ACCELERATED DEVELOPMENT OF MINOR IRRIGATION
(A.D.M.I)

PROJECT IN WEST BENGAL

ENVIRONMENTAL ASSESSMENT
(Stakeholder Consultation)

FIELD STUDY REPORT (PART II)
EXECUTIVE SUMMARY

Field Study of the environmental aspects of MI in the ADMI project was spread over 30 blocks, specified by WRIDD from all the six agro-climatic zones of West Bengal, namely, Hill Zone, Terai-Teesta Flood Plain, Vindhyar Alluvial Zone, Gangetic Alluvial Zone, Undulating Red Laterite Zone and Coastal Saline Zone. The field activities were conducted during October 2008 and March 2009. By and large, the meetings were well attended with a substantial / significant presence of the the poor including women and SC/ST people. The participation strength ranged between 21 and 70.

A preliminary list of the adverse environmental impacts were prepared on the basis of secondary information and the reconnaissance visits prior to the field studies. These were raised at the stakeholder consultation meetings (SCM) and focus group discussions (FGD) held in the project blocks.

The objectives of the study were: (a) to understand the ground-level perception and experience of the environmental impacts of minor irrigation from the multiple points of view of the stakeholders; (b) to get an idea of the diverse environmental impacts of the MI schemes in the sample blocks; (c) to identify the reasons of the present status of the existing MI schemes as perceived by the different stakeholders; (d) to elicit the stakeholders’ suggestions about rehabilitation of the existing MI schemes in their respective areas and their views on viable alternatives; and, (e) to make a rapid environmental assessment of the project sites with reference to known environmentally sensitive areas.

The field study was based mainly on the SCMs organized in the sample blocks involving the villagers, the engineers and field staff of WRIDD, officials and field staff of relevant government departments, local body representatives, peoples’ representatives/ opinion builders, and concerned NGOs, as far as possible.

The meetings were participatory and many women and economically / socially vulnerable villagers including indigenous people took part. These were supplemented by Site Visits (at MI installations) and FGD with small groups of the most important stakeholders. Besides capturing the
field surveys by extensive audio/video documentation, relevant secondary data were collected before/ during/ after the field surveys.

After careful examination and analysis of the field data with the insight and impression of the field experiences, the following issues came up in regard to the MI schemes:

- Excessive and indiscriminate use of inorganic fertilisers and pesticides in agriculture in most of the blocks has caused leaching of soil nutrients/ pesticides and pollution of surface water from run-off, posing a threat to wetland birds, friendly insects and fishes.
- Arsenic/Fluoride contamination of ground water in several sample blocks has been a direct consequence of excessive ground water extraction by STWs, LDTW, MDTWS and DTWs; study depletion of water table in some areas is yet another major consequence.
- Siltation of the beds of rivers, canals and other water bodies has been caused by soil run-off while erosion of river banks is a consequence of shifting course of rivers. These pose significant problems for the existing/ new MI schemes.
- Reduction of downstream water supply is also caused partly by siltation and partly by clogging of canals because of infestation by aquatic weeds. This is a nagging problem for surface water irrigation.
- Saline water intrusion into fresh water systems is observed in all the sample blocks of the Coastal Saline Zone. MI schemes of the future have to keep this in mind.
- Among the other relevant problems in different blocks are: (a) Pollution from diesel-driven pumps; (b) Poor/ inadequate agricultural extension work in several sample blocks; (c) Poor maintenance / theft of MI installations; (d) Low water retention capacity of the rivers; (e) High evaporation of surface water, and (f) Use of polluted sewage water carrying industrial/ municipal solid wastes for irrigation.

All these problems have significant implications for the future of minor irrigation in West Bengal. These need to be addressed with due importance and urgency in the ADMI project.
FIELD STUDY REPORT

1.0 INTRODUCTION:

1.1 The Field Study of the project was envisaged to be spread over all the six agro-climatic zones of West Bengal; namely, Hill Zone, Terai-Teesta Flood Plain, Vindhya Alluvial Zone, Gangetic Alluvial Zone, Undulating Red Laterite Zone and Coastal Saline Zone. From these different zones, 29 blocks were short listed. [The list of sample sites, however, shows 30 blocks; as one block, Gangarampur, appears twice to accommodate two different zonal characteristics (within the same block), namely, those of the second and the fourth zones, respectively, mentioned above. The field study was conducted by the Field Study Team of AICMED under the guidance of CES (the field study team is given Annexure –A1 and the list of sites is provided in Annexure : A2 ).

1.2 The field activities of the study took off on 22nd October 2008 with the first Stakeholder Consultation Meeting (SCM) in Bharatpur-I block of Murshidabad district and was over by 13th March 2009 when the last of the stakeholder consultations was held in Haroa block of North 24 Parganas. The Stakeholder Consultation meetings were organized with the help of the District Coordinators of the project districts. (For list of District Coordinators, See Annexure –A4).

1.3 The study was interrupted by exogenous factors like (a) the Durga Puja, the grand religious festival of the Bengalees, closely followed by a series of smaller religious festivities, like the Lakshmi Puja, the Kali Puja and the Raas Mela (a big event mainly in Cooch Behar district), extending to about a month; (b) sporadic political unrest in some parts of West Bengal like Birbhum, Bankura, Paschim Medinipur, Purba Medinipur and Darjeeling.

1.4 By and large, the meetings were well attended and included the poor and the socially vulnerable including women and SC/ST people. The participation strength ranged between a minimum of 21(Phansidewa) and a maximum of 70 (Ranibandh).
1.6 Despite the fact that direct environmental impacts of minor irrigation schemes were found to be quite small in most cases -- which corroborates the *prima facie* understanding about minor irrigation -- a good many number of issues emerged from the meetings that deserve attention from the environmental point of view. Small is often not insignificant.

1.7 The negative environmental impacts of MI schemes were identified on the basis of secondary information (base-line data) and the reconnaissance visits prior to the field studies. These were later raised at the stakeholder consultation meetings/discussions:

- Disruption of local hydrology, local flooding and drainage hazards
- Increased soil erosion and siltation leading to decreased stream capacity
- Excessive pumping of ground water leading to salinisation, arsenic/fluoride/iron contamination and ground subsidence
- Water logging and salinisation due to inadequate drainage and farm management
- Leaching of soil nutrients and changes in soil characteristics
- Reduction of downstream water supply during peak seasons
- Pollution of soil and ground water from polluted run-off
- Threat to birds/(friendly)insects/fishes and risk to public health due to excessive use pesticides/insecticides
- Soil erosion – reel, sheet, furrows, gulley and bank erosion
- Clogging of canals due to increased sedimentation and invasion by aquatic weeds
- Saline water intrusion into downstream fresh water systems
- Increased incidence of waterborne and water-related diseases
- Loss of sites of precious ecological values
- Loss of historical/cultural structures, and
- Dislocation or involuntary settlement of people.

1.8 Besides the abovementioned environmental issues, ‘factors responsible for the present status of irrigation schemes’ were also sought to be ascertained during the consultations.
1.9 Having had an idea about the ‘reasons *perceived* by the stakeholders regarding the present status of the minor irrigation schemes’ in their respective areas, the ‘stakeholders’ suggestions regarding rehabilitation of the existing schemes and feasible alternatives’ were also sought in course of the consultations.

1.10 Some of the impacts like ‘drastic change of river course’ and ‘river bank erosion’, and ‘excessive siltation or flooding’, have been found to be important because of their recurrent and non-controllable nature; some others like ‘contamination of soil and irrigation water from indiscriminate use of chemical pesticides in agriculture. is crucial.

2.0 OBJECTIVES:

2.1 The objectives of the field studies within the ambit of the ADMI project were:

- To understand the ground-level perception and experience of the environmental impacts of minor irrigation from the multiple points of view of the stakeholders.

- To get an idea of the different types of environmental impacts of the minor irrigation schemes in different sample blocks of West Bengal according to the different agro-climatic zones.

- To identify the reasons of the present status of the existing minor irrigation schemes as perceived by the different stakeholders.

- To know from the stakeholders their suggestions regarding rehabilitation of the existing schemes of minor irrigation in their respective areas and their views on viable alternatives; and

- To make a rapid environmental assessment of the project sites with reference to known environmentally sensitive areas.

With these objectives, the field study was launched in the identified sample blocks and relevant reliable secondary information was collected as much as available.
3.0 METHODOLOGY

3.1 The methodology for the field study essentially focussed on Stakeholder Consultation Meetings (SCMs) in almost every sample block. These meetings were organized with the crucial assistance of the respective District Coordinators of the ADMI project, involving all major stakeholders: i.e., the block-level government officers (e.g., BDO/ Joint BDO/ ADO/ KPS/ FEO, etc.), PRI representatives (from GP/PS/ZP), engineers of WRIDD, GoWB, and, above all, the villagers including, in particular, the women and the people belonging to backward castes and tribes, as much as possible.

3.2 The SCMs were supplemented, in most of the sample blocks, by more intimate and intensive interactive dialogues with a smaller segment of stakeholders including village elders and women as far as possible. These Focus Group Discussions (FGDs) were conducted in some cases at the SCM venue itself and in some other cases at/ near some project site within the respective block.

3.3 The field studies began with a random reconnaissance survey including site visit (mainly the existing ones) of some of the sample blocks like Mal, Dhupguri, Phansidewa, Gangarampur, etc.

3.4 The secondary data and information relevant to the project were being collected from the beginning and were continued simultaneously with the field studies.

3.5 The Block-level consultation process started with Stakeholder Consultation Meeting (SCM) and Focus Group Discussion (FGD) in the sample block Joypur followed by Sagardighi block of Murshidabad district by the third week of October 2009. The District Coordinators of the project were contacted before taking up the SCMs/FGDs in the respective blocks. The process continued with the different sample blocks being taken up one after the other in consultation and with the cooperation of the District Coordinators.

3.6 Real-time video recording of the stakeholder consultations and the site visits were done in most cases. In a couple of cases there were audio recordings, while in two blocks, meeting proceedings had to be taken down in long hand because of a technical snag disrupting
video recording. Still photographs of sites, minor irrigation schemes and the meetings were also taken. (A Collage of Video clips of stakeholder consultations is separately enclosed with this report. Still photographs have been placed at the end of the Report, preceding the Annexures.)

3.7 Emphasis was given on making the meetings/discussions as participatory as possible. Attention was given to ensure that the voices of all the different stakeholder groups, including women and village elders, present at the meeting are heard.

3.8 In all the cases of the stakeholder consultations, at least a three-member study-team from the AICMED visited the different blocks. This included a videographer. (For the list of block-wise study team member, see Annexure – A.3)

3.9 The block maps were mainly sourced from the internet and in some cases from the respective block office (as available).

3.10 The analysis of the Field Study outcomes was made following the field visits, as soon as the video recording output could be processed. A comprehensive analysis of the different blocks has been taken up in the second half of March.

3.11 The comprehensive analysis indicates the leading issues of the environmental implications of minor irrigation schemes highlighted by the different stakeholder groups.

4.0 OBSERVATIONS AND ANALYSIS

4.1 Environmental impact of MI Schemes may be of different types. Some of these are controllable, implying thereby that these can be regulated/modified/controlled within the short run by appropriate policy/technical interventions. There are some other impacts which are non-controllable: these are impacts which are difficult, if not impossible, to control, at least in the short-run.

4.2 The instances of ‘non-controllable’ environmental impacts are local flooding/drainage, soil erosion/siltation, depletion of water level, reduction of downstream water supply, etc.
4.3 Among the ‘controllable’ ones are leaching of soil nutrients / pesticides, threat to birds/insects/ fish from the toxic effects of chemical inputs in agricultural operations, etc. because these impacts have short-term remedies in the sense that these can be reduced and even minimized by partly or fully substituting the chemical fertilizers/ pesticides with organic inputs.

4.4 There are also environmental impacts of MI schemes which are, in fact, ‘derived impacts’ where the environmental harm to various forms of life is an offshoot of another kind of activities integrally associated with irrigation. In fact, the chemical fertilizers and pesticides used indiscriminately in our farming practices, especially in boro paddy and vegetable cultivation as well as in tea plantations, affects the food chain through the polluted irrigation water intake of the crops, and threatens different forms of bio-diversity.

4.5 There are still some other impacts which may be called the ‘avoidable impacts’. These foreseeable potential threats to environment from MI installations may be precluded by different measures depending on the specific situation; e.g., by careful selection of the appropriate location of the proposed MI schemes or by introducing pollution abatement devices/fuels for the MI installations or by redesigning the MI equipments /installations, or by proper selection of crops, etc.

4.6 MI installations that encroach upon previously known wildlife corridors or use polluting fuels may be freed from creating such adverse impacts simply by relocation of the installation, or by opting for more environment-friendly fuel to run the installations, as the case may be.

4.7 In course of the field studies, that is, from the Stakeholder Consultation Meetings (SCMs) / Focus Group Discussions (FGDs), a host of environmental impacts were highlighted by the different types of stakeholders, namely, government officials (bureaucrats), engineers (technocrats), local body representatives (PRI personnel), and particularly, the villagers, and others.

Over all, the total number of participants in the SCM/FGD in all the sample blocks taken together was 1438, including 244 Engineers (and concerned staff of the WRIDD), 78 government officials (other
than engineers), 251 PRI representatives, and 865 villagers comprising of 152 women, and 184 persons belonging to backward castes and tribes. (See ‘Participant’s Composition’ Annexure-1 Table-1).

The participant composition will be evident from the following Pie Chart:

![Pie Chart 1](image1.png)

![Pie Chart 2](image2.png)
After processing the feedback from the meetings according to the ‘Reported Environmental Impacts’ (REI), some interesting observations are obtained.

4.9 It may be noted that these are impacts as perceived and reported by the stakeholders. In some cases, therefore, not all the logically derivable impacts have been obtained simply because those were not actually reported, nor probably were those impacts perceived by the stakeholders, mainly the villagers.

4.10 Contrariwise, some of the impacts reported by the stakeholders, particularly the villagers, ascribed to MI installations / schemes, or, farming techniques may be somewhat wrongly perceived. For instance, the ‘threat to birds/ insects / fishes’, and specially their extinction may not always be entirely ascribable to ‘use of chemical fertilizers and pesticides in agriculture’ or the use of diesel-run pumps for irrigation.

4.11 To sum up, the environmental impacts reported by the stakeholders may contain both positive and negative bias i.e., the bias of over-reporting or under-reporting in different cases to a low or high degree.
REPORTED ENVIRONMENTAL IMPACTS:

4.12 The major environmental impacts reported during the consultations may be categorized as follows:

a. Leaching of soil nutrients /pesticide etc.

b. Threat to birds/insects /fish/public health

c. Local flooding /drainage

d. Soil /River bank erosion /siltation

e. Arsenic/Fluoride /Iron contamination

f. Soil/ground water pollution from polluted run-off

g. Increased salinity of soil

h. Depletion of water table

i. Reduction of downstream water supply.

j. Saline water intrusion into freshwater system

k. Dislocation/Involuntary Settlement of People

l. Increased incidence of water borne/ water related diseases

m. Clogging of canals

n. others

These impacts have been graphically demonstrated in the following pages alongwith their imlecations and analysis. The detailed data tables have been given in the Appendix section and has been mentioned corresponding to the respective charts.
4.13 The salient features of the ‘Reported environmental impacts’ are demonstrated hereunder by the following Chart.
(Also see Annexure-1: Table-2 for the full tabular presentation)
The Chart shown above indicates that

- The maximum no. of blocks reporting any environmental impact has been recorded in case of *leaching of soil nutrients/pesticides* (28 out of 30 sample blocks).

- This is closely followed by the incidence of *threat to birds/insects/fish/health* (26 blocks).

- Though not as highly reported, impacts like *soil/river bank erosion/siltation* has also come up as very significant factor (15 out of 30 sample blocks).

- *Arsenic/fluoride/iron contamination* is another significant environmental impact reported by stakeholders (12 out of 30 sample blocks).

- *Depletion of water table* is widely reported environmental impact (10 out of 30 sample blocks).

- *Reduction of downstream water supply*, noticed exclusively in the four agro-climatic zones, namely, *Hill Zone, Terai-Teesta Flood Plain, Vindhya Alluvial Zone* and part of the *Gangetic Alluvial Zone*, is another significant environmental impact reported by the stakeholders (08 out of 30 sample blocks).

- *Local flooding and drainage* is yet another significant impact (08 out of 30 sample blocks) spread over different zones.

- An environmental impact typically found in the blocks under the coastal saline zone is *saline water intrusion into fresh water system*. This is naturally expected in the blocks like Canning-1, Kulpi and Khejuri-1.

- Increased incidence of *water borne diseases* and *clogging of canals* are among the least reported impacts. (04 and 01 blocks, respectively).

- *Dislocation and involuntary settlement of people* has not been reported at all.
4.14 The first two environmental impacts reported from almost all the blocks arise out of the common farming practice known as New Agriculture Production Strategies (NAPS), popularly known as the green revolution techniques. As is well known, these are farming techniques that use chemical nutrients / pesticides intensively. The residues of the chemicals go down into the soil and create an adverse impact on friendly insects and birds; the run-off of these toxic chemicals enters into the nearby water bodies/ rivers and threaten the survival of the fishes. Thus a strong correlation exists between these two types of impacts. These impacts, in fact, are external (exogenous) to the domain of irrigation per se, as these arise from a particular type of farming technique. Though exogenous, these impacts are controllable by changing the farming techniques from chemical-intensive agricultural practice to organic/bio- farming techniques. Many of the farmers are aware about this, and the agricultural department of government of West Bengal has started awareness campaigns in this regard. This has been voiced in ‘suggestions made by stakeholders’ during stakeholder consultations, presented later.

4.15 ‘Soil/river bank erosion and resultant impact of siltation’ of the beds of rivers, canals, and other water bodies may be the outcome of declining downstream water flow which is a cause as well as an effect. This may also be caused by excessive use of water in Boro paddy cultivation which is rampantly practiced in almost all the sample blocks as is evident from the cropping pattern of different blocks. The said impact may be minimized by optimally substituting the prevalent farming practice with IPM / INM — a point to be found in the ‘suggestions by stakeholders’, presented later. A more important factor causing river bank erosion is the frequent shift of the course of rivers; especially the rivers (like the Teesta, Torsa, Jaldhaka etc.) with strong currents coming down sharply from the hills of the north. These also carry a lot of silt as they flow down, and the silt precipitates as flow becomes weaker with every twist and turn of the river course. However, the problem of siltation is also explained by obstructions in their way posed by some of the big dams.
4.16 The indiscriminate use of STW/LDTW/MDTW/DTW by farmers particularly in areas where the government MI schemes has limited reach has led to ‘Arsenic/fluoride/iron contamination’ in many of the sample blocks. While ‘Arsenic contamination’ is dominantly found in the sample blocks falling under the Gangetic Alluvial zone, Vindhya Alluvial Zone and in a part of Terai-Teesta Flood Plains. Fluoride and iron contamination was reported from the sample blocks like Mal, Rampurhat-I, Tufangunj-II and Nituria.

