

1.0 INTRODUCTION

1.1 INTRODUCTION OF THE PROJECT AREA

The IWMP-XIX Shimla (Integrated Watershed Management Programme) in Narkanda Block was sanctioned in the year 2011-12 under 3rd batch by the ministry of rural development (GoI). In Himachal Pradesh the state government rural development department is executing the project. The District Rural Development Agency in Shimla is nodal agency to run the project. The implementing agency at field level is district watershed agency headed by the Project Director and Field Support team i.e. watershed development team members based at Narkanda Block. There are 26 gram Panchayat in Narkanda Block. The IWMP Project is being started in 8 gram Panchayat in different micro watershed. The major catchment area is Hatu Peak which leads different Nallah of the watershed area. The whole of the water of the watershed catchment area is drawn into the Satluj area. The major feature of the watershed area are as under:-

1. Rainfed area
2. Apple is the main source of the economy
3. There is no provision for rain water harvesting in the project area
4. Soil erosion due to steep slopping
5. The contiguity of the watershed area
6. The people are well aware about the consequences of the depletion of the NRM
7. The watershed area comprises schedule caste population also
8. Absentee landlordism
9. Less interest in the animal rearing
10. Basic facilities are available in every micro watersheds
11. Fragmented land holding
12. Hail storm-prone area

1.1a Sanctioned Budgetary Provisions

Name of Project	: IWMP- XIX Narkanda
Geographical Area	: 2970 ha
Project Area	: 2970 ha
Sanctioned Amount	:4,45,50,000

Micro watershed/Gram panchayats under IWMP-XIX Narkanda

Catchment area	Sr. No.	Gram Panchayat	No. of villages	Area (ha.)	Amount (₹)
Sutlej	1.	Jarol	5	1297	19455000
	2.	Mailan	2	260	3900000
	3.	Kotgarh	5	460	6900000
	4.	Kirti		953	14295000
Total				2970	4,45,50,000

1.1b: Budgetary Provision for the Watershed Development Area

Sr.No.	Budget Component	% of the budget	Total amount (₹)
A)	Administrative cost		
1	Administrative cost	10%	4455000
2	Monitoring	1%	445500
3	Evaluation	1%	445500
B)	Preparatory Phase		
1	Entry point activities	4%	1782000
2	Institution & capacity building	5%	2227500
3	Detailed Project Report (DPR)	1%	445500
C)	Watershed Work Phase		
1	Watershed Development Works	56%	24948000
2	Livelihood activities for the asset less persons	9%	4009500
3	Production system & micro enterprises	10%	4455000
D)	Consolidation phase	3%	1336500
	Total	100%	4,45,50,000

1.1d Methodology

A. District level exercise

- a. Collection of data at district level
 1. DRDA and Line department
- b. Meeting with CEO (DRDA), Project Officer /DWDA. Heads of Line Departments

B. Block level Exercise

- a. Data collection
- b. One day orientation with Pradhan Secretaries and Panchayat Sahayak at Block Level
- c. Meeting with line department officials of department for convergence issues.

C. Micro watershed /Panchayat /Revenue village wise Exercise

- a. General meeting at Panchayat level with members of Panchayat Samiti, Pradhan and Ward members followed by awareness camps.
- b. Collection of revenue data from Patwari
- c. Collection of socio economic data from Panchayat Secretary
- d. Village level meeting organized, PRA exercises and transect walks to assess the actual problem of the area
- e. Identification of beneficiary group for different activities
- f. Participatory Rural Appraisal Exercise with the local community by contacting the local peoples
- g. Transect walk with the line department and local community to ascertain the position of backward and forward linkages
- h. Selection of site with technical expert /Junior Engineer and expert of soil science to analyses soil strata for construction of Check Dam .Irrigation tank and other mega projects
- i. Selection of need based community and homogeneous Groups for involvement under livelihood activities by formulation of SHG's
- j. Selection of landless/assetsless community under the watershed catchment area
- k. Selection of SC/ST community under the project.
- l. Socio- economic condition of the watershed community.

2.0 GENERAL DESCRIPTION OF PROJECT AREA

2.1 DISTRICT

The district Shimla was formed by merging of old princely states of Belsan, Bajhi, Bushar, Darkoti, Throch, Dari, Kumarsain, Jubbal, Dartsn, Narkanda etc. The name of the Shimla district was derived from goddess Shiyamali. It was summer capital of the British India. It was also the capital of East Punjab before Independence. In 15 April 1948 Shimla was merged with Himachal and was made district in 1966. In 1971 it was made capital of the Himachal Pradesh.

2.101 GEOGRAPHICAL FEATURE

Himachal Pradesh has 12 districts and Shimla is one of them. Both state and district H.Q is situated in Shimla town. Shimla district lies in outer and lower Himalayas between 30'.45" latitude and 77' to 78'.25" longitude and altitude of district varies between 2500 to 16000 feet. The lowest and highest point being the Sunni Tehsil and Chanshal pass respectively. It is located in North East region of the state. On North side it is surrounded by Kullu and Kinnaur districts of the state, on South East and West by Sirmour district of the state and Dehradun of the Uttrakhand and North West by Narkanda and Mandi of Himachal Pradesh. The hills and mountain ranges are generally aligned in the east – west directions which present a complicated pattern of relief. The predominately rough terrain, the prevalence of introducing spurs, narrow and steep side valleys throughout the district.

2.102 POPULATION

Shimla had population of 8,13,384 (2011) of which males and females were 4,24,486 and 3,88,898 respectively. In 2001 census, Shimla had a population of 7,22,502 of which males were 380,996 and remaining 341,506 were females. In 2001, the schedule caste population is about 1,88,787 and schedule tribes are 4112(2001). The density of population is 159(2011) and the literacy rate is 85 percent.

2.103 RIVERS

The major rivers following in the district are Satluj, Pabbar, Giri, and Nogli Khad.

2.104 CLIMATE

The district has temperate climate. The average annual precipitation is 1028 mm and the temperature of the district ranges from subfreezing to 40⁰ Celsius. The average temperature during summer is between 20⁰ C to 40⁰C, and between -7⁰ C and 10⁰ C in winter. Precipitation varies from 24 mm in November to 415 mm in July. Snowfall in the region, takes place in the month of December, has lately (over the last 15 years) been happening in January or early February every year. There are four broad seasons December wards the outset of winter which continues till the end of February, some time continuing till the month of March and it is stormy with occasional frosts. The snow and sleet fall in the upper regions while rains are confined to lower area from March onward. Weather begins to warm up from March to June. Summer is followed by monsoon and humidity is high. Monsoon ends in mid of September and autumn begins and last till the end of November. Maximum temperature varies from 15.4⁰ C to 30.6⁰ C (June) and -2⁰ C to 15⁰ C during winter. Annual precipitation varies from 447 to 1084mm.

2.105 SOIL

On the whole soils are young and thin deep ploughing is neither possible nor advisable. Generally the soil on the northern slope is thicker than those of southern slopes. The texture of the soil ranges from silt loam to clay loam, the colour varies from dark to brown. The organic content is higher, Nitrogen availability is from medium to high, and Potash availability is medium. The presence of Phosphorous is from low to medium. The soil reaction ranges from moderately acidic to neutral.

2.106 IRRIGATION

Most of the area is rainfed. The irrigation facilities are limited. The main sources for irrigation are kuhals and nallahs.

2.107 LAND CLASSIFICATIONS

Table 2.107 (I): Various type of lands available alongwith areas (ha)

1	Total geographical area	4088.88
2	Forest	1193.31
3	Barren and uncultivable land	488.38
4	Land put to Non agriculture land	145.56
5	Cultivable waste	136.68
6	Permanent pasture	94.40
7	Land under miscellaneous trees, crops etc	2030.47

Source: Statistical out line of HP 2011-12

2.108 (a) AGRICULTURE

The Rabi and Kharif are the two cropping seasons of the district. The major cereal crops of the district are Wheat, Barley, maize, and among pulses Rajmash, Mash and Kulath etc. are grown in the watershed area.

2.108(I) Area under agriculture crops

Sr. No.	Crop	Area
1	Paddy	2923 ha
2	Maize	16685
3	Wheat	19758
4	Barley	4574
5	Pulses	5544
6	Others	6572

Note: statistical outline of H.P. 2011-12

2.108 (b) HORTICULTURE

Shimla District is one of the pioneer district for fruit crops. Apple is the main crop of the district. The climate of the district is suitable for apple, pear, almond, walnut and sub tropical fruits. In the year 2011-12 total cultivated area under fruit crop was 42927.59 hectare and the total production of the fruit in the same year was 254348metric ton out of which the apple production was 250375metric ton which was 97.9 of the total production of fruit crops (statistical outline of H.P. 2011-12).

2.108 (c) VEGETABLE

Vegetable is also one of the source of cash crops in district Shimla. Potato is major vegetable crop under which the area for the year 2011-12 was 6200 hectare and production was 39075(mt) whereas under peas, beans, Cabbage and other vegetable area total area 10957 hectare and 188128 mt. (directorate of agriculture H.P.)

2.2 Narkanda Block

The Narkanda development block is situated at the distance of 65 km from the district Headquarter. The altitude of the Narkanda block is 8610 feet ((abmsl). The whole of the block area is having lower hills to higher hills. The longitude of the block headquarter $30^{\circ}51'92''N$ and latitude $77^{\circ}10'10''$. The block is surrounded by the Jubbal and Kotkhai block in North East. Theog in South, Rampur block in West and South West by Basant Pur Block. The main cash crop of the area is horticulture and vegetable cultivation.

2.201 Population

The total population of the Narkanda Block is 62,006 person. The population comprises two categories i.e. General and Schedule Caste. No other caste was found in the Narkanda Block. The defend area as under:

A. General Categories

i. Male	:23,693
ii. Female	: 22,901

B. Schedule Caste

i. Male	:7820
ii. Female	:7592

Total : 62,006

Table : Population of Gram Panchayat covered under IWMP Project IXI

Name of Panchayat	General Families			SC Families		
	Male	Female	Total	Male	Female	Total
Mailan	770	665	1435	324	228	552
Khaneti	686	597	1283	195	170	365
Jaar	1251	1285	2536	335	367	702
Kotgarh	747	793	1540	207	232	439
Kirti	1257	1208	2465	508	489	997
Madhavni	564	561	1125	256	260	516
Jarol	1522	1414	2936	398	314	712
Deeb	1133	1083	2216	193	203	396
Total	7930	7606	15536	2416	2263	4679

Source: Population censuses 2010-11 of Narkanda block (Goshwar)

2.201 Climate

The climate of the Narkanda block is suitable for every kinds of crops. The people are mainly horticulture growing crops; Paddy, Barely, Maize and Pulses etc. are also grown at micro level. The major forest species in the area is kail, diyar, kharshu, ban, maru, beulcholi etc. The average rainfall in the area ranges from 800mm to 1600mm and higher peaks received snow fall from 2 feet to 6 feet during winter season.

