SUMMERY OF ACTIVITIES OF IWMP-14 (BHALUKA) WATERSHED

West Bengal is one of the state with a very high degree of agro-climatic diversity, social (left and extreme left extremism for the last 25-30 years) and economic backwardness with higher degree of backwardness especially in West Midnapur region (ACZ 12b Hot Sub Humid Zone IV). Despite enormous potential of land resource, rainwater utilisation, diversification of agriculture in terms of farming and cropping system, productivity and regeneration of bio-diversity, this region is clearly agro-economically one of the most backward with all encompassing poverty, out of the 6 agro-climatic regions. Fig.1

Soil resource 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.

Water resources is abundant, but management is very poor especially 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. Mono cropping of rice in Kharif in available cultivable lands during monsoon period is the only agricultural activity in the area. Due to drought induced vulnerability migration is a permanent feature in this area due to lack of employment opportunity and compels the able bodied people to seek alternate employment in other states. Since old, women and children remain back in ill equipped villages, the social vulnerability and additive economic helplessness breads contempt for society/Government. Prolonged distress condition leads to undesirable elements to exploit the situation to the detriment of the society and state.

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 per resource status and climatic condition there is distinct possibility of improvement of their income and livelihood through diversified agriculture and adoption of organic horticulture-silvi pasture-spice-medicinal plant-vegetable along with remunerative animal husbandry enterprises in place of mono cropping of rice.

Govt. of India has taken up ambitious rainfed area development programmes 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 alleviate drought, moderate floods, prevent soil erosion, improve water availability/quality and increase agricultural production on a sustained basis as well provide additional employment opportunities.

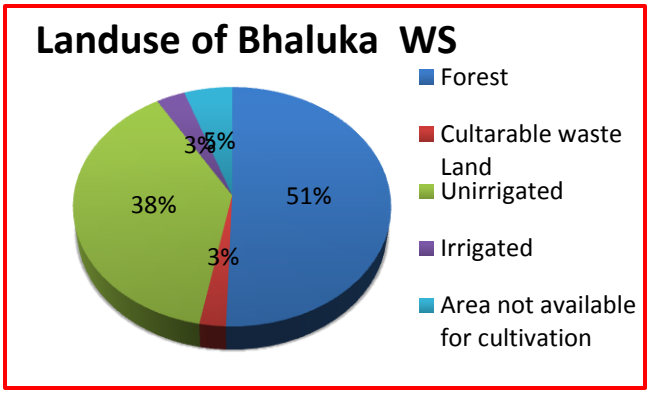
President WATER (Watershed Association for Training Employment & Resource utilization), New Delhi who is a renowned and well known water management Scientist (Retd) of ICAR (CV enclosed) is selected as PIA for Bhaluka watershed IWMP-14 / 2011-12 are in Jamboni Block of Paschim Medinipur District in West Bengal State. It is located at 22° 22' 0" N to 22° 26'0"N Latitude and 86°52' 0" E to 86°55' 0" E longitude. The geographical area is 3309and treatable Area is 3000 Ha. It comprises 4 nos. of micro watersheds within Jamboni Gram Panchayats (table 1)

Table 1. Micro watershed wise, geographical area, land type, water resources, IWMP-14

Sl No.	Name of the MWs	Geographical Area	Treatable area								
			Arable		Non- Arable			Forest		Water resource	Treatable area (in ha)
			Rain fed	Irrigated	Wasteland fit for cultivation	Wasteland un-fit for cultivation	Area not avail. for cult.	Total	Area available for treatment	(Ha Meter) Average during rainy season	(specify)
1	Dhaniapal Microwatershed 4H3A3d5e	557	37	46	17	0	12	111	111	0.0028	499
2	Sushni Microwatershed 4H3A3c3a	1192	108	16	17	0	84	967	948	0.0024	1073
3	Bahirgram Microwatershed 4H3A3c3b	990	401	28	30	0	26	505	498	0.0048	929
4	Ranipal Microwatershed 4H3A3c3e	570	392	16	17	0	55	90	90	0.0022	499
Total	**Total of Bhaluka Watershed 4H3A3d/3e**	**3309**	**1272**	**106**	**81**	**0**	**177**	**1673**	**1647**	**0.0122**	**3000**

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 water resources are 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 1272 ha cultivable rained area with potential for multiple cropping and diversification with 1673 ha forest area with primitive methods of utilization of forest produce by the local people. It has 81ha 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 (Paul, 1994).

