SUSTAINABLE WATERSHED MANAGEMENT FOR NATIONAL PROSPERITY

In Collaboration with

DISTRICT RURAL DEVELOPMENT AGENCY, SATNA (M.P.)

INTRODUCTION

Land is the mother of all natural resources. It provides the life support system for all living beings. Water resources — streams, lakes and ground water — are products of the land. Land and water together support plant and animal life. Conservation of these basic resources is the key to food security, fuel and fodder supply, a healthy environment, and social and economic stability. The demands on the limited amount of land we have for agriculture, forestry, industrialization, housing and transportation systems are steadily increasing with the burgeoning human population. At the same time, the productivity of the land — due to over exploitation — is gradually decreasing, leading to its physical, chemical and biological degradation. Nearly 50% of our land is waste or degraded land, and nearly 40% of our people live below the poverty line. The per capita availability of land in India has come down from 0.48 ha in 1952, to 0.15 ha today, and is posing a threat to the food chain and people's livelihoods. A vast amount of forest land has been denuded for agricultural use; and for greater exploitation of water, mineral and forest products. The result is the destruction of the earth's green canopy and an inadequate supply of fuel, fodder and timber. The impact of the green cover depletion can be seen in places devoid of trees and vegetal cover during the rainy season, with rainfall causing erosion and water runoffs.

Erosion is another serious problem that causes soil loss and reduces soil fertility, and reduces the area of cultivable land and food grain production. Dhruva Narayana and Ram Babu in the *Indian Journal of Irrigation and Drainage Engineering, 1983,* reported that "5334 million tonnes of top fertile soil is being eroded annually due to water erosion. The loss of plant nutrients through water erosion is estimated to be 5.4 to 8.4 million tonnes per year."

There are wide variations in rainfall. An undependable and erratic monsoon introduces an element of risk, uncertainty and instability in crop production. About 80% of total rainwater is lost within 75-80 days, with the rain causing an excess of soil moisture and water run-

off. After the rains, the situation reverses, with moisture scarcity prevailing, mainly due to the topography, poor organic content in the soil, and a lack of suitable water storage sites.

How to meet the demands of food, fodder, fuel, fibre, timber and water on a sustained basis is the greatest challenge facing us today. It has now been firmly established that conservation of soil and water, development of degraded lands, and the rational utilization of available resources are the most important inputs for meeting the needs of the people and for the eradication of poverty. Sustainable Milli Watershed Management — *with proper planning* — is a scientific and efficient approach for the management of land, water and vegetation. It has shown excellent results for the people living in 'watershed managed' areas. Conservation and development have together made achieving the goal of higher productivity and stability possible. Therefore, resource management by the people, and for the people, with a scientific approach, is the answer for sustainable management of watershed areas.

Watershed and its Approach

A watershed area is a geo-hydrological unit or piece of land that drains at a common point. Watershed areas are considered the basic unit for planning and development. In this approach, developmental work starts from the highest point in the area, and progresses downwards to the natural stream or lowest point.

Watershed Management

Watershed management is an 'area development' strategy. In this strategy, the area being developed is a watershed area, and the subject is soil and water conservation. Watershed management is the harmonious development and management of soil and water resources within the natural boundaries of a watershed area, on a sustainable basis, for the equitable benefit of the people, while delivering clean and controlled water flow downstream.

It is also to prevent the depletion of the water table by ensuring that each year the rain water and the ground water meet so that the rain can re-charge the ground water and stabilise the water table level.

The Krishi Vigyan Kendra (K.V.K.), managed by Deendayal Research Institute at Majhgawan, District Satna, has implemented an extensive and integrated milli-watershed project, as part of the Chitrakoot Project, in collaboration with the District Rural Development Agency (DRDA), Govt. of M.P., Satna, under the Rajiv Gandhi Watershed Mission in Majhgawan block, with the main objective of developing the area's natural resource base, sustaining its productivity, improving the standard of living, and endeavouring to restore the ecological balance.

This book is divided into two parts. Part I deals with the project as a whole, to give the reader a broad overview of watershed management and the impact that an integrated series of micro-watershed schemes can have over a large rural area. Part II is a step-by-step, do-it-yourself guide, for the implementation of a micro-watershed scheme.

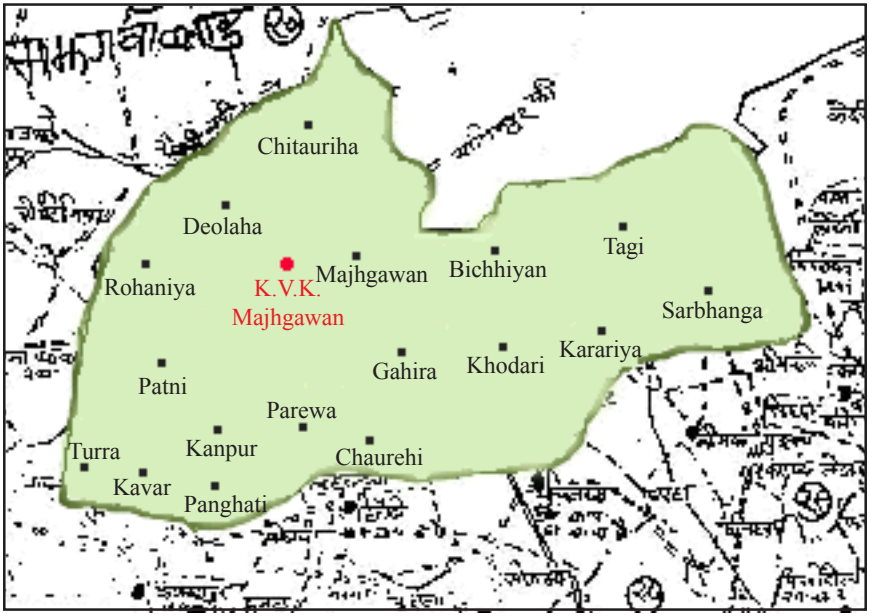
Unless all state governments, NGOs and social activists, make *sustainable and replicable* watershed management and its implementation their primary focus, there is little hope for sustainable development in rural areas.

— Vasant R. Pandit
Secretary
Deendayal Research Institute
15th June, 2002

PART I

SUSTAINABLE WATERSHED MANAGEMENT AND ITS IMPACT

Chakra Nala Watershed Project



Map showing the Chakra Nala Watershed Project, Krishi Vigyan Kendra, Majhgawan , Satna (M.P.), and the 12,536 ha area covered by the 17 micro-watershed schemes.

ABOUT THE WATERSHED AREA

Name of the watershed :		**Chakra Nala Watershed Project Krishi Vigyan Kendra, Majhgawan, Satna (M.P.)**
Code No.	:	2C1A3C
Total area	:	12536 ha
Villages covered	:	18
No. of Micro-watershed areas	:	17
Started on	:	January 10, 1996

Characteristics of the Area

The watershed area is situated in the Vindhya Hill Range. It extends from 24°51'15" to 24°57'30" N latitude and 80°43'30" to 80°54'15" E longitude. The strata of the Vindhya Hill Range comprises of Vindhya and Kaimur sandstone, shale, gneiss, granite, quartz and carboniferous rock. The annual rainfall of the area varies from 800 mm to 1,100 mm. July to September are the wettest months, accounting for about 80% of the total precipitation in the area. The summer months are very hot, and winter very cold. Temperatures rise to 45-48 °C in May, and fall to 3-5 °C during December/January. Wind velocity and the rate of evaporation is also very high in summer. The soil in the hillocks is rocky, stony and gravelly, with steep slopes and an undulating topography, and disperse/impoverished vegetal cover. The rate of soil erosion and water runoff is very high and damages cultivatable land. The soil in the plains is sandy loam to loamy in texture. It is shallow in depth, poor in organic matter content and other plant nutrients. The soil's moisture holding capacity is low, so it is only able to support crops of an inferior nature under rain-fed conditions. During the high rainfall months, water flows freely on the ground surface, due to poor percolation and the compact nature of the soil.

Aonla (*Emblica officinalis*), Chironji, Mahua (*Madhuca indica*), Tendu (*Diospyros melanoxylon*), Teak (*Tectona grandis*), Bamboo, Gurga (*Lenia grandis*), Palas (*Butea monosperma*), Khair (*Acacia*

catechu), Arjun (*Terminalia arjuna*), etc., grow in the area. The watershed area is a maze of natural drainage systems. Due to the steepness of the slopes, rainwater frequently drains into the Chakra Nala, from where this project has got its name.

Land use, soil characteristics and its problems.

Land use	Area (ha)	%	Soil Texture	Problem
Forest	4,913.53	39.19	Rocky, stony and murram .	Degraded, steep slope and undulated topography.
Cropped area	2,038.03	16.25	Sandy loam to loamy with patches of clay.	Soil erosion, moisture scarcity, low fertility & productivity, low organic matter content, gentle to moderate slopes.
Barren and Wasteland	4,833.72	38.56	Sandy loam to loamy with murram and	Undulating, slopy, eroded, degraded & gullied .
Cultivated fallow	393.58	3.14	Sandy loam to loamy.	Degraded, poor in fertility, moisture scarcity, undulating surface.
Community & pasture land	357.14	2.86	Rocky, sandy loam to loamy .	Degraded.
Total	**12,536.00**	**100**		

People's participation in the planning of the action plan for the micro-watershed scheme at Chaurehi.

METHODOLOGY USED IN THE CHAKRA NALA WATERSHED PROJECT

People's Participation

People's participation was identified as a ***necessary condition*** for the successful implementation of the watershed development programme. Awareness among the people about the watershed program and its benefits, was initially created through slogans, posters, banners, meetings, *Kala Jattha*, etc. Villagers were then encouraged to learn and educate themselves in all aspects of the program. People's participation was actively sought in the preparation of the action plan, fixing the priorities for work, and the execution of the projects within the program. The projects were executed by the people in accordance with the action plan, under the technical supervision of the Project Implementing Agency (PIA) — Krishi Vigyan Kendra (Majhgawan), Deendayal Research Institute.

Participatory Rural Appraisal (PRA)

Since independence, rural development schemes were discussed and formulated at the District, State and National level without the participation of rural people. This ignored core local issues and the requirements of the particular area. As a result, these cost-intensive rural development schemes were unable to achieve their objectives. After planners and policy makers realised the shortcomings of this type of planning, they resolved to compulsorily enlist the participation of the people involved in the developmental schemes being carried out in their villages through a Participatory Rural Appraisal (PRA). This procedure, that has now become the key document for any rural developmental work, ensures the people's understanding of their problems and helps in devising solutions that can be implemented by them. People's participation in rural projects increases their scope, stability and success rate. The action plan for the watershed area management programs in the 17 villages undertaken by the K.V.K. (Krishi Vigyan Kendra), Majhgawan, has kept this aspect of

rural participation fully in mind.

Such rural participatory programs succeed in bringing all sections of society — including women and landless labourers, to a common meeting ground, where villagers are apprised of their problems; educated about the rural development project, and their need for the project to alleviate their problems. This further ensures a surge of voluntary participation by them. The objective of the PRA is to gain the confidence of the villagers, who will then divulge basic information regarding local conditions relating to farming, schools, wells, ponds, flora & fauna, roads, forests, and a variety of other data that can help in devising solutions to their problems. Such people's participation has ensured the smooth and successful functioning of watershed management without any difference of opinion, misunderstandings or difficulties.

Problems Identified in the Watershed Area

The major problems faced by people in the watershed area were:

— Very low crop productivity.
— Lack of irrigation facilities and decreasing ground water table.
— Unavailability of drinking water during summer months.
— Degraded forest and declining vegetal cover.
— High rate of soil erosion, poor soil fertility, and an undulating topography.
— Low milk production, due to inferior breeds and poor health of the animals.
— Poor marketing facilities and low purchasing power of the villagers.

Formation of Watershed Development Committees

To achieve maximum involvement of the people, and effective implementation of project work, Watershed Development Committees (WCs) were constituted at each micro-watershed level, consisting of at least 9 members, in which each member was a representative of each activity/beneficiary group. The responsibility for the execution

and maintenance of the project work was given to the Committee. Members of the group were educated and trained by specialists and master trainers on all relevant aspects of soil and water conservation, water harvesting, plantation, maintenance of records, etc. The master trainers were deployed by the Institute, from within its scientists and specialists appointed by DRDA, and paid from the allotted funds.

Villagers drawing a social map of their village, Majhgawan.

Earthen nala dam with side spillway, Khodari.

PLANNING & STRATEGIES USED IN THE CHAKRA NALA WATERSHED PROJECT

Resource development technologies specific to the geography and requirements of the particular area were used in the project. These included soil and water conservation, water harvesting, pasture development, agro-forestry, etc. for conservation and management of hillocks, drainage systems, cultivable and marginal/waste land, and pasture development. A key to the watershed management strategy was the use of locally available material for the construction of the structures required. However, steel/cement was used where necessary, especially for the spillways (as shown on the back cover), where a re-inforced concrete central spillway was constructed on one of the four earthen check dams at the Karariya micro-watershed project.

RESOURCE BASE DEVELOPMENT STRATEGIES

Over-exploitation of forests for major and minor products, uncontrolled grazing, faulty crop management and inadequate soil and water conservation had resulted in a high rate of water runoff and soil loss in vast tracts of the project area. To face these challenges, and meet the needs of people within the watershed boundary, an integrated program of resource conservation, development and management was implemented under the Rajiv Gandhi Watershed Management Mission. The total area covered through the Chakra Nala Watershed Project was 12,536 ha through 17 micro-watershed programs. The major tasks were soil and water conservation, and the development of vegetal cover. The technologies adopted were:

1. Staggered contour trenches.
2. Contour/Field *bunding*.
3. Loose boulder check dams.
4. Gabion structures.
5. Water harvesting by
    a). Earthen check dams.
    b). Percolation tanks.
    c). Farm ponds.

6. Cattle-proof trenches.
7. Dry stone dykes.
8. Agro-forestry.
9. Pasture development.
10 Crop development.
11. Formation of Self Help Groups (SHGs).

Staggered Contour Trenching

Staggered Contour Trenching is the most effective strategy for *in-situ* moisture conservation in areas that have steep inclines. They are effective in controlling water runoff velocity by changing the nature of barren slopes, as they break the free flowing nature of water during the monsoon. This results in the conversion of surface water into sub-surface water, creating favourable moisture conditions for plant growth, which increases agricultural, grass and legume productivity. Trenches of about 45-60 cm deep, 45-60 cm wide and 3-4 m long were dug along the contour, and across the slope of hillocks with moderate to steep slopes. The soil taken out from the trenches was placed downhill in the form of a *bund*. Seeds of grasses and shrubs suitable to the area were sown on the *bunds* to control erosion and improve vegetal cover. The gap between trench lines varied from 5-10 metres according to the steepness of the hill. In order to reduce hydraulic pressure on the trenches some uncut space was left in between trenches of the same line.

Contour/Field *Bunding*

Contour *bunding* is an important and effective mechanical measure for checking soil erosion and increasing *in-situ* water conservation. The stored water is absorbed in the soil and the surplus water can be used for irrigation purposes. These *bunds* were constructed on farmer's fields with inclines of upto 5% to harvest runoff water.

Loose Boulder Check Dams

Loose boulder check dams are very effective in the collection of up-

stream sediment loads, stabilization of vegetation, and maintenance of soil moisture for long periods. These structures reduce the velocity and erosiveness of rainwater, and control the displacement of sediment. Loose boulder check dams were constructed in series on narrow points of the gully bed. Loose stones/boulders were arranged in trapezoidal shapes (where the base is wide, and the top of the check dam is narrow), with a minimum base width of 90 cm.

Gabion Structures

Where the velocity of the water in *nalas* and main drainage channels is extremely swift, with relatively large quantities of runoff waterr and debris, and a normal loose boulder check dam would be unable to withstand the water pressure, a gabion structure is constructed across the *nala*. The gabion is made with stones/loose boulders that are tightly packed in wire mesh cages of galvanized wire (G.I.) of 10 guage thickness, to a height of 1 m and width of 1.25 m and then ties together with steel wire. Gabion structures were constructed where necessary.

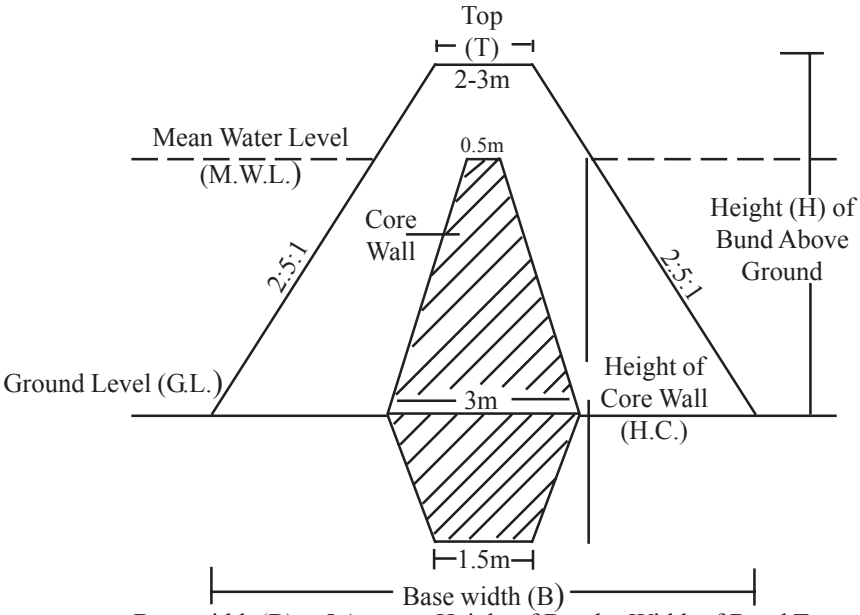
Water Harvesting

Water harvesting is the collection and storage of runoff water. For this, a series of farm (dugout and embankment type) ponds, small earthen *nala* check dams and percolation tanks were constructed in depressed areas, and across natural *nalas* to collect and impound the surface water runoff and store it for longer periods. The tools available for water harvesting are:

1. Farm ponds are multipurpose water conservation structures for irrigation, drinking water for cattle, fishery, ground water recharge, etc., that help control erosion, runoff water and stablising the water channel. While constructing dugout and embankment ponds for these purposes, care should be taken to ensure the pond is large enough for its primary purpose keeping in mind the rate of evaporation, seepage, and other water loss. A spillway is to be constructed at zero level to check water pressure on the structure and overflows.
2. Earthen *nala* check dams store water for percolation and irrigation, thereby raising the water table, increasing crop productivity and

availability of drinking water. The *nala bund* is constructed with a core wall made of clay taken from the bottom of ponds upto the Mean Water Level of the *bund* and ($\frac{H-2}{2}$) . m depth. Stone pitching of 0.22 m thickness is laid on the upstream face of the *bund*. A side or central spillway is also required to be constructed.

Cross-section of an Earthen *Nala* Check Dam



Base width (B) = 5 Average Height of Bund + Width of Bund Top

3. Percolation tanks store water for recharging ground water, raising the water table. They are constructed across natural streams and nalas to collect and impound surface runoff water and store it to facilitate infiltration and percolation of water into the sub-strata of the soil, thereby raising the ground water table. Spillways are to be provided for as required.

Note: In most cases, a simple side spillway that may require reinforced concrete at zero level, is sufficient to ensure that water pressure does not break the check dam. However, in certain cases, depending on the topography, a central spillway (as shown on the back cover) would be required to ensure the stability of the dam.

Cattle-proof Trenches

Contour trenching on denuded hillsides is carried out to reduce the velocity of runoff water and also to re-vegetate the hillsides to check soil erosion. The greatest danger for a re-vegetating hillside is stray cattle. To protect the treated area until the plantation is mature enough to look after itself, a continuous cattle-proof trench is dug around the boundary. The trench is 1 m deep, and 1 m wide at its base and 1.25 m at the top. The soil removed from the trench is placed along the treated side of the hill.

Dry Stone Dykes (Walls)

Where a hard ground surface makes the digging of a cattle-proof trench difficult, and there is a large quantity of loose stones available, dry stone dykes (walls), constructed by placing one stone on top of another to a height of 1 m, with a base width of 1 m and the top width of 0.8 m, can be used instead of cattle trenches to protect treated areas. The choice of the strategy for cattle-proofing is dependent on the cost-effectiveness of cattle-proof trenches and dry stone dykes in the particular treatment area.

Agro-forestry

Agro-forestry is a sustainable land management system in which trees are grown alongwith agricultural crops. This system is not confined only to agricultural land, but is also applicable to waste and marginal land. Under the watershed development program, fruit and forest plant saplings were distributed to farmers so that they can be planted amidst field crops or as a plantation. The main objective of tree plantation with grasses and/or crops is to rehabilitate degraded land. This results in optimum land productivity; conservation of plants and grasses, soil and nutrients; and enhancement of the production of food, forage, firewood, timber and other products.

