Mid-Term Impact Evaluation Report for

Adaptation Fund supported Project

"Enhancing Adaptive Capacity and Increasing Resilience of Small and Marginal Farmers in Puruliaand Bankura Districts of West Bengal"

Implementing Country: INDIA

Implementing Entity: NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT (NABARD)

Executing Entity: Development Research Communication and Services Centre (DRCSC)

Period of Assessment: 2016/17 – 2018/19

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Some of the popular interventions, nutrition garden and farm pond, under the project

Mid-Term Evaluation Report for Adaptation Fund Project *"Enhancing AdaptiveCapacity and Increasing Resilience of Small and Marginal Farmers in Purulia and Bankura Districts of West Bengal"*

Executive Summary

The Adaptation Fund funded project ***"Enhancing Adaptive Capacity and Increasing Resilience of Small and Marginal Farmers in Purulia and Bankura Districts of West Bengal"*** was implemented in Purulia and Bankura districts of the state of West Bengal, a sub-humid climatic region with Red and Lateritic soil. This project was specifically designed for such an agro-climatic zone and implemented by National Bank for Agriculture and Rural Development (NABARD) and executed by Development Research Communication and Services Centre (DRCSC), Kolkata. NABARD regional office including the district development offices and various departments of the state government including the block and panchayat level administration were the other stakeholders of the project. The project aimed at strengthening the capacity of small and marginal farmers of the region to adapt to climate change by helping them to build resilient livelihoods. Nearly 40 villages from Sonathali Gram Panchayat of Kashipur block of Purulia district and Ghosergram and Jhunika gram panchayats of Chhatna block Bankura district, which are representative of the red and lateritic soil and semi-arid region of West Bengal, had the interventions (Figure 1 below). The intervention sites were closely located and in total, 5000 households, who belonged to socially marginalized classes, were small and marginal farming communities dependent on natural resources for livelihood and below the

poverty line, were the project beneficiaries. The project implementation started from May 2015 and the mid-term evaluation was done during 4th to 6th of February 2020.

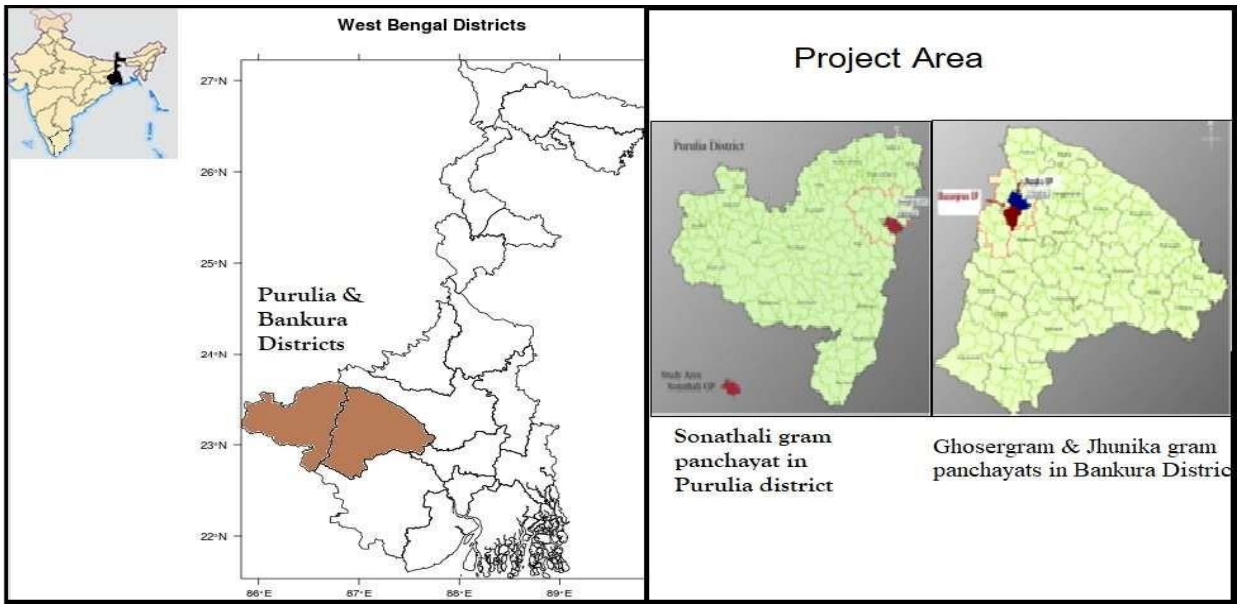

Figure 1: Project Area in Bankura and Purulia districts of West Bengal

Objectives and Interventions of the project

Goal:

The primary goal of the project was to develop climate adaptive and resilient livelihood systems for the 5000 small and marginal farmers associated with agriculture and allied sector through diversification, technology adoption and natural resource management. As mentioned before the interventions were specific to the Red and Lateritic Zone of the state.

Expected outcome:

- Communities adopt land and water use master plans with the help of Panchayats through better understanding of climate change related impact.
- Farmers are better prepared for climate resilient agriculture and wastelands development.
- Livelihoods are less vulnerable to climate change and have higher levels of productivity.
- Upscaling the activities to improve climate resilience in other red and lateritic zones through publication of detailed materials on processes and techniques.

Interventions/Activities:

- Land & Water use master plans prepared at the gram panchayat level
- Installation and broadcast of timely and appropriate weather specific crop/agro-advisory services in local language (Bengali)
  - -- Installing Automated Weather stations at 6 locations,
  - --12 manual data collection centres
  - -- Preparing 5 days crop-weather advisories.
  - -- Development of Climate Resource Centre and

-- 40 weather Kiosks managed by climate volunteers

- *Climate resilient technology transfer for enhancing the adaptive capacity*

-- Sustainable soil and water conservation measures (e.g. semi-circular bunds, check dams, gully plugs, infiltration ditches and agro forestry plantations);
-- Multilevel cropping systems & integrated farming practices (drought tolerant field crops, fast growing & multipurpose perennials and small livestock);
-- Village level disaster-coping mechanisms like community grain banks, local crop & trees seed banks, fodder banks developed;
-- Promotion of climate resilient technologies like energy efficient cook stoves, bio-gas, low cost water filters and community based drinking water facilities

- *Learning and Knowledge Management*

--Production of technical and financial data
-- Production of short films, dedicated website and other printed materials
--Advocacy with National / State / Local Government and others like NGOs, CBOs, International organizations, climate activists/experts on processes and practices adopted under the project

Objectives of evaluation

This evaluation was undertaken for a mid-term assessment of the following points:

- Initial outputs and results of the project
- Quality of implementation
- Financial management
- Risk management
- Assumptions made during the preparation stage, particular objectives and agreed upon indicators and current status
- Factors affecting the achievement of objectives;
- M & E systems and their implementation
- Important learning
- Present status of documentation
- Suggestions for mid-course correction/improvements

Methodology of Evaluation

Evaluation was done following a qualitative approach to assess the project status and the beneficiaries' perception of the project. The following activities were undertaken:

- Focus Group Discussions (multiple),

- Physical checking of project interventions inside the villages and verifying the suitability and benefits derived from the interventions from the opinions of the beneficiary households,
- Field verification of Interventions like farm bunds, farm ponds, check dam repair, agro-meteorological advisory stations, lift irrigation, seed banks, etc.
- Visit to vegetable gardens, aquaculture sites, cow sheds, goat sheds, etc.
- Examination of Project documents and data registers,
- Verification of the assessment tables prepared by DRCSC as assigned to them

The multiple focus group discussions and the visit details are described later in the document. The objectives were discussed with the beneficiaries, project partners, implementers and also with non-beneficiaries (neighbors, researchers working in the project area, etc.). Multiple visits were undertaken to different project sites and multiple focus group discussions were organized to know beneficiaries knowledge, gains and losses (if any) and their perception regarding what more needs to be done or should have been done differently and whether they are going to continue with the interventions introduced under the project after the completion of the project period and withdrawal of the implementing/executing agencies.

Main findings

The extensive field visit and interaction with villagers and government officers provided good evidence that the project is going well and helping people to reduce the stress from weather shocks. Opinion of people in different meetings indicated their appreciation and acceptance of the project activities. Government officers of agriculture department of Purulia district and block development officer of Chhatna block, Bankura district showed their keenness to extent the project activities in the future, which is an indicator of the project success. In every village level meeting, the beneficiary households and village development committee members participated with lots of enthusiasm and looked to be happy with the project interventions. Women members were present in large number and participated fully in all discussions. The drinking water projects, the lift irrigation project, the vegetable gardens, the smokeless chulhas, the biogas plantswere all in good condition and working well. Livestock related interventions also had good acceptability and except few, most households were doing well. The farm ponds had water though the visits were in the month of February. The pond site selection seemed appropriate and the ridge to valley approach followed by the agency to select the pond site seemed to be giving good result. The agro-advisory services, which are being provided in local languages, seemed to have helped farmers avoid losses of ripe crops from sudden and unseasonal rains.

Quality of implementations

Some 40 villages and 5000 households were covered under the project and nearly 15% of them were inspected during the mid-term assessment. From field verification and as per data provided by the agency, some 60% of the work has been completed and rest is yet to be taken up. The

work completed in 4.5 years i.e. from May 2015 till December 2019 is 60%, the rest 40 % have to be completed within one year before project completion date, which is a high hope target. Thus, the implementation status can be said to be less than adequate. However, the quality of implementation in all inspected villages seemed satisfactory and giving expected outcome. Description of detailed results, later in the report, shows item/intervention wise status and ratings.

Physical impacts and benefits to households

The impact of the project on well-being and adaptability of people was not accessed carefully in this study. This requires a proper impact evaluation after the study period. However, interaction with villagers and specific women groups made it obvious that people are happy and gaining benefits from the interventions. The kitchen cum nutritional gardens, wherever visited, were in good shape with healthy plants and household heads reported to be earning good revenue by selling the vegetables. The natural cropping pattern has reduced the cost of cultivation and that is a big incentive to all villagers, and they are gaining good revenue at the same market price. Their crop loss from unseasonal rains have reduced due to agro-meteorology services and thus, adding to their wellbeing.

With multiple awareness training, regular dissemination of crop advisories, appointment of volunteers to motivate the farmers, regular interaction with beneficiaries, the villagers have been made aware of climate change and the possible risks coming from there. This was very much visible in all meetings. They all seemed to be well versed with the natural production and water saving techniques. All these have strong positive impacts on the climate adaptability of small and marginal farmers.

Challenges

The project faces multiple challenges, mainly from change of government officers and lack of support from new ones. Many government programs are repetitive of what is being done under the project and agency has to take extra efforts to convince the government and panchayati raj representatives to establish complementaries between the government work and work done under the AF project and bring out work synergies. The other challenge comes from illiterate farmers who are hard to be convinced. However, as described under the risk management section later, the agency has worked hard to manage these challenges and turn them to advantages.

Lessons learnt

Some of the highlights of the project were the following:

- Most of the beneficiaries are very poor, marginal and small farmers or landless laborers.
- Most of them are either scheduled caste, scheduled tribes or other backward castes and the project is highly tilted towards social justice.
- In almost all villages, women seem to be in the forefront and more than equal beneficiaries.
- The project has created lots of enthusiasm among the beneficiaries and they seem to be highly motivated to continue the work after the project period is over.

