

Observation report for environmental, social and health safety compliance of three Solar Irrigation Project (Operational)

Background:

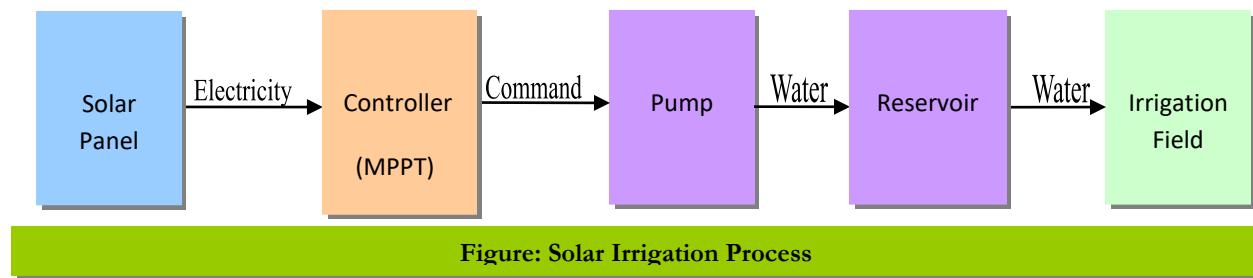
Infrastructure Development Company Limited (IDCOL) need to monitor the environmental, health and social compliances for the operational solar irrigation projects (financed by IDCOL). For that reason personnel of IDCOL have inspected three projects based at Kalupara Union, Rangpur district.

GAZI Renewable Energy Limited (GREL) installed three solar irrigation pumps in different project area at Village: MondolPara, Gutirdanga, SarkarPara, Union: KaluPara, Rangpur district under IDCOL's finance. GREL's vision is to provide safe-water into the irrigation land, where three or four crops are cultivated throughout the year. Presently, the three project covered 2,785 Decimal (84.4 Bigha), 2,928 Decimal (89 Bigha) and 2,460 Decimal (75 Bigha) out of 2,805, 2,673 & 2,772 Decimal of irrigation land to cover 70, 64 and 58 farmers respectively.

Technical Description:

Solar PV technology: Solar PV modules are used for producing electricity from sunlight. Electricity is produced when solar modules are exposed to sunlight. 60 units of PV modules of 250 Wp each have been used in 3 locations at GREL-1 projects site.

Pumping Technology: Electricity from solar module is used for the operation of the pump. By using pump water will be stored in a heading tank for a time being afterwards, water will be supplied to the adjacent land for agricultural purpose.

Steps Involved:**Alternate Usage:**

The pump controllers will have a provision for alternate usage, mainly rice husking at all the sites. This will allow the sponsor to utilize the idle electricity of the system to be used at loads similar to that of the pumping motor. The husking machines will be operated only during idle hours of the pumps and hence, there is no competing use of pumps and the husking machine.

Monitoring Methodology:

The observation report been followed the field primary data, visual scenario (environmental, health and social issues) and group discussions with the farmers in the project areas.

Observation:

No issues have been observed in the surrounding (forests, wetlands, creeks, streams, undeveloped areas, residential areas, industrial areas, environmentally sensitive areas) environments of the three project areas. Farmers of the project areas are using water for irrigation purpose in their traditional manner to cultivate crops. There was no depletion of underground water table in the project areas have been observed during the year of cultivation. Arsenic (As), pH and Total Dissolved Solid (TDS) was tested in each project sites, which was found within limit. Also, there was no major health and safety concern observed in the project areas during the field visit.

No issues of resettlement in implementation of the projects were observed during the visit of the field areas. From the indigenous people's perspective- the site has no impact as no occupancy of indigenous people has been recorded.