4.17 The privately owned STWs and submersibles give rise to other problems like ‘Depletion of water table’ besides the arbitrary exploitation of farmers is concerned in so far as the randomly high cost of borrowing water for cultivation. This is a consequence of huge amounts of irrigation water extracted by deep tube wells (DTWs) in the different blocks. It may be mentioned that, here too the pre-dominant practice of Boro cultivation places extremely high demand for irrigation water. This was hardly reported by blocks under the undulating red lateritic zone like Joypur and Nituria where the rocky soil is not friendly towards installation of DTWs.

4.18 Reduction of downstream water supply is a phenomenon observed predominantly in almost all the blocks falling under Zone-I and Zone-II.

4.19 Local flooding and drainage is often caused by clogging of canals and siltation of canals and water bodies. (Re)excavation of the canals and water bodies has been suggested by the stakeholders from several blocks not only to address this problem but also to facilitate the supply of irrigation water.

The ‘saline water intrusion into fresh water system’ is reported from all the blocks under south 24 Parganas and the Khejuri-I block of Medinipur (E). This is expected in places in the vicinity of the sea coast. But the problem has been aggravated by underground water depletion in serious proportions caused by proliferation of DTWs/STWs.
II. REASONS OF PRESENT STATE OF THE IRRIGATION SCHEMES:

The reasons underlying the present state of the MI schemes were looked into in course of the stakeholder consultation meetings. This has been shown in the following bar chart. (Also see Annexure -1, Table – 3 for the full tabular presentation).

The major reasons thrown up by the consultations may be categorized as follows:

a. Siltation of canal/ river bed;
b. Lowering of water table.
c. Salinity of soil / water.
d. Toxicity / Excessive use of chemicals in farming.
e. Lack of maintenance / lack of staff.
f. Problems with beneficiary committee.
g. Power / fuel problem.
h. Lack of access to information.

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- Lowering of water table;
- Salinity of soil / water;
- Toxicity / Excessive use of chemicals in farming;
- Lack of maintenance / lack of staff;
- Problems with beneficiary committee;
- Power / fuel problem;
- Lack of access to information;
i. Theft of MI equipments  
 j. Shift of river course  
 k. Seasonal surface/ground water shortage  
 l. Kutcha field channels  
 m. Low water retention capacity  
 n. Defunct MI installation  
 o. Soil erosion  
 p. Absence of soil test/IPM/INM  
 q. Urban industrial/municipal waste  
 r. Others [i. Border river problem ii. Deforestation iii. Evaporation]

Some relevant points about the reasons are as follows:

- **Toxicity/Excessive use of chemicals in farming** is the single largest environmental factor reported by the maximum number of blocks (28 out of 30 sample blocks). This is in consonance with the earlier observation made in respect of reported as ‘Leaching of soil nutrients/pesticide etc.’ and ‘Threat to birds/insects/fish/public health/environmental’ impacts mentioned and already explained above. As farm-friendly pests and birds get threatened by over-use of chemicals, irrigation becomes less effective for agriculture.

- **Inadequacy of soil test and IPM/INM** practices is the second most important factor in respect of the number of reporting blocks (12 out of 30 sample blocks). This partly explains the reason for indiscriminate use of chemicals in farming even by those who would otherwise like to follow the scientific methods of IPM/INM. However, some farmers (like the one in Kulpi) had pointed out that in spite of their awareness about the harmful impacts of using chemical fertilizers/pesticides in cultivation, they have realized through experience that organic/bio-farming raises cost of production too much (at least initially) to be borne by small and marginal farmers on the one hand, and is not commercially viable in case of large scale farming because of problems of marketing the costly produce in the limited scope of the existing domestic market.

- **Lack of proper maintenance of the MI schemes and the lack of staff** is another problem that calls for attention. The poor record and reach out of the soil test/IPM/INM programmes and the poor maintenance of the MI schemes in many cases are explained by
inadequate staffing. The KPS staff were often harnessed for some other extraneous unrelated activities as reported by the stakeholders of some blocks. Defunct MI installation has been report from Bharatpur-I, Dhupguri & Mal blocks.

- **Siltation of water bodies/canal/ rivers** is a significant reason of the present state of MI schemes. (Reported by 12 sample blocks). This is a point already covered under *reported environmental impact* as mentioned above – Siltation reduces the availability of surface water that could be used for irrigation. This is an environmental factor which is both a cause and effect.

- **Seasonal surface/ground water shortage** is another crucial factor (reported by 11 sample blocks). This is largely explained by the shortage of downstream water supply (mentioned above) and drying up of canals and other water bodies during the non-monsoon seasons. This happens because of a no. of reasons: Depletion of water table, Siltation of water bodies and river/canal beds, low retention capacity and high rate of evaporation (as seen in the Red Lateritic Zone, in particular), clogging of canals and poor storing capacity of the underground aquifers. Deforestation has also been pointed out as a factor behind the poor water retention capacity of soil. All these have been mentioned either as environmental impact or as reasons of present state.

- **Power /fuel problem** is also a significant reason reported by the stakeholders. To elaborate, irregular availability/non-availability (in times of need) of diesel and its fluctuating price puts the farmer in serious trouble. The delivery system of government-supplied diesel is also quite cumbersome in many areas. Besides, the sound and fume pollution of diesel-run pumps creating problems for birds/wild life has also been pointed out by stakeholders from some of the blocks under the Hill Zone and the Vindhya Alluvial Zone. Many of the stakeholders have expressed the preference for electricity-run pumps as a suggested remedy to the above problems. But then, there are problems with the electricity-run installations: irregular and fluctuating power supply and in some cases, an exorbitantly high electricity bills. Another advantage with electricity vis-à-vis diesel is that the payment has to be made post-harvest which is easier for the farmers.
• Theft of MI equipments is not a problem to be ignored as pointed out by stakeholders of several blocks. This makes even the well-running MI installations ineffective and non-sustainable.

III. SUGGESTIONS MADE BY STAKEHOLDERS

The stakeholders of the sample blocks came out with a wide array of suggestions which echoed their felt needs and also the remedies in regard to minor irrigation and associated environmental problems.

An idea about the whole spectrum of suggestions will be evident from the following list:

a. Emphasize surface water irrigation,
b. (Re)-excavate ponds/bills/canals,
c. (Re)construct/Repair lock gates /sluice gates /check dams /dugwells/ pucca field channels,
d. Introduce sprinkler/drip irrigation wherever appropriate

e. Use electricity–run pumps as far as possible

f. Repair/ reconstruction of RLI/DTW/Sluice Gate/ pipe line

g. Install new DTW/STW/RLI

h. Introduce rain water harvesting (RWH)
i. Construct water reservoirs in large numbers

j. Introduce Crop rotation /crop diversification

k. Introduce alternate water saving crops,
l. Ensure availability of Irrigation/ agriculture office staff (OCM, KPS, etc.) when required

m. Organize training camps on IPM /INM more extensively.

n. Do soil testing before selecting crops, farming methods and inputs

o. Introduce organic/bio-farming,
p. Organize awareness generation programmes for organic farming etc

q. Protect sacred groves

r. Use traditional knowledge in farming

s. Introduce alternate (culture/capture) fisheries.
To elaborate, the relative importance of the suggestions by stakeholders as probable remedies to MI schemes and associated environmental problems (Annexure-I, Table--4) are given in the following bar chart and the Pie chart:
(Re)-excavation of ponds/bills/canals has been the mostly voiced suggestion (mentioned by 21 of the 30 sample blocks). This is an obvious response to the overwhelming problem of siltation of the existing water bodies and canals as already pointed out in the above sections. From many of the blocks demand was raised for excavation of new ponds particularly in the poor/backward blocks and specially in the tribal dominated blocks of Ranibandh, Nituria, etc.

The second most voiced suggestion was in regard to surface water irrigation (20 sample blocks). This came mainly from the arsenic/fluoride affected blocks and also from the blocks in the Northern part of West Bengal belonging to the Terai-Teesta Flood Plain where the river water (the dominant source of minor irrigation) flows down but installing pumps is not easy, and water bodies abound. Even in the Undulating Red Laterite Zone stakeholders from Ranibandh, Nituria and Joypur raised a chorus for surface water irrigation as ground water level is very low depth and the laterite soil is not congenial to installation of pumps: but there are plenty of water bodies. This is also environment friendly for those blocks.

Repair/Re-construction and new construction of RLI/ DTW/STW/Sluice gate was suggested by 19 and 16 sample blocks respectively. For most of the blocks abounding in rivers RLI would be an obvious option for MI scheme while DTW/STW etc are common
demand from those blocks were rivers are not many or the existing ones dry up during summer or else suffer from low downstream water supply making the link canals and kandors devoid of the least quantum of water needed for irrigation.

As many as 16 sample blocks spread over all the different agro-climatic zones proposed construction of lock gates/sluice gate /check damps /dug wells/pucca field channels. This were obviously aimed at capturing the excess water obtained during the rainy seasons which either flows down (as in the northern districts of the state) or dries up in summer (as in the semi–arid zones of the state).

Stakeholders from 14 blocks emphasized the need for awareness generation camps regarding IPM/INM/Organic farming /soil test etc. to address the problems of toxicity of soil and water caused by indiscriminate use of chemicals in farming and is associated with adverse environmental impact on different life forms and biodiversity.

Among the other significant factors pointed out were ‘crop rotation /diversification’ and ‘practice of alternate crops using less water’. For the farmers it is a felt need in view of the scarcity of irrigation water and for the irrigation engineers and officers of the agriculture department it is a strong recommendation for judicial use of the scarce water resource. But the farmers need appropriate advice from the concerned departments in this regard as mentioned during the consultations.

Suggestion for organic/bio farming came from 18 sample blocks. This reflects the re-assertion for environment-friendly farming practices by the farmers themselves in view of the decreasing productivity of land (and increasing cost) experienced by them from the practice of chemical-intensive farming. But a deterrent in this case is the initial high cost of organic farming. Support from govt. in regard to initial investment and orientation programme would be useful for the farmers.

A closely related suggestion was for ‘soil testing’ (suggested by 10 blocks). This is important for selection of alternate low-water-using
crops/ crop rotation/crop diversification as well as organic/ bio farming.

The importance of ‘traditional knowledge’ was also underlined in the suggestions made by stakeholders of five blocks. In fact the traditional knowledge of farmers include the practice of organic farming and scientific crop rotation/diversification. What is needed at present is an optimum combination of traditional knowledge and modern scientific innovations particularly in respect of environment-friendly seeds and bio-farming, epitomized partly in the recently introduced practice of IPM/INM.

III. RAPID ENVIRONMENT ASSESSMENT (REA):

The location of the existing project sites with reference to known environmentally sensitive areas as relevant to the different agro-climatic zones and the respective blocks is a crucial issue. This was enquired from the stakeholders, particularly from the village elders and the indigenous people as well as the field-level irrigation engineers and staff and the local body representatives with the help of a check-list. The list contained queries pertaining to the proximity of MI project sites with respect to

- National parks/ wild life sanctuaries/ sacred groves/ community conservation areas and other protected areas
- Wetlands/ mangroves and areas of outstanding natural beauty
- Presence of wildlife migration corridors, and habitats of indigenous people.

The observations regarding REA were as follows : (Also see Annexure-I, Table -5).

- There is hardly any case of the existing MI schemes being situated in close proximity of the abovementioned environmentally sensitive areas.
- However, there were environmentally sensitive areas within the sample blocks of the study which demand special care and attention in case of envisaging new schemes in those areas. For instance, the stakeholders in the districts of Darjeeling and Jalpaiguri, especially the dwellers of the ban basti, falling under the Hill Zone, had reported the prevailing threats they
suffer from the straying wild animals like elephants that destroy not only their standing crops but also disrupt their dwellings and at times threaten their life.

- There are significant numbers of the tribal people in the districts of Bankura, Purulia, and West Medinipur. There were good presence of such people, including women, in the SCMs in the blocks of Ranibandh, Nituria, and Garbeta-I respectively. Many of them, small land holders as they are, proposed dug wells or check dams on some tiny stream/ jhora passing through/near their hamlets to help them grow two crops a year.

Though they did not complain of any encroachment so far into their traditional environment-friendly practices, it goes without saying that close consultations with them would be advisable in case of any new MI installations.

It is significant to note that they showed enough interest in the expansion plans of minor irrigation and made their voices heard in the meetings.

- In Mal block of Darjeeling district, the Joint BDO at the outset of the SCM cautioned about the preservation of the sacred groves of the hill-forest areas while expanding minor irrigation schemes in the block.

- During Field Visit in the Haroa block of North 24 Parganas, villagers expressed concern about the increasing encroachment by real estate entrepreneurs into the water bodies and the arable land. The engineers present during the site visit also agreed and showed how such encroachments were causing problems for the existing MI schemes as the real estate promoters were buying large areas of land cutting across existing field channels or distribution pipelines of pre-existing MI schemes.
BASELINE DATA

The Baseline data were collected from various government offices and libraries and websites. The resources of the Bureau of Applied Economics and Statistics, GoWB, Ministry of Minor Irrigation, Water Resources Investigation and Development Department, GoWB; the library of the Statistical Institute, and the different web portals like westbengalonline.in etc. were consulted.

All these secondary data were collected for the sample blocks (districts, where block-level data were not available) with regard to the following parameters:

- Climate data (Rainfall and Temperature) (district-wise) *(Annexure I, Table - 6)*
- Land use data (Net area sown, Non-agricultural area, Forest land, Current fallow, etc.) *(Annexure I, Table -7)*
- Area under irrigation *(Annexure I, Table - 8)*
- Yield of major cereals *(Annexure-I Table-9)*
- Use of inorganic fertilizers (district-wise) *(Annexure-I,Table – 10)*

Attempts were made to collect data on Use of pesticides and insecticides, and also on Disease vectors and waterborne diseases, but such data were not available.
CLIMATE DATA
A reading of the secondary data on Climate behaviour (specially regarding rain fall & temperature ) reveals interesting
servations.
The **Rainfall data** (shown in the chart below) indicates that

- Average rainfall is the highest (3557.6 mm) in the Jalpaiguri district. Mal and Dhupguri are two sample blocks falling under the district. This is closely followed by the South Dinajpur district (2902.8 mm), where the corresponding sample block is Gangarampur; and of Darjeeling district (2876.2 mm) [sample block: Phansidewa].

- On the lowest side, there are Hooghly district (Sample blocks Balagarh and Chinsurah-Mogra), Nadia district (Sample block: Nabadwip, Purulia district (sample blocks Joypur and Nieturia) and Bankura district (Sample blocks Kotulpur and Ranibandh).

  The corresponding average rainfall figures are 1187 mm, 1221.8 mm, 1243.6 mm and 1298.2 mm respectively.

- For all the other sample blocks, the average rainfall figures clustered within the range of 1300+ mm to 1800+ mm.

The **Temperature data** (portrayed in the following bar chart) show that
• The average maximum temperature is between 37°C and 43°C, except in Darjeeling which, being a Hill Zone, records only 25°C as the highest average temperature. The highest temperature shown in the table and the chart is recorded in both the sample blocks (Kotulpur and Ranibandh) in Bankura district. [The figures for Purulia district, known as the warmest one in West Bengal] were not available].

• The minimum temperature, however, does not have any significant uniformity as was found in case of the maximum temperature. For instance, in blocks like Ratua-II and Gajole (both in Maldah district), in particular, Rampurhat (in Birbhum), Ranibandh (in Bankura), etc., the minimum temperature is fairly low.

LAND USE DATA

The Land Utilization data have been presented in the following bar charts:
The agro-climatic zone-wise utilization of land is shown in the following pages:
It is evident from the above bar chart that
• The highest amount of net area sown is in Garbeta-I of West Medinipur district and Ketugram-II (Bardhaman district). The lowest amount of net sown area is under the blocks Uluberia (Howrah), Phansidewa (Darjeeling) and Gangarampur (South 24 Pgs). (S)
• Most of the sample blocks, however, 50 per cent or more of total land area devoted to cultivation. In Uluberia block it is slightly more than 50 per cent mark because it is very much an urban area. In Mal block of Jalpaiguri district it is a little less than the mid-way mark because forest and other uses claim a larger part of the total land.
• These observations underline the crucial importance of agriculture in the different sample blocks despite their agro-climatic and topographical differences.
AREA UNDER IRRIGATION

The data on total area under irrigation is shown in the following bar chart.
It is striking to note that both the sample bock of Purulia (Joypur & Neturia, Barrackpore-I of 24 Pgs(N), Phansidewa block of Darjeeling district, Panskura-I of Medinipur(E), Gangarampur of Dinajpur South, Canning-I & Kulpi of 24 Paragans South, Khejuri of Medinipore East & even Ketugram-II of Bardhaman district (which is other wise known as the ‘granary of West Bengal’) have extremely small areas under irrigation compare to Rampurhat of Birbhum, Garbeta o-I of Medinipur (West Bengal ) and particularly Balagarh of Hooghly district.

YIELD OF MAJOR CEREALS

It is important to note from the following bar charts that the yield of Boro paddy is the highest in each of the agro-climatic zones. Block-wise, too, Boro paddy occupies the leading position so far as yield of the major cereals (Aman, Aus and Boro varieties of paddy, and wheat) is concerned. Here, of course, a few exceptions (7 out of 30 sample blocks) are there like the blocks of Sagardighi (Murshidabad district), Kotulpur (Bankura district), Garbeta-I (West Medinipur district), Balagarh (Hooghly district), Ketugram –II (Bardhaman district), Ranibandh (Bankura district) and Kulpi (South 24 Parganas district). Only in Kulpi block, Aus paddy takes the lead in yield; in all the other six blocks, Aman paddy is in the leading position.

The high yield of Boro explains why farmers do not want to move away from this crop even if they have already experienced the strongly adverse impacts of selecting this crop. It is also to be noted (Annexure-I, Table 9) that the area under Boro cultivation is less than the other major cereals.

This underlines the importance of the need for selecting alternate water-saving crops that have an equal, if not more, revenue potential than Boro.
Yield Pattern of Major Cereals: Zone-I

Yield Pattern of Major Cereals: Zone-II

Phansidewa Darjeeling
Ram purhat / Birbhum
Sagaradh / Munsidabad
Sital Cooch Behar
Tufangunj Cooch Behar
Gangarampur Dinaipur (S)
Galole Maldah
Dhupguri Jalpaiguri

Block / Dist

Mal Jalpaiguri
Yield Pattern of Major Cereals: Zone-III

- Kotulpur Bankura
- Panskura-I Medinipur(E)
- Garbeta-I Medinipur(W)

Yield Pattern of Major Cereals: Zone-IV

- Goalghar-I Dinajpur(N)
- Rakuli-Maldhat
- Bhalupur-I Murshidabad
- Nabapalipara-24 Pgs (N)
- Habibnagar-24 Pgs (N)
- Khana 24 Pgs (N)
- Chinsura-Mogra Hooghly
- Khatungdi II Khatungdi(N)
- Hooghly
- Chinsura-Mogra Hooghly
- Ketugram-ii Bardhaman

Legend:
- Aus
- Aman
- Boro
- Wheat
USE OF INORGANIC FERTILIZERS

The use of inorganic fertilizers in cultivation in the sample blocks is demonstrated by the following bar chart: (See Annexure I, Table 10) for full tabular presentation of the data.
The above chart shows that the production of agriculture and its yield is monotonically related to the use of chemical fertilizers. Bardhaman is using the highest level of chemical fertilizers compared to all other districts. The district Hoogly follows Bardhaman in using chemical inputs. Next of these two districts comes Medinipur (both south and east), Nadia and 24 Parganas (both North and South). The lowest users of chemical fertilizers are Darjeeling, Dinajpur (North & South) and Purulia---which, in one way or the other, are low-yield districts of agricultural produces. The low use of fertilizers in Bankura & Purulia districts is explained partly by the predominance of tribal people who largely use traditional knowledge and natural organic nutrients and pest repellants.

