that is constituted by Gram Sabha to implement the watershed with technical support of WDT in the village. This committee is registered under society Registration Act 1860. The Gram Sabha of the village select the chairman of the watershed committee with the secretary who will be a paid functionary. A watershed committee was formed accordingly in I.W.M.P-II, Raebareli . The watershed include 25 villages has 03 separate micro-watershed committee was formed in the village. Capacity building training to the watershed committee is given by WDT.

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

TABLE 4.3: DETAILS OF WATERSHED COMMITTEE, I.W.M.P-III, RAIBAREILI

S.No.	Water Shed Name	Member	
1	*2B3B6f1f Kondra*	1-Shashikant S/ORam Prasad - **Adhyachha**	2-Atul Kumar S/O Ramsajeewan Yadav- **Schiv**
		3-Deepak Kumar S/O Rampratap	4-Raveendranath S/O Baboolal
		5-Sooryakant S/O Sooryaprasad	6-Banwari S/O Jhoori
		7-Harishankar S/O Jageshwar	8-Shivraj S/O Raghunath
2	*2B3B6a1a Saray Khande*	1-Chandrapal Singh S/O Vishram Singh-	2-Omprakash S/O Vishwanath
		3-Shtrudhan S/O Matadeen	4-Ramkaran Singh S/O Mhadev
		5-Schin Singh S/O Devbakash Singh	6-Raju S/O Vishram

		7-Ramesh Bahadur S/O Rambahadur Yadav	8-Kamla W/O Shivprasad
		9-Mithana Devi W/O Shatudhan	10- Kamlesh Kumar-**Karya Prabhari**
3	*2B3B6a2b Dudhwan*	1-Ranjeet S/O Rmashankar- **Adhyachha**	2-Vikash Gupta S/O Premnarayan **Schiv**
		3-Vijay Shankar S/O Bhagirath	4-Sandeep w/o Hridaynarayan Shukla
		5-Nirmala w/o Mevalal	6-Ranno Devi W/O Motilal
		7-Maheshawri W/O Shivpal	8-Satish Kumar S/O Lkshmishankar
		9-Premshankar S/O Rajveer	10- Kamlesh Kumar-**Karya Prabhari**
4	*2B3B6a2a Saidapur*	1-Manraj Singh S/O Vishwanath- **Adhyachha**	2-Banshraj Singh S/O Rameshwar **Schiv**
		3-Ramasre S/O Pangul	4-Sundra w/o Nandlal
		5-Lachmina w/o Ramsevak	6-Ramkumar Singh S/O Ramnarayan Singh
		7-Nankoo Pal S/O Chandrikapal	8-Rajbhadur Pal S/O Rghunandan
		9-Giriga Shankar W/O Gangasagar	10-Vijay Bhadur S/O Vishwanath Singh
5	*2B3B4g2c Rampur Kla*	1-Akhilesh Singh S/O Ramnaray - **Schiv**	2-Renoo Singh W/O Akhilesh Sing**Adhyachha**
		3-Syamidayal S/O Premdayal Singh	4-Kuldeep Singh S/O Sidhyanath Singh
		5-Chandrapal Yadav S/O Haripal Yadav	6-Bhagwaan deen S/O Shankar
		7-Mithla W/O Jitendra	8-Vishundei W/O Shivcharan
		9-Sanjaypal Yadav S/O Bainath Yadav	10-Arun Singh S/O Devdatta Singh
		11-Baodhpriya- Karyaprabhari	12-P.C. Maheshwari- **W.D.T. Membar**
6	*2B3B6f1f Paltikheda*	1-Shivsaran Singh S/O Ram Ekbaal Singh- **Adhyachha**	2-Sriram Muneshwar S/ORamnath - **Schiv**
		3-Rajesh Kumar S/O Mahrajdeen	4-Avadhpal S/O Ramcharan

		5-Rajendra Prasad S/O Jageshwar 6-Mohan Lal S/O Jagannath 7-Rajkumar S/O Badloo
7	*2B3B4g2a Haibarpur Kala*	1-Ramsaran Singh S/O Sooryabali Singh- **Adhyachha** 2- Mrigendr Singh S/O Umanath Singh- **Schiv** 3-Ramnaresh S/O Gangaprasad Pasi 4-Neetu W/O Ramnaresh Paswan 5-Kuber Singh S/O Nagendra 6-Kamta Singh S/O Shivbhajan 7-Peer Mo. S/O Noor Mo. 8-Brijesh S/O Ranenjay Singh 9-Ajay Singh /O Beni Madhaw Singh 10-Shivlal Dom S/O Dudhdhu
8	*2B3B4g2b Baerua*	1-Amendra Singh S/O Jaypal Singh- **Adhyachha** 2- Shivkaran S/O Eshwardeen- **Schiv** 3-Jayshankar S/O Shivdarshan 4-Kalishankar S/O Kripashankar 5-Deepawali Pandey W/O Vijayshankar 6-Shibaran S/O Eshawardeen 7-Endresh. S/O Sheetaram 8-Ramlakhan S/O Kallu pasi 9-Ramprasad /O Giridhari 10-Ganga Sahar S/OBhikhari
9	*2B3B4g1d Ralpur*	1-Shivkumar S/O Kallu- **Adhyachha** 2-Rajesh Bahadur S/O Shivdarshan- **Schiv** 3-Rajesh Bahadur S/O Mhabeer 4-Sanju Yadav W/O Surendra Bahadur 5-Balli S/O Shivbahadur 6-Kallu S/O Syamlal 7-Ashok Kumar S/O Ram Sajeewan 8-Jang Bahadur S/O Nanku 9-Pushpram Singh S/O Samasram Singh 10-Nisha W/O Rambahadur 11-Pawan Kumar Bajpei- **Karyaprabhari**
10	*2B3B4g1c Sagarkhed*	1-Pawan kumar Mishr S/O Ramnarayan- **Adhyachha** 2-Atul Kumar S/O Dyashankar- **Schiv** 3-Ashutosh Mishra S/O Durga Prasad 4-Suneel Kumar S/O Vidhya Prasad

		5-Santosh Dishitya S/O Thakur Prasad 6-Rajendra Prasad S/O Ganesh Prasad 7-Suneel Kumar S/O Vidya Sagar 8-Ramkumar S/O Late Chandrika Prasad 9-Dileep Shukla S/O Beni Prasad 10-Rakesh Kuma S/O Chandra kishor 11-Ramdeen S/O Gangadeen 12- Radharaman Singh Karya Prabhari 13-Rmakant Shukla- **W.D.T.**
11	*2B3B4g1b Rasigawan*	1-Hari narayan Singh S/O Jagdeesh Prasad- **Adhyachha** 2-Awdhesh Pratap S/O Shivbaran Singh- **Schiv** 3-Kamlesh S/O Sheetal Deen 4-Kun.Bahadur Singh S/O Shamser Singh 5-Ramesh Kumar S/O Syamlal 6-Dinesh Kumar S/O Keshaw Pratap 7-Rambhawan S/O Tedha Pal 8-Chunni Devi W/O Vinod Kumar 9-Phulmati W/O Ganga Prasad 11-Rmakant –**W.D.T. Membar**
12	*2B3B4f2c Singhor Tara*	1-Sriram S/O Heeralal 2-Styanarayan S/O Sukhdev 3-Sundarlal S/O Ramshankar 4-Shivmohan S/O Rameshwar 5-Anoop Singh W/O Gowardhan 6-Maya Devi W/O Ram Gulam 7-Ramprasad S/O Bharatlal 8-Vinda Prasad S/O Hanuman 9-Sailendra S/O Ayadhya Prasad Yadav 11-Ramsaran S/O Sheshnarayan Singh 12-Harkesh Bahadur Singh-**Karya Prabhari**
13	*2B3B4f2c Dighiya*	1-Durgesh S/O Ramesh Kumar- 2-Ramdeen S/O Baddu 3-Harishankar S/O Endal 4-Badka S/O Chetelal 5-Kamlesh Kumari W/O Ajay Kumar 6-Nitu W/O Shailendra Kumar 7-Krishnakumar S/O Rampyare 8-Phulmati W/O Rambaran

		9-Sripal S/O Sooryabali Pasi 11-Chandrapal S/O Nandu Pasi 12-Lalan Upadhyay
14	*2B3B4f2c Doolapur*	1-Rajeev Kumar S/O Ganga Sahay Shukla-**Sachiv** 2-Dewalal S/O Ramavatar- **Adhyachha** 3-Pratap Narayan S/O Stya Narayan 4-Rambaboo S/O Guruprasad 5-Somnath S/O Rameshwara 6-Parul Devi W/O Rajesh Kumar 7-Shivsevak S/O Ram Gulam 8-Chandrika Prasad S/O Medai 9-Pramod Kumar S/O Ganga Sahay 10-Brijendra Kumar S/O hivprasad 11-Rmakant-**W.D.T. Membar** 11- Chedi Lal S/O Poorvi Deen

SELF HELP GROUP

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

a) Lack of proper credit facilities due to low intervention of formal financial credit institution.

b) Excessive exploitation of weaker section by money lenders

c) Lack of attitude for saving among poor people

d) Lack of knowledge on credit and thrift activity and banking.

The details of the self help groups of the project area is given below:

TABLE 4.4: DETAILS OF SELF HELP GROUP IN PROJECT AREA IWMP -III, RAIBAREILI

C.B.O. detail

S.no	Water shade	Type of group	Total no of CBO				No of mambers				st	sc	other	BPL	bank
			M	F	both	total		M	F	total					
1	2B3B6f1f Kondra	¼S.H.G.½	2	3	1	6	1-l less	4	12	16	-	05	11		
							2-m/s	5	4	09	-	01	08		
							3s/s	1	2	03	-	-	03		
							4- b/s	1	1	02	-	-	02		
2	2B3B6a1a Saray Khande		2	-	-	2	1-l less	2	-	02	-	02	-		
							2-m/s	8	-	08	-	-	08		
							1-l less	-	-	-	-	-	-		
							2-m/s	-	-	-	-	-	-		
3	2B3B6a2b' Dudhwan		1	-	2	3	1-l less	3	-	03	-	03	-		
							2-m/s		7	07	-	07	06		
							3s/s	2	5	07	-	01	01		
							4- b/s	1	-	01	-	-	01		
4	2B3B6a2a Saidapur		1	-	2	3	1-l less	02	02	04	-	02	02		
							2-m/s	2	3	05	-	-	05		
							3s/s	1	2	03	-	03	-		
							4- b/s	3	5	08	-	-	08		
5	2B3B4g2c Rampur Kla		1	-	-	1	1-l less	1	-	01	-	-	01		
							2-m/s	2	-	02	-	-	02		
							3s/s	4	-	04	-	-	04		
							4- b/s	-	-	-	-	-	-		

							3s/s	3	2	5	-	01	04		
							4- b/s	3	4	7	-	-	07		
6	2B3B6f1f Paltikheda		1	2	-	3	1-l less	-	08	08	-	07	01		
							2-m/s	05	06	11	-	02	09		
							3s/s	01	-	01	-	-	01		
							4- b/s	-	-	-	-	-	-		
7	2B3B4g2a Haibarpur Kala		1	1	1	3	1-l less	-	06	06	-	06	-		
							2-m/s	06	06	12	-	-	12		
							3s/s	-	-	-	-	-	-		
							4- b/s	-	-	-	-	-	-		
8	2B3B4g2b Baerua		01	01	-	02	1-l less	05	05	10	-	-	10		
							2-m/s	-	-	-	-	-	-		
							3s/s	-	-	-	-	-	-		
							4- b/s	-	-	-	-	-	-		
9	2B3B4g1d Ralpur		01	01	-	02	1-l less	-	-	-	-	-	-		
							2-m/s	-	05	05	-	-	05		
							3s/s	-	05	05	-	-	05		
							4- b/s	-	-	-	-	-	-		
10	2B3B4g1c Sagarkhed	(S.H.G.)	01	01	-	02	1-l less	02	-	02	-	-	02		
							2-m/s	06	04	10	-	03	07		
							3s/s	-	-	-	-	-	-		
							4- b/s	-	-	-	-	-	-		
11	2B3B4g1b Rasigawan		01	01	-	02	1-l less	-	-	-	-	-	-		
							2-m/s	05	10	15	-	10	05		
							3s/s	-	-	-	-	-	-		
							4- b/s	-	-	-	-	-	-		
12	2B3B4f2c Singhor Tara		01	02	-	03	1-l less	-	-	-	-	-	-		
							2-m/s	05	10	15	-	10	05		
							3s/s	-	-	-	-	-	-		
							4- b/s	-	-	-	-	-	-		
13	2B3B4f2c Dighiya		01	02	-	03	1-l less	-	-	-	-	-	-		
							2-m/s	05	10	15	-	10	05		
							3s/s	-	-	-	-	-	-		
							4- b/s	-	-	-	-	-	-		
14	2B3B4f2c Doolapur		01	02	-	03	1-l less	-	-	-	-	-	-		
							2-m/s	05	10	15	-	10	05		
							3s/s	-	-	-	-	-	-		
							4- b/s	-	-	-	-	-	-		

USER GROUP

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

Table 4.5: USERS GROUP DETAILS IN PROJECT AREA – I.W.M.P-III, RAIBAREILI

S.No.	Name of Project	No. of Group	No. of member	Project Cost (lac.)	Remark
1	Buffalo	5	25	17.50	
2	Riksa	6	30	3.00	
3	goat	7	25	10.00	
4	Fish	4	08	2.00	
5	Piggery	4	20	6.90	
6	Sewing	14	60	6.00	
7	Poultry	4	20	2.00	
8	Electronics	14	70	9.588	
	Total	**58**	**258**	**56.988**	

INSTITUTIONAL ARRANGEMENT AT PROJECT LEVEL

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

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

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

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

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

CHAPTER – 5

MANAGEMENT / ACTION PLAN

1. PROBLEM & NEED OF THE AREA:

The major crop in kharif is rice grown in the project area with productivity of 16.96 q/ Ha which is very low which is due todelay in rice transplantation, poor seed & variety replacement rate.Decreasing factor productivity in rice, wheat cropping system is a major challenge to accelerate the economy of farmer.Infestation of pod borer & poor varirty replacement rate in pulses is a major factor in low productivity of pulses & oil seeds.Broad coasting of seed & fertilizer in kharif pulses affect the yield of pulse.Most of the milch animal is local breed with low milk potential affect the milk productivity in the study area.

2. PROBLEM OF AGRICULTURAL LAND:

Low yield of rice and wheat crop,Infestation of pod borer, small size of agricultural fields, soil erosion and uneven character of serface of the land require better variety of seed,Deficiency of multy nutrient specially sulphur,iron,zink,cheking the wheat yield.Breed improvement of animal and training to the farmers of the study area are the fundamental need.

To deal with these problems A two-fold approach- physical and social,as they are complementaty to each other should be adopted because physical reclamation of land is achieved through chemical treatment of water logged soils and is followed with scientific rotation of crops. Social approach on the other hand is reflected through overall rural reconstruction, promoting agriculture and its productivity in particular.

Consolidation of land holdigs is one of the measures among many.

Soil erosion has become now one of the major environmental problems and a serious constraint for aricultural production. There are many physical and socialfactors which determine the extent and severity of soil erosion.the principal physical factor are erosivity of rainfall, erodibility of soil, severity of periodic floods, length and steepness of the slope. The important social factors are deforestation, over grazing, nature of land

use and mathods of cultivation.On the other hand, sheet erosion cause by rains and erosion due to winds are least visible but eqully serious as the too take a heavy toll of presious top soils.

Soil conservation:-

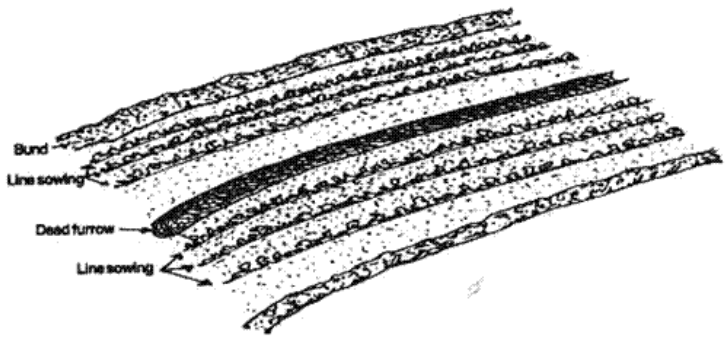
Soil and water conservation measures consist of agronomical and mechanical methods. Agronomic methods are supported with mechanical measures where land slope exceeds permissible limits and runoff gains erosive velocities.

The following boxes explain the nature of agronomic measures which are essential in inter-bunded or terraced areas. These practices enhance the utility value of all kinds of mechanical structures.

Contour Tillage

All agricultural operations such as ridging, ploughing, harrowing, sowing, trenching, etc., are recommended to be done on the contour wherever possible or at least generally across the direction of the slope where holdings are very small. Even though the operation is very simple, it plays a major role in retarding the process of soil erosion through runoff. It also conserves soil, and due to increased time of concentration, more rainwater seeps through the soil profile to recharge ground water. Summer ploughing leaves the soil highly absorbent of initial rains.

Contour cultivation in inter-bunded area



DeaFurrows

When all tillage operations are complete; it is advisable to leave a deep dead furrow at every 10 m interval. This should remain in position until the crop is harvested. Dead furrows aid in reducing the runoff velocity and they also conserve water.

Organic Matter

The study area soils are very poor in organic matter, especially in deob areas. This can be improved by leaving the crop residue in situ (on the fields).

Adding organic manures such as farmyard manure and compost every year as basal application to the soil improves the physical condition of the soil considerably. Soil – Air, Soil – Temperature, and Soil – Moisture relationships are well balanced with the presence of organic matter. Organic matter improves the activities of soil microorganisms and also provides the much needed micro plant nutrients of all kinds, besides nitrogen, phosphorus and potash.

Addition of large amounts of chemical fertilizers to study area crops should be discouraged as it damages the soil due to:

- excessive depletion of scarce soil moisture for its own transformation;
- reduction in all soil microorganism activity; and
- destruction of soil structure

Strip Cropping

Raising Erosion Permitting Crops (EPC) with Erosion Resistant Crops (ERC) having abundant adventitious root system and providing high percentage of canopy in strips in a ratio of 2:1 or 3:1 (i.e. 20 to 10 rows or 30 to 10 rows) helps in trapping soil from EPC strips to ERC strips

The increased resistance to runoff in ERC results in higher volume of water percolating through soil profile, due to increased time of (on-ground) concentration.