2.203 Soil

The soil status of the project area is very deep and the type of the soil is clay, sandy loam and black. The water retaining capacity is moderate due to the sloppy land. The rain water runs away to rivers. The land use pattern of the Narkanda Block/ Tehsil is under:

Table: Land use pattern (Hectare)

Name of Panchayat	Total land	Un Irrigated land	Irrigated land	Agri	Fallow	Barren	Pasture	Ghasni	Forest	Other
Tehsil Kumar sain	23812	6104	195	6299	604	711	7777	1231	6278	912

WATERSHED AREA

2.1 Socio economic profile of IWMP-XIX Shimla

- Total number of Panchayat :04
- Total number of families :1991
- Total population of the Panchayat: 8205(Male=50.4% and Female=49.5%)
- General families : 1250(Male=2661, female =2616) (64.31%)
- Schedule caste families :741(Male=1523, female = 1405) (35.68%)

2.101: Demographic profile of different Panchayats

Name of Panchayat	General Families				SC Families			
	No. of families	Male	Female	Total	No. of families	Male	Female	Total
Jarol	533	1078	1072	2150	216	463	424	887
Mailan	214	408	354	762	152	337	288	625
Kotgarh	190	417	402	819	76	206	191	397
Kirti	313	758	788	1546	297	517	502	1019
Total	1250	2661	2616	5277	741	1523	1405	2928

Source: Gram Panchayat, 2012

2.201a: Detail of BPL and Antoyadaya families under different castes

Name of panchayat	Antodaya			BPL			Grand Total		
	General	SC	Total	General	SC	Total	Antodaya	BPL	Total
Jarol	22	19	41	9	11	20	41	20	61
Mailan	14	14	28	20	19	39	28	39	67
Kotgarh	3	4	7	6	4	10	7	10	17
Kirti	1	12	13	2	5	7	13	7	20
Total	40	49	89	37	39	76	89	76	165

Source: Gram Panchayat, 2012

2.301: The land use pattern of IWMP-XIX

Name of Panchayat	Total land	Un Irrigated land	Irrigated land	Agri+Horti.+Veg.	Fallow	Barren	Pasture	Ghasni	Forest	Other
Jarol	1297	773	-	376	38	48	284	23	524	4
Mailan	260	141	-	141	-	8	-	4	94	13
Kotgarh	502	133	1	134	2	20	-	8	317	21
Kirti	953	912	41	281	17	96	454	37	-	68
Total	3012	1959	42	932	57	172	738	72	935	106

Source: Patwar Circle

2.302 Status of Livestock

The animal rearing is the integrated part of farming system in the watershed area. The major animals are cows (local and improved), sheep, goats, bullocks etc. The peoples are facing acute problem and shortage of fodder and drinking water for their animals during the stress period. The details of livestock reared by the people in the watershed area are as under:

2.302a Livestock population including Number of milch and dry cows (Local and improved) and other livestock

Name of Panchayat	Local cow			Improved cow			Bullock	Calf	Goat	Sheep	Grand Total
	Milch	Dry	Total	Milch	Dry	Total					
Jarol	-	-	-	296	64	360	-	193	115	160	828
Mailan	-	-	-	150	50	200	-	108	40	10	358
Kotgarh	7	3	10	79	28	107	-	52	1	15	185
Kirti	26	11	37	297	58	355	18	103	200	33	746
Total	33	14	47	822	200	1022	18	456	356	218	2117

Source: Household Survey

3.0 SWOT ANALYSES

The critical analysis of strengths, weaknesses, opportunities and threats of the watershed area is a good analysis for developing strategies/ programmes as it provides valuable potentials, constraints, opportunities and threats based on the primary, secondary, technical data and transect walk was carried out during the field visit of the watershed area of Narkanda Block.

P3.1031 Strengths of the watershed area

- The road facilities is available in every micro-watershed
- Apple is the main source of income and every kind of tropical and sub-tropical fruits plant can be grown in the project area
- Deep soil status is very suitable for agriculture and horticulture crops
- Farmers are very innovative and ready to adopt new technology
- The nearest market is at Narkanda (Barubagh and Dhalli (Shimla) and Chandigarh
- Regards of ecology by local community

P3.1032 Weaknesses

- The watershed area is rainfed
- Fragmented land holding
- Absentee landlordism is found in the watershed area
- Steep slop of the watershed area causing huge to soil erosion
- Labour problem, most of the labour part in orchard/field is being done by the hired labour (Ghurkhalis)
- Young generation has less interest for farming horticulture cultivation
- The livestock population decreasing day by day
- People have grown only mono fruit crop i.e. Apples, Cherry

P3.1033 Opportunities

- Rain water harvesting can be only source for irrigation for vegetable and fruit crop
- Huge potentials for diversification of Apple crops i.e. Cherry, Pear, Walnut, Almonds, Lemon, Guava etc. in low lying areas
- Good scope for vegetable growing in Manal ward of Kotgarh Gram Panchayat, Chimlu ward of Gram Panchayat Mailan and Kilti Gram Panchayat
- Dairy development
- Bee keeping
- Floriculture can be also one of the source of income in the micro watershed area
- Snow water harvesting in Jarol Gram Panchayat
- Organic Farming
- Construction of Check Dam along Nallah side
- Scope of inter cropping i.e. Vegetable and Flower in orchard
- Bamboo plantation along Nallah side which can be used for installing hail nets
- Cutting and pruning training for BPL and young generation will generate the employment

P3.034 Threats

- The apple orchards are very old and is losing productivity year after year
- Problem of labour
- Fear of hail storm
- Gram Panchayat Kirti is situated fire prone area
- Excessive use of fertilizer which will ultimately loose the productivity of Horticulture and Agriculture crops
- Declining of traditional rural artisans
- Less interest of the community to maintain natural resources
- Stray animals are also one of the major threats in the project area
- Individual approach forwards developmental programmes

4.0 ENTRY POINT ACTIVITIES

Entry point activities play a very important role in the rural area to orient the local community members towards thrift and credit activities of the project. Success of government initiated programme largely depends upon the preference given to the entry point activities suggested under the programme. Main objective of entry point activities is to increase social mobilization and people participation and collectiveness in various developmental activities initiated by the government. The money earmarked for entry point activities is 4 per cent of total budget outlay and the amount provided under this component play a indispensable role of community involvement in different activities proposed for project implementation. The entry point activity attracts the people participation of local community for social mobilization under one platform.

Need based and priority driven entry point activities suggested by farmers during PRA and transact walk are as given below.

4.1 Entry point activities suggested at different locations of watershed

Name of Panchayat	Activity	No. of structure	Unit cost Budget (₹)	Amount (₹)	Purpose
Jarol	FCC	1	250000	250000	
	WST	1	230000	230000	Irrigation provided to the beneficiaries
	Drainage	1	60000	60000	-do-
	DWSS	1	150000	150000	
	DWSS	1	130000	130000	
	DWSS	1	15000	15000	
	Tank	1	50000	50000	-do-
Total		7		8,85,000	
Mailan	Drinking tank	1	30000	30000	Drinking water provided to the beneficiaries
	VCC	1	126000	126000	-do-
Total		2		1,56,000	
Kotgarh	FCC	1	160000	160000	
	WST	1	100000	100000	Irrigation provided to the beneficiaries
Total		2		2,60,000	
Kirti	Pipe line from Jehru nala to Kirti	1	100000	100000	Irrigation provided to the beneficiaries
	FCC	2	300000	300000	
	Bawari	3	172000	172000	Drinking water provided to the beneficiaries
Total		6		5,72,000	
Grand Total		17			

Note: As per Budget sanctioned by DWDA is ₹18,43,000 whereas actual amount is ₹ 17,82,000

5.0 CAPACITY BUILDING

To implement watershed activities more effectively skill development and capacity building at the various level ie. Panchayat /micro watershed level, block level and district level is prerequisite condition before initiating the implementation of the project. The activities proposed are given below:

5.1 Modules

5.1a Awareness Camps

- Will be organized at Panchayat level

5.1b Training:

Training will be organized at

- Block level
- DRDA level
- Institutional level

5.1c Exposure Visits:

- Exposure visits will be conducted at University/ Institutions /Field

5.1d Special Trainings will be organized in the professional institutes

5.101 Activities with number of participants

5.101a: Target groups and location of program

Target group	No. of participants	Activity	Location	Duration (days)	No. of training	Budget (₹)
Member of Gram Shabha Panchayat secretaries and progressive farmers	All	Awareness camps on watershed management/ organic farming, orchard management etc.	Panchayat level	1	7	140000
PRI, Pradhan ward members & Secretary	50 persons	Training and exposure visit on watershed management	Block level/ Institutional/ University	3-7	6	360000
Self Help Groups, User Groups and Beneficiary	70 persons	Agriculture and Horticulture bee-keeping, dairy	Institutional/ university (State/Out side State)	3-5	11	505000

groups						
Self Help Groups User Groups WDT, PIA and exposure visit	1 to 2 ward/Panchayat (max.) 85 persons	Exposure visit professional institutional field	State /Outside State	3-4	3	410000
Self Help Groups, User Groups exposure visit	1 to 2 / ward/ panchayat (max.) 75persons	Kissan Melas/ Pradashanis	State/Outside State	3-4	4	190000
Self Help Groups, User Groups exposure visit	3 to 4/ activity/ panchayat (max.) 70persons	Specialized trainings (Horticulture, Agriculture, Vegetable, carpentry, dairy farming and vermin composting etc.	Professional Institutes/ University	5-7	6	285000
PIAs, WDTs members	24 persons	Project implementation and management trainings, report writing and accounts maintenance	Professional institutes/ University (State Outside State)	3	4	189000
Miscellaneous/ Expert visit		Expert visits/services and Misc.	Professional institutes/ University (State Outside State)		3	148500
Total					44	22,27,500

The capacity building of farmers and youth in the watershed areas can also be done under the micro enterprises and livelihood through Industrial Training Institute (ITI) occupation/trades as well as other entrepreneurs programme which provide self-employment or wage employment within the watershed areas.