- With scientific input provided by Jadavpur University, the water related interventions (ridge to valley approach) seem to be quite successful in this project area.
- The natural farming adopted by small holders need market support and most of them request to arrange for a segregated market in the name of "organic market (no certification needed)" to sell their products without any price premium. The farmers are confident to earn profit and attract other farmers towards organic and ecological farming (as they are doing under the project) as there is lot of demand for organic products in the area and a separate market will help consumers to identify and buy these products. The cost of production being low, the farmers will earn profit at the same prevailing market price and an assured market will help them to continue.
- The crop-weather advisory in local language also seemed to be very helpful and farmers are getting multiple helps because of it.
- Some of the beneficiaries became emotional while thanking NABARD for helping them with the project.

Limitations and replicability

- Though the project beneficiary selection is strongly titled towards social justice, it does not seem to be representative of the farming class of the district. Only marginal farmers have been given the farming related interventions and all the experimental fields were very small in size. As the area has small, medium as well as large farmers, the project beneficiaries should have been a mixed group. Thus, suitability of climate resilient farming approaches, being taught by this project, are not being tested in medium to large plot sizes and this limits the upscaling of the interventions. The project should have adopted a representative sample, even after giving priority to social justice, to claim that Adaptation Fund project is making farmers ready to adapt to climate change.
- There are too many interventions in every village and it gives the impression that project beneficiaries are only jack of everything, master of none. Whether intensive learning is happening or not is difficult to say.
- There is too much of propaganda and show off, like huge Adaptation Fund Project Board, in front of each of the project village and many of them are not even visible or writings have got erased. This seemed to be a waste of money.
- Barring these points, the project seemed to have improved the climate adaptability of socially vulnerable groups and can be replicated with similar households elsewhere with similar geo-physical features.

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ACCRONYMS

Acronyms	Description
ADM	Additional District Magistrate
AWS	Automated Weather Station
BCKV	Bidhan Chandra Hrishi Vidyalaya
CBO	Community Based Organizations
CRC	Central Review Committee
CSR	Corporate Social Responsibility
DEAR	Department of Economic Analysis and Research
DFO	District Forest Officer
DM	District Magistrate
DRCSC	Development Research Communication and Services Center
FGD	Focus Group Discussion
FPO	Farmer Producer Organization
HH	Household
HO	Head Office
KVIC	Khadi and Village Industries Commission
MDCC	Manual Data Collection Center
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
NABARD	National Bank for Agriculture and Rural Development
NGO	Non-Government Organization
PBSSD	Paschim Banga Society for Skill Development
PRI	Panchayati Raj Institutions
SHG	Self Help Group
WBREDA	West Bengal Renewable Energy Development Authority
ZP	Zila Parishad

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Mid-Term Evaluation Report for Adaptation Fund Project *"Enhancing AdaptiveCapacity and Increasing Resilience of Small and Marginal Farmers in Purulia and Bankura Districts of West Bengal"*

1. Introduction

The Adaptation Fund funded project ***"Enhancing Adaptive Capacity and Increasing Resilience of Small and Marginal Farmers in Purulia and Bankura Districts of West Bengal",*** executed by Development Research Communication and Services Centre (DRCSC), Kolkata, aimed to strengthen the capacity of small and marginal farmers of the region to adapt to climate change by helping them to build resilient livelihoods. The project was implemented in a sub-humid climatic region with Red and Lateritic soil and interventions were tuned to the specific requirement of this biogeography. The objective was that once the livelihood models are proved successful, then they can be replicated in similar agro-climatic zones. The intervention area was 40 villages from Kashipur block of Purulia district and Chhatna block of Bankura district, which are representative of the red and lateritic soil and semi-arid region of West Bengal. Further the villages were from Sonathali Gram Panchayat of Kashipur blockand Ghosergram and Jhunika gram panchayats of Chhatna block (Figure 1 below).

The intervention sites were closely located and in total, 5000 households, who belonged to socially marginalized classes and were vulnerable small and marginal farming communities dependent on natural resources for livelihood and below the poverty line, were the project beneficiaries. The project implementation started from May 2015 and the mid-term evaluation was done during 4th to 6th of February 2020.

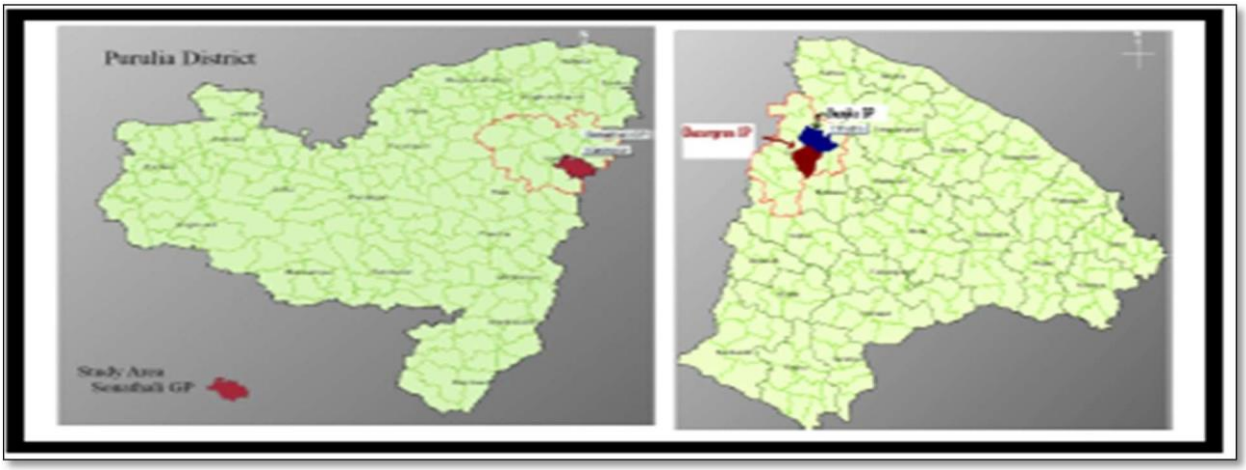


Figure 2: The Sites Sonathali Gram Panchayat (left) and Ghosergram and Jhunika gram panchayats (right)

The evaluation was undertaken for a mid-term assessment of the following points:

- Initial outputs and results of the project
- Quality of implementation
- Financial management
- Assumptions made during the preparation stage, particular objectives and agreed upon indicators and current status
- Factors affecting the achievement of objectives;
- M & E systems and their implementation
- Important learning
- Present status of documentation
- Suggestions for mid-course correction/improvements

Accordingly, these points were discussed with beneficiaries, project partners, implementers and also with non-beneficiaries (neighbors, researchers working in the project area, etc.). Multiple visits were undertaken to different project sites and many focus group discussions were organized to know beneficiaries knowledge, gains and losses (if any) and their perception regarding what more needs to be done or should have been done differently and whether they are going to continue with the interventions introduced by the project after the completion of the project period and withdrawal of the implementing agency.

2. Evaluation and Findings

As mentioned above, both qualitative and quantitative approaches were used to assess the project status and the beneficiaries' perception of the project. Activities undertaken were the following:

- Focus Group Discussions (multiple),
- Physical checking of project interventions inside the villages and verification of the suitability and benefits of the interventions from the opinion of beneficiary household,

- Examination of Project documents and data registers,
- Organizing Special group meeting for women
- Checking and field verification of Interventions like farm bunds, farm ponds, check dam repair, agro-meteorological advisory stations, lift irrigation, seed banks, etc.
- Visit to vegetable gardens, aquaculture sites,
- Visit cow sheds, goat sheds, etc.
- Check and verify the assessment tables prepared by DRCSC as assigned to them

Issues like project progress and benefits to villages, difficulties faced, what more needs to be done, special arrangement for women and poorer section of society, etc. were discussed with the representatives of project villages either by organizing a meeting in their village or by calling them to the nearby villages where the FGDs were organized. Table 1 below shows the details of the field visit conducted during 4th to 6th of February 2020. Interactions with West Bengal government officers in the field area, villages visited, interventions verified, and some inferences from these meetings are described in the table.

Table 1: Details of Purulia and Bankura Field visit

<table>
<tr><th>Date of visit</th><th>Project partner/village visited</th><th>Purpose of visit/ Interventions verified</th></tr>
<tr><td colspan="3">Meeting with West Bengal Government Officers linked to project</td></tr>
<tr><td rowspan="3">04/02/2020</td><td>Mr. Sajal Bhowmick
Project Director, ATMA
Department of Agriculture
Purulia district</td><td rowspan="4">The agency has been working in close coordination with these officials and trying to establish synergy between the project and projects implemented by these government departments.

These government officials also seemed to be satisfied with the AF project outcome and promised to continue the work after the projectduration gets over.</td></tr>
<tr><td>Dr.Asish Bandopadhya
Deputy Director of Agriculture (administration)
Department of Agriculture
Purulia District</td></tr>
<tr><td>Mr. Soumen Belthoria
Karmadharshy - Janasasthay & Karigari Bibhag
Purulia Zila Parishad</td></tr>
<tr><td>06/02/2020</td><td>1. Saswati Das, BDO & EXE, CHHATNA (BANKURA), WBCS
2. Bankim Mishra, political leader
3. Shyamal Roy, Fishery Extension Officer</td></tr>
<tr><td colspan="3">Visit to different project villages</td></tr>
<tr><td rowspan="2">04/02/2020</td><td>Village-SURA; Block-KASHIPUR, District-PURULIA</td><td>1. Step pond
2. Breeding unit (SHEEP) – group based/ floor improvement/urinestore
3. Rabbit Rearing
4. Nutrition Garden
5. Cultivation in fallow land (Row inter-cropping)</td></tr>
<tr><td>Village-SEJA; Block-KASHIPUR, District-PURULIA
And
meeting with some farmers at Purulia Project Office</td><td>1. Community managed drinking water including Nutrition Gardenby using waste water
2. Meeting with Community
3. Growing season extension by using water from dug well(SASADHAN MANDI)
4. Group based breeding unit (PIG)</td></tr>
</table>

		5. Individual Piggery
05/02/2020	**Village-USHARMUKTI** Block-KASHIPUR, District-PURULIA	1.Soil and Water conservation (hill) (Staggered Trench) 2. Arjun plantation including 30X40 model 3. Mixed cropping by using water of step pond 4. Ditch (HAPPA) in Medium Upland 5. Mixed orchard Plantation including 30X40 (water recharge)
	Village-BELDI, PURULIA	1. 2 Ditch (farm pond)- under construction 2. Commercial vegetable cultivation (organic + mixed cropping) 3. Bio gas plant 4. Smokeless oven
	Village-PABRAPAHARI, PURULIA	1. Complete step pond, 2. 3-4 Nutrition Garden
	Village-PORADIHA; BANKURA	1. Step Pond, 2. Growing season extension
	Village-HENTASURA, BANKURA	1. Ditch, 2. Dug well, 3. Cultivation
	Meeting with some farmers at **Joyonagar Community Centre** [Villages covered- Penchasimul, Bishkodor, Hetasura, Joynagar, Jamthol and Poradiha], **BANKURA**	Though few people came from these villages, all were highly motivated, happy with project outcome and likely to continue theactivities after the project period.
06/02/2020	**Village-PENCHSIMUL and Chingri, BANKURA**	1. Garden, 2.Small ruminant, 3. Well/ pond, 4. Incubator water filter
	Village-Suara Bakra – Tola-Chhachanpur, Bankura	RLI/ Display board/ Seed Bank/ AWS
	Village-Besara – Tola-Beriathol, Bankura	1. Common facility centre managed by FPC 2. Automated Weather Station (AWS) 3. Community managed drinking water 4. Meeting with watershed committee (2 committee members) (participants from 11 villages)
	Village- Dakshin hansapahari, Bankura	1. Check dam- convergence with MGNREGS 2. Relay cropping- linseed/ lathyrus 3. Hapa/ditch – vegetable cultivation 4. Step pond- under construction 5. Grain bank 6. Meeting with female & male members at Dakshin Hansapahari

Government officers of agriculture department of Purulia district and block development officer of Chhatna block, Bankura district showed their keenness to extent the project activities in future, which is an indicator of the project success. In every village level meeting, the beneficiary households and village development committee members participated with lots of enthusiasm and looked to be happy with the project interventions. Women members were present in large number and participated fully in all discussions. Maximum discussion were on diversified livelihood issues, organic farming/manure, drinking water provision, etc. The common opinion of almost all village participants was the usefulness of agro-advisory services which are being provided in local languages. Some of the pictures of the FGDs are shown in the appendix.