The close-growing ERC strips are generally legumes which fix nitrogen in the soil and enrich it.

The canopy of the ERC also protects the soil from beating action of rain drops. Strip cropping also helps in stabilizing crop production.

HORTICULTURE DEVELOPMENT

As per the current senerio of the country under the yellow revolution, Horticulture is an important component of land use management. Now India is the second largest producer of fruits in the world after Brazil.

However, 53% of the total geographical area of the country is degraded due to various reasons. Fruit trees and fruit based systems are the viable alternatives for economic utilization of such lands. The basic philosophy behind the conservation horticulture is the use of available resources and skillful choice of fruits. The use of available soil moisture , collection of the runoff water from the catchment area to make up the deficit requirements as well as in situ water harvesting techniques are some of the measures . The in situ water harvesting techniques should be used for growing trees in such a way that each tree has its own micro catchment area. The success of the conservation of horticulture entirely depends on the selection of economically viable hardy varieties of fruit crops resistant to moisture stress or drought and other adverse

climate conditions. The fruit crops selected for degraded lands must be such that their maximum growth take place during the period of maximum water availability in the soil and should have low demand.

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

(A) Basic constraints

1- Lack of suitable agro-techniques for degraded lands

2- Lack of trained resource persons

3- Inadequate dissemination of the technologies

4- Lack of community approach

5- High biotic interference

6- Lack of infrastructure including marketing.

(B) Soil constraints

1- Poor nutrient status of the soil

2- Physical impediment

3- Moisture stress / water logging / inadequate drainage.

(C) Plant related constraints

1- Problem of plant establishment

2- Physiological disorders

3- Fruit drop and poor productivity

4- Incidence of insects-pests.

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

CONCEPTS AND ADVANTAGES OF CONSERVATION HORTICULTURE

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

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

Horticulture Practices (For plantation)

Some of the important practices are given below:

1- Selection of Suitable Fruits Types:

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

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

2-Planting Techniques:

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

3-Use of Root Stokes:

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

4-In Site Water Harvesting:

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

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

5-Mulching:

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

6-Drip Irrigation:

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

In Vedas, Upanishad and Puran, the importance of trees is said. There are 27 Nakshatras in a year and there is one of each Nakshtra. The people should planted the tree of their Nakshtra, And they should be never destroyed.

The name of Nakshtra and their tree are as follows:

S.No.	Name of Nakshatras	Name of Tree
1.	Bharini	Aamla
2.	Kritika	Goolar
3.	Rohini	Jaamun
4.	Mrigshira	Khair
5.	Aadra	Agar
6.	Punarvasu	Baans
7.	Pushya	Peepal
8.	Ashalekha	Chameli
9.	Magha	Bar (Banyan)
10.	Purvafalguni	Dhak
11.	Chitra	Bel
12.	Swati	Arjun
13.	Vishakha	Babool (Acacia)
14.	Mool	Raal Vriksha (Bitumen)

15.	Purvaabhadrapad	Aam (mango)
16.	Uttaraabhadrapad	Nimbu (Lemon)
17.	Revati	Mahua

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

S.No.	Particular	No.	L	B	D/H	Quantity	Rate	Amount
1	Earth work in digging	1	1.0	1.0	1.00	1.00	36.66	36.66
2	Cost of FYM, in Kg/pit	1	-	-	-	10Kg	8.00	80.00
3	Filling of pits mixed with FYM and soil	1	1.0	1.0	1.0	1.00	36.66	36.66
4	Cost of plants	1	-	-	-	1	18.00	18.oo
Total								**171.32**
Say								**Rs. 172.00**

Agro-horticulture

Marginal lands do not produce good annual crop returns even in normal season. These kinds of soils are best used for raising trees of economic value and creating permanent assets. Some of these lands are also very good for raising horticultural crops such as mango, ber, pomegranate, tamarind etc. A part of the land could be earmarked specially for planting mixed tree species known in the area for providing fuel, fodder and timber for household needs and agricultural implements. Trees provide stable and sustained income every year, especially in drought years.

Role of Vegetation

Vegetation is crucial in preserving productive soil and conserving rain water for sustaining life. Soil and water need to be preserved for crop production (both annual and plantation crops) as well as plants that give fuel, fodder, fruits, industrial raw materials, medicinal and aromatic plants and the like.

Minor vegetation such as creepers, shrubs, various kind of grasses, legumes and plants like Agave, which yield fibre have an important role when grown in gullies of various kinds and also on upstream and downstream sides of mechanical structures such as gully checks, water harvesting structures, etc. These provide reinforcement and extend the life span of the structures by binding the soil through the network of their root systems. These plants also provide fodder to animals in the area.

Seed Rates

Normal season : Sowing is done with the normal seed rate. However, if there is a drought during the plant's growth period and wilting is likely to occur, selective thinning is recommended to reduce the plant population to effectively use the scarce soil moisture among fewer plants.

Late season : Where the monsoon is moderately delayed, normal cropping with reduced seed rate is advised.

Line Sowing

Line-sowing on contours is essential. It arrests runoff and conserves soil being eroded. It helps in the use of labour-efficient implements in weeding (i.e., removal of unwanted vegetation through use of different sizes of blade harrows between the rows).

Wider Spacing

In all drought-prone areas, the most important objective is to raise a successful crop under scarce soil moisture conditions. One of the recommended practices is wider spacing between rows and between plants within the row. This reduces plant population and competition between plants for scarce soil moisture. Fewer plants have greater access to limited available soil moisture.

Weeding

Frequent weeding is an important part of dryland agriculture. Line sowing and mechanical weeding, with appropriate size of blade harrows, remove unwanted vegetation which competes with the main crop. It is not uncommon to see the dryland farmer hitching several blade harrows to one yoke and a pair of bullocks. Weeding within rows can be done using hand hoes. Removal of unwanted vegetation helps the main crop obtain greater accessibility to soil moisture and plant nutrients for its own growth.

Mixed/Inter Cropping

Mixed cropping of different crops along with the main crops, such as millets and different legumes, is an insurance against the vagaries of the monsoon. The different root systems of mixed crop feed at different depths of the soil. Moreover, mixing cropping provides small quantities of grain of different kinds for home consumption at different times.

Mulching

Mulches are ground covers that prevent the soil from being washed away, reduce evaporation, increase infiltration, and control growth of unwanted weeds. Mulch can be organic crop residue, pebbles, or materials

such as polythene sheets. Mulching prevents the formation of hard crust after each rain. Organic mulches add plant nutrients to soil upon decomposition. Use of blade harrows between rows also creates “dust mulch” by breaking the continuity of capillary tubes of soil moisture.

Contingent Planning

With every care taken to undertake timely agricultural operations, it is still possible that the whole operation becomes a gamble due to unpredictable monsoons. The main crop could fall in the early part of its life cycle. In such cases, the farmer should come up with an alternate crop that can mature in a very short time and under hard conditions to take advantage of what is left of the rainy season. Contingent planning helps catch and make the best use of late rains. Advance planning is necessary in selecting a contingent crop. And all the requisites for its sowing should be ready within the main season itself. Credit for farmers must be made available at the right time.

Mechanical Methods

Where the slope of the soil is more than permissible, mechanical measures such as bunding, terracing and trenching are recommended in addition to agronomic methods. Agronomic methods are used in inter-bunded areas and mechanical practices complement to help boost crop yields in rainfed drylands.

Indigenous technical knowledge

Local technologies evolved by people over generations of experience should be used before any new recommendation is made.

FOOD SUFFICIENCY

Achieving self sufficiency in food production is one of the prime objectives of the project. The status of food requirement and production before and after the project is presented.

STATUS OF FOOD REQUIREMENT AND AVAILABILITY PER ANNUM IN WATERSHED

S.No.	Name of Crop	Productivity Before Treatment		Productivity After Treatment		Additional Benefits		Remark
		Aria (Ha.)	Productivity (Qunt.)	Aria (Ha.)	Productivity (Qunt.)	Aria (Ha.)	Productivity (Qunt.)	
1	Rabi	2000.00	7.50	3500.00	12.00	15.00	4.50	
2	Khareef	1500.00	2.50	3000.00	5.00	1500.00	2.50	
3	Jayad	-	-	700.00	2.75	700.00	2.75	

WATERSHED DEVELOPMENT WORK

Watershed Development works are proposed to be taken up from 2nd year of the initiation of the project. These work are proposed to be taken up from ridge to village .And allocation of Rs. 460.00 & 50% of the total cost has been made for watershed development works.

AREA TREATMENT PLAN

Integrated watershed development program enyisage treatment of proposed area with soil & water conserversion works along with development of Horticulture, Aforestation & development of silvi pastosal system in denuded land unfit for curtivstion, following works are proposed under watershed Development works.

1. Contractions of bunds (Field bund, contour bund, Marginal & peripheral).
2. Renovation of Existing Bund for in-situ moisture conservation.
3. Rain fed Horticulture with and w'thout fencing.
4. Construction of new & renovation of Existing talab and water bodies.
5. Aforestation and development or silvi- pastoral system.
6. Drainage line treatment (pucca structures, Inlet, outlet and spillway).

ENTRY POINT ACTIVITY (EPA)

EPA activities are taken up under watershed projects to build a rapport with the village community at the beginning of the project; generally, certain important works which are in urgent demand of the local community are taken up. A group Discussion was conducted with watershed Development Committee regarding the EPA activity, It was conveyed to the WC that an amount of 26.904 Lakhs was allotted for EPA activity, which was 4 per cent of total allocated budget. The villagers discussed various activities which they

fell is important but after a brief discussion it was conveyed to them that only those activities can be taken, which revive the common natural resources. It was also taken into priority that there should be an instrument of convergence which will result in sustainability of activities.

TABLE 5.1: ENTRY POINT ACTIVITIES (EPA) (ALL FINANCIAL FIGURES IN LAKH RS.)

S.N	WaterShed Name	Work Name	Proposed Estimate(Rs. In Lakh)	Address Name
1	**2**	**3**	**4**	**5**
1	*2B3B6f1f Kondra*	Hand Pump School Boundary Wall- Well Repairing Hand Pump	1.464	Near Sri Baboolal Vidhyamandir, Kondra 85 Meetar- Ambedkar Gawan Mangadpur (Praimari Pathshala) In Mangadpur Maa Sheetla Mandir Paltikheda
2	*2B3B6a1a Saray Khande*	Hand Pump School Boundary Wall-	1.196	Mr. Brijmohan S/O Bhawani Bheekha near of Home 60 Meetar-Raghuraj Purwa (Praimari Pathshala)
3	*2B3B6a2b Dudhwan*	Hand Pump Hand Pump School Boundary Wall-	1.225	Mr Chowthi S/O Vinda Pasi Near of Home Dudhwan Mr Lallu singh S/O Bhagwti Near of Home Dudhwan 40 Meetar-Dudhwan (Praimari Pathshala)
4	*2B3B6a2a Saidapur*	Hand Pump Hand Pump Pacca Drain	1.632	Mr Ayodhya S/O Rameshwar Singh Near of Home Saidapur Mr. Bhagwandeen Pasi Near of Home Gonda Manraj Singh S/O Vishwanath Home To Ramasare S/O Pangul Home

		Hand Pump		Badloo Bajpai Home Hameergawan
5	*2B3B4g2c Rampur Kla*	Hand Pump Hand Pump Pacca Drain Well Repairing	1.873	Mr. Ramchandra S/O Kallu Near of home Pure Pandey Mr. Raghuraj Mastar(Raghunandan) Near of Home Dafpura 110 Meetar- Bhagwandeen S/o Shankar To Vishundei,s Home Mr. Ramkaran S/O Mr. Palsingh's Well
6	*2B3B6f1f Paltikheda*	Hand Pump Hand Pump Chbootara Repairing Pacca Drain	1.633	Mr. Sardar Master S/O Baboolal Near of Home Dhanpalpur Mr. Mangli Chamar Near of Home of Baruwabag Lakhnapur Mata Mandir In Paltikheda 75 Meetar In Dhanpalpur Side of road
7	*2B3B4g2a Haibarpur Kala*	Hand Pump Hand Pump Hand Pump Chbootara Repairing Pacca Drain	1.488	Mr. Shivprakash Vakeel Near of Home Haibatpur Kla Mr. Parmeshwar (Kallu Kurmi) Near of Home Hameergawan Mr. Devraj S/O Samsher singh Near of Home Raotapur Harshakri Maiya-Haibarpur Kala 40- Meetar Ina Raotapur
8	*2B3B4g2b Baerua*	Hand Pump Hand Pump Hand Pump Hand Pump Chbootara Repairing Pacca Drain	2.376	Mr. Ganga Sagar S/O Bhikhari Near of Home Sardarganj Baerua Mr Ramprasad S/OGirdhari Chamar Near of Home Chakragi Baerua Mr. Ramsevak Khatik Near of Home Firojpur Mr. Ramsumer Near of Home Dafpura Baerua Shiv Mandir In Baerua 50-Meetar Ramkhelawan S.C.'s home to Nala

9	*2B3B4g1d Ralpur*	Hand Pump Hand Pump Hand Pump Bench	1.440	Mr. Arjun Pasi Near of Home Dakurainganj Mr. Jaggu Pasi Near of Home Pure Sahay Mr. Gajadhar Dudey Near of Home Kanjas 4- Near of Vaishno Mata Mandir & Side of Ganga River
10	*2B3B4g1c Sagarkhed*	Hand Pump Hand Pump Pacca Drain	1.488	Mr. Moni S/O Gullapar Near of Home Sagarkheda Kalika Gi Mandir Benimadhaw 125 Meetar- S.C. Population in Devkheda & 25 Meeter Side of Mr. Devnarayan
11	*2B3B4g1b Rasigawan*	Hand Pump Hand Pump Hand Pump Hand Pump Pacca Drain Hand Pump	1.68	Mr. Rajjan Singh Near of Home Lakhangawan Mr. Bindeshwari Chamar Near of Home Rashigawan Mr. Ramesh Maorya Near of Home Gajiyapur Mr. Bachole S/O Lalwa Pasi Near of Home Malkegawan 50-Meetar In Lakhangawan Near of Mr. Babloo Hmoe Rashigawan
12	*2B3B4f2c Singhor Tara*	Hand Pump Hand Pump Chabootara Repairing Puliya Pacca Drain	2.006	Mr. Ramesh Near of Home & West of Hanuman Mandir Singhor Tara Mr. Baboolal S/O Ujagar Banwa park Near of Home Moosapur Shiv Mandir In Singhor Tara Near of Mahangoo S.C.'s Home 60- Meetar S.C. Population in Singhortara
13	*2B3B4f2c Dighiya*	Hand Pump Hand Pump	1.537	Near of Sri Gajee ke Pure Pargahin Mr. Bhagwaandeen Yadav ke Adda Baruahar

		Pacca Drain Pacca Drain Hand Pump		50- Meetar Chhedu Nai Home to Puliya 30-Nankau S.C. to Chotelals S.C.'s Home Near of Putan Home, Poore Sadhu
14	*2B3B4f2c Doolapur*	Hand Pump Hand Pump Chabootara Repairing Pacca Drain -Hand Pump Hand Pump	1.756	Mr. Radhesyam Gupta S/O Narayan Near of Home Neebi Mr. Syami Alanand Mahraj gi ki Kuti Doolapur Chewngar Mata Mandir- Raipur 100 Meetar-Ramoo S/O Mangla Prasad Home to Road Naer Vijay Kumar home Murdipur Putta S/o Vilashkumar Home Raipur

Table 5.2 : Details of activities of preparatory phase :

Name of villages	Institutional and capacity buildings	Detailed Project Report	Total estimated cost
90	28.494	5.6988	34.1928

TABLE 5.3 : OTHER ACTIVITIES OF WATERSHED WORKS PHASE - PROPOSED TARGET

WaterShed - *2B3B6f1f Kondra*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	60.00	1.920	45.00	1.440	-	-	120.00	3.840
	M.B.	-	-	5.00	0.275	35.00	1.925	25.00	1.375	-	-	65.00	3.575
	P.B.	-	-	-	-	-	-	-	-	-	-	-	-
	G.P.	-	-	5.00	0.750	20.00	3.000	10.00	1.500	-	-	35.00	5.250
	Total	-	-	25.00	1.505	115.00	6.845	80.00	4.315	-	-	220.00	12.665
2	**Water Maintenance Work**	-	-		-	-	-	-	-	-	-	-	-
	C.D.	-	-	5.00	0.750	35.00	5.250	25.00	3.750	-	-	65.00	9.750
	W.H.B.	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	5.00	0.750	35.00	5.250	25.00	3.750	-	-	65.00	9.750
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	-	-	-	-	-	-	-	-	-	-
	Personal Land	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	0.50	0.050	3.00	0.300	1.50	0.150	-	-	5.00	0.500
	Personal Land	-	-	1.50	0.150	6.00	0.800	5.50	0.550	-	-	15.00	1.500

	Total	-	-	2.00	0.200	11.00	1.100	7.00	0.700	-	-	20.00	2.000
	Grand Total	-	-	**32.00**	**2.455**	**161.00**	**13.195**	**112.00**	**8.765**	-	-	**305.00**	**24.415**

WaterShed - *2B3B6a1a Saray Khande*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	10.00	0.320	44.00	14.08	30.00	0.960	-	-	**84.00**	**2.688**
	M.B.	-	-	5.00	0.275	30.00	1.650	25.00	1.375	-	-	**60.00**	**3.300**
	P.B.	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	G.P.	-	-	-	-	20.00	3.000	15.00	2.250	-	-	**35.00**	**5.250**
	Total	-	-	15.00	0.595	94.00	6.058	70.00	4.585	-	-	**179.00**	**11.238**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D.	-	-	5.00	0.750	30.00	4.50	20.00	3.000	-	-	**55.00**	**8.250**
	W.H.B.	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Total	-	-	5.00	0.750	30.00	4.50	20.00	3.000	-	-	**55.00**	**8.250**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Personal Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**