5.0 FINAL OUTCOME

The final outcome of the field studies will give one a fairly representative indication of:

- Perception of particular types of environmental impact of the specific ongoing MI scheme(s) according to Stakeholder groups in a particular block falling under a given agro-climatic zone.
- Reasons for the present status of the irrigation schemes as perceived by the stakeholders.
- Suggestions of stakeholders on the rehabilitation programme of the existing schemes and their suggestions for viable alternatives.

In the concluding summary, the following points may be made which need to be seriously considered for development and expansion of the MI schemes:

I. The excessive and indiscriminate use of inorganic fertilisers and pesticides in agriculture, especially in boro paddy cultivation has been responsible for leaching of soil nutrients/pesticides and pollution of the surface water of rivers, canals, ponds and other water bodies caused by run-off. The irrigation water drawn from these water sources easily enters into the food chain and leads to disease and/or death.

In fact, this has, already been posing a serious threat to the birds, friendly insects and fishes.
This is an issue pointed out in almost all the blocks by the stakeholders as both a ‘cause’ and an ‘impact’ (effect) of environmental degradation indirectly associated with minor irrigation.

II. Arsenic/Fluoride contamination of ground water is a direct consequence of excessive extraction of ground water by STWs./LDTWs/MDTWs and DTWs. Another major consequence has been depletion of water table. Arsenic pollution is observed in the ground water of most of the sample blocks of the Gangetic Alluvial Zone, the Vindhya Alluvial Zone and the Coastal Saline Zone. Fluoride contamination was observed in the sample blocks under the districts of Purulia and Birbhum.

This calls for serious consideration in the context of extraction of ground water for irrigation in the affected blocks. This is also a (partial) ‘cause’ and an ‘effect’ of the casual attitude towards environmental issues relating to MI schemes.

III. Siltation of the beds of rivers, canals and other water bodies caused by run-off of soil on the one hand, and erosion of river banks as a consequence of shifting course of rivers, on the other, have also posed serious problems for the existing and the new MI schemes. These problems, apparently non-controllable, need to be kept in mind while formulating MI schemes and deciding on the optimum location of the schemes.

IV. Reduction of downstream water supply is also caused partly by siltation and partly by clogging of canals because of the problem of invasion by aquatic weeds. This is a persistent problem for surface water irrigation schemes.

V. Saline water intrusion into fresh water systems is a typical phenomenon affecting all the sample blocks of the Coastal Saline Zone. This has to be kept in mind while drawing MI schemes in this zone.
These are some of the most important impacts already experienced by the stakeholders, particularly the villagers, which have significant implications for the future.

Among the other issues of importance pointed out by the stakeholders are:

VI. Soil test is rarely done in the villages by the Agriculture Department and the awareness programmes for Integrated Pest Management (IPM) and (INM)Integrated Nutrient Management. Thus, farmers remain ignorant about the choice of optimum crop-mix as well as about the optimum dose of fertilizers and pesticides.

VII. Many of the existing MI schemes, particularly the RLI schemes, the DTWs and the STWs, have become defunct because of their vintage and poor maintenance. In many cases, recurrent theft of MI equipments is also a factor not-to-be-ignored. Kutcha field channels of MI schemes also lead to substantial wastage of precious irrigation water.

VIII. Inadequate staff of the Agriculture department and lack of proper coordination among concerned departments like Irrigation, Agriculture, Fisheries and PHE have been responsible for dissension among farmers and other concerned stakeholders, giving rise, in some cases, to conflicts.

IX. Problems of irregular supply of diesel and its fluctuating price make electricity–run pumps a much preferred option for the farmers.

X. The experience with Beneficiary Committees in the different sample blocks has been mixed. In several cases, the collection of water charges has not been satisfactory. In some cases the committees have not been functioning in a fully participatory manner.
In view of the impacts and the problems faced by the villagers, in particular, their most preferred options and suggestions deserve mention and attention:

I. Emphasis on surface water irrigation in general, and particularly in the areas where ground water is already Arsenic/Fluoride contaminated.

II. (Re)excavation of ponds/canals/bils particularly in the areas inhabited by the poor people including the tribal people. Also, (re)construction/repair of lock gates/sluice gates/check dams/dug wells, etc.

III. Installation of new LDTW/MDTW/DTW/STW/RLI structures in different districts depending on their viability.

IV. Introduction of crop rotation/crop diversification including emphasis on alternate water saving crops.

V. Introduction of organic/bio farming as far as viable.

VI. Organizing awareness camps extensively in a decentralized manner.

All these constitute the significant outcomes of the stakeholder consultations. These have been voiced by the stakeholders of the 30 sample blocks. But these seem to be fairly indicative of the major issues faced by the stakeholders of the other blocks as well.

And these voices echo the environmental concerns pertaining to minor irrigation across different districts of the state, awaiting serious consideration.
## GLIMPSES OF STAKEHOLDER CONSULTATIONS

<table>
<thead>
<tr>
<th>Block – Uluberia, Dist.: Howrah</th>
<th>Nabadwip, Dist. : Nadia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kulpi, South 24 Paraganas</td>
<td>Garbeta, 24 Paraganas(N)</td>
</tr>
<tr>
<td>Sagarighi, Murshidabad</td>
<td>Rampurhat-I, Birbhum</td>
</tr>
<tr>
<td>Block- Ratua-II Maldah</td>
<td>Block-Gangarampur, Dinajpur (S)</td>
</tr>
</tbody>
</table>
Stakeholder Consultations

Block: Kotulpur, Dist. Bankura
Block: Ranibandh, Dist.: Bankura

Block: Rampurhar, Dist.-Birbhum
Block: Balagarh, Dist.: Hooghly

Block: Haroa, Dist.: 24 Pgs (N)
Block – Garbeta,

Block-Kulpi, 24 Paragas*
Block: Ranibandh, Dist.: Bankura
## GLIMPSES OF SITE VISIT

<table>
<thead>
<tr>
<th>Location</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Ratua-II RLI</td>
<td>24 Parganas (S) Canning</td>
</tr>
<tr>
<td>Sitai DTW</td>
<td>Tufangunj RLI</td>
</tr>
<tr>
<td>Kotulpur SWLI _C</td>
<td>Haroa SWLI C</td>
</tr>
<tr>
<td>Gangarampur SWLI C</td>
<td>Gangarampur RLI</td>
</tr>
</tbody>
</table>
ANNEXURES

Annexure – A

A 1. Field Study Team
A.2. List of sites visited according to Block/District/Agro-climatic Zone
A.3. Block-wise field survey teams of AICMED
A.4. District Coordinators of different sample blocks

Annexure –I

<table>
<thead>
<tr>
<th>Table-1</th>
<th>SCM/FGD Participant Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table-2</td>
<td>Reported environmental impacts</td>
</tr>
<tr>
<td>Table-3</td>
<td>Reasons of present status</td>
</tr>
<tr>
<td>Table-4</td>
<td>Suggestions by stakeholders</td>
</tr>
<tr>
<td>Table-5</td>
<td>Location with respect to sensitive areas</td>
</tr>
<tr>
<td>Table-6</td>
<td>Climate data: Rainfall &amp; Temperature</td>
</tr>
<tr>
<td>Table-7</td>
<td>Land Use Pattern</td>
</tr>
<tr>
<td>Table-8</td>
<td>Area under Irrigation</td>
</tr>
<tr>
<td>Table-9</td>
<td>Yield of Major Cereals</td>
</tr>
<tr>
<td>Table-10</td>
<td>Use of Inorganic Fertiliser</td>
</tr>
</tbody>
</table>

Annexure – II

: Highlights of SCM/FGD of sample blocks:

2.0. MAPS of West Bengal, Districts & Sample Blocks (as far as available).
2.1. Balagarh, 2.2 Barrackpore-I,
2.3. Bharatpur-I, 2.4. Canning-I,
2.5. Chinsura-Mograh, 2.6. Dhupguri,
2.7. Gajole, 2.8. Gangarampur,
2.9. Garbeta-I, 2.10. Goalpokhor,
2.11. Habra-I, 2.12. Haroa,
2.15. Khejuri-I,
2.16. Kotulpur,
2.17. Kulp, 2.18. Mal,
2.19. Nabdwip, 2.20 Nituria,
2.21. Panskura-I, 2.22. Phansidewa,
2.23. Rampurhat-I,
2.24. Ranibandh, 2.25. Ratua-II,
2.26. Sagardighi, 2.27. Sitai, ,
2.28. Tufanjunj-II 2.29 Uluberia

FIELD STUDY TEAM
Anil K. Sarkar
Advisor
Sudhir Chatterjee
Director

Nabin ananda Sen
Coordinator & Field Team Leader

Sumit Mukherjee
Dipankar Ghosh
Asstt. Coordinators

FIELD TEAM
Swapan Mukherjee
Prashanta Dhar
Mausumi Bhattacharya
Jayanta Ghoshal
Nupur Chakraborty
Chandicharan Bag
Ananta Kumar Roy

SECRETARIAL FUNCTIONS
Rajashri Biswas
Coordinator, Secretariat
Arabinda Bhattacharya
Accounts Supervisor
Ratna Biswas
Accountant
Ananta Roy
Computer Operator

A/V DOCUMENTATION
Sarbari Ghoshal
Saikat Bhattacharya
Mausumi Bhattacharya
Partha Goswami
Suman Bhaumik

DATA PROCESSING/PRESENTATION
Sumit Mukherjee
Nupur Chakraborty
Rajat Chowdhuri
Annexure : A2.

List of sites visited according to Block/District/Agro-climatic Zone

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Agro-Climatic Zones</th>
<th>Districts</th>
<th>Blocks</th>
<th>SCM/FGD Attendance</th>
<th>Site visited (Type of Irr. Scheme)</th>
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<td>1</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>1.1</td>
<td>Zone-1 : Hill Zone</td>
<td>Jalpaiguri</td>
<td>Mal*</td>
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<td>Niranjanpath (RLI)</td>
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<tr>
<td>2.1</td>
<td>Zone-2 : Terai-Teesta Flood Plain</td>
<td>Darjeeling</td>
<td>Phanshideoa</td>
<td>21</td>
<td>Bandhergachh (STW), Sudamgacch (Mini RLI), Mangachh (Mini RLI), Tal Bandha (SWFI)</td>
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<td>2.2</td>
<td></td>
<td>Jalpaiguri</td>
<td>Dhupguri</td>
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<td>Uttar boragari (DTW)</td>
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<tr>
<td>2.3</td>
<td></td>
<td>Birbhum</td>
<td>Rampurhat-I</td>
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<td>Kutubpur(RLI)</td>
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<td>2.4</td>
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<td>Murshidabad</td>
<td>Sagardighi</td>
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<td>Samsabad (DTW/MDTW)</td>
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<td>2.5</td>
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<td>Cooch Behar</td>
<td>Sitai</td>
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<td>Atherojani (RLI)</td>
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<td>2.6</td>
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<td></td>
<td>Tufangunj-II</td>
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<td>Dakshin Maharana (DTW)</td>
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<td>Dinajpur (S)</td>
<td>Gangarampur</td>
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<td>Narayanpur(DTW,SWLI)</td>
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<td>2.8</td>
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<td>Maldah</td>
<td>Gajole</td>
<td>35</td>
<td>Madapur-I &amp; II, (Cluster SmP) Kachamitha (DTW)</td>
</tr>
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</table>
### Stakeholder Consultations

**3. Zone-3 : Vindhya Alluvial Zone**

<table>
<thead>
<tr>
<th>Districts</th>
<th>Blocks</th>
<th>SCM/FGD Attendance</th>
<th>Site visit</th>
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<tbody>
<tr>
<td>Bankura</td>
<td>Kotulpur</td>
<td>68</td>
<td>Mandal Aher (SmP)</td>
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<tr>
<td>Medinipur(E)</td>
<td>Panskura-I</td>
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<td>Aurangabad (RLI)</td>
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<td>Medinipur(W)</td>
<td>Garbeta-I</td>
<td>40</td>
<td>Saldahora (DTW(E))</td>
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**4. Zone-4 : Gangetic Alluvial Zone**

<table>
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<td>Dinajpur (N)</td>
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<td>Maua (MRLI)</td>
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<td>Maldah</td>
<td>Ratua-II</td>
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<td>Satmara (RLI)</td>
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<td>Murshidabad</td>
<td>Bharatpur-I</td>
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<td>Sukisansad (DTW), Milki (DTW)</td>
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<td>Nadia</td>
<td>Nabadwip*</td>
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<td>Gumaghari (RLI)</td>
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<td>24 Pgs (N)</td>
<td>Barrackpur-I*</td>
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<td>Bora, Narayanpur (DTW)</td>
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<td>Habra-I</td>
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<td>Ayra (DTW)</td>
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<td>Nadia</td>
<td>Haroa*</td>
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<td>Radhanagar-Abhirampur(SWLI(C))</td>
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<td>Hooghly</td>
<td>Balagarh</td>
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<td>Chandra (RLI)</td>
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<td>4.1 Bardhaman</td>
<td>Ketugram-II</td>
<td>68</td>
<td>Keukhali-Maugram (DTW)</td>
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### 5. Zone-5 : Undulating Red Laterite Zone

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<td>5.</td>
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<td>Ranibandh</td>
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<td>Bagdubi- Aviram** Check Dam**</td>
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<td>5.</td>
<td>Purulia</td>
<td>Joypur</td>
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<td>Hetkahan (RLI)</td>
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<td>5.</td>
<td>Nituria</td>
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<td>43</td>
<td>Tiltore (SWFI)</td>
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### 6. Zone-6 : Coastal Saline Zone

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<tr>
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<tr>
<td>6.</td>
<td>24 Pgs (S)</td>
<td>Canning-I</td>
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<td>Uttar Angadberia (SWLI)</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td>Kulpi</td>
<td>68</td>
<td>Lakshmi Narayanpur (SWLI(C)), Chittanagar(SWLI(C))</td>
</tr>
<tr>
<td>6.</td>
<td>Medinipur(E)</td>
<td>Khejuri-I</td>
<td>31</td>
<td>HTC Canal (RLI)</td>
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<tr>
<td>6.</td>
<td>Howrah</td>
<td>Uluberia*</td>
<td>44</td>
<td>Kalinagar(RLI)</td>
</tr>
</tbody>
</table>

**Note:**
- The SCMs/FGDs were in most cases held in the hall of the panchayat samity of respective blocks. In a few cases like 24Pgs(N) the meetings were held on site.
- **DTW**: Deep tube well, **MDTW**: Major deep tube well, **STW**: Shallow tube well, **SmP**: Submersible pump, **RLI**: River lift irrigation, **SWLI**: Surface water lift irrigation. **SWFI**: Surface Water Flow Irrigation. **SWLI (C)**: Surface water lift irrigation (Canal) **TI**: Tank Irrigation
- (*) indicates Peri-urban block.
- (**) indicates “Proposed site/scheme”.

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**Environmental Assessment /DFR**

**Environment & Ecology**
Annexure: A3.
Block-wise field survey groups of AICMED

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Annexure : A4.
District Coordinators of sample blocks

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<td>Ajoy Chowdhury, EE(A-I)</td>
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<td>Sagardighi</td>
<td>Abhijit Roy , EE(A-M) Berhampur Divn / Subrata Sen, EE(A-M)</td>
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PROJECT ADMI

ANNEXURE - I
### ANNEXURE-I Table-1 : SCM/FGD Participant Composition

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<tr>
<th>SCM Participants composition</th>
<th>Sl. No.</th>
<th>District/Block(s)</th>
<th>Total no. of participants</th>
<th>Officials total</th>
<th>Official administrators</th>
<th>Official PRI Rep.</th>
<th>Engineers &amp; others</th>
<th>Villagers total</th>
<th>Villagers Women</th>
<th>Villagers SC/ST</th>
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<td>22</td>
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|      | i. Mal  
(19\textsuperscript{th} Nov.08)  | 41 | 29 | 1 | 17 | 11 | 12 | 5 | 5 |
|      | ii. Dhupguri  
(20\textsuperscript{th} Nov.08) | 42 | 30 | 5 | 17 | 8 | 12 | x | 4 |
| 9    | Maldah                   |
|      | i. Gajal  
(17\textsuperscript{th} Dec.08) | 35 | 30 | 3 | 20 | 7 | 5 | 1 | x |
|      | ii. Ratua-II  
(18\textsuperscript{th} Dec.08) | 80 | 59 | 3 | 21 | 35 | 21 | 6 | x |
| 10   | Murshidabad              |
|      | i. Bharatpur-I  
(22\textsuperscript{nd} Oct.08) | 64 | 12 | 1 | 2 | 9 | 52 | 1 | x |
|      | ii. Sagardighi  
(23\textsuperscript{nd} Oct.08) | 52 | 7 | 2 | 2 | 3 | 45 | 6 | 6 |
| 11   | Nadia                    |
|      | i. Nabadwip  
(6\textsuperscript{th} Nov.08) | 50 | 5 | 2 | X | 3 | 45 | 1 | x |
### Stakeholder Consultations

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N.B, bdo, Bharatpur-I block was present in the meeting, but his signature could not be taken in the Attendance Register.
ANNEXURE-1  

TABLE - 2  Reported Environmental Impact


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<td>Jalpaiguri</td>
<td>Dhupguri</td>
<td>1  1  1  1</td>
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Note:  
- a) Siltation (b) Lowering of water table. (c) Salinity (d) Toxicity/Excessive use of chemicals in farming  
- (e) Lack of maintenance / lack of staff (f) Problems with beneficiary committee (g) Power/fuel problem (h) Lack of access to information  
- (i) Theft (j) Shift of river course (k) Seasonal surface/ground water shortage (l) Kutch field channels (m) Low water retention capacity (n) others – (i) Border river problem ii. Deforestation  
- iii. Evaporation (o) erosion  
- (p) Absence of soil test /IPM/IMM. (q) Urban industrial / municipal waste

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ENVIRONMENTAL ASSESSMENT / DFR   ENVIRONMENT & ECOLOGY
**ANNEXURE – I**  
Table-5: Location with respect to sensitive areas