Next, the output/outcome wise interventions, the status so far, the level completed, village wise details, risk assumptions, steps taken to address them and present status of risks, role of stakeholders in different component of projects and present status, status of documentation, etc. were assessed quantitatively with the help of different tables, which are either shown at the end of the document. First, the aggregate outcome tracker is discussed which is then followed by item-wise result tracker as per the interventions, the village wise results tracker, implementation success indicator, risk assessment, stakeholders' involvement, and documentations being maintained. Lastly, the lessons learnt and evaluator's opinion regarding what is working and what more needs to be done for better and sustainable results are described.

2.1 Aggregate Outcome Tracker

Table 2 at the end describes the status of the expected outcomes by December 2019. Though the expected final outcomes should ideally be analyzed after the project completion as the real behavioral change can be seen only when executing agency is not in the area motivating people to adapt to climate resilience activities. But a trajectory can be seen by evaluating how people have adapted to these interventions till December 2019. Almost 5000 HHs practice climate risk reduction measures introduced through project interventions. Around 85% of HHs in both districts, Purulia and Bankura, are able to take informed decisions about climate adaptive intervention. Thus, more than 80% of 5000 HHs are taking the interventions seriously. Almost 90% of Gram Panchayats use land and water use master plan at the time of making Village Development Plans. Crop advisories in local language have been proved to be very useful by farmers, 6,368 farmers in Purulia and 17,245 farmers in Bankura were getting these advisories till December 2019. Total 320 advisories have been disseminated till December 2019. One climate resource centre has been established in Purulia and 40 weather kiosks are in place in both the districts. This tracker claims that the aggregate farm productivity have been increased by 36% & 38% for at least 73% &76% families in Purulia and Bankura respectively. More than the target, 400 ha of single crop land in the project area have turned into double crop area. Out of 250 ha of land to be brought under vegetative cover and agro forestry systems, only 26.93 ha & 81.53 ha in Purulia and Bankura respectively have been covered till December 2019. Thus, more focus is needed in increasing vegetative cover to achieve the targets set. Out of 4000 target families, approximately 65% have reduced their dependence on market for the inputs for agriculture. 17 grain banks in Purulia and 6 in Bankura were completed till December. Input crisis were met up by 1135 HHs in Purulia and 1225 HHs in Bankura through these interventions.

Energy efficient oven use in Purulia (872) is double of that in Bankura (433) but the bio gas and low cost filters installed in Bankura (bio gas- 8, low cost filter-65) are much more than in Purulia (bio gas- 66, low cost filter-265). Project interventions are being widely accepted in different areas like BCKV getting support and improved seeds from agency, training being provided to PBSSD (Govt. of WB) on climate resilience measures, drought tolerate seed support to Purulia Agriculture Department, etc. Thus, outcome wise the situation seems to be satisfactory.

2.2 Item-wise Result tracker

Table 3 shows the item-wise result tracker for all the interventions. As per this table interventions are either completed or improved except one intervention (multipurpose plantation in 20 ha of common land) which could not be completed due to the change in policy of state government. There are no deterioration or no-improvement cases. As described in the table, project inception workshop was completed on time with the initiation of the project. All major structures like Automated Weather Stations, Manual Data Collection centers, Climate Resource Centre, Weather kiosks, which were planned to be established, have been built and are functioning well. To assist farmers in understanding crop weather advisories 246 awareness meetings have been conducted either by government officers' visit, expert visit, self-help group meetings, etc., which has helped in increasing the number of beneficiaries from such advisories. 29 ponds have been excavated by farmer groups, 3 check dams and 152 infiltration ditches have been constructed under the project and total 302 ha land area have been covered under soil water conservation measures like contour bunds, water absorption trenches, stone bundling of gullies, semi-circular bunds, 30X40 model. Seasonal drought tolerant crops have been planted on 40 ha of land on back side of bunds to prevent soil erosion. Thus, soil and water conservation interventions have been efficiently completed on time, resulting in improvements in the area. The status of all the 28 activities have been described in detail in the table. The descriptions in the table are self-explanatory.

Next, these descriptions of table 3 were compared with the Indicator table 4, where comparisons are drawn between the baseline, target set for the project and the status at the time of the mid-term assessment. This table also confirms the results shown in result tracker Table 3.

2.4 Village wise result tracker

As mentioned before the project covered 40 different villages where different activities were undertaken. Table 5 below shows the details, how many and what all are implemented in which village. This table shows the village wise details like number of households, % of beneficiaries, representation of women in village committees, when was the project initiated in the village, how many interventions were introduced, what % of the work is completed by now, etc.

The interventions are shown as numbers (1, 2, 3,) in the table and are described below in table 5A, As evident, the first few components of the interventions like GIS mapping, crop advisory services, climate kiosks have been completed in most of the villages. There is good representation of women in all village committees and except few, maximum villages have more than half (more than 50%) of the households as direct beneficiaries. On average, more than 10 interventions have been introduced in all the villages (except Majidih and Banjura), though the level of completion varies from village to village.

2.5 Rating of the implementation process

The ratings table (Table 6 below) show how satisfactory has been the implementation of the proposed interventions according to the executing agency. Water soil conservation measures are given only satisfactory ratings by them and not 'very satisfactory' as many villages are left where pond excavations have to take place. Three check dams are completed which will benefit only 450 HHs, 330 infiltration ditches are completed. Figures related to other measures like water absorption trenches, stone bundling of gullies, semicircular bunds were not given by the agency due to lack of time. Plantation of drought tolerant crops on back side of bunds were given very satisfactory ratings, but due to withdraw of *brikkha patta* scheme of MGNREGA in the target areas plantation on utilized common property resource were stopped after completion of plantation on 10 ha. Thus, this scheme received a low rating. Rest of the interventions got very satisfactory ratings, though some interventions are only partially completed like grain banks, seed banks, cook stoves, bio gas plants, etc. Four fodder banks have been developed but are not functioning very well, hence, less ratings given by the agency. Knowledge management is going well with four technical and economic analysis documents on improving climate resilience in red and lateritic zone, two short films, an updated website and various state level and local level workshops being completed.

However, when the data from all the tables are analyzed, the work completed is roughly around 50-60% of the target. With the completion of project date coming nearer and given low level of implementation, the ratings given by the agency seems to be misleading. The work completed in 4.5 years i.e. from May 2015 till December 2019 is 60%, the rest 40 % have to be completed within one year before project completion date, which is a high hope target. Thus, the implementation status can be said to be less than adequate.

2.5 Risk Assessment and Present Status

Two tables attached at the end (Table 7: Risk Assessment_Outcome 1&2, Table 7A: Risk Assessment_outcome 3&4) talk about the risk component of the project. As reported by the agency, newer risks are being faced in component 3 and 4 of the project outcome, mainly due to

change in some government policy and the agency is taking care to transform the risk to advantages. First, the assessment as given in Table 7 are described. The project objective faced risk of government not willing to prioritize, sustain and upscale the support for climate adaptive interventions in their strategies and plans. To improve this situation various meetings were organized with government departments on various aspects of climate resilient models and good rapport was built at all levels of government machinery to elicit positive response. As a result, the project activities of the AF project viz., promoting crop diversification, productive utilization of waste land, use of quality seeds & seed bank development, vermin-composting, smokeless chulhas, agro advisories to farmers, etc. have been included in the West Bengal State Action Plan and also under West Bengal Accelerated Development of Minor Irrigation Project which aims to enhance agricultural production of small and marginal farmers. Another problem was that government officials and PRI members may change during the period of project implementation which may result in unnecessary roadblocks by new officials like the withdrawal of Brikhaa Patta scheme leading to plantation intervention being stopped from any further execution. Meetings and awareness generation activities are conducted in regular intervals to prevent such roadblocks, though the risk still persists on medium scale according to the agency. The risk of not all farmers using the crop advisories is been tackled efficiently by regular group meetings and successful case stories being showcased to motivate farmers which has led to both literate as well as illiterates using the advisories now. This risk has now been reduced due to adequate steps taken by the agency. The problem of volunteer absenteeism for dissemination of crop advisory is solved by training interested youth from the villages to act on behalf of volunteers in their absence so that the community gets the crop advisories without failure.

For livelihood interventions, additional development support (financial and marketing) is not received at required time in target gram panchayats. Interaction with government officials and PRI members and linkages with SHG are developed to support various livelihood services under the project and get investment for entrepreneurial development activities. The fear of low efficiency due to grouping of farmers with similar economic and social status for pond excavation has been sorted out by capacity building with special focus on group leaders to solve group conflicts.

The prices have gone up in the project area due to new tax regime and purchasing power has increased due to minimum wages being received through MGNREGA in the area. Thus, to eliminate the risk of non-completion of project within sanctioned budget, beneficiary contribution is insisted to the extent of cost escalation.

Finally, the biggest risk to the whole project was Integrated Watershed Development Project (USHARMUKTI) under MGNREGA launched in West Bengal in August 2017. Total operational area of the project is being covered under this government project. The targeted HHs are showing more interest for the watershed related work (e.g. Earth work, Plantation etc.) under the schemes rather than the work of AF project implemented by DRCSC because the economic benefits are more under the government program. This was leading to duplication of work and

wastage of money under AF project. According to consensus arrived at, USHARMUKTI project will take new works and renovation work of old water structures will be done under the AF project. Due to the efficient implementation of works under AF project, synergy has been developed between the two projects and the USHARMUKTI project has now come under the AF project. Thus, the risk has been converted to a helping hand and now the government and DRCSC are helping the villagers together.

2.9 Documentation details

Table 8 shows the type of records being maintained and their frequency. Since the project inception, documents are being maintained regularly at different levels and with varying frequency. Some are daily records, some are being maintained at weekly intervals, some at monthly intervals, some are quarterly and some are seasonal. Some are at the level of households, some at the level of FPO and most are being maintained at the office of the agency, DRCSC, depending on the purpose and future use.

2.10 Stakeholders Involvement

Other than DRCSC, who were the executing agency of the project, Other stakeholders were (i) Oceanography Department of Jadavpur University, (ii) Communities of 5 Gram panchayats, (iii) PRI Members & Government Officials, (iv) Expert Group comprising of Meteorological and Agricultural Experts, (v) Climate volunteers and local farmers, (vi) NABARD Regional Office in Kolkata District, (vii) Rural Development Department, (viii) Water Resources Development Dept., Animal Resources Development Dept. and (ix) Departments of Agriculture, Horticulture, Fisheries, KVIC, WBREDA, Engineer. Table 9 describes the role and level of involvement of different stakeholders in the project. As per this table, community level Village institutions are in place. CBOs are regularly meeting to discuss issues including forest conservation and regular training is given to improve community participation around conservation.

