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SUMMERY OF PREPARATORY PHASE ACTIVITIES OF IWMP-16 (DAKAI) WATERSHED

RATIONALE

West Bengal is one of the highly populated (91.4 million, or 7.55% of India) state with a very high degree of agro-climatic diversity (ACZ), social (Left and Extreme left Extremism for the last 30-40 years) and economic backwardness with higher degree of backwardness especially in Paschhim Medinipur (ACZ 12b Hot Sub Humid Zone IV) which is clearly agro-economically one of the most backward, out of the 6 ACZs, Fig.1. Despite enormous potential of land resource, rainwater, manpower etc the LIVELIHOOD SECURITY is lacking to a large nos of people. Due to lack of rural industrialization, the diversification of agriculture in terms of farming, productivity and regeneration of bio-diversity is the only other viable alternative. The primary causes for all encompassing poverty and social backwardness in the DAKAI project area (IWMP-16/2011-12/WB) is the lack of grass root development and very poor infra-structure. Above all lack of assured irrigation along with suitable crop cultivars/package of practices, appropriate farm power & machinery, post-harvest management and infrastructure for marketing are some other difficulties.

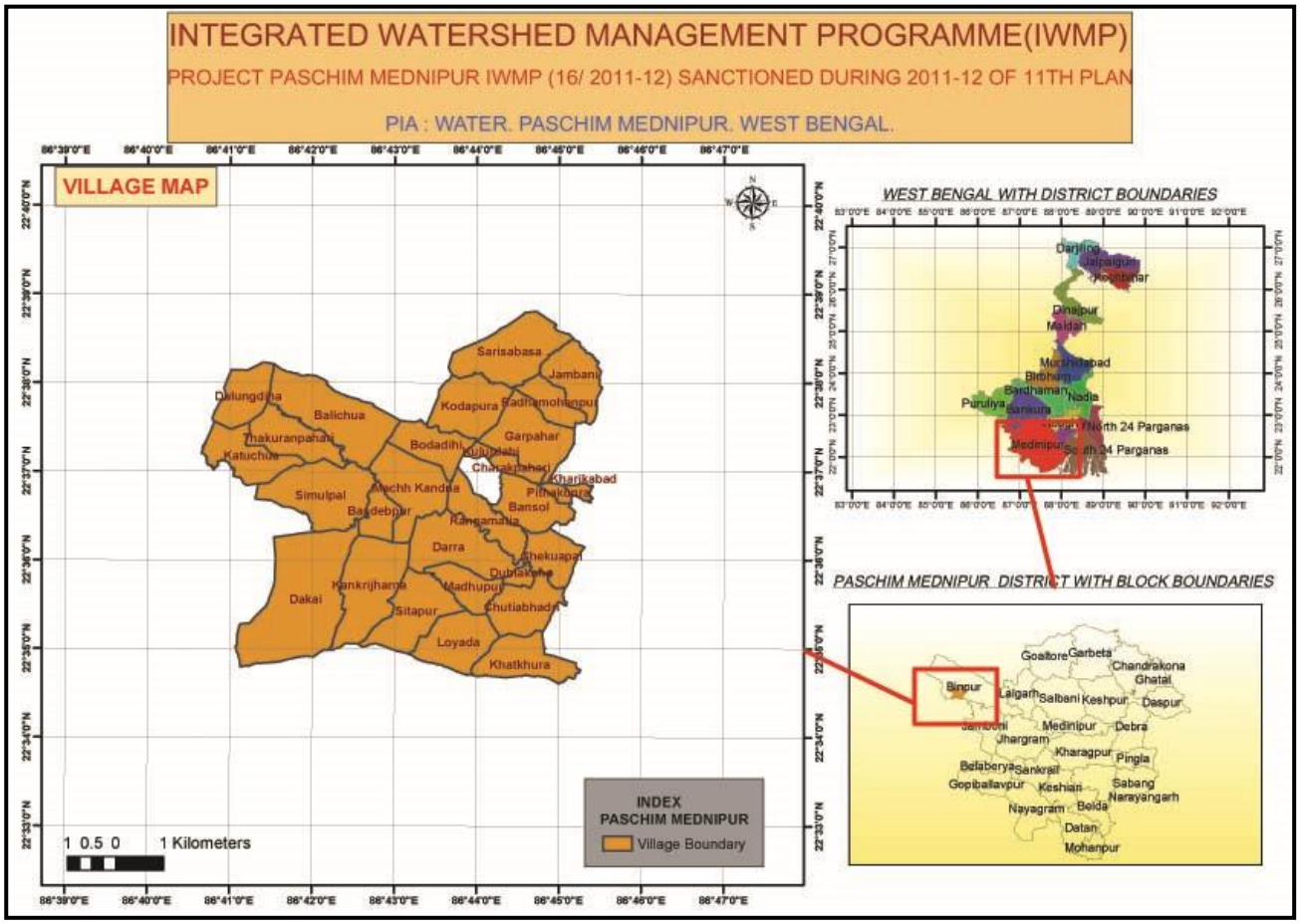


Fig.1. Location of DAKAI watershed

INITIATIVE BY GOVERNMENT

In the changed situation, the farmers can no longer remain dependent on crop husbandry alone. Agro-forestry, dry land horticulture, interim fishery, dairy, poultry and other animal husbandry based enterprises and other off-farm activities hold promise if adopted in an integrated manner as enumerated in the National Guidelines (2008) issued by National Rainfed Area Authority, Planning Commision, Delhi. As per resource status and climatic condition there is distinct possibility of improvement of their income and livelihood through diversified agriculture and adoption of horticulture-silvi pasture-spice/medicinal plant-vegetable production system with water security and other remunerative animal husbandry enterprises in place of mono cropping of rice. Water management and rain water harvesting assumes greater importance as supplemental irrigation through medium and minor irrigation projects, tanks and wells can bring revolutionary change in the economy of the watershed.

