



# Church of Bangladesh Social Development Programme (CBSDP) - Rajshahi Regional Office Medium-level Environmental Assessment

<b>Date</b>	May - June 2010
<b>Assessment project manager</b>	Ruhul Quddus Tito (CBSDP-Rajshahi Manager)
<b>Fieldwork completed by</b>	Christopher Methun Mondol (CBSDP-Rajshahi Assistant Manager)
<b>EA Form completed by</b>	James Pender (CBSDP Climate Change Consultant)

## Introduction

As part of the Church of Bangladesh Social Development Programme's (CBSDP) partnership with Tearfund it is planned to conduct Environmental Assessments (EA) at all its field offices funded through the Tearfund supported project *Mobilising the Church in responding to the threats posed by Climate Change*. When these are completed the EA will form a base on which to conduct *Climate change and Environmental degradation Risk and Adaptation Assessments* (CEDRA) for the two main zones where CBSDP operates and are particularly vulnerable to climate change: The Arid Zone in western and central Bangladesh and the Wetland Zone in southern Bangladesh. As much of the information required for the EA can also be used for CEDRA in terms of the fieldwork to collect information from the community included questions related to both CEDRA and the EA. In addition as CBSDP-Rajshahi is currently collaborating with the Department of Botany of Rajshahi University in investigating traditional resource use and how these resources can be preserved or cultivated (CBSDP is already cultivating one type of wild vegetable in a test plot), further questions were included in CBSDP's community survey. The questionnaire is attached as Appendix 1.

## Methodology

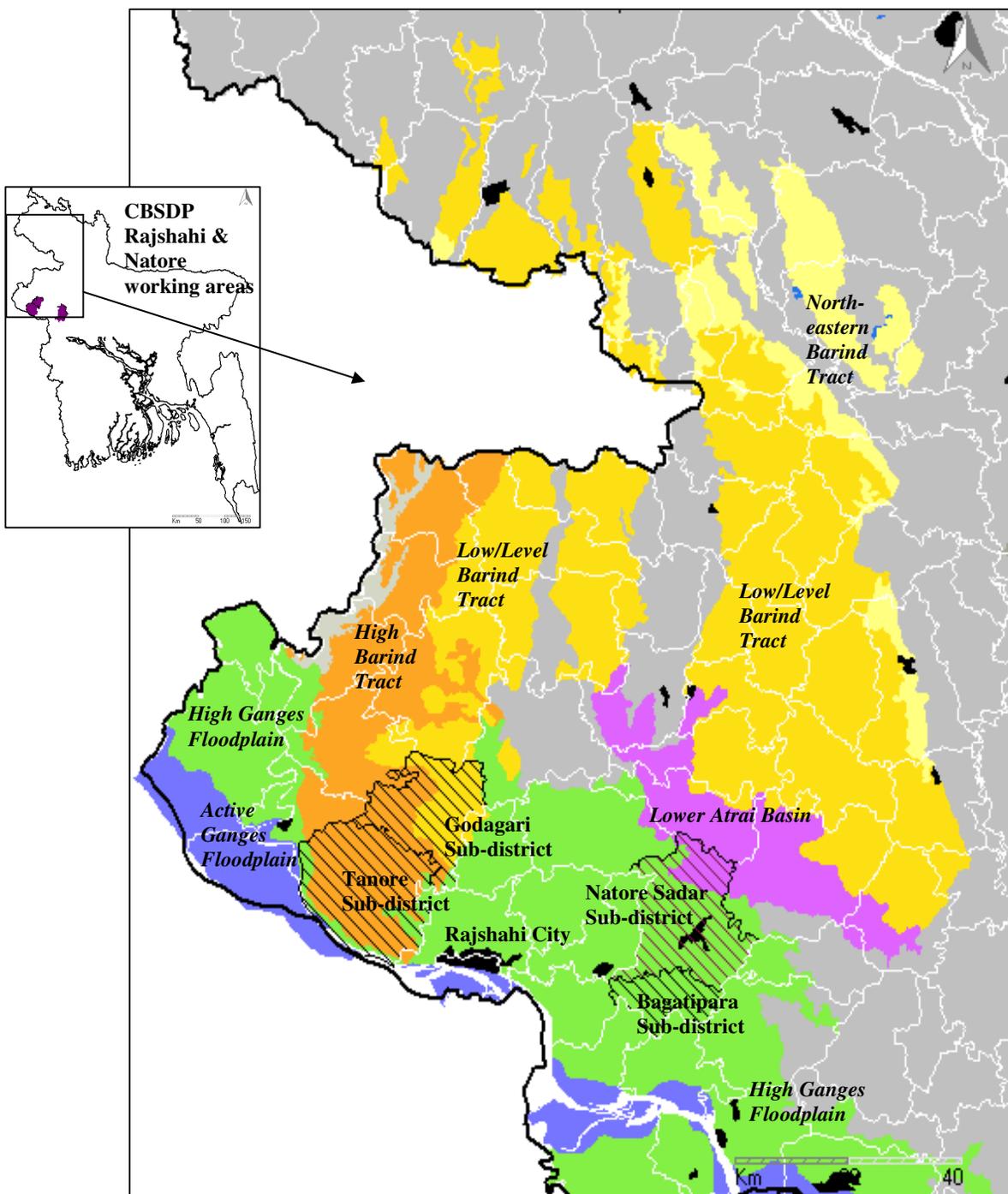
The fieldwork was completed between the 10<sup>th</sup> to the 30<sup>th</sup> May by Assistant Manager Christopher Methun Mondol (James Pender, CBSDP Climate Change Consultant joined him for visits to the first 3 villages surveyed). 14 villages where CBSDP's *Food Security Program* is operating in order to get the most diverse participants as possible which included: Santal villages, a Pahari village, Oroan villages, Muslim Bengali villages, a low-caste Hindu Bengali village and a number of villages of mixed religion and ethnicity. Eight of these villages were in the Barind Tract of Rajshahi District and six were in the High Ganges River Floodplain of Natore District. The separate data from each village can be seen in Appendix 2. The survey used focus groups comprised of around 16 people that included: The village headman, teachers, Development Group/Village Organisation leaders, church/mosque/temple committee members, the catechist/Imam/Priest (if that were his home village), farmers, students, and housewives with 50% being women.

The focus groups were asked questions and the surveyer wrote down their replies, with most the questions being asked in an open-ended manner so as not to lead or influence the responses in any way, categories of questions included: Information on site, Human Environment on site, Climate change, Physical Environment, and Natural Resources used by the community. A number of Participatory Learning and Action (PLA) techniques were used to help obtain data, namely a *Disaster Event Timeline* (which followed the questions on Physical Environment) and a *Seasonal Calendar – Past & present situation* was used following the questions of climate change, and following the exercise participant were asked if they had any strategies to cope with these changes. For the PLA exercises two groups were formed a mens group and a womens group in order to get different perspectives on the local situation.

Other information for the assessment was obtained from: The *CBSDP-Rajshahi Baseline Survey and Project Assessment Report* (2009) for which 200 beneficiaries and 100 beneficiaries in Natore and Rajshahi Districts completed individual questionnaires relating to development and the work of CBSDP; the 2<sup>nd</sup> edition of the book *Bangladesh Environment: Facing the 21<sup>st</sup> Century* edited by Philip Gain of Society for Environment and Human Development (SEHD) that contains lots of useful information on a wide variety of environmental issues; volume 1 of the *Encyclopedia of Flora and Fauna of Bangladesh: Bangladesh Profile* published by the Asiatic Society of Bangladesh that contains good information on geography, biodiversity, climate, soils and natural resources; and finally from the *Bangladesh Country Almanac (2008)* using *AWhere* mapping software that can be downloaded from <http://www.awhere.com/CSISA/Homepage.aspx>, that contains much government data on agriculture, the human and natural environment.

Following the completion of part 1-3 of the EA, the Manager, Assistant Manager and Climate Change Consultant facilitated the completion of sections 4 and 5 at a meeting of all CBSDP-Rajshahi's senior staff. Section 6 was completed at the EA/CEDRA follow-up training by Tearfund at Hope Centre between 12<sup>th</sup> to 16<sup>th</sup> June.

**Map of the 4 Sub-districts where CBSDP-Rajshahi works, Rajshahi City where its office is based and the local agri-ecological zones (itallics)** J.S. Pender using BCA database & AWhere version 4 software



## Part 1: Description of the project

1	Organisation's name	CBSDP-Rajshahi		
2	Project name	Food Security Program		
3	Name and contact details of lead assessment officer	James Pender cbstdpconsultant-climatechange@yahoo.co.uk		
4	Project location(s)	Natore Sadar and Bagatipara Sub-districts under Natore District. Godagari and Tanore Sub-districts under Rajshahi District.		
5	Project goal and desired benefits: - project need/purpose - project beneficiaries - main project activities	<p>The developmental goal the project is: 'To achieve sustainable increase in the quality of life of both the aboriginal and indigenous poor beneficiaries of CBDSR-Rajshahi'.</p> <p>While its immediate objectives are:</p> <ul style="list-style-type: none"> <li>- To assist poor villagers in forming functional groups local committees for the purposes of social empowerment through training, education as well as for the development of members' individual and collective potential.</li> <li>- To improve the economic status of poor individuals through skills and vocational training and the availability of micro-credit, consultancy, support and follow-up services.</li> <li>- To enable communities to live in harmony with the environment for mutual benefit, as well as equip them to adapt their lives to the changes that are occurring due to climate change.</li> <li>- To improve the health and well being of the poor through health education, awareness, practical training and infrastructure development.</li> <li>- To improve the educational potential of disadvantaged children, especially those from ethnic minorities, through the provision of pre-primary and primary education.</li> </ul> <p>The beneficiaries of the project are from a wide variety of the various groups found within the working area of CBSDP-Rajshahi, in order to encourage holistic social development across society, from government officials, to basket weavers. However, particular emphasis is given to working with the poorest-of-the-poor, women, religious minorities, Dalits, and Adivasis, whom are the most disadvantaged and vulnerable in their communities. Overall beneficiaries number over 2300 people.</p>		
6	Anticipated length of project including a description of set-up, implementation and closure phases (if relevant)	<b>Phase</b>	<b>Expected start</b>	<b>Expected completion</b>
		Total	01.01.2009	31.12.2011