Due to water scarcity (only 5-10% area is irrigated) 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).

Marginal farmers and small farmers (99%) predominates land holding categories. Out of the total population of 7342in the watershed 1590 (22%) Scheduled Castes (SC), 2312 (31%) Scheduled Tribes (ST), 3365(46%) Other Backwards Communities (OBC), General is 75(1%) and no minority. There are in total 1377 households with 16 household belonging to general caste (1%), 276 SC (22%), 1377 OBC (47%),440 ST (32%).

The project aims to support livelihood by way of enhanced production and productivity with extensive and intensive cultivation. The asset less persons seeks their livelihood from the natural plantation/forest. There is ample scope of alternative source of income by utilizing forest products; rearing of cattle, goat etc. Development of Animal based enterprise and farming can pave the way to enhance additional income of the community. On the other hand integrated farming system approach can be well developed for better use of farm waste recycling/ vermi-compost making and the adoption of technology like making of enriched organic matter, use of bio-fertilizers to minimize the production cost at the farm level thus ushering Organic Farming in the area with ITK and Low Cost Technology adoption. There are 66 numbers existing SHGs / SGSY working groups and new groups formation in progress by Experts and WDTs.

The overall projected fund is 4,50 lakhs with only 45.0 lakhs as administrative cost over a period of 6-7 years and 22.50 lakhs as Institution and Capacity Building which puts some constraint for the PIA to manage the project under the present high cost of materials and services in such a remote, distant and extremely backward and socially disturbed environment.

The watershed Bhaluka comprises of 99 % marginal farmers and rest are small farmers among the land holding families. The main livelihood support is agriculture based economy. The area is scarce of assured irrigation, so the kharif paddy is the only source of livelihood. The objective of undertaking the project in this area is to support livelihood by way of enhancing production and

productivity with both way of extensive and intensive cultivation. These can be done when maximum rain water is harvested in situ for using in production purpose keeping in mind regeneration of degraded natural resources like soil, water and plantation. The asset less persons seeks their livelihood from the natural plantation / forest. There is ample scope of alternative source of income by rearing cattle, goat etc. in a scientific approach.

The improvement of cattle breed artificial by insemination, immunization particularly for foot & mouth disease of cattle, de-worming among others can pave the way of enhanced additional income of the community. On the other hand integrated farming system approach can be well developed for better use of farm waste recycling. Dependence on high energy chemical fertilizer can also be reduced/ synchronized to a great extent efficiently and the adoption of technology like making of enriched organic matter, use of bio-fertilizers can also be done to minimize the production cost at the farm level. While considering technological intervention, the ITK and Low Cost Technology would be adopted. As observed the literacy percentage needs to be enhanced for the better adoption of technological interventions.

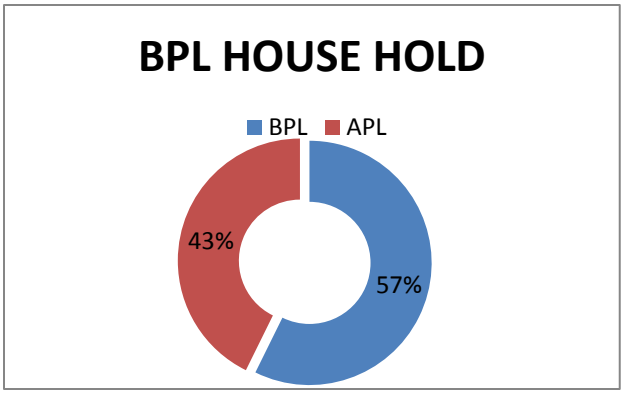
The name of the PIA is Dr D K Paul, the President, WATERSHED ASSOCIATION FOR TRAINING EMPLOYMENT AND RESOURCE utilization (WATER). Three hired experts & experienced members from the organisation have been engaged to oversee all the four micro watersheds under the project.