Pasture Development

Deforestation, uncontrolled fires and increased grazing pressure results in the replacement of the natural perennial grass cover by weeds and other undesirable bushes in watershed areas. This reduction in cover causes an acceleration of the erosion process and loss of grass seeds. For the conservation of degraded pasture areas and improvement in forage production in the watershed area, treatment areas need to be fenced in with cattle-proof trenches or dry stone dykes and reseeded with suitable varieties of fodder grass.

Crop Development

Farmers in the watershed area have been using local seeds that over years of unchanged use have turned into low yielding varieties. Their farming techniques were also found to be inefficient. To improve crop yields and productivity, Front Line Demonstrations (FLDs) of high yield varieties (HYV) were conducted on farmer's fields and neighbouring farmers were encouraged to substitute their old seeds after seeing the increase in productivity. Seed replacement was with seeds grown in the K.V.K. and through making certain farmers into seed banks, who exchanged 1 kg. of new seed for 1.25 kg of old seed from their neighbouring farmers. The concept of seed villages was also introduced in the watershed area.

Farmers were also taught that their fields gave poor yields because of the loss of top soil due to water runoff, and also due to imbalanced cropping patterns. To improve the soil condition, legume crops, such as cow pea, *dhaincha*, etc. were first grown and ploughed on the fields, as this increases the nitrogen and organic matter content of the soil. FLDs were then used to demonstrate the benefits of the correct use of fertilisers and *in-situ* moisture conservation.

Self Help Groups (SHGs)

With the objective of improving the socio-economic status of the people in the watershed area, Self Help Groups (SHGs) were formed

of actual users and people with similar interests living below the poverty line. These groups were given vocational training in the maintenance of nurseries, *dona-pattal* (leaf cups and plate) making, poultry, fishery, goat rearing, bamboo crafts, carpentry, etc., and were guided in its functioning.

Strategies for Watershed Management.

Sl. No.	Area	Strategies
1	Hillocks	Trenching
		Plantation of fruit & forest species
		Seeding of trees, bushes and grass seeds on trench *bunds* and inter-spaces
		Stone dykes & cattle-proof trenching
2	*Nalas* & Natural Drainage Systems	Loose boulder check dams
		Earthen embankments for water harvesting
		Gabion structures
3	Barren, Marginal & Waste land	Trenching
		Plantation
		Seeding of grasses and legumes
		Fencing
4	Fallow & Pasture land	Pasture development
		Cattle proof trenching
5	Cultivated land	*Bunding*
		Contour cultivation
		Fodder production
		Agro-forestry (agri-horticulture)
		Water harvesting
		Demonstration of HYV, fertilization, green manuring, *in-situ* moisture conservation, etc.

ACTION, COST & IMPACT ASSESSMENT IN THE CHAKRA NALA MILLI WATERSHED PROJECT

An integrated management system for natural resources — land, water, vegetation, animals and the environment was used as it is the most effective approach for sustainable development. Effective soil and water conservation measures for degraded and cropped land with the involvement of the local people resulted in:

1. Harvesting of runoff water for irrigation, recharging and augmentation of the ground water.
2. Plantation of multi-purpose trees (MPTs).
3. Pasture development for fodder.
4. Ecological stability.

Although each of the 17 micro-watershed areas were independent, an integrated approach by the K.V.K. for 'area management' has given the area economic benefits that are far greater than the sum of its parts. This has changed the overall scenario of the treated area with increased agricultural and forest produce. Details of the various components of the micro-watershed areas and their costs are given in the tables on the following pages.

Note: Under the Rajiv Gandhi Watershed Mission, the M.P. State Govt. had sanctioned a sum of Rs. 3,000/ha. Deendayal Research Institute carried out the work of area development under the scheme with an average cost Rs. 2,486/ha, saving Rs. 514/ha.

The scheme has now been discontinued, and watershed management schemes now come under aegis of the Integrated Wasteland Development Programme (IWDP), with an allocation of Rs. 6,000/ha. However, though new guidelines for Watershed Development have been issued by the Dept. of Land Resources, Ministry of Rural Development, the format for the application of funding for watershed management schemes will remain the same as for the Rajiv Gandhi Watershed Mission. (See Annexure I).

DETAILS OF TPYE OF TREATMENT, QUANTITY & EXPENDITURE

Sl.No.	Watershed Committee	Area (ha)	Budget in Lacs	Treatment			
				Contour Trenches		Loose Boulder Check Dams	
				No.	Value	No.	Value
1	Khodhari	1,268	38.040	8,647.000	2.030	260.000	0.568
2	Bichhiyan	497	14.910	3,992.000	1.050	205.000	0.446
3	Tagi	590	17.710	3,902.000	1.290	378.000	0.500
4	Karariya	626	18.780	5,802.000	1.490	230.000	0.349
5	Majgawan	735	22.050	22,186.000	4.480	1,353.000	1.087
6	Devlaha	1,442	43.260	17,591.000	3.060	441.000	0.800
7	Patni	395	11.850	7,310.000	1.510	325.000	0.405
8	Kanpur	562	16.860	6,182.000	1.090	354.000	0.477
9	Chitauriha	105	3.150	2,134.000	0.330	456.000	0.782
10	Rohaniya	387	11.610	2,028.000	0.450	62.000	0.118
11	Gahira	542	16.260	2,368.000	0.650	172.000	0.362
12	Parewa	1,087	32.610	5,359.000	1.480	124.000	0.218
13	Panghati	1,006	30.180	2,738.000	0.700	152.000	0.330
14	Kavar	330	9.900	1,529.000	0.420	126.000	0.184
15	Turra	1,000	30.000	1,702.000	0.470	108.000	0.315
16	Sarbhanga	1,012	30.360	3,874.000	1.070	166.000	0.267
17	Chaurehi	952	28.560	3,476.000	0.960	74.000	0.118
	Total	**12,536**	**376.080**	**1,00,820**	**22.530**	**4,986.000**	**7.208**

DETAILS OF TPYE OF TREATMENT, QUANTITY & EXPENDITURE

Sl.No.	Watershed Committee	*Nala Bunds*/Tanks		Stone Dykes		Cattle-Proof Trenches	
		No.	Value (lacs)	Metres	Value (lacs)	Metres	Value (lacs)
1	Khodhari	12	16.34	1,492.00	0.730	2,080	0.45
2	Bichhiyan	10	7.10		-	475	0.06
3	Tagi	9	6.14		-	771	0.24
4	Karariya	11	10.21	-	-	860	0.20
5	Majgawan	27	10.37	2,961.90	1.030	--	--
6	Devlaha	44	16.74	3,521.60	1.110	440	0.22
7	Patni	18	5.91	365.00	0.180	--	--
8	Kanpur	29	8.03	1,984.00	0.850	35	0.01
9	Chitauriha	7	1.12	186.00	0.023	--	--
10	Rohaniya	8	7.80	--	--	--	--
11	Gahira	9	8.88	400.00	0.193	--	--
12	Parewa	11	10.02	710.00	0.302	--	--
13	Panghati	8	8.98	--	--	--	--
14	Kavar	7	6.60	--	--	948	0.30
15	Turra	12	14.13	2,010.00	0.980	--	--
16	Sarbhanga	4	6.14	2,300.00	1.000	--	--
17	Chaurehi	9	6.56	440.00	0.310	--	--
	Total	**235**	**151.25**	**16,370.50**	**6.708**	**6,557**	**1.48**

DETAILS OF TYPE OF TREATMENT, QUANTITY & EXPENDITURE

Sl.No.	Watershed Committee	Farm *Bunding*		Fodder		Plantations					Man Days
		Area (ha)	Value (lacs)	Area (ha)	Value (lacs)	Area (ha)	Plants	Value (lacs)	Survival No.	Survival %	
1	Khodhari	6	0.170	3	0.40	10.00	17,039	1.800	9,509	55.80	23,109
2	Bichhiyan	-	-	3	0.37	4.50	6,470	0.440	2,362	36.50	17,924
3	Tagi	1	0.010	2	0.10	4.00	6,719	0.660	3,325	49.50	13,243
4	Karariya	-	-	4	0.37	4.50	8,992	0.570	2,894	32.20	17,026
5	Majgawan	2	0.200	3	1.09	16.50	22,492	2.374	6,727	37.00	28,884
6	Devlaha	22	1.650	2	0.58	15.25	23,731	3.300	9,118	38.40	35,568
7	Patni	--	--	3	0.67	6.70	7,850	1.197	2,352	32.00	15,740
8	Kanpur	23	0.320	2	0.55	8.00	10,420	1.190	4,747	45.50	21,471
9	Chitauriha	3	0.214	2	0.30	6.50	7,000	0.416	1,540	22.00	4,043
10	Rohaniya	--	--	--	--	1.00	250	0.190	250	100.00	10,671
11	Gahira	--	--	--	--	4.30	2,200	0.089	2,200	100.00	9,228
12	Parewa	3	0.180	--	--	2.00	1,300	0.057	1,300	100.00	4,062
13	Panghati	17	1.480	--	--	1.00	210	0.100	210	100.00	9,164
14	Kavar	3	0.116	--	--	0.50	180	0.008	180	100.00	3,997
15	Turra	--	--	--	--	9.00	4,500	0.202	4,500	100.00	8,599
16	Sarbhanga	7	0.650	--	--	4.00	2,200	0.100	2,200	100.00	11,132
17	Chaurehi	--	--	--	--	5.00	2,600	0.117	2,600	100.00	8,324
	Total	**87**	**4.990**	**24**	**4.43**	**102.75**	**1,24,153**	**12.810**	**56,014**	**45.11**	**2,42,185**

Note: Survival rates of plants in some villages are low as the plantations are located mainly on rocky and thermogenic soil, unsuitable initially for any plant growth.

DETAILS OF SHGs

Sl.No.	Watershed Committee	Area (ha)	Budget (in lacs)	Payment	Year of inception	No. of SHG.s		Development Accounts
						No	Loan	(Deposit)
1	Khodhari	1,268	38.04	27.30	97-98	4	0.30	1.91
2	Bichhiyan	497	14.91	15.05	,,	2	0.10	1.13
3	Tagi	590	17.71	14.04	,,	2	0.20	1.05
4	Karariya	626	18.78	17.73	,,	1	0.05	1.24
5	Majgawan	735	22.05	22.05	96-97	20	0.70	2.24
6	Devlaha	1,442	43.26	36.57	,,	13	0.56	2.90
7	Patni	395	11.85	12.61	,,	14	0.73	0.60
8	Kanpur	562	16.86	16.80	,,	8	0.24	0.97
9	Chitauriha	105	3.15	3.15	,,	2	0.08	0.23
10	Rohaniya	387	11.61	8.99	99-00	1	0.05	0.85
11	Gahira	542	16.26	9.34	,,	3	0.15	1.06
12	Parewa	1,087	32.61	8.52	00-01	--	--	1.08
13	Panghati	1,006	30.18	9.38	,,	3	0.30	1.17
14	Kavar	330	9.90	12.17	,,	--	--	0.68
15	Turra	1,000	30.00	15.24	,,	--	--	1.08
16	Sarbhanga	1,012	30.36	8.98	,,	3	0.15	0.93
17	Chaurehi	952	28.56	14.34	,,	2	0.10	0.72
	Total :	**12,536**	**376.08**	**252.26**		**78**	**3.71**	**19.84**

IMPACT OF WATERSHED MANAGEMENT

The impact of watershed management on checking soil erosion and harvesting of water can be seen in each and every water harvesting structure, from the ridge to the valley.

1. Loose boulder check dams: Loose boulder check dams that were constructed with a view to check the velocity of water flowing in small and big *nalas*, have checked soil erosion considerably. Loose boulder check dams constructed in 1996-97 are now completely filled with eroded soil, and vegetation has started growing on them.

2. Contour trenches: Contour trenches were dug from ridge to valley. The trenches collect rainwater during the monsoon. This rainwater percolates into the soil, raising the water level and enhancing moisture content. The impact of contour trenches can be seen clearly from the growth and development of transplanted trees.

3. Earthen *nala bunds* and ponds: 1,195 farmers have benefited with the construction of earthen *nala bunds* and ponds. These farmers are now harvesting good crops as water for irrigation is available from these ponds. About 1,504 ha of land is now being irrigated with water from these ponds. However, the major impact of these water harvesting structures can be seen in wells and hand pumps that were dry during summer, and now have enough drinking water all year long.

4. Watershed management projects have also generated employment for the rural people by increasing the land under cultivation, intensity of cultivation, and the formation of SHGs. This has checked their migration towards towns and cities.

5. Watershed management has achieved a major breakthrough by making 287 rural youths self-reliant. The watershed committees of the 17 micro watershed projects have formulated 78 self help groups (SHGs), and after imparting vocational training to them, 245 men and 42 women are now engaged in different occupations. These rural youth are now earning Rs.1,000-2,500 per month for their families.

(As can be seen from the chart on page 28, SHGs involved in providing services are more profitable, and should, therefore, be encouraged.)

Increase in Productivity

The productivity of different crops, grass and legumes in micro-watershed managed areas has increased appreciably. Pre/post treatment results are given in the tables below.

Increase in Productivity of Agricultural Crops.

Sl. No.	Crop	Production (q/ha)							
		Before treatment	After treatment						
			1997	1998	1999	2000	2001	Av.	(%) increase
1	Paddy	10.30	13.40	14.20	19.60	14.60	16.40	15.64	51.84
2	Jowar	6.00	7.10	7.20	8.00	8.30	8.10	7.74	29.00
3	Arhar	7.40	8.90	8.60	9.50	8.50	8.50	8.80	18.92
4	Gram	8.10	10.70	11.00	12.50	11.30	15.70	12.24	51.11
5	Wheat	15.80	20.20	21.00	23.50	21.60	24.20	22.10	39.80
6	Mustard	5.00	6.30	6.50	7.80	9.40	10.02	8.00	60.00

Mustard crop, Khodari behind a dry stone dyke.

Grass & Legume Production

Year	Production (ton/ha)		
	Untreated area	Treated area	
		Natural grasses	Stylo + Natural grasses
1996	2.1	--	--
1997	2.9	6.3	11.6
1998	1.8	5.7	13.2
1999	2.0	8.4	17.7
2000	1.6	7.8	16.2
2001	2.2	8.6	18.9

Ground Water Recharge

The cumulative effect of intensive soil and water conservation, and water storage activities in various micro-watersheds has contributed much to raising the level of water in the wells of the treated area, as shown in the table below.

K.V.K. scientists measuring the water level in the well at Tagi.

Average Increase in Water Level of Wells

Year	Annual Rainfall (mm)	Availability of water (m)			
		In May	Increase over 1996	In December	Increase over 1996
1996	905.40	0.93	--	1.80	--
1997	1,069.90	1.38	0.45	2.97	1.17
1998	755.00	1.55	0.62	3.25	1.45
1999	899.70	2.03	1.10	3.67	1.87
2000	600.50	3.09	2.16	4.36	2.56
2001	1,094.85	3.85	2.92	4.85	3.05

Impact of Watershed Management on Irrigated Areas

S.N.	Source of irrigation	Irrigated Area (Ha)		
		Before	After Treatment	Change
1	Earthen Embankment	19.50	977.60	958.10
2	Pond	11.60	451.20	439.60
3	Natural *Nala*	34.90	75.20	40.30
	Total	66.00	1,504.00	1,438.00

Crop development at Majhgawan — Wheat.

Impact of Watershed Management on Cropped Area

Sl. No.	Crop	Cropped Area (ha)		
		Before	After treatment	Change
1	**Cereals**	**546.26**	**825.5**	**279.24**
1.1	Paddy	170.40	247.65	77.25
1.2	Sorgham	108.94	99.06	-9.88
1.3	Wheat	178.50	396.24	217.74
1.4	Barley	88.42	82.55	-5.87
2	**Pulses**	**242.40**	**450.2**	**207.8**
2.1	Pigeon Pe	111.80	90.04	-21.76
2.2	Gram	131.60	360.16	228.56
3	**Oilseeds**	**169.45**	**228.3**	**58.85**
3.1	Mustard	84.85	159.81	74.96
3.2	Linseed	51.20	45.66	-5.54
3.3	Til	33.40	22.83	-10.57
Total		**958.11**	**1504**	**545.89**

Self Help Groups (SHGs) and Their Income.				
Sl. No.	**SHG**	**Total groups**	**Total members**	**Average Income (Rs./group/month)**
1	Fisheries	7	40	1,550
2	Goat Rearing	22	90	1,250
3	Nursery	6	18	2,200
4	Vegetable production	3	10	1,400
5	Bamboo crafts	1	3	1,500
6	Poultry	11	33	1,250
7	Seed collection	1	3	1,750
8	Carpentry	2	8	1,800
9	Cycle repair	1	3	1,900
10	Brick making	1	3	1,000
11	Dairy	5	10	1,900
12	General store	5	16	1,450
13	Cloth store	3	11	1,500
14	Fruit selling	2	6	1,600
15	Sewing	2	6	1,500
16	Mechanics	5	25	2,500
17	Flour mill	1	2	1,200
	Total	**78**	**287**	**1,603**

A SHG for brick-making at Majhgawan.

CONCLUSION

When the watershed management work was first started in the area, the K.V.K. team did not get the full co-operation of the local people. However, after seeing the results of the treatment in Patni village, Kanpur village and Deolaha village (that was started in the first phase), the villagers of the area understood that this project was extremely beneficial for them, and co-operated fully with the K.V.K. for its implementation.

The economic impact of the programme has been such that villages in the block have now started watershed programs on their own, without waiting for any assistance from the K.V.K. or Governmental agencies. After observing the impact of the watershed treatment on productivity of crops in Patni village, the villagers from a neighbouring village, Patna Kalan (6 km from Patni), came to the K.V.K. scientists, and with only their guidance, implemented watershed treatment work in their village. A village in the opposite direction called Parewa, 16 km from Patna Kalan and 10 km from Patni then, on their own initiative — and without any help from the K.V.K. — implemented watershed treatment work in their village. This was only possible because the work carried out in Patni village was on the basis of sustainable and replicable development.

A rehabilitated hillside at Deolaha.

Above: Contour trenches at Patni; and below: Stone pitching on eathern bunds at Khodari.

Above: A loose boulder check dam at Chitauriha; and below: A Gabion structure at Majhgawan.

Above: The bund of a percolation tank with ground water seepage at Tagi; and below: in-situ field bunding for moisture conservation in Majhgawan.

Above: An Aonla plantation at Patni; and below: Plantation of grasses on contour trenches at Majhgawan.

Above: A cattle-proof trench at Kavar; and below: A side spillway at zero level, Khodari.

PART II

A STEP BY STEP GUIDE TO IMPLEMENT MICRO WATERSHED PROJECTS

PATNI VILLAGE — A MODEL FOR MICRO WATERSHED MANAGEMENT

Four villages were short-listed through information obtained in the Block Development Office (BDO) for selection as the first micro watershed project of the Krishi Vigyan Kendra (K.V.K.), Majhgawan, managed by Deendayal Research Institute. Scientists from the K.V.K. first visited all four villages, namely, Majhgawan, Devlaha, Kanpur and Patni. The criteria for selection of the village included:

a). Acute shortage of drinking water.
b). Low crop productivity.
c). Lack of viable cropping patterns.
d). Low percentage of cultivatable land, and high percentage of marginal/waste and barren land.
e). Easy availability of manpower.
f). Lack of economic resources.
h). Feasibility of watershed treatment.

Patni village was selected as it fulfilled all the above criteria, and the socio-economic status of the village was well below the average for Majhgawan Block, with all the villagers living below the poverty line. It was also situated close to the K.V.K.

Contact with the villagers for implementation of the micro-watershed project was first made in January, 1996. The team from the K.V.K. consisted of an agronomist, horticulturist, agro-forestry specialist, animal husbandry scientist, agricultural engineer, a home scientist, and 2 field workers. The composition of the team was 6 males and 2 females. In the first 3 visits by the team the villagers refused to come to meet them as they had seen too many official Government teams that had come to the village with projects that were of no use to them, and thought that this would also be another fruitless exercise.

The major difference between the Rajiv Gandhi Watershed Mission and other governmental schemes is the use of a tool called ‘entry

point' to ensure 'people's participation' in the project. This tool allows the Project Implementation Agency (PIA) to build any structure that the villagers desire to gain their confidence. This can range from a road, to a well, to a school or a temple/mosque (Note: The new guidelines do not allow the building of religious structures).

The team sat with the village *pradhan* and a few villagers and after explaining the project and its potential benefits to the village to them, asked them what they would like to be built in the village. After the departure of the team, the village *pradhan* called a meeting of the villagers and discussed the K.V.K.'s proposal with them.