## Part 2: Description of the project's physical environment

14	Topography, soils and natural features in project site(s) (Is the area flat, sloping, hilly or very varied?)	The Sub-districts of Godagari and Tanore are situated in the rolling, now mostly gently terraced Barind Tract which rises from 2-30 metres above the adjoining flood plain. The Barind Tract is a fragile ecosystem that represents a series of uplifted blocks of Modhupur Clay of the Pleistocene age. Its (deep grey terrace) soils have low natural fertility under cultivation, rapid permeability, low moisture holding capacity, low structural stability, and erodability making them particularly vulnerable to drought which is becoming an increasing problem (Asiatic Society of Bangladesh – Bangladesh Profile). In contrast the Sub-districts of Natore Sadar and Bagatipara under Natore
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		District are situated on flat land made up of deltaic sediments with mostly calcareous dark grey floodplain soils or calcareous dark brown floodplain soils respectively (Bangladesh Agricultural Research Council - BARC). Soil organic matter a key component for plant growth is very low in Godagari and Tanore, low in Bagatipara and moderate in Natore Sadar sub-districts.													
15	Project position on site(s)	CBSDP-Rajshahi works throughout these districts with some villages in its working area being on flat land (Gangetic floodplain or Lower Atrai Basin), some villages in 'low Barind' (only very slightly rolling/terraced with poor soils) and some villages in 'high Barind' areas (terraced, rolling landscape with poor soils). Its working areas in Bagatipara and Natore Sadar Sub-districts are on the <i>High Ganges River Floodplain</i> apart from a small section of the latter in the <i>Lower Atrai Basin</i> , while in Godagari Sub-district and half of Tanore Sub-district its working area are on the <i>High Barind Tract</i> and the rest of its working area in Tanore Sub-district is on the <i>Level or Low Barind Tract</i> .													
16a	Local climate	Annual average rainfall in CBSDP's Rajshahi District working areas is lower than for most of Bangladesh being 1381mm in Godagari Sub-district and 1375 mm in Tanore Sub-district, and is significantly lower than the 1448 mm and 1477 mm received by Bagatipara and Natore Sadar Sub-districts respectively (CIAT/CIMMYT). The area also experiences some of the hottest summer temperatures in Bangladesh with long term average April (the hottest month) temperatures being 36.5°C in Natore Sadar, 36.8°C in Bagatipara, 37°C in Tanore and 37.5°C in Godagari. This leads to high Potential Evapo-Transpiration (PET) rates of between 165-175 mm in all the districts in April with a maximum of up to 180 mm in the south of Godagari Sub-district in May (CIAT/CIMMYT). The low rainfall and high PET at certain times of the year causes a water stressed environment particularly in the poor soils of the Barind Tract. As a result according to the Bangladesh Agricultural Research Council (BARC) classifications the CBSDP working area in Rajshahi District is prone to very severe winter or <i>rabi</i> drought, pre-monsoon or <i>pre-kharif</i> drought and monsoon or <i>kharif</i> drought, while the CBSDP working area in Natore District is prone to moderate to severe winter or <i>rabi</i> droughts, moderate to severe pre-monsoon droughts, and moderate monsoon droughts.													
16b	Changes in Local Climate	There is evidence of decreasing rainfall in the Barind Tract as a whole which was recorded to drop from 1738 mm per year in 1981 to only 794 mm in 1992 according to Das & Mondal, in <i>Bangladesh Environment: Facing the 21st Century</i> (2002). While all villagers surveyed by the EA reported that the local weather patterns had changed over the last 10 years namely: Colder winters (7 out of 8 villages in Rajshahi District, 4 out of 6 villages in Natore District); longer winters (3 out of 6 villages in Natore District); shorter winters (3 of 6 villages Natore); more coldwaves (1 of 8 villages Rajshahi); milder winters (3/6 villages in Natore District); hotter summers (5/8 villages Rajshahi); more heatwaves (3/8 Rajshahi, 5/6 villages Natore); later rainy seasons (7/8 Rajshahi, 2/6 Natore); shorter rainy seasons (5/8, Rajshahi); reduced rainfall (1/8 Rajshahi); reduced rainfall & a shorter rainy season (5/6 Natore); increased droughts (6/8 Rajshahi, 6/6 Natore); more pest/disease of crops (6/8 Rajshahi), more insects (3/6 Natore); more fog in winter (4/8 Rajshahi, 4/6 Natore); less fog in winter (2/8 Rajshahi, 2/6 Natore); more tornados (1/6 Natore); fewer tornados (4/8 Rajshahi, 4/6 Natore); fewer floods (1/6 Natore); and falling water table (1/6 Natore).													
17	Typical vegetation ground cover, eg scrubland, grassland, trees, woods, agricultural land, marsh, coastal scrub and mangroves	<table border="1"> <thead> <tr> <th></th> <th>Typical ground cover</th> <th>% of each ground cover type</th> </tr> </thead> <tbody> <tr> <td rowspan="2">In project area</td> <td>Agricultural Land</td> <td>95%</td> </tr> <tr> <td>Homesteads, ponds, other</td> <td>5%</td> </tr> <tr> <td rowspan="2">On the margins of the project area</td> <td>Agricultural Land</td> <td>95%</td> </tr> <tr> <td>Homesteads, ponds, other</td> <td>5%</td> </tr> </tbody> </table>		Typical ground cover	% of each ground cover type	In project area	Agricultural Land	95%	Homesteads, ponds, other	5%	On the margins of the project area	Agricultural Land	95%	Homesteads, ponds, other	5%
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18	Flora and fauna (common plants, wild flowers, grasses, animals)	Historically all the areas in which CBSDP-Rajshahi working area was <i>Sal</i> Forest with a rich variety of plants ( <i>Sal</i> being the commonest tree) birds, and animals. Now all the natural forest in the area has been cleared with a huge impact on natural resources
19a	Natural resources in the local area(s) – <b>Wild vegetables</b>	In Natore District villagers formerly ate the following wild vegetables (most green leafy unless mentioned): <i>Telakochu</i> , <i>Aram (kochu)</i> , <i>kolmi</i> , <i>godle</i> , <i>katanote</i> , <i>sanchi</i> , <i>boith</i> , <i>khaikura</i> , <i>gima</i> , <i>nunta</i> , <i>chirakuti</i> , <i>dheki</i> , <i>koilla</i> , <i>gandari</i> , <i>nindaru</i> , <i>helencha</i> , <i>thontoni</i> , <i>gadhpuernima</i> , <i>nontakhuri</i> , <i>shishkhuri</i> . While in Rajshahi District villagers formerly collected the following wild vegetables for food (most green leafy unless mentioned): <i>Aram (kochu)</i> , <i>kolmi</i> , <i>sunsumi</i> , <i>sanchi</i> , <i>nuna</i> , <i>noti</i> , <i>hoyara</i> , <i>bohututuri</i> , <i>gaigandharu</i> , <i>ulinara (red)</i> , <i>boitha</i> , <i>geduru</i> , <i>chathamara</i> , <i>patara</i> , <i>hinja</i> , <i>botua</i> , <i>jenuara</i> , <i>jhunkiara</i> , <i>soruara</i> , <i>tanthaara</i> , <i>giloriara</i> , <i>desidata (white-yellow)</i> and Wild Potato. Adivasis had a wider knowledge and former usage which is assumed to be due to their former way of life and longer presence in the area. All these wild vegetables have now become rare.
19b	Natural resources in the local area(s) – <b>Wild Fruit</b>	In Natore District villagers formerly ate the following wild fruit: <i>Kaloram</i> , Mangosteen, Custard Apple, wild jackfruit, <i>Atisara</i> , <i>dephor</i> , wood apple, <i>koromera</i> , <i>kath amra</i> , <i>kayadumi</i> , <i>baghpori</i> , <i>betfal</i> , <i>folsha</i> , <i>atishara</i> , guava, <i>tal</i> , <i>kotbel</i> , <i>dumur</i> , wood nut, and <i>koroekfal</i> . While in Rajshahi District villagers formerly collected the following wild fruit for food: <i>Kaloram</i> , <i>lawa</i> , custard apple, <i>derofal</i> , <i>elan</i> , wild jackfruit, wild apple, <i>hairabla</i> , <i>horufal</i> , wild nut, <i>pamachaka</i> , <i>singhra</i> , <i>shaluk</i> , water chestnut, <i>boichafal</i> and <i>alang</i> . Adivasis had a wider knowledge and former usage which is assumed to be due to their former way of life and length of presence in the area. All these wild fruits have now become rare.
19c	Natural resources in the local area(s) – <b>Medicinal Plants</b>	Medicinal plants used by villagers in Natore District that were surveyed were: <i>Arjun</i> , <i>ulotkomol</i> , <i>hortoki</i> , <i>bohera</i> , <i>satomul</i> , <i>pathorkuchi</i> , <i>harjora</i> , <i>akondo</i> , <i>sarpraz</i> , <i>foniraj</i> , <i>amloki</i> , <i>telakochu</i> , <i>harboush</i> , <i>hatishura</i> , <i>kontokali</i> , <i>chchoti</i> , <i>chandan</i> , <i>teipa</i> , <i>dopra</i> , <i>talat</i> , <i>choto chand</i> , <i>dhutra</i> , <i>chotcoti</i> , <i>chircota</i> , <i>gode</i> , <i>isshorkul</i> , <i>akaura</i> , <i>joshtimodhu</i> , <i>arantomul</i> , <i>thankumi</i> , <i>desi nim</i> , <i>gorjon</i> , <i>samanki</i> , <i>gurunchi</i> , <i>talmul</i> , <i>bhumikumra</i> , <i>olotkomor</i> , <i>chimulmul</i> , <i>ashmakandar</i> , <i>gondodhovejali</i> , <i>doilochpata</i> , <i>tulsi</i> , <i>cherota</i> and <i>kalomegh</i> . While medicinal plants utilised by villagers in Rajshahi District were: <i>Chinota</i> , <i>gode</i> , <i>tulshi</i> , <i>shutera</i> , <i>kalomegh</i> , <i>thankuni</i> , <i>lalpata</i> , grass, <i>josthi</i> , <i>llajjabati</i> , <i>chuhar gach</i> , <i>kathgoaru</i> , <i>hortoki</i> , <i>arjun</i> , <i>bohera</i> , <i>amloki</i> , <i>akondo</i> , and <i>durda</i> . Also used in Rajshahi for medicinal purposes (though not a plant), was wild honey. All are now rare in the areas surveyed for the EA.
19d	Natural resources in the local area(s) – <b>Cottage Industry source</b>	Five out of 14 villages used natural materials to produce products for sale that included: Floor mats, fans, and brooms.
19e	Natural resources in the local area(s) – <b>Housebuilding materials</b>	Raw materials for housebuilding, such as bamboo, wood, straw and palm leaves are now available in only 2 villages out of 14.
19f	Natural resources in the local area(s) – <b>Animal feed</b>	8 villages rely on wild plants, fallow land, local trees and field edges to feed their livestock, in 4 villages people grow fodder crops or use agricultural by-products such as rice straw to feed their livestock, while 2 villages are reliant on commercial animal feed bought from market.
19g	Natural resources in the local area(s) – <b>Wild game</b>	Formerly a wide variety of wild animals were hunted for food including: Jungle cat, indian porcupine, mongoose, rat, turtle, rabbit, eel, crab, wild ducks, bats, jackel, indian fox, snails, shellfish, frogs, wild birds, and owls. Now all these animals which formed an important food source particularly for Advivasis are rare.

19h	Natural resources in the local area(s) – <b>Wild fish</b>	Formerly fish were caught from ponds and rivers but this resource has declined to the point where now only 2 out of 14 villages surveyed in the EA could now catch wild fish for food.						
20	Current local use of natural resource management methods	There is no local natural resource management and current resources such as groundwater, soil and animals are being used unsustainably.						
21	Existing environmental conservation methods or structures (eg water or soil conservation structures and flood diversion channels)	There are some canals which are being deepened in some places but none close to the surveyed villages. While the land in the High Barind Tract areas of Rajshahi District are terraced which is a way of reducing soil erosion.						
22a	Source of and distance to fresh surface water from project site(s)	<table border="0"> <thead> <tr> <th style="text-align: left;"><b>Source</b></th> <th style="text-align: left;"><b>Distance</b></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Ponds</td> <td>Most villages have one</td> </tr> <tr> <td><input type="checkbox"/> Seasonal streams/canals/rivers</td> <td>Few and not close to villages surveyed.</td> </tr> </tbody> </table>	<b>Source</b>	<b>Distance</b>	<input type="checkbox"/> Ponds	Most villages have one	<input type="checkbox"/> Seasonal streams/canals/rivers	Few and not close to villages surveyed.
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<input type="checkbox"/> Seasonal streams/canals/rivers	Few and not close to villages surveyed.							
22b	Surface water use within project site(s) and downstream	<input type="checkbox"/> <b>Drinking / cooking</b> Used if no access to tubewells or in the dry season when groundwater levels dropped below the reach of tubewells <input type="checkbox"/> <b>Washing / bathing</b> Most people prefer to use ponds if available for washing kitchen utensils, plates, themselves and their clothes <input type="checkbox"/> <b>Irrigation</b> In areas close to ponds, and where groundwater irrigation unavailable. <input type="checkbox"/> <b>Animal use</b> Normally used						
22c	Surface water quality within the project site(s) (Note: <u>all</u> surface water should be treated prior to consumption)	<input type="checkbox"/> <b>Poor (polluted with external materials)</b> In the dry season <input type="checkbox"/> <b>Moderate (not using for domestic purposes)</b> In the wet season/monsoon						
22d	Ground water availability within the project site(s)	<input type="checkbox"/> <b>Shallow Tubewell (20-100 feet)</b> Formerly but now the falling water table has made them obsolete in the villages surveyed <input type="checkbox"/> <b>Semi-deep Tubewell (100-250 feet)</b> These are now the main source of drinking water in most villages surveyed. Though in some villages there are not enough of them, they are in need of repair or absent. <input type="checkbox"/> <b>Deep Tubewell (below 250 feet)</b> Through the Barind Multipurpose Authority some villages have drinking water pumping into water tanks and can also use their groundwater pumps to irrigate their fields. There is however a cost to this which puts irrigation out of reach of small farmers and due to lack of potential for profit most poorer villages are simply not provided for.						
22e	Ground water use within the project site(s) and downstream	<input type="checkbox"/> <b>Drinking / cooking</b> The preferred source of villagers if available. <input type="checkbox"/> <b>Washing / bathing</b> Used more in the dry season when pond water quality drops <input type="checkbox"/> <b>Irrigation</b> Limited use from handpumps, but motorised pumps are widely used to obtain groundwater for irrigation, but mostly by richer farmers						