Govt. of India has taken up ambitious rainfed area development programme in India in all the states entitled 'Integrated Watershed Management Programme (IWMP)' a revised holistic and participatory approach to optimize the use of natural resources to secure employment, alleviate drought, moderate floods, prevent soil erosion, improve water availability/quality and increase agricultural production on a sustained basis to provide sustenance to the agriculture to achieve a better future.

ACTION TAKEN BY WATER

PRE PROJECT REPORT & BASIC WORKS: President WATER (Watershed Association for Training Employment & Resource utilization),New Delhi who is a renowned and well known water management Scientist of ICAR (Retd. As ADG) has opted to be the PIA for Dakai (code 4H3A3c) watershed which covers 29 revenue villages under Binpur-II Block, Paschim Medinipur district and lies between 22°34'0" to 22°39'0" N Latitude and 86°39'0" to 86°47'0" E longitude. It has 4073 and 3200 ha geographical & treatable area respectively in 4 micro watersheds under Simulpal & Sondapara Gram Panchayats (table 1).

Table 1: Micro watershed (MWS) with code nos, geographical, arable, non arable, forest areas and available water resources in the Dakai watershed, 2014

S N	Name of the MWs	Geographical Area,ha	Land Use (ha)								
			Arable		Non- Arable			Forest		Water resource	Treatable area
			Rain fed	Irrigated	Wasteland fit for cultivation	Wasteland un-fit for cultivation	Area unavail. for cult.	Total area	Area available for treatment	(Ha Meter)	
1	Balichua MWS I	897	287	53	17	0	103	437	345	0.0021	649
2	Sarisbasa MWS II	961	582	106	28	0	26	219	160	0.0018	770
3	Sitapur MWS III	1127	514	95	27	0	17	474	379	0.00195	920
4	Kakrijhar na MWS IV	1089	303	25	38	0	9	714	520	0.0015	861
Total	**Dakai Watershed 4H3A3c**	**4074**	**1686**	**279**	**110**	**0**	**155**	**1844**	**1404**	**0.00735**	**3200**

DETAILED SURVEY & ITS DETAILS : The project area has a hot summer, wet monsoon, and dry and moderately cool winter with minimum temperature ranging between 29^{o} to 10^{o} C. Annual average rainfall varies between 900--1200 mm of which 70-80 % is received during June to October period yet irrigated area is limited (less than 10%). Soil in the watershed area of the district is lateritic sandy loam to sandy clay loam in texture with low water holding capacity and nature of soil coupled with poor drainage restrict the choice of crops other than rice in the mid and lowlands during rainy season.