6.0 Land Development for Sub activity

Land Development is a basic tool for raising of fuel and fodder plantation and Hybrid grasses for sowing healthy species and land for this purpose have been selected during peoples participatory appraisal exercise with the local community. The land comprises of hill steep slopes having mixed layers of soil, facing acute problems of massive soil erosion during rainy season. During the field visit the interaction was made with the local people and farmers, it was observed that soil erosion is increasing at a faster rate, due to the degradation of land. On the suggestion of soil science expert some vegetative measure supported with the fuel plantation of fodder species /Hybrid grasses are recommended to check the soil erosion.

6.1 Land Development and sub activity (Plantation of fodder trees and improved Seeds of grasses in wards

Name of the Scheme	Area to be treated	Unit cost per (₹)	Amount(₹)
Land Development for sub activity	27.5	13840	3,80,600

6.2 Budget form Production system and micro enterprises

Name of Panchayat	Fodder Trees				Grasses			
	Area (ha.)	No. of Plants @ 1100 /ha	Unit cost per ha ₹	Budget ₹ @ 11000 /ha	Area (ha.)	Quantity of seeds (kg) @ 35kg /ha	Rate per Kg(₹)	Budget ₹
Jarol	7	7700	10	77000	6.5	227.5	120	27300
Kirti	8	8800	10	88000	6	6210	120	25200
Kotgarh	-	-	-	-	-	-	-	-
Mailan	-	-	-	-	-	-	-	-
Total	15	16,500		1,65,000	12.5	6437.5		52,500

Note: Target for 4th year

6.2 (a): Variety and rates of fodder species and hybrid grasses Budget form Production system and micro enterprises

Activity /Item	Breed	Area	Rate per ha. (₹)	Total cost (₹)	Beneficiaries share @ 10% cash or kind used as WDF
Fodder	Beul, Bamboo, Ban, Morus and Robinia	15	11000	165000	-
Grasses	Red clover, Steria and orchard grasses	12.5	4200	52500	-
Total		27.5		2,17,500	-

7.0 Vegetative and Engineering structure

In situ-soil conservation under watershed treatment area comprises of hill steep slopes having mixed layers of soil, facing acute problems of massive soil erosion during rainy season. During the field visit the interaction was made with the local people and farmers, it was observed that soil erosion is increasing at a faster rate, due to the following reasons

- Deforestation in the watershed areas
- Construction of roads and dumping of debris along Nala side
- Cutting of bushes and hedges by local people for fuel and fodder purpose
- Lack of physical and biological structures, which facilitate water conservation
- Excessive use of cultivated land for Veg. purpose.

7.1 Structures proposed to check massive soil erosion, the following interventions are recommendation and PIA can planning according

- Construction of check dams from top to bottom to minimize the high runoff water during raining season.
- Construction of Gabion Structures to sloppy land sliding area.
- Construction of Continue Contour / trenches to check soil erosion.
- Proper bunding on the cultivated lands by planting grasses and fodder tree
- Biological/vegetative engineering measures along the slope land
- Construction of Gully plugging
- Construction of Loose boarder check dam
- Loose Boulder to check high runoff and stop flooding of fertile soil
- Bank stabilization proposed to be constructed where the massive soil is flooding

7.2 Various structures are proposed to be constructed at different location for checking soil erosion

7.2a: Structure with number of beneficiaries

Activity	Size (m)	No. of structure	No. of Units	Total No. of Units	Unit Size (m)	Unit Cost (₹)	Watershed Cost (₹)	Convergence Cost (₹)	Estimated Cost (₹)
Crate Wall	12x1.25x1.5	01	06	06	2x1.25x1.5	9100	54600	-	54600
	8x1.5x1.5	11	20	44	2x1.25x1.5	9300	409200	-	409200
	10x1.25x1.5	07	15	35	2x1.25x1.5	9100	318500	-	318500
	6x1.5x1.5	22	23	66	2x1.25x1.5	9300	613800	-	613800
	7.2x1.25x1.25	06	09	18	2.4x1.25x1.25	8600	154800	-	154800
	4.8x1.25x1.25	05	04	10	2.4x1.25x1.25	8600	86000	-	86000
	8x1.25x1.5	02	04	08	2x1.25x1.5	9100	72800	-	72800
	8x1.5x1.5	01	04	04	2x1.5x1.5	9300	37200	-	37200
	9.6x1.25x1.25	02	04	08	2.4x1.25x1.25	8600	68800	-	68800
	12x1.5x1.5	03	06	18	2x1.5x1.5	9300	167400	-	167400
Total		60	95	217			19,83,100	-	19,83,100
Dry check	4x1.2x1.5	02	-	-	-	8600	17200	-	17200
	3.3x1.2x1.5	09	-	-	-	7200	64800	-	64800
	4.7x1.25x1.6	02	-	-	-	11500	23000	-	23000
	2.9x1.25x1.4	11	-	-	-	6200	68200	-	68200
	4x1.2x1.4	02	-	-	-	8200	16400	-	16400
	5x1.3x1.6	03	-	-	-	12300	36900	-	36900
	4.3x1.25x1.5	06	-	-	-	9800	58800	-	58800
	4x1.2x1.4	17	-	-	-	8200	139400	-	139400
	2.5x1.25x1.4	01	-	-	-	5310	5310	-	5310
Total		53	-	-	-		4,30,010	-	4,30,010
Drainage	80 Rmt	01	-	-	-	39500	-	39500	39500
	150 Rmt	01	-	-	-	74000	74000	-	74000
	100 Rmt	01	-	-	-	56600	56600	-	56600
	515.5 Rmt	01	-	-	-	342320	342320	-	342320
	200 Rmt	01	-	-	-	145000	-	145000	145000

	150 Rmt	01	-	-	-	108800	-	108800	108800
	280 Rmt	01	-	-	-	275880	-	275880	275880
	500 Rmt	01	-	-	-	268500	268500	-	268500
	120 Rmt	01	-	-	-	60500	60500	-	60500
	240 Rmt	01	-	-	-	120800	120800	-	120800
Total		10	-	-	-		9,22,720	5,69,180	14,91,900
Contour trenching	0.3x0.3x0.3	7780	-	-	-	55	427900	-	427900
Total			-	-	-	55		-	427900

Note: Target for 3rd & 4th year

Soil conservation work includes formation of Dry check and other suitable structure to be constructed to conserve the fertile soil and to protect from high runoff. In this micro watershed total 53 Dry check, 60 Crate wall, 7780 contour trenching and 10 Drainage will be constructed which will benefit all families.

Vegetative Measure: Various types of trees (Robinia, kenth), Shrubs (Berbris, Ruses) and grasses (Chrysopogon falues, Cynodon dactylon, Napier etc.) can be grown in the areas prone to soil erosion. Fodder grasses like Napier grass can be used on farm bunds. For demonstration in each panchayat about 10,000 cuttings could be planted/ distributed to farmers.

Outcome

- To minimize the impact of rainfall
- To reduce high velocity of soil erosion
- To improve moisture retention conditions of the area
- To improve soil properties, etc.
- To improve fertility of cultivated soil

8.0 WATER HARVESTING

The main sources of irrigation in the gram Panchayat are Roof water, Tank, RWHST and water schemes. The most of the cultivated area is rainfed. The existing water resources are drying due to climatic change and depletion of water source. The watershed community /people face acute problem of water during stress period, specifically for the irrigation of vegetable crops and spray purpose.

8.1 (a): Existing and proposed water harvesting structures with storage capacity

Name of structure	No. of structure	Capacity in (m ³)					No. of beneficiaries benefited
		Existing structure (m ³)	Repairable No.	(m ³)	New structure (m ³)	(m ³)	
Kachha Talab	07	686	-	-	20	3579	Entire catchment area
Roof water	-	-	-	-	42	466.05	-do-
RWHST	-	-	-	-	84	1137.46	-do-
Kuhal	-	-	-	-	2	1700rmt	
Pipe line	-	-	-	-	08	2930rmt	-do-
WST	35	335	4	26.64	77	1211.78	-do-
check dam	-	-	-	-	10	434	
Total	42	1021	4		243	6828.29/4630rmt	

8.1 (b) Storage capacity and cost of new water harvesting structures under watershed programme and convergence.

Name of Scheme	No.	Size (mt)	Capacity (m ³)	Unit Cost (₹)	Budget allocated from Watershed ₹	Budget allocated from Convergence (₹)	Beneficiaries contribution	Total budget (₹)
Kacha Talab/ farm pond	1	18x12x1.5	324	75800	75800	-	-	75800
	1	18x12x1.5	324	72400	72400	-	-	72400
	5	18x12x1.5	1620	73000	365000	-	-	365000
	3	10x8x1.5	360	33000	99000	-	-	99000
	2	10x8x1	240	33000	66000	-	-	66000
	4	9x7x1.5	378	25300	101200	-	-	101200
	2	9x7x1.5	189	24000	48000	-	-	48000
	2	8x6x1.5	144	18000	36000	-	-	36000
Total	20		3579		8,63,400	-	-	8,63,400
Roof water	3	2.5x2x2	30.8	65360	196080	-	-	196080
	2	2.5x2.5x2	25	99000	198000	-	-	198000
	3	2.5x2.5x1.8	34	71200	213600	-	-	213600
	2	2.5x2.5x1.8	22.5	71040	142080	-	-	142080
	1	2.5x2.5x1.8	11	72400	72400	-	-	72400
	1	2.5x2.5x2	12.5	79200	79200	-	-	79200