	Total	-	-	-	-	-	-	-	-	-	-	**-**	**-**
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	0.50	0.050	3.10	0.310	1.50	0.150	-	-	**5.10**	**0.510**
	Personal Land	-	-	1.00	0.100	6.00	0.600	3.00	0.300	-	-	**10.00**	**1.000**
	Total	-	-	1.50	0.150	9.10	0.910	4.50	0.450	-	-	**15.10**	**1.510**
	Grand Total	-	-	**21.50**	**1.450**	**133.10**	**11.468**	**94.50**	**8.035**	-	-	**249.10**	**20.998**

WaterShed - *2B3B6a2b Dudhwan*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	40.00	1.280	35.00	1.120	-	-	**90.00**	**2.880**
	M.B.	-	-	5.00	0.275	30.00	1.650	25.00	1.375	-	-	**60.00**	**3.300**
	P.B.	-	-	-	-	-	-	-	1.500	-	-	**-**	**-**
	G.P.	-	-	5.00	0.75	20.00	3.00	10.00	3.995	-	-	**35.00**	**5.250**
	Total	-	-	25.00	1.505	90.00	5.930	70.00	-	-	-	**185.00**	**11.430**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	3.750	-	-	**-**	**-**
	C.D.	-	-	-	-	30.00	4.500	25.00	3.750	-	-	**55.00**	**8.250**
	W.H.B.	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Total	-	-	-	-	30.00	4.500	25.00	3.750	-	-	**55.00**	**8.250**

3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Personal Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Total	-	-	-	-	-	-	-	-	-	-	**-**	**-**
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	0.50	0.050	3.10	0.310	0.310	0.150	-	-	**5.10**	**0.510**
	Personal Land	-	-	1.00	0.100	6.00	0.600	0.600	0.300	-	-	**10.00**	**1.000**
	Total	-	-	1.50	0.150	9.10	0.910	0.910	0.450	-	-	**15.10**	**1.510**
	Grand Total	-	-	**26.50**	**1.655**	**129.10**	**11.340**	**11.340**	**8.195**	-	-	**255.10**	**21.190**

WaterShed - *2B3B6a2a Saidapur*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	60.00	1.920	45.00	1.440	-	-	**120.00**	**3.840**
	M.B.	-	-	10.00	0.550	40.00	2.200	30.00	1.650	-	-	**80.00**	**4.400**
	P.B.	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	G.P.	-	-	5.00	0.750	25.00	3.750	18.00	2.700	-	-	**48.00**	**7.200**
	Total	-	-	30.00	1.780	125.00	7.870	93.00	5.790	-	-	**248.00**	**15.440**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**

	C.D.	-	-	-	-	40.00	6.000	32.00	4.800	-	-	**72.00**	**10.800**
	W.H.B.	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Total	-	-	-	-	40.00	6.000	32.00	4.800	-	-	**72.00**	**10.800**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Personal Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Total	-	-	-	-	-	-	-	-	-	-	**-**	**-**
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	1.00	0.100	4.00	0.400	3.00	0.300	-	-	**8.00**	**0.800**
	Personal Land	-	-	2.00	0.200	6.00	0.600	4.00	0.400	-	-	**12.00**	**1.200**
	Total	-	-	3.00	0.300	10.00	1.000	7.00	0.700	-	-	**20.00**	**2.000**
	Grand Total	-	-	**33.00**	**2.080**	**175.00**	**14.870**	**132.00**	**11.290**	-	-	**340.00**	**28.240**

WaterShed - *2B3B4g2c Rampur Kla*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	80.00	2.560	65.00	2.080	-	-	**160.00**	**5.120**
	M.B./ P.B.	-	-	15.00	0.825	40.00	2.200	20.00	1.100	-	-	**75.00**	**4.125**

	G.P.	-	-	-	-	25.00	3.750	20.00	3.000	-	-	**45.00**	**6.750**
	Total	-	-	30.00	1.305	145.00	8.510	105.00	6.180	-	-	**280.00**	**15.995**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	8.00	1.200	45.00	6.750	32.00	4.800	-	-	**85.00**	**12.750**
	Total	-	-	8.00	1.200	45.00	6.750	32.00	4.800	-	-	**85.00**	**12.750**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Personal Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Total	-	-	-	-	-	-	-	-	-	-	**-**	**-**
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	1.00	0.100	5.15	0.515	4.00	0.400	-	-	**10.15**	**1.015**
	Personal Land	-	-	1.50	0.150	9.00	0.900	4.50	0.450	-	-	**15.00**	**1.500**
	Total	-	-	2.50	0.250	14.15	1.415	8.50	0.850	-	-	**25.15**	**2.515**
	Grand Total	-	-	**40.50**	**2.755**	**204.15**	**204.15**	**145.50**	**11.830**	-	-	**390.15**	**31.260**

WaterShed - *2B3B6f1f Paltikheda*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-

	C.B.	-	-	15.00	0.480	70.00	2.240	45.00	1.440	-	-	**130.00**	**4.160**
	M.B./ P.B.	-	-	10.00	0.550	40.00	2.200	25.00	1.375	-	-	**75.00**	**4.125**
	G.P.	-	-	-	-	25.00	3.750	20.00	3.000	-	-	**45.00**	**6.750**
	Total	-	-	25.00	1.030	135.00	8.190	90.00	5.815	-	-	**250.00**	**15.035**
2	**Water Maintenance Work**	-	-	-	--	-	--	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	5.00	0.750	40.00	6.000	25.00	3.750	-	-	**70.00**	**10.500**
	Total	-	-	5.00	0.750	40.00	6.000	25.00	3.750	-	-	**70.00**	**10.500**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Personal Land	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Total	-	-	-	-	-	-	-	-	-	-	**-**	**-**
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Community Land	-	-	0.50	0.050	3.12	0.312	1.50	0.150	-	-	**5.12**	**0.512**
	Personal Land	-	-	1.50	0.150	8.50	0.850	5.00	0.500	-	-	**15.00**	**1.500**
	Total	-	-	2.00	0.200	11.50	1.150	6.50	0.650	-	-	**20.00**	**2.000**
	Grand Total	-	-	**32.00**	**1.980**	**186.62**	**15.352**	**121.50**	**10.215**	-	-	**340.12**	**27.547**

WaterShed - *2B3B4g2a Haibarpur Kala*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	70.00	2.240	45.00	1.440	-	-	130.00	**4.160**
	M.B.	-	-	5.00	0.275	30.00	1.650	25.00	1.375	-	-	60.00	**3.300**
	P.B.	-	-	-	-	-	-	-	-	-	-	-	**-**
	G.P.	-	-	-	-	20.00	3.000	12.00	1.800	-	-	32.00	**4.800**
	Total	-	-	20.00	0.755	120.00	6.890	82.00	4.615	-	-	222.00	**12.260**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	-	**-**
	C.D.	-	-	5.00	0.750	35.00	5.250	25.00	3.750	-	-	65.00	**9.750**
	W.H.B.	-	-	-	-	-	-	-	-	-	-	-	**-**
	Total	-	-	-	0.750	35.00	5.250	25.00	3.750	-	-	65.00	**9.750**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	**-**
	Community Land	-	-	-	-	-	-	-	-	-	-	-	**-**
	Personal Land	-	-	-	-	-	-	-	-	-	-	-	**-**
	Total	-	-	-	-	-	-	-	-	-	-	-	**-**
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	**-**
	Community Land	-	-	1.00	0.100	5.12	0.512	3.00	0.300	-	-	9.12	**0.912**
	Personal Land	-	-	1.50	0.150	8.50	0.850	4.00	0.400	-	-	14.00	**1.400**

	Total	-	-	2.50	0.250	1.362	1.362	7.00	0.700	-	-	23.12	**2.312**
	Grand Total	-	-	**27.50**	**1.755**	**168.62**	**13.502**	**114.00**	**9.065**	-	-	**310.12**	**24.322**

WaterShed - *2B3B4q2b Baerua*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	20.00	0.640	100.00	3.200	60.00	1.920	-	-	**180.00**	**5.760**
	M.B./ P.B.	-	-	10.00	0.550	60.00	3.300	40.00	2.200	-	-	**110.00**	**6.050**
	G.P.	-	-	5.00	0.750	35.00	5.250	25.00	3.750	-	-	**65.00**	**9.750**
	Total	-	-	35.00	1.940	195.00	11.750	125.00	7.870	-	-	**355.00**	**21.560**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	10.00	1.500	50.00	7.500	45.00	6.750	-	-	**105.00**	**15.750**
	Total	-	-	10.00	1.500	50.00	7.500	45.00	6.750	-	-	**105.00**	**15.750**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	-	-	-	-	-	-	-	-	-	-
	Personal Land	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	-

	Community Land	-	-	1.00	0.100	5.18	0.518	4.00	0.400	-	-	**10.18**	**1.018**
	Personal Land	-	-	2.50	0.250	15.00	1.500	7.50	0.750	-	-	**25.00**	**2.500**
	Total	-	-	3.50	0.350	20.18	2.018	11.50	1.150	-	-	**35.18**	**3.518**
	Grand Total	-	-	**48.50**	**3.790**	**265.18**	**21.268**	**181.50**	**15.770**	-	-	**495.18**	**40.828**

WaterShed - *2B3B4g1d Ralpur*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financi	Phlsical	Financial	Phlsical	Financi	Phlsical	Financial	Phlsic	Fina	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	20.00	0.640	60.00	1.920	25.00	0.800	-	-	105.00	3.360
	M.B.	-	-	5.00	0.275	40.00	2.200	25.00	1.375	-	-	70.00	3.850
	P.B.	-	-	-	-	-	-	-	-	-	-	-	-
	G.P.	-	-	-	-	20.00	3.000	20.00	3.000	-	-	40.00	6.210
	Total	-	-	25.00	0.915	120.00	7.120	70.00	5.175	-	-	215.00	13.210
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.D.	-	-	10.00	1.500	30.00	4.500	25.00	3.750	-	-	65.00	9.750
	W.H.B.	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	10.00	1.500	30.00	4.500	25.00	3.750	-	-	65.00	9.750
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	-	-	-	-	-	-	-	-	-	-

	Personal Land	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	0.50	0.050	3.00	0.300	2.50	0.250	-	-	6.00	0.600
	Personal Land	-	-	1.50	0.150	8.13	0.813	4.50	0.450	-	-	14.13	1.413
	Total	-	-	2.00	0.200	11.13	1.113	7.00	0.700	-	-	20.13	2.013
	Grand Total	-	-	**37.00**	**2.615**	**161.13**	**12.733**	**102.00**	**9.625**	-	-	**300.13**	**24.973**

WaterShed - *2B3B4g1c Sagarkhed*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	60.00	1.920	45.00	1.440	-	-	**120.00**	**3.840**
	M.B./ P.B.	-	-	5.00	0.275	35.00	1.925	23.00	1.265	-	-	**63.00**	**3.465**
	G.P.	-	-	5.00	0.750	20.00	3.00	15.00	2.250	-	-	**40.00**	**6.000**
	Total	-	-	25.00	1.505	115.00	6.845	83.00	4.955	-	-	**223.00**	**13.305**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	-	-	40.00	6.000	25.00	3.750	-	-	**65.00**	**9.750**
	Total	-	-	-	-	40.00	6.000	25.00	3.750	-	-	**65.00**	**9.750**

3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	-	-	-	-	-	-	-	-	-	-
	Personal Land	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	0.50	0.050	5.10	0.510	2.50	0.250	-	-	**8.10**	**0.810**
	Personal Land	-	-	1.50	0.150	9.00	0.900	3.50	0.350	-	-	**14.00**	**1.400**
	Total	-	-	2.00	0.200	14.10	1.410	6.00	0.600	-	-	**22.10**	**2.210**
	Grand Total	-	-	**27.00**	**1.705**	**169.10**	**14.255**	**114.00**	**9.305**	-	-	**310.10**	**25.265**

WaterShed - *2B3B4g1b Rasigawan*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	70.00	2.240	55.00	1.760	-	-	**140.00**	**4.480**
	M.B./ P.B.	-	-	5.00	0.275	35.00	1.925	25.00	1.375	-	-	**65.00**	**3.575**
	G.P.	-	-	5.00	0.750	25.00	3.750	15.00	2.250	-	-	**45.00**	**6.750**
	Total	-	-	25.00	1.505	130.00	7.915	95.00	5.385	-	-	**250.00**	**14.805**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	-	-	40.00	6.000	35.00	5.250	-	-	**75.00**	**11.25**

													0
	Total	-	-	-	-	40.00	6.000	35.00	5.250	-	-	**75.00**	**11.250**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	-	-	-	-	-	-	-	-	-	-
	Personal Land	-	-	-	-	-	-		-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	1.00	0.100	5.00	0.500	2.00	0.200	-	-	**8.00**	**0.800**
	Personal Land	-	-	2.00	0.200	10.00	1.000	5.00	0.500	-	-	**17.00**	**1.700**
	Total	-	-	3.00	0.300	15.00	1.500	7.00	0.700	-	-	**25.00**	**2.500**
	Grand Total	-	-	**28.00**	**1.805**	**185.00**	**15.415**	**137.00**	**11.335**	-	-	**350.00**	**28.555**

WaterShed - *2B3B4f2c Singhor Tara*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	20.00	0.640	100.00	3.200	60.00	1.920	-	-	**180.00**	**5.760**
	M.B./ P.B.	-	-	5.00	0.275	40.00	2.200	30.00	1.650	-	-	**75.00**	**4.125**
	G.P.	-	-	5.00	0.750	25.00	3.750	20.00	3.000	-	-	**50.00**	**7.500**

	Total	-	-	30.00	1.665	165.00	9.150	110.00	6.570	-	-	**305.00**	**17.385**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	-	-	50.00	7.500	35.00	5.250	-	-	**85.00**	**12.750**
	Total	-	-	-	-	50.00	7.500	35.00	5.250	-	-	**85.00**	**12.750**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	-	-	-	-	-	-	-	-	-	-
	Personal Land	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	1.00	0.100	6.00	0.600	3.00	0.300	-	-	**10.00**	**1.000**
	Personal Land	-	-	2.00	0.200	10.00	1.000	6.00	0.600	-	-	**18.00**	**1.800**
	Total	-	-	3.00	0.300	16.00	1.600	9.00	0.900	-	-	**28.00**	**2.800**
	Grand Total	-	-	33.00	**1.965**	**231.00**	**18.250**	**154.00**	**12.720**	-	-	**418.00**	**32.935**

WaterShed - *2B3B4f2c Dighiya*

(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial

1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	15.00	0.480	65.00	2.080	40.00	1.280	-	-	**120.00**	**3.840**
	M.B./ P.B.	-	-	10.00	0.550	40.00	2.20	20.00	1.100	-	-	**70.00**	**3.850**
	G.P.	-	-	-	-	25.00	3.750	20.00	3.000	-	-	**45.0**	**6.750**
	Total	-	-	25.00	1.030	130.00	8.030	80.00	5.380	-	-	**235.00**	**14.440**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	5.00	0.750	40.00	6.000	20.00	3.000	-	-	**65.00**	**9.750**
	Total	-	-	5.00	0.750	40.00	6.000	20.00	3.000	-	-	**65.00**	**9.750**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	-	-	-	-	-	-	-	-	-	-
	Personal Land	-	-	-	-	-	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-	-	-	-	-	-
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	-
	Community Land	-	-	1.00	0.100	5.20	0.520	2.00	0.200	-	-	**8.20**	**0.820**
	Personal Land	-	-	2.00	0.200	7.00	0.700	3.00	0.300	-	-	**12.00**	**1.200**
	Total	-	-	3.00	0.300	12.20	1.220	5.00	0.500	-	-	**20.00**	**2.000**
	Grand Total	-	-	33.00	**2.080**	**182.20**	**15.250**	**105.00**	**8.880**	-	-	**320.20**	**26.210**

WaterShed - *2B3B4f2c Doolapur*(Yearly Detail Of Work Fund< Physical & Financial>)

S.No.	Work Name	First Year		Second Year		Third Year		Fourth Year		Fifth Year		Total	
		Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial	Phlsical	Financial
1	**Soil Conservation Work**	-	-	-	-	-	-	-	-	-	-	-	-
	C.B.	-	-	20.00	0.640	70.00	50.00	50.00	1.600	-	-	**140.00**	**4.480**
	M.B./ P.B.	-	-	10.00	0.550	50.00	20.00	20.00	1.100	-	-	**80.00**	**4.400**
	G.P.	-	-	-	-	25.00	20.00	20.00	3.000	-	-	**45.00**	**6.750**
	Total	-	-	30.00	1.190	145.00	90.00	90.00	5.700	-	-	**265.00**	**15.630**
2	**Water Maintenance Work**	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	C.D./ W.H.B.	-	-	5.00	0.750	40.00	30.00	30.00	4.500	-	-	**75.00**	**11.250**
	Total	-	-	5.00	0.750	40.00	30.00	30.00	4.500	-	-	**75.00**	**11.250**
3	**Foresty Work**	-	-	-	-	-	-	-	-	-	-	-	**-**
	Community Land	-	-	-	-	-	-	-	-	-	-	-	**-**
	Personal Land	-	-	-	-	-	-	-	-	-	-	-	**-**
	Total	-	-	-	-	-	-	-	-	-	-	-	**-**
4	**Grazze /Herticulture**	-	-	-	-	-	-	-	-	-	-	-	**-**
	Community Land	-	-	1.00	0.100	6.00	3.00	3.00	0.300	-	-	**10.80**	**1.080**
	Personal Land	-	-	1.50	0.150	9.50	4.00	4.00	0.400	-	-	**15.00**	**1.500**
	Total	-	-	2.50	0.250	16.30	7.00	7.00	0.700	-	-	**25.80**	**2.580**
	Grand Total	-	-	37.50	**2.190**	**201.30**	**127.00**	**127.00**	**10.900**	-	-	**365.80**	**29.460**

CHAPTER – 6

CAPACITY BUILDING

CAPACITY BUILDING

Capacity Building is the process of assisting the group or individuals to identify and address issues and gain the insights, knowledge and experience needed to solve problems and implement change.