**Note:**  
a: National park  
b: Wild life sanctuaries  
c: Community conservation  
d: Sacred groves  
e: Wetlands  
f: Mangroves  
g: Areas of outstanding natural beauty  
h: Wild life corridor  
i: Habitat of indigenous population

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ANNEXURE – I  
Table-6 : Climate data : Rainfall & Temperature

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### Stakeholder Consultations

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Source: Meteorological Department, GOI
## ANNEXURE – I  
### Table-7 : Land Use Pattern

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Source: Directorate of Agriculture (Evaluation, GOWB)
### ANNEXURE – I Table-8 : Area under Irrigation (ha)

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#### Environmental Assessment / DFR  
**ENVIRONMENT & ECOLOGY**

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<th>Zone: VI: Coastal Saline Zone</th>
<th>Ranibandh Bankura</th>
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<td>Block / District</td>
<td>Yield</td>
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<td></td>
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<tr>
<td>Kulpi 24 Pgs (S)</td>
<td>2897.37</td>
<td>1912.72</td>
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<table>
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<tr>
<th>Zone: VI: Coastal Saline Zone</th>
<th>Joypur Purulia</th>
<th>1698.31</th>
<th>2203.39</th>
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<tr>
<td>Block / District</td>
<td>Yield</td>
<td></td>
<td></td>
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<tr>
<td>Nituria Purulia</td>
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<tr>
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<td></td>
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<th>Uluberia Howrah</th>
<th>1932.21</th>
<th>2754.07</th>
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### ANNEXURE – I  Table -10

**Inorganic Fertiliser used * ('000 tonnes), 2005-06**

<table>
<thead>
<tr>
<th>SL.No.</th>
<th>Zone</th>
<th>Location</th>
<th>N</th>
<th>P</th>
<th>K</th>
<th>Total (N+P+K)</th>
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<tbody>
<tr>
<td>6(i)</td>
<td>Nitrogen</td>
<td>Phosphate</td>
<td>Potash</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6(ii)</td>
<td>6(iii)</td>
<td>6(iv)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>Zone-1 : Hill Zone</td>
<td>Jalpaiguri</td>
<td>29.4</td>
<td>20.3</td>
<td>17.4</td>
<td>67.1</td>
</tr>
<tr>
<td></td>
<td>Mal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Zone-2 : Terai-Teesta Flood Plain</td>
<td>Darjeeling</td>
<td>19.2</td>
<td>9.6</td>
<td>8</td>
<td>36.8</td>
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<tr>
<td></td>
<td>Phansidewa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Birbhum</td>
<td>Rampurhat-I</td>
<td>32.2</td>
<td>18.3</td>
<td>13.4</td>
<td>63.9</td>
</tr>
<tr>
<td></td>
<td>Murshidabad</td>
<td>Sagardighi</td>
<td>34.4</td>
<td>18.1</td>
<td>14.3</td>
<td>66.8</td>
</tr>
<tr>
<td>4</td>
<td>Cooch Behar</td>
<td>Sitai</td>
<td>32.6</td>
<td>22</td>
<td>18.6</td>
<td>73.2</td>
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<tr>
<td></td>
<td>Tufangunj</td>
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</tr>
<tr>
<td>5</td>
<td>Dinajpur (S)</td>
<td>Gangarampur</td>
<td>20</td>
<td>15.1</td>
<td>10.5</td>
<td>45.6</td>
</tr>
<tr>
<td></td>
<td>Maldah</td>
<td>Gajol</td>
<td>30.6</td>
<td>17.4</td>
<td>13.7</td>
<td>61.7</td>
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<tr>
<td>6</td>
<td>Dinajpur (S)</td>
<td>Dhupguri</td>
<td>29.4</td>
<td>20.3</td>
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<tr>
<td></td>
<td>Bankura</td>
<td>Kotulpur</td>
<td>26.9</td>
<td>18.9</td>
<td>11.6</td>
<td>57.4</td>
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<tr>
<td></td>
<td>Medinipur(E)</td>
<td>Panskura-I</td>
<td>44.4</td>
<td>25.8</td>
<td>15.5</td>
<td>85.8</td>
</tr>
<tr>
<td>10</td>
<td>Medinipur(W)</td>
<td>Garbeta-I</td>
<td>44</td>
<td>24.6</td>
<td>15.9</td>
<td>84.5</td>
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<tr>
<td>11</td>
<td>Dinajpur (N)</td>
<td>Goal-pokhar-I</td>
<td>19.3</td>
<td>12.6</td>
<td>8.3</td>
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<td></td>
<td>Maldah</td>
<td>Ratua-II</td>
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<tr>
<td>13</td>
<td>Murshidabad</td>
<td>Bharatpur-I</td>
<td>34.4</td>
<td>18.1</td>
<td>14.3</td>
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<tr>
<td>14</td>
<td>Nadia</td>
<td>Nabadwip</td>
<td>34.7</td>
<td>18.8</td>
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<td>68.7</td>
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### Stakeholder Consultations

<table>
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<tr>
<th>Zone-5: Undulating Red Latere Zone</th>
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<tr>
<td><strong>16</strong></td>
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<tr>
<td>Barrackpur-I</td>
</tr>
<tr>
<td>Habra-I</td>
</tr>
<tr>
<td>Haroa</td>
</tr>
<tr>
<td><strong>17</strong></td>
</tr>
<tr>
<td>Balagarh</td>
</tr>
<tr>
<td>Chinsura-Mogra</td>
</tr>
<tr>
<td><strong>18</strong></td>
</tr>
<tr>
<td>Ketugram-ii</td>
</tr>
</tbody>
</table>

### Zone-6: Coastal Saline Zone

| **19** | Bankura | 26.9 | 18.9 | 11.6 | 57.4 |
| Ranibandh |  |
| **20** | Purulia | 16.1 | 15.7 | 11.4 | 43.2 |
| Joypur |  |
| Nituria |  |

| **21** | 24 Pgs (S) | 34.5 | 20.3 | 16.1 | 70.9 |
| Canning-I |  |
| Kulpi |  |
| **22** | Medinipur(E) | 44.4 | 25.8 | 15.5 | 85.8 |
| Khejuri-I |  |
| **23** | Howrah | 32.9 | 17.4 | 13.4 | 63.7 |
| Uluberia |  |
PROJECT ADMI

ANNEXURE - II
COOCHE BEHAR DISTRICT

Map showing the location of Tufangu and Sitai within the COOCHE BEHAR DISTRICT.
DARJEELING DISTRICT

Phansidewa
UTTAR DINAJPUR DISTRICT

UTTAR DINAJPUR
West Bengal

Goalpokhar

Map not to Scale
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DAKSHIN DINAJPUR DISTRICT

Block - Gangarapur (Dakshin Dinajpur district)
MALDAH DISTRICT
BURDWAN DISTRICT

Block : Ketugram-II

Block Development Officer, Ketugram-II
Vill.+P.O - Gangatikuri
Dist - Burdwan
PIN - 713 515

Telephone No. : 03453-270260
Fax No. :
PURBA MIDNAPORE
PASCHIM MIDNAPORE

Garbeta
PASCHIM MIDNAPORE

Garhbeta – I Block

**GARHBETA - I**
(Block Map showing Gram Panchayat)

**BLOCK INFORMATION**
- Geographical Area: 385.84 Sq. Km.
- Population (2011): 200402
  - Male: 102815
  - Female: 97587
  - SC: 22.05 %
  - ST: 8.11 %
- Literacy Rate: 64.27 %

**ADMINISTRATIVE UNITS**
- Police Station: 1
- Gram Panchayat: 32
- Gram Saadad: 149
- Total Moza: 356
- Inhabited Village: 286
HOOGHLY DISTRICT

[Diagram of Hooghly District with labels for Balagarh, Chinsura, and Magra]
HOWRAH DISTRICT

HAORA
West Bengal

Uluberai

NORTH 24-PARGANAS

SOUTH 24-PARGANAS

MEDINIPUR

Map not to Scale

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SOUTH 24 PARAGANAS
NORTH 24 PARAGANAS
PURULIA DISTRICT
ANNEXURE – II

Annexure – 2.1

SCM/FGD
Block: BALAGARH
District: Hooghly

Date: 17 February 2009. Venue: Balagarh Panchayet Samiti Hall. Total no. of participants: 64.

The SCM of Balagarh block, Hooghly district was held in the meeting hall of the Panchayet Samity office on 17th February ’09. This was followed by FGD. In all 64 stakeholders were present in the meeting including 28 villagers. Among the officials Bhuban Pramanik, MLA, Ashim Roy, Sabhapati, Panchayat Samity, Pushpendu Sarkar, BDO, Prasenjit Mallik, AE(AM), Tapan Murmu, RLI (AO) were present. Villagers including Women, SC, ST and BPL people from Khamargachi, Moktarpur, Chandra, Dumurdaha, etc. also participated in the meeting.

Highlights:

- Considering the potential environmental hazard that chemical fertilizers and pesticides may have caused, farmers should go for organic farming with minor irrigation. (Pushpendu Sarkar, BDO)
- As the layer of underground water is declining, new initiatives are needed to promote rainwater harvesting. (Bhuban Pramanik, MLA)
- More initiatives of minor irrigations need to be taken. (Ashim Roy, Sabhapati, Panchayat Samiti)
- Farmers produce aman and boro mainly and they get water through RLI pumps.
- Considering the environmental problems of diesel the RLI pumps need to be run by electricity. (Ganesh Das of Khamargachi, farmer)
- The extension of the pipelines for distribution of water from RLI pumps is most important. (Gopal Chandra Saha (OCM))
- The importance of rainwater harvesting is understood and initiatives need to be taken.
• More use of surface water is needed for the substitution of underground water. (Several villagers from different villages).

Annexure – 2.2

SCM / FGD

Block: BARRACK PUR-I
District: North 24 Parganas


The discussion meeting was held at an RLI site in the Block with the participation of D.Bhattacharya, BDO; Ranjit Malo, Sabhapati, Panchayet Samiti; Narayan Chandra Sarkar, AE-AI, and 35 farmers from Bara, Narayanpur, etc.

Highlights:

• The major crops are Boro and Aman varieties of paddy.
• Excessive use of chemical fertilisers and pesticides in cultivation is leading to declining productivity.
• The polluted water of the nearby canal often leaches into the soil of the cultivated land. (Dinesh Bhowmik, Farmer).
• Arbitrarily fluctuating voltage/ power supply disturbs running of the electricity-driven RLI pump when irrigation water is urgently needed.
• The machines, being old, suffer from frequent operational problems (Tapan Mandal, Farmer).
• The field channels, kutcha (non-concrete) and far too inadequate in number (only 1500, not even half of requirement) causes wastage of water.
• Apart from paddy wheat and vegetables also are significant crops produced in the block.
• The farmers are ignorant about the optimum application of chemical fertilizers (Farmer).
• Soil testing is not done; that leads to lower productivity/ profit.
• In the absence of proper drainage system, the excess municipal water causes water logging in the adjacent plots of land and damages crops.
Species like fox, snake and mongoose, and birds like kite, vulture, etc have become almost extinct.

(Farmer)

Annexure 3.3
SCM / FGD
Block: BHRATPUR-I
District: Murshidabad


The SCM was held in Bharatpur-I block of Murshidabad district on 22 October 2008 in the meeting hall of Bharatpur-I Panchayet Samity with the participation of 55 villagers.

The participants of the meeting included Tapas Biswas, BDO, Ms Lina Pan Sabhapati of the Bharatpur-I Panchayet Samiti, (Ms.) Nazma Bano, Saha- Sabhapati, Panchayet Samiti, and Tapan Kumar Mukhopadhyay, SE, Subrata Sen, EE, Subrata Halder, EE – all from WRIDD, GoWB, Some Panchayet Samiti Krishi Adhikariks of the concerned block were also present. besides many villagers from Bhaluipara, Bharatur, Gundaria, Palitpara, etc.

Dr. AK Lahiri, Environment Specialist, CES, and Sudhir Chatterjee, General Secretary and others of the field work implementing NGO, AICMED, also took part as facilitators of the discussion.

Highlights:

Stakehoder Consultation Meeting:

• Bharatpur-I is a flood-prone area and the farmers suffer badly during the monsoon every year. Most of the water flows down. The excess of the flood water needs to be saved for the benefit of the farmers.

(BDO. Bharatpur-I)

• Floods cause immense damage to crops. The shallow pumps have become defunct and have to be made operative.

(Najma Bano, Saha-Sabhapati, PS)
• Irrigation can be developed by connecting the entire area by small pipes connected to the embankments on the northern and north-eastern side of the river Babla. (Prankrishna Pal, Villager, Bharatpur).

• Soil testing is the foremost requirement for cultivation because crop diversification is to be introduced in accordance with the character of the soil.
• Crop rotation without exclusive dependence on paddy cultivation can help maintain the water balance of the soil. (Chand Mohammad, Krishi Adhikarik, Bharatpur; Shyamal Dasmunshi, Villager)

• Excessive use of chemical fertilizers is causing immense harm to irrigation water as well as drinking water. The farmers should be made aware of these harmful effects. (Abhimanyu…, Retired employee of WRIDD, GoWB)

• Water shortage becomes too acute during early Summer to cultivate the boro variety of paddy; particularly because of far too inadequate water in the Babla river.
• The Babla river needs re-excavation.
• A deep tube-well is also needed.
• The shortage of irrigation water may be met by rain water harvesting.
• In the absence of alternate irrigation infrastructure, electricity-driven deep tube-wells can save the environment.
• Over and above the Babla river, the canals also call for re-excavation.

(Saiful Islam Gram Pradhan, Bharatpur-I Block; Rafiqul Hasan, Opposition Leader, Bharatpur-I Block; Chand Mohammad, Krishi Adhikarta, Bharatpur; Noor Mohammed, Musharaf Hossain; Shyamal Dasmunshi: all Farmers/ Villager.)
Annexure 2.4

Block : CANNING-I
District : 24Parganas (S)

Date: 06 February 2009.  Venue: South 24 Parganas Panchayet Samiti Hall.  
Total no. of participants: 37. Villagers: 33 ( Women: 00; SC/ST: ).

The SCM of Canning-I block of 24 Parganas(S) district was held in the 
meeting hall of the Panchayet Samiti office in the Block on 6th February '09. This was followed by FGD.
Altogether 37 stakeholders were present in the meeting including 4 
officials/office bearers and 33 villagers.
Among the officials Tapan Mandal, Karmadhakshya, Shiksha-Tathya-Krira; Jaladhar Sanpui, Karmadhakshya, Krishi-Sech; Dhananjay
Naskar, Member, Dighir par GP and Smt. Nabanipa Sengupta, Jt. BDO, 
were present. Villagers participated from different villages like, Uttar
Angadberia, Jairamkhali, Beleghani, etc.

Highlights:

Stakeholder Consultation :

• Shallow pumps constitute the dominant method of irrigation, but
  that is costly for the large number of poor people of the block.
• The water of the canal which passes through the area cannot be
  used because with the sluice gate broken, saline water of the
  Canning river easily makes way into the canal and spoils the fresh
  water.
• In the absence of dredging, the canal remains silted and its water
  storing capacity has gone down immensely
  (Dulal Chandra Sanpui, Member, Canning PS)
• Use of shallow pumps is getting more and more expensive
  everyday.
• Reconstruction of the canal and the sluice gate is badly needed.
• Excessive use of chemical fertilizers and pesticides by farmers
  has significantly reduced the fertility of the land and increased the
  cost of cultivation.
Water carrying the toxic chemicals of the agricultural fields also threatens the fish species.

Reconstruction of the canal for restoring non-saline water would be very useful.  
(Tapan Mandal, Shiksha-Tothyo-Krira Karmadhakshya)

Proper dredging of the canal that originates from a larger canal (locally known as the Dabu canal), will benefit a large number of villagers.

Dredging of the Dabu canal and reconstruction of the sluice gates without delay is extremely important as its command area is a few lakh acres of farming land.  
(Jaladhar Sanpui, Krishi-Sech Karmadhakshya)

Year-round cropping and crop rotation is not possible due to the scarcity of water.

The shallow water requires comparatively more chemicals for farming than the canal water

The canal can not supply the required water as it is highly silted up.  
(Shasanka Bera, Villager and farmer,Uttar Angadberia)

The saline water is a grave problem in this area.

The lock gate of the canal is not working the saline water of the canning river gets a way into the canal and it costs the agro-production dearly.

Reconstruction of the lock gates at the estuary is needed

Building up check-dams to restore non-saline water is also needed.  
(Md. Misakul, villager and farmer of Uttar Angadberia)
Annexure 2.5

Block : CHINSURAH-MOGRA
District : Hooghly

Date: 18 February 2009. Venue: Panchayet Samiti Hall. Total no. of participants: 44.

The SCM of Mogra Block, Hooghly district was held in the meeting hall of the Panchayet Samity office on 18th February ’09. This was followed by FGD. Forty-four stakeholders were present in the meeting including 29 officials/office bearers and 15 villagers. Among the officials Sri Dipak Mandal, Sabhapati, Sanjay Santra, Karmadhakshya, Krishi-Sech, Mousumi Ghosh, FEO, Nihar Ranjan Garai,AE,A-I, were present. Villagers participated from different villages within the block like Kola, Gojghanta, Sekhpara West, Milchita, Jangalpara etc.

Highlights:

- In this block, all the RLIs are run by diesel only, which, when comes in contact with the soil or water, creates some well-known environmental problems.
- To cope with the problem, we need to run the said pumps by electricity.
- The connected pipes of the pumps are to be reconstructed as they are mostly broken.
  
  (Dipak Mondal, KPS)

- The people need to think about an agricultural process where they could produce using less water.
  
  (Mrinal kanti ghosh, AE/RHI)

- The increasing use of chemical fertilizers, pesticides etc. are creating environmental problems.
  
  (Madan Das,Krishi Prajakti Sahayak)

- The block needs some fisheries projects in the area as it would raise not only the retention capacity, but also would clear the water by
- naturally absorbing very many chemical elements that could otherwise be harmful to other animals.  
  (Mousumi Ghosh, FEO)

- Though the farmers get water from the minor irrigation network, more initiatives need to be taken so that environmental hazards can be minimized along with sustainable improvement in standard of living.

- Stakeholders are keen to substitute the diesel run RLI pumps to electric-run pumps.

  (Several villagers from different villages).
Annexure 2.6  
**Block : DHUPGURI**  
**District : Jalpaiguri**  

*Date: 20 November 2008. Venue: Dhupguri Panchayet Samiti Hall. Total no. of participants: 42.*

The discussion meeting was held at Dhupguri Panchayet Samiti Hall of the Block. A total of 42 stakeholders, including H.S.Jagpal, BDO; Bijoy Moktan, Jt. BDO, Chintamani Roy, Sabhapati, Panchayet Samiti; Arjun Thapa, Saha-Sabhapati, PS, Sumanta Sil, FEO, Subir Kumart Sarkar, KPS, many of the Gram Pradhans and Karmadhyakshas; besides Samar Bhowmick, AE-AI, K. K. Nath, SAE-AM, Smarajit Modak, SAE-AI, and others besides villagers from Salbari-II, Banarhat- I & II, Madhya Boragari, Kazi para, etc.