		<input type="checkbox"/> <b>Animal use</b> Where pond water not easily available
22f	Ground water quality within the project site(s)	<input type="checkbox"/> <b>Good (using for domestic purposes)</b> The quality is generally very good due to the depth from which it is obtained, but it is not available from some hand pumps in the dry season or the water may contain sediment which makes it less palatable.
22g	Current local use of water conservation methods	A little rain is collected in the monsoon from tin roofs (but not in a systematic way with pipes or gutters), and village ponds store rainwater (though many are in need of repair).
22h	Groundwater levels	In all the 14 villages in which focus groups were held, villagers complained of the falling water table: In Natore District villages surveyed formerly could find water at 40-110 feet below the ground but now the water table has dropped to 80-170 feet. While in the Barind Tract of Rajshahi District the water table was formerly between 20-100 feet below ground level but now the water table has dropped to between 120-200 feet deep!
231	Vector-borne disease levels in local area(s) (diseases carried by an insect or other organism [the vector] eg malaria and dengue carried by mosquitoes)	Malaria was formerly found in 3 out of 6 villages in Natore District and 2 out of 8 villages surveyed for the EA in Rajshahi District but now no longer occurs in either area. Black Fever <i>Leishmaniasis</i> (known locally as Kalojor), spread by the sand fly in dry sandy/dusty areas previously affected 5 out of 6 of the villages in Natore and 4 out of 8 of the villages in Rajshahi District surveyed for the EA, but now it is only causes illness in 2 out of 8 villages in Rajshahi District. Diarrhoea was and is a significant health concern in 5 out of 6 villages in Natore District, while in Rajshahi District it was formerly a big problem in 5 out of 8 villages but now only in 4 out of 8 villages surveyed. Dengue does not occur in the area.
24	Land or soil erosion on project site(s) or neighbouring land	Slow soil erosion was mentioned in 8 out of 14 villages surveyed as part of the EA with respondents claiming it was due to heavy rainfall and storms.
25a	Air quality in local area (pollution, dust, smoke, acidic rain, etc)	Air quality was good in 3 out of 6 villages in Natore District and 5 out of 8 villages in Rajshahi district. However it was dusty in 2 villages in Natore District and 1 village in Rajshahi District and smoky in 3 villages in Rajshahi District and 1 village in Natore District surveyed for the EA.
25b	Type of stoves used for cooking	Most villagers visited during the EA were using fuel-efficient clay stoves. CBSDP has been introducing smokeless, fuel-efficient stoves and in Natore District about 7% are using these. In Rajshahi District the villages of Banglakandor and Koriakandi have a few, while 100% of households in Paitapukur own them but they are only used in the wet season when people cook under cover. They are said not to be so suitable for burning leaves a major source of fuel in the dry season.
26	Incidence of climate-related hazards (in the last 10 years) –Based on disaster mapping participatory (PLA) technique	<input type="checkbox"/> <b>Coldwave (severe)</b> Two villages in Natore District reported 2 years when there had been severe coldwaves <input type="checkbox"/> <b>Heatwave (severe)</b> Three villages in Natore District reported 3 years when there had been severe heatwaves, while 2 villages in Rajshahi District reported 4 -5 severe heatwaves. <input type="checkbox"/> <b>Heatwave (moderate)</b> One village in Rajshahi further reported 2 moderate heatwaves in the last 10 years. <input type="checkbox"/> <b>Tornado (severe)</b> Two villages in Natore District reported 1-2 tornados that affected their villages, while 4 villages in Rajshahi District reported 1-6 tornados that damaged their villages in the last 10 years.

		<ul style="list-style-type: none"> <li>❑ <b>Tornado (moderate)</b> Furthermore one village in Natore District experienced a tornado that caused moderate damage.</li> <li>❑ <b>Fog (severe)</b> One village in Natore and one village in Rajshahi Districts experienced 2 and 1 severe spells of thick fog respectively.</li> <li>❑ <b>Fog (moderate)</b> Three villages in Natore District experienced 1-2 spells of fog and five villages in Rajshahi District experienced 2-3 spells of fog.</li> <li>❑ <b>Drought (severe)</b> 11 out of 14 villages surveyed for this EA had suffered from severe drought on a number of occasions in the past 10 years, with severe droughts being more frequent occurring 3-6 times in Rajshahi District compared with 2-3 times in Natore District.</li> <li>❑ <b>Heavy Rain (severe)</b> Five villages were hit by crop destroying heavy rain storms, occurring 3 times in Natore District (3 villages) and 4-5 times in Rajshahi District.</li> <li>❑ <b>Heavy Rain (moderate)</b> Four villages in Natore district and four villages in Rajshahi District were hit by crop damaging moderately heavy rain, occurring 3 times in Rajshahi and 1-5 times in Natore districts.</li> <li>❑ <b>Floods (severe)</b> Severe floods mostly occurring due to run-off due to heavy rainfall occurred in one village on 1 occasion in Natore District but in four villages on 1-3 occasions in Rajshahi District.</li> <li>❑ <b>Flood (moderate)</b> Four villages in Rajshahi District furthermore experienced moderate floods on 1 or 2 occasions.</li> <li>❑ <b>Sickness (severe)</b> Epidemics of sickness occurred in the hot and humid monsoon with one village in Natore District suffering 4 times while 4 villages in Rajshahi District suffered 1-5 times.</li> <li>❑ <b>Sickness (moderate)</b> Bouts of moderate sickness affected one village in Rajshahi District once, but 3 villages in Natore District 1-4 times.</li> </ul>
27	Are there any environmentally sensitive areas in, or within 250 metres of, the project area(s)? Please list.	There are no specific sites but according to Khan, Nishat & Haque (Asiatic Society of Bangladesh – <i>Bangladesh Profile</i> , 2008), 'the Barind Tract is a fragile ecosystem, which had a rich faunal diversity including 262 species of birds. However, it is now facing both natural and anthropomorphic threats that include: Massive deforestation; a process of desertification with frequent drought; siltation in the wetlands; flood control; drainage and irrigation structures; expansion of agricultural lands; excessive use of groundwater; unplanned developmental interventions; pollution and use of agrochemicals; over-exploitation of resources; and poaching of wildlife'.

### Optional questions

29	Crop pest and disease levels in project site(s) and neighbouring area	Crop pests and diseases reported from villages surveyed for the EA in Rajshahi District were: Insects, rot, caterpillars, <i>gandi poka</i> , <i>mazra</i> , <i>pamli</i> , grasshoppers, <i>chita</i> , weak plant, <i>patamora</i> , and <i>khol pora</i> . Every village except one in Rajshahi District claimed crop pests and diseases are increasing. While in Natore District crop pests and diseases reported were: <i>Mazra</i> , yellow/red coloured leaves, rats, <i>ruipoka</i> , viruses, caterpillars, weak plant, <i>chita</i> , insects, leaf burn (due to heat from sun), rot, and current insects. In Natore District pests and diseases of crops were said to be increasing by all respondents.
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30	Crop failures and any changes in crop varieties planted locally, eg high yield varieties	Over time some farmers are switching to higher yielding varieties of rice, sugarcane and wheat. This is mostly being done by ricer farmers. In addition new crops for the area like sugarcane and chili production. Orchards are also increasing with Mango, Guava and the recently introduced Jujube (local name <i>Apelkul</i> ), fruit trees being the most popular.
31	Livestock/Poultry health in local area(s)	Livestock and poultry diseases in the villages surveyed for the EA are increasing in 5 out of 6 villages in Natore District and include: <i>Khura, Badla, ranikhet</i> , pox, dysentary, diarrhoea, <i>tumer, pipiya</i> , and stroke. While in Rajshahi District diseases of livestock and poultry are increasing in only half the villages surveyed and include: <i>Khura, torka</i> , plague, pox, dysentary, diarrhoea, <i>badla, gha, lala otha</i> , asthma, fever and cholera.
32	Fish stocks quality and availability in local area(s)	Wild fish stocks only now exist close to 2 out of 14 villages surveyed for the EA. However, fish are now being grown from fingerlings in some of the village ponds and then harvested for local consumption and sale.
34	Geological hazards	<ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Earthquakes</b> Bangladesh is a part of the Bengal Basin which is one of the most seismically active zones of the world, lying on the confluence of the India, Burma and Eurasia plates, with seven major earthquakes in the last 150 years. However, there has been a long period of rest from major earthquakes the last significant one in 1950 and most of those that occurred were 'shallow focus' causing limited damage. Furthermore the CBSDP-Rajshahi working area is in 'zone 3' the area of least earthquake risk in Bangladesh (Chowdhury in <i>Banglaesh Environment: Facing the 21st Century</i>, 2002 and Asiatic Society of Bangladesh – <i>Bangladesh Profile</i>).</li> <li><input type="checkbox"/> <b>Subsidence</b> Groundwater is being extracted from beneath the Barind Tract faster than it can re-charge, as the bedrock here is clay subsidence is a potential future risk.</li> </ul>

### Part 3: Description of the project's human and economic environment

35	Population in area(s) (male / female, adult / children)	The total population size was 1,521,359 (females 747,526) in Natore District and 2,262,483 (females 1,104,202) in Rajshahi District in 2001 (most recent census data). However, in the rural areas where CBSDP-Rajshahi works population density is relatively low with between 200-400 persons per Km <sup>2</sup> in Natore Sadar and Bagatipara Sub-districts and 50-300 persons per Km <sup>2</sup> in Godagari and Tanore Sub-districts. (Bangladesh Bureau of Statistics, 2001).
36	Social structure in local population(s)	Extended families live together. The Bengali Muslim society in these rural areas is relatively conservative and women (apart from the very poorest) do not work and their roles are centred around looking after the household and family. In Adivasi (in the areas surveyed being Santal, Oroan and Pahari) families the woman is more independent, has a stronger role in the family and in most of the villages in the area both husband and wife work together in the fields as day labourers, sometimes with their older children, while older relatives look after younger children at home. There are also some communities of low caste Bengali Hindus who are despised and do the most menial work. Many of the young people especially the more educated are migrating to towns and cities for work especially Rajshahi and Dhaka.
37	Health and education levels of local population(s)	In Bangladesh life expectancy is 65.7 years and infant mortality 54 per 1000 live births (UNDP Human Development Report 2007/2008). One of the major health concerns is of diarrheal sickness with 27% surveyed; regularly or very often suffering from it in the CBSDP-Rajshahi working area (CBSDP-Rajshahi 2009

		<p>Baseline Survey &amp; Project Assessment Report).</p> <p>In Rajshahi District the female adult literacy rate was 23.87% in Rajshahi District and 21.08% in Natore District in 2001 comparing to 43.99% and 38.56% for men respectively. However, 74% of Bengali and 51% of Santal CBSDP-Rajshahi group members had been educated to some level. School enrolment by CBSDP beneficiaries' children was also found to be good, with 93% of Bengali children and 90% of Santali children in primary schools comparing well again with enrolment figures of 67% for Godagari Sub-district and 76% for Tanore sub-district (of Rajshahi District), and 75% for Bagatipara Sub-district and 66% of Natore Sadar Sub-district (of Natore District) from the 2001 population census. Secondary School attendance was again good; with 63% of Santal Group members going to school and 81% of Bengali development group members attend school. This again compared well again with enrolment figures of 56% for Godagari Sub-district, 73% for Tanore sub-district, 58% for Bagatipara Sub-district, and 67% of Natore Sadar Sub-district from the 2001 population census. While 54% of Santal group members' children and 13% of Bengali group members' children, were enrolled in Higher Secondary School which they attend from the ages of 16-18 (CBSDP-Rajshahi 2009 Baseline Survey &amp; Project Assessment Report).</p>
38	Proportion of people (male / female) living with HIV and AIDS in local population(s)	HIV prevalence is currently low nationwide and in 2005 was estimated to be at less than 0.1% in Bangladesh (UNDP Human Development Report 2007/2008). Local populations are expected to have similar proportions of HIV infected people.
39	Relevant cultural values, customs and ways of life which are central to the community(ies) in the local area(s)	The ethnic minority people of the area such as Paharia, Santals and Oroans were the original inhabitants of the area, originally living as hunter/gatherers and migrating throughout the area in small tribes. They previously utilised a wide variety of wild animals, birds, fish and plants for food. As the Sal forests were lost many continued their migratory lifestyles following seasonal agricultural labouring work and some have only recently become settled. The ethnic majority Bengalis arrived more recently to the area and are traditionally agriculturalists, they have less knowledge of local natural resources but can more easily adapt their farming practises to changing local conditions.
40	Ethnic/religious composition of people in local area(s)	Bangladesh is made up of around 85% Muslim, 12% Hindu and 3% other religious groups (including Buddhists, Christians and Animists). Local Bengali beneficiaries were found to be 99% Muslim and 1% Hindu, while Santal beneficiaries were found to be 85% Christian and 15% Animist/Nature Worshippers sometimes known as <i>Sonaton</i> . Oraon beneficiaries are Hindus and Paharia beneficiaries are mostly Christian with some Hindus. Of CBSDP's beneficiaries: 73% are ethnic Bengalis, 21% Santals, 5% Oroans and 1% Paharis (CBSDP-Rajshahi 2009 Baseline Survey & Project Assessment Report). While around 1.13% of the population of Bangladesh is officially Adivasi <sup>1</sup> ethnic minority Adivasi communities in Godagari Sub-district of Rajshahi District form a much higher than average proportion of the area officially forming around 8.50% of the population (Gain, Moral, & Tigga in Discrepancies in Census and Socio-economic Status of Ethnic Communities). In the EA villages with as wide variety as possible of the different ethnic and religious groups within the CBSDP-Rajshahi projects were surveyed.
41	Land ownership (male / female)	Land ownership and landlessness are crucial issues in Bangladesh which is arguably the most densely populated country on earth. For the indigenous minorities of the plains such as the Santal community it is a particular problem as

<sup>1</sup> *Adivasi* literally means '1<sup>st</sup> inhabitant' and refers to ancient people groups (such as Santals, Oroan & Paharia) that existed in the Indian Subcontinent and Asia thousands of years before invasions from the west brought *Arians* into the region; who then either subjugated *Adivasi* peoples (especially in north India), or interbred with the local inhabitants and formed racial groups of mixed *Adivasi* and *Arian* ancestry such as *Bengalis*.