The next day, about 90% of the villagers attended the team's second meeting at the village. The team then re-explained the project, its implementation and its benefits to the villagers, emphasizing the salient features of the project namely,
a). That watershed management uses simple techniques to help them harvest rain water so that drinking water and water for irrigation is available throughout the year, and that their economic contribution would be minimal, depending on the work.
b). That a structure of their choice would be built for them within 1 month after approval of the project.
c). That a Watershed Committee would be formed by the villagers themselves, and the funds for the project would go directly into the account, and they would be responsible for its use.
d). That they themselves would carry out the work for the project, and the K.V.K. would only act as guides and teachers.
e). That the economic benefits of the project would be seen by them within 6 months of them starting the work.
f). That the K.V.K. had an integrated approach to development and the scientists would help them improve all aspects of their socio-economic condition, including cropping patterns, seed replacement, breed improvement, entrepreneur/vocational training, village hygiene, health and education.

After listening to the complete explanation of the project, the villagers agreed to co-operate fully with the team for the implementation

of the watershed management project.

DAY I

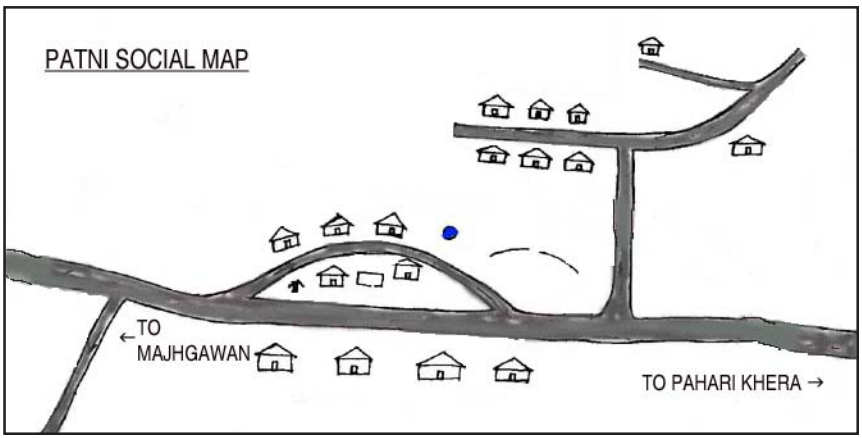
The next day the team returned to Patni, and with the help of the whole village, initiated the Participatory Rural Appraisal (PRA) — the key document for any rural development activity.

(The PRA is initiated with the first visit of the PIA team members to the village. The information for the PRA is collected over a seven day period and consists of a social map, an enterprise map, a topography and hydrology map, information on cropping patterns, seasonal work loads, and climatic conditions).

The villagers made a social map of the village on the ground in front of the village school. This included the placement of houses with the number of people in each house (male, female, children), public buildings (school, *panchayat bhavan*), cattle sheds, drinking water wells and hand pumps, and approach roads.

Simultaneously, a K.V.K. scientist copied the map being drawn on the ground onto a paper, and also noted the information given.

With this information, the K.V.K. scientist drew his own Social Map of Patni village:



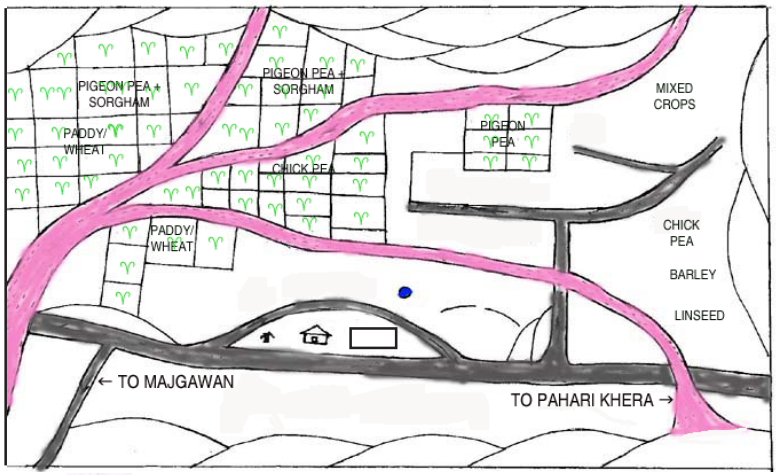
Patni village is situated 6 km. away from the K.V.K. The village is about 200 years old, and the village consists of 67 farmer families totalling 362 persons, of whom 184 are male and 178 female. The 67 houses are made of stone, wood, mud and thatch. The village is dominated by SC/STs. Of the 67 families, 65 belong to SC/STs.

The village has a *Gram Panchayat Bhavan* and a Primary School. For higher education, villagers send their children to Majhgawan. There are two hand pumps and seven wells in the village that provide drinking water. One hand pump has water throughout the year and the other is seasonal, giving water only from July to February. All seven wells are seasonal, going dry from December until the rains. The villagers live in harmony and actively participate in marriages and other functions.

DAY II

The next day, after completion of the social map, the villagers drew the enterprise map of the village. This included livestock, cultivatable land, irrigation facilities, marginal/waste and barren land, cropping pattern, fruit trees, timber, vegetable gardens, etc.

With this information, a enterprise map of the village was made as follows:



Villagers in Patni are engaged in limited enterprises only. i.e. agriculture and livestock rearing. Water is the major limiting factor for agriculture. Because of this, farmers are restricted to a single cropping pattern, either in the *kharif* or *rabi* season, using residual moisture content. The only source of irrigation is a seasonal *nala*, which partially fulfils the needs for a single crop — usually as 'life-saving irrigation' for about 35 ha of land in the *rabi* season. The *kharif* crop in the village are entirely rain-fed.

The major crops grown in the village are paddy, pigeon pea, jowar and *kodo* in the *kharif* season; and gram and wheat in the *rabi* season. Farmers usually adopt a Paddy-Wheat; Fallow-Wheat; Fallow-Gram; Paddy-Fallow; and a Pigeon pea+Jowar+Kodo rotation. Some farmers grow vegetables for their own consumption.

Livestock is the secondary enterprise in the village. On an average, each farmer has 7 animals, but the productivity of the cattle is very low — ranging from 0.5-1.5 lit/animal/day. The health of the animals is also very poor. People rarely practise stall-feeding, and provide no concentrates even to their milch animals. The animals are totally dependent on grazing in nearby forest areas. Like in other areas of the district, Patni village also follows the tradition of *Anna Pratha*, in which domestic animals are left free to graze after harvesting the *rabi* crop, till the sowing of the *kharif* crop. Because of this tradition, fields of early sown *kharif* crops are sometimes damaged. There are 292 animals in the village consisting of 180 cows, 7 buffaloes, 30 bullocks and 75 goats. Landless villagers are mainly dependent on forest produce i.e. fire wood, wild fruits, *tendu patta*, etc. and also supplement their income by rearing goats and working as labourers in nearby villages.

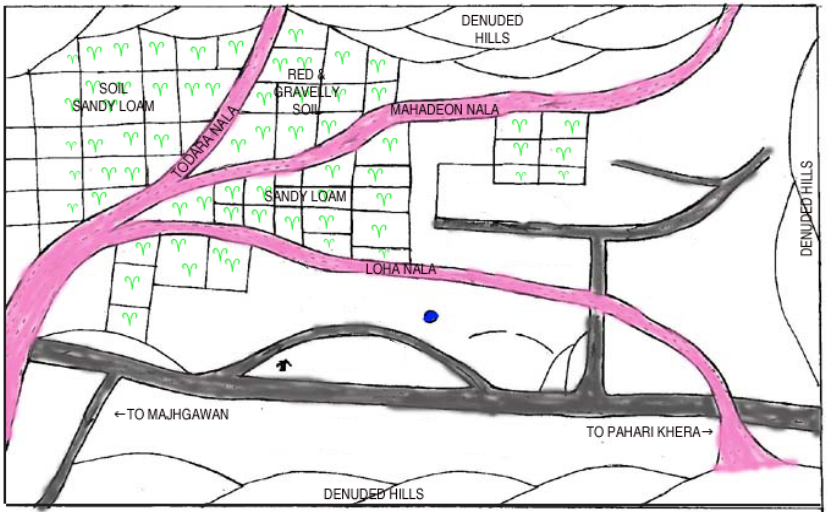
The meeting ended, and work on completion of the PRA continued the next day.

DAY III

The villagers again gathered in front of the school building and drew

the topography and hydrology map of the village. This includes the geographical features of the village area, demarcating areas that were cultivatable, marginal/waste, barren, hilly and flat. The map also includes the placement of *nalas*, type and condition of the soil, rainfall, etc.

The topography and hydrology map was as follows:



A hilly undulated soil surface dominates the topography of the village. The soil in the waste and forest land consists of gravel and stones, whereas the soil in cultivatable land is sandy loam. Poor soil fertility, soil erosion, low organic matter content and moisture stress during the crop season are the major factors responsible for low crop yields.

A sum total of approximate 900 mm of rainfall is recorded in the 75-90 days period during the monsoon. The rainfall is usually uneven and erratic. The village has no pond or water harvesting structures. The only source of irrigation in the village is a *nala* that emerges from the hills.

After finishing the maps, the K.V.K. scientists, along with the villagers, conducted an extensive field survey of the village called the 'transect of the village' that showed the contours of the land, its con-

ditions and other details. The transect revealed the location of the village to be in the centre of undulating agricultural fields and wastelands.

After completing the transect, the team returned with the villagers to the school and discussed the problems faced by the village. The detailed information collected with the help of farmers on the topography, natural resources and social infrastructure of the village was as follows:

TRANSECT OF PATNI VILLAGE

- Soil - Sandy loam, Red and Gravelly.
- Crops - Jowar, Arhar, Paddy, Kodo, Wheat, and Gram.
- Cropping patterns - *Kharif* cultivated/*Rabi* fallow (60%); Kharif fallow/Rabi cultivated (30%); Kharif cultivated/Rabi cultivated (10%).
- Trees - Mahua, Pipal, Ber, Bamboo.
- Livestock – Cow, Buffalo, Goat.
- Institutions - School, Panchayat Bhavan.
- House - Homestead.
- Problems - *Anna Pratha*/wild animal attacks; low milk yield; low yield of Jowar, Paddy, Kodo and Arhar; lack of drinking water; lack of irrigation facilities; poor hygienic condition; poor attendance in schools; malnutrition; high infant mortality rate; prevalent casteism; poor economic condition with lack of employment opportunities and skills; migration to towns and cities.

After identifying the problems, the villages were asked to prioritise their most urgent needs, so that one of them could be resolved through the 'entry point' work immediately. Their initial list was as follows:
1. Drinking water well.
2. Temple.

It was decided by the villagers that the drinking water well would be chosen for 'entry point' work.

DAY IV

The team returned again and in the meeting with the villagers discussed their source of income and the climatic conditions in the village area. The findings were as follows:

Agriculture, livestock and forest produce are the mainstay of all sections of the village. While STs earn most of their income from agriculture, livestock, and forest produce (*Aonla* and *Tendu Patta*); SCs depend largely on forest produce for their livelihood. Some of the SCs are also engaged in agricultural activities. Villagers spend the maximum part of their earning on food and clothing, and the least on the health and education of their children.

Monsoon rains are the only source of water. The monsoon commences in the last week of June and continues up to September. The remaining months receive nominal or no rainfall. Maximum rainfall occurs is August followed by September, July and June respectively. Rainfall is usually erratic and uncertain, thus resulting in severe moisture stress during critical growth periods for the *kharif* crop. However, light winter rains increases the productivity of the *rabi* crop.

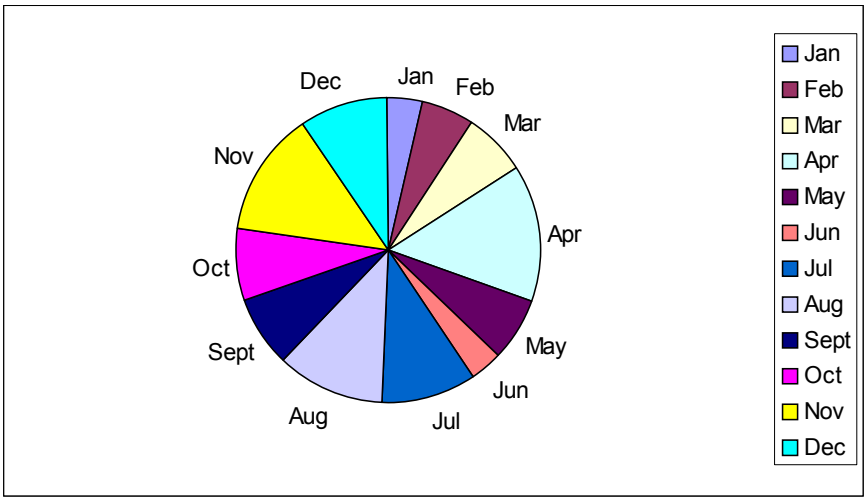
The temperature starts rising from January and reaches its maximum in June. An abrupt and significant fall in temperature in observed is July. Thereafter, the temperature remains more or less constant till October, and then steadily falls in November/December. Thus, June is the hottest month and December/first fortnight of January is the coldest period.

DAY V

On the fifth day, the team analyzed the seasonal workload and general health conditions of the villagers, to establish when they have time available to work on the watershed project, as also to check their general health. This is required for the preparation of the action plan.

The findings (monthwise), was as follows:

Workload in Mandays	
Jan	6
Feb	8
Mar	10
Apr	22
May	10
Jun	5
Jul	15
Aug	17
Sept	11
Oct	12
Nov	20
Dec	14



DAY VI

The team spent the day in the K.V.K. preparing the final report and action plan for the micro-watershed project. The final report that was later submitted to DDRA was as follows:

BASIC INFORMATION ABOUT PATNI VILLAGE:

1.	Village Name:	Patni
	Panchayat:	Patna Khurd
	Block:	Majhgawan
	Tehsil:	Raghuraj Nagar
	District:	Satna (MP)
2.	**Population**	
	Total family:	67
	Total members:	362
	Men:	184
	Women:	178
	SC:	33
	ST:	326
	General:	3
3.	**Education**	
	Men:	60
	Women:	49
	Literacy (%):	30
4.	**Availability of infrastructure**	
i.	Primary School:	1
	Distance:	In the village
	Number of students:	85
	Number of classrooms:	2
	No. of teachers:	1
ii.	Bank:	At Majhgawan
	Distance:	6 Km.
5.	**Land utilization pattern**	
	Total geographical area (ha):	395
	Total cultivated area (ha):	190
	Forest land (ha):	98
	Pasture (ha):	24
	Waste & community land (ha):	83
6.	**Crop productivity**	
	Name of the crop:	Productivity (q/ha)
	Kodo:	4.20
	Jowar:	7.50
	Paddy:	9.50

Arhar:	7.50
Wheat:	15.50
Gram:	9.50
Mustard:	6.00
Linseed:	2.25
Barley:	8.50

7. Cropping system

Kharif: Millets, Jowar, Paddy, Arhar, Til, etc.

Rabi: Wheat, Gram, Mustard, Barley, Linseed, etc.

8. Animals

i.

	No.
Cows:	180
Bullock:	30
Buffalo:	7
Goats:	75
Poultry birds:	75

ii. Milk Productivity: Cow & Buffalo: 0.5-1 Lit./day

Goat: 0.2 Lit./day

9. Water Resources:

	No.	Utilized	Un-utilized
Ponds:	1	0	1
Wells:	7	6	1
Hand Pipes:	3	1	2

10. Availability of water:

Month	Well	Pond	Rainfall
June	Dry	—	Insufficient
July	Adequate	—	Very good
Aug.	Good	—	Very good
Sept.	Very good	—	Adequate
Oct.	Very good	—	Insufficient
Nov.	Adequate	—	Insufficient
Dec.	Adequate	—	Insufficient
Jan.	Adequate	—	Insufficient
Feb.	Insufficient	—	Dry
March	Insufficient	—	Dry
April	Dry	—	Dry
May	Dry	—	Dry

11. Average rainfall: 900 mm.

12. Average temperature

Maximum: 47.80 degrees C

Minimum: 10.61 degrees C

13. Availability of trees, grasses and bushes:

Mahuwa, Khair, Aonla, Tendu, Semel, Sharifa, Neem, Palas, Pipal, Kaitha, Sahadei, Bel, Ber, Babul, Satawar, Bamboo, Madar, Karaunda, Sahtoot, Ashwagandha, Chiraunji, etc.

GEOGRAPHICAL LOCATION & CONCLUSIONS

Patni village is ensconced within the jurisdiction of Majhgawan Block, which is located 6 km away from the K.V.K. on the Majhgawan-Pahadi Kheda road. An extensive survey of the entire village to identify various problems in a four-dimensional manner covering the social, cultural, economic and ecological areas revealed that: It is a typical tribal village, situated at the base of a hill range, and comprises of 67 families who derive their subsistence from agriculture and other allied vocations. Of these, incomes of 64 families were below the poverty line. The village boundary is naturally demarcated on its south, west and northern sides by hills, and by the Chakra Nala on its eastern boundary. There are three main *nalas* — Tondra, Mahadevan and Loha, originating in the surrounding hills that finally converge into the Chakra Nala. The total area of the Patni micro-watershed is 395 ha, of which 54% is cultivated, 12% is under forest cover and the remaining 34% comes under marginal/waste land and pasture.

Most of the *nalas* are seasonal in nature, carrying the runoff water at a very high velocity that subsides within a few hours after the rain stops. However, these *nalas* have substantial potential for providing good water storage with the construction of loose boulder check dams.

Low crop production, severe moisture stress during the cropping season, waste or degraded lands, declining vegetal cover, a high rate of soil erosion, poor soil fertility, undulating topography and depletion of valuable natural resources were identified as some of the key factors responsible for the poor socio-economic condition of the village.

Deendayal Research Institute's K.V.K. scientists worked out an action plan for the village consisting of four components — conservation and restoration of natural resources; improving productivity and profitability of farming systems and sustainability, while maintaining or enhancing the ecological balance; meeting the demands of food, fodder, fuel, fibre, timber and water on a sustainable basis; and suitable measures for appropriate use of rainwater that would be available throughout the year.

DAY VII

The team returned to the village and presented all the findings of the PRA to the villagers. After agreement with the villagers on the conditions described in the report, the team asked the villagers to form the Watershed Committee. The necessity of choosing such persons from among them who could understand the work required to be done and execute it was explained to them. In accordance with the rules, 3 women, 3 elected representatives of the Gram Panchayat, and 1 representative of the PIA were included in the committee. As their Committee Chairman, the villagers chose Shri Buddha Mawasi, a 45 year old illiterate farmer and a member of the Panchayat, and Shri Bhagwan Deen Kole, a 26 year old farmer, who had studied upto the 8th standard. The ten other members were:

1. Shri A.K. Verma (PIA member)
2. Shri Ram Narayan Mawasi (Panchayat member)
3. Shri Kamata Mawasi (Panchayat member)
4. Smt. Bacchibai (women member)
5. Smt. Ram Kalli (women member)
6. Smt. Rajkumari (women member)
7. Shri Rajaram Mawasi
8. Shri Dadoli Mawasi
9. Shri Ram Milan Mawasi
10. Shri Pradeep Kumar Sharma

After the formation of the watershed committee (WC), the team returned to the K.V.K. and work started on the project implementation.

An estimate for the 'entry point' work was drawn up and sent to the District Rural Development Agency (DRDA) in Satna. The complete proposal for the micro-watershed project, including the names of the committee members, was forwarded to DRDA for registration and approval. After receiving approval, a demand was sent to the agency in the required format to receive funding. (See Annexure II for all government correspondence and formats). Work on the 'entry point' drinking water well started with Deendayal Research Institute funds within a week of the formation of the WC and completed within 1 month.

*(**Note:** As under normal conditions, 'entry point' work can only be started after approval of the project and receipt of funds, Deendayal Research Institute agreed to loan the village the necessary funds for the well so that it could be started immediately, to retain the interest and motivation of the villagers. The money was repaid after the project funds were received).*

After approval for the project was received, work started on 28 April, 1996. Treatment was initiated from the ridge line on the north side of the village, as the hill there was a naked hill, and required the most work due to the many gully formations that were causing soil erosion. As per the requirements of the scheme, 2 bank accounts were opened that were maintained by the WC. One was a Project Account, and the other a Development Account. The Project Account was to be used only for implementation of watershed development work in the village, and the Development Account was for all the funds raised through contributions from the villagers for maintenance of the assets after the project was completed. (To ensure 'people's participation' in the project, all the work is done by the villagers and a part of the project cost is taken from the people themselves. For project work that would benefit the village as a whole 5% is taken from SCs/STs and people living below the poverty line, and 10% from others. It is taken either in cash or deducted from their wages for the work being carried out and deposited into the Development Account. For structures that would benefit specific users, contributions are taken from only from them. The expenditure for the maintenance of the struc-

tures is then taken from the interest earned from the Development Account.) The books of accounts were maintained by the Secretary of the WC, and submitted to the DRDA as and when further funding was required.

The strategies, methodology and quantity of treatment options used in the Patni micro-watershed project are as follows:

CONTOUR TRENCHES

On the hillslopes, 7,310 staggered contour trenches of 3 m length, 0.6 m wide and 0.6 m deep were constructed to de-accelerate and collect runoff water. The contour trenches were dug in denuded areas of the hillside, starting from the top and working downwards,. The trench lines were positioned along the contour lines of the hills.