There is a realization in the development sector that there is a need to appraise the success of development interventions by going beyond the conventional development targets and measures of success (e.g. in the form of commodities, goods and services) to take into account improvements to human potential. Capacity building of stakeholders is also increasingly viewed as an important factor in developmental projects that involve participation of stakeholders at all levels for effective implementation of projects.

SCOPE OF CAPACITY BUILDING AT PROJECT AREA

- Alternative Land Use Plan
- Scientific technique of Soil and Moisture conservation
- Improved and Scientific agriculture practices
- Fodder development and Management
- Forestation
- Meteorological Information
- Dairy Development and Management
- Rural Craft
- Income Generation Activities
- Stitching
- Food Processing
- Post Harvest management practices

Table 6.1: DETAILS BUDGET OF CAPACITY BUILDING OF THE PROJECT AREA

Project Name - I.W.M.P. III*, RaeBareli* *(fig. Rs. in Lakh)*

S.No.	Work Name	First Year	Second Year	Third Year	Fourth Year	Total
1	Vill. Meeting in vill level with 100 members per watershed	1.60	0.76	0.76	-	**3.12**
2	S.H.G. meeting with 40 members per watershed	0.61	0.61	0.60	-	**1.82**
3	Meeting uses group with 40 members per watershed	0.61	0.61	0.60	-	**1.82**
4	Meeting in waterShed with 15 members/watershed	0.50	0.50	0.45	0.48	**1.93**
5	Block Level meeting with 125 members	0.15	0.15	0.15	0.15	**0.6**
6	District Level Meeting With 150 members	0.23	0.22	0.22	0.22	**0.89**
7	Oute of District Training Lucknow/Arara with 5o members	1.25	1.5	1.50	1.50	**5.75**
8	50 Members Itinirate in other District	1.15	1.10	1.10	1.10	**4.45**
9	Literacy	0.75	0.75	0.65	-	**2.15**
10	Agrarian Demonstrate	-	1.11	1.11	-	**2.22**
11	Liprocy	0.55	0.55	0.55	0.57	**2.22**
12	Nafed/Vermi Composed Demostration	0.75	0.774	-	-	**1.524**
	Total	**8.15**	**8.634**	**7.69**	**4.02**	**28.494**

CHAPTER -7
PHASING OF PROGRAMME & BUDGETING

WATERSHED ACTIVITIES

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

Scientific Planning

Cluster Approach

This enversages intregrated deve'opment of Geo-hydrological unit ie. Treatment of custer of micro - watershed The IWMP Raebareli-IInd Project consist 03 micro watershed namely 2B4AA3d2a, 2B4A3d2b, 2B4A3d1c,.

Base line Survey

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

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

Participatory Rural Appraisal (PRA)

The past experience of watershed has given tremendous input to focus on creating accountability of the stakeholders towards the programme. This has created an emphasis to include all the stakeholder communities and their local and Indigenous Technological Knowledge *(YTK}* while planning for any activity. Participatory approach provides a new path for planning, implementing, monitoring and post- withdrawal activities with a complete accountability of the stakeholders. Various PRA techniques like resource mapping, social mapping, and season calendars were used to understand the physical and social orientation of the villagp in general and watershed in specific. These tools put the villagers in ease than the complicated questionnaires-

Use of GIS and Remote sensing for planning

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

Prioritization

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

Planning

Action plan matrix was formulated by State Level Nodal Agency (SLNA] taking into account various features like the slope percent, soil Depth Soil Texture, Soil erosion in the area for wasteland, forest land and agricultural " land. Global position ng System (GPS) was used to identify each and every water conservation structures available in the project area. Thi: was used to create a map. Contour Map of vertical interval of 0.3 meter at a scale of 1:4000 was used for identifying various locations for soil and water conservation structures.

Hydrological modeling

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

Table 7.1: Details of Scientific Planning and Inputs in IWMP projects

Scientific Criteria /Input Used	Whether Scientific Criteria was Used
(A) **(A) Planning**	
Cluster approach	Yes
Whether technical back-stopping for the project ha; been arranged? If yes, mention the name of the Institute	-
Baseline survey	Yes

Hydro-geological survey	Yes
Contour mapping	Yes
Participatory Net Planning (PNPj	Yes
Remote sensing data-especially soil/ crop/ run-off cover	Yes
Ridge to Valley treatment	Yes
Online IT connectivity between	Yes
(1] Project and DRDA cell/ZP	Yes
(2)DRDA and SLNA	Yes
(3) SLNA and DoLR	Yes
Availability of GIS layers	--
Availability of *GIS* layers	Yes
Cadastral map	Yes
Village boundaries	Yes
Drainage	Yes
Soil (Soil nutrient status)	Yes
Land use	Yes
Ground water status	Yes
Watershed boundaries	Yes

Activity	Yes
Integrated coupled analyzer/ near infrared visible spectroscopy/ medium spectroscopy for high speed soil nutrient analysis	Yes
Normalized difference vegetation index (NDVT)#	Yes
Weather Station	--
(B) Inputs	Yes
Bio-pesticides	Yes
Organic manures	Yes
Vermicompost	Yes
Bio-fertilizer	Yes
Water saving devices	Yes
Mechanized tools/ implements	Yes
Bio-fencing	Yes
Nutrient budgeting	Yes
Automatic water level recorders & sediment samp ers	Yes
Any other (please specify)	Yes

TABLE 7.2: PHASING OF WORK- (PHYSICAL & FINANCIAL) I.W.M.P. III, RAEBARELI

Phasing of various works/activities during different years of the project period for treatable area 4739.00 ha out of total area 11062.00 ha is presented in Table Component wise & Year wise Phasing of Physical & Financial Outlay

Financial (Lakhs Rs.) Physical (ha)

S.N	Work Name	%	First Year	Second Year	Third Year	Fourth Year	Fifth Year	Total
1	Administrative fund	10%	-	11.398	15.102	15.102	15.386	**56.988**
2	Verification Fund	1%	-	1.14	1.14	1.14	2.279	**5.699**
3	Valuation fund	1%	-	1.709	1.995	1.995	-	**5.699**
4	EPA	4%	22.795	-	-	-		**22.795**
5	Capacity Wilding	5%	5.699	11.397	5.699	5.699	-	**28.494**
6	D.P.R.	1%	5.699	-	-	-	-	**5.699**
7	Work Fund	50%	-	42.741	150.733	91.466	-	**284.94**
8	S.H.G.	10%	-	5.699	28.494	22.795	-	**56.988**
9	Production System	13%	-	5.699	45.589	22.796	-	**74.084**
10	Samekan	5%	-	-	-	-	28.494	**28.494**
	Total	100%	**34.193**	**79.783**	**248.752**	**160.993**	**46.159**	**569.88**

CHAPTER -8
QUALITATIVE ISSUES

PLAN FOR MONITORING OF THE PROJECT

The above project would be monitored regularly by the Watershed Development Team as per the norms of common guideline 2008. There will be every fortnight monitoring schedule have been proposed by the PIA of the project. A Web-based GIS system is being developed for monitoring and evaluating the project in its planning & implementation phases. The system would be available on a public domain and can be accessed by all the stakeholder of the project. The system shows the entire state of Uttar Pradesh and all of those areas selected over the next 18 years. Filtering allows the user to zoom onto one particular project. Details related to soil type, Land-use classification, inhabitation etc., can be obtained village-wise. Furthermore, survey-number wise details related to ownership, irrigation source, yield etc., can also be accessed by the users of the system. This system is being used for pooling up the details obtained from the DPR. In other words, the DPR is made available online in the form of a database which will help the stakeholders know areas of importance viz., already treated areas/historical works in the area, proposed areas for treatment etc., for further treatment and planning. The system would also show the satellite imageries of various years from the project inception stage to the project closing stages. This allows the user to evaluate the effectiveness of the treatment and thereby plan corrective measures for the project area. The system would serve as an aiding tool to the planners and evaluate the effectiveness of the treatment and thereby plan corrective measures for the project area. The system would serve as an aiding tool to the planners and evaluators for judging the efficacy of the project.

PLAN FOR EVALUATION OF THE PROJECT

The evaluation of the project would be done by the state and central agency as proposed by the SLNA of the state. The evaluation of the project would also be done by the expert of the respective field like Water Management and Land Resources Management after the completion of the project.

PLAN FOR PROJECT MANAGEMENT

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

CHAPTER -9
CONSOLIDATION / EXIT STRATEGY

PLANS FOR MONITORING AND EVALUATION

A Web-based GIS system is being developed for monitoring and evaluating the project in its planning & implementation phases. The system would be available on a public domain and can be accessed by all the stakeholder of the project. The system shows the entire state of Uttar Pradesh and all of those areas selected over the next 18 years. Filtering allows the user to zoom onto one particular project. Details related to soil type, Land-use classification, inhabitation etc., can be obtained village-wise. Furthermore, survey-number wise details related to ownership, irrigation source, yield etc., can also be accessed by the users of the system. This system is being used for pooling up the details obtained from the DPR. In other words, the DPR is made available online in the form of a database which will help the stakeholders know areas of importance viz., already treated areas/historical works in the area, proposed areas for treatment etc., for further treatment and planning. The system would also show the satellite imageries of various years from the project inception stage to the project closing stages. This allows the user to evaluate the effectiveness of the treatment and thereby plan corrective measures for the project area. The system would serve as an aiding tool to the planners and evaluate the effectiveness of the treatment and thereby plan corrective measures for the project area. The system would serve as an aiding tool to the planners and evaluators for judging the efficacy of the project.

Yet another component of the Web-based GIS system is the Mobile based Monitoring & Evaluation System, which will help the ground staff alias WDTs (Watershed Development Team) to transmit information from the ground level to the central server. Also, any higher-up official in charge of the project can obtain information regarding the project area on the project area on their mobile phone by means of an SMS. The system works in the following manner. The WDT equipped with a GPS instrument marks the latitude-longitude information of various treatment areas during the DPR. The probable sites are then transferred onto the central server. During the works phase, any progress in the treatment areas is reported to the server by means of an

SMS by the WDT. Similarly, any nodal officer or higher-up official can view the progress in a project by means of summarized reports generated over frequent periods of time.

PLANS AND PROJECT MANAGEMENT

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

WATERSHED DEVELOPMENT FUND

The major source of financial assistance after post implementation period is Watershed Development Fund. The contribution of it will comes mainly from the fund generated .

USER CHARGES

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

SUSTAINABILITY AND ENVIRONMENT SECURITY

In the proposed watershed management plan of IWMP-II watershed, proper blending of bio engineering measures will be applied on 60% of the total watershed area. Based on the results of studies conducted in this region, it is estimated that more 50% of the watershed area will be treated and consequently the soil loss and runoff from the area is expected to be reduced by 70% and 65% respectively. The proposed land use plan will

improve the land utilization index and crop diversification index significantly as compared to the existing one. It will help in maintaining ecosystem integrity on sustained basis along with improving the livelihood security of the farming community.

ECONOMIC ANALYSIS

Economic analysis of the project was carried by taking direct benefits and costs considering 25 year project life at 10 per cent discount rate. For this purpose of economic analysis, whole watershed development plan was divided into three sectors namely, agriculture, horticulture and forest/fuel wood plantation. Net present value(NPV), Benefit cost ratio (BC) ratio criteria were employed to judge the economic efficiency of each enterprise and sector.

AGRICULTURE

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

HORTICULTURE

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

FOREST/ FUEL WOOD PLANTATION

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

FOOD SUFFICIENCY

Achieving self sufficiency in food production is one of the prime objectives of the project.

CHAPTER -10
EXPECTED OUTCOME

EMPLOYMENT RELATED OUTCOMES

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 enter prise development.

Labour migration in search of gainful employment is one of the major problems in the remote watershed in particular. Causal 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. The details of the employment generation is given in below.

Table 10.1 : EXPECTED EMPLOYMENT RELATED OUTCOMES

SN	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	90	1.15	-	2.52	0.197	3.867	1011	-	2124	194	3329	247	-	227	21	495

MIGRATION PATTERN

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. The detail of the migration is given below.

Table 10.2: DETAILS OF MIGRATION (I.W.M.P-III) RAIBAREILY

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	90	385	251	Poverty & Unemployment	105

WATER RELATED OUTCOMES

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 U . 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 5.5 to 6.0 metre. Status of the drinking water is given in below.

TABLE 10.3: STATUS OF DRINKING WATER

S. N.	No. of the villages	Availabilty of drinking water (no. of months in a year)		Quality of drinking water	
		Pre-project	Expected Post-Project	Pre-project	Expected Post-Project
1	90	10 months	12 months	General	Soft water

TABLE 10.4: DETAILS OF AVERAGE GROUND WATER TABLE DEPTH IN THE PROJECT AREAS

(IN METERS)

S. N.	No. of the villages	Sources	Pre-project	Expected Post-Project	Remarks
1	90	Open wells	18-20 mtr.	17-19 mtr.	-
		Bore wells	-	-	-

VEGETATION/ CROP RELATED OUTCOMES

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. It is expected that after compilation of the project, the crop productivity of Rice-Wheat will certainly enhance, It would be around Paddy (24.00 qt/ha),Wheat (28.00 qt/ha). There will be an improvement in soil health of the study area after conservation measures

TABLE 10.5: MAJOR CROPS GROWN AND THEIR PRODUCTIVITY IN THE PROJECT AREA

S.No.	Name of Crop	Productivity Before Treatment		Productivity After Treatment		Additional Benefits		Remark
		Aria (Ha.)	Productivity (Qunt.)	Aria (Ha.)	Productivity (Qunt.)	Aria (Ha.)	Productivity (Qunt.)	
1	Rabi	2000.00	7.50	3500.00	12.00	15.00	4.50	
2	Khareef	1500.00	2.50	3000.00	5.00	1500.00	2.50	
3	Jayad	-	-	700.00	2.75	700.00	2.75	

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.

FOREST/VEGETATIVE COVER RELATED OUTCOMES

The village has a 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. It is planned that land to be covered under new plantation.

ABTRACT OF OUTCOMES

The over all 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 have been analysised after the completion of the project.

Table 10.9: SUMMARY OF EXPECTED/ESTIMATED OUTCOMES (MIS TABLE-M (PO) F1)

Chapter 12

12.0 Expected outcomes

a) Briefly describe expected outcomes due to implementation of IWMP-I in the Raibareli

b) Summarize in the table given below.

Table-SPSP 34: Expected/Estimated Outcomes *(MIS Table-M(PO)F1)*

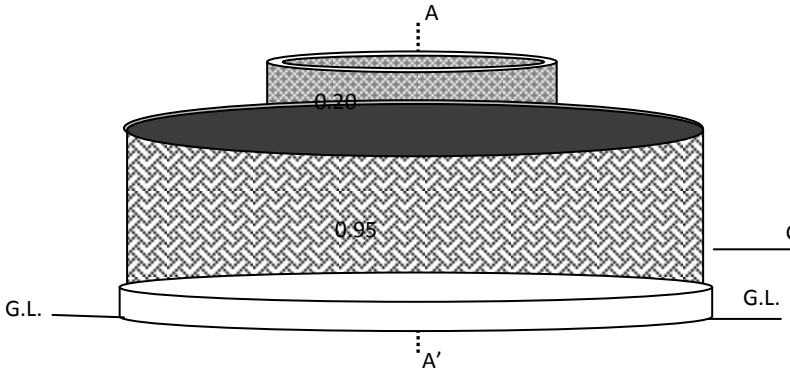
1	2	3	4	5	6	7
S. No.	Name of the District	Item	Unit of measurement	Pre-project Status	Expected Post-project Status	Remarks
		Status of water table	Miter	18 to 22	17 to 19	
		Ground water structures repaired/ rejuvenated	No.	-	10	
		Quality of drinking water	-	Hard	Good	
		Availability of drinking water	Days	300	365	
		Increase in irrigation potential	%	-		
		Change in cropping/ land use pattern	-	Rabi, kharif	Rabi, kharif, zaid etc.	
		Area under agricultural crop	ha.	4749	11526	
		i Area under single crop	ha.	6153	4401	
		ii Area under double crop	ha.	2637	6305	
		iii Area under multiple crop	ha.	-	700	
		Net increase in crop production area	ha.	-	2736	
		Increase in area under vegetation	ha.	-	3736	
		Increase in area under horticulture	ha.	-	335	
		Increase in area under fuel & fodder	ha.	-	201	
		Increase in milk production	Av/Lt./Days/ Catle		5	
		No. of SHGs	No.	-	40	
		Increase in no. of livelihoods	No.	-	250	
		Increase in income	Rs.	-	24000-30000	
		Migration	%	180	100	
		SHG Federations formed	-	-	40	
		Credit linkage with banks	-	-	40	
		Resource use agreements	-	Agreed	Agreed	
		WDF collection & management	5% to 10%	-	100% during project work	
		Summary of lessons learnt				