		they have been progressively losing their land, due their formerly migratory habits, lack of documentation as they practised shifting cultivation, and through trickery or by force due to their relative vulnerability (Gain, Sircar, & Islam, 2005. Critiques of Policies and Practises: The Case of Forests, Ethnic Communities and Tea Workers of Bangladesh). It is now thought that 85% of the Adivasis of Northwest Bangladesh are now landless (Timm, 1991. Adivasis of Bangladesh. Minority Rights Group International). All communities in the area are patriarchal so most land is held by men but not exclusively so.
42	Settlements	In Rajshahi District most villages consisted of only one ethnic or religious community, while in Natore District many villages were of mixed religious and ethnic groups. The villages are much more dispersed in Rajshahi District while the density of villages is much higher in Natore District.
43	Main livelihoods	The main livelihoods in the villages surveyed for the EA were: Day labourer (61% Natore, 84% Rajshahi ), farmer (26% Natore, 11% Rajshahi), Service holder (7% Natore, 2% Rajshahi), and business (5% Natore, 2% Rajshahi). With day labourers earning from 40-130 Taka/day, service holders earning 90-300 Taka/day, and businessmen earning 100-250 Taka/day. Wages were similar accross Natore and Rajshahi Districts apart from for farmers who earned 100-500 Taka/day in Natore District but only 50-150 Taka/day in the Barind Tract of Rajshahi District.
44	Is there a resource base to support livelihoods in the local area(s)? If so, what?	The main resource base is farmland and the majority are either directly employed in agriculture either as farmers or day labourers, or their businesses or service work is related to the agricultural economy. There are few government jobs or industries in the area of which brick kilns are probably the most significant employer due to good quality clay especially in the Barind Tract where 7 were identified during the EA.
45	Sanitary conditions in local area	Only 20% of households of in Rajshahi District and only 15% of households in Natore District had water seal sanitary pit latrines and only 47% and 34% respectively having other kinds of pit latrines. (UNICEF & Bangladesh Bureau of Statistics, 2003, Progotir Pathey). However, 81% of Bengali and 46% of Santal CBSDP Development Group members have sanitary latrines (CBSDP-Rajshahi 2009 Baseline Survey & Project Assessment Report). Their distribution varies however from Paitapukur village where 99% of households were found to have sanitary latrines compared to a complete absence of any kind of latrine in Koriakandi village made up of 28 households during the EA. Of the 14 villages surveyed for the EA approximately 80% in Natore District and 41% in Rajshahi District had sanitary latrines.
46	Level of community hygiene awareness	Around 40% Bengali and 60% Santal Development Group members had received health training, including basic hygiene (CBSDP-Rajshahi 2009 Baseline Survey & Project Assessment Report).
47	Peace (lack of conflict) in local community(ies)	Currently inter-faith and inter-community relations are quite good, although there have been anti-Hindu riots and persecution in the past in this area which led many to flee to India. Discrimination of low-caste Hindu and ethnic minority communities is the main issue of current concern. However, in the past year in a neighbouring district a predominately ethnic & religious minority village was burnt down by a majority community musclemans in an attempt to drive them away and sieze their land.

48	Community consultation and participation	Around 16 community members in 14 villages participated in this EA as Focus Groups (including some PLA exercises). CBSDP beneficiaries have also participated in the CBSDP-Rajshahi 2009 Baseline Survey & Project Assessment, the 2010 CBSDP External Evaluation as well as other exercises and projects. This made gathering information for the EA productive as villagers were very forthcoming with information.
49	Local legal requirements or constraints – eg permits to abstract water or dispose of waste, or restrictions on land ownership (tenure)	The Barind Multipurpose Development Authority provides irrigation and drinking water from deep tubewells within the Barind Tract area, but users must pay for water, meaning the poorer farmers and villagers are excluded. Some land or ponds (even in the middle of one minority village) are considered Khas or 'common' land that the local government rents out, threatening their utilisation by local communities.
50	Note vulnerable groups/members of the community(ies)	<p>In CBSDP-Rajshahi's working area ethnic minorities, religious minorities, low-caste Hindus, women, children and the poorest-of-the-poor are most vulnerable:</p> <p><b>Adivasis/ethnic minorities:</b> Due to declining natural resources and loss of land Adivasis are more reliant on day labouring to sustain themselves. While irrigation means more employment throughout the year, hotter monsoon and colder winter temperatures makes this work tougher and they are at increased risk of heatstroke, dehydration and susceptibility to other diseases. Due to decline in game and wild fish protein their nutrition may be reduced.</p> <p><b>Low-caste-Hindus:</b> As resources become scarce their access to them may be restricted, and if tubewells dry up the majority community will not allow them access to their tubewells.</p> <p><b>Women:</b> Women are having to travel further/work harder to find enough fuel for cooking, wild vegetables for food and in some communities water for drinking. Increased travelling puts them more at risk of violence and dehydration.</p> <p><b>Children:</b> Due to more difficulty in sustaining livelihoods many children are kept at home to work on the land or help with household chores.</p> <p><b>Older people:</b> Need to look after children while the rest of the family work at home or in the field. While more extreme temperatures reduce their health. As natural resources decrease their knowledge on medicinal/wild food plants and weather is less useful to the community leading to a loss of respect for older people and ultimately a loss of communal knowledge as they have no opportunity to pass it on.</p> <p><b>Poorest-of-the-poor:</b> Family health, nutrition and well-being may be reduced due to scarcity of medicinal plants and wild food sources. Livelihood opportunities such as sale of wild vegetables and cottage industries using local natural resources have reduced. While conversion of land to orchards and reduction of harvests due to pests and environmental disasters threaten their income as day labourers.</p>

#### Optional questions

51	Quality of buildings	Of CBSDP-Rajshahi's beneficiaries 66% have simple mud & straw homes, 31% have mud walled homes with a tin roof, 3% have brick walled homes with a tin roof and less than 1% have a brick/concrete walled house with a tiled or concrete roof (CBSDP-Rajshahi 2009 Baseline Survey & Project Assessment Report).
52	Institutions and location / distance from	Institution                      Location / distance

	project site(s)	<p><b>Primary Schools</b>      9 out of 14 villages surveyed have schools in their villages, 2 villages have schools just ½ km away and 3 villages (all in Rajshahi District) require children to travel 3 km to reach them</p> <p><b>Hospital/clinic</b>      The distance to a hospital or clinic in Natore District varies from 0-15 km in the villages surveyed for the EA with an average distance of 9.4 km, while in Rajshahi District the distance to a hospital or clinic is generally much further ranging from 1-25 km in the villages surveyed with an average distance of 10.87 km.</p>
53	Agricultural systems used locally	In Natore District the main crops grown in villages surveyed for the EA were: Rice, wheat, potato, sugarcane, vegetables, lentils, chili, onion, jute and fruit. While in Rajshahi District villages the main crops grown were: Rice, wheat, chili, potato and vegetables. Traditionally rice was grown in the monsoon, wheat in winter and lentils in spring but now groundwater irrigation is allowing rice to grow year round and other crops like winter vegetables to be cultivated.
54	Industry and other land use in local area(s)	For the 14 villages surveyed the main industries were: 1 Rice mill in 1 village; 3 poultry farms in 3 villages; and 8 brick kilns of which 4 were within the boundaries of 2 villages and another 4 on the outskirts of 3 villages. Brick kilns were a source of smoke causing air pollution in these villages.
55	Transport infrastructure and their usual usage in local area(s) (occasional/heavy)	<p><b>Transport</b>      <b>Usual usage</b></p> <p>Roads      Main conduit of transport, about 75% roads are mud roads, 23% are surfaced but in poor condition with many potholes, while 2% are tarmac roads in good condition</p> <p>Railways      Rail lines pass through both districts heading north, south and east. They are popular for longer journeys.</p> <p>Rivers      Not significantly used for transport in this area</p>
56	Quality and availability of electricity supplies within the local vicinity	Power cuts are frequent and many of the smaller, poorer and minority villages in the working area remain unconnected.
57	Number of people displaced from homes in local population(s)	There is a steady stream particularly of youth out of their villages, especially those who are educated moving to Rajshahi or Dhaka. There was a lot of migration to India by minorities but this is said to have slowed in recent years.

## PART 4: Assessment of the impacts of the project on the environment

Sig = Significance of impact: (4= high; 1= low) Lik= Likelihood of impact: (4= high; 1= low) Rsk= Risk = Significance X Likelihood (Multiply figures C and D)

A	B	C	D	E	F
Project activity	Impact of activity on environment	Sig	Lik	Rsk	Avoid or reduce impacts

### Office Administration

Computer, fans, Lights, phone,	Use of electricity, manufacturing pollution in production	1	4	4	If not needed or in use, turn off. Careful use.
Paper used for printing reports, letters etc	Trees cut down, chemicals for bleaching, ink for printing	2	4	8*	Do not print unless absolutely necessary, use old paper/misprints for rough/note paper. Use environmentally friendly paper.
Furniture	Trees cut down, manufacturing pollution	2	1	2	Look after old furniture, buy long-lasting furniture, use alternatives to timber (eg straw/bamboo composites)
Monitoring visits by motorcycle	Air pollution including greenhouse gases, water pollution during maintenance (oil change etc)	3	4	12*	Walk for short distances, if have time use public transport, two people using one bike (rather than using two), better monitoring to prevent unnecessary use
Generator	Diesel pollution, greenhouse gas	3	4	12*	Only office time, only if very hot, computers are needed or emergency
Building	Brick production used timber to burn in the kilns causing air pollution and deforestation	4	2	8*	Investigate alternative materials and building techniques (like Hope centre)
Garden	Water use impact on groundwater levels, organic insecticide and fertiliser	1	1	2	Continue to use organic fertiliser, rainwater & organic (neem) insecticide

### Fieldwork

Beneficiary/staff training	Materials production, travel, marker pens, tape	1	4	4	Use chalk instead of pens, training close to where beneficiaries live
Microcredit	If they start business which is environmentally damaging eg selling petrol, using pesticide on their farms etc	1	2	2	Do not give loans for environmentally damaging business
Working with Barind Tract Multipurpose Authority to provide water services	Groundwater levels sinking, transport of materials	3	4	12*	Encourage careful use of water, such as giving water early morning/evening, encouraging crops that use less water (eg sweet potato, lentils, maize or wheat instead of rice)

A Project activity	B Impact of activity on environment	C Sig	D Lik	E Rsk	F Avoid or reduce impacts
Installation of tubewells	Pollution from transport of materials, falling water levels, some plastic pipes, pollution from spoil, the impact on drainage such as pools of water forming by the tubewells that can lead to disease	3	3	9 *	Source materials locally, use water carefully and consider drainage in the design
Emergency medical services	Pollution from medicine production, transport pollution	1	2	2	Buy locally from good companies
Schools	School building, furniture production, stationary, plastic bags	1	1	1	Use local style mud building in the villages

## PART 5: Assessment of the impacts of the environment on the project

Sig = Significance of impact: (4= high; 1= low) Lik= Likelihood of impact: (4= high; 1= low) Rsk= Risk = Significance X Likelihood (Multiply figures C and D)

A Project activity	B Impact of environment on activity	C Sig	D Lik	E Rsk	F Avoid or reduce impacts
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### Implementation phase

Development group/Village Organisation formation and beneficiaries training & awareness	Attendance at meetings may reduce as weather is unpleasant (too hot/cold) or crop damage (from tornados, flood, drought, pests) may mean they have to do more work in the fields	2	2	4	Can meet at a different time of day (eg in the evenings)
Staff training & meetings	Concentration at meetings may reduce as weather is unpleasant (too hot/cold) or crop damage	2	2	4	Shorter meetings at different times of day.
Vemi-Compost	Worms will die if temperatures and soil moisture reduces making production more difficult	4	3	12 *	Produce compost under shade (straw roof)
Home/kitchen gardening	Drought will kill vegetables, reduce production	4	3	12 *	Use drought resistant plants, bottle-drip irrigation & using local wild vegetables
Homestead & community Tree plantation	Drought will kill seedlings or make establishment more difficult	3	3	9 *	Select types of trees that can survive in a dry climate
Smokeless Stove	Dry & hot weather and heavy rainfall leads to breakage	3	2	6 *	Situate them under cover/shade

A Project activity	B Impact of environment on activity	C Sig	D Lik	E Rsk	F Avoid or reduce impacts
Health/hygiene awareness	Nutrition will reduce if adverse climate reduce crop yields or day labouring employment, more disease (such as diarheoa if hotter and wetter monsoons), if dryer weather Black Fever <i>Leishmaniasis</i> may increase as well as other diseases as human bodies are under environmental stress	4	3	12 *	Encourage local herbal medicine, increase personal hygiene awareness, include awareness on coping with changing climate (eg hot weather), encourage better nutrition and sanitation
Anti-trafficking	Adverse environmental conditions and human hardship will increase the risk of trafficking	2	3	6 *	More awareness, skill development training/income opportunities for vulnerable
Microcredit	Could destroy or reduce business and may make repayments difficult	4	3	12 *	Before giving loan screen applications to make sure they are climate appropriate. Provide revolving cows/goats instead of credit. Micro-insurance.
Mushroom cultivation	Hotter, dry conditions not so suitable for mushroom cultivation	4	4	16 *	Modify the rooms where they are growing so they are cooler & more humid
Pisci-culture /fish farming	In dry season fish farming becomes impossible due to low pond water levels	3	3	9 *	Repair and deepen ponds. Cultivate fish in smaller ponds, choose fish that need less space & oxygen (ans can live in the mud)
Children's Education	If weather is too hot/cold/unpleasant children will not attend schools and if incomes/farms are affected will have to help their parents by working	2	2	4	Change times of school to avoid heat/cold and shorten class length.