**Highlights:**

**Stakeholder Consultation:**

- Northern part of the block faces irrigation water scarcity, among these the tea gardens. *(H.S.Jagpal, BDO)*
- Some of the irrigation projects including RLIs and tube wells set up much earlier have become defunct. These have to repaired and new schemes have to be intro *(Chintamohan Roy, Sabhapati, Panchayat Samiti)*
- Farmers use chemical fertilizers to increase the produce.
- Agriculture department has been distributing Integrated Pest Management (IPM) kits to popularize the use of bio-fertilisers.
- Awareness camps have to be conducted for IPM in villages.
- Farm-friendly bugs and insects (like earthworms) are already dying from toxic effects of chemicals. Farmers need to be made aware of such things.
- The ponds need to be re-excavated for serving the dual purposes of fisheries and irrigation.
- More trainings and awareness camps are needed about the harmful effects of chemical pesticides and fertilizers and for the necessity of using bio-alternatives. *(Kanu Debroy, Karmadhyaksha, Krishi-Sech)*
Stakeholder Consultations

- Some of these RLIs are not functioning because of damaged machines / bill payment default / dried up river / clogged water channels.
- Installation of more STWs/DTWs will be beneficial to farmers. *(Dinesh Majumdar, Member, PS, Baroghoria GP)*
- Excessive use of ground water has led to falling water table leading to arsenic contamination in some parts of the district.
- Alternatives like using water from *jhoras* for irrigation are to be explored. *(Jogendranath Roy, Pradhan, Sakwajhora – II GP)*
- Some of the shallow tube wells installed under government initiative are not functioning.
- Water harvesting could be a better alternative for partly meeting the irrigation needs.
- The existing ponds do not have water all the year round. *(Prahlad Roy, Karmadhyaksha - Sasthya, PS)*
- The *Birubag* canal is to be made operational by rebuilding the dam which would benefit three Gram Panchayats, namely Jharalta-II, Magurmari- I and Sakwajhora-II *(Jitendra Roy, Pradhan, Jharalta –II GP)*
- In the Dakshin Jharalta mouza, there are some electricity run minor irrigation schemes but these are not working and need to be repaired.
- The silt carried by the Jaldhaka river has largely filled up a huge water body in Bouribari area, which was driving away local birds like *pankauri, sarali* etc. *(Uttam Kumar Roy, Upa-Pradhan, Gajarkuti GP)*
- The three decades old 13-km. long canal, which would serve the irrigation needs of Banahat-I and II GPs, became defunct as its source, the Daina river, had changed its course.
- The sloping land of the hilly area cannot retain rain water. Ground water is available at a depth of at least 100-120 feet. Water harvesting schemes need to be undertaken.
- The large tracts of fallow land in the tribal-dominated areas of the block can be utilized for cultivation if irrigation facilities can be extended to those areas.
- The 25 tea gardens in four Gram Panchayets of the block use chemical pesticides heavily which end up in the rivers or streams in the area seriously threatening many local varieties of fish (*chepti, jila* etc)..
Stakeholder Consultations

- The use of chemical pesticides is increasing and alternatives are not being explored.  
  
  (Mr T. Barua, Karmadhyaksha, Banarhat-I GP)

- Field channels to carry irrigation water from the two canals from Rangati river flowing through the Salbari-II GP could be extremely useful for the farmers.

- The pesticides used in the tea garden is a threat to fishes in the river where these pesticides end up.

- The chemicals used for cultivation is killing the friendly pests and bugs in the fields and threaten the migratory birds.

- The water of the large bill called Kuchidana can be utilised for irrigation if link canals are excavated.  
  
  (Paritosh Roy, Salbari-II GP)

- All the shallow tube wells installed in the wake of the 2007 floods in the area are presently out of service.

- Schemes need to be taken up to utilize the water from the two rivers flowing along the borders of the GP to benefit the farmers.  
  
  (Amarchand Sarkar, Gadon-II GP)

- There are interfaces and conflicts between water utilisation for fisheries and for irrigation.

- Pesticides used in tea gardens and elsewhere are threatening fish and other plants and aquatic life as well as human life, if such water bodies are nearby.

- The fisheries department has taken up aqua-ranching projects to counter this problem.

- The agriculture department has to play a big role in popularizing the use of bio-pesticide and fertilizers as also pest-resistant varieties of crop.

- The water retention capacity of the soil in the area is poor and the Ph level is also low.

- An integrated approach that brings together fisheries and agriculture is required.  
  
  (Sumanta Kumar Sil, FEO, Dhupguri Block)

- Because of the presence of forests and the proximity to the Himalayas, there is need to be cautious about environmental implications of irrigation scheme interventions.  
  
  (Samar Bhowmick, AE-AM)

- Along with use of bio-fertilisers and bio-pesticides, experimentation with alternative crops is now undeniable.

- Potato cultivation, which is too much dependent on chemical pesticides, may be partly/largely replaced by less pesticide-
intensive produce like mustard or pulses \((dal)\). The latter will enhance the fertility of soil. \((Kanu Debroy, Krishi Karmadhayaksha)\)

- Time has come to tap the wisdom of our ancestors (Traditional knowledge)
- Need to look at bio-alternatives, locally available materials and solutions. \((Joint BDO, Dhupguri Block)\)

**Focus Group Discussion:**

- River bank erosion is a common phenomenon
- Abandoned courses of rivers like Gilandi (now stretches of wetland) can be used for integrated irrigation and fisheries. \((Fazlul Haq, Villager)\)
- Rivers of this region change their course often and leave stretches of wetland.
- Floods are frequent which leads to siltation and choking of tubewells. \((Samar Bhowmick, AE-AM)\)
- Chemical pesticides and fertilizers are not only harmful they are expensive.
- Bio-fertilisers made locally or domestically would be beneficial for environment, and costs would also fall.
- The chemicals used in agriculture often end up in rivers and canals and are then used for irrigation or fisheries.
- Many species of birds (including migratory birds) and fish (like mouka, puti) have become rare. Shrinking habitats as well as preponderance of chemicals in water and crops may be driving these species away or leading them to extinction.
- The fertility of land has fallen because of over-exploitation. \((Dulal Mandal, Villager, Uttar Bairatiguri Village)\)
- Tribal people who are cultivating the land near Lakhianta tea garden will be benefited if a few more shallow tubewells are made available to them. \((Sarat Chandra Shah, Pradhan, Salbari-II)\).
Annexure 2.7
Block: GAJOLE
District: Malda

Date: 17 December 2008. Venue: Gajole Panchayet Samiti Hall. Total no. of participants: 35.

The discussion meeting was held at Panchayet Samiti Hall in Gajole Block with the participation of the Mandal Murmu, Sabhapati, Gajole Panchayet Samity; Subrata Roy, Joint BDO; Tushar Kanti Roy, ADO; Uday Shankar Sardar, AE-AI, WRIDD; Swapan Kumar Das, KPS and the villagers from Bishahara, Kanchan nagar, Deotala, Babupur, etc.

Highlights:

Stakeholder Consultation Meeting:

- Though about 25 acres of cultivable land covering the mouzas Balupur, Jalangapara, Doltala, Kangra etc. have been brought under irrigation under the DTW irrigation scheme of 2001, the remaining areas are still irrigation-starved.
- The big khanris (canals) passing through Sindurmuchhi, Parua and Santhalpur areas need to be re-excavated and check dams erected to conserve water and feed the irrigation-starved areas.
- Better irrigation may be provided by re-excavation of the khanris in Aora, North Maynagarh and Govindapur. The local bils also need to be reexcavation. (Mandal Murmu, Sabhapati, PS)

- The ground water in the block has been found to be Arsenic contaminated. The villagers have to be made aware of the harmful impacts of this pollution on agriculture and on human beings through the food chain. (Subrata Roy, Joint BDO)
- Farmers have to be trained in Integrated Nutrient Management (INM) to help them raise productivity and reduce environmental pollution. (Dilip Ghosh, AE, WRIDD)
- The Cluster Tube wells of the block have remained inoperative ever since those were installed and now these have become defunct.
- Surface water has to be used for irrigation to avoid the problem of Arsenic pollution in ground water.
• An optimum combination of chemical and organic fertilizers, i.e., INM practice, will save crops as well as the environment.  
  *(Rabin Banerjee, KPS, Majra-I)*  

• Excavation of ponds and *khanris* needs to be undertaken. The water captivated in the latter by a sluice gate may then be channelised for irrigation.  

• The inoperative DTWs and STWs have to be repaired and put back to use for irrigation  

• The dried up and silted ponds have to be re-excavated to use the water for irrigation as well as for conserving the excess rain water.  
  *(Gram Pradhan)*  

• The block has more than about 400 ponds which can meet the hitherto unsatisfied demand for irrigation water. The land-owning villagers can set aside a part of their land for pond excavation so that excess rain water can be conserved during the monsoon for perennial irrigation.  

• The recurrent floods cause great damage to cultivation.  

• The RLIs should be run by electricity to economise the expenses and reduce environmental pollution.  
  *(Swapan Kumar Dutta, Villager)*
Stakeholder Consultations

Annexure 2.8
Block: **GANGARAMPUR**
District: **Dinajpur-S**

Date: 06 February 2009. Venue: Gangarampur PS Hall. Total no. of participants: 61.

The stakeholders’ consultation meeting was held at the Panchayet Samiti office at Gangarampur. This was followed by Focus Group Discussion. Sixty one stakeholders were present in the meeting including 45 villagers.

Himadri Sarkar, BDO; Sitesh Guha, Sabhapati, Gangarampur PS; Chandan Karmakar, SAE; Prabir Pramanik, AE, PHE Balurghat; Sekhar Sarkar, SAE, WRIDD Balurghat; Bhaskar Saha, AE Balurghat; Ashok Bhattacharya, Asst Director, Fisheries; Naresh Ghosh, Secretary, Sebayan, a local NGO and many villagers were present at the meeting. Villagers/Farmers including women and BPL & SC/ST came mainly from Narayanpur, Nandanpur, Gokulpur, Belbari, etc.

**Highlights:**
- Ground-water level is very low in the Gangarampur, Tapan, Bairampur zone, where a lot of *boro* cultivation is done.
- Many of the canals and ponds here have dried up and if these can be re-excavated and recharged.
- Much of the ground water is arsenic-contaminated.
- Instead of depending on *boro* cultivation the focus should be more on alternative crops, vegetables, horticulture and other cash crops that need less water than *boro* and are also lucrative.
  
  *(Sitesh Guha, Sabhapati, Gangarampur PS)*
- Need to focus on water-harvesting and water recycling.
- Low water using crops and MI schemes (techniques) have to be introduced. The role of KPS is important in this regard.
  
  *(Himadri Sarkar, BDO, Gangarampur)*
- From *boro* cultivation, the focus should shift to wheat and vegetables.
- The only way is to optimally use a combination of surface and ground water resources.
- During summer, the water level in rivers and streams in the block falls substantially; an optimal combination of surface water and ground water has to be used.
  
  *(Sekhar Sarkar, SAE, Balurghat)*
- Sixty-six mouzas of Gangarampur are contaminated with fluoride.
Stakeholder Consultations

- New schemes should focus on increasing depth and water flow in the rivers by desiltation, excavation and allied methods.  
  (Prabir Pramanik, AE, PHE, Balurghat).
- Fishery occupies second position after agriculture in this block with its produce being sent to far-off places.
- Fisheries Department and the Agriculture Department get locked in conflict over use of the water of the Pransagar Dighi (a large water body) led to litigation..
- Water harvesting, re-excavation and recharging of existing ponds/water bodies (bil, dighi) and digging more new ponds to be emphasized.
- Fisher folk, PHE and betel-nut cultivators are competing for scarce water resources leading to conflicts at times.  
  (Sankar Kumar Mandal, Fisheries Department).
- Re-excavation of exiting ponds entails problems like distribution of rights, cost of water (in ponds with nutrients mixed for pisciculture).
- Over-use of chemical fertilizers and pesticides has caused declining yield of vegetables (radish, brinjal, jhinga, potol, corolla, cucumber etc); the surviving crops are diseased and worm infested.
- In ponds, the catch of singi, magur, koi and some other species of fish have fallen.
- No river in the block other than the Atree is a perennial water source.
- The Tulai river originating in Bangladesh and dammed upstream in that country cannot be used for irrigation.
- River Siramati has dried up completely.
- The rivers and water bodies (like Boro bil, Man bil) need to be cleaned, re-excavated and recharged to help irrigation.  
  (Akbar Ali, Farmer, Kusmundu)
- Drinking water is a major problem in the area
- The big rivers like Punarhaba are drying up causing proliferation of DTWs for irrigation. 
- Excessive Iron in water is causing problems.
- The overuse of pesticides is killing earthworms that enhance soil fertility.  
  (Mahendra Choudhury, Farmer and Pradhan, Nandanpur GP).
- Land for digging new ponds is hardly available.
- The canal connecting to a river needs to be re-excavated and re-charged.  
  (Urmila Sarkar, Farmer & Member, Gangarampur PS).
Two of the three major rivers in this district dry up during summer.

Some of the river irrigation projects are ill maintained or non-functioning.

The rivers have to be desilted.

A distributory of Punarbhaba called Brahmani dries up in summer. Re-excavation of the river and its source needed. (Farmer)

In some areas the ground water level is so low that shallow tubewells would be useless.

Create marketing channels for alternative (less water-using) crops

Groundwater conservation needs and contamination (arsenic, fluoride) issues to be addressed urgently.

The drinking water scarcity issue is directly related to a profusion of tube wells that are being used for irrigation.

The channel of the khanris can be widened and deepened by a few feet in various stretches and used for storage of water.

Need to focus seriously on water-harvesting and recycling in official, semi-official buildings.

Crop diversification, especially the shift from (water-intensive) boro cultivation is badly needed. (Chandan Karmakar, S AE).

Need for holding awareness camps for farmers regarding crop diversification with low water-using crops like dal (which also enriches soil fertility). (Rezaul Haq, Farmer, GP Member)

The National Rural Employment Guarantee Scheme (NREGS) should be linked with work for desiltation, excavation under the schemes of the project under discussion.

The use of chemical and organic substances in pond water for pisciculture is having a detrimental effect on water-retaining capacity of ponds and leading to erosion of banks.

Recycling of water can be a good method of conservation.

The water level in all large water-bodies of the area (Kaldighi, Dhalighi, Mahipal dighi, Pransagar dighi, etc) has fallen. For water conservation all these dighis need to be re-excavated. (Ashok Bhattacharya, Asst Director, Fisheries).

The khanri (canal) passing through Belbari-II area has to be re-excavated. (Mangala Ghosh, Pradhan, Belbari-II).
Annexure 2.9
Block : **GARBETA-I**
District : Medinipur (W)

Date: 03 February 2008. Venue: Garbeta-II Panchayet Samiti Hall. Total no. of participants: 40.

The SCM of Garbeta-I block, Paschim Medinipur district was held in the meeting hall of the Panchayet Samity office on 3rd February '09. This was followed by FGD. In all 40 stakeholders were present in the meeting including Tarak Mallik, BDO, Aditya Saha, Sabhapati, Garbeta –I PS, Jagannath Murmu, ADO, Malay Kanti Saha, AE, B.N. Chatterjee, FEO, and others, including villagers from Kshudiashol, Dhadika, Lapuria, etc.

**Highlights:**

- Very many equipments of minor irrigation was once installed but are now ruined.
- A large number of tube wells which are not working.
- These equipments and the tube wells should be restored first.
- New RLI projects to be undertaken.
- Building up check dams might be useful for horticulture production.
  (Sri Jagannath Murmu, ADO)
- Sensitization of the farmers is most important.
- Farming should be undertaken as per the structure and character of the soil.
- Minor irrigation could be useful to recover the wastelands for agro-production.
  (Sabhapati, Panchayat Samiti)
- The recovery and reimplementation of the damaged irrigation equipments would be useful.
- Authority should use the large number of canals in garbeta for restoration of rainwater by building up check dams.
  (Swapan Kumar Dey, Pradhan GP)
- The reconstruction of the local check dams is needed.
  (Rabin Duley, farmer)
- The reconstruction of the damaged deep tube wells is to be done.
  (Bharat Bhunia, farmer)
Stakeholder Consultations

- In Shaldohora area, rivers or canals are not available. So, farmers have to depend on pumps which are not working as per requirement.
- The chemical fertilizers are increasingly being used.
- The productivity of agricultural land declining.
  
  (Bharat Mahato of Shaldohora, farmer)

- In summer, the electric pumps do not work as per need as the voltage goes down.
  
  (Gopal Mandal, farmer)

- Both the cost and usage of chemical fertilizers on land is increasing.

- The productivity of land is slowly declining.
  
  (Several operators & villagers from different villages)
Annexure 2.10
Block : GOALPOKHOR-I
District : Dinajpur-N

Date: 19 December 2008. Venue: Goalpokhor PS Hall. Total no. of participants: 64.

The stakeholders’ consultation meeting was held at the PS office at Goalpokhar-I on 19.12.08. This was followed by Focus Group Discussion.
Sixty four stakeholders were present in the meeting including 45 villagers.

Zulfikar Hasan, BDO, Anita Paul, Sabhapati, Panchayat Samity, Shiuli Khatun Chowdhury, Saha-Sabhapati, PS, Beauty Rani Biswas, SAE(A-I), Md. Siddique, OCM were present in the meeting. Villagers/Farmers mainly came from several villages of the block, namely, Goditola, Goagoon, Chhata Mardi, Bhelapukur, Chhaghoria, Jhiljhili, Bongaon, etc. A number of women and BPL villagers were also present in the meeting.

Highlights:
• The two rivers passing across the Block are silted up and desiltation was never done.
• The pipes of the RLI pumps have become worn out and need repair.
• Awareness generation programmes needed regarding environmental hazards of excessive use of chemicals in farming. (several villagers).
• Pipes of irrigation network are damaged / broken. (Md. Illius of Chogharia village).
• Awareness generation programmes to enlighten the farmers about the hazardous impact of chemical inputs on health and environment and the effect of polluted run-off on the ponds and the fish. (Uttam Kumar Pradhan, Pokhuria).
• No irrigation facilities for a few thousand acres of arable land.
• Desiltation of the jhil/lake of Kanjipara mouza and proper irrigation facilities badly needed. (Rudra Chandra Biswas, Kanjipara, Mongalbari).
• Rainwater harvesting and more use of surface water as the ground water table had subsided alarmingly. (several villagers).
Annexure 2.11

Block: **HABRA-I**
District: **24 Parganas (North)**

*Date: 09 February 2009.*  
*Venue: Habra-I Panchayet Samiti Hall.*  
*Total no. of participants: 25.*

The meeting comprised of 25 stakeholders including Among the officials Zakir Hussain, Sabhapati, Panchayet Samity, (Smt) Dipika Das, Upa-Pradhan, Sandip Kr. Basu, KPS, Laxman Raha. WTA, besides 14 villagers from different villages within the block like Habra, Prithiba, Ayra (north) and Ayra (south), etc.