Overview of the Project area:

Query's Of the Projects	Remarks		
<i>Project area:</i>	Mondolpara (Union:Kalupara)	Gutirdanga (Union:Kalupara)	Sarkarpara (Union:Kalupara)
<i>Source of water-</i>	Ground water	Ground water	Ground water
<i>Areas (decimal) to be covered under irrigation</i>	2,785 Decimal	2,928 Decimal	2,460 Decimal
<i>Capacity of PV panel (Wp)</i>	15 kWp	15 kWp	15 kWp
<i>Maximum yield of pump (L/day)</i>	110,0000 L/day (On an average)	110,0000 L/day (On an average)	110,0000 L/day (On an average)
<i>Size storage of head tanker (Length, breath and height in m) Height:</i>	2000 L GAZI Tank	2000 L GAZI Tank	2000 L GAZI Tank
<i>Maximum volume of water (L/day) required in a given period of time in dry season.</i>	110,0000 L/day (On an average)	110,0000 L/day (On an average)	110,0000 L/day (On an average)

Environmental Compliances:

Project area:	Mondolpara			Gutirdanga			Sarkarpara		
Queries Of the Projects	Y E S √	N O ×	Remarks	Y E S √	N O ×	Remarks	Y E S √	N O ×	Remarks
<i>Lowest ground water table in the locality during dry period Or What is the depth of the pipe used for the extraction water</i>			Lowest ground water table in the locality given by the LGED: 13 feet. Also measured by the sponsors and IDCOL appointed personnel.			Lowest ground water table in the locality given by the LGED: 10 feet. Also measured by the sponsors and IDCOL appointed personnel.			Lowest ground water table in the locality given by the LGED: 10 feet. Also measured by the sponsors and IDCOL appointed personnel.

Availability (Flow in L/day or water depth) of ground water source during dry season			27 feet have been observed by the sponsor			27 feet have been observed by the sponsor			27 feet have been observed by the sponsor
Surrounding environment: Indication of presence of forest, wetlands, creeks, streams, undeveloped areas, residential areas, industrial areas, environmentally sensitive areas, recognized or protected area etc. within 200m periphery of the project command area:		×	No issue has been observed		×	No issue has been observed		×	No issue has been observed
Is there any future possibility to use the irrigation water for drinking purposes of the local community?		×	Some of the farmers were found drinking water from the pump during the cultivation time. Note: Water was tested by IDCOL personnel, arsenic was found less than 50 ppb.		×	Some of the farmers were found drinking water from the pump during the cultivation time. Note: Water was tested by IDCOL personnel, arsenic was found less than 50 ppb.		×	Some of the farmers were found drinking water from the pump during the cultivation time. Note: Water was tested by IDCOL personnel, arsenic was found less than 50 ppb.
Crop cultivation practice in the project area:			Three or four crops are cultivated in the project area during the year			Three or four crops are cultivated in the project area during the year			Three or four crops are cultivated in the project area during the year
Does the project fulfill water requirement for the cultivated fields? [If “No” explain]	√		According to farmers- water requirement have fulfilled by the project	√		According to farmers- water requirement have fulfilled by the project	√		According to farmers- water requirement have fulfilled by the project

Environmental Health and Safety Issues:

Project area:	Mondolpara			Gutirdanga			Sarkarpara				
										Mitigation Measures	Follow up actions
Queries Of the Projects	Y E S √	N O ×	Remarks	Y E S √	N O ×	Remarks	Y E S √	N O ×	Remarks		
<i>Does the project create any health & safety issues for the villagers?</i>		×			×			×			
<i>Is there any future possibility to use the irrigation water for drinking purposes of the local community?</i>		×	Some of the farmers were found to drink water from the pump.		×	Some of the farmers were found to drink water from the pump.		×	Some of the farmers were found to drink water from the pump.	Water was tested by IDCOL personnel, arsenic was found less than 50 ppb.	<i>Please see pictures as evidence.</i>
<i>Does the water quality of the source meet the national standard?</i>	√			√			√			Water was tested by IDCOL personnel, arsenic was found less than 50 ppb. pH was in limit standard.	<i>Please see the pictures as evidence</i>
<i>Does the project create any significant negative effects on surrounding water, air or noise quality?</i>		×	Withdrawn water was used for cultivation purpose. There was no negative effects observed on surrounding water, air or noise quality.		×	Withdrawn water was used for cultivation purpose. There was no negative effects observed on surrounding water, air or noise quality.		×	Withdrawn water was used for cultivation purpose. There was no negative effects observed on surrounding water, air or noise quality.		