As per land use survey the watershed consists of 1686 ha cultivable rained area with potential for multiple cropping and diversification with 1844ha forest area with primitive methods of utilization of forest produce by the local people. It has 110ha cultivable waste lands fit for Agri-horti-silvi-spice-veg system with year round animal rearing/ grazing for sustainable income with proper utilization of its abundant rainfall (DARE, ICAR, 2004; Paul,1994). Due to water scarcity mono cropping of rice during monsoon period is the only agricultural activity. Water management especially rain water harvesting assumes greater importance as supplemental irrigation through minor irrigation projects (tanks and wells) can bring revolutionary change in livelihood and the economy of the watershed as there is adequate water available(rainfall) with high potential of profitable and productive agriculture and farming in all the villages in scientific and planned way (Paul,1992,1993). On the other hand integrated farming system can be well adopted for better use of farm waste recycling/ vermi-compost making and the adoption of Organic Farming in the area with Indigenous Technical Knowledge and Low Cost Technology. WATER has taken up Institution & Capacity Building for the watershed by propagating use of enriched organic matter, bio-fertilizers to minimize the production cost at the farm level thus ushering sustainable agriculture in line with the culture of Tribal Population. There are large nos of existing SHGs /SGSY of which 14 groups are trained and new group formation is in progress. To oversee optimal use of resources and time by three hired fresh WDTs, other experienced Members/ Consultant/ Experts from WATER are involved at all the four micro watersheds under the project with PEOPLE'S PARTICIPATION & MOTIVATION being the main focus of the PIA, WATER.

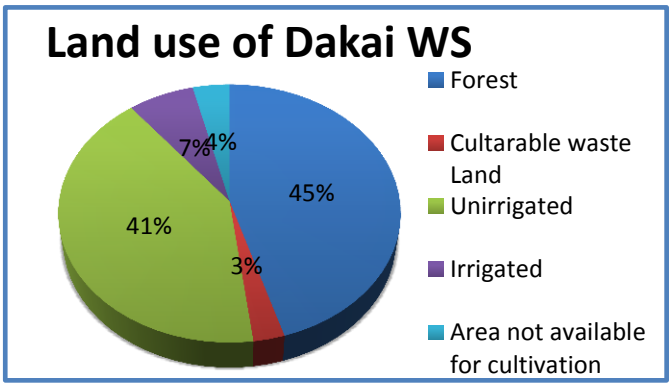


Fig.2 Land Use of DAKAI watershed

Marginal farmers and small farmers (94%) predominates land holding categories. Out of the total population of 10,486 in the watershed 2,211 (21%) are Scheduled Caste (SC), 5,912 (56%) Scheduled Tribes (ST), 795 (8%) Other Backwards Castes (OBC) and 1,568 (15%) belongs to general castes with no minority. There are 2,383 households with 15% (377) belonging to General, 23% (544) SC, 9% (205) OBC, 53% (1,257) ST.

ECONOMIC ANALYSIS: At present average monthly income is less than Rs. 1,000 per individual indicating most of the populace is Below Poverty Line (BPL) i.e. 77 % (1845) house hold Fig 3. It is expected that their average monthly income may come around Rs.3000 per month. The parameters like average income, self reliance, child education, nutritious balanced food, sanitation/ general health, child mortality, use of electricity, woman health, food habit, gender biasness, livelihood standard, recreation/amusement, TV/radio /cinema, vehicular facility etc. are to be studied pre project and post project.