**Highlights:**

- The ground water in the block is arsenic contaminated.
- Use of surface water for irrigation has to be propagated widely.
- Soil testing of the agricultural lands was badly needed.
- Capacity of the electricity-driven DTW of Ayra village has to be increased.
- At least 3000-3500 ft. of metalled field channel was needed for efficient distribution of the power-driven DTW water.  
  *(Sandip Kumar Adhikary, KPS Operator).*
- Poor and irregular supply of electricity is a big problem as all the pumps of the area are electricity-driven.  
  *(Ganesh Chandra Dey, Farmer, Ayra village).*
- Importance of soil testing is known to many farmers but how to get the soil tested is not known.
- Excessive use of chemical fertilizers and pesticides in agriculture.
- Birds like vultures, *bulbul, shamuk khol,* etc., once regularly seen in the agricultural fields, are not seen any more.  
  *(Ananda Kundu, Farmer, Ayra village).*
- Little support from the KPS regarding soil testing and other information for better farming. KPS does not visit the villages, let alone, interaction with the villagers.  
  *(Prasanta Kundu, Farmer, Ayra village).*
- Productivity of the land is falling.
- Non-availability of KPS in the hour of need.
- Lack of information for better farming.
Stakeholder Consultations

• Production by organic fertilizer gives lower yield. Farmers willy nilly use chemicals despite knowing their negative impact.  
  (Sabita Halder, vegetable grower).

• Cost of chemical fertilizers increasing despite their declining efficiency.  
  (Basant Dey, Farmer, Arya village).

• Earthworms no longer visible in the fields where chemical fertilizers are used.  
  (Several villagers from different villages).
Annexure 2.12

Block: HAROA
District: 24 Parganas (North)


The SCM of Haroa block of North 24 Parganas district was held in the meeting hall of the Panchayet Samity office on 13\textsuperscript{th} MARCH ’09. This was followed by FGD. In all, 60 stakeholders were present in the meeting including 34 villagers.

Among the officials Debashis Baidya, BDO, Pradip Kumar Das, PDO, Sailen Mondal, UDA, Ms., Krishna Mondal, Sabhapati, Panchayat Samity, Abdul Habib Molla, Karmadhkshya, Tapan Kumar Bhowmik, Surveyor, Malay Chowdhury, AE(AM), Bimal Mandal, Pradhan, Shalipur GP, were present. Villagers participated from different villages within the block, namely, Ghoshpur, Bermajur, Daroankhali, etc. Gautam Biswas, EE-AM & District Coordinator, Subhayu Sengupta, EE-AM, Malay Chakrabarty, Surveyor, and others were present during the site visit.

Villagers came from Ghoshpur, Laugachhi, Bermazur, Daroankhali, Gopalpur-II, etc.

Highlights:

- Mainly shallow pumps are being used for farming
- Besides paddy, potato, mustards are main produces
- Farmers indiscriminately use all types of chemical fertilizers
- Organic farming is rare
- The ground water in the block is arsenic contaminated the deep tube wells are not arsenic free.
- Around 400 tube wells are not working as the underground water has gone below the capacity level of the tube-wells

\textit{(Bimal Mandal, Pradhan, Shalipur GP)}
Stakeholder Consultations

- The area has six medium deep tube wells
- Surface water is also used for farming
- New initiatives have to be taken on micro-irrigation. The sprinkler technique would be useful for vegetable farming.
- The farmers and local people should take more initiative to ask for new projects through proper channel
  
  (Malay Chakrabarty, Surveyor),

- All the canals need to be re-excavated for better use of surface water
- Micro-irrigation needs to be implemented for more efficient use of water
- The 100-day schemes are to be used for dredging ponds etc
  
  (Gour chandra Mandal, AEO)

- Rainwater harvesting projects need to be implemented
- Extensive use of chemical fertilizers are degrading the soil-fertility everyday
- The organic farming need to be introduce along with vermi-compost etc.
  
  (Priya Rranjan Das,AI)

- Though pond-water needs to be used for farming, but the problem remains as the ponds under private ownership are not readily available for public use.
- The use of surface water is important but the water of Bidyadhari, the major river of the area is saline and so cannot be used for farming.
- The Bakjhuri canal needs to be excavated properly.
  
  (Ms. Krishna Mandal, Sabhapati, PS)

- The two existing RLIs have been damaged and thus surface water cannot be used properly. Those RLIs need to be reconstructed immediately
- Deep tube wells are needed in some areas.
  
  (Alpana Mandal, Member,Panchaet Samiti)
Annexure 2.13

Block : JOYPUR
District : Purulia


The discussion meeting was held at Jaipur Panchayet Samiti Hall with the participation of Biswajit Modak, BDO, Sandip Mitra, ADO, A. N. Singh, Sabhapati, PS, Manas Kumar Das, EE-AI, Rahul Pal AE-AI, SC Bhagat, EE-AI. Altogether 41 stakeholders were present at the meeting including 24 villagers from Sidhi, Karkara, Murguma, Hargara, Gondhudi etc.

Highlights:

Stakeholder Consultation

• There is conflict between fisheries and irrigation regarding use of water. There are two rivers nearby, Kangsabati and Ijri.
  (Basanta Kr. Das, FEO)

• We are doing fisheries extension work involving SHGs. But there is scarcity of water and conflict with agriculture in regard to use of water. More ponds and water sources are needed for fisheries to prosper.
  (Rekha Laha, Jaipur GP)

• Integrated approaches to agriculture and fisheries should be taken up by government departments.
• A mini-RLI at Tunta is not working from the day it was installed.
• Because of the sloping river banks, mini-RLIs are not generally feasible.
• The few RLIs that are working, operate much below their efficiency levels.
• A small dam on Jhalda hill will be useful for the people of the area.
• The Kangsabati river dries up after January every year. Ponds that are near the river should be used to store river water.
• To counter the problem of theft of irrigation equipment more awareness should be created among villagers.  
  *(Kirtan Chandra Mahato, villager)*

• Mini-RLIs are handed over following a transparent procedure with all details of installed equipment.  
  *(SC Bhagat, EE- AM)*

**Focus Group Discussion:**

• An irrigation dam on Ijri river would be beneficial for people of our irrigation-starved area.
• Dug wells and *jod-bandhs* (check dams) will also help the farmers, especially the poor Santhals and other indigenous people of the area.  
  *(Villager)*

• The underground water reserves of the block are not adequate; nor is enough water recharged to make deep tubewells a viable option.
• There is hard rock layer under the soil which makes drilling for DTWs difficult.
• Storage of water using water-harvesting tanks etc is to be encouraged in this region.
• Because of dryness and high temperatures a part of stored water gets evaporated.
• Cropping patterns should be changed in favour of low water-consuming crops.
• Alternative crops like cash crops can provide benefits to farmers only when proper marketing channels are created.  
  *(Engineers)*

**Site Visit:**

Hetkahan RLI is a major RLI which draws water from the Kangsabati (Kansai) river. About 60 hectares of agricultural land is being served by this RLI at present which is helping about 200 families. There is no problem with supply of diesel but plans are there to convert this to an electrified scheme. However in February-March the river dries up creating problems. Farmers still try to store some water using sand dams.
Annexure 2.14

Block : KETUGRAM-II
District : BARDHAMAN

Date: 05 December 2008. Venue: Ketugram-II Panchayet Samity Hall.
Total no. of participants: 68.

The SCM of Ketugram-II Block, Bardhaman district was held in the meeting hall of the Panchayet Samity office on 05 December 2008. This was followed by FGD. In all 68 stakeholders were present in the meeting including 36 villagers. Among the officials Utpal Kundu, EE (A-I), Tapas Biswas, BDO, Smt. Sulekha Maji, Sabhapati, Panchayet Samity, Tushar Kanti Ghosh, FEO, Swapan Kumar Bakshi, SAE(A-M), Sudhakanta Biswas, ADO were present in the meeting along with many other KPS, Panchayet Pradhans, etc. Villagers participated from different villages within the block like Keuguri, Sitahati, Natungram, Bhomor Kol, etc.

Highlights:

- The use of surface water is the only solution for sustaining agricultural development as the underground water table is rapidly deteriorating.
  
  (Utpal Kundu, EE-A-I)

- Minor irrigation is more environment-friendly and more affordable for poor peasants.
  
  (Tapas Biswas, BDO)

- More minor irrigation schemes are needed for Ketugram-II block.
  
  (Smt. Sulekha Maji, Sabhapati, PS)

- The area is flood-prone.
- In the Aman session farmers use less (almost nil) chemical fertilizers as the low-land areas get usually flooded every year. Here less production explains the low investment in chemical fertilizer use.
  
  (Sudhakanta Biswas, ADO)
• Some watershed management programmes need to be taken not only help the farmers of the low-land, it would also help to recharge the underground water.

• Awareness generation programmes would help to encourage/motivate the local people to produce water-based-plants and fishes etc.

  (Tapomoy Ghosh, a teacher and peoples’ science activist)

• There is not enough planning and/or from the part of the govt. that could have helped farmers survive from the yearly floods.

• Discontent is there as farmers of many areas of the block have failed to avail the proper irrigation facilities.

  (Bikash Biswas, Pradhan, Sitahati GP & Goutam Das, farmer)

• The farmers are more or less satisfied with the water resources as many of the RLI pumps were run by electric and most of them were well managed.

• Planned re-excavation of several existing man-made canals (kandors) [including one that passes by the BDO office and the other at Sitahati area] may benefit thousands of farmers.

• Measures are needed to implement rainwater harvesting and watershed management

• More rigorous plans are needed to fight the floods.

  (Several villagers from different villages)
Annexure 2.15

Block: KHEJURI -1
District: PURBA MEDINIPUR


The stakeholders’ consultation meeting was held in the Panchayet Samiti Hall of Khejuri-I block, Purba Medinipur district. This was followed by the Focus Group Discussion. In all 31 stakeholders were present in the meeting.

Kshudiram Sardar, BDO; Ms. Gayatri Mal, Sabhapati, Panchayet Samiti, Rabiul Islam, Dy. Sabhapati, Panchayat Samity, Himangshu Sekhar Das, GP Member, Zila Parishad, and others including the villagers, were present in the meeting. Villagers/Farmers mainly came from villages like Birkadar, Lakhi, Potary etc.

Highlights:

- Underground water table is falling with a large number of shallow and deep tube wells are in use in the block.
- The block faces a water crisis in the Aman session. (Ms. Gayatri Mal, Sabhapati, PS).
- Water becomes scarce during the summer days as the layer of ground water goes down up to 600-700 mt. and the tube wells do not work.
- DTWs and STWs cannot be installed any more as per a recent Government order.
- Surface water should be used as much as possible by the farmers for cultivation.
- The HTC canal may be used to store water for irrigating the riparian agricultural land if a lock gate and an RLI pump are installed.
- An RLI project started in 2003 remains ineffective and has failed to serve the farmers.
- There are a very large number of ponds (some 25-30 thousand) in the block. Re-excavation of the ponds are to be re-excavated to serve as a major source for minor irrigation.'
  (Himangshu Sekhar Das, Member, ZP)
The farmers are by and large dependent on rainfall.

Installation of RLI pumps on the HTC canal has the potential to address the irrigation needs of the block.

Use of surface water is to be encouraged and more canals and branch- canals have to be excavated for providing more efficient irrigation facility to the farmers.

The block won the first place in fish production within the district.

( Sunil Shil, Krishi Karmadhakhya )

Rainwater harvesting, (re)excavation of ponds, canals etc. would be the most important schemes for spreading minor irrigation in the block.

High salinity of the soil is an important characteristic of the block.

Farmers should use more and more organic fertilizers.

( Subhankar Chowdhury, ADO )

Plantation beside the inlets and ponds could help the farmers to earn more from the plant produces.

The problem of saline water intrusion in the agricultural fields is a significant problem of the block.

( Rabiul Hassim, Saha-Sabhapati, PS )

The river named Bandarpur is a major source of the saline water having a direct link with the sea.

Re-excavation of the HTC canal is an urgent need for better irrigation.

( Amit Samanta, Karmadhyaksha )

Projects that combine both fisheries and small irrigation by using the ponds are to be taken up.

An optimum crop rotation pattern would be important for farmers for using water more economically.

Farming with organic fertilizers is needed to minimize the toxic effect of chemicals on agricultural practices and on environment in general.

( Manotosh Samanta, Karmadhyaksha )

Only one single crop is produced in the water-scarce block.

The 3 GPs of Khejuri -1 block situated at the riparian area of the sea need rainwater harvesting.

Construction of water reservoirs, lock gates at the river estuary at Rasulpur and re-excavation of the Teropekha river are to be taken up to meet the increasing need for irrigation water.

( Khudiram Jana, Krishi Karmadhyaksha )
• The block lacks proper irrigation facilities.
• There is no facility to restore surface water and government has restrained the use of ground water.
• Re-excavation of the canals to reserve sweet water and construction of lock gates to save the water from mixing up with saline water, would be beneficial for many farmers. (Kshudiram Sardar, BDO)
• Re-excavation of the Talpati canal and the HTC canal are needed together with construction of lock gates at the estuary of Bay of Bengal.

(Manas Ranjan Giri, SAE)
Annexure 2.16

Block: KOTULPUR-I
District: Bankura

Date: 09 January 2009. Venue: Kotulpur Panchayet Samity Hall. Total no. of participants :68.

The Stakeholder Consultation Meeting was held at the Kotulpur Panchayet Samity Hall. A total of 68 stakeholders were present in the meeting, including 62 villagers.

Among the officials, Ms. Brijit Suchita Kujur, BDO; Rajarshi Nath, Jt. BDO; Nabakumar Digari, Sabhapati, Panchayet Samiti; Sandip Kr. Layek, AE-AM; Chandan Sarkar, AE-AI, and others were present. Villagers including women from SC/ST and BPL families participated from different villages like Chakra, Sarisha dighi, etc.

Highlights:

- Excessive use of chemicals in cultivation by the farmers.
- Awareness generation programmes among the farmers needed for organic farming.
- Dependence on surface water (from rivers, canals and ponds etc.) to be emphasized and awareness to be generated among villagers, as the area is drought prone. (Nabakumar Deyar, Sabhapati, PS).
- Use of chemical fertilizers to be substituted by organic manures and vermicomposts in cultivation. (Brigitte Suchita Kujur, BDO).
- A very big natural tank that feeds the irrigation needs of 40 acres land and of a large number of villagers, mostly tribals, is silted up and needs dredging. (Ramashok Mukherjee, Pradhan, Kotulpur GP).
- Big ponds like Kotaldighi, Chakradighi, Lakshihar require desiltation to meet the irrigation needs of poor farmers of those localities.
• Rainwater harvesting is to be tried to address the irrigation needs.  
  (Sandip Layek, AE-AM).

• Steady subsidence of ground water table in the block. Use of surface water to be encouraged.  
  (Rajarshi Nath, Jt. BDO).

• Construction of check dam and channelising the water to the fields needed to benefit farmers of four/ five villages.  
  (Mukur Ali, villager, Chakra GP).

• The huge water tank known as Chakradighi needs to be re-excavated and lift pumps installed to provide adequate water for irrigation.

• High rate of surface water evaporation.  
  (Basudeb Ghosh, villager).
Annexure 2.17

Block: KULPI
District: 24 Parganas (S)

Date: 03 November, 2008/ 11 Feb 09  Venue: Kulpi  Panchayet Samiti Hall . Total no. of participants: 68.

The SCM of Kulpi block of South 24 Parganas district was held in the meeting hall of the Panchayet Samity office on 11th February 2009. This was followed by FGD. In all 68 stakeholders were present in the meeting including engineers/officials, namely, Pradip Dey, EE-A-I; Pinaki Datta, Jt. BDO, Manoj Mandal, SAE (WRIDD), Dilip Kumar Mandal, FEO, Labanyamoyee Dalui, Member, Zila Parishad, besides 43 villagers from Chitranagar, Harinkhola, Bhairavinagar, Bhairavitala, etc. Dipali Biswas, Social Worker, was also present at the meeting.

Highlights:

• Excessive use of chemical fertilizers and pesticides are used for cultivation of *boro* paddy and other crops, especially in areas like Darwankhali.

• The excess of chemicals leaches into the soil and also runs off into the nearby canal which is a major source of irrigation water.

  *(Sanwar Hussain Piyada, Lakshminarayanpur)*

• Saline water from Banai river in Tentultala area flows into the canal making cultivation of crops difficult.

• The salinity (as also the pesticide residus) is damaging our crops and killing the fishes.

• A sluice gate has to be constructed to regulate the saline water inflow.

  *(Bhanu Hazra, Village: Chitranagar)*

• Schemes need to be undertaken for storing the water of the canal for irrigation purposes (while drainage has also to occur smoothly) as most channels in South 24 Parganas are drainage channels.

  *(Pradip De, EE-AI)*
• Fishes (like *Shol* and *Punti*) are dying or developing ulcers on their body because of the chemical contamination of surface water from pesticides and fertilizers.

• Water-borne diseases like dysentery is well known, but the incidence of such diseases is coming down with the increasing awareness of people about organic farming and the intervention of a health care NGO.

• Organic fertilizers and pesticides are slowly being introduced with the said NGO as a facilitator in about a dozen villages, but vermicomposts and organics are not quite feasible in case of cultivation on a commercial scale.

         *(Asim Purkait, farmer & Health worker, Sunderban Eye Hospital)*

         ■■
Annexure 2.18

Block: MAL
District: Jalpaiguri


The discussion meeting was held in Dhupguri Panchayet Samiti Hall within the Block with the participation of a total of 41 stakeholders. Among the officials present there were George Lepcha, Joint BDO, Devdatta Dutta, EE-AM, Dist. Coordinator of the Project; and a number of Villagers including a number of women and SC/ST people turned up from villages like Odlabari, Gajoldoba, Rangamati, Teshimla, Kranti hat, Changmari, etc.

Highlights:

Stakeholder Consultation:

- Minor irrigation needs to be further developed in Kumlai, Maulani, Kranti, Chapadanga Gram Panchayats
- We have to protect our forests and wildlife.  
  (George Lepcha, Joint BDO)
- The use of pesticides and chemical fertilizers are surely having an impact on birds and insects. Vultures have disappeared. Also, the pesticide used to kill the Dhubri pest generates strong toxic.  
  (L Roy, Pradhan, Chapadanga GP)
- In Kranti GP, 18 STWs have been lying idle since 1996 awaiting electrification from the nearby supply lines.
- Ponds excavated under NREGS may be used for water conservation for irrigation in dry months.
- Pesticides and insecticides are surely having adverse impact on environment.
- Ground water tables have been depleted.  
  (Panchanan Roy, Member,PS, Kranti GP)
- The use of pesticides like the one to kill the Dogra pest has had adverse impact.