भूमि संरक्षण अधिकारी
भूमि विकास एवं जल संसाधन विभाग
रायबरेली

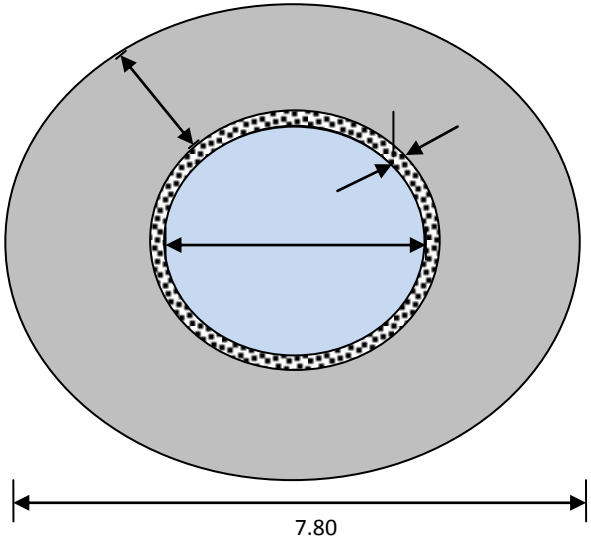
Chapter-11

COST NORMS & DESIGN OF STRUCTURE PROPOSED

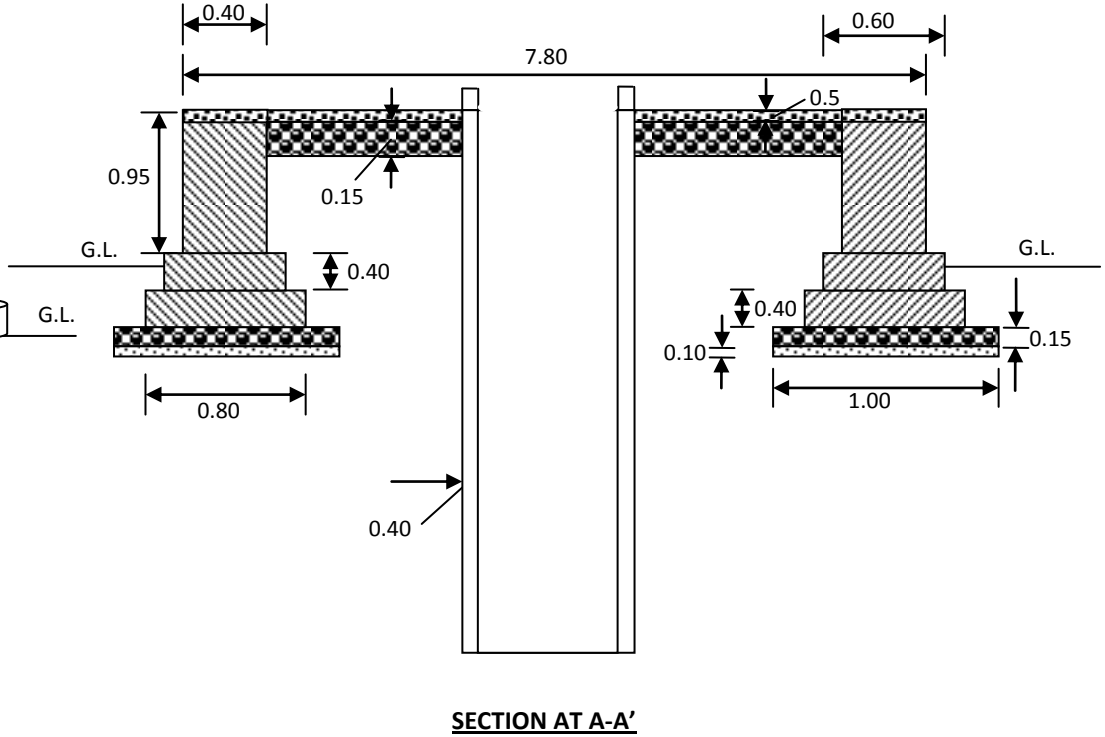
DRAWING OF WELL



ISOMETRIC VIEW OF WELL



PLAN



SECTION AT A-A'

DESCRIPTION

1. C.C.W. - 1:4:8.
2. Brick Work- 1:4
3. Plastering- 1:4
4. Raised Pointing- 1:3.

DETAIL ESTIMATE OF JAGAT OF WELL

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

CONSUMPTION OF MATERIALS

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

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	91 Bags	285.00/bag	25935.00
2.	Coarse Sand	14.13 cum	2500.00/cum	35325.00
3.	Coarse	20.20 cum	950.00/cum	19190.00
4.	Brick Ballast 25-40 mm	7.01 cum	855/cum	5993.55
Total				**Rs. 86443.00**

LABOUR CHARGES

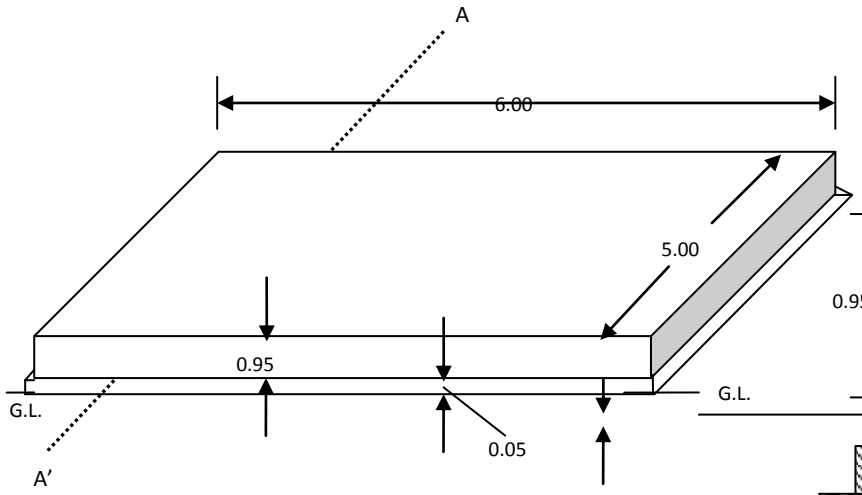
S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	48.22 cum	36.66/cum	1769.01
2.	Sand Laying	2.32 cum	33.33/cum	77.32
3.	C.C.W. 1:4:8	7.54 cum	492.00/cum	3709.68
4.	C.C.W. 1:2:4	1.821 cum	492.00/cum	894.11
5.	Brick Work	22.210 cum	370.00/cum	8217.70
6.	Raised Pointing	22.04 m^2	51.61/m^2	7.48
7.	Curing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

TOTAL EXPENDITURE	
1. Cost of materials	65,914.00
2. Labour charges & transportation	24,335.45
Total	**Rs. 90,249.45**
	Say Rs. 90,250.00 only

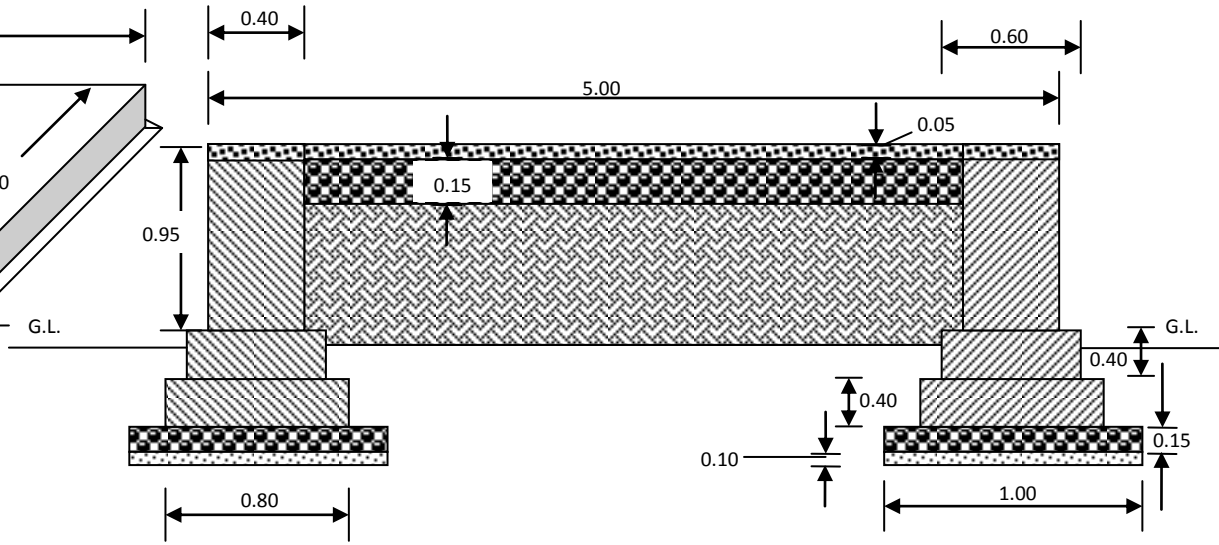
DETAIL ESTIMATE OF INDIA MARK-II HAND PUMP FOR WATER SHED AREA, DISTRICT - RAEBARELIU.P.

S.No.	Description of work	Unit	Quantity	Rate	Amount
1	Transportation of rig machine, hand Pump material, P.V.C. Pipe, strainer and cement from store to work site.	work	1	3000.00	3000.00
2	Supply of material to install Hand Pump i- Lowering and installation of India mark-II Hand Pump with G.I. Pipe & connecting rods. ii- 140 mm P.V.C. Pipe 8kg/cm2. iii- medium G.I.Pipe of the 32 mm Ø.	No. metre metre	1 20 30	5380.00 240.00 202.90	5380.00 4800.00 6087.00
3	Boring work by D.T.H. Rig machine and lowering of P.V.C. assembling	meter	50	396.00	19800.00
4	Development of Hand Pump after installation	work	1	100.00	100.00
5	work after development with material	work	1	50.00	50.00
6	construction of Platform of 1.86 m Ø with all material and cement	work	1	2525.00	2525.00
7	construction of channel with all material and labour	meter	3	125.00	375.00
8	Embossing work	work	1	50.00	50.00
9	Water testing work	work	1	400.00	400.00
				Total	**Rs. 42,567.00**
				Says	**Rs. 42,600.00**

DRAWING OF PANCHAYATI CHABUTARA



ISOMETRIC VIEW OF PLATFORM (CHABUTRA)



SECTION AT A-A'

DESCRIPTION

1. C.C.W. - 1:4:8.
2. Brick Work - 1:4
3. Plastering- 1:4
4. Raised Pointing- 1:3.

DETAIL ESTIMATE OF WATERSHED VILLAGE CHABUTARA

S.No.	Description of Work	No.	L.	B.	D/H	Quantity
1.	Earth work in foundation					
	Long Wall	2	8.00	1.20	1.15 1.15	22.08
	Short Wall	2	4.00	1.20		11.04
	Total					**33.12 cum**
2.	Laying of Sand					
	Long Wall	2	6.60	1.00	0.10	1.32
	Short Wall	2	3.60	1.00	0.10	0.72
	Total					**2.04 cum**
3.	C.C.W. 1:4:8					
	Long Wall	2	6.60	1.00	0.15	1.98
	Short Wall	2	3.60	1.00	0.15	1.08
	Total					**3.06 cum**
4.	Brick masonary work 1:4 in foundation & super structure					
	1st Footing.					
	Long Wall	2	6.40	0.80	0.40	4.096
	Short Wall	2	3.80	0.80	0.40	2.432
	2nd Footing					
	Long Wall	2	6.20	0.60	0.40	2.976
	Short Wall	2	4.00	0.60	0.40	1.920
	Super Structure					

	Long Wall	2	6.00	0.40	0.90	4.320
	Short Wall	2	4.20	0.40	0.90	3.024
Total						**18.768 cum**
5.	Earth work in filling	1	5.20	4.20	0.75	16.38 cum
6.	C.C.W. 1:4:8	1	5.20	4.20	0.15	3.276 cum
7.	C.C.W. 1:2:4	1	6.00	5.00	0.05	1.500 cum
8.	Raised Pointing 1:3					
	Long Wall	2	6.00	-	0.90	10.80
	Short Wall	2	5.00	-	0.90	9.00
Total						**19.80 m^2**

ABSTRACT OF WORK

1.	Earth Work	33.12 + 16.38	49.50 cum
2.	Sand Laying		2.040 cum
3.	C.C.W. 1:4:8	3.060 + 3.276	6.336 cum
4.	Brick Work 1:4		18.568 cum
5.	C.C.W. 1:2:4		1.500 cum
6.	Raised Pointing 1:3		19.80 m^2

CONSUMPTION OF MATERIALS

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

COST OF MATERIALS

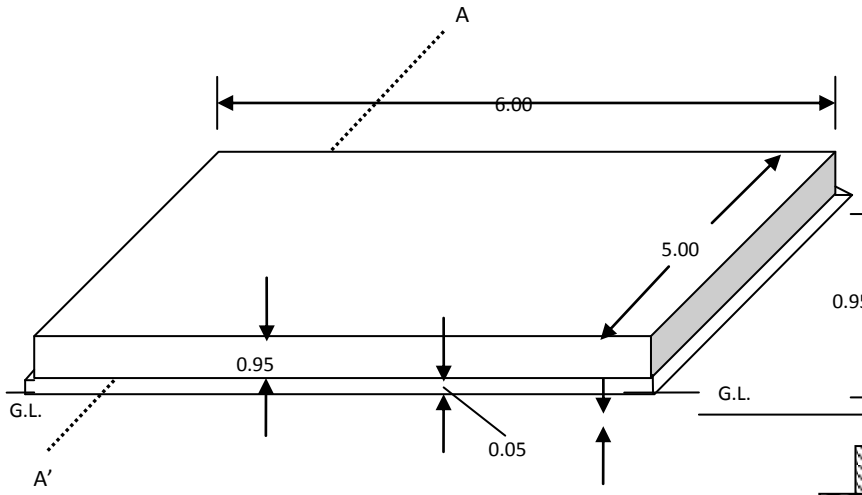
S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	77 Bags	285/Bag	21945.00
2.	Coarse Sand	12.00 cum	910.00/cum	10920.00
3.	Coarse	11.04 cum	950.00/cum	10490.40
4.	G.S.B. 25-40 mm	5.900 cum	855.00/cum	5044.00
5.	G.S. Grit 10-20 mm	1.280 cum	1250.00/cum	1600.00
Total				**Rs. 50000.00**

LABOUR CHARGES

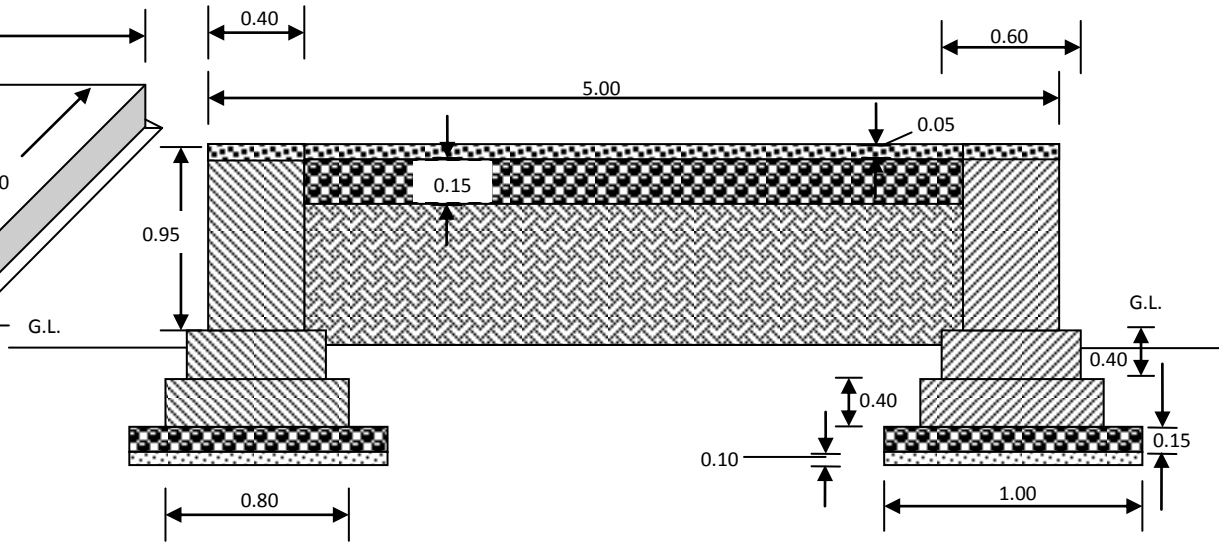
S.No.	Particulars	Quantity	Rate	Amount
1.	Earth Work	49.50 cum	36.66/cum	1814.67
2.	Sand Laying	2.060 cum	33.33/cum	68.65
3.	C.C.W. 1:4:8	6.336 cum	494.00/cum	3129.98
4.	C.C.W. 1:2:4	1.500 cum	494.00/cum	741.00
5.	Brick Work 1:4	18.768 cum	370.00/cum	6944.16
6.	Raised Pointing 1:3	19.800 m^2	51.61/cum	1021.87
7.	Curing Charges	18.768 cum	25.00/cum	469.20
8.	Chowkidar	6 Man Days	100.00/Man Day	600.00
Total				**Rs. 14,789.53**

Total Expenditure	
1. Cost of Materials	57,338.60
2. Labour Charges	14,789.53
Total	**Rs. 72,128.13**
Say	**Rs. 72,130 only**

DRAWING OF PANCHAYATI CHABUTARA



ISOMETRIC VIEW OF PLATFORM (CHABUTRA)



SECTION AT A-A'

DESCRIPTION

5. C.C.W. - 1:4:8.
6. Brick Work - 1:4
7. Plastering- 1:4
8. Raised Pointing- 1:3.

DETAIL ESTIMATE OF WATERSHED VILLAGE CHABUTARA

S.No.	Description of Work	No.	L.	B.	D/H	Quantity
1.	Earth work in foundation					
	Long Wall	2	8.00	1.20	1.15 1.15	22.08
	Short Wall	2	4.00	1.20		11.04
	Total					**33.12 cum**
2.	Laying of Sand					
	Long Wall	2	6.60	1.00	0.10	1.32
	Short Wall	2	3.60	1.00	0.10	0.72
	Total					**2.04 cum**
3.	C.C.W. 1:4:8					
	Long Wall	2	6.60	1.00	0.15	1.98
	Short Wall	2	3.60	1.00	0.15	1.08
	Total					**3.06 cum**
4.	Brick masonary work 1:4 in foundation & super structure					
	1st Footing.					
	Long Wall	2	6.40	0.80	0.40	4.096
	Short Wall	2	3.80	0.80	0.40	2.432
	2nd Footing					
	Long Wall	2	6.20	0.60	0.40	2.976
	Short Wall	2	4.00	0.60	0.40	1.920
	Super Structure					

	Long Wall	2	6.00	0.40	0.90	4.320
	Short Wall	2	4.20	0.40	0.90	3.024
Total						**18.768 cum**
5.	Earth work in filling	1	5.20	4.20	0.75	16.38 cum
6.	C.C.W. 1:4:8	1	5.20	4.20	0.15	3.276 cum
7.	C.C.W. 1:2:4	1	6.00	5.00	0.05	1.500 cum
8.	Raised Pointing 1:3					
	Long Wall	2	6.00	-	0.90	10.80
	Short Wall	2	5.00	-	0.90	9.00
Total						**19.80 m^2**

ABSTRACT OF WORK

1.	Earth Work	33.12 + 16.38	49.50 cum
2.	Sand Laying		2.040 cum
3.	C.C.W. 1:4:8	3.060 + 3.276	6.336 cum
4.	Brick Work 1:4		18.568 cum
5.	C.C.W. 1:2:4		1.500 cum
6.	Raised Pointing 1:3		19.80 m^2