## PART 6: Strategies to Avoid or educe the environmental impacts

The final part of the Environmental Assessment was completed by the CBSDP team at Hope Centre where we went through sections 4 and 5 making some changes after discussion, then following section 6, giving a red star to risks that had been given a score of '6' or above (being key risks to be addressed), and drawing a red ring around very high ranking risks (scoring '12' – '16') where the EA had highlighted areas where significant change to CBSDP's programmes were needed. It was found that CBSDP's impact on the environment was not particularly significant although some operational changes can reduce those impacts that do occur. However, the impact of the environment on CBSDP's work was found to be very threatening to its sustainability and requires some modifications, in particular:

- Vermi-compost production has been achieved in CBSDP test plots, but it has not been easy due to high temperatures and low soil moisture due to high evapo-transpiration rates. So it was decided that CBSDP-Rajshahi should use different techniques to produce compost which are more suitable for dry areas and abandon vermi-compost as an activity.
- Home/Kitchen gardens are also threatened by hotter weather and drought so it was decided that bottle-drip irrigation should be trialed in the community now it had proved successful in the test plot and that other forms of irrigation or 'low-water' gardening should be introduced in kitchen gardens. Drought resistant forms of vegetables should also be introduced and include both wild vegetables (such as *Kolmi shak* in the test plot) that are naturally drought resistant (with assistance from the Department of Botany, Rajshahi University), as well as selectively bred varieties being promoted by the Department of

Agricultural Extension (DAE) whom have already promised to assist CBSDP in terms of climate change adaptation.

- Drought proof trees of native species where possible should be promoted for homestead and community tree plantation, as drought threatens the productivity and survival of some currently planted species.
- Mushroom cultivation is also threatened by dry, less humid and hot weather. It was decided to continue to experiment for one further year by modifying the rooms where they are grown, so they are cooler and more humid. But as only 15 of 60 people in the community that have tried to grow mushrooms have had significant success so far, if improvement in productivity can not be made this activity will be dropped from the project.

## APPENDIX 1: ENVIRONMENTAL ASSESSMENT QUESTIONNAIRE (Focus Group)

### 1. Information on site

- a. Village name
- b. Union/Mouza
- c. Upozila /Sub-district
- d. District/Zila
- e. Number of Households / Population

### 2. Human Environment on site

- a. Ethnicity (Bengali, Santali, Pahari etc)
- b. Religion (Christian, Animist/nature worship, Hindu, Muslim)
- c. main livelihoods: (% of each in village e.g. labourer 10%, farmer 30%, small business, fishermen, service)
- d. Average income for each of the livelihoods
- e. Number of households with sanitary latrines
- f. Distance to nearest primary school
- g. Distance to nearest hospital/medical centre
- h. Nearest industry
- i. Stoves (% with open fire, clay stoves, fuel efficient clay chula, % with smokeless, % with bogas..)
- j. Source of fuel (dung %, wood, straw, bushes, leaves)
- k. fuel collected from (wild plants, roadside trees, khas land, farmland, own trees/land)
- l. Agricultural crops grown (rice/wheat/dal/vegetables/fruit trees etc)
- m. Are seasonal crop rotations? (e.g. rice-monsoon, wheat-winter, lentils/dal-spring)
- n. crop failures/changes in crop varieties

### 3. Climate change

- a. Vector spread diseases in the community (i.e. diarrhoea, kalajhor, malaria) increasing/decreasing
- b. crop pests... and whether they are increasing/decreasing
- c. Have you noticed any change in the weather in last 10 year? Yes/no
- d. How has it changed – circle those mentioned (don't read out!): Colder in winter/warmer in winter/hotter in summer/cooler in summer/rainy season later/rainy season earlier/rainy season shorter/rainy season loner/rainy season unreliable/drought/more flooding/more tornado/more cyclone/more heavy rain (crop damage)/more crop pests/..... (other)

### 4. Seasonal Calendar

### 5. Strategies to cope with changes in climate (listed)

### 6. Physical Environment

- a. Land type: upland/dry, flooded lowland, beel/marsh etc
- b. Vegetation cover e.g. scrub, grassland, trees, agricultural, marsh, pond (% of each in village area & % for surrounding area)
- c. land/soil erosion (severe, slight, none) and why (wind, rain, storms etc)
- d. Air quality (e.g. polluted, dusty, smoky)
- e. poultry/animal diseases (list all the diseases & whether increasing or not)
- f. Sources of water (pond, river, tubewell, rain etc) - list all
- g. Surface water used for (eg. drinking, cooking, bathing, washing, irrigation)
- h. Groundwater availability, ie how many semi-deep/shallow tubewells in the village, also how deep is the water table & how deep previously
- i. use of groundwater..... (drinking/irrigation/washing..)
- j. water conservation? (eg rainwater harvesting, mini-pond, watering crops in morning/evening when less evapo-transpiration)

**7. Disaster Event Timeline (PLA)**

- a. What disasters have occurred:
- b. draw *timeline*..

**8. Natural Resources used by the community**

- a. Wild Leafy vegetables
- b. Fruit including 'Minor' non-orchard species
- c. Medicinal plants
- d. Cottage industry source
- e. House building raw material
- f. Animal feed
- g. Wild animals eaten (e.g. wild duck, wild birds, pigeon, mongoose, rat, snail, other)
- h. Wild fish caught? (pond/beel/river)
- i. Others

For each point above obtain:

- i. *Local name*
- ii. *Botanical/Bengali/English name*
- iii. *Description*
- iv. *Use*
- v. *User*
- vi. *Present state/availability; e.g. have disappeared/become rare from area in last 10 years,*
- vii. *Threat/reason for threat i.e. why*
- viii. *What can be done*

## APPENDIX 2: Village-wise Environmental Assessment Data

### Church of Bangladesh Social Development Programme- Rajshahi EA - JALALABAD

#### 1. Information on site

- a. Village: Jalalabad
- b. Union/Mouza: Kaphuria
- c. Upozila /Sub-district: Natore Sadar
- d. District/Zila: Natore
- e. Number of Households: 500, Total People: 2000.

#### 2. Physical Environment

- a. Land type: High Ganges River Floodplain.
- b. Vegetation cover: 50% agricultural land.
- c. Land/soil erosion: No
- d. Air quality: Polluted (Dusty)
- e. Poultry/animal diseases: *Pox, Stroke, Diarrhoea (Increasing)*.
- f. Source of fresh water: Pond, Tube well.
- g. Surface water used for: Cooking, Washing, Bath (everything). (But only usable in rainy season).
- h. Groundwater availability: 95% have access to semi-deep tube wells in the village.
- i. Use of groundwater: Drinking, washing, Cooking, Irrigation.
- j. Water conservation: Yes (10%)
- k. Water level: Before: 40- 60 feet, now: 100- 120 feet.

#### 3. Disaster Event Timeline

- a. What disasters have occurred in last 10 years: Rain (moderate) 5; Drought (severe) 2; Sickness (moderate) 1; Hot (severe) 4; Storm (severe) 2; Fog (moderate) 2.

#### 4. Natural Resources used by the community

- a. Wild Leafy vegetables: *Kolmi, Aram, Santi, Helencha, Thontoni, Katanote, Gadapurnima, Nontakhuri, Shiskhuri.* (Green in colour, Unavailable)
- b. Fruit including 'Minor' non-orchard species: *Dhepor, Kayadumi, Koromcha, Baghpori, Betfol, Folsha, Atishara* (**Most of them are green coloured and unavailable**).
- c. Medicinal plants: *Thankuni, Desi nim, Gorjon, Berry, Harbahar, Samanki, Gurunchi.* (Rare)
- d. Cottage industry source: None.
- e. House building raw material: None from nature.
- f. Animal feed: From field/ market.
- g. Wild animals eaten: *Mongoose, Frog, Jungle Cat, Rat, Turtle, Rabbit.* (Rare)
- h. Wild fish caught?: No

#### 5. Human Environment on site

- a. Ethnicity: 93% Bengali, 7% Santal.
- b. Religion: Muslim- 85%, Christian (Bengali)- 3%, Christian (Santal) - 7%, Hindu (Bengali)- 5%.
- c. Main livelihoods: 80% day labourer, Farmer 10%, Service holder 5%, Businessman 5%.
- d. Average income for each of the livelihoods: Day labourer: 100- 120 taka per day, Farmer 120- 150 Taka per day, Service holder 150- 175 Taka per day, Businessman 175- 200 Taka per day.
- e. Number of households with sanitary latrines: 100%
- f. Distance to nearest primary school: 1 in the village.
- g. Distance to nearest hospital/medical centre: 10 km.
- h. Nearest industry: 2 brickfields (5 km far away from the area)
- i. Stoves: 100% with clay stove.

- j. Source of fuel: Dung in rainy season and straw, wood and leaves in dry season.
- k. Fuel collected from: From the field (everywhere).
- l. Agricultural crops grown: *Rice, Potato, Sugarcane, Wheat, Pulse, Chilli, Onion, Jute & Vegetables.*
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Before: Diarrhoea, Leprosy, Cholera, Black fever, Malaria, Pox.....*  
*Now: Diarrhoea, High Pressure, Cancer, Diabetics, Pneumonia, Headache.(Increasing)*
- b. Crop pests: *Rat, Ruipoka, Virus, Ledapoka, (Increasing)*
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: fewer storms/ less rain/ No flood/ more hot/ less winter/ Strong winter/ less fog/ more drought/ more insects.

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi

**EA - KHAMARMARIA**

**1. Information on site**

- a. Village: Khamarmaria
- b. Union/Mouza: Sangni
- c. Upozila /Sub-district: Natore Sadar
- d. District/Zila: Natore
- e. Number of Households: 700, Total People: 3000

**2. Physical Environment**

- a. Land type: High Ganges River Floodplain
- b. Vegetation cover: Agricultural lands (50%)
- c. Land/soil erosion: No
- d. Air quality: Fresh
- e. Poultry/animal diseases: *Diarrhoea, Headache, Pimpiya, Khura, (Increasing).*
- f. Source of fresh water: Tube well & pond.
- g. Surface water used for: Cooking, washing, bath (Everything).(only in rainy season)
- h. Groundwater availability: 300 semi-deep tube wells & 2 deep tube wells in the village.
- i. Use of groundwater: Drinking, washing, cooking & irrigation.
- j. Water conservation: None.
- k. Water level: Before: 60- 70 feet, now: 120- 170 feet.

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Storm (severe) 1; Rain (moderate) 1; rain (mild) 1; drought (severe) 3; Hot (severe) 3; sickness (moderate) 3.

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: *Kolmi, Sanchi, Kochu, Tharman, Katakchura, Boitha, Gadne, Dekhi ( Green in colour, Unavailable)*
- b. Fruit including 'Minor' non-orchard species: *Custard apple (green coloured and unavailable).*

- c. Medicinal plants: *Chotcoti, Chirota, God, Isshorkul, Akauna, Hatisura, Akanda, Arjun, Bishato, Joshtimodhu, Satomul, Anantomul (Rare)*
- d. Cottage industry source: Mat, Katha.
- e. House building raw material: Not from nature.
- f. Animal feed: From market.
- g. Wild animals eaten: Turtle, Eel (Kuche fish), Jungle Cat (Khatas), Large Snail (Shamuk), Shellfish (Jhinuk), Mongoose (Bezi), Rat, Bat. (**Rare**)
- h. Wild fish caught?: No

**5. Human Environment on site**

- a. Ethnicity: Bengali 80%, Santal 20%
- b. Religion: Muslim- 80%, Christian- 17%, Animist- 3%.
- c. Main livelihoods: 70% day labourer, Farmer 10%, Service holder 10%, Businessman 5%, Others 5%.
- d. Average income for each of the livelihoods: Day labourer: 100 taka per day, Farmer 100- 150 Taka per day, Service holder 100 Taka per day, Businessman 150- 200 Taka per day.
- e. Number of households with sanitary latrines: 4% ( without toilet)
- f. Distance to nearest primary school: 3 schools in the village.
- g. Distance to nearest hospital/medical centre: 2 km.
- h. Nearest industry: 2 brickfields & 1 poultry firm.
- i. Stoves: 98% with clay stove, 2% smokeless oven.
- j. Source of fuel: Dung in rainy season and straw, wood and leaves in dry season.
- k. Fuel collected from: From the field (everywhere).
- l. Agricultural crops grown: Vegetables, Fruits.
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Before: Diarrhoea, Black fever, Measles, Pox..... Now: Jaundice, High Pressure, Diarrhoea (Increasing)*
- b. Crop pests: *Weak plant, Chita, Virus. (Increasing)*
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Less rain & shorter/ More droughts/ less fog/ less winter/ strong winter/ less storm/ more insects.

