

**KALYANI INSTITUTE FOR STUDY, PLANNING & ACTION
FOR RURAL CHANGE (KINSPARC)
East Zone Partner of
INDIA WATER PARTNERSHIP**

Water Quality Monitoring, Awareness Building and Training on Water Quality, Sanitation & Health in Eastern Zone for school children, slum dwellers, community based organizations under World Water Monitoring Day (WWMD) Program

I. Background :

World Water Monitoring Day (WWMD) is an ‘international educational-cum-outreach programme designed to create public awareness and involvement in protecting water resources around the world by involving citizens to conduct basic monitoring of their local water bodies.’ As part of activities of WWMD, the GWP-IWP Partnership in India sponsored a programme of water quality monitoring along with awareness building and training. The KINSPARC, as IWP-partner for the eastern zone in India undertook the programme especially addressed to the youth, school children, slum dwellers and community based organizations. Following GWP-IWP guidelines, KINSPARC launched a programme of testing the quality of water in samples of water sources that are commonly used by people, namely, Ponds and Tube Wells, in selected locations in three districts of the Indian state of West Bengal.

In specific, the following activities were undertaken:

II. Specific Activities of WWMD

The following programme of activities was implemented by the KINSPARC to face the growing menace of global warming and world water scarcity:

- Local people, especially the children and the youth were organized into *Interactive Discussion Groups and Workshops* for careful monitoring of water quality and building awareness about proper methods of collection, preservation and uses of water.
- Young children were induced to use water testing kits provided by the GWP-IWP, and to conduct basic monitoring of local water bodies for a core set of water quality parameters including clarity (*turbidity*), acidity (*pH*), and dissolved oxygen (*DO*).

- Children participated with a great deal of enthusiasm in learning the technique of testing water quality with kits provided by WWMC. They also assisted senior team members in carrying out tests.
- Along with the water quality testing programme KINSPARC organized in schools and community centers a number of Workshops and Seminars on water quality monitoring as well as exploring the causes, implications and necessary precautions relating to climate change and global warming. Large numbers of participants took interest and showed a great deal of motivation.
- Involvement of children as well as grown-ups in various water-related activities served to make strong impacts upon their thinking, attitude, awareness and habits regarding protection, conservation, and maintenance of cleanliness of water sources.

III. Results of Survey and Water Testing in Sample Water Bodies

A survey was conducted to identify and select a non-random sample of a total of 78 water sources which included Ponds and Tube Wells in 5 Villages and Urban Municipalities in 3 Districts along the Gangetic planes in West Bengal.

The 3 districts are: Nadia, 24 Parganas, and Hooghly, (*shown in the map*).

The survey was designed to monitor three water quality parameters : (a)Turbidity (indicative of the extent of clarity of water), (b) pH (a measure of acidity, and (c)DO (measuring the degree of Oxygen in Water).

Turbidity is a measure of relative clarity of water. It is caused by the presence of suspended clay, silt or organic matter in the water body. Our sample shows that turbidity of Pond water ranges from about 30 to 50, while tube wells in our sample have mostly clear water.

pH shows the level of acidity in a water source. It may vary from 0 (very acidic) to 14 (very basic). Our study shows that both for the three districts and for Ponds and Tube wells the mean level of pH is 7, which is neutral.

DO is highly important for the health, development and survival of aquatic plants and animals. A level of 8 ppm DO may be ideal for a good aquatic eco-system. In our sample the test results show that mean level of Dissolved Oxygen in both Ponds and Tube wells is about 4 in the three Districts suggesting that some aquatic life might be able to survive.

IV. Conclusions

KINSPARC was assigned by the IWP to undertake a project to celebrate the World Water Monitoring Day (WWMD) 2012. The project was conducted in five villages/urban local bodies in three districts in the state of West Bengal. The project consisted of (i) Conducting awareness seminars and training of school children and the youth in the five centres; and (ii) Testing water from a sample of seventy eight water bodies (Ponds, and Tube wells).

The following broad conclusions emerge out of the project exercise:

- In all the five centres large numbers of participants attended the training and showed great interest in the issues of global warming, climate change, and water quality.
- Presence of clay, sand, and other polluting organic/inorganic matter in water (*Turbidity*) on an average is found to be in the range of 30-40 in ponds and it is all through 0 (zero) for tube well water.
- Average acidity (pH) is generally neutral (about 7) in all the water bodies and most locations.
- The average level of Dissolved Oxygen (DO) varies between 3 and 4 for both Ponds and Tube wells in the three districts of West Bengal lying along the Gangetic plane.