Village level trainings every month are given to farmer groups, especially women farmers on various improved agricultural practices, livestock care, poultry rearing etc. For gender focused activities, habitation level “Mahila Sabha” is created where women meet at least once in a month to discuss village level and gender based issues and take actions on them if needed. This sabha also gets training on improved agricultural practices and training for rearing poultry by a special cadre called “Pashu Sakhi”. Participatory impact monitoring is in beginning stage as only restored commons and private lands are been monitored till now. For climate resilient agriculture, creation of water bodies for critical irrigation (farm pond), creation of low cost water bodies (bori bandhan), and renovation of existing water bodies (de-siltation, repairing& gating mechanism in stop dam), field bonding activities are under progress. Water relatedentry point activities have done in all the project villages. Process of supporting and supplying advance water use technologies to the farmers in the project villages is under progress. Farmers are adopting climate resilience cropping practices after getting trainings on crop diversification, vegetable farming, etc.

For skill development, various skill training institutes are identified and enrolled by the stakeholders; expert organizations are also being engaged. For energy efficiency, bio-gas plants, smoke less fuel and solar light is being used by the villages and soon the target for energy efficiency will be achieved. Two consultative workshops have been conducted; one video prepared and case studies workshops are under progress for knowledge dissemination from the project. Designing of website for dissemination of information related to the project for use by stakeholders is under progress.

Though the agency DRCSC was asked to separately describe the role played by different stakeholders in course of the project work in Table 9, the agency only repeated what activities have been done. They did not specify the exact role played by stakeholders in different activities. In spite of repeated request, we could get no detailed information and have reported what was shared with us.

2.11 Financial assessment

The agency did not share any information regarding the financial allocation or how much has been spent on what heads. So no assessment could be made.

3 Other Observations from the field

The extensive field visit and interaction with villagers and government officers provided good evidence that the project is going on well and helping people to reduce the stress from weather shocks. Some of the highlights of the project were the following:

- Most of the beneficiaries are very poor, marginal and small farmers or landless laborers.
- Most of them are either scheduled caste, scheduled tribes or other backward castes and the project is highly tilted towards social justice.
- In almost all villages, women seem to be in the forefront and more than equal beneficiaries.
- The project has created lots of enthusiasm among the beneficiaries and they seem to be highly motivated to continue the work after the project period is over.
- With scientific input provided by Jadavpur University, the water related interventions (ridge to valley approach) seem to be quite successful in this project area.
- The natural farming adopted by small holders need market support and most of them request to arrange for a segregated market in the name of “organic market (no certification needed)” to sell their products without any price premium. The farmers are confident to earn profit and attract other farmers towards organic and ecological farming (as they are doing under the project) as there is lot of demand for organic products in the area and a separate market will help consumers to identify and buy these products. The cost of production being low, the farmers will earn profit at the same prevailing market price and an assured market will help them to continue.

- The crop-weather advisory in local language also seemed to be very helpful and farmers are getting multiple helps because of it.
- Some of the beneficiaries became emotional while thanking NABARD for helping them with the project.

5. Some limitations

- Though the project beneficiary selection is strongly titled towards social justice, it does not seem to be representative of the farming class of the district. Only marginal farmers have been given the farming related interventions and all the experimental fields were very small in size. Thus, suitability of climate resilient farming approaches, being taught by this project, in medium to large plot sizes are not being tested and this limits the upscaling of the interventions. The project should have adopted a representative sample, even after giving priority to social justice, to claim that Adaptation Fund project is making farmers ready to adapt to climate change.
- There are too many interventions in every village and it gives the impression that project beneficiaries are only jack of everything, master of none. Whether intensive learning is happening or not is difficult to say.
- There is too much of propaganda and show off, like huge Adaptation Fund Project Board, in front of each of the project village and many of them are not even visible or writings have got erased. This seemed to be a waste.

Tables

Table 2: Aggregate Outcome Tracker

Expected Final Outcomes by Project End	Achievement till December 2019	
	Purulia	**Bankura**
80% of target 5,000 households (4000 hhs (19096 persons) 9427 female, 9669 male beneficiaries) continue to practice at least one climate risk reduction measure introduced through project interventions	1516 hhs (6368 persons) 3076 female, 3292 male beneficiaries continue to practice climate risk reduction measure introduce through project intervention.	3479 hhs (17245 persons) 8289 female, 8956 male beneficiaries continue to practice climate risk reduction measure introduce through project intervention.
At least 80% of 5,000 target HHs are able to take informed decision about climate adaptive interventions.	Out of 1516 hhs (direct) about 1280 (85%) hhs are able to take informed decision about climate adaptive intervention	Out of 3479 hhs about 2900 (83%) hhs are able to take informed decision about climate adaptive intervention
At least in 90% cases the interventions planned are included in Village Development Plans	Approximate 70% cases the interventions planned are included in Village Development Plans	Approximate 70% cases the interventions planned are included in Village Development Plans
In all the GPs, communities and panchayat consider land and water use master plans at the time of making village development plans	Approximate 90% GPs, communities and panchayat consider land and water use master plans	Approximate 90% GPs, communities and panchayat consider land and water use master plans
More than 6,200 farmers (including 3720 women farmers) in target area receive crop-weather advisory in local language (Bengali)	6368 farmers including 3976 women farmers in target area receive crop & weather advisory in local language	17245 farmers including 8289 women farmers in target area receive crop & weather advisory in local language
AWS at 6 locations, 12 MDC installed for collection of weather information	3 AWS & 6 MDC installed for collection of weather information	3 AWS & 6 MDC installed for collection of weather information
Five to six crop-weather advisories are generated per month	Total 288 was target till Dec 19 disseminated 320 times to both the district at a time. 5 to 6 no crop-weather advisories are generated per month	
1 climate resource centre at central location and 40 weather kiosks are in place	1 climate resource centre is established centrally 18 weather kiosk volunteers are in place	22 weather kiosk volunteers are inplace
5-6 crop-weather advisories per month are disseminated to the entire community	5 to 6 no crop-weather advisories are generated per month	5 to 6 no crop-weather advisories are generated per month
All 5,000 target Households (22810 persons [male : 11548, female : 11262] have developed climate resilient livelihood strategy to diversify their sources of income	1516 target households (6368 persons[male: 3292, female:3076] have develop climate resilient livelihood strategy	3479 target households (17245 persons [male: 8956, female:8289] have develop climate resilient livelihood strategy
Whole farm productivity is increased by 30% for at least 60% beneficiary families i.e. 3000 HHs	Whole farm productivity is increased by 36% for at least 73% families	Whole farm productivity is increased by 38% for at least 76% families
Food-fodder-fuel reserve is ensured for 100% targeted families (which includes women population of 11262)	93% hhs improved food-fodder-fuel reserve as a drought proofing measure	90% hhs improved food-fodder-fuel reserve as a drought proofing measure

300 hectares of fallow land brought under soil-water conservation structures	43.9 ha of fallow land brought under soil-water conservation structures	258.44 ha of fallow land brought under soil-water conservation structures
More than 250 hectares of area brought under vegetative cover and protected by live fences, hedgerows, aerodynamic windrows, boundary plantation & other agroforestry systems	26.93 ha of area brought under vegetative cover and protected by live fences, hedgerows, aerodynamic windrows, boundary plantation & other agroforestry	81.53 ha of area brought under vegetative cover and protected by live fences, hedgerows, aerodynamic windrows, boundary plantation & other agroforestry
400 hectares of single crop land turned into at least double crop	199 ha single crop land turned into at least double crop	471 ha single crop land turned into at least double crop
At least 4,000 target families enjoy an increase in income from diversified sources	Approximate 67% target families enjoy and increase income from diversified sources	Approximate 72% target families enjoy and increase income from diversified sources
Food & nutrition security is ensured for at least 80% beneficiaries (9009 female and 9238 male beneficiaries) round the year.	Approximate 70% beneficiaries	Approximate 70% beneficiaries
At least 4,000 target families have reduced their dependency on market for the inputs for agriculture	Approx. 65% target families have reduced their dependency on market for the inputs for agriculture	Approx. 67% target families have reduced their dependency on market for the inputs for agriculture
40 grain banks 5 seed banks 5 fodder banks are established	17 grain banks 3 seed banks 2 fodder banks have established	6 grain banks 2 seed banks 2 fodder banks have established
The food/fodder/input crisis and emergencies met up for at least 1500 HHs through these interventions	Approximate 1135 HHs met up their input crisis through this intervention	Approximate 1225 HHs met up their input crisis through this intervention
At least 2400 nos. of target families use energy efficient ovens, 250 biogas and 2500 low cost water filters (3200 female beneficiaries are directly impacted)	Energy efficient ovens 872 Bio gas 08 Low cost filters 65	Energy efficient ovens 433 Bio gas 66 Low cost filters 265
At least 5 no. of community based drinking water facilities are established (At least 500 female beneficiaries are directly impacted by this intervention in terms of reduced labor, time and drudgery)	1 community based drinking water facilities are established (At least 89 female beneficiaries are directly impacted by this intervention in terms of reduced labor, time and drudgery)	2 community based drinking water facilities are established (At least 186 female beneficiaries are directly impacted by this intervention in terms of reduced labor, time and drudgery)
At least 5000 families (11262 female and 11548 male beneficiaries) accessing mainstream schemes for installation of climate adaptive structures	About 1104 target families accessing mainstream schemes for installation of climate adaptive structures	About 2564 target families accessing mainstream schemes for installation of climate adaptive structures
Climate resilient livelihood strategies adopted by other Gram Panchayats and Blocks	Convergence with BCKV and got support related to improving varieties of seeds, engaged with PBSSD (Govt. of WB) for 3 course as a training provider, 1st batch was inaugurated by ADM ZP 22nd January, Purulia Smokeless oven replicated by Mid-day meal department, Bankura Dist. Drinking water facility replicated by Purulia Zila Parisad for Purulia Dist., Drought tolerate seed support to Purulia Agriculture Department.	

	A study was conducted by MOE for wider replication. 1 proposal was submitted to DM Purulia for weather prediction but it is not approved yet, State MGNREGS engage with DRCSC for Soil water conservation measure as a technical guidance for 5 blocks of Chhatna. MGNREGS cell convergence with de-siltation of 4 no check dam site Impact of weather forecast studied by "Gram Vikash Parisad"	
The project learning documents aligned to the SAPCC are advocated for adoption with relevant government departments at both state and national levels	Not yet adapted to SAPCC, but organized meeting with State Govt. Department	
At least 5 technical reports & 1 policy paper published for wider dissemination	4 technical reports published. 1 policy paper will be published after end the project for wider dissemination	
At least 5 audio visual publications, 7 types of awareness materials published for wider dissemination in the state	2 audio visual publication 7 types of awareness materials published for wider dissemination in the state	
A web space is created for regular dissemination of project learnings	A separate web space created for the project http://www.drcsc.org/CCA/3/index.html	
At least 6 types of awareness generation activities to address the communities in and around the project villages	Participate in Govt. organized fairs like Sabala Mela, Mati Utsav, and organize project related fair. Celebrate observation od days like world water day, world environment day, world earth day etc. with schools among the communities , awareness, networking among the NGOs, CBOs, and local administration, through display IEC materials, poster design, organize short play, rally, film show, street drama etc. to both districts.	
2 Advocacy films are prepared	1 Advocacy film is centrally published for both district	
8 local level, 3 state level experience sharing workshop and 1 national level advocacy workshops/seminar involving all stakeholders	2 local level workshops conducted, panchayat, block and officers from district level, minster and policy maker, NGO's, CBO's etc.	2 local level workshops conducted, panchayat, block and officers from district level, minster and policy maker, NGO's, CBO's etc.