**7. Strategies to cope with changes in climate**

None

**Church of Bangladesh Social Development Programme- Rajshahi**  
**EA - MOMINPUR**

**1. Information on site**

- a. Village: Mominpur
- b. Union/Mouza: Bipro-Belghoria
- c. Upozila /Sub-district: Natore Sadar
- d. District/Zila: Natore
- e. Number of Households: 450, Total People: 3000

**2. Physical Environment**

- a. Land type: High Ganges River Floodplain
- b. Vegetation cover: Decreasing fertile/ agricultural land.
- c. Land/soil erosion: Slowly
- d. Air quality: Polluted (dusty).
- e. Poultry/animal diseases: *Khura, tumer, pox (Increasing)*.
- f. Source of fresh water: Tube well.
- g. Surface water used for: Cooking, washing, bath (everything),(Only in rainy season)
- h. Groundwater availability: 300-350 households are using semi-deep tube wells; there are 2 deep tube wells.
- i. Use of groundwater: 9 ponds-Drinking, washing, cooking, irrigation. (Only in rainy season).
- j. Water conservation: None
- k. Water level: Before: 75- 80 feet, now: 110- 130 feet.

### 3. **Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Rain (severe) 4; Hot (severe) 3; Sickness (moderate) 4; fog (mild); Drought (sever) 3.

### 4. **Natural Resources used by the community**

- a. Wild Leafy vegetables: *Kolmi, kochu, sanchi, koilla, note, dheki, gandari, nindaru. (Green- rare)*.
- b. Fruit including 'Minor' non-orchard species: *Dhepor, Guava, Plum, Betfal, Wood apple, Custard apple, Wild jackfruit, Berry. (Green- rare)*
- c. Medicinal plants: *Chotchoti, chandan, teipa, hatishura, dopra, talat, choto chand, dhutra ( Rare)*
- d. Cottage industry source: None
- e. House building raw material: Not from nature.
- f. Animal feed: From field/ market.
- g. Wild animals eaten: *Rabbit, Turtle, Owl, crab, shellfish (jhinuk), (Unavailable)*
- h. Wild fish caught?: Before but not now...

### 5. **Human Environment on site**

- a. Ethnicity: Bengali 60%, 30% Oraon
- b. Religion: Muslim- 50% (Bengali), Hindu- 40%,
- c. Main livelihoods: Day labourer 70%, Farmer 20%, Service holder 5%, Businessman 5%.
- d. Average income for each of the livelihoods: Day labourer: 100- 120 taka per day, Farmer 100- 110 Taka per day, Service holder 110- 130 Taka per day, Businessman 120- 150 Taka per day.
- e. Number of households with sanitary latrines: 40% without toilet
- f. Distance to nearest primary school: 1 in the village.
- g. Distance to nearest hospital/medical centre: 12 km.
- h. Nearest industry: 2 brick fields in this area.
- i. Stoves: 100% with clay stove.
- j. Source of fuel: Dung (80%), straw, dry leaves, wood (20%)
- k. Fuel collected from: From the field (everywhere).
- l. Agricultural crops grown: *Rice, Wheat, sugarcane, jute, corn, pulse, onion & Vegetables.*
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

### 6. **Climate change**

- a. Diseases in the community: *Before: Black fever, Diarrhoea, Pox, Hum. Now: Fever, Tonsil, Diarrhoea, (Now a days diseases are decreasing)*
- b. Crop pests: *Chita, irus, rot, red coloured, insects (Increasing)*
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Less rain/ rainy season shorter/ less winter/ more fog/ fewer storms/ more droughts/ hotter/ less flood/ more insects.

### 7. **Strategies to cope with changes in climate**

None



Church of Bangladesh Social Development Programme- Rajshahi  
EA - NASRATPUR

**1. Information on site**

- a. Village: Nasratpur
- b. Union/Mouza: Bipro- Belghoria
- c. Upozila /Sub-district: Natore Sadar
- d. District/Zila: Natore
- e. Number of Households: 350, Total People: 2000

**2. Physical Environment**

- a. Land type: High Ganges River Floodplain
- b. Vegetation cover: 100% agricultural land.
- c. land/soil erosion: slow
- d. Air quality: Fresh
- e. Poultry/animal diseases: *Khura (cows), Badla, Ranikhet (Chicken), Pox (poultry), and Dysentery.*
- f. Source of fresh water: Pond, Tube well.
- g. Surface water used for: cooking, washing, bath (Everything). (only in rainy season)
- h. Groundwater availability: 200 semi-deep tube wells in the village.
- i. Use of groundwater: drinking, washing, cooking, irrigation.
- j. Water conservation: None
- k. Water level: Before: 60-110 feet, now: 120- 150 feet.

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Hot (severe) 3, Drought (severe) 2; Cold (severe) 2; Fog (Moderate) 1; Sickness (Mild) 3; Rain (Moderate) 3.

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: *Kolmi, Kochu, Kata, Sanchi, Boitha, Khaikura, Gima, Nunta, Chirakuti- ( all these are unavailable now).*
- b. Fruit including 'Minor' non-orchard species: Wild jackfruit, *Dart, Custard apple, Blackberry, Plum, Dephor, Betphal, Dumur, Kathbadam, Korockfal. (Rare)*
- c. Medicinal plants: *Arjun, Ulotkomol, Hortoki, Bohera, Satomul, Pathorkuchi, Harjora, Akondo, Sarporaz, Foniraz- (Most of them are green coloured and unavailable).*
- d. Cottage industry source: None.
- e. House building raw material: No
- f. Animal feed: *Grass, Straw, Leaves, Khoil, Vushiu, and Wheat.*
- g. *Wild animals eaten: Rabbit, Ulighut, Mongoose, Jungle Cat (Khatas), Rat, Turtle, Snail, small snail (Gugli) (Now rare)*
- h. Wild fish caught?: No

**5. Human Environment on site**

- a. Ethnicity: Bengali 90%, Santal 10%
- b. Religion: Muslim- 80%, Christian- 10%, Hindu- 10%.
- c. Main livelihoods: 60% day labourer, Farmer 30%, Businessman 5%, Service holder 5%.
- d. Average income for each of the livelihoods: Day labourer: 80- 100 taka per day, Farmer 100- 120 Taka per day, Businessman 120- 150, Service holder 150- 200 Taka per day.
- e. Number of households with sanitary latrines: 45% (without latrine)
- f. Distance to nearest primary school: 2 in the village.
- g. Distance to nearest hospital/medical centre: 1 in the village.
- h. Nearest industry: None
- i. Stoves: 95% with clay stove and 5% are using smokeless oven.
- j. Source of fuel: Dung in rainy season and straw, wood and leaves in dry season.

- k. Fuel collected from: From the field (everywhere).
- l. Agricultural crops grown: Rice, Sugarcane & Vegetables.
- m. Are seasonal crop rotations? No
- n. crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Before: Diarrhoea, Cholera, Black fever, Malaria, Jaundice, and Pox. Now: Measles, Jaundice, Headache.....(Decreasing)*
- b. Crop pests: Mazra insects, Rot, Virus (Increasing)
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Colder in winter/hotter in summer/*rainy season shorter/* more droughts/ more crop damage/ more fog/ rainy season later.

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
**EA - RANGAMATI**

**1. Information on site**

- a. Village: Rangamati
- b. Union/Mouza: Jamnagar
- c. Upozila /Sub-district: Bagati
- d. District/Zila: Natore
- e. Number of Households: 275, Total People: 1200

**2. Physical Environment**

- a. Land type: High Ganges River Floodplain
- b. Vegetation cover: Decreasing fertile/ agricultural land.
- c. Land/soil erosion: No
- d. Air quality: Polluted (Smoky).
- e. Poultry/animal diseases: *Khura, fever, pox. (Increasing)*.
- f. Source of fresh water: Tube well.
- g. Surface water used for: Cooking, washing, bath (Everything).(only in rainy season).
- h. Groundwater availability: 200 semi-deep tube wells in the village (75%).
- i. Use of groundwater: Drinking, washing, cooking, irrigation. (only in rainy season).
- j. Water conservation: None
- k. Water level: **Unknown**

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Rain (severe) 4; Hot (severe) 3; Fog (severe) 2; Storm (moderate)

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: *Telakochu, Aram, kolmi, Gadle, katanote, sanchi, boitha (Green in colour but unavailable).*
- b. Fruit including 'Minor' non-orchard species. *Berry, Mangos teen, Custard apple, Wild jackfruit, ati sora, dephor, wood apple, koromcha, kath amra. (Most of them are green coloured and rare).*

- c. Medicinal plants: Talmul, bhumikumra, olotkomor, chimulmul, talmul, ashmakandar, gondhovejali, doilochpata, thankuni, tulshi, cherota, kalomegh, dhutra, chandar. (*Most of them are green coloured and rare*)
- d. Cottage industry source: None
- e. House building raw material: Not from nature.
- f. Animal feed: From field/ market.
- g. Wild animals eaten: *Mangoose (Bezi), Frog, wild cat, Rat, Rabbit, turtle, eel (kuchemach), bat, wild bird... (Rare)*
- h. Wild fish caught?: Before but not now...

**5. Human Environment on site**

- a. Ethnicity: Bengali 90%, Santal 10%
- b. Religion: Muslim- 90%, Christian- 10%.
- c. Main livelihoods: 30% day labourer, Farmer 60%, Service holder 5%, Businessman 5%.
- d. Average income for each of the livelihoods: Day labourer: 100 taka per day, Farmer 400- 500 Taka per day, Service holder 300 Taka per day, Businessman 1000 Taka per day.
- e. Number of households with sanitary latrines: 2- 5% (without toilet)
- f. Distance to nearest primary school: 1 in the village.
- g. Distance to nearest hospital/medical centre: 8 km.
- h. Nearest industry: 1 brick field within 1 km.
- i. Stoves: 100% with clay stove.
- j. Source of fuel: dry leaves, wood, straw (85%), dung (15%)
- k. Fuel collected from: From the field (everywhere).
- l. Agricultural crops grown: Rice, Wheat, sugarcane & Vegetables.
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Diarrhoea, Jaundice, Pox (Decreasing)*
- b. Crop pests: *Mazra, yellow coloured leaf or red (Increasing)*
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Less & shorter rain/ more hot/ more winter/ more drought/ strong winter/ more fog/ more storm/ no flood.

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
EA - SHIBPUR

**1. Information on site**

- a. Village: Mazdia Shibpur
- b. Union/Mouza: 6 no Satti
- c. Upozila /Sub-district: Natore Sadar
- d. District/Zila: Natore
- e. Number of Households: 300, Total People: 1500

**2. Physical Environment**

- a. Land type: High Ganges River Floodplain
- b. Vegetation cover: Decreasing fertile/ agricultural land.
- c. Land/soil erosion: No
- d. Air quality: Fresh
- e. Poultry/animal diseases: Khura, Badla, Dioreha, pox, ranikhet (Increasing)
- f. Source of fresh water: Tube well, pond, shallow machine.
- g. Surface water used for: Cooking, washing, bath (everything),(Only in rainy season)
- h. Groundwater availability: 200 households are using semi-deep tube wells; there are 2 deep tube wells.( shallow machine is used for irrigation)
- i. Use of groundwater: Drinking, washing, cooking, irrigation. (Only in rainy season).
- j. Water conservation: None
- k. Water level: Before: 30- 45 feet, now: 80- 125 feet.

### 3. **Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Rain (severe) 1; Flood (severe) 1; Fog (moderate) 2; rain (moderate) 3; sickness (severe) 4; drought (severe) 2.

### 4. **Natural Resources used by the community**

- a. Wild Leafy vegetables: *Katakhura, Boitha, Dheki, Kolmi, Santi, Gima, Aram (Green- Unavailable).*
- b. Fruit including 'Minor' non-orchard species: *Wild jackfruit, Guava, Custard apple, Wood apple, Bet, Berry, Mangos teen, Kotbel ( green- rare)*
- c. Medicinal plants: *Boira, Amloki, Hortoki, Telakochu, Patharkuchi, Harboush, Hatishura, Kontokali (Green- Rare).*
- d. Cottage industry source: *Mat, fan, chalan, Dali (a few)*
- e. House building raw material: Not from nature.
- f. Animal feed: From market or house made.
- g. Wild animals eaten: Pigeon, Bok (Rare)
- h. Wild fish caught?: Before but not now...

### 5. **Human Environment on site**

- a. Ethnicity: Bengali 75% & Santal 25%
- b. Religion: Muslim- 75%, Christian - 25%.
- c. Main livelihoods: Day labourer 60%, Farmer 25%, Service holder 10%, Businessman 5%.
- d. Average income for each of the livelihoods: Day labourer: 40- 50 taka per day, Farmer 150 -200 Taka per day, Service holder 100- 150 Taka per day, Businessman 90- 110Taka per day.
- e. Number of households with sanitary latrines: 50 houses are without toilet.
- f. Distance to nearest primary school: 1 in the village.(CBSDP School)
- g. Distance to nearest hospital/medical centre: 15 km.
- h. Nearest industry: None
- i. Stoves: 100% with clay stove.
- j. Source of fuel: Dung (10%), straw, dry leaves, wood (90%)
- k. Fuel collected from: From the field (everywhere).
- l. Agricultural crops grown: Rice, Wheat, Sugarcane, Jute, Corn, Pulse, Onion & Vegetables.
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

### 6. **Climate change**

- a. Diseases in the community: *Before: Black fever, Malaria, , Diarrhoea, Pox, Now: Pneumonia, Jaundice, Fever, Pox, Diarrhoea (Now a days diseases are decreasing)*
- b. Crop pests: *Burn by sun heat, Rot, Insects, Mazda Insects, Current insects (Increasing)*
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: No rain/ more hotter, more drought/ bellow water level/ more winter but strong/ more fog/ fewer storms.