To sum up, the KINSPARC took up the important assignment of building public awareness and involvement in the protection of water resources around selected regions of the state of West Bengal. The programme engaged villagers as well as urban-peri-urban citizens to conduct basic monitoring of their local water bodies. Through water testing kits provided by the IWP, large numbers of children and adults, boys and girls alike, took samples from local water bodies, mainly ponds and tube wells, which are the major sources of water in the area for household use, and tested for the quality of water for a core set of parameters, namely, temperature, acidity (pH), clarity (turbidity), and Dissolved Oxygen (DO).

The programme attracted participants from five village panchayats spread over three districts along both sides of the river Ganges. Components of the programme consisted of group discussions, demonstrations, reference readings, hands-on training and supervised exercises.

The WWMD exercise had a strong impact upon participants and observers and it was recognized by most of the people around as a highly productive exercise. =

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Table I: Test Results of Water Quality Of Sample Water Bodies**(a) District: Nadia**

S.N	Name/ Owner of water body	Nature of water body	Village/ Municipality (District)	Block/ Ward No	Time of testing	pH	Turbid ity	DO in ppm	Water tem. egree C	Air temp · In degr ee C
1	Karin	Pond	Chandmari (Nadia)		12.00 noon	8	100	4	28	28
2	Karim	Tube well	Chandmari (Nadia)		12.20 pm	7	0	4	28	28
3	Aamm Tala Pukur	Pond	Kalyani (Nadia)	6	1.00 pm	8	40	8	32	34
4	Heemsagar	Pond	Kalyani (Nadia)	3	1.30pm	8	40	8	32	34
5	Dudh Sagar	Pond	Kalyani (Nadia)	3	1.45pm	9	40	4	32	34
6	Bhasan Pukur	Pond	Kalyani (Nadia)	13	2.00 pm	8	40	4	34	34
7	Kalyani Lake	Lake	Kalyani (Nadia)	17	3.45 pm	8	100	4	32	34
8	Aditya Gharami	Pond	Chandamari (Nadia)		4.00 pm	8	40	4	32	34
9	Aditya Gharami	Tube well	Chandamari (Nadia)		4.15 pm	7	0	4	28	34
10	Sudhir Mondol	Pond	Chandamari (Nadia)		4.30 pm	8	40	4	32	34
11	Narayan Das	Pond	Chandamari (Nadia)	Chakdah	3:30	7	40	4	24	28
12	Kalipada Karati	Tube Well	Chandamari (Nadia)	Chakdah	4:00	7	0	4	24	28
13	Manindra Dhaki	Tube Well	Chandamari (Nadia)	Chakdah	4:10	7	0	4	26	28
14	Gobinda Mndal	Pond	Chandamari	Chakdah	4:15	7	40	4	24	28
15	Anil Mondal	Pond	Chandamari (Nadia)	Chakdah	4:25	8	40	4	26	28
16	Anil Mondal	Tube Well	Chandamari (Nadia)	Chakdah	4:25	7	0	4	24	28
17	Binoy Mondal	Tube Well	Chandamari (Nadia)	Chakdah	4:30	7	0	4	24	28
18	Srikrishna Mondal	Tube Well	Chandamari (Nadia)	Chakdah	4:35	7	0	4	24	28
19	Tulsi Mondal	Tube Well	Chandamari(Nadia)	Chakdah	4:40	7	0	4	26	28
20	Tulsi Mondal	Pond	Chandamari (Nadia)	Chakdah	4:45	8	100	4	24	28
21	Biswajit Mondal	Tube Well	Chandamari (Nadia)	Chakdah	12:00	7	0	4	26	28
22	Govment	Tube Well	Chandamari(Nadia)	Chakdah	12:10	7	0	4	26	28
23	Dulalmoy Sarkar	Tube Well	Chandamari (Nadia)	Chakdah	12:25	7	0	4	26	28