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 3000 ha (treatable aria) comes to Rs. 450.00 Lakh (15000x 3000 ha) for thisIWMP-14/P Medinipur/WB watershed. The proposed physical and financial outlay the watershed is as follow

Table 2: Componentwise cost and IWMP-14 distribution with schedule of execution

SL No.	Component	Percentage (%age of total outlay	Physical (in ha/ No/RMT)	Financial (Lakh Rs.)	Tentative year of execution	Primary responsibility
1	Administrative cost	10%	Maintenance of institutional structures.	45.00	Throughout the project period	PIA
2	Monitoring	1%	Supervision ,analysis & intervention	4.50	Do	PIA/ WDT
3	Evaluation	1%	Ongoing/ conc urrent, terminal, ex-post /Impact evaluation study	4.50	Do	Institutional out source
4	Entry Point Activity	4%	Distribution of benches in schools / culvert/ tube well	18.00	1st year	PIA
5	Institution & Capacity Building	5%	Awareness generation, CBO s formation, Training, Exposure visit etc	22.50	1st to 4th year	PIA
6	Detailed Project Report	1%	Survey, PRA, analysis, software, hardware etc.	4.50	1st year	PIA
7	Watershed Development works	56%	Land development 210 ha, WHS 37 nos Loose bolder bunding 4500 RMT	252.00	2nd to 5th year	PIA/WC
8	Livelihood Activities for Asset less persons	9%	Bee keeping, mat weaving, hand loom, pottery, micro enterprise, goatery, piggery, duckery etc	40.50	2nd to 5th year	PIA/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.	45.00	2nd to 5th year	PIA/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.	13.50	4th & 5th year	PIA
TOTAL		100.00%		**450.00**		

At present average monthly income of the WA members is around Rs. 1000-1500 per individual indicating that most of the populace is laying Below Poverty Line (BPL). The economic status of the BPL populace is proposed to be improved to APL after the completion of the project. It is expected that their average monthly income may be around Rs.3000-4000 per month which is much bellow the average national income. The parameters to measure the economic status like average income, self reliance, child education, nutritious balanced food, sanitation, general health, child mortality, use of electricity, woman health, food habit, gender bias, livelihood standard, recreation,amusement, TV/radio/cinema, vehicular facility etc. are to be studied pre project and post project.



Section E Year wise Action plan (Financial)

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

Componenets with %	1st year	2nd Year	3rd Year	4th Year	5th Year	Total
Administrative cost (10%)	9.00	9.00	9.00	9.00	9.00	45.00
Monitoring (1%)	0.90	0.45	0.45	0.45	2.25	4.50
Evaluation (1%)	1.35	0.00	0.00	1.35	1.80	4.50
Entry Point Activity (4%)	18.00	0.00	0.00	0.00	0.00	18.00
Institution & capacity Building (5%)	0.00	13.50	2.70	2.70	3.60	22.50
Detailed Project Report (1%)	4.50	0.00	0.00	0.00	0.00	4.50
Watershed Development work (56%)	0.00	75.00	63.00	63.60	50.40	252.00
Livelihood Activities (9%)	0.00	11.34	12.51	9.67	6.99	40.50
Production System (10%)	0.00	18.00	13.50	9.00	4.50	45.00
Consolidation Phase (3%)	0.00	0.00	0.00	0.00	13.50	13.50
Total	**33.75**	**127.29**	**101.16**	**95.77**	**92.04**	**450.00**

Section F Year wise Action plan (Convergnce)

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

F.I Works to be taken up through convergence -

Sl.no	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Total
1	Soil & Moisture Conservation Works	0.00	83.55	32.15	43.45	46.45	205.60
2	Plantations						
3	Others						
	Total	0.00	83.55	32.15	43.45	46.45	205.60

F.II Works to be taken up through convergence under *

Sl.no	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	Total
1	**MGNREGA**						
2	**RKVY**						
3							
4							
5	**Others**						
	Total						