CONSUMPTION OF MATERIALS

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

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	77 Bags	285/Bag	21945.00
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5.	G.S. Grit 10-20 mm	1.280 cum	1250.00/cum	1600.00
Total				**Rs. 50000.00**

LABOUR CHARGES

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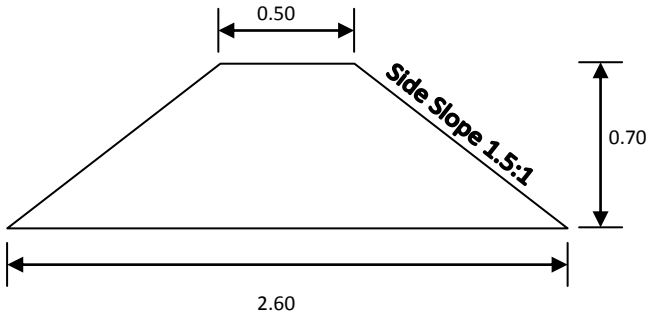
4.	C.C.W. 1:2:4	1.500 cum	494.00/cum	741.00
5.	Brick Work 1:4	18.768 cum	370.00/cum	6944.16
6.	Raised Pointing 1:3	19.800 m^2	51.61/cum	1021.87
7.	Curing Charges	18.768 cum	25.00/cum	469.20
8.	Chowkidar	6 Man Days	100.00/Man Day	600.00
Total				**Rs. 14,789.53**

Total Expenditure	
1. Cost of Materials	57,338.60
2. Labour Charges	14,789.53
Total	**Rs. 72,128.13**
Say	**Rs. 72,130 only**

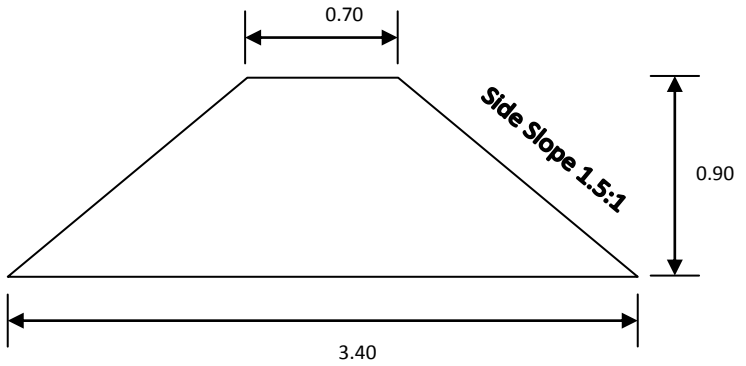
DETAILS ESTIMATE OF WATERSHED DEVELOPMENT WORK PHASE

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

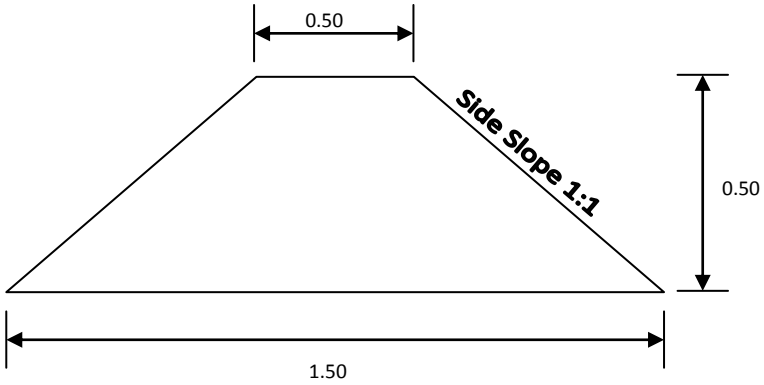
(Not to Scale)



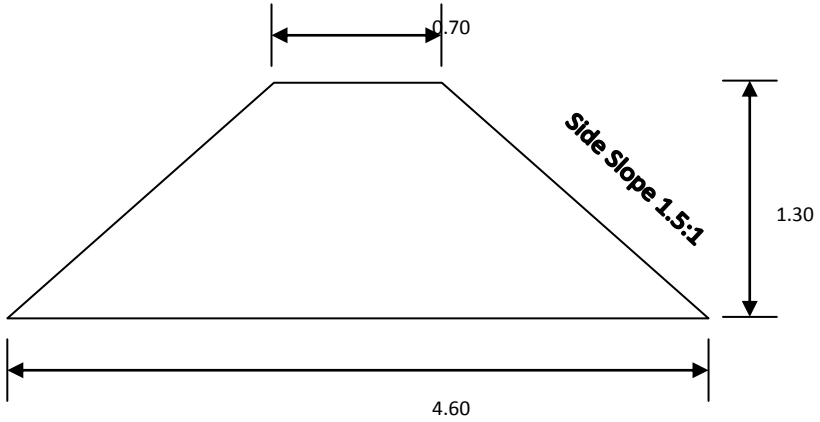
(C.B., Cross-Section – 1.085 m^2)



(S.B., Cross-Section – 1.845m^2)



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

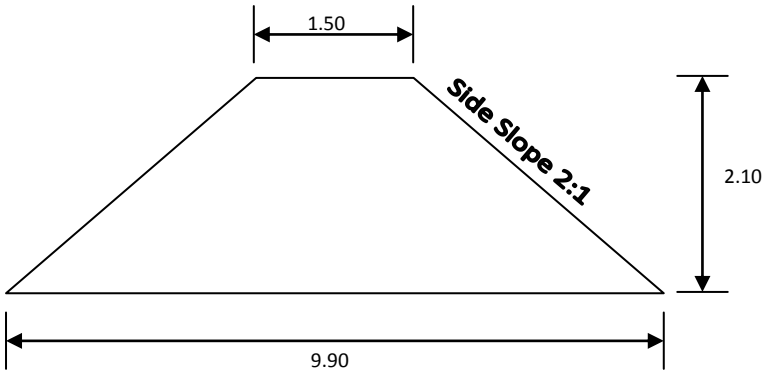


(S.B. /P.B. /M.B., Cross-Section – 3.445 m^2)

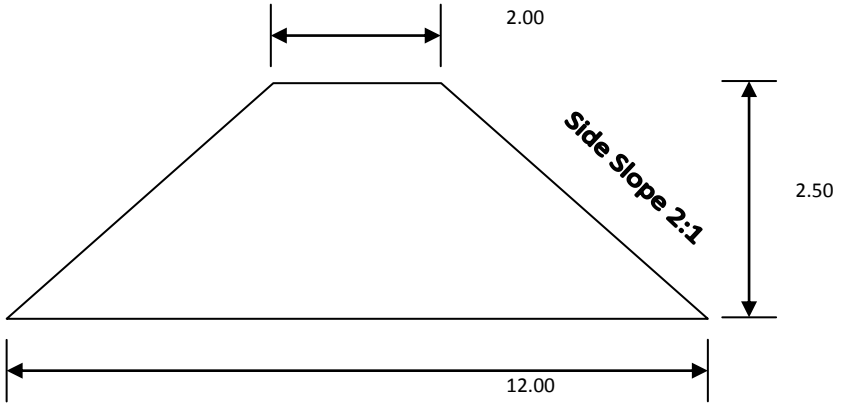
(All dimensions in Metre)

DRAWING OF EARTHEN CHEKDAM / GULLY PLUG

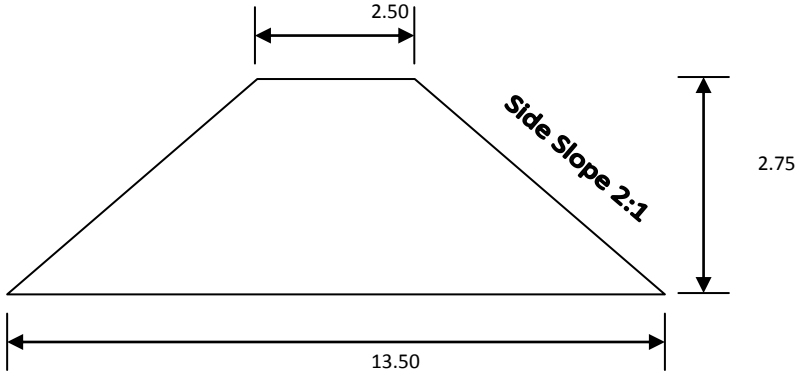
(Not to Scale)



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



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



(W.H.B., Cross-Section – 22.00 m^2)

(All dimensions in Metre)

DESIGN OF CONTOUR BUND

Type of Soil	-Loam,Sandy Loam
Rain fall	-24 hr in cm -25 cm
Field Stop -1%	
Vertical Interval (VI)	= [s/3+2] x 0.3
	= [1/3+2] x 0.3
	= 0.70 m
Horizontal Interval (HI)	= 100 x V.I/s
	= 100 x 0.7/1
Height of bund h	$= \sqrt{(\text{Re x VI})/50}$ Re=maximum rainfall in cm
	$= \sqrt{(25 \text{ x } 0.7)/50}$
	$= \sqrt{0.35}$
	= 0.59
	Say 0.60 m
Free board	=15% of height minimum -10 cm
Height	= 0.60 + 0.10
	= 0.70 m

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

Then base of Bund	= 0.50 + (1.50 d) x 2
	= 2.60 m
Cross-Section of bund	= (0.50 + 2.60) x 0.70 / 2
	= 1 .085 m^2
Length of bund	= 100 s / V.I.
	= 100 x 1 / 0.70
	=142.85 m/ha
	Say 150 m/ha
Earth work/ha	= 150x1.085
	= 162.75 cum
Cost Rs. / ha	= 162.75 x 39.16 = 6373.29
	Say 6375.00

DESIGN OF SUBMERGENCE BUND

Types of soil – -Loam,Sandy Loam — Rainfall intensity for 24 hrs – 25cm

Field slope 3% — V.I.=[s/3+2]x0.30

=0.90 m

Horizontal Interval = (100xV.I.)/s — = (100x0.90)/3

=30 m

Height of bund $h=\sqrt{(\mathrm{Re} \times \mathrm{V.I.})/50}$ — $=\sqrt{(25 \times 0.90)/50}$ $=\sqrt{0.45}$ = 0.67 m. **Say 0.70m**

Free board 20% of height minimum 20cm
Total Height =0.90m
Taking top width of bund 0.70m and side slope 1.5:1

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

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

Length of bund = 100 s / V.I.
= (100 x 3) /0.90
= 333 m

Feasible length 100 + 25 + 25
= 150 m

Earth work/ha =150 x 1.845
=276.75

Cost per ha =276.75 x 39.16
=10,837.53
Say 10,850=00

TYPICAL SECTION OF FIELD BUND

Top width	= 0.50 m
Side slope	= 1:1
Height of bound	= 0.50 m
Bottom Width	= 1.50 m
Cross section	= (0.50+1.50)x0.50/2 = 0.50 m^2
Length per hectare	= 200 m
Earthwork	= 200 x 0.50 = 100 cum
Cost 39.16/cum	= Rs. 3916.00
Cost per hectare	= Rs. 3916.00

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

Top width	= 0.70 m
Side slope	= 1.5:1
Height	= 1.30 m
Bottom	= 4.60 m
Cross section	= (0.70+4.60)x1.30/2
	= 3.445 m^2
Cost/ meter	= Rs. 142.00

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) x 2.10 / 2
	= 11.97 m^2
Cost per meter	= Rs. 551.45

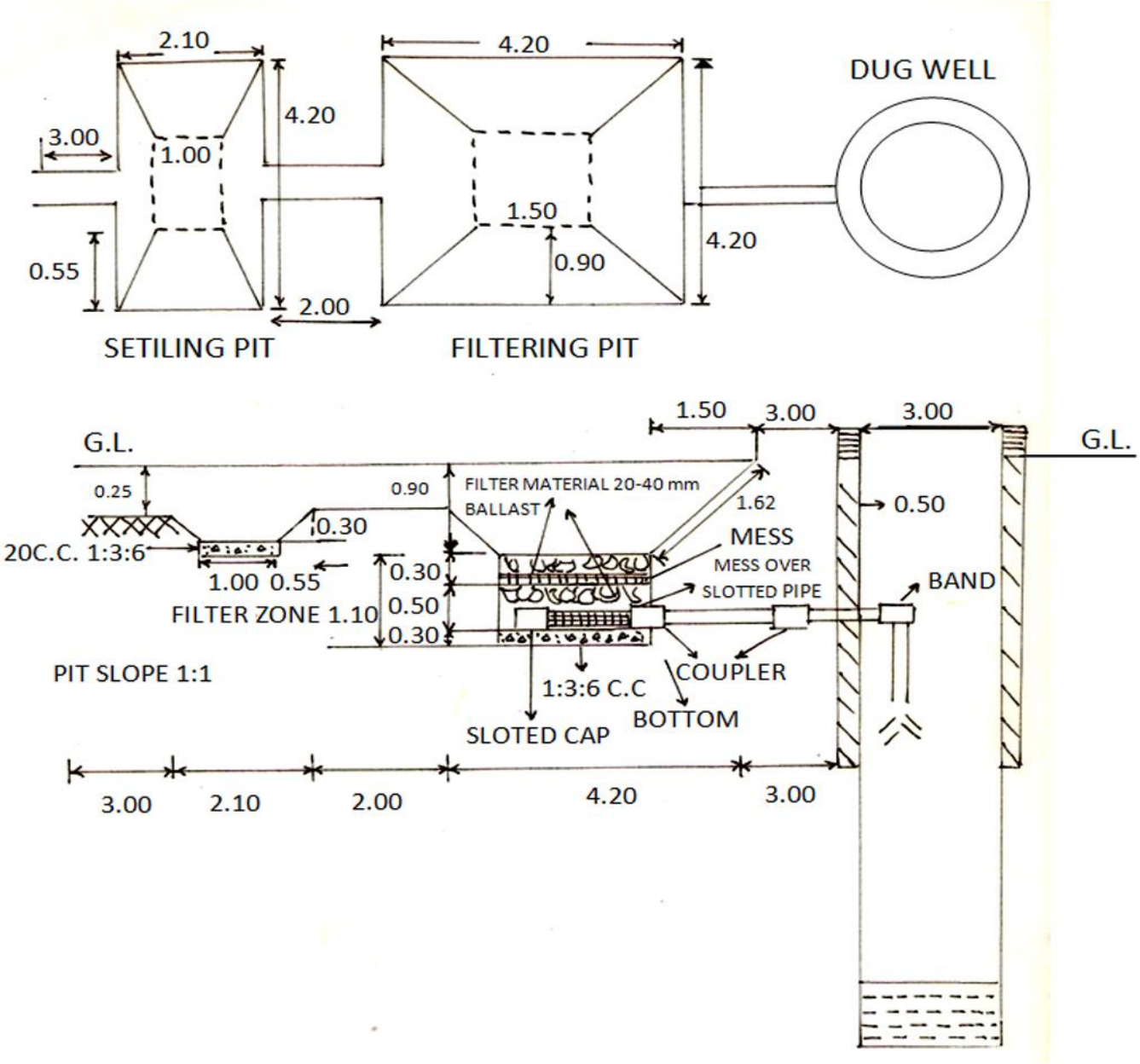
TYPICAL SECTION OF CHECK DAM / GULLY PLUG

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

TYPICAL SECTION OF W.H.B

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

DUG WELL RECHARGING STRUCTURE



ABSTRACT OF COST BRICK WORK JAGAT

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

DETAILS OF MEASUREMENT (DUG WELLS RECHARGING)

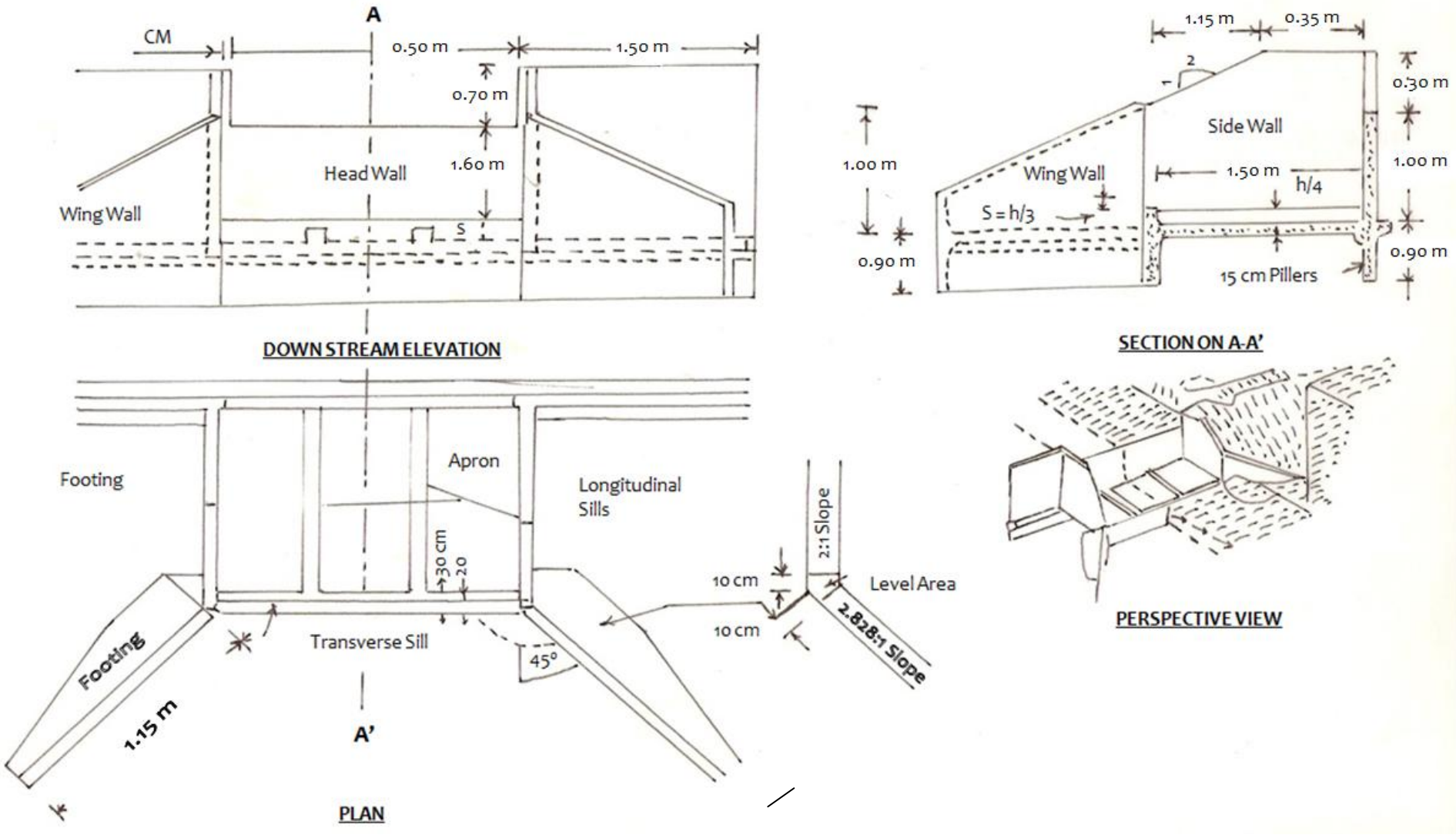
S.No.	Name of Work	No.	L B D/H	Unit	Quantity
1.	Earth work in excavation hard soil mixed with *kanker* gravel, etc. in foundation.				
a	Settling pit (i) Long Wall	4	0.65 x 1.75 x 0.10/2	M^3	0.09
		2	1.50 x 0.62 x 0.75	M^3	1.39
	(ii) Short Wall	4	0.55 x 0.75/2 x 0.10	M^3	0.08
		2	1.00 x 0.55 x 0.75	M^3	0.82
b	Filtering pit	8	1.85 x 1.00 x 1.00 x /2 x 0.10	M^3	1.19
		2	1.50 x 1.62 x 0.90	M^3	4.37
c	Drain-Filter zone	1	1.50 x 1.50 x 1.10	M^3	2.47
		1	7.10 x 0.75 x 0.25	M^3	1.86
d	Excavation for laying of P.V.C. pipe & filling after laying of P.V.C. pipe				