	6	2.5x2x2	60	65600	393600	-	-	393600
	3	2.5x2x2	30	65520	196560	-	-	196560
	3	2.5x2x2	30	66000	198000	-	-	198000
	2	2.5x2x2	20	66800	133600	-	-	133600
	1	2.5x2.5x2	12.5	82500	82500	-	-	82500
	1	2.5x2.5x2	12.5	99500	99500	-	-	99500
	1	2.5x2.5x1.8	11	90500	90500	-	-	90500
	1	2.5x2.5x1.8	11	88800	88800	-	-	88800
	1	2.5x2.5x1.8	11	89000	89000	-	-	89000
	2	2.5x2x2	25	65280	130560	-	-	130560
	1	2.5x2.5x1.8	11.25	72160	72160	-	-	72160
	1	2.5x2.5x1.8	11.25	70720	70720	-	-	70720
	1	2.5x2.5x2	12.5	65360	65360	-	-	65360
	2	2.5x2.5x2	25	98500	197000	-	-	197000
	2	2.5x2.5x1.8	22.5	90200	180400	-	-	180400
	1	2.5x2.5x1.8	11.25	88400	88400	-	-	88400
	1	2.7x2.5x2	13.5	77700	77700	-	-	77700
Total	42		466.05		31,55,720	-	-	31,55,720
Roof water	1	2.4x2.4x1.8	10	86000	-	86000	-	86000
	1	2.5x2.5x1.8	11	90600	-	90600	-	90600
	1	2.5x2.5x2	12.5	90000	-	90000	-	90000
	1	2.5x2.5x2	12.5	90500	-	90500	-	90500
	1	2.5x2.5x2	12.5	91400	-	91400	-	91400
	3	3x2x2	36	90300	-	270900	-	270900
	2	2.8x2.1x2	23.52	90000	-	180000	-	180000
	3	2.5x2x2	20	80800	-	242400	-	242400
	3	2.4x2.4x2	34.56	86400	-	259200	-	259200
	2	2.5x2.5x1.8	22.5	86200	-	172400	-	172400
Total	18		195.08		-	15,73,400	-	15,73,400
RWHST	3	2.7x2.5x2	40.5	62240	186720	-	-	186720
	2	3x2.5x2	30	90300	180600	-	-	180600
	2	2.5x2.5x2	12.5	83000	83000	83000	-	166000
	5	2.7x2.5x2	67.5	77800	389000	-	-	389000
	5	3x2x2	60	82700	413500	-	-	413500
	1	2.7x2.5x2	13.5	65120	65120	-	-	65120
	1	2.7x2.5x2	13.5	81400	81400	-	-	81400
	2	3.20x2.5x2	16	85500	85500	85500	-	171000
	4	2.8x2.4x2	54	62960	251840	-	-	251840
	2	2.8x2.4x2	13.5	78700	78700	78700	-	157400
	1	2.7x2.5x2	13.5	63200	63200	-	-	63200
	1	2.5x2.5x2	12.5	65600	65600	-	-	65600
	2	2.7x2.5x2	27	79000	158000	-	-	158000
	1	2.7x2.5x2	13.5	81500	81500	-	-	81500
	1	3x2.5x2	15	90200	90200	-	-	90200
	1	3x2.5x2	15	89700	89700	-	-	89700
	1	3x2.5x2	15	89600	89600	-	-	89600
	1	2.5x2.5x2	12.5	82000	82000	-	-	82000
	1	2.5x2x2	10	81900	81900	-	-	81900
	1	3x2.5x2	15	90200	90200	-	-	90200
	2	3x2x2	24	60640	121280	-	-	121280
	2	3x2.5x2	30	64000	128000	-	-	128000
	3	2.5x2.5x2	37.5	60800	182400	-	-	182400
	2	3x2.5x2	30	89400	178800	-	-	178800
	2	3x2x2	24	75800	151600	-	-	151600

	1	2.7x2.5x2	13.5	75500	75500	-	-	75500
	1	3x2.3x2	13.8	80000	80000	-	-	80000
	2	3x2.5x2	30	79500	159000	-	-	159000
	2	3x2.5x2	30	74700	149400	-	-	149400
	6	2.9x2.6x2	90.48	75100	450600	-	-	450600
	2	3x2x2	24	74900	149800	-	-	149800
	1	2.5x2.5x2	12.5	68000	68000	-	-	68000
	1	3x2x2	12	79500	79500	-	-	79500
	1	3x2x2	12	74700	74700	-	-	74700
	1	3.8x3.2x2	21.12	93500	93500	-	-	93500
	1	3x2x2	12	70000	70000	-	-	70000
	1	3x2x2	18	85600	85600	-	-	85600
	1	3.2x3.2x2	21.12	92300	92300	-	-	92300
	2	3x2x2	24	72000	144000	-	-	144000
	1	2.5x2.5x2	12.5	68300	68300	-	-	68300
	1	2.5x2.5x2	12.5	67100	67100	-	-	67100
	2	3x2.5x2	30	80500	161000	-	-	161000
	2	2.9x2.6x2	30.16	75700	151400	-	-	151400
	1	2.9x2.6x2	15.08	76300	76300	-	-	76300
	1	3.3x3.2x2	21.12	92200	92200	-	-	92200
	1	3x3x2	18	89000	89000	-	-	89000
	1	2.9x2.6x2	15.08	76000	76000	-	-	76000
	1	3x3x2	18	81000	81000	-	-	81000
	1	3x2.5x2	15	80800	80800	-	-	80800
Total	84		1137.46		61,84,360	2,47,200		64,31,560
* Only 81 structures are in the watershed and 03 Structures in the convergence								
WST	3	3x3x2	54	80500	241500	-	-	241500
	1	4x3x2	24	102600	102600	-	-	102600
	3	3x3x2	54	81000	243000	-	-	243000
	1	4.5x3x2	27	113700	113700	-	-	113700
	3	2.9x2.6x2	45.24	74600	223800	-	-	223800
	2	2.8x2.5x2	28	79400	158800	-	-	158800
	1	2.8x2.4x2	13	78700	78700	-	-	78700
	2	2.7x2.4x2	26	79300	158600	-	-	158600
	1	3.2x2.5x2	16	87000	87000	-	-	87000
	1	2.5x2.5x2	12	77400	77400	-	-	77400
	5	2.5x2.5x2	62.5	78000	390000	-	-	390000
	2	3.6x3x2	43.2	105700	211400	-	-	211400
	3	3.6x3x2	64.8	104500	313500	-	-	313500
	4	2.5x2.5x2	50	77500	310000	-	-	310000
	2	3.6x3.5x2	50.4	107200	214400	-	-	214400
	1	3.6x3.5x2	25.2	108500	108500	-	-	108500
	3	2.5x2.5x2	37.5	75300	225900	-	-	225900
	2	3.6x3.5x2	50.4	105700	211400	-	-	211400
	1	2.9x2.4x2	13.92	79000	79000	-	-	79000
	2	3.6x3.4x2	48.96	106700	213400	-	-	213400
	2	2.7x2.5x2	27	79900	159800	-	-	159800
	2	2.5x2.5x2	25	77600	155200	-	-	155200
	1	3x2.5x2	15	79500	79500	-	-	79500
	2	3x3x2	36	86700	173400	-	-	173400
	1	3x2x2	12	67800	67800	-	-	67800
	4	3x2.5x2	60	75100	300400	-	-	300400
	2	3x2.5x2	15	76000	152000	-	-	152000
	1	2.9x2.6x2	15.08	74300	74300	-	-	74300

	1	3x2x2	12	68500	68500	-	-	68500
	1	3.5x3x2	21	93500	93500	-	-	93500
	1	3x3x2	18	81600	81600	-	-	81600
	1	3x3x2	18	89000	89000	-	-	89000
	1	3x2.5x2	15	74500	74500	-	-	74500
	2	3x2x2	24	68000	136000	-	-	136000
	1	2.9x2.6x2	15.08	73200	73200	-	-	73200
	5	2.5x2.5x2	62.5	75300	301200	-	75300	376500
	3	2.5x2.5x2	37.5	78000	187200	-	46800	234000
	3	2.5x2.5x2	37.5	77500	186000	-	46500	232500
Total	77		1211.78		62,15,700	-	168600	63,84,300
WST Rep.	1	2x1.5x1.5	4.5	20000	20000	-	-	20000
	1	2x1.6x1.5	4.8	15000	15000	-	-	15000
	1	1.6x2.4x1	3.84	22000	22000	-	-	22000
	1	3x2.5x1.8	13.5	24000	24000	-	-	24000
Total	4		26.64		81,000	-	-	81,000
Kuhal	1	1000rmt	-	509600	509600	-	-	509600
	1	700rmt	-	359200	359200	-	-	359200
Total	2	1700rmt	-		8,68,800	-	-	8,68,800
Check dam	2	6x2.5x2.8	84	150000	300000	-	-	300000
	1	7x2.5x2.8	49	159600	159600	-	-	159600
	1	7x2.5x2.8	49	129100	129100	-	-	129100
	2	7x2.5x2.8	49	145200	290400	-	-	290400
	1	7x2.5x2.8	49	129100	129100	-	-	129100
	2	7x2.5x2.8	98	170000	340000	-	-	340000
	1	8x2.5x2.8	56	191000	191000	-	-	191000
Total	10		434		15,39,200	-	-	15,39,200
Pipe line	1	600 rmt	-	67690	67690	-	-	67690
	2	500 rmt	-	70000	140000	-	-	140000
	1	580 rmt	-	81000	81000	-	-	81000
	2	300 rmt	-	42000	84000	-	-	84000
	1	700 rmt	-	97500	97500	-	-	97500
	1	250 rmt	-	35000	35000	-	-	35000
Total	8		-		5,05,190	-	-	5,05,190
Grand total								

Note: Details as in annexure

8.1(c) Total Storage Capacity of Existing and New structures

Scheme	New structures(m ³)	Existing structures (m ³)	Total capacity(m ³)
Watershed	6828.29	26.64	6854.93
Convergence	237.08	-	237.08
Total	7065.37	26.64	7092.01

8.1(d) Budget

Scheme	New structures (₹)	Existing structures (₹)	Total Amount(₹)
Watershed	19332370	81000	19413370
Convergence	1820600	-	1820600
Total	2,11,52,970	81,000	2,12,33,970

8.1(e) Total storage capacity and cost through watershed and convergence programme

Particulars	Capacity (m ³)	Cost (₹)
Watershed	6854.93	19413370
Convergence	237.08	1820600
Total	7092.01	2,12,33,970

8.01 DRINKING WATER

The Panchayat area falls in the rainfed area. Water resources are very limited which has been tapped fully by the local people for drinking and irrigation purposes. In earlier days there were water bodies (Bawaries) from which the people used to take water for drinking purpose. During the field visit and interaction with the local people and transit walk of the watershed area source some of fact regarding drinking water comes up.