- Also the water of some jhoras get polluted upstream from the use of chemical fertilizers/pesticides or from the factory effluents.  
  (Amirul Haq, Member,PS, Teshimla GP)
- Dirty water from Mal GP flows through our area and causes diseases like jaundice and diarrhea.
  
  (Ms. Jitni Mahali, Janasasthya Karmadhyaksha, Mal PS)
- A DTW at Dakshin Champalani has become non-functional due to choking.
  
  (Sudhangshu Kumar Barui, Moulani GP, Member, Mal PS)
- Flood water in the flood-prone area affects cultivated crop land.
- Elephants often damage the standing crops.
  
  (Basanta Toppo, Bidyut Karmadhyaksha, Bagrakot GP)
- Man-animal conflicts are becoming serious and in many forest-adjoining areas people have been taking recourse to electric fencing to ward off elephants. But no STW has been installed within forest land.
- Polluted run-off from fields poisoning streams and water bodies.
- Excessive use of pesticides and chemical fertilizers have made some local varieties of small fish (koi, tangra, magur) that were substantially available in the local bilis and khals extinct.
  
  (Bahar Ali, Karmadhyaksha, Mal PS, Rajadanga GP)
- Many of the RLIs and tubewells set up earlier are not functioning.
- The high iron content in the water from the old DTWs is adversely affecting crop yields. More new tube wells are needed in the area.
  
  (Bhabesh Roy, Karmadhyaksha, Mal PS, Lataguri GP)
- Rain water harvesting schemes should be introduced in the area.
- Measures to increase the stream capacity of rivers and reinvigorate the RLI schemes need to be undertaken.
- Many of the bilis and ponds like Gilatoli, Debibhasha and many others have dried up or have become shallow. These need to be re-excavated and recharged; and the water can be used for irrigation.
- Schemes should be run by supplied electricity instead of diesel.
  
  (Jogesh Roy, Krishi Karmadhyaksha, Mal PS, Chapadanga GP)
- In the various trainings sessions on IPM conducted by the Department, farmers including women are being made aware to slowly move away from chemical fertilizers towards bio-fertilisers and bio-pesticides.
- Water retention capacity of the sandy/ sandy-loamy soil in the area is very low.
  
  (Nilanjan Dhar, KPS, Rajadanga GP)
- Shallow tube wells are very much needed in Odlabari GP.
- Floods destroy the crops.
  
  (Sarojini Saiba, Member, Mal Block PS)
- Water of the local Andha jhora used for cultivation of the only crop of the area, wheat, is dirty and polluted.
- Outbreak of diseases from pesticides is commonplace.
• Farmers should be made aware about bio-alternatives of pesticides.
• Water from Andha jhora in the Gajaldoba area needs to be channeled through small canals to irrigate land that are further afield.
  (Lajwara Begum, Karmadhyaksha, Shikshsa, Sanskriti, Tathya-o-Krira, Mal PS)
• Some of the blocks of Jalpaiguri are partly hilly and the soil is sandy and so boro cultivation, which needs a lot of water is not feasible.
• Cultivation of vegetable has increased especially in Falakata, Dhupguri and Mainaguri under Jalpaiguri district.
• Digging ponds is not a good option in this region because of the quality of the soil. Most existing ponds dry up before the end of the year.
• Schemes dependent on water storage won’t give desired results.
• Installing STWs encounter problems in some parts because of rock layers very close to the surface.
  (Devdatta Dutta, EE-AM, Dist. Coordinator, ADMI Project)
• In Sailinidhim basti, the crops, especially wheat, are often destroyed by marauding elephant herds.
• A small river called Piparkhola near our dwellings often gets flooded.
• Electricity-driven irrigation schemes needed.
  (Basi Oraon, Member, Mal PS, Rangamati GP)
Annexure 2.19

Block: NABADWIP
District: Nadia

Date: 06 November 2008. Venue: Nabdwip Panchayet Samiti Hall. Total no. of participants: 50.

Stakeholder Consultation Meeting

The meeting was held with the participation of the Swapan Kumar Saha, EE-AI, Surat Kumar Saha, EE-AM, Basudeb Mukherjee, AE-AM, Amit Mukherjee, SAE-AM, Dipti Samaddar, Asstt. Pump Operator, and 45 villagers from Gomaghar.

Highlights:

- *Boro* paddy is widely cultivated apart from two other varieties of paddy. The other important crops are different types of oil seeds including mustard and varieties of *rabi* crops (vegetables).
- Chemical fertilizers are widely and heavily used in cultivation. This has led to declining productivity and increasing cost over the long run. Cow dung is also applied as a supplementary nutrient.
- The bird population and species have decreased substantially. With ever increasing application of chemicals in cultivation, the soil has become ‘heavy’.
- Irrigation water is mainly drawn from the nearby Jalangi river by RLI; but some deep tube wells are also used for irrigation.
- The pipe line of the 37-year old RLI scheme has developed leakages resulting in significant loss of water.
- This calls for immediate repair or, preferably, replacement by new pipes. Another new RLI pump set is required for the existing scheme.
- The problem of soil erosion is prevalent and that pushes the pipes up.
- The water drawn out by Shallow pumps contains significant dose of iron, which often spills over and harms the soil.
- The once thick and extensive green cover of the place has, over the years, become sparse and heavily populated.
• There is a shortage of pump operator. More personnel need to be recruited.
• Diesel-driven pumps have lots of problems, like fluctuating supply and prices, carrying problems, so the remaining diesel driven pumps have to be replaced by electricity-driven ones.
• The local ponds and bils call for urgent re-excavation.
• The farmers have eagerness about the Beneficiary Committee which is apparently running well.

(Bablu Mandal, Alauddin Shekh, Nahar Shekh, Shahinoor bibi, and other villagers).
Annexure 2.20

Block: NITURIA
District: Purulia

Date: 07 November 2008. Venue: Nituria Panchayet Samiti Hall. Total no. of participants: 43

The discussion meeting was held at Nituria Panchayet Samiti Hall with the participation of Hirak Mandal, BDO, Ms. Sarita Turi, Nituria PS, Manas Kumar Das, EE (AI), Rahul Pal AE(AI), S C Bhagat, EE (AI), and others. Besides, 43 villagers from Pakurdanga, Gobag, Majhipara, Churamani, Rampur, etc. did also participate.

Highlights:

Stakeholder Consultation:

- Purulia district has rich environmental diversity with forests and hills. These have to be protected.
- The water bodies get filled up in rainy season but go dry in six months’ time.
- Only a single crop is cultivated in most areas because of water-scarcity
- There are huge areas lying barren which can be used for agriculture with support from minor irrigation schemes. (Hirak Mandal, BDO)

- Many species of migratory birds used to come to the big dighis in this region about 15 to 20 years ago but now they are no more to be seen. (Radhanath Turi, Saha-Sabhapati, PS)
- The substantial amount of rain water received during the monsoon that flows away to adjoining districts (because of the topographical features of Purulia) has to be stored and used for minor irrigation.
- Panchayet may take up appropriate schemes to use Dighis (large water body) and dug wells for rain water harvesting. (Gautam Mondal, Joint BDO)
- Some birds that could be seen before are no more to be found. There is no irrigation scheme in the area and new schemes are needed.
Stakeholder Consultations

- Ponds can be excavated in the wastelands in our area. Small check dams can also be constructed.
- Chemicals are sparingly used in cultivation, mainly for high-yielding varieties of paddy.
- There are no canals or rivers in the block.  
  
  (Sudhakar Karmakar, Villager)

- Two of the four RLI schemes of the block which sourced water from the river Damodar have become defunct as the river has shifted course and also because of theft of irrigation equipments and parts (in case of Parbelia scheme).
- In one of these two areas, the nearby collieries draw the agricultural labourers away by the lure of higher wages.
- A change in cropping pattern is to be encouraged in favour of low-water using crops.  
  
  (S.C. Bhagat, EE, AM)

- A sponge iron factory that has come up near the scheme is attracting villagers with better income opportunities.
- The black dust from the sponge iron factory covers the ponds and cropped fields in the area and poses serious environmental threats.
- Theft of irrigation equipment is a big problem.
- The ground water level goes down substantially in summer and the RLIs cannot serve the farmers.  
  
  (Swapan Kumar Mandal, OCM, Harmadi RLI)

- Two of the seven GPs, Bhamuria and Saltore, have been affected by the pollution from illegal mining activities of the area.
- The Janardani area has been affected by pollution from the local sponge iron factory.
- Flouride has been found in water from tube wells in Saltore and Bhamoria areas.
- Over-use of chemicals in cultivation is killing friendly pests like earthworms and snail-like creatures.  
  
  (Manju Sahish, Member: ZP, Garpanchabot village)

- Agriculture department is providing training on Integrated Pest Management (IPM).
- Use of chemical fertilizers has increased but still not used intensively.
- Farmers are advised to cultivate suka fasal (low water consuming crops) like banana, dal etc.
- Awareness generation programmes are conducted about the need to use organic fertilizers. Some farmers are already using organic alternatives.  
  
  (Anil Sardar, Representative of ADO)
Focus Group Discussion:

- The water of an old canal of the area (described as Rajader Khal) can be stored with check dams and used to irrigate fields on both sides of the canal. *(Manik Bhattacharya, Technical Officer, WRIDD)*
- The water flowing down the Panchakot hill may be stored and used for irrigation subject to technical feasibility. *(Manas Das, EE- AI & District Coordinator )*
- In our SHGs we focus on the use of cowdung (gobar) manure and vermicompost. We do not use chemical fertilizers. *(Shanta Mukherejee, Self Help Group)*
- There is strongly felt need for dug wells to provide irrigation water for the SHG-run farms in Rangadohor village in Janardan GP. *(Shanta Mukherejee, Self Help Group)*
- Sugarcane is cultivated in Arsa-Sirkabad area using only water from dewdrops. Such water-conserving agriculture needs to be popularized.
- In the Hurat-Tangi-Nowada area, a variety of tomato called barsati tomato is cultivated using only rain water.
- Many birds like dachora, shamkal, etc. which used to be beneficial for the soil, are not seen any more. *(Pashupati Kar, SAE-AI, Raghunathpur)*
- Water conservation schemes needed in the area where the dug wells and the ponds, supplying the modest amount of irrigation water for cultivating brinjal, spinach, radish, etc., go dry in late winter and summer. *(Thakurmani Hansda, Villager, Pankurdanga; Srimati Tudu, Villager, Gobak)*
- Pesticides are being used in the area, and many creatures like snails and crabs, and birds like dahuk, hural have disappeared. *(Rebati Hansda, Villager, Gobak)*

Site Visit:
The Jayanti-I scheme under Raghunathpur Agri-Irrigation sub-division in Tiltore mouza serves a command area of 220 acres of kharif crop and 45 acres of rabi crop. Water from the hill catchment area feed the reservoir. A number of local village elders opined that the reservoir helps many farmers who cultivate paddy, wheat and vegetables mostly by organic methods. They would be benefited all the more if the reservoir is excavated and further widened.
Annexure 2.21

Block: PANSKURA
District: Medinipur (E)


The discussion meeting was held at Panskura-I Panchayet Samiti Hall with the participation of the Shaktipada Bhattacharya, Jt. BDO; Bibekananda Mohanty, ADO; Ranjit Kumar Jana, SAE-AI; and others, besides 25 villagers from Barda, Tikarpara, Kalidah, Haur, Raishamda, Sarifabad & Norai, etc. This was followed by Focus Group Discussion.

Highlights:

**Stakeholder Consultation Meeting:**
- Paddy is the main crop of the area but commercial cultivation and export of flower has emerged as a new trend of farming. Potatoes, vegetables etc. are also grown.
- Six of the 14 GPs in the block are flooded every monsoon. *(Shaktipada Bhattacharya, Joint BDO)*
- Dominated by small and marginal farmers, 90 per cent of the area has fertile soil.
- Farmers have successfully started flower cultivation in different GPs of the block.
- High level of fertilizers is being used for cultivation, though they are aware enough,
- Farmers hardly conduct soil test before cultivation.
- Application of organic fertilizers is increasing. *(Vivekananda Mohanty, ADO)*
- Level of ground water has gone down and the deep tube wells do not work properly throughout the year.
- Water conservation tanks or similar projects are needed.
- There is also a problem of poor maintenance of irrigation equipments and accessories (e.g., pipes, sprouts etc.). *(Ranjit Jana, SAE)*
• The canal passing through Rabindranagar GP, should be properly dredged to help the farmers.
• Due to the lack of surface water facilities, farmers of the area were forced to use submersible pumps etc.
  
  (Villager, Rabindranagar GP)
• There are at least 25 RLI schemes on Kangsabati river from Panskura-I up to Bijoynagar.
• Because of siltation of river Kangsabati, water is not retained throughout the year.
• Periodic dredging of the rivers like Kangsabati, Kshirai, etc. could help irrigate thousands of acres of land.
• A large number of private pumps lift ground water indiscriminately and sell the water to the farmers for an arbitrarily high tariff.
  
  (several villagers)
Annexure 2.22

Block: PHANSIDEWA
District: Darjeeling


The SCM was held on 5th December 2008 in the Meeting Hall of Phansidewa Panchayet Samity with the participation of 21 stakeholders including Asim Ray (AE, WRIDD), Nimai babu (Fisheries Extension Officer), Bijon Chatterjee (SAE, WRIDD) and many villagers including Panchayet Pradhans, members of Women’s Development Committee, and others including a number of villagers from Jyotinagar, Thakur para, Hetmuri-Singhijhora, Hatiramjote, etc.

Highlights:

- Surface water should be used abundantly for irrigation.
- Big and mighty rivers like Teesta, Mahananda, etc. frequently change their course.
- They also go dry during the non-monsoon seasons and the rivulets and jhoras go dry.
  
  (Asim Ray, AE, WRIDD).

- Rain water harvesting schemes may be introduced for irrigation
- The development of horticulture and fisheries may be simultaneously taken up on the same plot of land.
- Tube wells and shallow pumps have to be installed in places where perennial surface water sources are scarce.
- Alternate crops compatible with soil characteristics have to be introduced.
  
  (Bijon Chatterjee, SAE, WRIDD).
- The rivers of North Bengal are suitable for culture fisheries and captive fisheries.
• The chemicals used in tea gardens of the district and the block are very harmful for fisheries. Earlier about 200 species could be found in the area, but today most of these have become extinct.  
  (Nimai Barman, FEO).

• A long segment of the Buribalashone also passes by the western border making it difficult to channelise the water by a long canal way. The Pichhla river dries up in seasons other than the monsoon months.

• A large number of ponds have to be excavated for bringing remote areas under irrigation.  
  (Panchayet Pradhan, Phansidewa).

• The Pichhla river needs dredging.

• Not all the RLIs remain operative throughout the year as the rivers go dry in the non-monsoon months.

• Water conservation by a check dam on the Pichhla river and water distribution by canalizing may help irrigate vast areas of the block.

• Pond excavation is another urgent task.  
  (Paritosh Bain, Farmer)

• Dredging of the river beds of all the silted rivers is urgently needed.

• The distribution channels of irrigation schemes are also in bad shape and needs immediate attention.  
  (Renu, member; Mahila Unnayan Samity; Panna Ray, village woman).
Annexure 2.23

Block: **RAMPURHAT-I**  
District: Birbhum

*Date: 20 November 2008. Venue: Rampurhat Panchayat Samity Hall. Total no. of participants: 60.*

The SCM in Rampurhat-I Block was held on 20th November 2008 with a total of 60 participants comprising government officials/engineers like Jagannath Adhikary, ADO; Mrinal Kanti Gangopadhyay, FEO; Utpal Kundu, EE-AI; Snehamoy Datta, EE-AM; a number of SAEs; several Karmadhyakshas, and 42 villagers including a number of women and people from SC/ST categories. Villagers came from Kutubpur, Balia, Harioka, Barshol, Salboni, Narayanpur, Kumadda, etc.

**Highlights:**

- Alarming depletion of water table in eight blocks of the district including Rampurhat-I.
- The trees felled in the vicinity of check dams are hardly replanted.
- Recurrent theft of the parts and components of irrigation equipments a persistent problem.
- Check dams with sluice gates recommended to retain water and reduce siltation.
- Rainwater harvesting is also to be encouraged.  
  *(Utpal Kundu, EE-AI, Bardhaman Divn.)*
- Check dam construction on the kandors (man-made canals) will help retain water for irrigation.  
  *(Rumki Chatterjee, Sabhapati, Rampurhat-I PS).*
- Water retention is a problem because the soil is rocky and downward sloping.
- Downstream siltation of river bed makes it sandy. Productivity of land is low.  
  *(Haradhan Mandal, Farmer).*
- Problem of Arsenic contamination of ground water. Surface water irrigation is recommended.
- Soil erosion is a major problem.
• Chemical fertilizers and pesticides are widely used in agriculture.
• Soil testing is not done.  
(Jagannath Adhikary, ADO).
• Crop selection to be compatible with availability of irrigation water.
• Re-excavation of big kandors and other water bodies needed for fisheries as well  
(Mrinal Kanti Gangopadhyay, FEO)
• Kutcha field channels cause wastage of water from the RLIs.
• River bank erosion is a threat to the RLIs.
• Poor vegetation due to ground water scarcity has caused acute fodder shortage and poor quality of cow milk. 
(Nabakumar Mandal, Farmer).
• Local fish species and a variety of bird species have become rare.  
(Rathum Soren, Farmer).
Annexure 2.24

Block: **RANIBANDH**  
District: Bankura

**Date:** 07 January 2009.  
**Venue:** Ranibandh Panchayet Samity Hall.  
**Total no. of participants:** 70.

AICMED has successfully organized the stakeholders’ consultation meeting of the ADMI project that has been held at the block office of Ranibandh Block, Bankura District on 07.01.09. This was followed by the focus group discussion. In all 70 stakeholders were present in the meeting among whom there were 12 officials/office bearers and 58 villagers. Among the officials Lab Kumar Mandal, Sabhapati, Panchayet Samiti; Sandip Layek, AE-AM; Swarup K. Maity, AE-AI; Krishnendu Das, FEO; and several Karmadhyakshas were present in the meeting. Villagers/Farmers mainly came from Maheshpur, Keshra, Deuli, Khejuria, Jamgeria, Balakhad, Bagdubi, Dhajuri, Khatam, etc.