		1	4.35 x 2.00 x 0.80	M^3	6.96
		1	1.35 x 0.90 x 2.00/2	M^3	1.21
		1	3.00 x 2.00 x 0.90	M^3	5.40
	Total				25.84
2	C.C. in 1:3:6 settling pit	1	1.00 x 1.50 x 0.20	M^3	0.30
	Filtering pit filter zone	1	1.50 x 1.50 x 0.30	M^3	0.67
	Drain –Filter Zone	1	7.00 x 0.75 x 0.10	M^3	0.52
				M^3	1.49
3	Cut- Brick work 1:4				
a	Settling pit Long wall	4	1.05 x 0.55 x 0.10/2		0.11
		2	1.50 x 0.62 x 0.05		0.09
	Settling pit Short wall	4	0.55 x 0.55 x 0.10/2		0.06
		2	1.00 x 0.62 x 0.05		0.06
b	Filtering pit	8	1.85 x 1.62 x 0.05/2		0.60
		2	1.50 x 1.62 x 0.05		0.24
				M^3	1.16
4	Plaster work 1:2				
	Drain-Bottom	1	7.00 x 0.25	M^2	1.75
	Drain-Side	2	7.00 x 0.25	M^2	3.50
	Selting base	1	1.50 x 1.00	M^2	1.50
	Filtering base	1	1.50 x 1.50	M^2	2.25
	Total			M^2	9.00
5	Supply & Fixing of 110 mm P.V.C. Pipe	1	6.00	M	6.00
6	Slotted cap of 110 mm P.V.C.	1		No.	1.00
7	P.V.C. Bend 110 mm	1		No.	1.00
8	P.V.C. coupler 110 mm	1x2		No.	2.00
9	Mesh ss S/F between	1x2		Job	2.00
10	S/O Brick sign board	1		Job	1.00
11	Filter Material of 20-40 mm blast	1	1.50 x 1.50 x 0.80	M^3	1.80
12	Slotted pipe P.V.C. 110 mm	1	1 x 1	M	1.00

DRAWING OF SPILLWAY OF CREST LENGTH 0.5 m

All Dimensions in Metre

Not to Scale



Design of Drop Spillway for 1.00 ha Catchment Area

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

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

given as:

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

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

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

To find suitable value of L & H

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

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

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

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

$$H = \frac{0.50}{(0.128)^{2/3}} = 0.25 \text{ m}$$

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

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

3. Structural design –

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

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

E = 2.10 m or 0.75 m

Adopted 2.10 m

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

= 0.50 x 2.74 = 1.37 m says 1.40 m

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

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

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

= 2 x 0.50 or [0.50+0.50+0.16 – (1.37+0.10)/2]

= 1.0 or [1.16 – 0.735]

= 1.0 or 0.425

adopt J = 1.00 m

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

$= 2 \times (-0.167) = -0.335$ m

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

$= 1.47 - 0.335$

$= 1.135$ m

Toe and cut off walls

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

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

$= 0.473 \times 0.464$

$= 0.219$

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

= 1.5 x 0.219

= 0.328 m

says 0.35 m

Depth of cutoff /Toe wall = 0.35 m

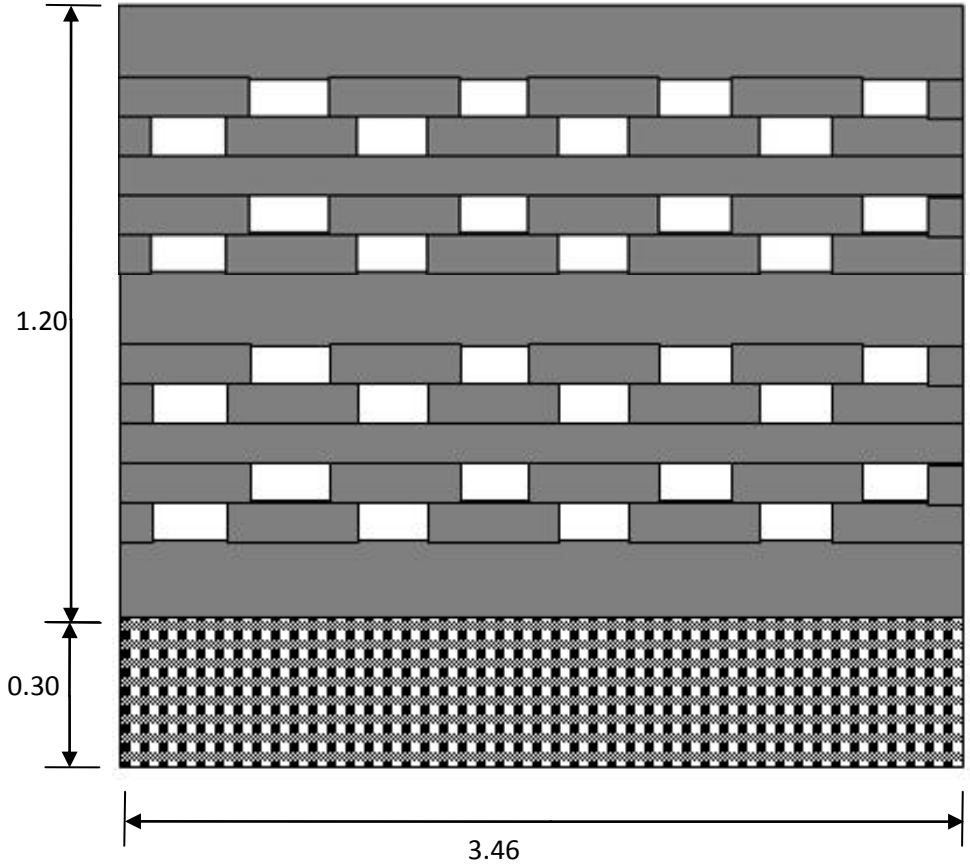
Apron thickness : For an over fall of 0.5 m. The Apron thickness in concrete construction is 0.20 m since the structure is constructed in masonry, the Apron thickness will be 0.20 x 1.50 = 0.30 m

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

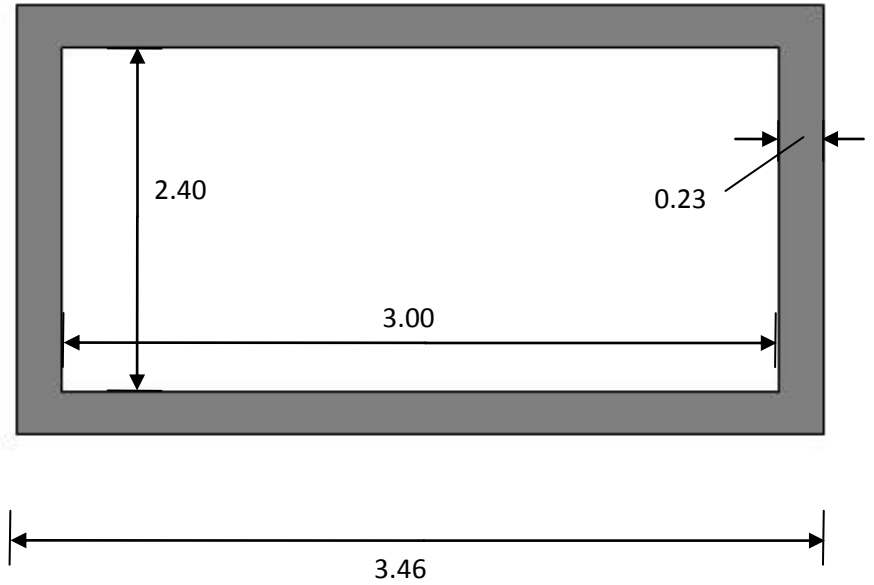
Description	Thickness of wall	
	Top width	Bottom width
Head wall	0.40	1.00
Side wall	0.30	0.80
Wing wall and head wall extension	0.30	0.60

DRAWING AND DETAIL ESTIMATE OF LIVELIHOOD PROGRAMME IN WATERSHED WORK PHASE

DRAWING OF NADEF COMPOST STRUCTURE



ELEVATION



PLAN

DESCRIPTION.

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

(Not to Scale)

PREPARATION OF COMPOST BY NADEF METHOD

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

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

ESTIMATE OF COMPOST BY NADEF METHOD

S.No.	Description of Work	No.	L.	B.	D./H.	Quantity
1.	Earth Work					
	Long Wall	2	3.60	0.30	0.30	0.648
	Short Wall	2	2.33	0.30	0.30	0.419
	Total					**1.067 cum**
2.	Brick Work 1:4					
	Long Wall Solid	2	3.46	0.23	0.90	1.432
	Short Wall Solid	2	2.40	0.23	0.90	0.993
	Total					**2.425 cum**

	Long Wall Glazed	2	3.46	0.23	0.60	0.954
	Short Wall Glazed	2	2.40	0.23	0.60	0.662
	Total					**1.616 cum**
3.	Plastering Work					
	Long Wall	2	3.46	-	0.60	4.152
	Short Wall	2	2.40	-	0.60	2.880
	Top of Long Wall	2	3.46	0.23	-	1.591
	Top of Short Wall	2	2.40	0.23	-	1.104
	Total					**9.727 m^2**

ABSTRACT OF WORK

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

CONSUMPTION OF MATERIALS

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

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Cement	7 Bags	285.00/ Bag	1995.00
2.	Coarse Sand	1.02 cum	2500.00/ cum	2550.00
3.	1st class Brick Work 1:4	1500 nos.	4500.00/ Thousand	6750.00
	Total			**Rs. 10795.00**

LABOUR CHARGES

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

Total Expenditure	
1. Cost of Materials	10795.00
2. Labour Charges	1616.14
Total	**Rs. 12411.14**
	Say Rs. 12411.00 only

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

DEMONSTRATION OF WHEAT

1- Variety recommended for District-Raebareli

Irrigated-RR-21

Unirrigated –HD2285, K68

2- Seed rate -100 -125 Kg/hectare

3- Requirement of fertilizers/ha N-125 Kg, P-70-75 Kg, K-70-75 Kg

ESTIMATE OF DEMONSTRATION OF WHEAT IN WATERSHED (PER ha)

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

Hence demonstration cost of wheat /ha is Rs. 5700.00

DEMONSTRATION OF ARHAR IN WATERSHED AREA(PER ha)

1- Variety - Malviya-13, narendra-1, Amar
2- Seed rate/ha -30 kg
3- Requirement of fertilizers/ha N-20.0 kg, P-50 kg, K-40 kg

ESTIMATE FOR DEMONSTRATION OF ARHAR (PER ha)

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

Hence per hectare of demonstration –Rs. 6400.00

DEMONSTRATION OF HYBRID BAJRA IN WATERSHES (per ha)

1- Requirement of Seed / ha -10kg

2- Requirement of fertilizers/ ha N- 60.00 kg, P- 40.00 kg, K-40.00 kg

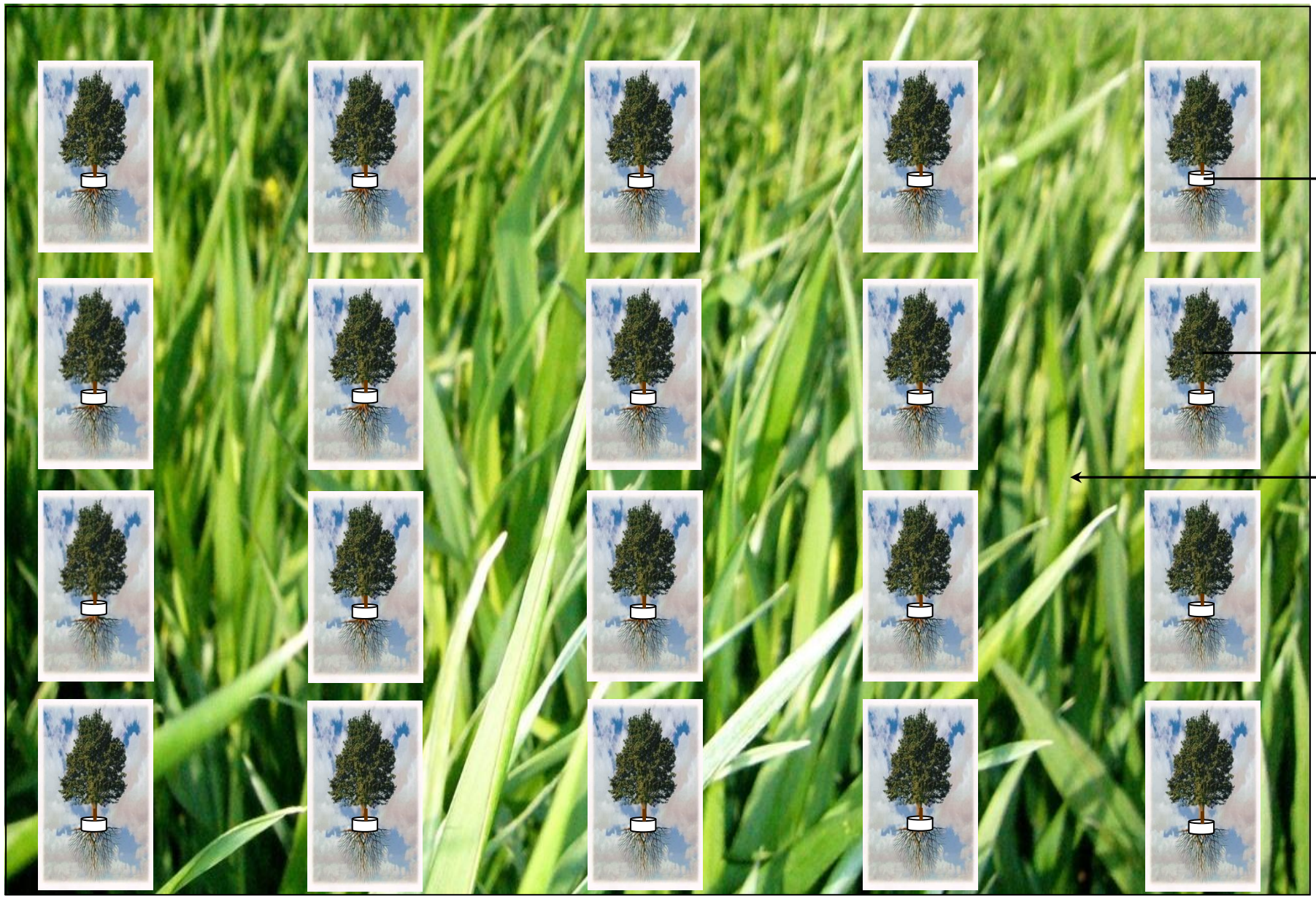
3-

ESTIMATE FOR DEMONSTRATION OF BAJRA (per ha) RAINFED

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

Hence per hectare of demonstration of Bajra is Rs. 3200.00/ha

DEMONSTRATION OF AGRO-FORESTRY / HORTICULTURE



DEMONSTRATION OF AGRO-HORTICULTURE USING PLASTIC DRUM OF 2OO LITRES CAPACITY

District RAEBARELIis situated in Eastern U.P., where there is water problem and in summer temperature rises up to 48°c causing upper layer of fields dry and therefore mortality rate of plants is very high. Farmers usually like to grow grain crops only. They are not interested in horticulture because of Anna Pratha and less holding. The production of crops decreases below the tree.

Therefore to promote horticulture with crops a demonstration model using plastic drums for horticulture is made. Mainly crops roots go in to the soil up to "4-5" in cereal crops and "6-9" in pulses. Using plastic drums the plants will be planted 50-60 cm below the ground level which is below the root zone of crops. Therefore trees will not able to take nutrients from upper layer of fields and there will no effect of plants on crops.

In summer season up to 1 to 1.50m depth of soil becomes dry causes more mortality rate of plants, using drums plants are planted below 50-60 from Ground level and in rainy and winter season up to February roots of plants goes below 2.10m below where moisture will be available and plants will be safe in summer also. Using barbed wire fencing the plants will be protected by Anna Pratha.

Therefore, it is hoped that farmers will adapt this procedure for Agro-forestry and will become prosperous.