Table 3: Item-wise Result tracker (Prepared & submitted by DRCSC)

INTERVENTIONS (if there are interventions other than the following, please mention)	**HOW MANY EXECUTED**	**PRESENT STATUS** (1= improvement, 2= No improvement, 3= Deterioration), 4=completed
1. Project Inception Workshop	1	4
2. GIS mapping	5	4
3. Land and water use master plans	5	4
4. 6 automated weather stations established	6	4
5. 12 manual data collection centres established	12	4
6. 5 days crop weather advisories prepared	320	1
7. Establishment of climate resource centre	1	4
8. Establishment of 40 weather kiosks	40	4

9. Awareness sessions for understanding of crop weather advisories	246* (SHG meeting, expert visit, Govt. officer visit)	1
10. Ponds excavated by farmer groups	29	1
11. Construction of following:		
• Check dams	3	4
• Infiltration ditches	152	1
• Contour bunds	Total of 302 ha area has been covered under these activities.	
• Water absorption trenches/pits		
• Stone bundling of gullies		
• Semi-circular bunds		
• 30X40 model		
12. Plantation of seasonal drought tolerant crops on back side of bunds	40 Ha	1
13. Plantation of multipurpose trees as source of fodder, firewood, and herbs on 20 ha unutilized common property	10 ha CPR plantation on fodder, firewood & herbs	3
14. Capacity building to diversify livelihood	225 No	1
15. Training to produce organic fertilizers and sustainable management techniques	225 No	1
16. Small nutritional gardens in homesteads	3247 HHs of 195 SHG	1
17. Training of women beneficiaries for different livelihood practices	3247 beneficiaries of 195 SHG	1
18. Group based fish cultivation encouraged	30 SHG	1
19. Community grain banks developed	23 no	1
20. Local crop and trees seed banks developed	5 no	1
21. Fodder banks developed	4 no	1
22. Promotion of following energy efficient technologies: • Cook stoves	1305 no	1
• Bio gas plants	74 no	1
• Rain water harvesting structures	This is not our intervention	
• Low cost water filters	430 no	1
• Community based drinking water facility	3 no	1
24. Production of 5 technical and economic analysis documents on improving climate resilience in red and lateritic zone	4 no	1
25. 1 policy brief advocating models used in the project	It will be prepared after the end of project	
26. Short films/Awareness films, dedicated websites and	2 no	1
• Websites	53 month	1
• Mass Awareness	30 no	1
• Networking meeting with NGO's CBO's & local administration	42 no	1
• Farmers convention	1 no	1
• Printed materials for knowledge dissemination	36 no	1
27. Advocacy with National Level Workshop	0	
• State Level Workshop	1 no.	1
• Local Level Workshop Government and others	4 no.	1

on processes to identify strategies to adapt to climate change in red and lateritic zone		
28. District Level steering committee meeting	9 no.	1

*Failure of this activity is due to policy changes of Govt. of WB panchayat raj systems under *brikhhapatta* scheme. The local authority did not allow for this kind of intervention.

Table 4: Indicator Table (Comparison of baseline, target and present status)

COMPONENTS	OUTCOME/ OUTPUT	INDICATORS	BASELINE	TARGET	PRESENT STATUS
1: Land and Water use Master Plan	**Outcome 1**: Communities adopt land and water use master plans with the help of Panchayats through better understanding of climate change related impacts	**(a)** Number of households able to take informed decisions about climate adaptive interventions **(b)** Percentage of planned interventions included in Village Development Plans by Panchayat	0 0	At least 4000 HHs 90%	4500 direct beneficiaries HHs 65%
	Output 1.1 Five Gram panchayat - wise Land and Water use Master Plans prepared	**(a)** Land and Water Use Master Plans for the targeted gram panchayats are in place	0	5 nos. Gram Panchayat	5 nos. Gram Panchayat (100%)
2: Reducing climate risks through timely and appropriate weather specific crop/agro-advisory services in local language (Bengali)	**Outcome 2:** Farmers are better prepared for climate resilient agriculture and wastelands development	**(a)** Percentage of farmers having ready access to and making use of crop- weather advisory in local Language	0	6200 farmers in target area receive crop-weather advisory in local language (Bengali)	20,785 direct and indirect beneficiaries approximately
	Output 2.1: Automated Weather stations (AWS) at 6 locations (covering 10 sq.km each), 12 manual data collection centres (MDC) for collection of weather information	**(a)** Number of AWS & MDC are in place and operating effectively	0	6 AWS & 12MDC	6 AWS & 12 MDC 100% completed

	Output 2.2: The expert group comprising of weather expert and agriculture experts analyzes the data collected through AWS and MDC and prepares the 5-days crop- weather advisories	**(a)** A committee comprising of 2-3 experts from agriculture universities and climate experts formed **(b)**Number of crop-weather advisories prepared per month	0 0	2-3 experts 5-6 nos. per month (288 nos. during the project period)	5 expert completed 5-6 nos. per month (320 nos. prepared till Dec 2019)
	Output 2.3: A Climate Resource Centre locatedat the centre of the project area and 40 weather Kiosks managed byclimate volunteers for collectionand dissemination of crop-weather advisories	**(a)** Climate Resource Centreand Weather kiosks are in place **(b)** Number of crop-advisoryservices disseminated **(c)** A feedback mechanism for verifying efficacy of theadvisory services is in place	0 0 0	1 288 Nos. 550 Nos. feedback collection from community through meeting by volunteer, expert, CRC Manager	1 320 Nos. 682 Nos. feedback collection from community through meeting by volunteer, expert, CRC Manager

Component 3: Climate resilient technology transfer for enhancing the adaptive capacity of the community	**Outcome 3:** Livelihoods have become less vulnerableto climate change and achieve higher levels of productivity	**(a)** Number of beneficiaries, particularly women, with diversified livelihoods **(b)** Number of farmers achieving higher level of sustainable productivity **(c)** Status of community with improved food- fodder-fuel reserve as a drought proofing measure	Most farm families under rain-fedconditi ons highly expose d to climatechange inducedliveliho od insecurity Beneficiary farmersdepend only onrain-fed farming Status of community with improved food- fodder-fuel reserveas a drought proofin g measure	5000 hhs Whole farm productiv ity is increased by 30% for at least 60% families 100% target families	4762 hhs Whole farm productivity is increased by 37% for at least 75% families 92% HHs improved food-fodder-fuel reserve as a drought proofing measure

	Output 3.1 Sustainable soil and water conservation measures (e.g. semi-circular bunds, check dams, gully plugs, infiltration ditches and agro forestry plantations) for various ecosystems introduced for improvement of agricultural productivity and environmental sustainability	**)** Area brought under soil-water conservation structures **(b)** Area under vegetative cover	Low water retention capacity of the soil, fertile top soil erosion Large area lying fallow (seasonally or perennially)	300 ha of fallow land brought under soil – water conservation structures More than 250 ha of area brought under vegetative cover and protected by live fences, hedgerows, aerodynamic windrows, boundary plantation & other agroforestry systems	302.34 HA (100.78%) 148.5 ha of area brought under vegetative cover and protected by live fences, hedgerows, aerodynamic windrows, boundary plantation & other agroforestry systems
	Output 3.2 Multilevel cropping systems & integrated farming practices are introduced mainly through popularizing a combination of drought tolerant field crops, fast growing & multipurpose perennials and small livestock	**(a)** Hectares of land brought under cultivation **(b)** Increase in cropping diversity & intensity. **(c)** Increase in cropping months and food availability **(d)** Increase in self supply of seeds & inputs	Integrated Farming System is practiced by 10 farmers in the target area A very few target families have knowledge about sustainable agriculture techniques and practices	400 hectares of single crop land turned into at least double crop At least 4,000 target families enjoy an increase in income from diversified sources round the year Food & nutrition security is ensured for at least 80% beneficiaries round the year	670 HA 70% approximate 70% approximate 65% approximate

				At least 4,000 target families have reduced their dependency on market for the inputs for agriculture	
	Output 3.3 Disaster-coping mechanisms like community grain banks, local crop & trees seed banks, fodder banks, developed in targeted villages	(a) Number of Grain Banks, Seed Banks and Fodder Banks established (b) Number of families able to meet up their food, fodder, input (especially availability of seed) crisis in emergencies	A very few community grain banks and no seed or fodder banks exist in the area.	40 grain banks, 5 seed banks, 5 fodder banks 1500 HHs	23 grain banks 5 seed banks 4 seed banks Fodder Banks 92 HHs Grain Banks 464 HHs Seed banks 1550 HHs Total=2106 HHs
	Output 3.4 Climate resilient appropriate technologies like energy efficient cook stoves, bio-gas, low cost water filters, community based drinking water facilities are promoted	**(a)** No. of target families using energy efficient cook stoves, biogas, low cost water harvesting, low cost water filters,community based drinking water facility. **(b)** Number of community based drinking water facility Established **(c)** Number of target families accessing mainstream schemes for installation of climate adaptive structures	450nos. of target families use energy efficient cook stoves. 100 families have biogas units. 110 low cost water Filters are in use. No community	2400 no energy efficient cook stoves, 250 no biogas, 2500 low cost water filters, 5 community based drinking water facility, 6000 target families accessing mainstream schemes for installation of climate adaptive structures	1755 energy efficient cook stoves, 174 bio gas, 540 Low cost water filters, 03 community based drinking water facility. About 3668 target families accessing mainstream schemes for installation of climate adaptive structures

			based drinking water facility 1000 no. of target families access mainstream schemes for installation of climate adaptive structures		
Component 4: Learning and Knowledge Management	**Outcome 4:** Various types of materials on processes and techniques are published and measures taken to upscale the interventions to improve climate resilience in the red and lateritic zone	**(a)** Replication of the interventions in villages along with the project area **(b)** Govt. adopted climate resilient models in their policies	Local level planning does not consider climate change related aspects Only few farmers practice ecological farming and livelihood practices	Climate resilient livelihood strategies adopted by other gram panchayats & blocks. Project learning documents aligned to SAPCC are advocated for adaptation with relevant government departments at both state and national levels	Convergence with BCKV and got support improve varieties seeds. Engaged with PBSSD (Govt. of WB) for 3 course as a training provider 1st batch 22nd Jan it was inaugurated by ADM ZP, Purulia. Smokeless oven replicated by Mid-day meal dept. Bankura Dist. Drinking water facility replicated by Purulia Zila Parisad for Purulia Dist, Drought tolerate seed support to Purulia Agriculture Department

					A study conducted by MOE for wider replication. 1 proposal submit to DM purulia for weather prediction but it is not approved yet. State MGNREGS engage DRCSC for Soil water conservation measure as a technical guidance for 5 blocks Chhatna Block MGNREGS cell convergence with de-siltation of 4 nos. of check dam site Impact of weather forecast studied by "Gram Vikash Parisad" https://www.gramvikas.org/blg/can-micro-automatic-weather-stations-enhance-lives-and-livelihoods-of-rural-communities-in-india/

	Output 4.1: Production of technical and financial data analysis on processes to improve the resilience of the livelihood in red and lateritic zones of West Bengal	**(a)** Number of technical reports published	Absence of location specific analytical reports	5 technical reports & 1 policy paper published for wider dissemination	4 technical reports published, 1 policy paper published after end the project for wider dissemination
	Output 4.2: Improved access to learnings from the project activities to beensured through short dedicated website and other printed materials films	**(a)** Number of audio visual publications, awareness materials (e.g. folders, brochures, pamphlets, posters, newsletters, journals, IEC materials) published **(b)** Dedicated website created and updated regularly **(c)** Number of mass awareness generation measures (e.g. participation in village fairs, rallies, campaigns)	No appropriate awareness materials available, especially in vernacular language. No website at present Limited awareness generated through mainstream mass media e.g. television, radio.	5 audio visual publication, 7 awareness materials published for wider dissemination in the state A web page space is created for regular dissemination of project learnings 6 types of Awareness generation activities to address the communities in and around the project villages	2 audio visual publication 7 awareness materials published for wider dissemination in the state A web page space is created for regular dissemination of project learnings http://www.drcsc.org/CCA/3/index.Html Participate to govt. fair like Sabala Mela, Mati Utsav, organize fair, day celebration with school, awareness among the school student, networking with school, IEC, short play, poster design, rally, film show, streetdrama etc.