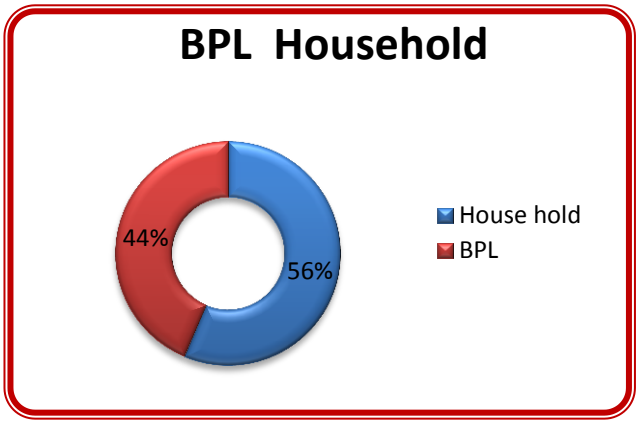


Fig.3 BPL and General Household

FINANCIAL ANALYSIS: The area falls under IAP blocks, so the unit cost is pegged at Rs 15,000/- per hectare. The total project cost for treatment of 3200 ha comes to Rs. 480.00 Lakh (15000x 3200 ha) for this micro watershed. The overall projected fund of 4, 80.0 lakhs with only 48.0 lakhs as administrative cost with no provision of NGO (WATER own overhead cost) over a period of 6-7 years and 24 lakhs as Institution and Capacity Building puts some constraint TO REALY ACHIEVE THE AIMS AND OBJECTIVES OF THE PROJECT for the PIA to manage the project under the present high cost of materials/services in such a remote, distant and extremely backward and socially disturbed environment.

The proposed physical and financial outlay of the Watershed is as follows:

Year wise Action plan (Financial)

(Kindly fill in figures. i.e 0.00 istead of NIL) (Rs in Lakh)

Administrative cost (10%)	9.60	9.60	9.60	9.60	9.60	48.00
Monitoring (1%)	0.96	0.48	0.48	0.48	2.40	4.80
Evaluation (1%)	1.44	0.00	0.00	1.44	1.92	4.80
Entry Point Activity (4%)	19.20	0.00	0.00	0.00	0.00	19.20
Institution & capacity Building (5%)	0.00	14.40	2.88	2.88	3.84	24.00
Detailed Project Report (1%)	4.80	0.00	0.00	0.00	0.00	4.80
Watershed Development work (56%)	0.00	80.64	67.20	67.20	53.76	268.80
Livelihood Activities (9%)	0.00	12.10	13.07	12.05	5.98	43.20
Production System (10%)	0.00	19.20	14.40	9.60	4.80	48.00
Consolidation Phase (3%)	0.00	0.00	0.00	0.00	14.40	14.40
Total	36.00	136.42	107.63	103.25	96.70	**480.00**

Year wise Action plan (Convergence)

Works to be taken up through convergence - (nos)

Sl.no	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Total
1	Soil & Moisture Conservation Works	0.00	112.15	29.50	38.72	59.70	240.07
2	Plantations	0.00					
3	Others	0.00					
	Total	0.00	112.15	29.50	38.72	59.70	240.07

Works to be taken up through convergence under * (nos)

Summary Dakai Watershed (IWMP-16/Batch III, Binpur-II, P Medinipur, WB)

Sl.no	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Total
1	MGNREGA/ RKVY/ Others						