LOOSE BOULDER CHECK DAMS

325 loose boulder check dams were constructed across the gullies and ravines with locally available stones on the hills surrounding the village. The height of the check dams was between 0.52m-1.5m, depending the topography of the gully at the site of the check dam. Loose boulders check dams were also constructed across the 3 main *nalas*, and *sub-nalas* to minimize water velocity and form pools at various points along the *nalas*.

STONE DYKES

A continuous stone dyke of 365 m in length was constructed on the hill on the south side of the village, as the ground was stony and hard, and loose stones were freely available.

WATER HARVESTING

Various gullies and ravines originating from the hills transformed into *nalas* at the base of the hills that divided agricultural as well as non-agricultural lands into segments. During the survey, it was observed that these *nalas* could be easily converted into earthen check

dams and percolation tanks. 15 earthen check dams and 3 percolation tanks using low cost technologies were constructed. The earthen check dams were constructed on a foundation that was filled with black clay soil taken from the bottom of ponds, to a depth of 1.0 m and a width of 1.0 m. The embankments were built with locally available loose soil and packed with the same black clay soil to give it extra grip. The inner sides of the embankments were stone-pitched to prevent erosion. Spillways with stone pitching were also constructed to drain excess rainwater.

AGRO-FORESTRY

To control soil erosion and boost villager's incomes, 800 fruit trees were planted amidst field crops, and 3 plantations were established with a total of 7,050 fruit, fodder and timber trees. Each of the plantations is managed by a Self Help Group consisting of actual users.

PASTURE DEVELOPMENT

To rehabilitate and conserve degraded hills and pasture wasteland, grass seeds were sown in the 3 plantations and contour trench treatment areas. Natural grasses were also allowed to grow in the protected areas. In certain areas, *Stylosenthus* and *Stylozebra* were sown along with the natural varieties.

CROP DEVELOPMENT

Comprehensive trials were under taken by the K.V.K. team to evaluate the economic benefits of various crops and cropping patterns to be adopted in Patni village, with the objective of providing a solution to low productivity and the mono-culture system prevalent in the area.

The topography of the agricultural land, in association with prevailing micro-climatic conditions showed great scope for growing pulses in both seasons. FLDs for black gram, chick pea and pigeon pea were conducted.

SELF HELP GROUPS (SHGs)

As the economic condition of the villagers were below the poverty line, Self Help Groups (SHGs) were formed to reap the economic benefits of the micro-watershed project in the village. The SHGs were formed under the guidance of the K.V.K. and the direction of the WC. Two types of SHGs were formed. The first consisted of actual users and covered poultry, goat rearing and dairy. The K.V.K. introduced new breeds and feeding techniques for animal husbandry. The other was of village youngsters who were looking for a trade to supplement their income. For this, SHGs for brick making, mechanics and tailoring were formed and its members trained in the required skills. The number of persons in the SHGs were kept small so that strong bonds were formed among members of the group and co-operation among them was easier.

IMPACT OF THE TREATMENT IN PATNI VILLAGE

Watershed treatment in the village was completed over a period of 4 years. In the 1st year, ridge line treatment was carried out on the hills on the south side of the village, with contour trenching and loose boulder check dams. A large percolation tank was also constructed.

In the 2nd year, hills on the west side were treated, and 1 percolation tank and 3 earthen check dams were constructed. Grass and legume seeding was done on the soil that was removed from the contour trenches on the south side. 1 plantation was also completed on the south side, and 800 fruit trees were planted amidst the fields.

In the 3rd year, treatment work on the hills to the north of the village was completed. 1 plantation, 6 earthen check dams and 1 percolation tank were constructed west of the village. 12 Self Help Groups (SHGs) were also formed.

In the last year of work, 6 earthen check dams, and stone dykes for protection of the plantations and natural vegetation were constructed on the south side of the village. 2 more SHGs were also started. FLDs for chick pea, wheat and paddy were also conducted.

Impact of Watershed Management on Cropped Areas

Sl.No.	Crops	Cropped area (ha)		
		Before treatment	After treatment	Change
		1996	2001	
1	Cereals	90	154.8	64.8
1.1	Paddy	40	64.1	24.1
1.2	Sorghum	1.2	3.6	2.4
1.3	Wheat	40.4	81.7	41.3
1.4	Barely	8.4	5.4	-3
2	Pulses	43.6	45.8	2.2
2.1	Pigeon pea	11.8	6.3	-5.5
2.2	Gram	31.8	39.5	7.7
3	Oilseed	9.4	17.8	8.4
3.1	Mustard	4.8	13.4	8.6
3.2	Linseed	1.2	2.2	1
3.3	Til	3.4	2.2	-1.2
4	Mix crops	19.7	9.2	-10.5
	Total :	**162.7**	**227.6**	**64.9**

Impact of Watershed Management - Use of Fertilizer

Sl.No.	Crop	Amount (kg/ha)			
		Before Treatment		After Treatment	
		1996		2001	
		Urea	DAP	Urea	DAP
1	Paddy	22	--	43 (95)	27
2	Wheat	10	18	23 (130)	44 (145)
3	Gram	--	--	--	25

Figure in parenthesis indicates % increase of fertilizer over base year

Impact on Irrigated Areas

Sl.No.	Source of Irrigation	Irrigated area (ha)		
		Before Treatment	After Treatment	Change
		1996	2001	
1	Earthen embankment	9.5	107.4	97.9
2	Pond	1.6	18.5	16.9
3	Natural *Nala*	2.1	17.3	15.2
	Total	**13.2**	**142.2**	**129**

Average Increase in Water Levels of Wells

Year	Annual rainfall (mm)	Availability of water (m)			
		May	Increase over 1996	December	Increase over 1996
1996	905.40	0.93	--	1.80	--
1997	1,069.90	1.38	0.45	2.97	1.17
1998	755.00	1.55	0.62	3.25	1.45
1999	899.70	2.03	1.10	3.67	1.87
2000	644.40	2.78	1.85	3.90	2.10
2001	1,095.00	3.50	2.57	4.65	2.85

Impact of Watershed Management on Family Income

S.N.	Sources	Income (Rs./Year)		
		Before Treatment 1996	After Treatment 2001	Change
1	Migratory labour wages*	2880	2065	-815
2	Forest Products	1615	2098	483
3	Watershed	--	3240	3240
4	Agriculture	5935	15472	9537
	Total :	**10430**	**22875**	**12445**

* After treatment, agricultural and non-agricultural labour no longer needed to go in search of work outside the village, as shown by the fall in its weightage on total income from 27.6% to 9%.

Grass and Legume Production

Year	Production (Ton/ha)		
	Untreated area	Treated area	
		Natural grasses	Stylo + Natural grasses
1996	2.1	--	--
1997	2.9	6.3	11.6
1998	1.8	5.7	13.2
1999	2.0	8.4	17.7
2000	2.2	6.8	14.2
2001	2.4	7.2	16.9

Impact of Watershed Manaement on Areas under High Yielding Varieties

Sl.No.	Crops	Area under HYVs (ha)		
		Before Treatment 1996	After Treatment 2001	Change (ha)
1	Paddy	3.0	21.0	18.0
2	Wheat	8.0	35.0	27.0
3	Gram	--	16.0	16.0
4	Linseed	--	1.5	1.5
5	Mustard	1.2	7.0	5.8
	Total :	**12.2**	**80.5**	**68.3**

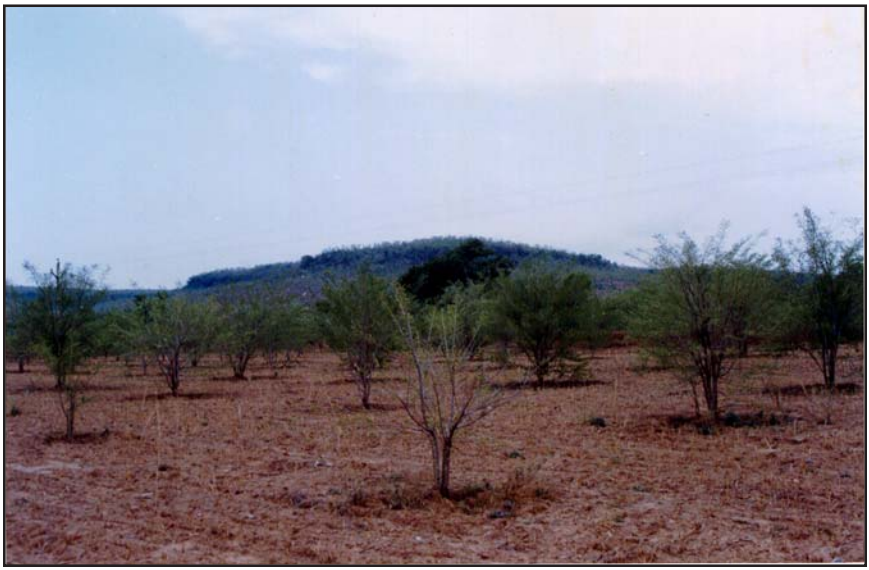
The results of the treatment on the socio-economic status of the village was visible from the first year itself, and by the time the project was complete, approximately 60% of the villagers were no longer living below the poverty line. Training was given to the villagers in all economic disciplines that were relevant to the integrated development plan for the village. Motivation and support for the village from the K.V.K. is continuing, and the whole village should be able to lift themselves above the poverty line in a short period of time.

Above: The first meeting at Patni village; and below: the entry point drinking water well.

Above: The Chairman of the Watershed Committee Shri Buddha Mawasi and the Secretary Shri Bhagwan Deen Kole at Patni; and below: Contour trenches on the north side of the vllage.

Above: Loose boulder check dams on the nala on the west side of Patni village; and below: A tank built on the south side of the village.

Above: Irrigation in Patni village;
and below: A Front Line Demonstration (FLD)
of chick pea in a villager's field in Patni.



Above: A fruit plantation in Patni village;
and below: A Self Help Group (SHG) of women engaged in sewing clothes at Patni.

ANNEXURE I

GUIDELINES FOR WATERSHED MANAGEMENT, INTEGRATED WASTELAND DEVELOPMENT PROGRAM (IWDP), DEPARTMENT OF LAND RESOURCES, MINISTRY OF RURAL DEVELOPMENT, GOVERNMENT OF INDIA.

INDEX

Guidelines for Watershed Development
(Revised – 2001)

Introduction

1. The Watershed approach has conventionally aimed at treating degraded lands with the help of low cost and locally accessed technologies such as in-situ soil and moisture conservation measures, afforestation etc. and through a participatory approach that seeks to secure close involvement of the user-communities.

2. 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. Many projects designed within this approach were, at different points of time, taken up by the Government of India. The Drought Prone Areas Programme (DPAP) and the Desert Development Programme (DDP) were brought into the watershed mode in 1987. The Integrated Wasteland Development Programme (IWDP) launched in 1989 under the aegis of the National Wasteland Development Board also aimed at the development of wastelands on watershed basis.

3. All these three programmes were brought under the Guidelines for Watershed Development with effect from 1.4.1995. Other major programmes now being implemented through this approach are the 'National Watershed Development Project in Rainfed Areas' (NWDPRA) and the 'Watershed Development in Shifting Cultivation Areas' (WDSCA) of the Ministry of Agriculture (MoA).

4. The focus of these programmes has, with the advent of the Department of Land Resources (DoLR) shifted to the enhancement of the viability and quality of rural livelihood support systems.

5. While the programmes of DoLR are designed to address areas characterized by a relatively difficult terrain and preponderance of community resources, those of Ministry of Agriculture are expected to aim at increasing production and enhancing productivity in cultivated areas largely privately owned.

6. While the focus of these programmes may have differed, the common theme that underpinned their structure has been the basic objective of land and water resource management for sustainable development of natural resources and community empowerment. The Prof. Hanumantha Rao, Committee, constituted by the Ministry of Rural Development (MoRD) studied the implementation and impact of the Drought Prone Areas Programme and the Desert Development Programme all over the country and recommended a common set of operational guidelines, objectives, strategies and expenditure norms for watershed development projects integrating the features of the three programmes under the MoRD. Accordingly, the Guidelines for Watershed Development were framed and brought into force with effect from 1st April 1995.

Need for Revision

7. More than six years have elapsed since the first set of projects was sanctioned under the Guidelines. Meanwhile, a number of studies have been conducted, evaluations made and soundings taken in various fora culminating in the emergence of many suggestions in regard to making the guidelines contemporary, transparent and easy to follow. The need has also been felt to infuse a greater degree of flexibility into the Guidelines in view of the large variation in local conditions, needs and the social structure. Detailed consultations were, therefore, organised with the State Governments, Project Implementation Agencies, NGOs and other experts involved in the implementation of Watershed Development Projects under different Programmes. In fact, Prof. Hanumantha Rao himself has brought out some of the emerging issues and their immediate redressal in his Lovraj Kumar Memorial Lecture 2000. Encompassing all these innovations in one place and making the intentions more specific, the Guidelines for Watershed Development (2001) have now been reformulated *inter-alia,* to ensure:-

(i) Programme-specific and focused project approach;
(ii) Greater flexibility in implementation;

(iii) Well–defined role for State, District and Village level Institutions,
(iv) Removal of overlaps;
(v) A provision for keeping the Watershed Development Projects on probation;
(vi) An "Exit Protocol" for the PIAs;
(vii) A "Twin track" approach to the implementation of projects;
(viii) Seeking a combination of GO/NGO as PIA;
(ix) A greater role of women;
(x) An effective role for the Panchayat Raj Institutions;
(xi) Bringing to centre-stage SHGs comprising rural poor, especially those, belonging to SC/ST categories;
(xii) Establishing a credit facility from financial institutions;
(xiii) Transparency in implementation;
(xiv) Effective use of remote sensing data furnished by NRSA.

Applicability

8. These Guidelines are applicable to IWDP, DPAP and DDP and any other programme notified by the Government of India. The Watershed Development Projects under DPAP/DDP will be taken up in the Development Blocks notified under respective Programmes. Such Projects, under IWDP will generally be implemented in the Development Blocks other than those notified under DPAP/DDP as well as the Blocks having similar projects under International Cooperation Schemes such as Sustainability of Livelihood/Watershed Development projects funded by international donor agencies.

Watershed Area

9. A watershed is a geo-hydrological unit, which drains into common point. The watershed approach is a project based, ridge to valley approach for in situ soil and water conservation, afforestation etc. Unit of development will be a watershed area of about 500 ha. each in watershed development projects. However, the actual area of a project may vary keeping in view the geographical location, the size of village etc. The thematic maps generated from satellite data for

different themes such as land use/land cover, hydro geo-morphology, soils etc. may be used for selection of a watershed area. The project will primarily aim at treatment of non-forest wastelands area consists of some forestlands, it should also be treated simultaneously under the project as provided in para 16 of these Guidelines.

Scope

10. These Guidelines should be taken as general principles for implementation of watershed development projects and should not be used as a tool to make their implementation a complex exercise. The basic philosophy of these general principles is to seek gainful and transparent utilization of public funds for watershed development, with a view to promoting the overall economic development and improving the socio-economic condition of the resource poor and the disadvantaged sections of the people inhabiting the project areas. The State Watershed Development Committees (para 19) are empowered to clarify the provisions of these Guidelines to suit local social, infrastructure and geographical problems subject to the basic philosophy mentioned earlier on.

Objectives

11. The objectives of Watershed Development Projects will be: -

(i) Developing wastelands/degraded lands, drought-prone and desert areas on watershed
basis, keeping in view the capability of land, site-conditions and local needs.
(ii) Promoting the overall economic development and improving the socio-economic condition of the resource poor and disadvantaged sections inhabiting the programme areas.
(iii) Mitigating the adverse effects of extreme climatic conditions such as drought and desertification on crops, human and livestock population for their overall improvement.
(iv)Restoring ecological balance by harnessing, conversing and developing natural resources i.e. land, water, vegetative cover.

(v) Encouraging village community for:

a. Sustained community action for the operation and maintenance of assets created and further development of the potential of the natural resources in the watershed.
b. Simple, easy and affordable technological solutions and institutional arrangements that make use of, and build upon, local technical knowledge and available materials.

(vi) Employment generation, poverty alleviation, community empowerment and development of human and other economic resources of the village.

Implementation of Programme

12. These programmes will be implemented, mainly, through the Zilla Parishads (ZPs)/District Rural Development Agencies (DRDA). However, wherever it is expedient in the interest of Watershed Development Programmes, the projects can be implemented through any Department of the State Government or autonomous agencies of Central Government or State Governments with the approval of the Department of Land Resources, Government of India.

Sanction of Projects

13. The projects will be sanctioned by Government of India as per procedure in vogue at the time of adoption of these revised guidelines. The Department of Land Resources, Government of India, may amend or relax this procedure from time to time. In case of interpretation of any of the provision of these guidelines, the Department of Land Resources will be the final authority. However, the Department of Land Resources may sanction special projects for treatment of wastelands in Special Problem Areas such as high altitude regions, land slide areas, slopes having more than 30 degree gradient or for any other specified technical reason. These projects need not necessarily be implemented through participatory mode and may be implemented on intensive treatment specific departmental approach.

Preparation of Perspective Plan

14. The Department of Land Resources has brought out the Wastelands Atlas of India in May 2000 in collaboration with NRSA, Hyderabad. The State Governments are expected to prepare a long-term perspective plan for treatment of wastelands/degraded lands, drought prone and desert areas over a period of 15 years. This plan should keep in view the availability of funds under IWDP, DPAP, DDP and other such programmes being implemented through International Cooperation projects and other agencies. In most of the States, State Remote Sensing Application Centres have developed watershed-wise Atlas showing code numbers. These code numbers should be specified in the perspective plan indicating already treated watershed areas, ongoing project areas and new project areas to be taken up in a phased manner.

Criteria for Selection of Watersheds

15. The following criteria may broadly be used in selection of the watersheds:

(a) Watershed area may be about 500 ha. However, if on actual survey, a watershed is found to have slightly less or more area, the total area may be taken up for development as a project. Even small contiguous watersheds with an approximate total area of 500 hectares may be taken up for development.
(b) In case a watershed falls in two villages, it should be divided into two sub watershed areas confined to the designated villages. Care should be taken to treat both the sub watershed areas simultaneously.
(c) Watershed, which has acute shortage of drinking water.
(d) Watershed, which has a large population of scheduled castes/ scheduled tribes dependent on it.
(e) Watershed that has a preponderance of non-forest wastelands/ degraded lands.
(f) Watershed, which has a preponderance of common lands. However, in view of the fact that watershed development aims at poverty alleviation by improving productivity of land and generation

of employment, projects not having preponderance of common lands may also be considered for sanction provided there is adequate justification.
(g) Watersheds where actual wages are significantly lower than the minimum wages.
(h) Watershed, which is contiguous to another watershed that has already been developed/treated.
(i) Watersheds where People's participation is assured through raw materials, cash, contribution on labour etc. for its development as well as for the operation and maintenance of the assets created.

Development of Forest Lands in Watershed Areas

16. Some watersheds may encompass, in addition to arable land under private ownership, forestland under the ownership of State Forest Department. Since nature does not recognize artificial boundaries of forest and non-forest lands in any watershed, the entire watershed is to be treated in an integrated manner. Though the criterion for selection of watersheds primarily remains predominance of non-forest lands, the forest lands forming part of such watersheds may also be treated simultaneously as detailed below:

(a) The Divisional Forest Officer concerned should give technical sanction of the treatment plans.
(b) The programme should as far as possible be implemented by Village Forest Committees existing in that area. If no such Committee exists, their formation may be encouraged, or else the project activities in such watersheds should be taken up by the Forest Department.
(c) Village Forest Committees should be treated at par with Watershed Committee. Since Village Forest Committees are registered with the Forest Department of the respective States, there would not be any need for getting them registered under the Societies Registration Act.
(d) The Micro-watershed Development Plan for the forest areas should be in conformity with the Forest Conservation Act and the approved working plan of the area.
(e) Where a relatively larger proportion of the watershed is covered by forestlands, Forest Department at the district level should be

encouraged to take up the work of development as Project Implementation Agency.

(f) A forest official should invariably be included as a member of the Watershed Development Team wherever forestland falls within the watershed.

Project Commencement

17. The date of sanction of the project shall be date of project commencement for all purposes. The project shall be implemented over a period of five years from the date of sanction.

State Watershed Development Committee

18.To ensure coordination among various Government Departments/ Institutions and Voluntary Agencies, a State Watershed Development Committee (SWDC) shall be constituted under the Chairmanship of Additional Chief Secretary/Agricultural Production Commissioner/ Development Commissioner. Secretaries & Heads of Departments of Rural Development, Panchayati Raj, Forest, Soil Conservation, Horticulture, Agriculture, State Remote Sensing Centre, Harijan and Tribal Welfare, two representatives of prominent NGOs working in the field of watershed development, two prominent Women representatives, one representative of State Training Institutions in related field will be the members of the Committee. A designated Department in the State Government shall be the nodal Department to service this Committee and to supervise the implementation of Watershed Development Programmes.