- Dried up of the water bawaries due to the climate change.
- Heavy pressure on the existing water bodies due to increase in population.
- Less care of maintenance of water bodies, which is due to the habit of tap water provided at door step provided by the IPH department
- Less percolation for the existing Bawaries due to less range and drying up of Johar at the watershed area
- Presently people take the water through taps, which is provided in alternative days.

8.02 Availability of water in the panchayat

8.02(a): Availability of water before and project interventions

Sr. No.	Particulars	Capacity (lt)	
		Present	After Project intervention
1	Total supply of water per day	440100	683100
2	Total House holds	1991	1991
3	Total population	8205	8205
4	Water Available per house hold per day	221	343
5	Per capita Availability	54	83

8.03 Status of Drinking water in different wards of Panchayat

8.03 (a) Existing Structure of water bodies availability on daily and monthly basis

Panchayat	Name of Structure						No. of months water available during the year
	Tap/ WST		Hand pump		Bawaries		
	No.	Capacity	No.	Capacity	No.	Capacity	
Kotgarh	5	75000	1	1000	14	113000	8month/year
Mailan	5	61000	2	1800	6	13000	8month/year
Jarol	6	76000	4	3300	8	19400	
Kirti	6	64000	4	3700	6	8900	
Total	22	2,76,000	11	9800	34	1,54,300	

8.04 Construction/Repair of Drinking water Structure with number and dimensions.

Name of Schemes	Existing No.	Capacity (m ³)	Size (m)	Unit Cost ₹	Watershed amount (₹)	Convergence amount (₹)	Estimated Budget (₹)
Bawaries	1	1.5	1.25x1.25x1	20000	20000	-	20000
	1	2	1.25x1.25x1.25	20000	20000	-	20000
	2	3	1.25x1.25x1	18000	36000	-	36000
	1	1.5	1.5x1x1	20000	20000	-	20000
	1	16	1.25x1.25x1	20000	20000	-	20000
	1	19	1.50x1.25x1	20000	20000	-	20000
	1	1.5	1.5x1x1	15000	15000	-	15000
	1	3.6	1.75x1.75x1	25000	25000	-	25000
Total	9	48.1			1,76,000	-	1,76,000
Tank	1	15.84	3.3x2.9x2	27200	27200	-	27200
	1	14	3.2x2.20x2	27200	27200	-	27200
	1	7	3x1.5x1.5	23000	23000	-	23000
	1	18	3x3x2	25000	25000	-	25000
	1	7	3x2.5x1.5	24000	24000	-	24000
	1	6	3x1.3x1.5	22000	22000	-	22000
	1	3.375	1.5x1.5x1.5	25000	25000	-	25000
Total	7	71.215			173400		173400
Tank	1	15	3x2.5x2	115600	-	115600	115600
	1	30.24	3.6x3.5x2.4	179600	-	179600	179600
Total	2	45.24		295200	-	295200	295200

8.05 Construction/Proposed of Drinking water Structure with number and dimensions.

Name of Schemes	No. of schemes	Capacity (m ³)	Size (mt)	Unit Cost (₹)	Estimated Budget (₹)
Bawaries	1	5.4	2x1.7x1.6	41000	41000
	1	34.6	4.9x4.41x1.6	43000	43000
	2	69	4.9x4.41x1.6	42600	85200
Total	4	109			1,69,200
Tank	3	37.5	2.5x2.5x2	98900	296700
	2	24.96	2.6x2.4x2	93700	187400
	2	24.96	2.6x2.4x2	95200	190400
	1	12	3x2x2	103800	103800
	1	12	3x2x2	93400	93400
Total	9	111.42			8,71,700
Grand total	13	220.42			10,40,900

8.06 Storage capacity and availability of water from existing structures

Sr. No.	Source	No.	Present capacity (lt.)	No. of months water available during the year
	Collecting structure		Storage Capacity	
1	WST/Tap	22	276000	6-8 months
2	Handpump	11	9800	6-8 months
3	Bawaries	34	154300	6-8 months
	Total	67	4,40,100	

8.07 Proposed activities for increase in the water capacity/ availability through renovation/new construction of structure

8.07(a) Size, location, capacity of structures with beneficiaries

Structure	capacity (lt)		
	Old (lt)	New (lt)	After intervention (lt)
WST/Taps	276000	125000	401000
Handpump	9800	-	9800
Bawari	154300	118000	272300
Total	4,40,100	2,43,000	6,83,100

8.08 Critical Gaps to be covered (item/activity)

- 1) Regular Supply of drinking water
- 2) Cleanness and colorization of water
- 3) Proper drainage of the catchment area to the pound/Johar
- 4) To sensitization of the community for judicious use of water sources
- 5) After project intervention the fresh and hygienic drinking water will be available to the local community
- 6) Sufficient amount of water can be provided to the beneficiaries within the stress period
- 7) The supplement irrigation facility will provided to the local community
- 8) The livestock will get the water at the door step during stress period
- 9) The water cycle of the project area will improve
- 10) Local hedges and bushes to be planted catchment of the water bodies
- 11) The tradition custom may be revived through worship the specific water bodies to maintain sacredness of the bodies for example the coming up of newly bride groom during local festival which will establish sentimental relation on sustainable basis for the generation to come.

P1.811 Outcome

Source	Present storage Capacity	Proposed Storage Capacity	Total Storage Capacity	Total Families benefitted	Present Requirement/ Day	Quantity After Intervention (lt)
WST/tap	276000	125000	401000	1991	221	343
Hand pump	9800	-	9800			
Bawaries	154300	118000	272300			
Total	4,40,100	2,43,000	6,83,100	1991	221	343

9.0 CONVERGENCE

The linkage of the IWMP-XIX, with the other development programme is also one of the important components. The possibilities of identifying different activities under the IWMP and their association with other activities of different line departments can be explore through convergence. This is the best tool to derive support from different line departments to share their experiences with the farmers and providing funds for the scheme works

The following activities can be converged from one head to another:

- Developmental activities like roads and irrigation facilities can be converged with PMGSY, PWD, IPH and MNREGA programs
- Employment Generation with MNREGA program run by Rural Development Department
- Water harvesting structures like Irrigation tank and Roof water harvesting structure can be constructed under MNREGA. The PIA should prepared shelf with the association of Gram Panchayats and submit the same to BDO for taking financial and administrated approval from Deputy Commission –Cum –CEO DRDA.
- **Line Department Involvement**
- To improve productivity, distribution of improved seeds, fertilizers, insecticides and pesticides can be procured from Agriculture and Horticulture department. Fruit Plants can be purchased from Dr YS Parmar University of Horticulture and Forestry Nauni, Solan and Horticulture Department. In case the fruits plants as per requirement is not available with these institutions NOC may obtained and purchase can be made from Registered Nursery owners within the state. Similarly the Fuel and fodder plants can be procured from Forest department in case the stock of these plants as per requirement are not available then obtained NOC and made the purchase from registered nursery owner of the State Govt.
- Construction of poly houses and vegetable Collection Centers at watershed level can be constructed under the Horticulture Technology Mission run by Department of Horticulture

- Dairy Development and sheep-goats rearing for the poor people can be conserved with **Animal Husbandry Department.**

9.901: Activity/ work to be taken other programme/scheme

Activity /work	Total no.	Programme /scheme for convergence	Agency/ Deptt.	Budget contribution(₹)					
				Size (m)	No.	Watershed	No.	Convergence	Total(₹)
Outlet drain	3	MNREGA	RD	730rmt	-	-	3	529680	529680
Outlet drain	1	MNREGA	RD	80rmt	-	-	1	39500	39500
Roof water	1	MNREGA	RD	2.4x2.4x1.8	-	-	1	86000	176600
	1			2.5x2.5x1.8	-	-	1	90600	
Dry check	106	MNREGA	RD		18	144710	88	584790	584790
Roof water	16	MNREGA	RD		-	-	16	1396800	1396800
Drinking tank	2	MNREGA	RD		-	-	2	295200	295200
RWHST	16	MNREGA	RD		13	953400	3	247200	247200
WST	1	MNREGA	RD		-	-	1	76000	76000
Total	147				31	10,98,110	116	33,45,770	33,45,770

10.0 LIVELIHOOD ACTIVITY

Income generating activity reported in the watershed areas are carpentry, masonry, and weavers, embroidery, black smith poultry, sheep and goats rearing, pattal and basket making etc. These income generating activities can transform the rural poor, if they have given more opportunities in the form of trainings, equipments and machine etc. cutting and tailoring, pickle making and juices making can be other options for rural women to improve their socio-economic conditions.

The skills of local artisans can be improved by providing more opportunities at their door steps. Keeping in view the above mentioned facts, the following activities will be taken up under watershed program for innovative farmers. The provision for training programme for the tradition rural artisan has been provided with in training budget to develop their capacity building.

10.101 Income enhancement and employment generation through different income generating activities

10.101a Number of households with activities and income, the list of beneficiaries selected during the PRA exercise attached.

Sr. No.	Activity	Existing No. of household	Proposed No. of household to be covered under project
1	Carpentry	12	4 SHG
2	Poultry	-	01 individual
3	Black Smith	1	01 individual
4	Knitting /C&T	14	05 SHG+ 02 individual
5	Electrician	3	01 SHG+ 01individual
6	Floriculture nursery	-	04 SHG
7	Sheep rearing	2	02 individual
8	Vermin compost	-	08 SHG
9	Basket making	1	01 individual
10	PHT	-	20 SHG
11	Cutting & Pruner	18	12 SHG
12	Shattering	1	02 SHG
13	Plumber	-	01 individual
14	Waste material	-	08 SHG
15	Bee keeping	-	04 SHG

Development Block Narkanda IWMP-XIX

Project area in GP	2970			
Total funds earmarked for GP	4,45,50,000			
Funds earmarked for livelihood activities in GP	40,09,500			
Funds to be provided as seed money	28,07,535	SHG's/Federation	Individual	Un spent amount (₹)
		19,50,000	45,000	20,14,500
Funds to be provided as Grant-in-aid to SHG's	12,02,850			

Need based planning under livelihood activities for landless /assetless beneficiaries of Project Area

Sr.No.	Activity	No. of Beneficiaries	Category	Watershed Project funds ₹
1.	Carpentry	4 SHG	Gen/BPL	200000
2.	Poultry	01 individual	Gen/BPL	5000
3.	Black Smith	01 individual	Gen/BPL	5000
4.	Knitting /C&T	05 SHG+ 02 individual	Gen/BPL	185000
5.	Electrician	01 SHG+ 01individual	Gen/BPL	55000
6.	Floriculture nursery	04 SHG	Gen/BPL	100000
7.	Sheep rearing	02 individual	Gen/BPL	10000
8.	Vermin compost	08 SHG	Gen/BPL	325000
9.	Basket making	01 individual	Gen/BPL	5000
10.	PHT	20 SHG	Gen/BPL	400000
11.	Cutting & Pruner	12 SHG	Gen/BPL	300000
12.	Shattering	02 SHG	Gen/BPL	100000
13.	Plumber	01 individual	Gen/BPL	5000
14.	Waste material	08 SHG	Gen/BPL	200000
15.	Bee keeping	04 SHG	Gen/BPL	100000
	Total			19,95,000

Note: "It is preferred that trainings should be given before providing funds under revolving funds."