Physical and financial outlay of Dakai watershed

SL No.	Component	Percentage of total outlay	Physical	Financial, lAKH		Tentative year of execution	Executing agency
			(in Ha/ No/RMT)	Target	Achievement		
1	Administrative cost	10%	Maintenance of institutional structures.		48	Throughout the project period	PIA
2	Monitoring	1%	Supervision ,analysis & intervention		4.8	Do	PIA/ WDT
3	Evaluation	1%	Ongoing/ concurrent, terminal, ex-post /Impact evaluation study		4.8	Do	Institutional out source
4	Entry Point Activity	4%	Distribution of benches in schools / culvert/ tube well		19.2	1st year	WC
5	Institution & Capacity Building	5%	Awareness generation, CBO s formation, Training, Exposure visit etc		24	1st to 4th year	PIA
6	Detailed Project Report	1%	Survey, PRA, analysis, software, hardware etc.		4.8	1st year	PIA
7	Watershed Development works	56%	Land development 210 ha, WHS 37 nos Loose bolder bunding 4500 RMT		268.8	2nd to 5th year	WC
8	Livelihood Activities for Asset less persons	9%	Bee keeping, mat weaving, hand loom, pottery, micro enterprise, goatery, piggery, duckery etc		43.2	2nd to 5th year	WC
9	Production system & micro Enterprise	10%	Inter cropping, mixed cropping, IFS, pulse, oil seed, maize, soybean, bio fert, seed production, live stock dev, fishery etc.		48	2nd to 5th year	WC
10	Consolidation	3%	Up scaling of successful activities, Watershed plus activities, Documentation of successful experiences, Preparation of project completion reports, Mechanism for sustainability of interventions, Watershed development fund and its management.		14.4	4th & 5th year	PIA
TOTAL		100.00 %			480		

Project Outcome

Sl.no	Particulars	Likely out come Actual achieved
1.0	**Waste land likely to be converted to productive use (ha)**	
1.1	Total waste land likely to be taken up	110
1.2	Total waste land likely to be brought under agriculture/horticulture/other productive uses	110
2.0	**Cropping intensity**	
2.1	Likely cropping intensity after the project (%)	120
2.2	Likely change in cropping intensity (% increase/ decrease)	33 % increase
3.0	**Water Storage Structure/ irrigation**	
3.1	Water Storage Structure (renovated) nos.	24
3.2	Water Storage Structure (created) nos.	49
3.3	Increase in storage capacity of water storage structure (cum)	352060
3.4	Increase in storage capacity of water storage structure (%)	299%
3.5	Additional water extracting units proposed to be created (nos)	0.00
3.6	Additional area proposed to be brought under irrigation (ha)	352
4.0	**Likely Beneficiary related outcome**	
4.1	No. of beneficiary household	
4.1.1	Small farmers	115
4.1.2	Marginal farmers	1969
4.1.3	Landless/ asset less	299
4.1.4	BPL	1845
5.0	**Employment likely to be generated**	
5.1	Total number of employment likely to be generated (Person days)	500000
6	**Likely change in Ground water table**	
6.1	Pre monsoon (bellow ground level,bgl)	To be assessed
6.2	Post monsoon (bgl)	To be assessed

Expected Flow of benefits (in nos)

		SHG			UG			Micro			Total		
	Beneficiaries	**M**	**F**	**Tot**	**M**	**F**	**Tot**	**M**	**F**	**Tot**	**M**	**F**	**Tot**
1	SC	0.00	192	192	50	0.00	50	0	0	0	50	192	242
2	ST	0.00	800	800	249	0.00	249	0	0	0	249	800	1049
3	Minority	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0	0.00	0.00	0.00
4	Others	0.00	600	600	500	0.00	500	0	0	0	500	600	1100
	Total	0.00	1592	1592	799	0.00	799	0	0	0	799	1592	2391

Institute based training for Local user groups of (Kakri Jharna) by Prof.B.C Ghosh Food & Agriculture Deprt at IIT Kharagpur,WB.