19. This Committee may meet twice a year to monitor, review and evaluate the progress of implementation of the Watershed Development Programmes. If there is adequate justification, the Committee may recommend relaxation of the cost norms for a specific project especially in difficult areas.

20. The ZP/District Rural Development Agency shall be normally the authority competent to decide on the suitability or otherwise of the Project Implementation Agency for taking up Watershed Development Projects. However, the State Government will be competent to change the Project Implementation Agency. In case of change of PIA in the projects under IWDP, prior concurrence of Department of Land Resources, Govt. of India will be necessary.

District Watershed Development Committee

21. To ensure coordination at district level, a District Watershed Development Committee (DWDC) shall be constituted under the Chairman, Zilla Parishad or DRDA as the case may be. It shall consist of CEO/PD, ZP/DRDA and district level officers of the line departments associated with the implementation of watershed development projects, one representative of the State Remote Sensing Centre, one member from the relevant Research and Training institutions in the district, one NGO representative, at least two prominent women workers and one prominent social worker. The District Watershed Development Committee will advise and assist the ZP/DRDA on matters, regarding selection of PIAs, members of Watershed Development Teams, training, community organization, publicity campaigns and such other items/activities. The Committee will also approve the detailed action plan for watershed development projects in the district. It should meet at least once in a quarter and review the progress of the watershed development projects, assist in resolving management and administrative problems, guide in implementation, identify policy issues, if any, for reference to the State Government / Government of India.

22. ZPs/DRDAs or any other Institution in whose favour the watershed development projects have been sanctioned shall be fully responsible for their implementation. The CEO, ZP/PD, DRDA will be the member Secretary of the DWDC. The ZP/DRDA at the District level shall have the right and responsibility to monitor and review the implementation of the programme. The CEO, ZP/PD, DRDA shall maintain the accounts of watershed development projects and shall

sign all the statutory papers, such as, UCs, Audited Statements of Accounts, Progress Reports, Bonds, etc.

Role of Panchayati Raj Institutions

23. The Zilla Parishads and other Panchayati Raj Institutions (PRIs) shall have very important role to play in Watershed Development Programmes. Wherever the DRDA has been made responsible for implementation of the watershed programmes, the Chief Executive Officer of the Zilla Parishad shall be a member of the DWDC. The PRIs shall have the right to monitor and review the implementation of the programme and provide guidance for improvements in the administrative arrangements and procedures with a view to ensure convergence of other programmes of Ministry of Rural Development such as JGSY, SGSY, IAY, CRSP, Rural Drinking Water Supply etc.

24. At the Village level, the Gram Panchayat shall be fully involved in the implementation of the programme, specially community organisation and training programmes. It may use its administrative authority and financial resources to support and encourage the formation of SHGs/UGs, the operation and maintenance of the assets created during project period and the common property resources such as pasture lands, fisheries tanks, plantations on village common lands, etc. The Gram Panchayats may also ensure that funds from other developmental programmes of MoRD are used to supplement and complement the Watershed Development Programmes. The Gram Panchayat shall be empowered to review and discuss the progress of watershed development programme in its meetings. The watershed action plan should have the approval of Gram Sabha and it should be a part of annual action plan of Gram Sabha. The Secretary, Watershed Committee shall provide all information in respect of action plan, funds earmarked for various activities, details of expenditure progress of works and future plan of action to the Gram Panchayat/Gram Sabha.

25. The ZP/DRDA in whose favour the project has been sanctioned will be entitled to affect recovery of funds from any institutions / organizations / individuals and take appropriate action under law if

the project is not properly implemented or funds are misutilised or not spent as per Guidelines.

26. The Zilla Parishads, Panchayat Samitis and the Gram Panchayats are also entitled to take on the responsibility of implementing a cluster of watershed projects in the capacity of Project Implementation Agencies, if they so desire. However, in all such cases, they shall also follow the norms prescribed for PIAs under these Guidelines.

Project Implementation Agencies

27. While the ZP/DRDA shall administer the Watershed Development Programmes under the supervision and guidance of the State Governments and Government of India, the projects at the field level shall be implemented by the Watershed Committees under the overall supervision and guidance of Project Implementation Agencies (PIAs). The PIA shall normally be assigned 10-12 watershed projects covering an area ranging from 5000-6000 hectares. However, if a PRI/ Government Department has adequate infrastructure, it can be assigned more projects on the specific recommendations of the State Government concerned. The PIA shall engage a four member Watershed Development Team (WDT). The PIA should preferably be selected from amongst PRIs, failing which, it may be a Government Department or a reputed Non Government Organization/Body Corporate registered under any of the legislation such as the Societies Act, the Co-operative Societies Act, Companies Act or any other special statute. Wherever feasible, ZPs/DRDAs may implement a project through a combination of Government and Non-Government Project Implementation Agencies where community mobilization may be done by the Non-Government PIA & bio physical activities by Government PIA.

28. An NGO is eligible for selection as PIA only if it has been active in the field of watershed development or any similar area developmental activities in rural areas for some years. There is no bar for a PIA to take up two or more cluster of projects provided it has the requisite capacity and capability. However, one NGO may

not normally be given more than a total of 12,000 ha. area in all the programmes of similar nature to develop in a district and 25,000 ha. in the State. This will encourage more NGOs in the field of watershed development. Due consideration and preference should be given to those institutions, which have done their basic homework in identifying villages/watersheds/areas where they would prefer to work. Past experience in/or nearby selected villages and quantum of funds handled by the PIA in last 3 years may be taken into account for their selection by the ZP/DRDA. The non-Governmental Organizations black listed by CAPART or other Departments of State Government and Government of India should not be appointed as PIAs.

29.The Project Implementation Agencies (PIAs) will motivate the Gram Panchayats to pass necessary resolutions to make public contributions, conduct Participatory Rural Appraisal (PRA) exercises, prepare the development plans for the watershed, undertake community organization and training for the village communities, provide technical guidance and supervision of watershed development activities, inspect and authenticate project accounts, undertake action research to adapt low-cost technologies and/or validate 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.

Watershed Development Team

30. Each PIA shall carry out its duties through a multi-disciplinary team designated as the Watershed Development Team (WDT). Each WDT may handle 10-12 watershed development projects and may have at least four members one each from the disciplines of forestry/ plant science, animal sciences, civil/agricultural engineering and social sciences. At least one member of the WDT should be a woman. Preferable qualification for a WDT member would be a professional degree. However, qualification can be relaxed by the ZP/DRDA in deserving cases keeping in view the practical field experience in respective discipline. One of them shall be designated as the Project

Leader. The PIA will be at liberty to either earmark its own staff exclusively for this work, or engage fresh candidates including retired personnel, or take people on deputation from government or other organizations. The establishment charges for the WDT shall be subject to the limits prescribed in Annexure-I and debited to the Watershed Development Projects. The WDT shall be located in the PIA/Block headquarters/any other small town nearest to the cluster of selected villages. The appointment of the WDT must be completed within a period of two months from the date of nomination of PIA, failing which the ZP/DRDA shall have the right to cancel the nomination of the PIA and attach the villages to some other PIA.

Self-Help Groups

31. The PIA shall constitute Self Help Groups (SHGs) in the watershed area with the help of WDT. These Groups shall be homogenous groups having common identity who are dependent on the watershed area such as agricultural labourers, landless persons, women, shepherds, scheduled castes/scheduled tribes persons. Around 50% of villagers i.e. who are directly or indirectly dependent on the watershed, should generally be enrolled as members of at least one Self-Help Group. Separate Self-Help Groups should be organised for women, scheduled castes, scheduled tribes etc.

User Groups

32. The PIA shall also constitute User Groups (UGs) in the watershed area with the help of WDT. These Groups shall be homogenous groups, who may be most affected by each work/activity and shall include the persons having land holding within the watershed areas. Each UG shall consist of the persons who are likely to derive direct benefits from a particular watershed work or activity. The UGs should actually take over the operation and maintenance of the completed community works or activities on common property resources.

Watershed Associations

33. Where a watershed is coterminous with a Village Panchayat or its area is confined within the boundaries of a Village Panchayat, the Gram Sabha of the Panchayat concerned will be designated as the Watershed Association (WA). However, where a watershed comprises of areas coming under the jurisdiction of more than one Panchayat, members of the community who are directly or indirectly dependent upon the watershed area, will be organised into a Watershed Association. Such a Watershed Association should be registered as a Society under the Registration of Societies Act, 1860. The Watershed Association will meet, at least, twice a year to evolve/improve the watershed development plan, monitor and review its progress, approve the statement of accounts, formation of User Groups/Self-Help Groups, resolve differences of disputes between different user groups, self-help groups or amongst members of the user groups/self-help groups, approve the arrangements for the collection of public/ voluntary donations and contributions from the community and individual members, lay down procedures for the operation and maintenance of assets created, approve the activities that can be taken up with money available in the Watershed Development Fund, nominate members of the Watershed Committee from amongst the user groups/self-help groups by a system of rotation, and take disciplinary action of removal of membership from the Watershed Committee or user groups and whatever other disciplinary action it deems fit. The WA will elect its own President, who shall also be the Chairman of the Watershed Committee. The Watershed Secretary shall assist the President of WA in the discharge of the responsibilities entrusted to the WA.

Watershed Committee

34. Subject to the overall supervision and control of the Watershed Association, a Watershed Committee (WC) shall carry out the day–to–day activities of the Watershed Development Project. The Watershed Committee may consist of 10-12 members who will be nominated by the Watershed Association from amongst the user groups

(4-5), self-help groups (3-4), Gram Panchayat (2-3) and a member of the Watershed Development Team. While making nominations, it may be ensured that the Committee has at least one-third representation of women. There should be adequate representation of members from the Scheduled Castes/Scheduled Tribes etc. Needless to stress, the Watershed Committee will be responsible for coordination and liaison with the Gram Panchayat, the Watershed Development Team, the ZP/ DRDA and Government Agencies concerned to ensure smooth implementation of the Watershed Development Project. The W.C. shall meet at least once in a month on pre decided date. The WC shall be responsible for undertaking watershed developmental works and to make payment for the same.

Watershed Secretary & Volunteers

35. Each watershed development project shall have a Watershed Secretary (WS) engaged by the Watershed Association. He should preferably be a matriculate from the same village or at least from a nearby village and agree to live in the watershed village during the project period. In case of non-availability of such a person, a moderately educated person of the village with good writing and reading skills sufficient for maintaining records and accounts of the project may be engaged to function as WS. He will work under the direct supervision of the Chairman of the WC and will be responsible for convening meetings of the WA/WC and for carrying out all their decisions. He will maintain all the records of project activities and proceedings of the meetings of WC and the WA. He will also maintain accounts. If the PIA feels it is necessary that volunteers should assist the Secretary, the WC may be permitted to provide not more than two volunteers to assist the Watershed Secretary. Watershed Secretary as well watershed volunteers shall be engaged on honorarium basis subject to the ceiling prescribed in Annexure – I. They shall not be treated as employee of Watershed Committee/PIA/ZP/DRDA State Government/Government of India.

Community Organization & Entry Point Activities

36. Participatory Rural Appraisal (PRA) is one of the most important exercises in watershed development projects before finalization of Action Plan. In fact the watersheds should be selected after due PRA and the watersheds with greater participatory response should be preferred. After sanction of project, the WDT should tour the watershed area extensively and organize various self-help groups, UGs and other groups. As a part of confidence building exercise, some community benefiting entry point activities can be taken up by the PIA directly. The treatment plan and interventions should be decided after elaborate PRA exercise. These activities can be renovation of village level school, Panchayat buildings, community houses, common places, drinking water sources/wells, bathing ghats, approach roads to water tanks, village roads, village sanitation improvement works etc. Water harvesting measures and improvement of drinking water sources should be preferred over other activities. The entry point activities can be undertaken out of the grant available for community organization. Religious activities and activities for individual benefits are not permitted.

Capacity Building & Training

37. Capacity Building is an important aspect for the successful implementation of watershed development programmes. ZP/DRDA shall ensure that relevant training programmes are organized for all the functionaries involved in watershed development. PIA may ensure that a majority of the members of SHGs/UGs are given basic training involving skill up gradation and orientation on the technical and organizational aspects of the running of these Groups. Besides, training on application of Remote Sensing Technology for generating database for watershed development should be included in the training programme. Generally, the training should be organized by the WDT members with the help of local officials of technical departments/ institutions, Vas etc. Guest faculties invited may be paid an honorarium as per norms prescribed by the State Government. The SHG/UG members could also be taken for visits to Research Stations/

successful watersheds/Kisan Vikas Kendras etc. where they could see the demonstration of successful technologies/practices/designs that are relevant to them. Use of audio Visual media to increase awareness and motivation among SHG/UG members should be encouraged.

38. Training and community mobilisation are a pre-requisite before initiating developmental work in the watershed projects. Prior sensitization and orientation training should be imparted to all senior functionaries including PDs/CEOs at the district/block levels on Watershed Project Management before they resume their responsibilities. The Training Programmes organized by SIRDs and other similar training programmes should also address the use of remote sensing data and GIS techniques in their curriculum. In the districts, capacity building centers may be established or existing centers should be upgraded with the resources like Resource Persons, facility for training development, dissemination of information support service for technology aspects, expertise in social mobilisation, community empowerment and self-management, facilities for convergence and equity issues and provision for cross visits to best practice locations. To overcome the constraint of inadequate capacity particularly at PIA and WC level, a National Committee for Watershed Training has been constituted under the Chairmanship of DG, NIRD. The States/districts may get in touch with DG NIRD, Hyderabad for further guidance in this regard.

Activities for Watershed Development

39. WDT shall call a meeting of the Watershed Association for preparation of watershed treatment/development plan, on the basis of the information generated from the benchmark survey of the watershed areas & detailed PRA exercise. After general discussion, the WC will prepare an integrated Watershed Development Plan under the guidance of the WDT and submit the same to PIA. The WDT should utilize various thematic maps relating to land and water resources development to prepare the watershed development plans. This Watershed Development Plan shall necessarily mention the clear

demarcation of the watershed with specific details of survey numbers, ownership details and a map depicting the location of proposed work/ activities. The PIA will then formulate a Watershed Development Plan for the area assigned in association with WCs/WAs and submit the same to the ZP/DRDA for approval. This plan shall also be the basis for release of funds, monitoring, review, evaluation etc by the ZP/DRDA, State Government and the Central Govt. Watershed Treatment/Development Plan should be prepared for all the arable and non-arable land including degraded forest lands, government and community lands and private lands. Emphasis should be on low-cost locally available technology, simple and easy to operate and maintain works and activities. The items, *inter alia* that can be included in the Watershed Development Plan are:

(a) Land Development including in-situ soil and moisture conservation measures like contour and graded bunds fortified by plantation, bench terracing in hilly terrain, nursery raising for fodder, timber, fuel wood, horticulture & Non Timber Forest Product Species.
(b) Afforestation including block plantations, agro-forestry and horticulture development. Shelterbelt plantations, sand dune stabilization, etc.
(c) Drainage line treatment with a combination of vegetative and engineering structures.
(d) Development of small water harvesting structures such as low-cost farm ponds, nalla bunds, check-dams and percolation tanks & ground water recharge measures.
(e) Renovation and augmentation of water resources, desiltation of tanks for drinking water/irrigation.
(f) Pasture development either by itself or in conjunction with plantations.
(g) Repair, restoration and up-gradation of existing common property assets and structures in the watershed to obtain optimum & sustained benefits from previous public investments.
(h) Crop demonstrations for popularizing new crops/varieties or innovative management practices.
(i) Promotion and propagation of non-conventional energy saving devices and energy conservation measures.

Project Approach for Watershed Development

40. Initial sanction of Watershed Development Project is only indicative of watershed development projects, physical target and financial outlay. The detailed action play in the form of an integrated project has to be prepared by the WDT in consultation with the Watershed Community. Community Organization is an important component; at the same time technical requirement and feasibility of appropriate biophysical measures are to be carefully worked out for long-term sustainable interventions for the entire area of the watershed. The action plan should specify among others, the following:

(i) Pre-set deliverable output;
(ii) Elaborate road map with definite milestones;
(iii) Definite time frame for each activity;
(iv) Technological interventions;
(v) Specific success criteria; and a
(vi) Clear Exit Protocol.

After the detailed action plan is approved by the ZP/DRDA, it would be the responsibility of the PIA to get the same implemented through the Watershed Committees with the active involvement of WDT members.

Convergence of Programmes

41. As the Watershed Development Programme aims at holistic development of people and natural resources, the convergence of all other non-land based programmes of Government of India, particularly those of the Ministry of Rural Development would enhance the ultimate output and lead to sustainable economic development of village community. The ZP/DRDA, therefore, shall take all possible measures to ensure convergence of other programmes of Ministry of Rural Development such as the Jawahar Gram Samridhi Yojana (JGSY), the Swarnjayanti Gram Swarozgar Yojana (SGSY), the Indira Awas Yojana (IAY), the Central Rural Sanitation Programme (CRSP)

and the Rural Drinking Water Supply in the villages chosen for the implementation of the Watershed Development Projects. It should also be worthwhile to converge programmes (of similar nature) of the other Ministries e.g. Health & Family Welfare, Education, Social Justice and Empowerment and Agriculture in these villages.

Twin Track Approach

42. In watershed development, the general practice is to project long term benefits of the programme in the development plans. Short-term benefits that immediately enthuse the local people to actively participate in the programme and make it a movement are not generally highlighted. It is, therefore, suggested that besides the long term benefits of the programme, the watershed development plan should identify short term benefits with verifiable parameters that are likely to accrue in the watershed project. While approving the detailed action plan, the ZP/DRDA may ensure that twin track approach has been followed in the preparation of the development plan.

Transparency

43. Transparency under the programme would be promoted by various agencies as follows:

- Preparation of Watershed Development Plan/Action Plan by the WC in consultation with Self-Help Groups/User Groups with the assistance of WDT members.
- Approval of Watershed Development Plan/Action Plan at the open meetings of Watershed Association.
- Display of approved Watershed Development Plan/Action Plan on a Notice Board at the Watershed Association office, Panchayat Office, Village Community Hall.
- Review of physical and financial progress of work during implementation phase through periodical meetings of WA.
- Payment of concerned labourers directly and through cheques, wherever possible.

Cost Norm

44. General cost norm for Watershed Development Projects will be as per Annexure-I. Cost estimates for each work item and project activity shall be worked out as per Standard Schedule of Rates (SSR) approved by the States Governments in representative areas.

Funding Pattern

45. Depending upon the eco-system and major problems faced by different districts/blocks, each Watershed Development Project shall be eligible for funds as per the funding pattern prescribed in Annexure-II for the whole project period. Department of Land Resources, Government of India may extend the project period in deserving cases without enhancement of cost and reduction of work components. This amount shall be divided amongst the following project components subject to the percentage ceiling mentioned against each :-

(i) Watershed Treatment/Development Works/Activities	80%
(ii) Watershed Community Organization including entry point activities	5%
(iii) Training	5%
(iv) Administrative Overheads	10%
TOTAL	**100%**

46. Under the Watershed Development Programme, sizeable amount of funds is made available for capacity building and training. However, it is observed that in several cases, these funds are not being utilized fully. While it should be our endeavour to attach due importance to this crucial activity, it should also be ensured that funds allocated for capacity building and training are spent meaningfully and to the fullest extent.

Credit Facility

47. The general cost norms for watershed development projects shall remain as per Annexure-I. However, the PIA/ZP/DRDA shall explore and encourage availing the credit facility by WA, SHGs, UGs, Panchayats and individuals provided by banks or other Financial Institutions for further developmental activities in watershed areas.

Revolving Fund for SHGs

48. The PIAs will set up a revolving fund of not exceeding Rs. one lakh per watershed to be given as seed money for vocational development by the Self-Help Groups (SHG) at the rate not exceeding Rs. 10,000/- per SHG for undertaking income generating activities. This seed money must be recovered from the SHG members in a maximum of 6 installments on monthly basis. This could be reinvested in the same or other SHGs.

Fund Flow

49. Funds for the projects from Department of Land Resources shall be as per procedure in vogue at the time of implementation of these Guidelines. However, various installments for ongoing projects shall be as per Annexure-II. Release of next installment will be made when the unutilized balance is not more than 50% of the previous installment released and on receipt of satisfactory progress report and audited statement of accounts of previous year after taking into consideration the interest accrued on the previous releases.

50. Funds from Government of India shall be released to ZP/DRDAs. They may retain their share of the administrative cost from each project and release the funds to PIA for administrative cost, community organization, training and works components. PIA should release the work component to Watershed Committee Account and Secretary Watershed Committee should withdraw the funds and make payment for the works etc. The Secretary should give detail of expenditure to

the Gram Panchayat/Gram Sabha. ZP/DRDA should endeavor to release the funds directly to Watershed Committees on recommendations/consultations of PIAs.