	Output 4.3: Advocacy with National / State / Local Government and others (NGOs, CBOs, International organizations, climate activists/experts) on processes and practices adopted under the project	**(a)** Number of Advocacy films prepared **(b)** Number of workshops organized **(c)** Number of stakeholders who participated	No advocacy films are available No workshops organized involving the stakeholders	Advocacy films Workshop proceedings and reports	1 advocacy films published 2 state level workshops and 5 local level workshops and its reports prepared and uploaded on the website http://www.drcsc.org/CCA/3/index.Html No national level event organize till now but DRCSC participated in the 4 national level event Department Secretory, Joint Secretory, Principal Secretory Environment Department, Agriculture Director, Senior programme officer ADM, BDO, Line Department, DFO, Ranger, Donor Agency, CSR, Policy Maker etc.

Table 5: Village wise Result Tracker

S. No.	VILLAGE	Total number of House holds	Whether has a VDC or FG or MG	% of women in village committee (%)	Year of Intervention	Women participation in meeting (%)	Type and number of interventions (use code from below)	Ratio of direct beneficiary HHs	Present status of intervention (% completed)
1	Jagannathdih	160	FG-06, MG-05	65%	2015	87%	1,2,3,4,5,6,7,9,10,11,12,13,15,16,17,20,22	0.71	73.91
2	Jamkiri	75	FG-01, MG-02	70%	2016	70%	1,3,4,5,6,7,9,10,11,13,15,16,17,20,22	0.52	65.22
3	Lari	120	FG-04	85%	2018	70%	1,3,4,6,7,9,10,11,13,18	0.39	43.48
4	Lara	350	FG-12, MG-04	60%	2016	75%	1,3,4,9,10,11,13,15,20,22	0.59	43.48
5	Jibanpur	90	FG-03, MG-01	70%	2015	80%	1,3,4,5,9,10,11,12,13,15,20,22	0.63	52.17
6	Seja	150	FG-04, MG-03	90%	2015	75%	1,3,4,7,9,11,15,20,22,23	0.53	43.48
7	Chakadih	32	FG-01, MG-01	85%	2015	80%	1,2,3,4,5,7,9,10,11,13,15,16,17,20	1.00	60.87
8	Jalumdih	27	FG-01, MG-01	80%	2015	85%	1,3,4,5,6,7,9,10,11,12,13,15,16,17,20,22	1.00	69.57
9	Ichamarah	105	FG-06, MG-02	65%	2015	80%	1,3,4,5,6,7,9,10,11,12,13,15,16,17,20,22	0.75	69.57
10	Beldi	180	FG-06, MG-03	60%	2015	90%	1,2,3,4,5,6,7,9,10,11,15,16,20	0.67	56.52
11	Sura	60	FG-03, MG-01	70%	2015	85%	1,2,3,4,5,6,7,9,10,11,12,13,15,16,22	1.00	65.22
12	Kashidi	87	FG-06, MG-02	75%	2016	85%	1,3,4,9,10,11,12,13,15,17,20,22	1.00	52.17
13	Bongora	250	FG-16, MG-01	80%	2015	90%	1,3,4,5,9,10,11,12,15,16,17,20,21,22	0.78	60.87
14	Ranjandih	220	FG-11, MG-03	93%	2016	95%	1,3,4,5,9,10,11,12,15,16,17,20,22	0.69	56.52
15	Bodma	170	FG-04	67%	2015	73%	1,3,4,7,9,10,13,15,16,17,20	0.31	47.83
16	Jorthol	180	FG-04, MG-01	72%	2015	67%	1,2,3,4,5,9,10,11,12,15,16,17,20,21,22	0.32	65.22
17	Tilabani	34	FG-03	75%	2015	75%	1,3,4,5,9,10,11,12,13,15,17,20,22	1.00	56.52
18	Lajhna	77	FG-05, MG-02	67%	2016	70%	1,3,4,7,9,10,11,13,15,16,17,20	1.00	52.17
19	Kharbona	412	FG-28, MG-08	65%	2016	85%	1,2,3,4,6,7,9,10,11,12,15,16,20,21,22	0.94	65.22
20	Dumdumi	137	FG-12, MG-01	95%	2016	80%	1,3,4,5,6,7,9,10,11,12,13,15,16,17,20,22	1.00	69.57
21	Ghosergram	257	FG-20, MG-03	82%	2015	85%	1,3,4,6,7,8,9,10,11,12,13,15,16,20,21,22	0.95	69.57

22	Hanspahari	86	FG-08, MG-03	93%	2015	95%	1,2,3,4,5,6,7,8,9,10,11,12,13,15,16,17,20,21,22,23	1.00	86.96
23	Shuarabakra	83	FG-05, MG-01	85%	2015	95%	1,2,3,4,6,7,9,10,11,12,13,14,15,16,17,18,19,20,21,22	0.83	86.96
24	Enari	116	FG-06, MG-02	90%	2015	80%	1,3,4,6,7,9,10,11,12,15,16,20,21,22	1.00	60.87
25	Benagoria	183	FG-13, MG-04	85%	2016	77%	1,2,3,4,6,9,10,11,12,13,15,16,20,21,22	0.97	65.22
26	Majhidih	143	FG-13, MG-01	82%	2016	65%	1,3,9,10,11,12,15,16	1.00	34.78
27	Hausibad	191	FG-11, MG-5	80%	2015	85%	1,3,4,6,7,9,10,11,12,13,15,16,19,20,21,22	0.95	69.57
28	Kalipur	174	FG-11, MG-5	60%	2016	70%	1,3,4,6,7,9,10,11,12,15,16,20,21,22	1.00	60.87
29	Shirpura	138	FG-9, MG-4	80%	2015	90%	1,2,3,4,5,6,7,9,10,11,12,13,15,16,20,21,22	0.96	73.91
30	Saluni	302	FG-19, MG-5	90%	2015	90%	1,3,4,6,9,10,11,12,13,15,16,17,20,22	0.95	60.87
31	Jhunjhka	222	FG-13, MG-6	65%	2015	70%	1,2,3,4,5,6,7,9,10,11,12,13,15,16,20,21,22	1.00	73.91
32	Penchashimul	164	FG-05, MG-12	70%	2016	95%	1,2,3,4,5,6,7,9,10,11,12,13,15,16,20,21,22	1.00	73.91
33	Ethani	121	FG-4, MG-4	60%	2016	70%	1,3,4,5,6,7,9,10,11,12,13,15,16,17,20,21,22	0.80	73.91
34	Jirrakelai	197	FG-10, MG-9	70%	2015	85%	1,3,4,5,6,7,9,10,11,12,13,15,16,17,20,21,22	1.00	73.91
35	Joynagar	64	FG-4, MG-4	65%	2015	85%	1,2,3,4,5,6,9,10,11,12,13,15,16,17,18,20,22	1.00	73.91
36	Dumurkundi	225	FG-15, MG-03	80%	2015	80%	1,3,4,6,9,10,11,12,15,16,20,22	1.00	52.17
37	Besara	240	FG-07, MG-11	65%	2016	65%	1,2,3,4,6,7,9,10,11,12,13,15,16,20,21,22,23	1.00	73.91
38	Kendua	87	FG-04, MG-04	60%	2016	85%	1,3,4,9,10,11,12,15,16	1.00	39.13
39	Gopalpur	16	FG-01, MG-01	55%	2015	70%	1,3,4,9,10,11,16,20,22	1.00	39.13
40	Banjura	45	FG-03, MG-02	52%	2016	70%	1,3,4,6,7,8,9,10,11	1.00	39.13

Source: DRCSC

Table 5A: Description of interventions

Serial number (code of intervention)	Description of intervention	Serial number (code of intervention)	Description of intervention
1	GIS mapping	11	Input Seed/Organic materials
2	Automated Weather Station & MDCC	12	Small birds & animals
3	Weather Forecast & Agro Advisory Services	13	Micro irrigation facilities (Ditch & Dug well)
4	Climate kiosks	14	River Lift Irrigation

5	Step Pond	15	Production of Organic manure (construction of vermi compost pit)
6	Earth Work for Soil & Water Conservation	16	Aquaculture
6A	Water absorption trenches/pits	17	Community Grain Banks
6B	Stone bundling of gullies	18	Community Seed Banks
6C	Semi-circular bunds	19	Community Fodder Banks
6D	30X40 model	20	Energy efficient oven
7	Plantation	21	Bio gas
8	Check Dam	22	Low cost water filter
9	Capacity Building Training	23	Community based drinking water facility
10	Model Integrated Farming Practice	-	-

Table 6: Rating on the Implementation Progress

Interventions	**Units**	**Expected progress**	**Progress to date**	**Ratings by DRCSC** 1-Very satisfactory 2-Satisfactory 3- Not satisfactory
1. Project Inception Workshop	No.	Completed	Completed	1
2. GIS mapping	No. of villages and HHs	40 villages completed	Completed	1
3. Land and water use master plans	No. of villages	40 villages completed	Completed	1
4. 6 automated weather stations established	No of villages covered	40 villages covered	Completed	1
5. 12 manual data collection centers established	No.	12	Completed	1
6. 5 days crop weather advisories prepared	No.	320 no (target was 288)	Dec 2019	1
7. Establishment of climate resource centre	No.	1 Completed	Completed	1
8. Establishment of 40 weather kiosks	No.	40 completed	Completed	1
9. Awareness sessions for understanding of crop weather advisories	No.	682 no awareness session conducted through conduct village meeting, group meeting and community meeting	Dec 2019	1
10. Ponds excavated by farmer groups	No.	30	Dec 2019	2
11. Construction of following Contour bunds	No. of structures and no of HHs effected	Total 302.34 ha land treated under this activity where target was 300 ha. Presently we don't have the required date as per the intervention. It will take time for Collection of the data.		2
Water absorption trenches/pits			Dec 2019	2
Stone bundling of gullies			Dec 2019	2
Semicircular bunds			Dec 2019	2

Check dams		3 no (approx. 450 HHs) and one is under process	Dec 2019	1
Infiltration ditches		330 no. (approx. 600 HHs)	Dec 2019	1
12. Plantation of seasonal drought tolerant crops on back side of bunds	No.	Total plantation 148.5 ha. Presently we don't have the required date as per intervention. It will take time for collection of the data.	Dec 2019	1
13. Plantations of multipurpose trees as source of fodder, firewood, and herbs on 20 ha unutilized common property	No. of trees	**148.5** Plantation of multipurpose trees as source of fodder, firewood & 10 hector CPR plantation on fodder, firewood & herbs	Dec 2019	3
14. Capacity building to diversify livelihood	No. of sessions	225 no session	Dec 2019	1
15. Training to produce organic fertilizers and sustainable management techniques	No. of sessions	225 no session	Dec 2019	1
16. Small nutritional gardens in homesteads	No. of gardens	3247 no	Dec 2019	1
17. Training of women beneficiaries for different livelihood practices	No. of beneficiaries	3247 beneficiaries of 195 no SHG's	Dec 2019	1
18. Group based fish cultivation encouraged	No. of beneficiaries	30 SHGs	Dec 2019	1
19. Community grain banks developed	No.	23 no	Dec 2019	1
20. Local crop and trees seed banks developed	No.	5 no	Dec 2019	1
21. Fodder banks developed	No.	4 no	Dec 2019	2
22. Promotion of following energy efficient technologies: cook stoves	No.	1305 no	Dec 2019	1
23. Bio gas plants	No.	74 no	Dec 2019	1
24. Rain water harvesting structures	No.	This is not our intervention		
25. Low cost water filters	No.	430 no	Dec 2019	1
26. Community based drinking water facility	No.	3 no	Dec 2019	1
27. Production of 5 technical and economic analysis documents on improving climate resilience in red and lateritic zone	No.	4 no	Completed	1
28. 1 policy brief advocating models used in the project	No.	It will be prepare after the end of project		