Note: The unspent amount will be used during the project period if additional groups are formed or if not. It can be spent on Capacity Building part is the group for wide spread activity.

11.0 PRODUCTION SYSTEM & MICRO ENTERPRISES

The land resource is the primary and major source of livelihood activities in the watershed area. These natural resources can be used properly by adopting integrated farming system to get more return per unit space per unit time. Area is suitable for the cultivation of apple, pear, pomegranate and walnut. These fruits plants can be integrated with agriculture and animal's husbandry to increase the productivity of land. The shortage of fodder leads farmers to rear only local breeds of animals that are too for self consumption of milk and farm yard manure. This shortage of fodder can be overcome by introducing multipurpose tree species. Other option of livelihood is the revival of rural artisans and for this best options with the rural artisans are carpenter, masonry, weaving, crafting and shoe making. The rural poor can earn good amount of money from these professions. These are some of important income generating activities need to be introduced in the watershed area. There is a dire need to aware, motivate and trained the local poor artisans. These artisans should be provided with equipments to earn their livelihood and to improve their socio economic conditions.

11.111 Income enhancement and employment generation through different income generating activities

11.111(a) Number of households with activities and income, the list of beneficiaries selected during the PRA exercise attached.

S. No	Activity	Existing No. of household	Proposed No. of household
1	Agriculture Seed	Whole Panchayat	Whole Panchayat
2	Vegetable Seed	Whole Panchayat	Whole Panchayat
3	Fodder Trees	Whole Panchayat	Whole Panchayat
4	Hybrid Grasses	Whole Panchayat	Whole Panchayat
5	Fruit collection centre	Whole Panchayat	4
6	Dairy Farming	30	43
7	Vegetable Nursery	-	2
8	Sheep	10	15
9	Goatry	3	3
10	Vermin compost	-	10+1SHG
11	Poultry	-	1
12	Poly house	-	2
13	Floriculture	-	1 SHG

P 11.111(b) Production System and Micro –Enterprises (10% Budget)

Name of Watershed : IWMP- XIX Production budget (10%): ₹44,55,000

Sr. No.	Activity	Input (KG/No.)	Category	Watershed Project funds (₹)	Remarks
				Grant in aid (₹)	
1	Agriculture for crop seed	779.35 kg	Gen./SC/BPL	103300	
2	Vermin compost	10+1SHG	Gen./SC/BPL	105000	
3	Fruit Plants	42,886 plants	Gen./SC/BPL	1605730	
4	Fodder trees	16500 plants	Gen./SC/BPL	165000	
5	Hybrid Grasses (seed)	437.5kg	Gen./SC/BPL	52500	
6	Vegetable seeds	584.2 kg	Gen./SC/BPL	202220	
7	Vegetable collection centre	4	Whole ward	1045000	
8	Dairy farming	43	Gen./SC/BPL	645000	
9	Nursery (vegetable)	2	Gen./SC/BPL	20000	
10	Goatry	3	Gen./SC/BPL	30000	
11	Sheep	15	Gen./SC/BPL	150000	
12	Poultry	1	Gen./SC/BPL	6250	
13	Poly house	2	Gen./SC/BPL	250000	
14	Floriculture Nursery	3 SHG	Gen./SC/BPL	75000	
	Total			44,55,000	

Note: "It is preferred that trainings should be given before providing funds under revolving funds."

The proposal/ applications under production system and micro enterprises have been received/procured from the beneficiaries during the course of participatory Rural appraisal exercise (PRA) of watershed treatment area to undertake different activities individually / SHGs are attached and the need based planning of these project will be prepared by the PIA based on the capacity of the groups and merit and ranking of the each case. The priority and preferences of each case for financial assistance will be decided by the gram sabha.

12.0 AGRICULTURE

The main stay of the farmers of watershed catchment area is agricultural crops grown such as wheat, maize, among cereal crops Rajmash and Mash among pulses. The productivity of crop was observed very low due to rainfed condition and texture and structure of soil is rough. This can be increased through supplementary irrigation facilities and adoption of latest technology for conservation of fertile soil. The ridge to valley method is to be adopted for water management

12.112(a) Prevalent Farming System under Agriculture

1. Agriculture (Maize/ pulses + Wheat/mustard)
2. Agriculture + Animal Rearing
3. Agriculture + Horticulture (fruit crops+ Vegetables) + Animal Rearing
4. Agriculture + Labour + Rural Artisans

12.112(b) Present status of Agriculture Crops and Proposed interventions:

12.112(c) Cereals Crops

Crops grown : Maize
Total Productions : 675 qt (based on PRA exercise)

On the demand of the farmer the following activities under Agriculture is proposed

Status	Particulars	Maize
Existing	Area under cultivation	45bigha
	Production	675 qt.
	Productivity	1.5qt./ bigha
	Variety	Local
	Technology	Kera method
Proposed	Increase in area	43Bigha
	Variety	Proline,Pioneer
	Seed Quantity required by beneficiary group	352Kg

Source: Household survey, Regional Centre, NAEB, UHF, 2012

12.112(d) Pulses

Crops grown : Rajmash
Total Productions : 37.4qt (based on PRA exercise)

Status	Particulars	Rajmash
Existing	Area under cultivation	68Bigha (Intercropping with maize)
	Production	37.4 qt.
	Productivity	50 kg/ bigha
	Variety	Local
	Technology	Line method
Proposed	Increase in area	58.1 Bigha
	Variety	Red capsule
	Seed Quantity required by beneficiary group	756.66 Kg

Source: Household survey, Regional Centre, NAEB, UHF, 2012
 IWMP-XIX (2011-12) Narkanda[Page-33]

12.112(e) Requirement of improved seed under different crops

Particulars	Quantity (kg)	Market rate per Kg (₹)	Estimated Budget (₹)
Cereals			
Maize	352 kg	100	35200
Pulses			
Rajmash	756.66	90	68100
Grand Total	1108.66kg		1,03,300

Note: Target for 3rd and 4th year

The quantity and variety of seeds for each crop has been determined by multiplying the seed rate per bighas with the total area cultivated under different crops i.e. Maize (88x4) and Rajmash (126.1x6). The project intervention would be replacement of conventional varieties by improved varieties at 10 percent replacement rate each year for two years. This seed may be given as demonstration units among the beneficiaries

12.112 (f) Critical Gaps in Agriculture Production

- Lack of irrigation facilities.
- Lack of scientific agricultural practices.
- Timely unavailability of seeds, fertilizers and chemicals for insect-pest management.
- Improved seed varieties not adequately used.

12.112(g) Marketing

- Agriculture produced are not sold in the market used only for self consumption

12.112(h) Project Interventions

a) Introduction of improved seed

Improved seed of maize, wheat and pulses will be introduced as demonstration units

b) Human Resource Development (HRD)/ Capacity Building and training in Agriculture

- Training on cultivation practices of various agriculture crops.
- Training on insects & pests management.
- Training on vermin composting for organic farming
- Exposure visits and experience sharing out side state progressive farmers

c) Numbers of trainings / Exposure visits

- Number of Trainings =3
- Number of Trainees =30 to35
- Duration = 3 days

d) Exposure visit

- One exposure visit of 30 to 40 farmers

12.112(h) Project Impact

Crops	Existing area	Addition in area	Total area	Seed requirement after project intervention (kg)	Amount (₹)
Maize	45	43	88	352	35200
Rajmash	68	58.1	126.1	756.66	68100
Total	113	101.1	214.1	1108.66	1,03,300

a) Skill development and capacity building of about 25 to 30 farmers from the Panchayat for adoption of latest technology of watershed management

b) Encouragement towards organic farming and improving fertility of soils through vermin compost

Organic farming: Presently the people of the watershed area is practicing traditional farming system by growing wheat, barley, maize, chalia, koda and rajmash etc. The productivity of the crop is very low, due to the lack technical knowledge and latest techniques but now days the people are going for chemical fertilizer and use of insecticides and pesticides. Which is losing the soil health hence some efforts can be adopted in the project area to boost the organic farming that can be through the following techniques.

- a. Use of vermin compost
- b. Use of Bio- pesticides/ insecticide
- c. Seeds certification
- d. Incentive to the farmers to sale there farm produce at higher price.

12.01 HORTICULTURE

The chapter deals with the horticulture crops among fruits Pear, Apple, cherry, almond etc. are grown. Apple is the major cash crop. The watershed area is also cultivated with different types of vegetables. These include cabbage, beans, capsicum, peas, cauliflower, etc. but only for self consumption.

12.113a Prevalent Farming Practices under Horticulture

- Horticulture + vegetables
- Vegetable + Animal rearing
- Vegetable crops(Cabbage+Beans)(Capsicum+Tomato)(Cauliflower +Peas)
- Fruit crop (Lemon + Pear+ Plum + Pomegranate + Apricot)
- Agriculture + Horticulture + Animal rearing.