Watershed Project Account

51. The WC will take necessary action open a bank account in its name in the local branch of any Nationalised Bank/Cooperative Bank. This account shall be operated upon jointly by the Chairman of WC, one member of the WDT & Watershed Secretary. Application to the ZP/DRDA for release of funds to the Watershed Project account shall be jointly signed by the Chairman of WC and the Watershed Secretary and shall be duly recommended by the Project Leader of the WDT. The Watershed Secretary shall maintain the necessary records of income and expenditure from this account in the manner prescribed by the ZP/DRDA.

Watershed Development Fund

52. One of the mandatory conditions for selection of villages in watershed development programme is contribution towards watershed development fund as per the activities being undertaken in individual lands as well as community lands. The contributions to (WDF) shall be at least @ 10% of the cost of works done on individual lands and 5% of the works on Community lands. However, in case of SC/ST and persons identified below the poverty line, the minimum contribution for works on all lands including private lands shall be @ 5%. Care should be taken that the contribution comes from the farmers and not from the labourers engaged to treat the private lands. These contributions would be acceptable either in cash/voluntary labour or material. A sum equivalent to the monetary value of the voluntary labour and materials would be taken from the watershed project account and deposited in this fund. All such contributions shall be deposited in Watershed Development Fund, which shall be maintained separately, to be operated after the project is completed.

53. The Watershed Development Fund shall not be a one time measure but organic in nature. Development Fund Contribution in respect of community property may come from Village Panchayat also. Contribution to this fund will keep on accruing even after the project period is over, by way of the charges paid by the community for use of assets generated in the project e.g. water for irrigation, fuel wood, fodder etc. Contribution to this fund can be in cash or in the form of labour.

54. In case, no separate institutional arrangement is done by the ZP/ DRDA for post project management, Chairman, WC and secretary will operate this account jointly. The individuals as well as charitable institutions should be encouraged to contribute generously in the Watershed Development Fund. The proceeds of this fund shall be utilized in maintenance of assets created on Community land/for common use after completion of project period. Works taken up for individual benefits shall not be eligible for repair/maintenance out of this fund.

Monitoring and Review

55. The PIA shall submit progress reports on each of the Watershed Development Projects once in every quarter to the ZP/DRDA. Similarly, each Watershed Committee shall submit a quarterly report to the PIA after it is scrutinized and approved by the WDT. The State Governments shall be responsible for regular monitoring and evaluation of watershed development programmes through independent evaluators. The Ministry of Rural Development may also appoint independent institutions/individuals to carry out concurrent as well as post-project evaluations/impact studies of the Watershed Development Projects.

56. The services of identified district-level and State-level Institutes may also be utilized for establishing a partnership relationship with District Authorities/State Governments. These identified Institutes will assist in generating information/feedback based on 'observations' taken of the projects at prescribed points of time. They will also

provide timely and precise inputs regarding the pace and the quality of the implementation of the project, on permanent and dedicated basis. The Institutions are expected to provide the services of personnel trained for performing the expected tasks such as identification of the lead activity in each of the watershed projects, visit the project areas at pre-determined events in the life cycle of the project to obtain readings in the form of pre-set deliverable quantified outputs and assist in ensuring the implementation of the Exit Protocol in the "Watershed plus" phase to ensure adequate attention being paid to considerations of sustainability and equity.

Projects on Probation

57. Under the Watershed Development Programme a watershed project is taken up for a period of five years, which includes an initial phase of 9-12 months for establishing the necessary institutional mechanism for execution of the project. While this process by and large, has been working satisfactorily, there seems to be instances where the PIA is not in a position to ground the required village level institutions due to conflicting interest groups in the project area. It is, therefore, desirable to put a project on probation for a period of one year. During one year, if it is considered that the project cannot be implemented successfully for certain unavoidable circumstances and reasons, the ZP/DRDA shall recommend for its foreclosure to the State Government which will consider such request on merits and send its recommendations to Department of Land Resources. Before considering any such request, the State Government shall ensure that the amount already spent in the project area has been duly accounted for. The projects will be formally closed only after approval by the Department of Land Resources. In such cases, the unspent amount should be refunded to the Department of Land Resources. This review may take into account the sustainability of the project, equity and other related issues. However, such requests shall not cover the cases of financial embezzlement, defalcation and other deliberate irregularities, for which responsibility is to be fixed.

Exit Protocol

58. The ZP/DRDA, under the guidance of the State Government, will evolve proper exit protocol for the watershed development projects. It will endeavor to motivate Panchayats to take over the assets created in the completed watershed development projects for the purpose of operation and maintenance. The watershed projects should generally be managed by the respective Watershed Associations / Watershed Committees under the overall supervision of the gram Panchayat after the project period is over and after the external supporting agencies have withdrawn. Mechanism of such Exit Protocol should explicitly form part of the watershed development plan. The ZP/DRDA should ensure to include the details of the exit protocol in the watershed development plan. A locally acceptable, proper mechanism for utilisation of watershed development funds for post project maintenance & its regular augmentation should be specified. Equity and sustainability of the benefits of the assets created under the watershed development plan should be clearly spelt out by the PIA before it exits from the area.

Financial Powers

59. While most of the works my be actually executed through the user groups, incurring of expenditure shall be authorized to the extent of Rs. 5000 by the Watershed Secretary, up to Rs. 20,000 by the Watershed Committee and above Rs. 20,000 by the Watershed Committee after specific approval of the concerned technical member of the Watershed Development Team. However, withdrawal of funds from the project A/C shall be only through joint signatures as prescribed earlier & the funds will be entrusted with the Watershed Secretary.

Liaison with Scientific Institutions

60. Most of the problems identified may have simple, straightforward technical solution within the competence of the WDT members. However, in a few cases, there may be need to understand, validate

or improve the local technical knowledge and innovations through more scientific investigation or the problem may be so complex that the local knowledge of farmers/villagers and the WDT members is not adequate to find suitable technological solutions. To meet such exigencies, the State Government should identify some centres of excellence such as State Agriculture Universities (SAUs) / State Institute of Rural Development (SIRDS)/KVKs, Training Institutions of Forest/Agricultural/NGOs etc. The WDT members should get in touch with the concerned institutions for problem redressal, guidance and training needs etc.

Queries

61. Queries may be addressed to the following:-

(a) At the district level:-Chief Executive, Zilla Parishad/Project Director, District Rural Development Agency.
(b) At the State Level:- Secretary/Commissioner/Director Rural Development.
(c) At the National Level:- Department of Land Resources, Ministry of Rural Development, NBO Buildings, 'G' Wing, Nirman Bhavan, New Delhi – 110 011.

*** * ***

(1) THE WATERSHED DEVELOPMENT PROJECTS MAY BE SANCTIONED AT THE RATE PRESCRIBED BY THE CENTRAL GOVT. FROM TIME TO TIME. THE PREVALENT RATE WITH EFFECT FROM 1ST APRIL 2000, IS RS. 6,000 PER HECTARE,

(2) CEILING ON ADMINISTRATIVE OVERHEADS

1	**At ZP/DRDA Level**	Rs.
	WDT Members Training (For 10 WDP's)	**30,000**
	(i) Proportionate Expenditure for one WDP	3,000
	(ii) Miscellaneous Expenditure / WDP	3,000
	(A) Total for one Watershed Project	**6,000**
2	**At PIA/WDT Level (For 10 WDP's)**	
	(i) WDT members honorarium	7,50,000
	(ii) TA/DA	4,50,000
	(iii) Office Staff/Contingencies	3,00,000
	Total for 10 WDP's	**15,00,000**
	(B) Expenditure for One WDP	**1,50,000**
3	**At Village Level**	
	(i) Watershed Secretary & Volunteers Honorarium	1,20,000
	(ii) TA/DA	12,000
	(iii) Office Contingencies	12,000
	(C) Total for each Watershed	**1,44,000**
GRAND TOTAL COST CEILING ON ADMINSTRATIVE OVERHEADS (A+B+C) PER WATERSHED OF 500 HA AREA		**3,00,000**

ANNEXURE - II

CHART SHOWING THE RELEASE OF PROJECT FUNDS BY ZP/DRDA

Year	Instalment	%	Agency	%	Component Breakup	% Breakup
1st	1st	15%	PIA	9%	Administrative Cost	2%
					Community Org.	4%
					Training	3%
			WC	6%	Works	6%
2nd	2nd	15%	PIA	4%	Administrative Cost	2%
					Community Org.	1%
					Training	1%
			WC	11%	Works	11%
	3rd	15%	WC	15%	Works	15%
3rd	4th	15%	PIA	3%	Administrative Cost	2%
					Training	1%
			WC	12%	Works	12%
	5th	15%	WC	15%	Works	15%
4th	6th	15%	PIA	2%	Administrative Cost	2%
			WC	13%	Works	13%
5th	7th	10%	PIA	2%	Administrative Cost	2%
			WC	8%	Works	8%

ANNEXURE II

FORMATS, CERTIFICATIONS AND APPLICATION FORMS USED FOR THE MICRO-WATERSHED PROJECT AT PATNI VILLAGE.

REGISTRATION CERTIFICATE

जिला ग्रामीण विकास अभिकरण जिला- सतना (म.प्र.)

पंजीकरण प्रमाण - पत्र

राजीव गांधी जलग्रहण क्षेत्र प्रबंधन मिशन

एजेन्सी समिति ग्राम स्तरीय वाटरशेड कमेटी, पटनी
विकास खण्ड- मझगवाँ
सतना

पिन कोड 485331

जिला स्तरीय वाटरशेड सलाहकार समिति की अनुशंसा के आधार पर आपकी एजेन्सी/ समिति को मझगवाँ विकास खण्ड के मिली वाटरशेड क्रमांक 2C1A3C में वाटरशेड गतिविधियों तथा कार्यक्रम को शासन की वाटरशेड अवधारणा के अनुसार संचालन तथा क्रियान्वयन के लिए पंजीकृत किया जाता है। आपकी एजेंसी / समिति का पंजीयन क्रमांक MP/STA/MAJ/2C1A3C/1 है।

सतना
दिनांक 10.10.96

कलेक्टर
जिला सतना (म.प्र.)

MEMORANDUM OF WATERSHED COMMITTEE

ज्ञापन

(Memorandum)

(वाटरशेड कमेटी)

वाटरशेड कमेटी का नाम पटनी

(गांव या माईक्रो वाटरशेड का नाम) (इसके बाद वाटरशेड कमेटी अथवा डब्ल्यू. सी. के नाम से संदर्भित होगी)

डब्ल्यू. सी. का पंजीकृत कार्यालय वाटरशेड कमेटी 'जलविकास क्षेत्र' सजगवां

(पता) सजगवां (विकास खंड) रतना (जिला) में स्थित होगा।

डब्ल्यू. सी. का कार्यक्षेत्र पटनी (गाँव या माईक्रो वाटरशेड का नाम), सजगवां (विकास खंड) रतना जिला होगा।

उद्देश्य :

डब्ल्यू. सी. जिला ग्रामीण विकास अभिकरण (डी.आर.डी.ए.) रतना (जिला) के अधीन पंजीकृत संस्था होगी जिसका पंजीयन डी.आर.डी.ए. के पी.आई.ए. तथा वाटरशेड कमेटी पंजीयन नियमावली के अर्न्तगत होगा। डब्ल्यू. सी. की स्थापना वाटरशेड विकास गतिविधियों को, चयनित गाँव तथा माइक्रो वाटरशेड में क्रियान्वित करने के उद्देश्य से की गई है। यह वाटरशेड कमेटी, पटनी – मिलीवाटरशेड के पी.आई.ए. के मार्गदर्शन एवं नियंत्रण में कार्य करेगी। डब्ल्यू. सी. की विशिष्ट गतिविधियाँ हैं :–

(1) वाटरशेड विकास के लिये चयनित क्षेत्र में कार्यक्रमों यथा, सूखा उन्मुख क्षेत्र कार्यक्रम या रोजगार आश्वासन योजना या अन्य कार्यक्रम जो केन्द्र सरकार या राज्य सरकार ने प्रारंभ किये हैं, को क्रियान्वित करना।

(2) पात्र ग्रहण क्षेत्र प्रबन्ध में, प्रभावी सामाजिक गतिविधि के लिये, समाज को गतिशील एवं संगठित करना ताकि वह समाज को आर्थिक विकास की ओर पहुँचा सके।

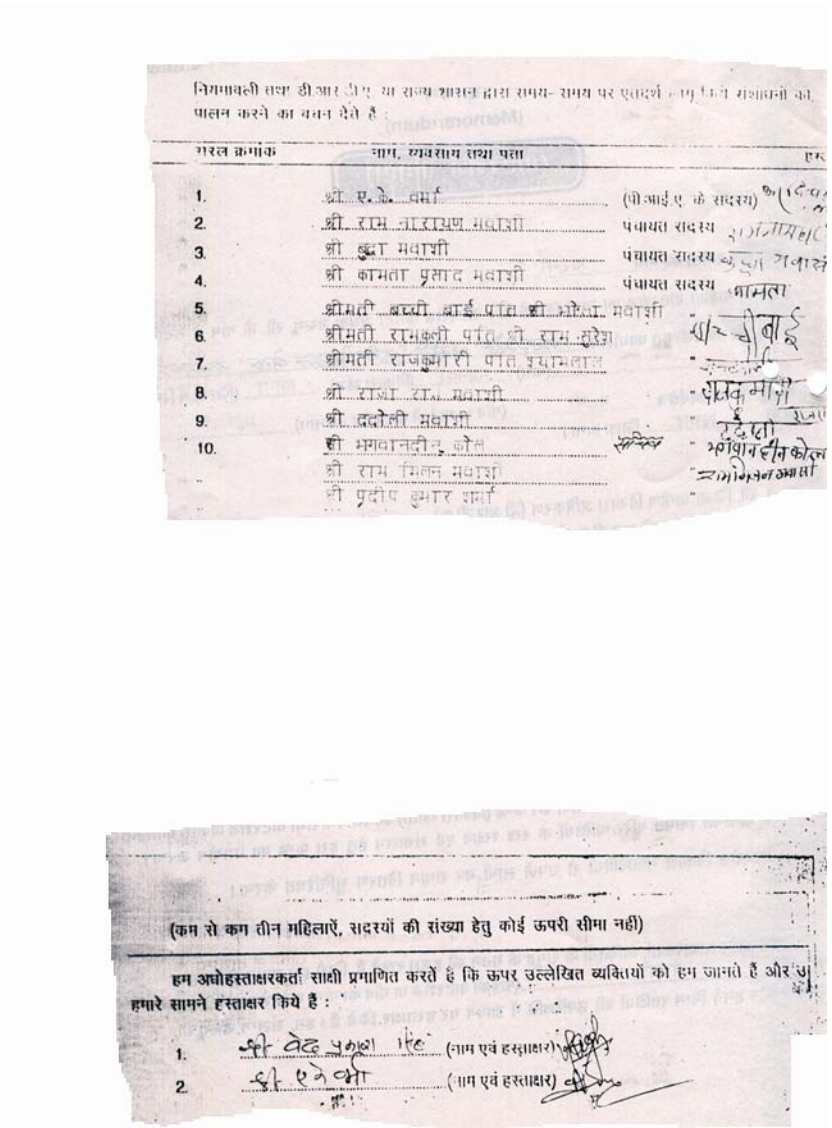
(3) पर्यावणीय सन्तुलन की पुर्नप्राप्ति को बढ़ावा देना।

(4) ग्राम के निवासियों से योगदान प्राप्त कर फन्ड (विकास खाता) की स्थापना तथा वाटरशेड विकास कार्यक्रम के अर्न्तगत निर्मित परिसम्पत्तियों के रख रखाव एवं संचालन हेतु इस फन्ड का उपयोग करना।

(5) वाटरशेड विकास गतिविधियों से उपजे लाभों का समान वितरण सुनिश्चित करना।

हम अधोहस्ताक्षरकर्ता, व्यक्तियों के समूह के गठन की इच्छा रखते हैं, जिसे इस ज्ञापन के तारतम्य में पटनी (माईक्रो वाटरशेड या गाँव का नाम) वाटरशेड कमेटी कहा जावेगा और हमने निम्न साक्षियों की उपस्थिति में ज्ञापन पर हस्ताक्षर किये हैं। हम, संलग्न डब्ल्यू.सी.

MEMORANDUM OF WATERSHED COMMITTEE - CONTD.



निगमावली तथा डी.आर.डी.ए. या राज्य शासन द्वारा समय- समय पर एतदर्थ [illegible] मंशाओं को पालन करने का वचन देते है :

सरल क्रमांक	नाम, व्यवसाय तथा पता	
1.	श्री ए. के. वर्मा	(पी.आई.ए. के सदस्य)
2.	श्री राम नारायण मवासी	पंचायत सदस्य
3.	श्री छुटा मवासी	पंचायत सदस्य
4.	श्री कामता प्रसाद मवासी	पंचायत सदस्य
5.	श्रीमती बच्ची बाई पति श्री भोला मवासी	
6.	श्रीमती रामकली पति श्री राम सुरेश	
7.	श्रीमती राजकुमारी पति श्यामलाल	
8.	श्री राजा राम मवासी	
9.	श्री ददौली मवासी	
10.	श्री भगवानदीन कोल	सचिव
..	श्री राम मिलन मवासी	
..	श्री प्रदीप कुमार शर्मा	

(कम से कम तीन महिलाऐं, सदस्यों की संख्या हेतु कोई ऊपरी सीमा नही)

हम अधोहस्ताक्षरकर्ता साक्षी प्रमाणित करते है कि ऊपर उल्लेखित व्यक्तियों को हम जानते है और उ[illegible] हमारे सामने हस्ताक्षर किये है :

1. [illegible] (नाम एवं हस्ताक्षर)
2. [illegible] (नाम एवं हस्ताक्षर)

RULES OF WATERSHED COMMITTEE

वाटरशेड कमेटी के नियम

1. इन नियमों की व्याख्या हेतु डब्ल्यू. सी. का अर्थ वाटरशेड कमेटी होगा जो ी.आर.डी.ए. के पी.आई.ए. एवं वाटरशेड कमेटी पंजीयन नियमों के अर्न्तगत डी.आर.डी.ए. से पंजीकृत होगी र सचिव, पी.आई.ए. का अर्थ ज्ञापन के पैरा 4 में उल्लेखित पी.आई.ए. हो इस पी.आई.ए. का परियोजना अधिकारी होगा जब तक तात्पर्य, विष सचिव का अर्थ वाटरशेड कमेटी का तथा परियोजना अधिकारी का तात्पर्य या संदर्भ से असम्बद्ध नहीं हो।

2. ये नियम डब्ल्यू.सी. की सभी इकाईयों और गतिविधियों पर लागू हों।।

सदस्यता

3. डब्ल्यू.सी. में निम्नलिखित सदस्य होंगे जो ग्राम सभा के अनुमोदन उपरान्त पी.आई.ए. के परियोजना अधिकारी द्वारा नामांकित होंगे। (न्यूनतम १० सदस्य, जिनमें तीन सदस्य पंचायत से, कम से कम तीन महिलायें एवं एक पी.आई.ए. के सदस्य जो परियोजना अधिकारी द्वारा नामांकित होगा)

सरल क्रमांक	नाम, व्यवसाय तथा पता	हस्ताक्षर
1.	श्री ए. के. ...	'पी.आई.ए. का सदस्य)
2.	राम नारायण मंडावी ...	ंचायत सदस्य
3.	... मंडावी ...	ंचायत सदस्य
4.	... मंडावी ...	ंचायत सदस्य
5.	...	
6.	...	
7.	...	
8.	...	
9.	...	
10.	...	
..	...	
..	...	