29. Short films dedicated websites and printed materials for knowledge dissemination	No.	Short film-2 no, Website update 55 months, printed materials dissemination - 36 no.	Completed	1
30. Advocacy with National / State / Local Government and others on processes to identify strategies to adapt to climate change in red and lateritic zone	No. of times advice sought and from whom	Advocacy film-1 State level workshop -2 Local level workshop -5	Completed till Dec 2019	1

Table 7: Risk Assessment for Outcome 1 & 2

Outcome Components	**Identified Risk**	**Steps taken till PPR2**	**Current Status**
Outcome 1: Communities adopt land and water use master plans with the help of Panchayats through better understanding of climate change related impacts	Local Government fail to prioritize, sustain and upscale support for climate adaptive interventions in their strategies and plans	There are some of the models and practices which has created interest among the stakeholders, Govt. officials and PRI members. This has helped in mainstreaming of climate adaptive interventions by incorporating them in their strategies and plans. Accordingly, the project activities of the Adaptation Fund project viz., promoting crop diversification, productive utilization of waste land, use of quality seeds & seed bank, development of vermi-composting units, smokeless chullahs, agro advisories to farmers, etc. have been included in the West Bengal State Action Plan and also under West Bengal Accelerated Development of Minor Irrigation Project which aims to enhance agricultural production of small and marginal farmers. Web links: http://www.moef.nic.in/sites/default/files/sapcc/West-Bengal.pdf http://103.16.143.46/internal/IndexWBADMIP.aspx At National level, project activities are aligned with National Mission for Sustainable agriculture and Climate Change Agriculture Policy: Vision 2020 for promoting sustainable agricultural development and poverty alleviation in India. Web links: http://www.planningcommission.nic.in/reports/genrep/bkpap2020/24_bg2020.pdf	Medium to low To promote agriculture diversification and augment rural income various meetings have been organized with the Government line Departments on various aspects of climate resilient model. Thus, the project team has built good rapport at all levels in the Government machinery and could elicit positive response.
Output 1.1 Five Gram panchayat - wise Land and Water use Master Plans prepared	Government officials and Panchayat representatives may change	Meetings and awareness generation activities are being conducted in regular intervals, with the Block and District level Officials and PRI members. As a result in case of change of officials the new officials get a quick orientation of the project.	Medium During the reporting period, District administration and technical officials had been changed but the project interventions and activities did not get hampered due to regular interaction, orientation regarding the project and

			close relationship built with them. Two elections (Assembly, Panchayat) has been occurred during this period. In that situation our project work was done within those local tensions. This has become possible due to a very good rapport with the block and district level officials as well as PRI members through frequent meeting, interaction, etc.
Outcome 2: Farmers are better prepared for climate resilient agriculture and wastelands development	Macro Planning remains in place but participatory planning at local level for adaptive measures is not taken	Joint meeting with the District and Block level officials, target beneficiaries and other stakeholders is organized at regular intervals. Exposure visits have been organized regarding the different type of sustainable and climate resilient livelihood models for the Govt. officials, PRI members and local policy makers. Agriculture Dept. has understood the importance of local traditional indigenous varieties of seeds, plants etc. and are collecting, multiplying and promoting these in the future. Regular interaction between the local Panchayat and authority is being done for ensuring Gram Sansad meeting on one hand and on the other hand the participation of beneficiary is ensured in the meetings so as to facilitate for assertion of their demand in such forums. Creating the awareness regarding the Govt. schemes and services as well as the motivation to access these among the community.	Medium Top to Bottom approach followed in the process of development by the Govt. and PRI Deptt which ignores the community participatory approach. Therefore, the activities planned under convergence becomes very difficult to actualize. Even the Gram Sansads (Village Development Planning Meetings) are not organized by the Local Panchayat in regular intervals.
Output 2.2: The expert group comprising of weather expert and agriculture experts analyzes the data collected through AWS and MDC and prepares the 5-days crop-weather advisories	Few farmers may not use the weather advisory	Regular group meetings are being conducted in villages to generate more awareness about importance of Weather and Crop advisory. Various successful case stories of effective use of weather forecast and crop advisories were shared and showcased to motivate the farmers. Other stakeholders are also updated regarding the information on weather and crop advisory to increase their awareness level about it and rapid spread of the knowledge.	Low Initially the literate farmers were showing more interest to avail the weather and crop advisory services, and good numbers of them have actually applied the advisory to their farm situations. But gradually, more and number of illiterate farmer are also showing interest in the use of crop advisories to know the weather and crop information beforehand. The advisories are issued in a simple way and in local vernacular language and spread to the farmers and other stakeholders through hard copy, board writing, SMS and WhatsApp for better understanding of the farmers. This advisory has also gained popularity amongst the Govt., officials and the line departments for its accuracy level. The demand within the stakeholders for this data is increasingday by day as it is helpful in many ways other than only agriculture.

Output 2.3 : A Climate Resource Centre located at the centre of the project area and 40 weather kiosks managed by climate volunteers for collection	Volunteers absenteeism	Usually when volunteers are out of working area, they designate the job activity to the fellow group members who have been trained to do the job in the absence of concerned climate volunteers.	Low The weather volunteers are working properly and disseminating weather and agro advisory to the community. Whenever volunteers fail to reach the community due to their absence in the project area, interested youth of that village are trained on weather information dissemination. And those youth do the work of the volunteers and maintain the flow of the work.

Table 7A: Risk Assessment for Outcome 3 & 4

COMPONENTS	IDENTIFIED RISK	Steps taken till PPR2	CURRENT STATUS	ANY NEW RISK FACED	STEPS TAKENTO REDUCE RISK
Outcome 3: Livelihoods have become less vulnerable to climate change and achieve higher levels of productivity	Additional development (financial and marketing) support for alternate food and livelihoods are unavailable in the target Gram Panchayats at the required time	Identifying the skill, knowledge of the community people and resource. Identify the market demand of the product in the locality. Liasioning and interaction with Govt. officials and PRI members for supporting the various schemes and services for establishing the livelihood services. Linkage with the existing marketing system and financial institution with SHG for ensuring investment in entrepreneurship development activities.	Low In the project locations agriculture and livestock rearing are the livelihood options and alternative source of livelihood is very much limited. So as to broad base the livelihoods basket, based on their skill sets and available resources the Executing Entity has been doing regular meeting with Govt. officials and PRI members for regulating different schemes.	-	-
3.1 Small and marginal famers organized into groups to excavate new, step ponds and re-excavate old ones	Groups have been formed due to difference in economic and social status which could in return reduce their efficiency	Beneficiary with similar social and economic background are formed into new SHGs, revival and reconstitution of old SHGs. The SHG group approach has increased the individual's effectiveness. Similarly, capacity building of groups are being done through regular meeting, training and exposures giving special focus on the group leader to upgrade their group conflict resolving capacity. They are also doing savings and credit and have started having their bank account. And by this, they have become aware regarding the different scheme and programmes. Bankers are reluctant to open the accounts for new SHGs and in this case the DDM NABARD helped us by engaging with bankers.	Low People from different homogenous categories are gathered together to form groups. They have been strengthened through different types of trainings, exposures etc. By this way they have become aware. Through these process they have evolved conflict resolving capacity and practicing the same in the present context. They are also doing the proper utilization of the existing resources, savings and credit, etc. They are also planning for agriculture and livelihood activities through cropping plan in group through joint initiative.	An Integrated Watershed Development Project (USHARMUKTI) under MGNERGS launched in West Bengal in August 2017 and within the time period work has already being started. And our total operational area is covered under this new scheme entirely. This project is becoming a	The motivation of the community is increased by enhancing the sense of ownership of the community on the different type of assets created. By regular interaction with the PRI members we have tried avoiding duplication of work activities. Accordingly, consensus arrived that under USHARMUKTI project, new works only can be done in whereas renovation works of water storage structures also can

			In this way they have brought a sense of group cohesiveness within themselves.	problem for us as the targeted households are showing much more interest in the watershed related work (as per the Earth work, Plantation etc.) under the schemes rather than the work of AF project works implemented by DRCSC because the economic benefits are more under government programme.	be done under this project. The motivation of the community is increased by enhancing the sense of ownership of the community on the different type of assets created. By regular interaction with the PRI members we have tried avoiding duplication of work activities. Accordingly, consensus arrived that under USHARMUKTI project, new works only can be done in whereas renovation works of water storage structures also can be done under this project.

Output 3.2 Multilevel cropping systems & integrated farming practices are introduced mainly through popularizing a combination of drought tolerant field crops, fast growing & multipurpose perennials and small livestock	Major price fluctuation of the recommended commodities;	In order to get the project works/ activities completed within the sanctioned budget, beneficiary contribution is insisted to the extent of cost escalation in the sanctioned works/ activities. Apart from that, convergence with the Govt. department for various inputs will also help in completing the physical targets of various project activities with the available funds under the project. for e.g. Plantation, Agriculture (In some cases, saplings and bio inputs and seed inputs have been received through Govt. linkages.) Many trainings are also facilitated by the experts from Govt. Dept., Educational Institutions (BCKV),etc. in lieu of external resource persons.)	Medium The prices have gone up in the project area on account of new tax regime, also due to relative increase in purchasing power of the people in the project area because of availability of labor works and also payment of minimum wages. NREGS works sometimes posing a problem relating to completing the planned activities on time.	As GST is ruled the price fluctuation has increased a lot. Due to which activities will be lessened.	

	Farmers Disinclination in adoption recommended farming systems	Awareness sessions and continuous training and handholding have made the pathway easy for the transition from chemical intensive agriculture to ecological agriculture. Different training sessions has been attended by them. They themselves realized that the cost of cultivation has been reduced, the soil health has been improved and the methods has become adaptable to the impacts of climate change.	Low continuous awareness raising and motivation have been able to aware the farmers about the ill impacts of chemical intensive agriculture. The cost of cultivation has been reduced and the methods have proven to be climate resilient and hence the farmers are showing interest towards adopting recommended farming systems. Farmers have become self-reliant hence the market dependency has also been decreased.		
Outcome 4: Various types of materials on processes and techniques are published and measures taken to upscale the interventions to improve climate resilience in the red and lateritic zone	Lack of awareness among participating communities and local officials on climate change and potential impacts;	Various awareness and sensitization meetings are being carried out with both beneficiaries as well as Govt. officials.	Low An increase in the awareness level of the participating local community has been observed since the focus point of the discussion has been on Climate Change and its potential impact.	By effecting convergence with the Govt. department and recurrent of certain inputs from them has helped in meeting the cost of price inflation. The beneficiary contribution also forthcoming in some activities.	
	Policy makers and politicians prioritize economic benefits over sustainable and resilient ecosystems	Regular interaction with the policy makers, sharing and demonstration regarding ecosystem based, need based, locally suitable appropriate models. In the District Level steering committee review meeting climate change project interventions outcomes and success stories are shared with the other stakeholders and policy makers. Demonstration with low cost sustainable models and its positive impact is part of our advocacy and communication at all levels to get rid of the problems. In the state level meeting of NABARD office Kolkata we had shared our case models of different climate resilient sustainable development models the policy makers and politicians were also influenced.	Low Usually, the priority of policy makers and the politicians focus on economic benefits than sustainable resilient economy whose adverse impact of unsustainable development is not only visible in agriculture fields but also in the total environment. So, policy makers have started showing their interest to prioritize resilient ecosystem based development, albeit a humble beginning, such as promotion of organic farming.		