24	Bikash Sarkar	Pond	Chandamari (Nadia)	Chakdah	12:35	8	40	4	24	28
25	Paresh Buuiya	Tube Well	Chandamari (Nadia)	Chakdah	12:50	7	0	4	26	28
26	Paresh Buuiya	Pond	Chandamari (Nadia)	Chakdah	1:00	8	40	4	24	28
27	Saraswati Mondal	Tube Well	Chandamari (Nadia)	Chakdah	1:15	7	0	4	26	28
28	Nagen Mondal	Tube Well	Chandamari (Nadia)	Chakdah	2:15	7	0	4	26	28
29	Ranjit Mondal	Pond	Chandamari (Nadia)	Chakdah	2:40	8	40	4	24	26
30	Harekrishna Mondal	Tube Well	Chandamari (Nadia)	Chakdah	2:50	7	0	0	26	26
31	Brishpati Gain	Tube Well	Chandamari (Nadia)	Chakdah	3:00	7	0	4	26	26
32	Sudhir Sarkar	Tube Well	Chandamari (Nadia)	Chakdah	3:20	7	0	4	26	26
33	Mritunjoy Mondal	Tube Well	Chandamari (Nadia)	Chakdah	3:30	7	0	4	26	26
34	Nittyananda Mondal	Tube Well	Chandamari (Nadia)	Chakdah	3:45	7	0	4	26	26
35	Bhudeb Mondal	Pond	Chandamari (Nadia)	Chakdah	12:00	7	40	4	24	28
36	Bhagaban Sarkar	Pond	Chandamari (Nadia)	Chakdah	12:20	7	40	0	24	28
37	Keshab Mondal	Pond	Chandamari (Nadia)	Chakdah	12:35	7	40	0	24	28
38	Monimohan Mondal	Pond	Chandamari (Nadia)	Chakdah	12:45	7	40	0	24	28
39	Suren Gain	Tube Well	Chandamari (Nadia)	Chakdah	12:55	7	0	0	24	28
40	Mongal Gaain	Pond	Chandamari (Nadia)	Chakdah	1:05	8	40	0	24	28
41	Narattam Mondal	Tube Well	Chandamari (Nadia)	Chakdah	1:10	7	0	0	26	28
42	Nagen Samaddar	Pond	Chandamari (Nadia)	Chakdah	1:20	8	40	0	26	28
43	Kanai Sikder	Tube Well	Chandamari (Nadia)	Chakdah	1:30	7	0	0	26	28
44	Babu Shikari	Pond	Chandamari (Nadia)	Chakdah	1:40	7	40	0	26	28
45	Dhren Shakari	Tube Well	Chandamari (Nadia)	Chakdah	2:00	7	0	0	26	28
46	Shailen Mondal	Tube Well	Chandamari (Nadia)	Chakdah	2:10	7	0	4	26	28
47	Anil Barai	Pond	Chandamari (Nadia)	Chakdah	2:20	8	40	4	24	28
48	Biswanath Mondal	Tube Well	Chandamari (Nadia)	Chakdah	2:30	7	40	4	26	28
49	Saraswati Trust Vidyapith	Tube Well	Ghoshpara (Nadia)	Kalyani Municipality	3:00	7	0	4	30	30
50	Saraswati Trust	Tube Well	Ghoshpara (Nadia)	Kalyani Municipality	3:10	7	0	4	30	30

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(Table I contd....)