(कम से कम तीन महिलायें, सदस्यों की संख्या हेतु कोई ऊपरी सीमा नहीं)

डब्ल्यू.सी. में कम से कम दस सदस्य होंगे, जिनमें अनिवार्य रूप से [illegible] सदस्य इसी गाँव से निर्वाचित पंच होंगे, कम से कम तीन सदस्य महिलायें होंगी। एक सदस्य परियोजना अधिकारी द्वारा पी.आई.ए. के सदस्यों में से नामांकित होगा। पी.आई.ए. के सदस्यों को छोड़कर सभी सदस्य गाँव के निवासी होंगे तथा उनकी आयु 18 वर्ष से अधिक होगी।

4. डब्ल्यू.सी. का गठन करने वाले सभी हस्ताक्षरकर्ता, डब्ल्यू.सी. के उस समय तक सदस्य रहेंगे जब तक वे स्वयं इस्तीफे नहीं देते या डब्ल्यू.सी. के बहुमत के फैसले द्वारा हटा नहीं दिये जाते। सदस्यों को, ग्राम सभा के संकल्प या पी.आई.ए. के परियोजना अधिकारी के आदेश द्वारा हटाया जा सकता है।

5. ग्राम सभा अथवा डब्ल्यू.सी. के स्वयं के संकल्प द्वारा अतिरिक्त सदस्यों को सम्मलित किया जा सकता है। डब्ल्यू.सी. में सदस्यों को बढ़ाया जाना अथवा हटाया जाना, पी.आई.ए. तथा पी.आई.ए. के परियोजना अधिकारी के सहमति पर ही संभव है।

6. डब्ल्यू.सी. के सदस्य पागल होने या दिवालिया होने या चारित्रिक दोष के आधार पर आपराधिक प्रकरण में दोषी पाये जाने पर सदस्यता से वंचित होंगे।

7. रिक्त पद पर नियुक्ति के अभाव या अन्यथा की स्थिति में भी डब्ल्यू.सी. कार्य करेगी एवं डब्ल्यू.सी. का कोई भी कार्य, उपरोक्त वर्णित कारणों से अथवा डब्ल्यू.सी. के किसी सदस्य की नियुक्ति में दोष होने के कारण अवैध घोषित नहीं किया जा सकेगा।

8. डब्ल्यू.सी. अपने मुख्यालय पर अपने सदस्यों का रजिस्टर रखेगी जिसमें निम्न विवरण अंकित किये जावेंगे :
   (अ). प्रत्येक सदस्य का नाम तथा पता।
   (ब). दिनांक जब वे सदस्य बने।
   (स). दिनांक जिसको वे सदस्यता से वंचित हुये।

डब्ल्यू.सी. के अधिकार एवं कर्तव्य

9. शासन के पैरा 4 में वर्णित उद्देश्यों की प्राप्ति के लिये डब्ल्यू.सी. के निम्न अधिकार एवं कर्तव्य होंगे :-
   (1) डी.आर.डी.ए. अथवा राज्य शासन द्वारा प्रदत्त प्रशासनिक एवं वित्तीय अधिकारों का प्रयोग करना।
   (2) सहभागी सहयोग प्रक्रिया द्वारा गाँव के जल ग्रहण क्षेत्र के विकास की कार्य योजना तथा वार्षिक कार्य योजना तैयार करना।
   (3) योजना में प्रस्तावित गतिविधियों को उपयोगकर्ता दल स्वावलम्बन दल एवं अन्य समान रूचि वाले समूहों द्वारा क्रियान्वित कराना।
   (4) जलग्रहण क्षेत्र विकास कार्यक्रम के अर्न्तगत निर्मित संरचनाओं के संधारण तथा रखरखाव के लिए निर्मित कोष हेतु लाभान्वित ग्रामवासियों से योगदान प्राप्त करना।
   (5) वाटरशेड विकास गतिविधियों द्वारा उपजे लाभों का सामुयित बटवारा सुनिश्चित कराना।
   (6) महिलाओं के स्वयं एवं बचत समूहों को प्रोत्साहित करना।
   (7) गाँव में सामाजिक निर्माण एवं उन्मुखीकरण कार्यक्रम संचालित कराना।
   (8) सहयोग राशि, प्रतिभूति या किसी भी प्रकार की सम्पत्ति एवं किसी भी ट्रस्ट या मर्यादा संस्थान से राशि या दान जो डब्ल्यू.सी. के उद्देश्यों से विपरीत नहीं हो उसे स्वीकारना।
   (9) चल या अचल सम्पत्ति को खरीदना, किराये पर या लीज पर लेना, या अन्य विधि से प्राप्त करना एवं किसी भी भवन का निर्माण, उसमें परिवर्तन या रख-रखाव जो उद्देश्यों की पूर्ति के लिये आवश्यक हो, करना।
   (10) क्षेत्र की पी.आई.ए. तथा ग्राम सभा के पर्यवेक्षण में कार्य करना।
   (11) वार्षिक प्रतिवेदन पर विचार करना तथा उसे डी.आर.डी.ए. को भिजवाना।
   (12) उन सभी गतिविधियों को लेना जो लक्ष्य प्राप्ति के लिये आवश्यक हैं।

डब्ल्यू.सी. की कार्यवाहियाँ

10. डब्ल्यू.सी. की बैठकों की अध्यक्षता, डब्ल्यू.सी. द्वारा अपने सदस्यों में से चुने अध्यक्ष द्वारा की जावेगी।
11. डब्ल्यू.सी. की बैठकों में डब्ल्यू.सी. के एक तिहाई सदस्यों की उपस्थिति आवश्यक होगी परन्तु स्थगित बैठक के लिये इसकी आवश्यकता नहीं है। पी.आई.ए. के प्रतिनिधि सदस्य की अनुपस्थिति में सम्पन्न बैठक अवैध होगी।
12. डब्ल्यू.सी. की हर बैठक के लिये स्पष्ट सात दिन का नोटिस डब्ल्यू.सी. के प्रत्येक सदस्य को दिया जावेगा बशर्ते :-
   (अ) पी.आई.ए. का प्रतिनिधि 24 घंटे के नोटिस पर आपात बैठक बुला सकते हैं।
   (ब) अनजाने में नोटिस भेजने में हुई त्रुटि या सदस्य द्वारा नोटिस प्राप्त नहीं होने की स्थिति में, किसी बैठक की कार्यवाही अवैध नहीं होगी।

3. डब्ल्यू.सी. की बैठक का नोटिस डब्ल्यू.सी. के सचिव द्वारा जारी किया जावेगा।

14. डब्ल्यू.सी. की बैठक आवश्यकतानुसार होगी परन्तु हर माह कम से कम एक बैठक होना आवश्यक है।

15. डब्ल्यू.सी. के प्रत्येक सदस्य का एक वोट होगा और यदि बैठक में वोटों की समानता होती है तो पी.आई.ए. के प्रतिनिधि का वोट निर्णायक होगा।

डब्ल्यू.सी. के अधिकारी

16. डब्ल्यू.सी. के अधिकारी डब्ल्यू.सी. सचिव तथा अन्य ऐसा व्यक्ति जिसे डब्ल्यू.सी. ने आदेशित किया हो, होगे।

सचिव के अधिकार एवं कर्तव्य

17. डब्ल्यू.सी. के सचिव की नियुक्ति पी.आई.ए. के परियोजना अधिकारी या डी.आर.डी.ए./राज्यशासन द्वारा निर्धारित एजेन्सी द्वारा ग्राम सभा की सहमति से की जावेगी। सचिव अनिवार्य रूप से उसी गॉव का निवासी होगा।

18. सचिव वाटरशेड कमेटी का मुख्य कार्यपालन अधिकारी होगा और वह वाटरशेड प्लान तैयार कराने, वाटरशेड कमेटी की निधियों कार्यकलापों के समुचित प्रशासन एवं उसकी विभिन्न गतिविधियों को पी.आई.ए. तथा ग्राम सभा के निर्देशों तथा मार्गदर्शन के अनुसार क्रियान्वित करने के लिये उत्तरदायी होगा। सचिव के निम्न अधिकार होंगे :–

(1) डब्ल्यू.सी. की ओर से आदेश जारी करना।

(2) आवश्यक पर्यवेक्षण एवं नियंत्रण करना।

(3) डब्ल्यू.सी. की बैठक बुलाना तथा उसका रिकार्ड रखना।

19. डी.आर.डी.ए. या राज्य शासन द्वारा समय समय पर निर्धारित प्रक्रियानुसार सचिव कार्य करेंगे।

डब्ल्यू.सी. के फन्ड

20. डब्ल्यू.सी. के फन्ड होंगे :–

(अ) डी.आर.डी.ए. द्वारा वाटरशेड गतिविधियों के लिये दी गई राशियां।

(ब) पूंजी निवेश द्वारा अर्जित आय।

(स) अन्य स्त्रोतों से योगदान।

21. डब्ल्यू.सी. के सभी फन्ड बैंक में दो खातों में रखे जावेंगे :

(1) परियोजना खाता :– गॉव में वाटरशेड विकास कार्यों को क्रियान्वित करने में खर्च की जाने वाली सकल राशि के लिये।

(2) विकास खाता :– योगदान से प्राप्त राशियों के लिये, जिसका उपयोग परियोजना अवधि के उपरान्त परिसम्पत्तियों के रख रखाव एवं संचालन के लिये किया जावेगा।

22. डब्ल्यू.सी. की राशि का आहरण डी.आर.डी.ए. या राज्य शासन द्वारा निर्धारित प्रक्रियानुसार होगा।

23. डब्ल्यू.सी. को इम्प्रेस्ट के रूप में पांच हजार रूपये नगद रखने का अनुमति है।

डब्ल्यू.सी. की परिसम्पत्तियॉं

24. गॉव में वाटरशेड विकास गतिविधियों के अन्तर्गत डी.आर.डी.ए. से प्राप्त धनराशि अथवा ग्राम से योगदान द्वारा प्राप्त राशि से निर्मित चल एवं अचल सम्पत्ति का मालिकाना हक वाटरशेड समिति का होगा।

25. निजी भूमि पर निजी उपयोग के लिये निर्मित परिसम्पत्तियॉं उस व्यक्ति की होगी जिसके लिये वे निर्मित की गई है।

26. आरथा भूतक कार्यों के अन्तर्गत निर्मित परिसम्पत्तिया वाटरशेड कमेटी की सम्पत्तियॉं होंगी।

27. डी.आर.डी.ए. या राज्य शासन वाटरशेड विकास कार्यक्रम के अन्तर्गत गॉव में निर्मित किसी भी परिसम्पत्ति का मालिकाना हक ग्राम पंचायत या उपयोगकर्ता दल या स्वावलम्बन दल या अन्य एजेन्सी को सौंप सकता है

36

वाटरशेड कमेटी के विघटन के उपरान्त, उसकी अचल सम्पत्ति ग्राम सभा की सम्पत्ति तथा चल सम्पत्ति ग्राम पंचायत की सम्पत्ति होगी। इस अवधि के सभी अभिलेख, जिनका सम्बन्ध डी.आर.डी.ए. के फन्ड से है, डी. आर.डी.ए. को हस्तांतरित हो जावेंगे।

डी.आर.डी.ए. के पी.आई.ए. तथा वाटरशेड कमेटी के पंजीयन नियमों के सभी प्रावधान डब्ल्यू.सी. पर लागू होंगे।

प्रमाणित किया जाता है कि डी.आर.डी.ए. द्वारा प्रकाशित डब्ल्यू.सी. के नियमों की यह प्रमाणित प्रति है।

(डब्ल्यू.सी. के चार सदस्यों द्वारा हस्ताक्षरित)

1. .....
2. .....
3. .....
4. .....(पी.आई.ए. का सदस्य)

OFFICE OF JILLA PANCHAYAT (DISTRICT RURAL DEVELOPMENT AGENCY) SATNA — ADMINISTRATIVE SANCTION

कार्यालय जिला पंचायत (डी.आर.डी.ए.) सतना म.प्र.

प्रशासकीय स्वीकृति

जिला स्तरीय वाटर शेड सलाहकार समिति की बैठक दिनांक 10/10/96 में लिये गये निर्णय एवं अनुशंसानुसार ई.ए.एस. मद से राजीव गांधी वाटर शेड विकास कार्यक्रम के अन्तर्गत कंडिका 2 में उल्लेखित शर्तों पर निम्नानुसार प्रशासकीय स्वीकृति प्रदान की जाती है। प्रशासकीय स्वीकृति से सम्बन्धित मिली वाटर शेड का विवरण निम्नानुसार है :-

01. मिली वाटर शेड क्रमांक :- 2 सी 1 ए 3 सी
02. विकास खण्ड का नाम :- मझगवां
03. ग्राम वार क्षेत्रफल :- 3134.00 (हेक्टेयर)

क्रमांक	ग्राम का नाम	क्षेत्रफल (हेक्टर)
01	पटनी एवं उमरिहा	395.00
02	कानपुर	562.00
03	देवलहा एवं उमरिहा	1442.00
04	मझगवां	735.00
	योग :-	3134.00

04. चार वर्षीय योजना की मदवार लागत :- 125.36

क्रं.	मद	प्रथम वर्ष (1995-96) रू. लाख में	द्वितीय वर्ष(96-97) रू. लाख में	चार वर्षों हेतु कुल लागत रू. लाख में
01	प्रशासनिक मद (सकल योजना लागत का अधिकतम 10%)	3.76	3.76	12.536
02	कम्यूनिटी आर्गनाईजेसन (सकल योजना लागत का अधिकतम 5%)	5.014	1.254	6.268
03	प्रशिक्षण (सकल योजना लागत का अधिकतम 5%)	3.76	1.254	6.268
04	अस्थाी मूलक कार्य (सकल योजना लागत का अधिकतम 5%)	6.268	-----	6.268
05	वाटर शेड कार्य			
	क. भूमि सुधार एवं भूमि संरक्षण (वाटर शेड योजना लागत का अधिकतम 30%)	09.402	14.103	28.206
	ख. जल सम्वर्धन(40%)	------	18.804	37.608
	अ. सतही जल सम्वधन कार्य 20 % (अधिकतम)			
	ब. भू जल सम्वर्धन कार्य 20 % (अधिकतम)			
	ग. वनी करण 10%	------	-------	09.402
	घ. चारागाह विकास 10%	-------	-------	09.402
	ड. अन्य गतिविधिया 7.5%	------	------	07.052
	च. स्वावलम्बी दल 2.5% (न्यूनतम)	-------	------	02.350
	योग, वाटर शेड कार्य	09.402	32.907	94.02
	मध्ययोग सकल लागत	28.204	39.175	125.36

OFFICE OF JILLA PANCHAYAT (DISTRICT RURAL DEVELOPMENT AGENCY) SATNA — ADMINISTRATIVE SANCTION - CONTD.

पृष्ठा. कं. / डी.एस.एम.ए. / आर.जी.एम. / 97-98 1040 सतना, दिनांक 31-3-98

प्रतिलिपि,

01. विकाय आयुक्त म.प्र. भोपाल ।

02. आयुक्त रीवां सम्भाग रीवां ।

03. संचालक राजीव गांधी जलग्रहण क्षेत्र प्रबंधन मिशन विकास आयुक्त कार्यालय विंध्याचल भवन भोपाल ।

04. परियोजना अधिकारी मिलीवाटर शेड .....अमरपाटन

की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।

मुख्य कार्यपालन अधिकारी,
जिला पंचायत (डी.आर.डी.ए.
सतना म.प्र.

Project Officer
Watershed
Krishi Vigyan Kendra Majhgawr.

OFFICE OF JILLA PANCHAYAT (DISTRICT RURAL DEVELOPMENT AGENCY) SATNA — ADMINISTRATIVE SANCTION

कार्यालय जिला पंचायत (डी.आर.डी.ए.) सतना म.प्र.
प्रशासकीय स्वीकृति

जिला स्तरीय वाटर शेड सलाहकार समिति की बैठक दिनांक 08-01-97 में लिये गये निर्णय एवं अनुशंसानुसार ई.ए.एस. मद से राजीव गांधी वाटर शेड विकास कार्यक्रम के अन्तर्गत कंडिका 2 में उल्लेखित शर्तों पर निम्नानुसार प्रशासकीय स्वीकृति प्रदान की जाती है। प्रशासकीय स्वीकृति से सम्बन्धित मिनी वाटर शेड का विवरण निम्नानुसार है :-

01. मिनी वाटर शेड क्रमांक :- 2 सी 1 ए 3 सी 02. विकास खण्ड का नाम :- मझगवां
03. ग्राम वार क्षेत्रफल :- 4425.00 (हैक्टेयर)

क्रमांक	ग्राम का नाम	क्षेत्रफल (हैक्टर)
01	खोढरी	1268.00
02	विछियन	497.00
03	तागी	590.00
04	करारिया	626.00
05	चितौरिहा	105.00
06	रोहनिया	387.00
07	चौरेरी	952.00
	योग :-	4425.00

कुल लागत 177.00

04. चार वर्षीय योजना की मदवार लागत :-

क्र.	मद	प्रथम वर्ष (1997-98) रू. लाख में	द्वितीय वर्ष(98-99)रू. लाख में	चार वर्षों हेतु कुल लागत रू. लाख में
01	प्रशासनिक मद (सकल योजना लागत का अधिकतम 10%)	5.31	5.31	17.70
02	कम्युनिटी आर्गनाईजेसन (सकल योजना लागत का अधिकतम 5%)	7.08	1.77	08.85
03	प्रशिक्षण (सकल योजना लागत का अधिकतम 5%)	5.31	1.77	08.85
04	अस्था मूलक कार्य (सकल योजना लागत का अधिकतम 5%)	8.85	-----	08.85
	योग	26.55	08.85	44.25
05	वाटर शेड कार्य			
	क. भूमि सुधार एवं भूमि संरक्षण (वाटर शेड योजना लागत का अधिकतम 30%)	05.30	19.91	39.83
	ख. जल सम्वर्धन(40%)	05.30	19.91	53.10
	अ. सतही जल सम्वर्धन कार्य 20 % (अधिकतम)			
	ब. भू जल सम्वर्धन कार्य 20 % (अधिकतम)			
	ग. वनी करण 10%	1.34	02.66	13.28
	घ. चारागाह विकास 10%	1.33	02.65	13.27
	ड. अन्य गतिविधियां 7.5%	-----	01.33	09.96
	च. स्वावलम्बी दल 2.5% (न्यूनतम)	-----	-----	03.31
	योग, वाटर शेड कार्य	13.27	46.46	132.75
	सर्वयोग सकल लागत	39.82	55.31	177.00

तृतीय एवं चतुर्थ वर्ष के कार्यो की मदवार स्वीकृति आवश्यक विवरण उपलब्ध कराने के उपरान्त ही दी जा सकेगी

02. प्रशासनीक स्वीकृति पर लागू शर्तें :-

2.1 योजना अवधि :- वर्ष 1997 से 2001 तक होगी।

OFFICE OF JILLA PANCHAYAT (DISTRICT RURAL DEVELOPMENT AGENCY) SATNA — ADMINISTRATIVE SANCTION - CONTD.

2.2 योजना राशि का निर्गम :- योजना राशि का निर्गम पंचायत एवं ग्रामीण विकास विभाग के आदेश कमांक 2 (कमांक 13908/ 2 / आर.जी.एम. / एस.जे. / वि-8 / 95 / दि. 25-07-95 के अनुलग्नक कमांक 4 सहपठित अनुलग्नक कमांक 3 के अनुसार किय जावेगा । प्रशासनिक मद में उल्लेखित राशि का निर्गम पंचायत एवं ग्रामीण विकास विभाग के आदेश कमांक 2 कमांक 13908 / 2 / आर.जी.एम. / एस.जे./ वि-8/ 95 / दिनांक 25-07-95 के अनुलग्नक कमांक 3 वर्णित वजट के अनुसार डी.आर.डी.ए. परियोजना अधिकारी मिनी वाटर शेड तथा ग्रामस्तरीय वाटर शेड कमेटियो को किया जावेगा ।

2.3 वाटर शेड कमेटी, पी.आई. ए. तथा जिला स्तर पर व्यय की गई समस्त राशियां तथा प्राप्तियों का लेखा एवं कार्य की प्रगति क विवरण पंचायत एवं ग्रामीण विकास विभाग म.प्र. शासन के आदेश कं. 6 (कमांक 4636/22 / आर.जी.एम./वि-9 / 96 दिनांक 2 मार्च 96) के अनुसार अनिवार्य रूप से रखा जावेगा ।

2.4 चार वर्ष बाद राशियों का आहरण तथा व्यय राज्य शासन की अनुमति उपरान्त ही किया जा सकेगा ।

2.5 कंडिका एक के अनुसार मदवार दी गई प्रशासकीय स्वीकृति से अधिक व्यय कदापि न किया जाये । विभिन्न मदो के अन्तर्ग वचत की दशा में उसे अन्य मद में समायोजित नहीं किया जा सकेगा इस प्रकार की वचत को डी.आर.डी.ए. में वापस किया जाना होगा । मदवार प्रावधानित राशि का किसी भी प्रकार से पुनर्विनियोजन सम्भव नहीं है ।

2.6 परियोजना के कार्यो का कियान्वयन पंचायत एवं ग्रामीण विकास विभाग द्वारा समय समय पर जारी आदेशो के अनुरूप ही किय जावेगा ।

03. तकनीकी स्वीकृतियां :-

3.1 परियोजना अधिकारी मिलीवाटर शेड द्वारा रू. 2.00 (दो लाख मात्र) की सीमा तक कार्यवारं, यथा ट्रेचिंग , वोल्डर चैक इत्यादि तकनीकी स्वीकृति जारी की जावेगीं । इसकी प्रशासकीय स्वीकृति योजना की स्वीकृति में निहित हैं अतः प्रथक से नहीं दी जावेगी ।

3.2 जिला ग्रामीण विकास अभिकरण द्वारा 2.00 लाख से अधिक की संरचना की तकनीकी स्वीकृति जिला स्तरीय वाटर शेड सलाहकार समिति आदेश कमांक 2 दिनांक 25-07-95 के पैरा 7.1.1 में उल्लेखित जिला स्तरीय तकनीकी सलाहकार समिति की अनुशंसा पर विशेष परिस्थितियों में तथा अन्य विकल्प के अभाव में मिशन संचालक की सहमति के उपरान्त दी जा सकेगी ।

04. योजना लागत की अधिकतम सीमा :-

4.1 वाटर शेड कार्य योजना का सकल व्यय रू. 4000/- प्रति हेक्टेयर से अधिक नहीं होगा तथा इसमें पैरा 1 में उल्लेखित सभी म सम्मलित हैं । योजना व्यय की उल्लेखित सीमा में परिवर्तन का अधिकार भारत सरकार द्वारा मानक परिवर्तन की स्थिति में ग्रामीण विकास विभाग के निर्देश पर सम्भव है ।

sd/-
कलेक्टर/मिशन लीडर
राजीव गांधी वाटर शेड मिशन
जला सतना म.प्र.