DETAIL ESTIMATE OF DEMONSTRATION OF HORTICULTURE AND MIXED CROPPING

For 1.00 Hectare

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

CONSUMPTION OF MATERIALS

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

COST OF MATERIALS

S.No.	Particulars	Quantity	Rate	Amount
1.	Farm yard manure	1560.0 kg	10.00/kg	15600.00
2.	Barbed wire	1200.0 m/120.0 kg	60.50/kg	7260.00
3.	Angle iron	239.40 m/785 kg	40.50/kg	31792.50
4.	Plastic drum	156 nos	690.00 each	107640.00
5.	Cement	6.50 bags	285.00/bag	1852.50
6.	Coarse sand	0.450 cum	2500.00/cum	1125.00
7.	G.S.Grit 10-20 mm	0.900 cum	1250.00/cum	1125.00
8.	Plants	156 nos	18.00 each	2808.00
Total				**Rs. 1,69203.50**

LABOUR CHARGES

S.No.	Particulars	Quantity	Rate	Amount
1.	Earth work	1514.02 cum	36.66/cum	55503.97
2.	C.C.W. 1:2:4	1.064 cum	492.00/cum	523.88
3.	Fixing of angle iron	10 Man Days	100/Man Day	1000.00
4.	Fixing of barbed wire	15 Man Days	100/Man Day	1500.00
Total				**Rs. 58,527.85**

Total Expenditure	
1. Cost of materials	1,69203.50
2. Labour Charges	58,527.85
Total	**Rs. 227730.35**
Say	**Rs. 2,27,730.00 only**

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

S.No.	Particulars	Quantity	Rate	Amount	Remarks
A. Horticulture					
1.	Soil working 1m x 1m x 1m size pits (270nos.) including cost of refilling	270.00 cum	36.66/cum	9898.20	Since, the project is to be operated in a participatory mode, contribution in the form of labour input for pit digging, FYM and its applications, weeding and hoeing are to be provided by the participating farmers, hence the costs are not included in the estimates.
2.	Application of Farmyard Manure, including cost		L.S.	450.00	
3.	Cost of NPK mixture, neemicide @ 250 gm/plant		L.S.	400.00	
4.	Cost of plants (including 15% etc. for mortality) including transportation and planting	310 nos.	15.00/Plant	4650.00	
5.	Casualty replacement @ 10% of item No. 4 & 5			465.00	
6.	Cost of 2 weedings and hoeing		1.00/Plant	540	
7.	Contingency and unforeseen (3%)			492.00	
	Total			**Rs. 6,007.00**	
	Say			**Rs. 6,000.00**	
	Maintenance cost 2nd year onwards – 15 % of 1st year cost			900.00	
	For next 5 years i.e., Rs. 900 x 5			4500.00	
	Total Cost			**Rs. 10,500.00**	
	Say			**Rs. 10,500.00**	
B. Agro-Horticulture (cost per ha)					
1.	Cost of raising 270 plants up to 5 years @ Rs. 10,000.00			10500.00	The remarks mentioned under Horticulture are also applicable for Agro-Horticulture.
2.	Cost of raising agricultural crops @ Rs. 5,000 per hectare per year			5000.00	
3.	Fencing			45300.00	
	Total			**Rs. 60,800.00**	

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

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

DEMONSTRATION OF GREEN MANURING

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

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

In I.W.M.P. Ist Project, efforts will be made to oblise the farmers for Green Manuring.

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

ESTIMATE FOR GREEN MANURING IN THE WATERSHED (PER ha)

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

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

PASTURE MANAGEMENT

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

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

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

Intensive Fodder Production: In areas where the major enterprise of the farmers centers around the milk production. Continuous supply of green fodder round the year is the basis for success of such as industry. Under the aegis of ICAR's all India coordinated Research Project on Forage Crops, several highly productive

fodder cropping system have been tested and recommendations made for their general use. For central region important intensive crop rotations are presented as given below

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

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

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

Silvi-Pasture (or Silvo-Pastoral system) is the most promising alternate land use system which integrates multipurpose trees, shrubs, legumes and grasses mostly on non-arable, degraded and marginal lands for

optimizing land productivity. It helps in conservation of vegetation, soil and nutrients and provides forage, timber and fuel wood on a sustainable basis.

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

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

ROLE OF GRASSLAND IN SOIL CONSERVATION

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

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

1- To condition the soil to make it resistant to determent and transportation and create more absorptive surface layer.

2- To cover the soil so that it is protected from the impact of wind and rain drops.

3- To decrease the velocity of wind or runoff water.

4- To provide safe disposal outlet for surplus run off.

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

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

CHAPTER-13

MAPS

MAPS

An attempt has been 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.

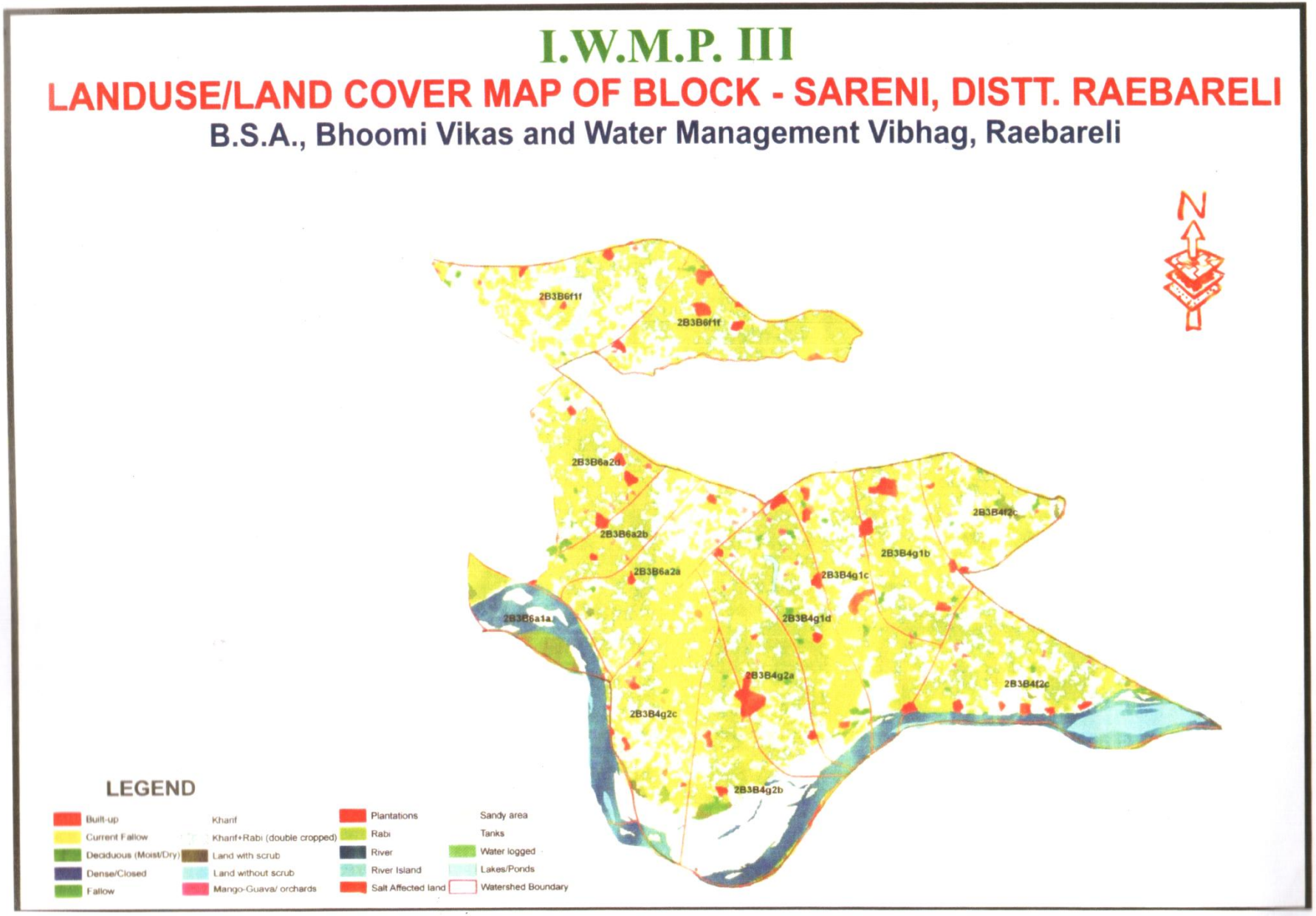
1- Base map
2- Transportation map
3- Dranage map
4- Land use/ Land cover map
5- Countor map
6- Slope map.
7- Village Map.

These maps were interpreted from the high resolution satellite data freely available on internet.

I.W.M.P. III

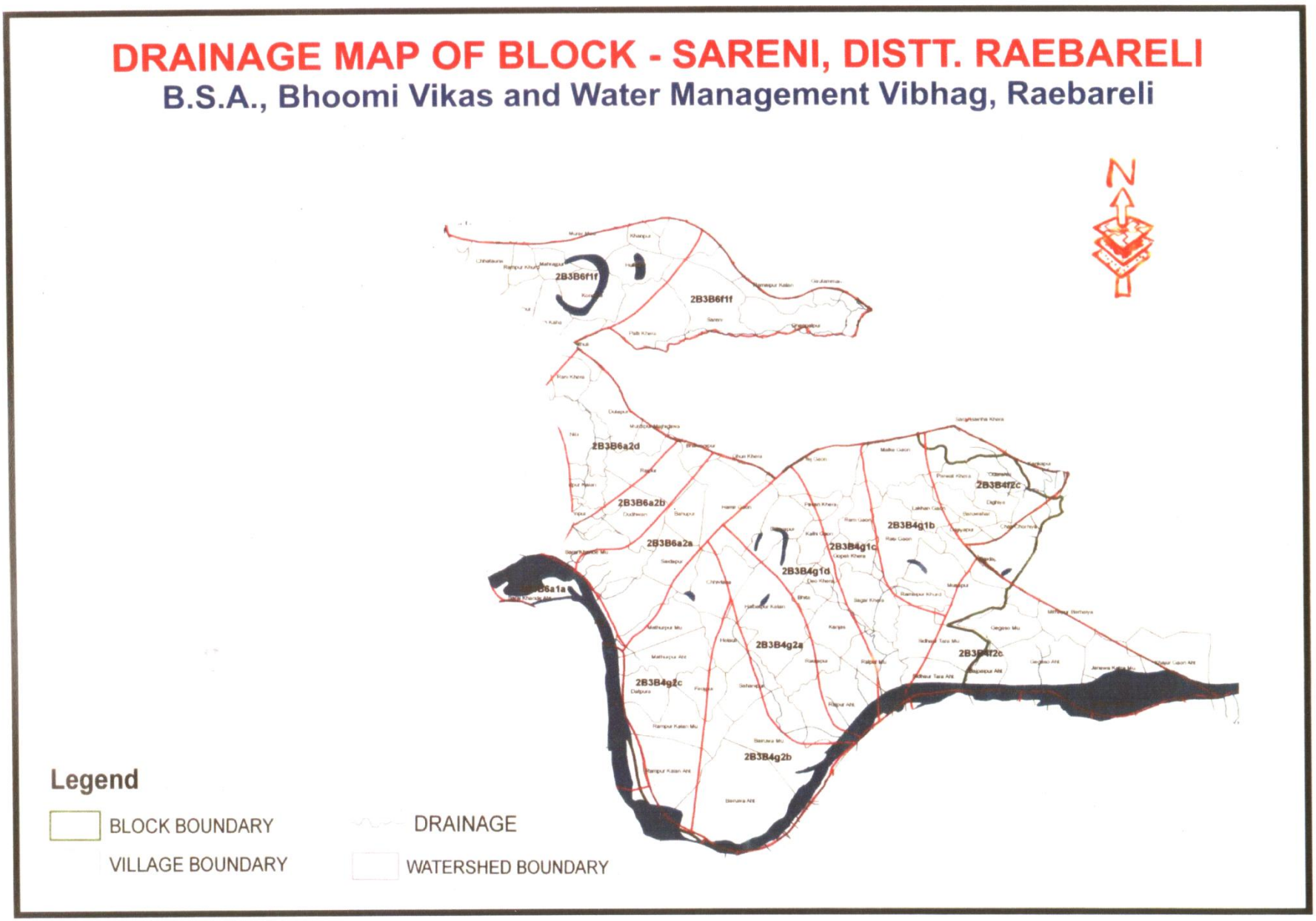
LANDUSE/LAND COVER MAP OF BLOCK - SARENI, DISTT. RAEBARELI

B.S.A., Bhoomi Vikas and Water Management Vibhag, Raebareli



DRAINAGE MAP OF BLOCK - SARENI, DISTT. RAEBARELI

B.S.A., Bhoomi Vikas and Water Management Vibhag, Raebareli



I.W.M.P. - III

WATERSHED MAP OF BLOCK - SARENI, DISTT. RAEBARELI

B.S.A., Bhoomi Vikas and Water Management Vibhag, Raebareli

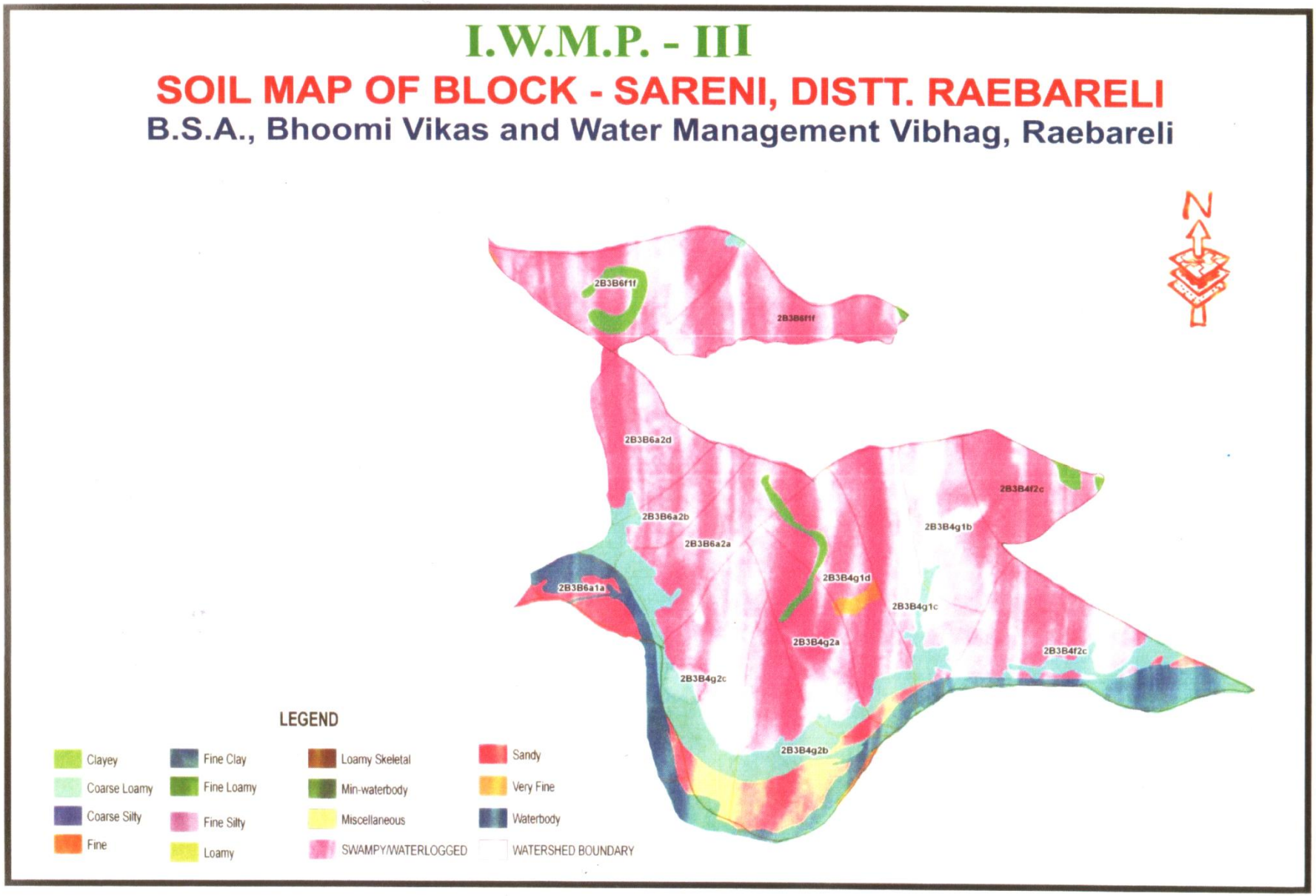
Legend

VILLAGE BOUNDARY

I.W.M.P. - III

SOIL MAP OF BLOCK - SARENI, DISTT. RAEBARELI

B.S.A., Bhoomi Vikas and Water Management Vibhag, Raebareli



CHAPTER -14
ABBRIVIATIONS/REFERENCES

LIST OF ABBRIVIATIONS/REFERENCES

DOLR	Department of Land Resources
IWMP	Integrated Waterhsed 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	Countour Bund
MB	Marginal Bund
PFB	Peripheral Bund

REFERENCES

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

Preparation of DPR

Detail Project Report of Integrated Watershed Management Programme IWMP-III 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, RAIBAREILI, 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	Sri A.K. Srivastava	Ex. Scientist, RSAC-UP, Lucknow
2	Ms.Ashanvi Dubey	Ex. Project Scientist
3	Sr. R.K. Singh	System-In charge
4	Mr. Kamlesh Tripathi	Bhoomi Sanrakshan Adhikari
5	Mr. Kamlesh Tripathi	Junior Engineer
6	Mr. Tejoosingh Yadav	Junior Engineer
7	Mr. Prakash Chandra Maheshwari	Ex S.T.A
8	Mr. Ramakant Shukla	Soil Conservation
9	Mr. Gauri Sankar	Deputy manager User Sudhar Nigam
10	Mrs. Neelam Devi	Soil Conservation
11	Dr. A.K. Singh	Vatenory officer Lalganj

DPR PLAN ABSTRACT

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

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

Physically & Financially Approved:

Prepared By:
Bhoomi Sanrakshan Adhikari
Dept. of Land Development & Water Resources , Raebareli

Technically Approved
Deputy Director
Dept. of Land Development & Water Resources, Lucknow

Physically & Financially Approved:

Project Director
District Rural Development Authority, District – RAIBAREILI

Chief Development Officer
District – RAIBAREILI