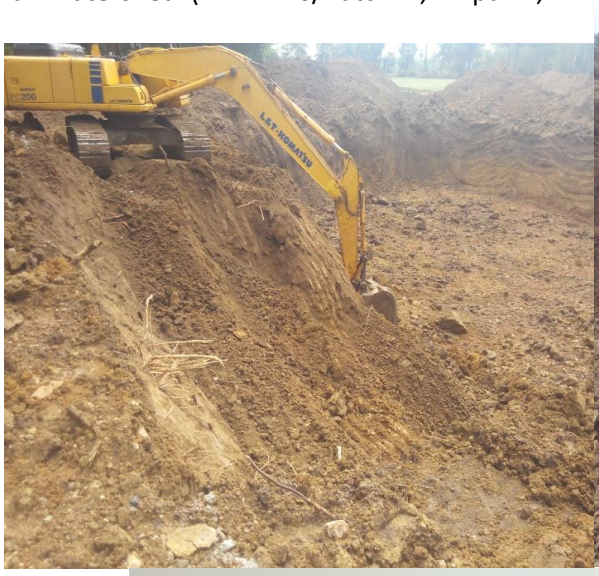
` Field based training for Local SHG group by Prof.B.C Ghosh Food & Agriculture Dept.(IIT KGP)

Summary Dakai Watershed (IWMP-16/Batch III, Binpur-II, P Medinipur, WB)

Field based training on Horticulture Species crop model in wasteland areas by Prof.B.C Ghosh Food & Agriculture Eng. Dept. (IIT KGP)

Bathing Ghat and cloth changing room under Entry Point Activity at Simulpal village

Process of information gathering through Participatory Rural Appraisal with villagers



Construction of Water harvesting structure at Dakai watershed

Views of Various Water Harvesting Structures at Different Villages of Dakai watershed

Summary Dakai Watershed (IWMP-16/Batch III, Binpur-II, P Medinipur, WB)

Annexure 1

Mouzawise census code, J L no, geographical & treatable area of the Dakai watershed

Name of the water shed	Name of the Micro watershed	Sl. No.	Villages	J L No	Geo. Area (ha)	Effective Project Area (ha)	GP	Census Code No.
DAKAI WTERSHED IWMP 16/2011-12	Balichua	1	Dulungdiha	100	111	110	SIMULPAL	2627300
		2	Balichua	101	267	175	SIMULPAL	2627400
		3	Simulpal	149	242	123	SIMULPAL	2632200
		4	Thakuranpahari	150	140	108	SIMULPAL	2632300
		5	Katuchua	151	137	134	SIMULPAL	2632400
			Sub Total		897	649		
	Sarisabasa	6	Sarisabasa	143	218	200	BELPAHARI	2631600
		7	Kodapura	144	158	155	BELPAHARI	2631700
		8	Kharikabad	176	14	8	SONDAPARA	2634900
		9	Pithakunra	177	16	8	SONDAPARA	2635000
		10	Bansol	178	123	55	SONDAPARA	2635100
		11	Kulardahi	180	14	14	SONDAPARA	2635300
		12	Charakpahari	181	36	31	SONDAPARA	2635400
		13	Garpahar	182	184	122	SONDAPARA	2635500
		14	Radhamohanpur	183	75	72	BELPAHARI	2635600
		15	Jambani	189	123	104	BELPAHARI	2636200
			Sub Total		960	769		
	Sitapur	16	Sitapur	164	182	173	SONDAPARA	2633700
		17	Loyada	165	157	151	SONDAPARA	2633800
		18	Khatkhura	166	137	127	SONDAPARA	2633900
		19	Chutiabhadri	167	135	75	SONDAPARA	2634000
		20	Dublakona	168	21	15	SONDAPARA	2634100
		21	Madhupur	169	88	77	SONDAPARA	2634200
		22	Darra	170	209	152	SONDAPARA	2634300
		23	Rangametia	171	110	96	SONDAPARA	2625000
		24	Chekuapal	172	89	55	SONDAPARA	2634500
			Sub Total		1127	920		

	Kakrijharna	25	Dakai	162	476	333	SIMULPAL	2633500
		26	Kankrijharna	163	248	198	SIMULPAL	2633600
		27	Bodadihi	146	111	100	SIMULPAL	2631900
		28	Machhkandna	147	186	164	SIMULPAL	2632000
		29	Basudebpur	148	67	66	SIMULPAL	2632100
			Sub Total		1089	861		
			Total		4073	3200		