### 7. **Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
**EA - ASTHAPUKUR**

**1. Information on site**

- a. Village: Asthapukur
- b. Union/Mouza: Rishikul
- c. Upozila /Sub-district: Godagari
- d. District/Zila: Rajshahi
- e. Number of Households: 47, Population: 255

**2. Physical Environment**

- a. Land type: High barind tract
- b. Vegetation cover: Not capable for agriculture.
- c. Land/soil erosion: Slow
- d. Air quality: Fresh but always hot.
- e. Poultry/animal diseases: No explanation but animal died a lot within these 3 years.
- f. Source of fresh water: Pond, Tube wells.
- g. Surface water used for: Cooking, Washing, Bath.
- h. Groundwater availability: 1semi-deep tube well in the village.
- i. Use of groundwater: Drinking, Washing, Cooking, Irrigation
- j. Water conservation: None
- k. Water level: 60- 100 feet (before), 150-200 feet (now).

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Drought (severe) 3; flood (moderate) 1; sickness (severe) 1; heavy rain (severe) 1 storm (severe) 1, fog (moderate) 2.

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: *Jenu ara (green, rare), Gerudi (green, rare), Ulin ara (green, rare), Pat ara (green, rare), Jhunki ara (green, rare), Soru ara (green, rare), Hincha ara (green, rare), Tantha ara (green, rare), Gilori ara (green, rare), Kerobi ara (green, rare)*
- b. Fruit including 'Minor' non-orchard species: *Wood apple, wild jack fruit, Shaluk, Water chestnut, Kot bel(wild apple), Blackberry, Wild potato, Boicha fal (Unavailable now).*
- c. Medicinal plants: *Hortoki, Arjun, Bohera, Amloki (Unavailable now).*
- d. Cottage industry source: None.
- e. House building raw material: None
- f. Animal feed: Grass, Straw from field.
- g. Wild animals eaten: *Rat, Fox, eel (Kuche fish), Wildcat, wild bird. (Unavailable now).*
- h. Wild fish caught? A few from Beel in the rainy season.

**5. Human Environment on site**

- a. Ethnicity: Santal 100%
- b. Religion: Most of them are Santal Christian (3 families are Hindu)
- c. Main livelihoods: 95% day labourer, 5% farmer.
- d. Average income for each of the livelihoods: Day labourer: 80-90 taka per day, farmer: 120-150 taka per day.
- e. Number of households with sanitary latrines: 41 families have no Toilet.
- f. Distance to nearest primary school: Half km.
- g. Distance to nearest hospital/medical centre: 1 km.
- h. Nearest industry: No but there is a Rice Boiler in this area.

- i. Stoves: 100% clay stove. (No smokeless oven).
- j. Source of fuel: Dung in rainy season and straw and leaves in dry season.
- k. Fuel collected from: Field.
- l. Agricultural crops grown: Rice, vegetables etc.
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Black fever & Diarrhoea (Before)/ Black fever, Jaundice (Now) – Increasing.*
- b. Crop pests: *Insects, Rot, Mazra insects, Pamri insects, Grasshopper (Decreasing)*
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: *Colder in winter/hotter in summer/rainy season later/rainy season shorter/ more droughts/ less fog/ less storm.*

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
EA - BABULDUNG

**1. Information on site**

- a. Village: Babuldung
- b. Union/Mouza: Chanduria
- c. Upozila /Sub-district: Tanore
- d. District/Zila: Rajshahi
- e. Number of Households: 60, Total People: 500

**2. Physical Environment**

- a. Land type: High barind tract
- b. Vegetation cover: 90% agricultural land.
- c. land/soil erosion: No
- d. Air quality: Fresh
- e. Poultry/animal diseases: *Khura (cows), Torka, Plague, Pox (poultry), Dysentery, Diarrhoea.- Increasing*
- f. Source of fresh water: Pond, Tube well & Deep Tube well.
- g. Surface water used for: Cooking, Washing, Bath (everything)-only in the rainy season.
- h. Groundwater availability: 7 semi-deep tube wells in the village.
- i. Use of groundwater: Drinking, Washing, Cooking, Irrigation.
- j. Water conservation: None
- k. Water level: Before: 20- 25feet, now: 175-190 feet.

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Hot (severe) 5, Hot (moderate)2; Strom (mild) 2; Drought (severe) 5; Fog (Moderate) 2; Sickness (Mild) 3; Rain (Mild) 5.

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: *Kochu, Kolmi, Boitha, Gima, Sunsuni, Sanchi* (all these are unavailable now).
- b. Fruit including 'Minor' non-orchard species: *Potato, Shoir potato, Lawa, Custard apple, Deho fal, Wild jackfruit, Elan, Haihabla, Horifal* (**Rare**)
- c. Medicinal plants: *Chirota, God, Tulshi, Dhutra* (**Most of them are green coloured and unavailable**).
- d. Cottage industry source: None.
- e. House building raw material: No
- f. Animal feed: From field
- g. Wild animals eaten: *Wildcat, Indian Porcupine (Sazaru), Kulihut, Mongoose, Rat, Turtle, Rabbit.* (**Rare**)
- h. Wild fish caught?: No

**5. Human Environment on site**

- a. Ethnicity: 100% Santal
- b. Religion: Santal Christian- 90%, Santal Sonaton/animist- 10%.
- c. Main livelihoods: 95% day labourer, Farmer 4%, Service holder 1%.
- d. Average income for each of the livelihoods: Day labourer: 70- 80 taka per day, Farmer 100- 120 Taka per day, Service holder 130- 150 Taka per day.
- e. Number of households with sanitary latrines: 50% (without latrine)
- f. Distance to nearest primary school: 1 in the village.
- g. Distance to nearest hospital/medical centre: 20 km.
- h. Nearest industry: None
- i. Stoves: 100% with clay stove.
- j. Source of fuel: Dung in rainy season and straw, wood and leaves in dry season.
- k. Fuel collected from: From the field (everywhere).
- l. Agricultural crops grown: Rice, Potato & Vegetables.
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Before: Diarrhoea, Ringworm, Itch, Leprosy, Cholera, Black fever, Malaria, Jaundice, Pox..... Now: Diarrhoea, Headache.*(**Decreasing**)
- b. Crop pests: *Pamri, Rot, Patamora, Khol pora* (**Increasing**)
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Colder in winter/hotter in summer/*rainy season shorter/* more droughts/ more crop damage/ more fog/ sometimes no rain/ rainy season later/more insects.

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
**EA – BANGLAKANDOR**

**1. Information on site**

- a. Village: Banglakandor
- b. Union/Mouza: Dewpara
- c. Upozila /Sub-district: Godagari

- d. District/Zila: Rajshahi
- e. Number of Households: Population: 700

**2. Physical Environment**

- a. Land type: Low barind tract
- b. Vegetation cover: 65% agricultural, 35 % other
- c. land/soil erosion: Slowly by rain water and storm
- d. Air quality: Polluted (Smoky and Dust).
- e. Poultry/animal diseases: *Khura* (cows), *Pox* (poultry), Lala otha (cattle), *Diarrhoea* (poultry) - Last year 200 animal died. It is increasing now.
- f. Source of fresh water: 3 tube wells, 15 ponds (most of them are dry).
- g. Surface water used for: cooking, washing, bath (every works) (only in rainy season)
- h. Groundwater availability: 3 semi-deep tube wells in the village
- i. Use of groundwater: drinking, washing, cooking, irrigation
- j. Water conservation: None

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Drought (severe) 5; flood (severe) 2; diarrhoea (severe) 1; tornado (severe) 4; heavy rain (moderate) 3, Mist (mild) 1.

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: Kolmi (green, rare), Aram (green, available), Chanchi (green, rare), Boitha (Green, rare).
- b. Fruit including 'Minor' non-orchard species: None.
- c. Medicinal plants: None.
- d. Cottage industry source: Mat (palm leaf), Broom ( reeds)
- e. House building raw material: Bamboo, Wood, Straw, Palm tree.
- f. Animal feed: Grass, Straw.
- g. Wild animals eaten: Wild bird, Dove, Pigeon.
- h. Wild fish caught?: None

**5. Human Environment on site**

- a. Ethnicity: 100% Bengali
- b. Religion: 100% Muslim
- c. main livelihoods: 80% day labourer, Farmer 15%, Service holder 3% Other 2%
- d. Average income for each of the livelihoods: Day labourer: 120-130 taka per day, Farmer 120-130 Taka per day, Service holder 150-200 Taka per day, other 200-250 Taka per day.
- e. Number of households with sanitary latrines: 75%
- f. Distance to nearest primary school: Half km.
- g. Distance to nearest hospital/medical centre:10 km
- h. Nearest industry: 1 brick fields (within 1 km)
- i. Stoves: A few with smokeless stove, but most use clay stove
- j. Source of fuel: Dung in rainy season and straw and leaves in dry season.
- k. Fuel collected from: From dung, trees and straws.
- l. Agricultural crops grown: Rice, potato and wheat.
- m. Are seasonal crop rotations? No
- n. crop failures/changes in crop varieties: -

**6. Climate change**

- a. diseases in the community: moderate
- b. crop pests: Increasing
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Colder in winter/hotter in summer/rainy season later/rainy season shorter/ more droughts/ more crop damage/more crop pests/ more droughts/ decrease fog/ more dry.

7. *Strategies to cope with changes in climate*  
None

Church of Bangladesh Social Development Programme- Rajshahi  
EA -BARSHAPARA

1. **Information on site**

- a. Village: Barshapara
- b. Union/Mouza: Deopara
- c. Upozila /Sub-district: Godagari
- d. District/Zila: Rajshahi
- e. Number of Households: 45, Total People: 175

2. **Physical Environment**

- a. Land type: High barind tract.
- b. Vegetation cover: Decreasing fertile/ agricultural land.
- c. Land/soil erosion: Slowly
- d. Air quality: Fresh
- e. Poultry/animal diseases: *Pox, Khura, Badla, Gha ( Increasing)*
- f. Source of fresh water: Tube well.
- g. Surface water used for: *None (There is a pond in this village but no water in it)*
- h. Groundwater availability: 175 people are using only 2 semi- deep tube wells.
- i. Use of groundwater: Drinking, washing, cooking, irrigation.
- j. Water conservation: None
- k. Water level: Before: 80 feet, now: 140- 180 feet.

3. **Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Rain (severe) 4; flood (moderate) 1; fog (moderate) 3; flood (severe) 1.

4. **Natural Resources used by the community**

- a. Wild Leafy vegetables: *Kolmi, Nuna, Sanchi, Noti, Hoy ara, Bohututuri, Gaigandhari, Ulin ara (red), Boitha (green- rare).*
- b. Fruit including 'Minor' non-orchard species: *Wild custard, wild berry, Wild nut, Wild apple (various colour- unavailable).*
- c. Medicinal plants: *Kalomegh, Thankuni, Chirota (green- rare).*
- d. Cottage industry source: None
- e. House building raw material: Not from nature.
- f. Animal feed: From market or house made.
- g. Wild animals eaten: *Rabbit, Mongoose, Wild cat, Rat, Turtle, eel (Kuche), Kulin hut (Unavailable).*
- h. Wild fish caught?: Before but not now...

5. **Human Environment on site**

- a. Ethnicity: 100% Santal
- b. Religion: Christian- 20%, Sonaton/animist- 80%.
- c. Main livelihoods: Day labourer 85%, Farmer 15%,
- d. Average income for each of the livelihoods: Day labourer: 50- 60 taka per day, Farmer 100 Taka per day.

- e. Number of households with sanitary latrines: None
- f. Distance to nearest primary school: 1 in the village.
- g. Distance to nearest hospital/medical centre: 8 km.
- h. Nearest industry: None
- i. Stoves: 100% with clay stove.
- j. Source of fuel: Dung (75%) in rainy season/ straw, dry leaves, wood (25%) in dry season.
- k. Fuel collected from: From the field and dung.
- l. Agricultural crops grown: Fruits and vegetables.
- m. Are seasonal crop rotations? No
- n. Crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Before: Black fever, Malaria, , Diarrhoea Now: Black fever, Diarrhoea (Now a days diseases are Increasing)*
- b. Crop pests: *Rot, Insects, Chita, Weak plant (Increasing)*
- c. Have you noticed any change in the weather in last 10 year? **Yes**
- d. How has it changed: Less rain and shorter/ more colder/ more fog/ more sun heat/ more drought/ less storm/ more insects.