**Highlights:**

- Underground water is to be substituted with surface water from rivers, canals and ponds, etc.
- Earthworms no longer available as excessive chemicals are used in cultivation. *(Labakumar Mandal, Sabhapati, Ranibandh PS)*.
- Deep tube wells should be installed and farmers should be encouraged for less water consuming (alternative) farming.
- Irrigation facilities are still not available in 135 mouzas of Ranibandh block *(Animesh Kuilya, ADO)*.
- Conservation of surface water and low water consuming alternative farming need to be encouraged among farmers as the block is drought-prone. *(Swarup K Maity, AE-AI)*.
Stakeholder Consultations

- Rainwater harvesting and restoration of surface water in the area needed.  
  *(Sandip Layek, AE (AM)).*

- Surface water reservoirs should also be used for pisiculture and/or horticulture.  
  *(Krishanu Das, FEO)*

- Check dams to be built up to conserve surface water.  
  *(Raimani Murmu, villager).*

- Only one crop a year is produced in the village as there is no river, nor any facility for water conservation.  
  *(Sarala Murmu, villager, Viteburi).*

- Installation of deep tube wells, wells etc need to be installed.  
  *(Ramani Sardar, villager, Dhajuri).*

- Concrete field channels, canals and drainage facilities needed to cultivate around 100-150 bighas of land twice a year.  
  *(Bibhuti Mahato, Sabhapati, Krishak Sabha).*

- For better irrigation more check dams (besides the existing one) are needed in the acute water-scarce area.  
  *(Sutapa Singh Sardar & other villagers from Jamgeria, Khejuria, Khatam, etc )
Annexure 2.25

Block : RATUA-II
District : Maldah

Date: 18December 2008. Venue: Ratua-II Panchayet Samiti Hall. Total no. of participants: 80.

Stakeholder Consultation Meeting

The meeting was held on 18th December 2008 in the Meeting Room of the Panchayet Samiti of Ratua-II block in the presence of Anup Kumar Roy, BDO; Sumit Kumar Panja, ADO; Subrata Karmakar, Sabhapati, Ratua-II PS, Jayanta Kumar das, SAE-AI; Sarat Chandra Paul, AO, Ratua-II, Pijush Kr. Sarkar, KPS and a number of farmers/villagers from Satmara, Sripur-I & II, Harirampur, Balughat, etc.

Highlights:

- Ground water in Ratua-II Block is already affected by Arsenic contamination.
- Emphasis is to be given on the use of surface water rather than ground water for irrigation purposes.
- A large number of small ponds are to be excavated for conserving natural water for subsequent use in irrigation. (Anup Kumar Roy, BDO).
- No irrigation facility in the Kharbari, Dhamria, Satmara Gram Panchayets.
- Farmers have to buy irrigation water for cultivation from private shallow tube wells.
- Soil fertility has been declining because of regular heavy use of chemical fertilizers in cultivation. (Sk. Jamir, Upa-Pradhan, Pukhuria GP).
- Crop rotation can lead to an economic use of water in cultivation. Pesticides have to be judiciously used so that friendly insects are not withered away.
  - Use of bio-fertilisers has to be increased reducing the use of chemical fertilizers in agriculture. (Md. Nazir Hossain, KPS, Pukhuria).
• Private ponds or tanks belonging to the village commons should be re-excavated for conserving natural water.

• The water of the rivers Kalindi and Mahananda, has to be captured (when they have enough of water) and conserved by erecting sluice gates on them for use throughout the year.

  (Ramkamal Mandal, OCM, Ratua-II)

• The rivers and other water bodies go dry during the non-monsoon seasons.

• The Mora Mahananda (dead Mahananda) river has to be dredged and the bridge above the river has to be raised by 2/3 ft. to increase the water storage capacity of the rivers.

• Recurrent theft of the pumps is a major problem that needs to be addressed.

• The electricity-driven RLI on the Mahananda has been stolen by some unidentified person(s) and made defunct.

• The farmers have to be induced to use more and more organic fertilizers.

  (Sasthicharan Sinha, Retd. Staff, WRIDD)

• Both Ratua-I and Ratua-II blocks are Arsenic affected. The Arsenic mission has already eight projects to address the problem. But Arsenic contamination is increasing because of excessive use of ground water.

  (Deepak Mishra, AE-PHE).

• The electricity-driven RLIs on the river Mora Kalindi (dead Kalindi became defunct; only two of these have become operational. More RLIs and pump sets are required.

  (Sukumar Chandra Mandal, Villager/Farmer).

• The diesel-run shallow tube wells cause environmental pollution.

• A number of bird species are already threatened. Some (like the kite and the vulture) can hardly be found.

• The farmers do not get sufficient water from the old diesel-run generators which should be converted to electricity-run pump sets.

  (Minu Sheikh, Village woman, Village Satmara).
Annexure 2.26

Block: SAGARDIGHI  
District: Murshidabad


Stakeholder Consultation Meeting

The SCM was held in the meeting hall of the Panchayat Samity under the Sagardighi Block of Murshidabad district on 23 October 2008.

The participants of the meeting included Mohammad Motin, BDO, Abdul Hadi, Chairman of the Sagardighi Panchayat Samiti, Ekkari Sarkar, AEO, Nazimuddin Biswas, Krishi Prajukti Sahayak (KPS), Tapan Kr. Mukhopadhyay, SE-AM, Subrata Sen, EE-AM, and 45 villagers/farmers from Boyar, Diyara, Parulia, Sagardighi, etc.

Highlights:

- The southern part of Sagardighi is prone to erosion of river banks making cultivation difficult.
- There are very few wetlands in the area.
- Surface water irrigation is to be emphasized. (BDO, Sagardighi Block).
- Cultivation with surface water will help maintain ground water level.
- The nullahs and canals of the area have to be re-excavated. (Md. Raisuddin, Villager).
- A number of canals (no. 17, 17/1,17/2) have become dead canals and needs to be excavated.
- A large part of the Maneshwar area is deprived of irrigation facility. Re-excavation of the local water body, Sheikh Dighi, could be a solution. Check dams on the kandors may help conserve the water. (Abdul Hadi, Sabhapati, Panchayet Samity).
- Crop diversification according to soil character is needed required. (Ekkari Sarkar, AEO).
Crop rotation may reduce the need for irrigation water. The dead canals of Sagardighi block (Canal no. 17, 17/1, etc) need to be re-excavated.

The *bils* (wetlands) Damos, Uplai, etc., if re-excavated, can store a lot of water. With a check dam on the *Uplai bil*, quite a few hectares of land can be irrigated. (Nazimuddin Biswas, KPS).

A lot of (irrigation) water can be provided if the canals and wetlands are re-excavated and check dams are constructed on them.

Arrangements are to be made for capturing and storing the excess flood water. (Nirmal Das, villager/farmer).

Excessive ground water extraction by deep tube wells and submersibles is posing serious threat to the environment.

The canals of the area and the local Babla river have to be re-excavated. (Musharraf Hossain, Villager/Farmer).

A lot of water is wasted in raising water for irrigation by using submersible pumps.

Unregulated and excessive water (sold at arbitrarily fixed extremely high prices) extracted by private STWs is responsible for lower water availability from the government.

The old RLIs and tube wells installed in the past need to be repaired and maintained.

Both water level and environment are adversely affected because of the widespread cultivation of *boro* paddy which consumes water as well as chemical fertilizer excessively. (Jayanta kumar Das, Villager/Farmer).

The big tanks and ponds are leased out for pisciculture, depriving the poor farmers of the much needed irrigation water. (Nazma bibi, Villager).

Excessive use of chemical fertilizers and pesticides, particularly in vegetable cultivation, has been seriously harming the environment.

Insects like earthworms and gnats have become almost extinct. Birds and fish species are getting decimated because of the pollution of soil and water by the Urea and Phosphate used in cultivation. (Hasibur Mullik, Villager/Farmer).

Alternate irrigation schemes like Sprinkler Irrigation and Drip Irrigation should be introduced for low water consuming crops like oil seeds and *Rabi* crops. (Manas Pal, AE-AM).
Annexure 2.27

Block: SITAI
District: Cooch Behar


The SCM in Sitai Block was held on 4th December 2008 with a total of 31 participants comprising government officials like Ashwini Kr. Roy, BDO; Dhananjan Ray, Sabhapati, Sitai PS., Satyajit Biswas, Jt. BDO, engineers like Arvind Kr. Pandey, EE-AM, Ramesh Ch. Ray, SAE-AI, and villagers including a number of women from villages like Petla Adabari, Chamta, etc.

Highlights:

- The Giridhari river has water throughout the year but has changed course over the years.
- A deep tube well can be set up.  
  (Narayan Das, OCM, Atharojani village)
- Chemical fertilizer and some cowdung as fertilizer. These chemicals do end up in the river water and are carried to other areas.
- Fish develop disease and die because of toxic (pesticides) run-off into the agricultural fields.
- Now we depend on private shallow tube wells as an additional source of income.  
  (Babar Ali Mian, villager).
- The RLI is old and needs repair. The power cables run thendranath rough the area; so the RLI can, and should, be electrified.  
  (Nripendranath Ray Sarkar, Gram Pradhan, Chamta GP).
- Chemical fertilizers and pesticides are used to cultivate tobacco, boro paddy etc.
- The villagers will be benefited if a deep tubewell is set up  
  (Nabab Ali and Mosidul, Atharojani village).
- Many spouts are not working and villagers were not getting irrigation water.
- A deep tube well needs to be installed to address the irrigation needs of the villagers.
The KPS people do not come to the village to discuss the problems faced by the villagers. *(Abdul Hakim and other villagers)*

Forming beneficiary committees to run tube wells may be difficult because of internal conflict. *(Abdul Hamid and Nabab Ali, villagers).*

- Vultures and jackals are rarely found these days.
- Chemicals are being over-used in agriculture.
- We should also tap our traditional knowledge in our agriculture. *(Arvind Pande, EE-AI).*

- About 80 per cent of the farmers of the block arrange their own irrigation privately.
- Excessive use of chemical fertilizers is poisoning underground water reserves.
- Vermicompost is practiced in some areas; This is being promoted through self-help groups. More than 90 per cent women of this block belong to SHGs.
- The soil here has low water-retention capacity.
- The shifting courses of the rivers of the area are a problem.
- Deep tube wells (200-250 feet) should be installed.
- The KPS personnel have not been proactive in addressing the problems of the farmers. *(Ashwini Kumar Roy, BDO)*
- Multi-departmental approach of ADMI project will be beneficial.
- Chemical fertilizers and pesticides are used irrationally and in excess.
- Fish are also dying and getting diseased.
- Birds and beasts are getting affected. Vultures and kites are no more to be seen.
- Stomach-related diseases are on the rise.
- Friendly pests like earthworms are dying from over-use of chemicals in agriculture.
- The KPS personnel are not doing their duty so farmers remain ill-informed.
- Soil-testing is not done at all. *(Kalu Patwari, Janaswastha Karmadhyaksha).*
Stakeholder Consultations

- Chemical fertilizers are harming our health but how to stop their use.
- Indigenous technologies like bamboo shallow tubewells can be used by us if a bamboo plantation is made here.
- Cooperative system for running handed over schemes is failing.
- There should be ways to shift the RLI machine when the river changes course.
- There are some ponds also in the area which can be re-excavated.
- The electric supply and animal husbandry departments here are not working well.

(Sarat Chandra Burman, Pradhan, Sitai-I GP).
Annexure 2.28

Block: TUFANGANJ-II
District: Coochbehar

Date: 03 December 2008. Venue: Tufanganj-II Panchayet Samiti Hall. Total no. of participants: 50.

The discussion meeting was held at Panchayet Samiti Hall with the participation of 50 stakeholders.

The participants included Atul Barman, Saha-Sabhapati, Panchayet Samity; Sushil Chandra Barman, AO; a number of Karmadhyakshas of Panchayet Samiti, namely, Mamata Bibi and Ranjita Barman. Besides, Arvind Kr. Pandey, EE-AM, WRIDD; Ashok Das, SAE; Subrata Chattoraj, Surveyor, and others were also present. A total of 35 villagers from Chhoto Laukuthi, Nakarkhana, Langalgram, Barkodali, etc. took part in the meeting.

**Highlights:**

**Stakeholder Consultation Meeting:**

- Excess iron in water is a problem in the region.
- Excessive use of pesticides in agriculture has made vultures and jackals near-extinct.
- Chemicals are being used in agriculture.
- Use of bio-alternatives like Neem (as pesticides) and vermicompost (as manure) have to be encouraged.
- Our traditional knowledge of farming practices should be tapped.
- Sprinkler irrigation or drip irrigation, which needs much less water, should be encouraged wherever appropriate.
- An integrated approach for agriculture and irrigation is needed for ensuring a better environment-friendly delivery.
- Many of the RLIs of the district have grown old; they need to be refurbished and modernized.

  *(Arvind Pandey, Executive Engineer)*

- Fertility of land is declining because of overuse of chemicals.
- Farmers should focus on bio-alternatives like vermicompost.

  *(Atul Babu, Saha-Sabhapati, Tufanganj Panchayet Samity)*
Stakeholder Consultations

- Chemical fertilisers are being used in excess.
- Supply of organic fertilizers is inadequate and the methods of their application are also changing.
- INM should be practised on a wide scale by the farmers.
- Local fish species like sati, puti, etc., are now rarely found; the available species are also getting diseased and dying from the toxic chemicals run-off.
  
  *(Yogesh Chandra Roy, Banabhumi Karmadhyaksha,PS)*.

- Spout lids and section pipes are repeatedly stolen.
- The service of the caretaker of the pumps is harnessed to perform extraneous activities at the cost of his scheduled official duties.
- No Integrated Pest Management (IPM) training has been given to the villagers.
- In a *bil* within the block the fish are dying in droves as the chemicals from agriculture mingle with the water.
  
  *(Sunil Chandra Dey Sarkar, Nagarkhana village)*.

- Irregular supply of diesel for the Begarkhata RLI.
- Operators often called up for other official duties during their own duty hours.
- Spout caps of pumps often go missing.
  
  *(Prasanta Das, Begarkhata village)*.

- Problem of irregular diesel supply for the RLI disrupts the required fuel supply for the water-intensive *boro* paddy cultivation.
- Poor maintenance of RLI; one machine lying out of service for long. Pipelines should be repaired and new ones installed.
  
  *(Gunadhar Burman, Villager)*

- Seventy five per cent of the land has low water-retention capacity.
- Restriction on diesel supply should be in accordance with the nature of land and the crop to be irrigated.
- Need for close collaboration between Minor irrigation and Agriculture departments for advising farmers about crop selection.
  
  *(Ganesh Chandra Chakraborty, SAE, A-M)*

- Mosquitoes breed in the fields where *boro* paddy is cultivated; this gives rise to diseases like malaria.
- Overuse of chemical fertilizers is affecting villagers’ health land fertility resulting in decrease in production.
- Some bird species like vulture and creatures like earthworm have become rare in the area. Fishes like *koi, singi, magur* are all threatened.
  
  *(Ranjita Burman, Shiksha Karmadhyaksha)*.
• Excess iron in water is responsible for some diseases in the area. Birds like parrot, *chandana* etc used to be common here but we don’t see these any more.  
  
  *(Mamata Bibi, Sishu- Kalyan Karmadhyaksha).*

• Use of chemical fertilizers has seriously affected soil fertility. Use of Fudon (pesticide) has killed all earthworms of the area.  
• Further training and awareness about bio-fertilisers among villagers is needed.  
• The diesel-driven pumps already in use need to be replaced by electricity-driven pumps, as the adjacent areas are already electrified.  
  
  *(Anwar Ali, Salbari-I).*

• Theft of electricity supply equipments has recently made a pump inoperative.  
• The pipelines of the old RLIs are falling apart and need to be replaced.  
• Irrational and excessive use of chemicals in agriculture is killing the fish in the rivers because of polluted run-off.  
  
  *(Brindaban Bhakat, Haripur RLI).*

• The field channels from the RLI should be brick-built.  
• The old pipes are often springing leaks and should be replaced.  
  
  *(Kanai Burman, Barokodali RLI).*

**Focus Group Discussion:**  
• There is a felt need to repair pipelines and improve communication between farmer and department.  
• River bank erosion is a problem  
• Schemes to increase stream capacity would be useful.  
  
  *(Bimal De, OCM of RLI Centre, Minor Irrigation Dept).*  
• Awareness has to be increased to prevent theft of electrical and other fittings of irrigation schemes.  
• Awareness to be generated about organically grown vegetables.  
• Water can be brought from the Raidak river by a canal for irrigating the fields of Maheshkuchi-I and II areas which are water-starved.  
  
  *(Azad Ali, Bidyut Karmadhyaksha, Tufangunj-II PS).*
Stakeholder Consultations

- If a major RLI can be installed on the Raidak river then a large area (about 1000 acres) can be irrigated.
- Siltation of the river bed and decreased stream capacity is affecting our RLI.
- A scheme to desilt or create small dams to store water during the rainy season may be effective there.
  
  *(Brindaban Bhakat, Haripur RLI)*

- The river stream is shifting away from the suction point of the RLI.
- Re-excavation of the river bed is necessary to increase the stream capacity of the river.
  
  *(Harendranath Burma, OCM, Begarkhata RLI)*

- The rivers here have a tendency to change course because of natural topographical reasons. Because of this many of our RLI schemes suffer.
- In some electricity-run schemes the electricity posts are getting affected by erosion.
  
  *(Subrata Chattoraj, AE-AM)*
Annexure 2.29

Block : ULUBERIA  
District : Howrah

Date: 19th March.  Venue: Uluberia Panchayet Samiti Hall.  Total no. of participants: 44.

The discussion meeting was held at the Uluberia Panchayet Samiti Hall with the participation of 44 stakeholders.

The SCM of Uluberia Block of Howrah district was held in the meeting hall of the Panchayet Samity office. This was followed by FGD. In all 44 stakeholders were present in the meeting including 31 villagers.

Among the officials/engineers present were Sk. Md. Nasiruddin, Sabhapati, Panchayat Samity, Ms. Mita Ray, Saha-Sabhapati, Panchayat Samity, Binay Bhattacharya, AE (A-I), Anup Kumar Gurey, ADO, Pritiranjan Basu, Krishi Karmadhakshya, and Sk. Samsuddoha, Purta-Karmadhakshya, and Binay Bhattacharya, AE-AI, Shyamal Bhowmik, FEO, and others. Villagers participated from different villages, namely, Athilapara, Gadaipur, Kalinagar, and Barberia, etc.

Highlights:

- Mainly RLIs are used as the minor irrigation from the canals of Hooghly River.
- Farmers have no water scarcity as such.
- Symptoms of environmental degradations are being observed in very many ways. For sustainability, more minor irrigation schemes should be developed in a sustainable way.
- The 100-day work scheme may be used to support the labour force if needed, to develop minor irrigation schemes.
  
  (Sk. Md. Nasiruddin, Sabhapati, Panchayat Samit)

- Agriculture is becoming more and more non-profitable business everyday because of increasing cost and increasing use of chemical fertilizers etc.
Due to ignorance, farmers use chemical inputs indiscriminately.

Farmers should go for production of those items which needs less water.  
(Anup Kumar Gurey, ADO)

The underground water recharges has its root in Nadia, Bardhaman etc districts and due to excessive chemical use on land of those districts have also polluted the underground water of this area.

Substitution of the chemicals for organic fertilizers is most important.

To generate awareness among the people is the need of the hour.

More KPS and other support are needed for better development.  
(Dipesh Ranjan Roy, KPS)

Stakeholders are observing the negative sides of excessive use of chemicals

Less of birds like vultures are being seen.

(Gadadhar Biswas, farmer, Kalinagar)

Several farmers have started flower production etc. but with limited support from the government.  
(Several villagers from different villages).