Social Compliances:

Project area:	Mondolpara			Gutirdanga			Sarkarpara				
										Mitigation measure	Follow up action
Queries Of the Projects	Y E S √	N O ×	Remarks	Y E S √	N O ×	Remarks	Y E S √	N O ×	Remarks		
Does the project, comply with the proposed water supply within the irrigation fields?	√		Sufficient water have been supplied to the required field (even during the dry season)	√		Sufficient water have been supplied to the required field (even during the dry season)	√		Sufficient water have been supplied to the required field (even during the dry season)		
Does the project, comply with the committed charge	√			√			√				
Any existence of hidden charges [If yes explain]		×			×			×			
Is there any documented process of collecting charges?	√			√			√				
Does the fees collection process is acceptable or not? [If not please explain]	√			√			√				
Will the communities require awareness or training program on proper use and maintenance of water management? [If “Yes” – please explain]	√		Sufficient training & awareness program (irrigation water management & utilization of electricity) has been organized by the sponsor and from IDCOL.	√		Sufficient training & awareness program (irrigation water management & utilization of electricity) has been organized by the sponsor and from IDCOL.	√		Sufficient training & awareness program (irrigation water management & utilization of electricity) has been organized by the sponsor and from IDCOL.		

Does the operator require awareness or training program on proper use and maintenance of water management? [If “Yes” – please explain]		×	Sufficient training & awareness program (irrigation water management & utilization of electricity) has been organized by the sponsor.		×	Sufficient training & awareness program (irrigation water management & utilization of electricity) has been organized by the sponsor.		×	Sufficient training & awareness program (irrigation water management & utilization of electricity) has been organized by the sponsor.		
--	--	---	---	--	---	---	--	---	---	--	--

Gender Compliances:

Project area:	Mondolpara			Gutirdanga			Sarkarpara		
	Y	N	Remarks	Y	N	Remarks	Y	N	Remarks
	E	O		E	O		E	O	
	S			S			S		
	√	×		√	×		√	×	
Does the project create improved quality of livelihood for the respective families?	√			√			√		
Whether the project is useful to solve the uncertainty of water during the irrigation time?	√			√			√		
Any valuable comments to improve the project? [While monitoring the project, personnel of IDCOL are consulted with a numbers of stakeholders. Some of their suggestions/comments seem to be noteworthy]			➤ If the weather is cloudy – then the solar pump is being stopped, which creates problem for the respective farmers ➤ Saves money in comparison to diesel based shallow pump.			➤ If the weather is cloudy – then the solar pump is being stopped, which creates problem for the respective farmers ➤ Saves money in comparison to diesel based shallow pump.			➤ If the weather is cloudy – then the solar pump is being stopped, which creates problem for the respective farmers ➤ Saves money in comparison to diesel based shallow pump.

Annex-1

Project Name: Mondolpara, Union: Kalupara, Badarganj, Rangpur. Implemented by GAZI Renewable Energy Limited (GREL)



Figure 1: Operational mode



Figure 2: Arsenic test



Figure 3: Water channeled into the agricultural field



Figure 4: FGD with farmers.

Annex-2

Project Name: Gutirdanga, Union: Kalupara, Badarganj, Rangpur. Implemented by **GAZI Renewable Energy Limited (GREL)**



Figure 1: Project area with Solar panel



Figure 2: Agricultural field at the project area



Figure 3: Water Channeled into the agricultural field



Figure 4: water served into the vegetable field

Annex-3

Project Name: Sarkarpara, Union: Kalupara, Badarganj, Rangpur. Implemented by **GAZI Renewable Energy Limited (GREL)**



Figure 1: Project view



Figure 2: Tank header



Figure 3: FGD with Farmers



Figure 4: Arsenic test