पृष्ठा. कं. / डी.एस.एम.ए. / आर.जी.एम. / 97-98 99 सतना, दिनांक 8.1.99

प्रतिलिपि,

01. विकाय आयुक्त म.प्र. भोपाल ।
02. आयुक्त रीवां सम्भाग रीवां ।
03. संचालक राजीव गांधी जलग्रहण क्षेत्र प्रबंधन मिशन विकास आयुक्त कार्यालय विंध्याचल भवन भोपाल ।
04. परियोजना अधिकारी मिलीवाटर शेड .....

की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।

कलेक्टर/मिशन लीडर
राजीव गांधी वाटर शेड मिशन
जला सतना म.प्र.

OFFICE OF JILLA PANCHAYAT (DISTRICT RURAL DEVELOPMENT AGENCY) SATNA — ADMINISTRATIVE SANCTION

कार्यालय जिला पंचायत (डी.आर.डी.ए.) सतना म.प्र.
प्रशासकीय स्वीकृति

जिला स्तरीय वाटर शेड सलाहकार समिति की बैठक दिनांक 17-4-98 में लिये गये निर्णय एवं अनुशंसानुसार ई.ए.एस. मद से राजीव गांधी वाटर शेड विकास कार्यक्रम के अन्तर्गत कंडिका 2 में उल्लेखित शर्तों पर निम्नानुसार प्रशासकीय स्वीकृति प्रदान की जाती है। प्रशासकीय स्वीकृति से सम्बन्धित मिनी वाटर शेड का विवरण निम्नानुसार है :-

01. मिनी वाटर शेड क्रमांक :- 2 सी 1 ए 3 सी 02. विकास खण्ड का नाम :- मझगवां

03. ग्राम वार क्षेत्रफल :- 4977.00 (हेक्टेयर)

क्रमांक	ग्राम का नाम	क्षेत्रफल (हेक्टर)
01	गहिरा	542.00
02	सरभंगा	1012.00
03	परेवा	1087.00
04	कावर	330.00
05	पनघटी	1006.00
06	तुर्री	1000.00
	योग :-	4977.00

कुल लागत 199.08

04. चार वर्षीय योजना की मदवार लागत :-

क्र.	मद	प्रथम वर्ष (1998-99) रु. लाख में	द्वितीय वर्ष(99-2000)रु. लाख में	चार वर्षों की कुल लागत रु. लाख में
01	प्रशासनिक मद (सकल योजना लागत का अधिकतम 10%)	5.97	5.97	19.91
02	कम्युनिटी आर्गनाईजेशन (सकल योजना लागत का अधिकतम 5%)	7.96	1.99	09.95
03	प्रशिक्षण (सकल योजना लागत का अधिकतम 5%)	5.97	1.99	09.95
04	अन्य पुस्तक कार्य (सकल योजना लागत का अधिकतम 5%)	9.95	-----	09.95
	योग	29.85	09.95	49.76
05	वाटर शेड कार्य			
	क. भूमि सुधार एवं भूमि संरक्षण (वाटर शेड योजना लागत का अधिकतम 30%)	05.97	22.40	44.80
	ख. जल सम्वर्धन(40%)	05.97	22.40	59.72
	अ. सतही जल सम्वर्धन कार्य 20 % (अधिकतम)			
	ब. भू जल सम्वर्धन कार्य 20 % (अधिकतम)			
	ग. वनी करण 10%	1.49	02.98	14 93
	घ. चारगाह विकास 10%	1.49	02.99	14.93
	ङ. अन्य गतिविधियां 7.5%	------	01.49	11.20
	च. स्वावलम्बी दल 2.5% (न्यूनतम)	-------	------	03.74
	योग, वाटर शेड कार्य	14.92	52.26	149 32
	सकलयोग सकल लागत	44.77	62.21	199 08

तृतीय एवं चतुर्थ वर्ष के कार्यो की मदवार स्वीकृति आवश्यक विवरण उपलब्ध कराने के उपरान्त ही दी जा सकेगी

02. प्रशासनिक स्वीकृति पर लागू शर्तें :-

2.1 योजना अवधि :- वर्ष 1998 से 2002 तक होगी।

OFFICE OF JILLA PANCHAYAT (DISTRICT RURAL DEVELOPMENT AGENCY) SATNA — ADMINISTRATIVE SANCTION - CONTD.

2.2 योजना राशि का निर्गम :- योजना राशि का निर्गम पंचायत एवं ग्रामीण विकास विभाग के आदेश क्रमांक 2 (क्रमांक 13908/ 22 / आर.जी.एम. / एस.जे. / वि-8 / 95 / दि. 25-07-95 के अनुलग्नक क्रमांक 4 सहपठित अनुलग्नक क्रमांक 3 के अनुसार किया जावेगा । प्रशासनिक मद में उल्लेखित राशि का निर्गम पंचायत एवं ग्रामीण विकास विभाग के आदेश क्रमांक 2 क्रमांक 13908 / 22 / आर.जी.एम. / एस.जे./ वि-8/ 95 / दिनांक 25-07-95 के अनुलग्नक क्रमांक 3 वर्णित वजट के अनुसार डी.आर.डी.ए. परियोजना अधिकारी मिली वाटर शेड तथा ग्रामस्तरीय वाटर शेड कमेटियो को किया जावेगा ।

2.3 वाटर शेड कमेटी, पी.आई. ए. तथा जिला स्तर पर व्यय की गई समस्त राशियां तथा प्राप्तियों का लेखा एवं कार्य की प्रगति का विवरण पंचायत एवं ग्रामीण विकास विभाग म.प्र. शासन के आदेश कं. 6 (क्रमांक 4636/22 / आर.जी.एम./वि-9 / 96 दिनांक 4 मार्च 96) के अनुसार अनिवार्य रूप से रखा जावेगा ।

2.4 चार वर्ष वाद राशियों का आहरण तथा व्यय राज्य शासन की अनुमति उपरान्त ही किया जा सकेगा ।

2.5 कंडिका एक के अनुसार मदवार दी गई प्रशासकीय स्वीकृति से अधिक व्यय कदापि न किया जाये । विभिन्न मदो के अन्तर्गत वचत की दशा में उसे अन्य मद में समायोजित नहीं किया जा सकेगा इस प्रकार की वचत को डी.आर.डी.ए. मे वापस किया जाना होगा । मदवार प्रावधानित राशि का किसी भी प्रकार से पुनर्वियोजन सम्भव नहीं है ।

2.6 परियोजना के कार्यो का क्रियान्वयन पंचायत एवं ग्रामीण विकास विभाग द्वारा समय समय पर जारी आदेशो के अनुरूप ही किया जावेगा ।

03. तकनीकी स्वीकृतियां :-

3.1 परियोजना अधिकारी मिलीवाटर शेड द्वारा रू. 2.00 (दो लाख मात्र) की सीमा तक कार्यवार, यथा ट्रेचिंग , वोल्डर चैक इत्यादि तकनीकी स्वीकृति जारी की जावेगी । इसकी प्रशासकीय स्वीकृति योजना की स्वीकृति में निहित हैं अतः प्रथक से नहीं दी जावेगी ।

3.2 जिला ग्रामीण विकास अभिकरण द्वारा 2.00 लाख से अधिक की संरचना की तकनीकी स्वीकृति जिला स्तरीय वाटर शेड सलाहकार समिति आदेश क्रमांक 2 दिनांक 25-07-95 के पैरा 7.1.1 में उल्लेखित जिला स्तरीय तकनीकी सलाहकार समिति की अनुशंसा पर विशेष परिस्थितियों में तथा अन्य विकल्प के अभाव में मिशन संचालक की सहमति के उपरान्त दी जा सकेगी ।

04. योजना लागत की अधिकतम सीमा :-

4.1 वाटर शेड कार्य योजना का सकल व्यय रू. 4000/- प्रति हेक्टेयर से अधिक नहीं होगा तथा इसमें पैरा 1 में उल्लेखित सभी मद सम्मलित हैं । योजना व्यय की उल्लेखित सीमा में परिवर्तन का अधिकार भारत सरकार द्वारा मानक परिवर्तन की स्थिति में ग्रामीण विकास विभाग के निर्देश पर सम्भव है ।

कलेक्टर/मिशन लीडर
राजीव गांधी वाटर शेड मिशन
जला सतना म.प्र.

पृष्ठा. कं. / डी.एस.एम.ए. / आर.जी.एम. / 97-98 97 सतना, दिनांक 8.1.97

प्रतिलिपि,

01. विकाय आयुक्त म.प्र. भोपाल ।
02. आयुक्त रीवां सम्भाग रीवां ।
03. संचालक राजीव गांधी जलग्रहण क्षेत्र प्रवंधन मिशन विकास आयुक्त कार्यालय विंध्याचल भवन भोपाल ।
04. परियोजना अधिकारी मिलीवाटर शेड .....

की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु ।

कलेक्टर/मिशन लीडर
राजीव गांधी वाटर शेड मिशन
जला सतना म.प्र.

कार्यालय ग्रामस्तरीय जल ग्रहण समिति ..... मिली वाटरशेड .....

ग्राम स्तरीय जलग्रहण प्रबन्धन मिशन हेतु वर्षवार आवंटन पत्रक

मिली वाटर शेड का नाम :- .....समिति का नाम .....

समिति का पंजीयन क्रं. :- .....कुलरकवा (हे.).....

परियोजना खाता क्रमांक :- .....बैंक शाखा का नाम .....

जिला सतना (म.प्र.) (राशि लाख रूपये में)

क्र	मद	कार्ययोजना में प्रस्तावित राशि					पूर्वान्त राशि	व्यय राशि	शेष राशि	वर्ष में कार्ययोजना के अनुसार मांग की गई राशि	पूर्व वर्ष की अवशेष राशि घटाने के बाद वास्तविक रूप से आवंटित की जानेवाली राशि
		प्रथम वर्ष	द्वितीय वर्ष	तृतीय वर्ष	चतुर्थ वर्ष	योग					
1	2	3	4	5	6	7	8	9	10	11	12
1	प्रशासनिक										
2	वाटरशेड कार्य										
	योग :-										

उपयोगिता प्रमाण-पत्र

प्रमाणित किया जाता है कि ग्रामस्तरीय जल ग्रहण समिति ..... की कार्य योजना की स्वीकृत लागत ..... है तथा इस कार्य योजना हेतु पूर्व में .....राशि प्राप्त हो चुकी है जिसके विरूद्ध ..... राशि का उपयोग/व्यय कार्य के निर्धारित माप दण्ड के अनुसार किया जा चुका है प्रस्तुत मांग ..... की है जो कार्य योजना स्वीकृत सीमा के अन्दर है अत: ..... शब्दो में ..... जारी की जावे ।

सचिव,
ग्रामस्तरीय जल ग्रहण समिति

अध्यक्ष,
ग्रामस्तरीय जल ग्रहण समिति

परियोजना अधिकारी,
मिलीवाटरशेड.....

FROMAT FOR DEMAND OF FUNDS

WATERSHED DEVELOPMENT PLAN — SUMMARY OF FOUR YEAR PLAN

वाटरशेड विकास प्लान
चार वर्षों के व्यय का वर्षवार निर्धारण
वर्ष – 1996–2000

गांव : *पटनी* विकासखण्ड : *मझगंवा*

जिला : *सतना* मिलीवाट र शेड कोड नम्बर *मझगवाँ 2सी.1ए.3सी.*

गतिविधि	सकल लागत	वर्ष 1996-1997				1997-1998	1998-1999	1999-2000
		लागत	योगदान	रोजगार मानव दिवस	लाभा-न्वित व्यक्ति	लागत	लागत	लागत
भूमि उद्धार तथा भूमि संरक्षण								
- मेड़ डालना	0.60	--	5से10%	--	--	--	0.220	0.38
- कन्टू र नाली	1.50	0.254	5से10%	510	04	0.750	0.496	--
- गली बांध/बोल्ड र बांध	0.428	0.22	5से10%	440	09	0.208	--	--
- स्टोन डाईक	0.387	--	5से10%	--	--	0.301	0.086	--
- गैबियान	0.40	--	5से10%	--	--	0.40	--	--
- सी.पी.टी.	0.24	--	5से10%	--	--	--	0.146	0.094
जल संग्रह संरचनायें (कम लागत)								
- परकोलेशन टैंक	0.70	--	5से10%	--	--	--	0.70	--
- तालाब	1.90	--	5से10%	--	--	1.90	--	--
- नाला बांध	1.74	0.632	5से10%	760	06	0.312	0.564	0.232
- ड्राप स्पिलवे	0.40	--	5से10%	--	--	--	--	0.400
- सिंचाई विस्तार	--	--	--	--	--	--	--	--
- भूमिगत बन्धारा	--	--	--	--	--	--	--	--
- भूमिगत जल सम्वर्धन	--	--	--	--	--	--	--	--
वनीकरण								
- जलाऊलकड़ी की प्रजातियों का रोपण	0.827	--	5से10%	--	--	0.353	0.316	0.158
- अन्य प्रजातियों का रोपण	--	--	--	--	--	--	--	--
- नर्सरी	0.158	0.158	5से10%	06	06	--	--	--
- वानिकी बीज बुआई	0.20	--	5से10%	--	--	0.20	--	--
चारागाह विकास	1.185	0.158	5से10%	05	05	0.553	0.316	0.158
- नर्सरी	--	--	--	--	--	--	--	--
- पौध लगाना	--	--	--	--	--	--	--	--
अन्य गतिविधियां	0.889	0.119	5से10%	04	04	0.414	0.249	0.107
- सब्जी लगाना	--	--	--	--	--	--	--	--
- फलदार वृक्ष लगाना/फूल उत्पादन/उद्यानिकी	--	--	--	--	--	--	--	--
- मछ ली पालन	--	--	--	--	--	--	--	--
- पशुधन/ड बरी निर्माण/रिचार्जिंग हैण्ड पम्प	--	--	--	--	--	--	--	--
पूंजी विनिमय राशि								
- महिला बचत समूह	0.090	0.39	5से10%	03	03	--	--	0.051
- स्वावलम्बी दल	0.206	--	--	--	--	0.138	0.068	--
योग	11.85	1.58	--	1728	37	5.529	3.161	1.58

टीप : ऊपर वर्णित गतिविधियों की सूची सम्पूर्ण नहीं है। प्रत्येक गतिविधि के सामने वाट रशेड प्लान की वांछि त जानकारी दें। समाज द्वारा अन्य गतिविधियों का चयन स्थानीय परिस्थिति अनुसार किया जा सकता है ।

WATERSHED DEVELOPMENT PLAN — SUMMARY OF FIRST YEAR

वाट रशेड विकास प्लान
प्रथम वर्ष के प्लान की संक्षेपिका

गांव : *पटनी* 1996 - 2000 विकासखण्ड :*मझगंवा*

जिला : *सतना* मिलीवाट र शेड कोड नम्बर *मझगवाँ 2सी.1ए.3सी.*

गतिविधि	लागत	वित्त पोषण का स्त्रोत		सहयोग राशि % (वाट रशेड	अर्जित रोजगार (मानव दिवस)	कार्य से लाभान्वित व्यक्ति			
		वाट र शेड रु. लाखों में	अन्य			अनु.जाति	अनु.जन जाति	महिला	कुल योग
भूमि उद्धार तथा भूमि संरक्षण									
- मेड़ को स्थायित्व									
- कन्टू र नाली	0.254	0.254	--	5%-10%	510				
- गली बांध/बोल्ड र बांध	0.220	0.220	--	5%-10%	440				
- नदी पथ उपचार									
- मेड़ ड ालना									
- गेबियान बांध									
जल संग्रह संरचनायें (कम लागत)									
- परकोलेशन टैं क									
- खेत में जल संग्रह									
- नाला बांध	0.632	0.632	--	5%-10%	760				
- मरम्मत कार्य									
- सिंचाई विस्तार									
- भूमिगत बन्धारा									
- भूमिगत जल सम्वर्धन									
वनीकरण									
- जलाऊलकड़ी की प्रजातियों का रोपण									
- अन्य प्रजातियों का रोपण									
- नर्सरी	0.158	0.158	--	5%-10%	06				
चारागाह विकास									
- नर्सरी									
- पौध लगाना	0.158	0.158	--	5%-10%	05				
अन्य गतिविधियां									
- सब्जी लगाना	0.119	0.119	--	5%-10%	04				
- फलदार वृक्ष लगाना/फूल उत्पादन/उद्यानिकी									
- मछ ली पालन									
- पशुधन/ड बरी निर्माण/रिचार्जिंग हैण्ड पम्प									
पूंजी विनिमय राशि									
- महिला बचत समूह	0.039	0.039	--		03				
- स्वावलम्बी दल									
योग	1.58	1.58	--	--	1728				

टीप : ऊपर वर्णित गतिविधियों की सूची सम्पूर्ण नहीं है। प्रत्येक गतिविधि के सामने वाट रशेड प्लान की वांछि त जानकारी दें। समाज द्वारा अन्य गतिविधियों का चयन स्थानीय परिस्थिति अनुसार किया जा सकता है ।

WATERSHED DEVELOPMENT PLAN — PHASING OF EXPENDITURE

वाटरशेड विकास प्लान
चार वर्ष के प्लान की संक्षेपिका
1996-2000

माइक्रो वाटरशेड , ग्राम - पटनी
जिला - सतना (म.प्र.)

विकासखण्ड : मझगवाँ
कोड नं. 2 सी 1 ए 3 सी

गतिविधि	लागत	वित्त पोषण का स्त्रोत		सहयोग राशि % (वाट रशेड	अर्जित रोजगार (मानव दिवस)	कार्य से लाभान्वित व्यक्ति			
		वाट र शेड रु. लाखों में	अन्य			अनु.जाति	अनु.जन जाति	महिला	कुल योग
भूमि उद्धार तथा भूमि संरक्षण									
- मेड़ डालना	0.600	0.600	--	5-10%	1200	02	18	02	20
- कन्टू र नाली	1.500	1.500	--		3000	07	11	--	18
- गली बांध/बोल्ड र बांध	0.428	0.428	--		1070	03	17	01	20
- स्टोन डाईक	0.387	0.387	--		235	--	05	--	05
- गेबियान बांध	0.400	0.400	--		600	--	07	--	07
- सी.पी.टी.	0.240	0.240	--		480	--	09	02	09
जल संग्रह संरचनायें (कम लागत)									
- परकोलेशन टैंक	0.70	0.700	--		840	01	11	--	12
- तालाब	1.90	1.900	--		2280	04	23	2	27
- नाला बांध	1.74	1.740	--		2100	03	21	--	24
- ड्रप स्पिलवे	0.40	0.400	--		480	--	05	--	05
- सिंचाई विस्तार									
- भूमिगत बन्धारा									
- भूमिगत जल सम्वर्धन									
वनीकरण									
- जलाऊलकड़ी की प्रजातियों का रोपण	0.827	0.785	--		940	13	106	4	119
- नर्सरी	0.158	0.200	--		240	03	03	03	06
- वानिकी बीज बुआई	0.200	0.200	--		240	07	11	09	18
चारागाह विकास									
- नर्सरी	1.185	0.185	--		710	03	09	02	12
- पौध लगाना									
अन्य गतिविधियां									
- सब्जी लगाना	0.889	0.889	--		535	01	28	--	29
- फलदार वृक्ष लगाना/फूल उत्पादन/उद्यानिकी									
- मछ ली पालन									
- पशुधन/ड बरी निर्माण/रिचार्जिंग हैण्ड पम्प									
पूंजी विनिमय राशि									
- महिला बचत समूह	0.090	0.090	--	100%	06	--	06	06	06
- स्वावलम्बी दल	0.206	0.206	--	100%	21	03	18	15	21
योग	11.85	11.85	--	--	14977	50	308	46	358

टीप : ऊपर वर्णित गतिविधियों की सूची सम्पूर्ण नहीं है। प्रत्येक गतिविधि के सामने वाट रशेड प्लान की वांछि त जानकारी दें। समाज द्वारा अन्य गतिविधियों का चयन स्थानीय परिस्थिति अनुसार किया जा सकता है ।


Kararia micro-watershed treatment
Plantation on contour trenches
Earthen embankment
Loose boulder check dam
Contour trenches
Earthen nala dam with central spillway
Earthen embankment
Plantation
Plantation
Cattle-proof trench
Stone Dyke
Earthen embankment