Table 8: Record keeping and documents being maintained

Serial number of document	Name of the document	Type of information/data	Level of documentation (household/village/ office)	Frequency (monthly/ seasonally/yearly/one time)	Since when
1	MDDC Record Book	Day to day temperature (max & min), Humidity (max & min) rainfall, condition of sky etc. each and every day in two times at8AM & 4 PM	Climate Kiosk at village	Daily	Sept 2015
2	AWS Record	Temperature, humidity, rainfall, wind speed, wind direction	Office	Daily	Sept 2015
3	Forecast vs actual weather	Temperature, humidity, rainfall,wind speed, wind direction,	Office	5 days	May 2016
4	Crop & livelihood Advisory	Pest, disease of crops, livestock& fishery	Office	Monthly	May 2016
5	SHG Documents	Meeting minutes, cash book,bank account, loan record, monthly contribution etc.	Individual SHG	Monthly	Aug 2015
6	SHG Deed paper	Community based activity	For community base worklike social forestry, step pond, farm pond, dug well etc.	As per activity	Aug 2015
7	Visitors Book	Visitors Record	Official	-	Aug 2015
8	Leave Registrar	Leave record	Official	-	Aug 2015
9	Movement Registrar	Movement Record	Official	-	Aug 2015
10	Vehicle maintenance Log Book	Vehicle run	Official	Daily	Aug 2015
11	Bio Data / profile	Record for staff appointment	Official	-	Since inception
12	Assets Register	Record of fixed assets	Official	-	Since inception
13	Input Distribution Registrar	Record of Input support	Official	Seasonally	Aug 2015
14	Stock Registrar	-	Official	Daily	Since inception
15	Financial Register	Financial record	Official	Daily	Since inception
16	Staff Meeting Resolution	-	Official	As per meeting	Since inception
17	Seed Reg.	Input seed registrar	Official	Seasonally	Since inception
18	Watershed committee	Meeting register, cash book, contribution slip, bank passbook etc.	Watershed committee	Weekly	January 2017

19	Farmers Producer Company	Meeting register, cash book, debit credit voucher, invoice, challan, share capital document, bank passbook etc.	Farmers Producer Company	Weekly	January 2019
20	Group wish all activity	Project Activity	Office	Continuously update	Since Inception
21	Farmers Diary	Income & expenditure, crop plan, disease control, production	Individual farmers	Weekly	Mar 2016
22	Monthly progress report	All activity	Office	Monthly update	Since inception
23	Quarterly progress report	All activity	Office	Quarterly update	Since inception
24	Half-yearly progress report	All activity	Office	Half yearly update	Since inception

Source: DRCSC

Table 9: Stakeholder Involvement and Output-Outcome Status

COMPONENTS	OUTCOME AND OUTPUT	STAKEHOLDERS	Type of activities being undertaken by each stakeholder and status till date
1: Land and Water use Master Plan	**1.1** Five Gram Panchayat -wise Land and Water use Master Plans are prepared	**1.1** Development Research Communication and Services Centre (DRCSC) and State NABARD	Facilitation and mobilization, linking University with community, PRI members, Govt. officials; Conduct PRA Mapping (using different tools); transect walk with community; sample collection (water, soil), spot identification (with day-long) with community for intervention. Study of soil type, slope, nature of stone/rock etc.
		1.2 Oceanography department of Jadavpur University	Primary and secondary data research, software development, sample (water, soil) analysis, documenting community knowledge, compilation with scientific knowledge, validation of identified spots, climate model study, draw 1 mt. contour level maps for every villages preparation of vulnerability index for the villages, report generation etc.
		1.3 Communities of 5 Gram panchayats	In planning, spot identification, information about their experience, participating in PRA exercise, participated in transect walk, shared the problems of the area etc. shared the perception as well.
		1.4 PRI Members & Government Officials	Provide maps, secondary data, sharing of existing and upcoming plans of the area related to land & water

2: Reducing Climate Risk through timely and appropriate weather specific crop/Agro advisory services in local languages (Bengali)	**2.1** Automated Weather stations (AWS) at 6 locations (covering 10 sq.km each), 12 manual data collection centres (MDC) for collection of weather information **2.2** The expert group comprising of weather expert and agri experts analyzes the data collected through AWS and MDC and prepares the 5-days crop weather advisories **2.3** A Climate Resource Centre located at the centre of the project area and 40 weather kiosks managed by climate volunteers for collection and dissemination of crop related advisories	2.1 DRCSC, Climate Resource Centres Manager 2.2 Expert Group comprising of Meteorological and Agricultural Experts 2.3 Climate volunteers and local farmers	Identification of sites for installation of AWS machines and Manual data collection centres along with expert. Time to time data collection (by CRC Manager every 5 days) and sharing with expert. Set up of display boards in prominent locations. Procurement of mobile numbers, maintain the database. The expert after receiving the data analyses with climate model and shares the forecast with expert from different Universities, Universities share the agro-advisories based on the forecast back to the expert and expert shares the forecast along with advisories to DRCSC (CRC Manager). CRC manager (DRCSC) then translates the forecast and agro advisories in local language and disseminates through SMS, display boards, WhatsApp, email and to climate volunteers. Climate volunteers shares the message in every display board, group meetings. CRC Manager (DRCSC) orient climate volunteers time to time. Climate volunteers orient farmers about using the information and collect feedback from the farmers and report back to DRCSC. Climate volunteers also document day to day data from MDCCs. CRC Manager maintains the machine in consultation with Engineer & climatologist.

3: Climate resilient technology transfer for enhancing the adaptive capacity of the community	**3.1** Sustainable soil and water conservation measures (e.g. semi-circular bunds, check dams, gully plugs, infiltration ditches and agro forestry plantations) for various ecosystems introduced for improvement of agricultural productivity and environmental sustainability	DRCSC in consultation with NABARD Regional Office in Kolkata District. Rural Development Dept. , Water Resources Dev. Dept., Animal Resources Development. Dept. , Dept. of Agriculture, Horticulture, Fisheries, KVIC, WBREDA, Engineer	Motivation to targeted families for soil & water conservation measure. Collects day long for probable spots of irrigation structures with group approval and shares with JU via DRCSC. Collection of feedback – shares with community - group discussion – cost estimation – organize labor for the activity - technical layout design – implementation – day to day monitoring - facilitate probable convergences; Plantation related input collection - plant species selection along with community - saplings collection – organize work camps for plantation – design the area – pit digging and transplantation – intercultural operations monitoring – organize handholding trainings; With regard to check dam – community interaction for mobilization with lager community, site selection and validation by engineer, motivation, develop engineering design, cost estimation – engagement of community – liaison with PRI members and government officials – procurement of construction material, implementation and monitoring
	3.2 Multilevel cropping systems & integrated farming practices are introduced mainly through popularizing a combination of drought tolerant field crops, fast growing & multipurpose perennials and small livestock		Groups nurturing - Organize subject wise capacity building sessions through training, exposures and handholding's, collection of traditional local seeds, saplings, breeds etc. – collection and preparation of organic manure, bio pest repellents etc. – construction work facilitation for vermi pits, micro irrigation facilities development (beneficiary spot selection, design etc) – selection of progressive/Integrated farmers – design – farm planning – implementation – plot visit every alternative day; time to time consultation with Government officials and experts , organization of vaccination camps in convergence with government

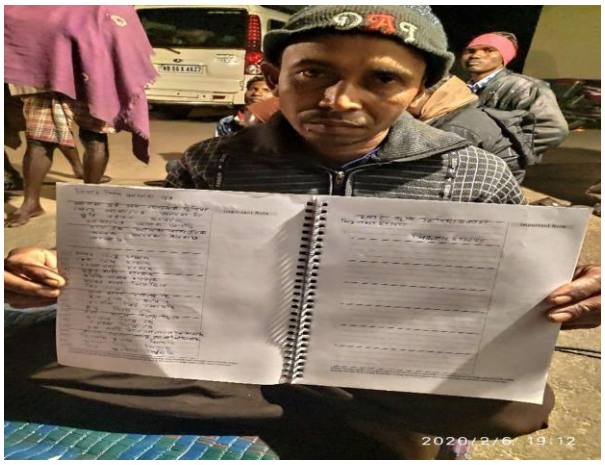
			Officials, etc. Government officials monitor the work on a regular manner, provides inputs as and when required, provides training, participate in different programmes etc. For RLI Site selection jointly (community & DRCSC), validation by engineer, engagement happens with Engineer for designing & cost estimation, procurement of material site validation, implementation etc.
	3.3 Disaster-coping mechanisms like community grain banks, local crop & trees seed banks, fodder banks, developed in targeted villages		Discussion with groups – selection of groups – place identification for construction – negotiation – norms finalization in consultation with community – collect community contribution – help groups in procurements – management of grains, seeds etc. – training and handholding on record keeping – data checking resolution checking etc.
	3.4 Climate resilient appropriate technologies like energy efficient cook stoves, bio-gas, low cost water filters, community based drinking water facilities are promoted		Beneficiary selection – group approval – materials procurement – engaging masons – beneficiary engagement – facilitation of convergences (for Bio Gas). Drinking water facility Motivation - raise community contribution – deposit in bank savings account in the name of group – water use committee formation - site selection and validation, water testing, consultation with engineer – developing technical drawing – consultation with experts – procurement – supervision of construction work – engagement of community – final water testing – maintaining by water user committee – facilitation of water testing every three months – monthly subscription from each households deposit with water use committee
4: Learning and Knowledge Management	**4.1** Production of technical and financial data analysis on processes to improve the resilience of the livelihood in red and lateritic zones of West Bengal	DRCSC Project Management Unit	Selection of Subjects in consultation with Consultant – engagement of experts – development of material – design and printing

	4.2 Improved access to learning from the project activities to be ensured through short films, dedicated website and other printed materials		Campaign through village fairs, wall writing rally etc - Improve access through children – teachers network creation – children are raising awareness among the community – local level workshops at block and district levels in convergence with departments, PRI members other CSOs; Regular maintenance of websites – document collection, updation, etc; Learning materials printing; Organize farmers convention for experience sharing along with Ministers, NABARD HO & RO, Universities, Government officials etc; networking among CBOs for dissemination of learnings Audio visual documentation of the work time to time – make short clips – AV awareness materials generation (concepts, techniques etc.)
	4.3 Advocacy with National /State/Local Government and others (NGOs, CBOs, International org, climate activists/experts) on processes and practices adopted under the project		Steering Committee formation and organize regular meetings for experience sharing and review – organize local level workshops to demonstrate various models; State level workshop to disseminate the learnings among State level officials, CSOs, Universities, Researchers, CSRs Etc. Publication of advocacy films on work carried out, documentation of case studies etc.

(a) Project beneficiaries of Bankura District during the mid-term assessment meeting. In almost all meetings women outnumbered men.

(b) Billboard describing the list of activities undertaken in the project village. Every project village has a similar billboard

(c) Automated weather Station in one project location



(D) A project beneficiary showing his written appreciation for NABARD for this project and some further requests

Figure 3: Pictures from the field showing interventions and beneficiaries