Note * Additional rows may be inserted

Section G : Likely Project Outcome

Sl.no	Particulars	Likely out come
1	**Waste land likely to be converted to productive use (ha)**	
1.1	Total waste land likely to be taken up	81
1.2	Total waste land likely to be brought under agriculture	0
1.3	Total waste land likely to be brought under horticulture/Plantation	81
1.4	Total wasteland likely to be brought under other productive uses	0
2	**Cropping intensity**	
2.1	Likely cropping intensity after the project (%)	140
2.2	Likely change in cropping intensity (% increase/ decrease)	20 % increase
3	**Water Storage Structure/ irrigation**	
3.1	Water Storage Structure (renovated) nos.	50
3.2	Water Storage Structure (created) nos.	14
3.3	Increase in storage capacity of water storage structure (cum)	274895
3.4	Increase in storage capacity of water storage structure (%)	150%
3.5	Additional water extracting units proposed to be created (nos)	0.00
3.6	Additional area proposed to be brought under irrigation (ha)	274
4	**Likely Beneficiary related outcome**	
4.1	No. of beneficiary household	
4.1.1	Small farmers	13
4.1.2	Marginal farmers	1248
4.1.3	Landless/ asset less	116
4.1.4	BPL	789
5	**Employment likely to be generated**	
5.1	Total number of employment likely to be generated (Person days) based on minimum wages	500000
6	**Likely change in Ground water table**	
6.1	Pre monsoon (bgl)	To be assessed
6.2	Post monsoon (bgl)	To be assessed

Part 2 **Expected Flow of benefits (in nos)**

		SHG			UG			Micro			Tot		
	Beneficiaries	**M**	**F**	**Tot**	**M**	**F**	**Tot**	**M**	**F**	**Tot**	**M**	**F**	**Tot**
1	SC	0	142	142	192	0	192				192	142	334
2	ST	0	825	825	875	0	875				875	825	1700
3	Minority	0	0	0	0	0	0				0	0	0
4	Others	0	632	632	682	0	682				682	632	1314
	Total	0	1599	1599	1749	0	1749				1749	1599	3348

Table 3. Names of village, JL No, Geographical area, treatable and name of Gram Panchayat, Bhaluka.

Name of the watershed	Microwatershed	Sl No.	Villages	Jl. No.	Geo. Area (ha)	Treatable Area (ha)	GP	Cencus code
Bhaluka Watershed IWMP 14/2011-12	Dhanipal	1	Lohamalia	202	90	79	JAMBONI	3102800
		2	Tentla Pal	203	85	78	JAMBONI	3102900
		3	Chhota Ghung	204	48	39	JAMBONI	3103000
		4	Bara Ghung	205	59	53	JAMBONI	3103100
		5	Dhania Pal	206	175	159	JAMBONI	3103200
		6	Kenja	311	33	29	JAMBONI	3113700
		7	Dakshin Sol	318	32	30	JAMBONI	3114400
		8	Bhaluka-II	319	36	33	JAMBONI	3114500
		9	Khas Jangal- II	317	477	445	JAMBONI	3114300
	Sushni	10	Shushni	320	512	497	JAMBONI	3114600
		11	Kumri	316	65	23	JAMBONI	3114200
		12	Chattha	314	61	59	JAMBONI	3114000
		13	Banksol	315	77	50	JAMBONI	3114100
	Bhahirgram	14	Bhaluka-I	312	174	152	JAMBONI	3113800
		15	Bahirgram	308	139	125	JAMBONI	3113400

		16	Rangametya	313	50	46	JAMBONI	3113900
		17	Khas Jangal- I	291	467	458	JAMBONI	3111700
		18	Ramchandrapur	307	34	28	JAMBONI	3113300
		19	Sijua	305	43	30	JAMBONI	3113100
		20	Barasol	306	82	61	JAMBONI	3113200
	Ranipal	21	Ranipal	310	128	122	JAMBONI	3113600
		22	Bel Dangri	309	98	93	JAMBONI	3113500
		23	Maupal	304	92	82	JAMBONI	3113000
		24	Kismat	303	99	88	JAMBONI	3112900
		25	Kani Mahuli	301	153	141	JAMBONI	3112700
	Grand Total				3309	3000		