12.113(b) Present status of horticulture crops and proposed interventions:

12.113(c) Fruits

Status	Particular	Apple	Pear	Cherry	Pomegranate	Lemon	Almond
Existing	Area under cultivation	5125 bigha	103bighas	145 bighas	Nil	Nil	25bighas
	Present Production	115.3 ton	0.7 ton	0.8 ton	Nil	Nil	0.17 qt
	Productivity	22.5 qt/bigha	7qt/bigha	6qt/bigha	Nil	Nil	7qt/bigha
	Variety	Red chief, Top red			Nil	Nil	Hybrid
	Technology	indigenous	indigenous	indigenous	indigenous	indigenous	indigenous
Proposed	Increase in area	848 bighas	95.5 bighas	147.5bighas	16bighas	49 bighas	24 bighas
	Varieties	Red chief, Top red, Spur	Red Bartlet	Red cherry, Black cherry	Kandhari, Ganesh	Kagazi	
	Plants requirement	29667 plants	3794plants	5905plants	630 plants	1945plants	945 plants

12.113(d) Proposed fruit crop intervention in the Project Area

Apple

Sr. No.	Name of Panchayat	No. of household	No. of Plants	Area (bigha)	Unit cost (₹)	Amount(₹)
2	Jarol	749	13482	385	40	539280
4	Kirti	547	8205	234	40	328200
1	Kotgarh	216	4320	124	40	172800
3	Mailan	366	3660	105	40	146400
Total		1878	29,667	848		11,86,680

Note: Target for 3rd and 4th year

Pear

Sr. No.	Name of Panchayat	No. of household	No. of Plants	Area (Bigha)	Unit cost (₹)	Amount(₹)
1	Kotgarh/Manal	50	500	12.5	25	12500
2	Mailan	366	3294	83	25	82350
	Total	416	3794	95.5		94,850

Note: Target for 3rd and 4th year

Lemon

Sr. No.	Name of Panchayat	No. of household	No. of Plants	Area (Bigha)	Unit cost (₹)	Amount(₹)
1	Kotgarh/Manal	50	1000	25	25	25000
2	Kirti/ Kepu	63	945	24	25	23625
	Total	113	1945	49		48,625

Note: Target for 3rd and 4th year

Cherry

Sr. No.	Name of Panchayat	No. of household	No. of Plants	Area (Bigha)	Unit cost (₹)	Amount(₹)
1	Kotgarh	216	2160	54	40	86400
2	Jarol	749	3745	93.5	40	149800
	Total	965	5905	147.5		2,36,200

Note: Target for 3rd and 4th year

12.113(e) Budget proposed for Horticulture activities

Activity /Item	Variety	No. of Plants required	Unit cost per plant	Cost for 3 rd year	Cost for 4 th year	Total cost
Apple	Top Red, Royal, Red Chief, Spur	29667	40	666560	520120	1186680
Pear	Red bartlet	3794	25	82350	12500	94850
Cherry	Black and Red cherry	5905	40	193000	43200	236200
Almond	Hybrid	945	25	-	23625	23625
Pomegranate	Kandhari	630	25	15750	-	15750
Lemon	Kagazi	1945	25	48625	-	48625
Total		42,886		10,06,285	5,99,445	16,05,730

12.113(f) Vegetables crops

Status	Vegetable crops	Bean	Peas	Capsicum
Existing	Area under cultivation	46bighas	58bighas	12 bighas
	Present Production	184 qt	232 qt	72 qt
	Productivity	04 qt/bighas	04qt/bigha	6qt/bigha
	Variety	Falguni	Azad, P-1, Linken	Bhart
	Technology	Indigenous	Indigenous	Indigenous
Proposed	Increase in area	36.5 bighas	46.64bighas	8 bighas
	Variety	Falguni	Hybrid	Bhart/dollar
	Total seed requirement	165kg	418.6 kg	0.6 kg

12.113(g) Critical Gaps in Horticulture Production

Lack of vegetable collection centre

- Lack of sufficient irrigation facilities
- Quality seedling of fruit crop.

- Lack of technical knowledge for cultural operation
- Knowledge about Post Harvesting Technology.
- Lack of value addition.
- Availability of fertilizers
- Lack of post harvesting Management
- Lack of CCA Store to improve shelf life of the produce

12.113(h) Marketing

Vegetable produced are sold at Narkanda, Saini, Shimla, Narkanda

12.113(i) Project Interventions

- Supply of improved varieties of fruit crops seedlings.
- Vegetable collection centre.
- Training on cultural operations and on value addition.
- Farm based enterprises
- Irrigation through moisture conservation measures
- Drip irrigation Sprinkler
- Vegetable seed production area

12.113(j) Community requirement of Improved Vegetable Seed in Project Area

Crops	Seed requirement Quantity(Kg)	Unit rate per kg @ (₹)	Estimated Budget(₹)
Beans	165	500	82500
Peas	418.6	200	83720
Capsicum	0.6	60000	36000
Total	584.2		2,02,220

Note: Target for 3rd and 4th year

The quantity and varieties of seeds for each vegetable crop has been determined by multiplying the seed rate per bigha with the total area cultivated under different crops i.e. Beans (2kg), Peas (4 kg), Capsicum(30 gm). The project intervention would be replacement of local varieties by improved varieties. This seed may be given as samples among the beneficiaries.

12.113(k) Impact/Project Outcomes

1. Skill development /capacity building of 40 farmers
2. Conventional Cropping pattern changed. Area under vegetable increased (134 bighas)
3. Mono crop to cash crop
4. Farming systems changed. Areas under fruit crops increased (1277 bighas)
5. Production of fruit and vegetable enhanced through supplementary irrigation facility
6. Livelihood of 40 more farming families linked with horticulture practice.

12.113(l) Vegetable Collection Centre

Panchayat	Location	No.	Beneficiaries	Cost (₹)
Kotgarh	Bharari (WN-5)	1	50	160000
Jarol	Thinu (WN-1)	1	95	270000
	New road	1	92	270000
	Near Bridge in govt. land Baza	1	120	270000
Total		4	357	9,70,000

Note: Target for 3rd year

12.02 ANIMAL HUSBANDRY

Animal rearing is the secondary thought for livelihood activity after Agriculture. Animals are reared by farmers mainly for milk, FYM, meat as well as for wool. Cows are reared for milk production which is used for self consumption. Milch animals are local as well as improved. Hence milk production is low due to non availability of green fodder and nutrient feeding to the animals.

12.01 Milk Production and fodder requirement

Total no. of milch cattle in the watershed area is 855 and average production of milk per day is 2.5 lt. from local cows and 5.75 lt. per day from improved cow.

12.301(a) Average and Total milk production

Milch cattle	Total Milch	Average milk production lt./day	Total production (lt.)
Local cows	33	2.5	82.5
Improved cows	822	5.75	4726.5
Total	855		4809

12.301 (b) Fodder availability, requirement and Deficit (tons)

Green fodder available in project area is 7592 tons whereas dry fodder available is 3037 ton. Total 10629 ton fodder is available in project area. But requirement of green fodder is 18219 ton whereas requirement of dry fodder is 9109 ton. Total fodder required is 27328 ton. Deficit of green fodder in project area is 10627 ton and that of dry fodder is 6072 tons.

12.301(b-i) Fodder availability, requirement and Deficit (tons)

Available			Required			Deficit		
Green	Dry	Total	Green	Dry	Total	Green	Dry	Total
7592	3037	10629	18219	9109	27328	10627	6072	16699

Note - **Available Fodder**

Green - 24kg/day x 30 days x 6months x Total live stock

Dry - 10 kg/day x 30days x 6months x Total live stock

Required Fodder

Green - 30kg/day x 30days x 12months x Total live stock

Dry - 15kg/day x 30days x 12months x Total live stock

12.301(b-ii) Gap between Demand and supply of total Fodder

Supply	10629
Demand	27328
Deficit	16699

12.301(c) Project interventions

- Plantation and cultivation of fodder trees and grasses
- Construction of talabs , Johars in grass land and community lands
- Training/Capacity building

a) Plantation and cultivation of fodder trees and grasses

Species:

Tree: Ban, Robinia , Bamboo, Beul etc.
Grasses: Steria, Berseem, Orchard, Napier etc.

12.301(c-i): Budget form Production system and micro enterprises

Name of Panchayat	Fodder Trees				Grasses			
	Area (ha.)	No. of Plants @ 1100 /ha	Unit cost per ha ₹	Budget ₹ @ 11000 /ha	Area (ha.)	Quantity of seeds (kg) @ 35kg /ha	Rate per Kg(₹)	Budget ₹
Jarol	7	7700	10	77000	6.5	227.5	120	27300
Kirti	8	8800	10	88000	6	210	120	25200
Kotgarh	-	-	-	-	-	-	-	-
Mailan	-	-	-	-	-	-	-	-
Total	15	16,500		1,65,000	12.5	437.5		52,500

Note: Target for 4th year

12.301(c-ii) b :Variety and rates of fodder species and hybrid grasses Budget form Production system and micro enterprises

Activity /Item	Breed	Area	Rate per ha. (₹)	Total cost (₹)	Beneficiaries share @ 10% cash or kind used as WDF
Fodder	Beul, Bamboo, Ban, Morus and Robinia	15	11000	165000	-
Grasses	Napier , Steria and orchard grasses	12.5	4200	52500	-
Total		27.5		2,17,500	-

b) Construction of talabs , Johars in grass land and community lands

c) Training and Capacity Building

- Live stock management
- Animal Health
- Artificial insemination
- Improved grasses / Fodder trees
- Exposure visits

Number of Training

- Four trainings with 5-7 farmers in each trainings
- Exposure visits for 5-7 farmers

12.301(d) Project outcome/impact

12.301(d-i) Estimated production of milk after project intervention

Milk production after project intervention will increase to 3.25.lt to 9.5 lt. /day and total production of milk after project intervention will be 7916.25 litres

12.301(d-ii) Milk production from cows and buffaloes after project intervention

Milch cattle	Milch No.	Milk production lt./day	Total production (lt.)
Local cows	33	3.25	107.25
Improved cows	822	9.5	7809
Total	855		7916.25

12.301(d-iv) Total milk production before and after project intervention.

Increase in milk production is 3107.25 lt. with total production of 7916.25 lt.

Milch cattle	Production Before project (lt.)	Production After project (lt.)	Quantity of milk Increase after project (lt.)
Local cows	82.5	107.25	24.75
Improved cows	4726.5	7809	3082.5
Total	4809	7916.25	3107.25

13.0 PISCICULTURE

Fisheries can be one of the additional sources of income to the farmers of the watershed area, but due to the lack of plenty of fresh water, the people enable to take up this activity as additional source of income. Secondly the people of the watershed area are practicing agriculture, horticulture and vegetable cultivation which is a main stay of the farmers. Hence fish cultivation cannot suggest for the watershed areas of the Narkanda Block.