(b) **DISTRICT: NORTH 24 PARGANAS**

51	Pradip Ghosh	Pond	<i>Dogachhiya, (24 Parganas (N))</i>	24 Pargana (N)	3:15	8	40	4	24	28
52	Bachha Ghosh	Pond	<i>Dogachhiya, (24 Pargana (N))</i>	24 Pargana (N)	3:20	8	40	4	24	28
53	Nikhil Mondal	Pond	<i>Dogachhiya, (24 Pargans (N))</i>	24 Pargana (N)	3:25	8	100	4	22	28
54	Bablu Sikder	Pond	<i>Dogachhiya, (24 Pargans)</i>	24 Pargana (N)	3:30	8	100	4	22	28
55	Sridam Ghosh	Pond	<i>Dogachhiya, (24 Pargans (N))</i>	24 Pargana (N)	3:35	7	40	8	20	26
56	Gopal Ghosh	Pond	<i>Dogachhiya, (24Pargans N)</i>	24 Pargana (N)	3:40	7	40	4	20	24
57	Dtiprosi Ghosh	Pond	<i>Dogachhiya, (24 Pargans N)</i>	24 Pargana (N)	3:40	4	40	4	20	24
58	Makhan Lal Ghosh	Pond	<i>Dogachhiya, (24 Pargans)</i>	24 Pargana (N)	3:45	8	40	4	22	24
59	Govt (Public)	Tube Well	<i>Dogachhiya, (24 PargansN)</i>	24 Pargana (N)	3:45	7	0	4	22	24
60	Karfu Ghosh	Pond	<i>Dogachhiya, (24 Pargans N)</i>	24 Pargana (N)	3:50	8	40	4	20	24
61	Tulsi Ghosh	Pond	<i>Dogachhiya, (24 PargansN)</i>	24 Pargana (N)	3:55	8	40	4	22	24
62	Govt (Public)	Tube Well	<i>Dogachhiya, (24 Pargans)</i>	24 Pargana (N)	4:00	7	0	4	26	24
63	Naba Ku Ghosh	Tube Well	<i>Dogachhiya, (24 PargansN)</i>	24 Pargana (N)	4:00	7	0	4	24	24
64	Nikhil Mondal	Tube Well	<i>Dogachhiya, (24 Pargans N)</i>	24 Pargana (N)	4:10	7	0	4	24	24
65	Gandhi Barai	Tube Well	<i>Dogachhiya, (24 Pargans N)</i>	24 Pargana (N)	4:15	7	0	4	24	24
66	Sudipta Ghosh	Pond	<i>Dogachhiya, (24 Pargans)</i>	24 Pargana (N)	4:20	8	40	4	24	24
67	Pashupati Ghosh	Pond	<i>Dogachhiya, (24 Pargans)</i>	24 Pargana (N)	4:25	8	100	0	22	24
68	Friends Clab	Tap	<i>Dogachhiya, (24 Pargans N)</i>	24 Pargana (N)	4:35	7	0	4	24	22
69	Rajen Ghosh	Pond	<i>Dogachhiya, (24 Pargans N)</i>	24 Pargana (N)	4:35	7	40	4	22	22
70	Khokan Biswas	Pond	<i>Dogachhiya, (24 Pargans N)</i>	24 Pargana (N)	4:40	8	40	4	24	22

(Table I contd....)

(c)DISTRICT : HOOGHLY

S.N	Name/ Owner of water body	Nature of water body	Village/ Municipality (District)	Block/ Ward No	Time of testing	pH	Turbidity	DO in ppm	Water temp. degree C	Air temp.In degree C
71	Mandir	Mandir pond	Hoogley	Banshbaria	10.10	7	40	4	22	26
72	Mandir	Hams(duck) Pond	Hoogley	Banshbaria	10.40	7	0	4	20	26
73	P.W.D	Tubewell	Hoogley	Banshbaria	11.20	7	0	4	26	28
74.	Anju Kundu	Pond	Hoogley	Banshbaria	12.15	7	40	4	24	30
75.	Joti Kalari	Tubewell	Hoogley	Banshbaria	12.40	7	40	4	28	30
76.	Satea Bari	Pond	Hoogley	Banshbaria	12.50	7	100	4	24	30
77.	Subash Das	Pond	Hoogley	Banshbaria	1.15	7	40	4	24	31
78.	Dipti Sina	Pond	Hoogley	Banshbaria	1.40	8	100	8	24	31

Table II: Location & Number of Sample Water Bodies Tested

<i>District</i>	<i>Village/ Municipality</i>	<i>Sample Number Of Water Bodies Tested (Pond, Tube wells)</i>
1. Nadia	Kalyani-Majher Char; Chandamari	50
2. Hoogly	Banshberia; Tribeni	8
3. 24 Parganas	Dogachia	20
Total	5	78

Photographs of WWMD Programme of Water Quality Testing in Villages by KINSPARC

I. Training and Awareness Building of School Children about Climate Change, Global Warming & Water Quality (Kalyania : Dist-Nadia)

I.



II. KINSPARC members discussing with villagers and officials about Tube well water quality (Village Panchanantala : Dist. Hooghly)



III. Testing of Lake Water by Children (Kalyani: Dist. Nadia)



IV. Tube Well Water Testing by village Children :(Chandamari:Dist-Nadia)