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
**EA - DORGAPARA**

**1. Information on site**

- a. Village: Dorgapapa
- b. Union/Mouza: Kakonhat Pourosova
- c. Upozila /Sub-district: Godagari
- d. District/Zila: Rajshahi
- e. Number of Households: 150, Total People: 1000

**2. Physical Environment**

- a. Land type: High Barind Tract.
- b. Vegetation cover: 100% agricultural land.
- c. Land/soil erosion: Slowly
- d. Air quality: Fresh
- e. Poultry/animal diseases: *Pox, Asthma, Khura, Fever & headache (Increasing). (200 animals are died within 6 years).*
- f. Source of fresh water: Tube well.
- g. Surface water used for: Cooking, washing, bath (Everything).
- h. Groundwater availability: 10 semi-deep tube wells in the village.
- i. Use of groundwater: Drinking, washing, cooking, irrigation (only in rainy season).
- j. Water conservation: Yes (10%)
- k. Water level: Before: 50- 60 feet, now: 160- 190 feet.

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Flood (severe) 1; winter (severe) 2; weakness (mild) 2; fog (moderate) 3; hot (severe) 4; rain (b mild) 4; storm (mild) 3.

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: *Kolmi, Aram, Santi, Katanote, Guma (Green in colour, Unavailable)*  
b. Fruit including 'Minor' non-orchard species. *Bonkathal, Berry, Dehakor, Alang, Betfol. (Most of them are green coloured and unavailable).*  
c. Medicinal plants: *Akondo, Durba, Arzun. (Rare)*  
d. Cottage industry source: Not now but before it was....  
e. House building raw material: Not from nature.  
f. Animal feed: From field/ market.  
g. Wild animals eaten: *Mongoose (Bezi), Frog, Rat, Rabbit. (Rare)*  
h. Wild fish caught?: No

**5. Human Environment on site**

- a. Ethnicity: Bengali 60%, Santal 40%  
b. Religion: Muslim- 60%, Sonaton/animist- 30%, Santal Christian- 10%.  
c. Main livelihoods: 60% day labourer, Farmer 25%, Service holder 10%, Businessman 5%.  
d. Average income for each of the livelihoods: Day labourer: 80- 100 taka per day, Farmer 120- 150 Taka per day, Service holder 150- 200 Taka per day, Businessman 100- 150 Taka per day.  
e. Number of households with sanitary latrines: 40% (without toilet)  
f. Distance to nearest primary school: 1 km.  
g. Distance to nearest hospital/medical centre: 25 km.  
h. Nearest industry: None. (1 poultry firm in the village).  
i. Stoves: 100% with clay stove.  
j. Source of fuel: Dung in rainy season and straw, wood and leaves in dry season.  
k. Fuel collected from: From the field (everywhere).  
l. Agricultural crops grown: Rice, Wheat, Chilli & Vegetables.  
m. Are seasonal crop rotations? No  
n. Crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *Before: Diarrhoea, Cholera, Pox..... Now: Diarrhoea, Jaundice (Increasing)*  
b. Crop pests: *Leda poka, Gandi poka, Rot. (Increasing)*  
c. Have you noticed any change in the weather in last 10 year? Yes  
d. How has it changed: Less rain/ Rainy season shorter/ more droughts/ more hot/ winter season shorter but stronger/ less storm/ No flood/ more insects.

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
EA - KAMLAPUR

**1. Information on site**

- a. Village: Kamlapur  
b. Union/Mouza: Gogram  
c. Upozila /Sub-district: Godagari  
d. District/Zila: Rajshahi

e. Number of Households: 202, Population: 1000

## 2. Physical Environment

- a. Land type: *High barind Tract*
- b. Vegetation cover: 100% agricultural land.
- c. Land/soil erosion: Slow
- d. Air quality: Too much polluted by smoke and poultry firm.
- e. Poultry/animal diseases: *Khura (cows), Pox (chicken), Diarrhoea (poultry)*
- f. Source of fresh water: Pond, Tube wells.
- g. Surface water used for: Cooking, Washing, Bath,
- h. Groundwater availability: 7 semi-deep tube wells in the village
- i. Use of groundwater: Drinking, Washing, Cooking, Irrigation
- j. Water conservation: None
- k. Water level: 50-70 feet (Before), 120-150 feet (Now).

## 3. Disaster Event Timeline

- a. What disasters have occurred in last 10 years: Drought (severe) 3; flood (moderate) 1; sickness (severe) 1; heavy rain (moderate) 3, storm (severe) 1, fog (moderate) 2.

## 4. Natural Resources used by the community

- a. Wild Leafy vegetables: *Kolmi (green, available), Geduri (green, unavailable), Ulinara (small green leaves, rare), Gadre ara (small leaves, brown, unavailable), Chatam ara (small leaves, green, rare), Kochu (green, available), Boitha (green, rare), Pat ara (green, rare), Hinchra ara (green, rare), Botua (green, rare).*
- b. Fruit including 'Minor' non-orchard species: *Wood apple, Small blackberry, Dephor, Padmachaka, Wild jackfruit, Singhra, Shaluk (all these are unavailable now)*
- c. Medicinal plants: *Lal pata, Grass, Josthi modhu, Chirota, Lajjabati, Godgach, Chuhar gach, Kathgoari (Unavailable now).*
- d. Cottage industry source: Mat (palm leaf), Broom (reeds)
- e. House building raw material: None
- f. Animal feed: *Grass, straw, leaves, dust rice.*
- g. Wild animals eaten: *Baigari, Small duck, Wild cat (Bongara), Mongoose, Owl, Rat, Crab, Turtle, Eel (Kuchemach), Bat, Jackal, Khatas, Indian Fox (Khirki). (Unavailable now).*
- h. Wild fish caught?: No

## 5. Human Environment on site

- a. Ethnicity: Bangali, Santal.
- b. Religion: 20 Bengali Hindu families, 32 Santal families, 150 Bengali Muslim families
- c. Main livelihoods: 60% day labourer, Farmer 20%, Service holder 5%, Businessman 10%, Other 2%.
- d. Average income for each of the livelihoods: Day labourer: 90 taka per day, Farmer 100 Taka per day, Service holder 150-200 Taka, Businessman 120-150 Taka.
- e. Number of households with sanitary latrines: 130 families have no toilet.
- f. Distance to nearest primary school: 1 km.
- g. Distance to nearest hospital/medical centre: 1 km.
- h. Nearest industry: 1 poultry farm which makes the environment polluted.
- i. Stoves: 100% clay stove. (No smokeless oven).
- j. Source of fuel: Dung in rainy season and straw and leaves in dry season. (Dung-80%, Other-20%)
- k. Fuel collected from: Field.
- l. Agricultural crops grown: Rice and Tomato.
- m. Are seasonal crop rotations? No
- n. crop failures/changes in crop varieties: -

## 6. Climate change

- a. Diseases in the community: *Black fever & Diarrhoea (Before)/ Headache, Diarrhoea & Pox (Now) – Increasing.*

- b. Crop pests: *Insects, Rot, Mazra insects, (Increasing)*.
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Colder in winter/hotter in summer/rainy season later/rainy season shorter/ more droughts/ more crop damage/more crop pests/ less storm/ more fog.

7. ***Strategies to cope with changes in climate***  
None

Church of Bangladesh Social Development Programme- Rajshahi  
**EA – KHORIAKANDI**

1. **Information on site**

- a. Village: Khoriakandi
- b. Union/Mouza: Dewpara
- c. Upozila /Sub-district: Godagari
- d. District/Zila: Rajshahi
- e. Number of Households: Total households 28, Population: 200

2. **Physical Environment**

- a. Land type: Low Barind Tract
- b. Vegetation cover: No agricultural land of their own.
- c. land/soil erosion: No
- d. Air quality: Fresh
- e. Poultry/animal diseases: *Khura* (cows), *Diarrhoea* (poultry), Pox (Poultry). It is decreasing now.
- f. Source of fresh water: Only 2 tube wells in this area.
- g. Surface water used for: cooking, washing, bath (every works)
- h. Groundwater availability: 3 semi-deep tube wells in the village
- i. Use of groundwater: drinking, washing, cooking, irrigation
- j. Water conservation: Rain water conserved in big pots.

3. ***Disaster Event Timeline***

- a. What disasters have occurred in last 10 years: Drought (severe) 5; flood (severe) 3 ; disease (severe) 5; storm (severe) 6; heavy rain (moderate) 3, Fog (severe) 1.

4. **Natural Resources used by the community**

- a. Wild Leafy vegetables: Kolmi (green, rare), Aram (green, available), Kata (green, rare), Chanchi (green, rare), Sunsuni (green, rare), Gadapunna (Green, rare).
- b. Fruit including ‘Minor’ non-orchard species: *Alang, Dehakuru, Betfal, Bonkathal (Most of them are green, rare)*.
- c. Medicinal plants: None.
- d. Cottage industry source: None
- e. House building raw material: None.
- f. Animal feed: From field (rare).
- g. Wild animals eaten: Turtle, Eel (Kuche mach), Wild cat (Bongara), Mangoose, Rat, snail (Shamuk), Shellfish (Jhinuk), Crab (Kakra), wild duck (Shamuk, Jhinuk and Kakra are available now the rest are rare).
- h. Wild fish caught?: A few from the pond.

5. **Human Environment on site**

- a. Ethnicity: 100% Pahari
- b. Religion: 100% Christian
- c. Main livelihoods: 100% day labourer.
- d. Average income for each of the livelihoods: Day labourer: 50- 60 Taka.
- e. Number of households with sanitary latrines: None
- f. Distance to nearest primary school: 1 km.
- g. Distance to nearest hospital/medical centre: 4 km.
- h. Nearest industry: None
- i. Stoves: 100% clay stove (only one have smokeless oven)
- j. Source of fuel: Dung in rainy season and straw and leaves in dry season.
- k. Fuel collected from: From dung, trees and straws.
- l. Agricultural crops grown: None.
- m. Are seasonal crop rotations? -
- n. crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: *moderate (Diarrhoea)*
- b. Crop pests: *They don't know anything about it.*
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Rainy season shorter, more fog in winter, and colder in winter, more hot in summer (This change is unbelievable to them)

**7. Strategies to cope with changes in climate**

None

Church of Bangladesh Social Development Programme- Rajshahi  
EA - PAITAPUKUR

**1. Information on site**

- a. Village: Paitapukur
- b. Union/Mouza: Rishikul
- c. Upozila /Sub-district: Godagari
- d. District/Zila: Rajshahi
- e. Number of Households: 80 Population: 300

**2. Physical Environment**

- a. Land type: High Barind Tract
- b. Vegetation cover: 60% agricultural, 40% other
- c. Land/soil erosion: Slow
- d. Air quality: polluted, smoky
- e. Poultry/animal diseases: *Khura* (cows), *Pox* (poultry), *cholera* (poultry)
- f. Source of fresh water: pond, tube wells
- g. Surface water used for: cooking, washing, bath-(only in rainy season)
- h. Groundwater availability: 6 semi-deep tube wells in the village
- i. Use of groundwater: drinking, washing, cooking, irrigation
- j. Water conservation: None

**3. Disaster Event Timeline**

- a. What disasters have occurred in last 10 years: Drought (severe) 6; flood (moderate) 2; diarrhoea (severe) 1; tornado (severe) 1; animal disease (severe) 2; heavy rain (moderate) 3.

**4. Natural Resources used by the community**

- a. Wild Leafy vegetables: *Kolmi (green, available), Geduri (green, unavailable), Ulinara (small green leaves, rare), Gadre ara (small leaves, brown, unavailable), Chatam ara (small leaves, green, rare), Desidata (white/ yellow, available in rainy season), Aram (green, available)*
- b. Fruit including 'Minor' non-orchard species: None.
- c. Medicinal plants: None.
- d. Cottage industry source: Mat (palm leaf), Broom( reeds)
- e. House building raw material: Bamboo, wood, straw.
- f. Animal feed: Grass, straw, leaves.
- g. Wild animals eaten: *Mangoose, Wild cat (Khatas), Rat, Turtle, Snail, small snail (Gugli).*
- h. Wild fish caught?: No
- i. Others: Wild potato (Outside is black and inside is white- rare).

**5. Human Environment on site**

- a. Ethnicity: Bengali 1%, Santal 99%
- b. Religion: Sonaton/nature worship 1 family, Hindu -2, families, all the rest Christians
- c. main livelihoods: 95% day labourer, Farmer 3%, Other 2%
- d. Average income for each of the livelihoods: Day labourer: 60 taka per day, Farmer 50 Taka per day, Other 2500 Taka per month.
- e. Number of households with sanitary latrines: 99%
- f. Distance to nearest primary school: 1 in the village.
- g. Distance to nearest hospital/medical centre: 18 km
- h. Nearest industry: None
- i. Stoves: 100% with smokeless stove, but use clay stove outside rainy season
- j. Source of fuel: Dung in rainy season and straw and leaves in dry season.
- k. fuel collected from: From the field
- l. Agricultural crops grown: Rice and Wheat
- m. Are seasonal crop rotations? No
- n. crop failures/changes in crop varieties: -

**6. Climate change**

- a. Diseases in the community: **Decreasing**
- b. Crop pests: **Increasing** ( *Insects, rot, virus*)
- c. Have you noticed any change in the weather in last 10 year? Yes
- d. How has it changed: Colder in winter/hotter in summer/rainy season later/rainy season shorter/drought/ more crop damage/more crop pests/ more droughts.

**7. Strategies to cope with changes in climate**

None