13.101a Existing and Proposed water bodies for fish culture

Existing water bodies			Proposed water bodies			Owner ship private /common
No	Size (ft)	location	No.	Size (ft)	Location	
1	Nil	Nil	1	7x2.5x2.8	Barn khud	Common

13.101b Availability and requirement of fish seed /fingerlings

Ward	Existing families	Proposed families	Present quantity of fish	Provision of fish seed(₹)	Breeds
1	Nil	1	-	-	Trout

13.102 Project Interventions

- Introducing of fisheries among more families
- Requirement of improved seed (fingerlings)
- Training on fish culture

13.01 EXPECTED OUTCOME OF PROJECT AREA

Water harvesting/ drinking structure	No. of proposed structure	Water availability existing (m ³)	After intervention(m ³)	Area to be treated (ha)
Irrigation	247	1021	6854.93	1730
Drinking	32	440	683	-
Total	279	1461	7537.93	1730

Soil Conservation

Soil conservation	No. of scheme	Area (ha)
Crate wall/ gabion structure	60	175
Outlet drainage	6	81
Counter trenches	7780	38
Dry check	53	38
Total	7899	332

Production system & Micro Enterprises

Particulars	Area under cultivation		Seed /plant requirement (kg/plant)	Existing productivity /bigha	Propose productivity /bigha	Increase in production /bigha
	Existing (bigha)	Proposed (bigha)				
Agriculture						
Maize	45	43	352kg	1.5qt	2.5qt	1 qt
Rajmash	68	58.1	756.66kg	50kg	80kg	30kg
Total	113	101.1	1108.66			
Vegetable						
Bean	46	36.5	165kg	4qt	5qt	1qt
Peas	58	46.64	418.6kg	4qt	6qt	2qt
Capsicum	12	8	0.6 kg	6qt	10qt	4qt
Total	116	91.14	584.2 kg			
Horticulture						
Apple	5125	848	29667plants	22.5 qt	30qt	7.5 qt
Cherry	145	147.5	5905 plants	6 qt	7qt	1qt
Almond	25	24	945 plants	7 qt	8qt	1qt
Pomegranate	-	16	630 plants	8 qt	9qt	1qt
Lemon	-	49	1945 plants	10 qt	12qt	2qt
Pear	103	95.5	3794 plants	7qt	9qt	2qt
Total	5398	1180	42886 plants	60.5qt		

Animal husbandry

Fodder	Availability	Requirement /increase	After increase intervention
Green fodder	7592 ton	18219 ton	10627 ton
Dry fodder	3037 ton	9109 ton	6072ton
Milk production	4809 lt	7916.25 lt	3107.25 lt

Land development

Land development	No. of plants/grasses	Area (ha)
Fodder trees	16500 plants	15
Grasses	437.5 kg	12.5
Total		27.5

Livelihood activity

Farm based	Existing household	Family benefited after intervention
FCC/VCC	-	357
Dairy	30	43
Nursery floriculture	1	5SHG+2 individual
Sheep	10	17
Goatry	3	3
Vermin compost	-	9 SHG+10 individual
Poultry	-	2
Bee keeping	-	4 SHG
Poly house	-	2
Non-farm based		
Carpenter	12	4 SHG
Black smith	1	1
Knitting	14	5 SHG+ 2 individual
Cutting & pruning	18	12 SHG
Shattering	1	2SHG
Waste material	-	8 SHG
Electrician	3	1SHG+1 individual
Plumber -	-	1
Basket making	1	1
PHT	-	20

**GIST OF POOLED
DETAILED PROJECT REPORT
UNDER
IWMP-XIX DEVELOPMENT BLOCK NARKANDA
DISTRICT SHIMLA (HP)**

Gist Prepared by UHF, RC, NAEB, Nauri, Solan

IWMP-XIX Pooled Narkanda

(₹ crores and area in ha.)

1.	Name of the Project	IWMP-XIX
2.	District	Shimla
3.	Block	Narkanda
4.	Project Area	2970ha
5.	Area Proposed for treatment	2970ha
6.	Cost	₹. 4,45,50,000
7.	Panchayats Covered under the project	Four
8.	Total Micro Watersheds	Four
9.	Financial Projection in the DPR as:	
	(i) Project Fund	44550000
	(ii) Convergence	3345770
	Total (i + ii)	4,78,95,770
10.	Whether the year-wise annual action plan prepared or not	Yes
11.	Whether activity-wise project fund and convergence funds indicated separately or not	Yes
12.	Whether Khasra No. of civil structure indicated or not.	GIS Coordinates of the each activity
13.	Phy. & Fin. Target of the project period mentioned in the AAP or not.	Yes
14.	Micro watershed-wise code mentioned or not	Yes
15.	Proposed Activities	Kaccha talab, Roof water, WST, RWHST, Pipeline, Gabion structure, Dry check, Contour trenches, Outlet Drainage, Drinking tank, fodder trees, hybrid grasses, horticulture and vegetable input etc.
16.	Provision of funds for water conservation/harvesting activities	1,94,13,370
17.	Area proposed to be brought under Supplemental irrigation	34.33 ha
18.	Whether the Draft DPR has been approved by:	
	(i) The Gram Sabha / Gram Panchayat	Yes
	(ii) The District level Resource Group	Yes
19.	Expected Out come	Improvement in Horti & milk production improvement in the economic status of the beneficiaries.

	IWMP -	XIX
20.	Status Quo. Analysis:	
	• Total Geographical Area under the project	3012 ha
	• Area under cultivation	932 ha
	• Barren land	172 ha
	• Pasture land	738 ha
	• Ghasni	72 ha
	• Forest land	935 ha
	• Other land	106 ha
	• Fallow land	57
	• Current cropping pattern	Maize, wheat, sarson and fruit plants
21.	Water harvesting :	
	• Current Status of Water Harvesting activities	Kaccha talab, WST & Bawari
	• Water Harvesting Potential in term of Cubic mtrs.	1021m ³
	• Proposed Activities	Kaccha talab, Roof water tank, Bawari, WST, Pipe line, RWHST, Check Dam, Outlet Drainage etc.
	• Water Potential to be created in Cubic ltrs.	6867.5 m ³
22.	Farm based intervention :	
	• Agriculture based activities proposed in the DPRs.	Maize, Rajmash and horticulture
	• Agriculture allied activities proposed in the DPRs.	Plantation of grasses, agriculture training
23.	Non farm Based interventions :	
	• Skill Development	Formation of SHG and UGs Carpentry, Black smith, Electrician, C&T, Cutting and Pruning, PHT, Shattering, Waste material etc. activities besides proving revolving fund and GIA
	• Proposed Micro Enterprises	Livelihood activity such as Goatry, Sheep rearing, Dairy, Poly house, Vermin compost etc. by providing them revolving fund, GIA and latest technology.
24.	Non-farm based intervention :	
	• Watershed Project	4,45,50,000
	• Convergence	33,45,770
25.	Outcome :	
	Quantifiable indicators:	Improvement of Agriculture, Horticulture, Milk production improvement in the Economic status of the beneficiaries

BASE LINE SURVEY of IWMP-XIX Pooled DPR (3rd batch)

SR.NO.	PARTICULARS	
1	Total geographical areas of project (lacs ha)	3012
2	Project Area covering (treatable Area) (lacs ha)	2970
	TREATABLE AREA	
3	Wasteland (lacs ha)	1981
4	Total cropped areas (lacs ha)	989
5	Total no. of water storage structures	240
6	Total storage capacity of water storage structure (cubic meters)	6867.5
	NO. OF HOUSEHOLD	
7	Total no. of household	1991
8	Scheduled caste	741
9	Scheduled tribe / OBC	-
10	Other	1250
11	Total population in the project area	8205
12	Total no. of BPL household	165
13	No. of small farmer's household	597
14	No. of household of land less people	Nil
15	No. of marginal farmer's household	1394
	DEPTH OF GROUND WATER (MT) BELOW GROUND LEVEL	
16	Pre monsoon (mt)	45
17	Post monsoon (mt)	40
18	No. of person days of seasonal migration	Nil
19	Rainfed agricultural land (lacs ha)	1959
20	Net sown area (lacs ha)	932
21	Total No. of water extracting units	31

ABBREVIATION USED

BPL	:	Below Poverty Line
DPR	:	Detailed Project Report
DRDA	:	District Rural Development
GIS	:	Geographical Information System
ha	:	hectare
IPH	:	Irrigation and Public Health
IRDP	:	Integrated Rural Development Programme
IWMP	:	Integrated Watershed Management Programme
lt	:	liter
M	:	meter
MNREGA	:	Mahatma Gandhi Rural Employment Guarantee Act
NABARD	:	National Bank of Agriculture and Rural Development
NDRI	:	National Dairy Research Institute
OBC	:	Other Backward Classes
PIA	:	Project Implementing Agency
PMGSY	:	Pradhan Mantry Gramin Sadak Yojna
PWD	:	Public Work Department
SC	:	Scheduled Caste
ST	:	Scheduled Tribe
EPA	:	Entry Point Activity
SHG	:	Self Help Group
WDF	:	Watershed Development Fund

CONTENTS

SR. NO.	PARTICULARS	PAGE NO.
	BASE LINE SURVEY	
	GIST	
	MIS cum Physical Action Plan (Watershed Works) - Add/ New	
1.0	INTRODUCTION AND BUDGET PROJECTION/METHODOLOGY	1-3
2.0	GENERAL DESCRIPTION OF PROJECT AREA	4-8
2.1	WATERSHED AREA	9-10
3.0	SWOT ANALYSIS	11-12
4.0	ENTRY POINT ACTIVITIES (EPA)	13
5.0	CAPACITY BUILDING	14-15
6.0	LAND DEVELOPMENT FOR PRODUCTIVE USE	16
7.0	VEGETATIVE AND ENGINEERING STRUCTURE (UNDER SOIL MOISTURE CONSERVATION)	17-19
8.0	WATER HARVESTING	20-23
8.01	DRINKING WATER	24-26
9.0	CONVERGENCE MNREGA	27-28
10.0	LIVELIHOOD ACTIVITY FOR ASSETS LESS AND LANDLESS PERSONS	29-30
11.0	PRODUCTION SYSTEM AND MICRO – ENTERPRISES	31-32
12.0	AGRICULTURE	33-35
12.01	HORTICULTURE	36-38
12.02	ANIMAL HUSBANDRY	39-41
13.0	PISCICULTURE	42
13.01	EXPECTED OUTCOME OF PROJECT AREA	43-44