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**STRENGTHENING RESPONSES TO
CLIMATE VARIABILITY IN SOUTH ASIA**
Discussion paper: Bangladesh

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April 2013

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Executive summary

Drawing on field research and consultations with policymakers, practitioners and academics, this case study seeks to identify obstacles to and opportunities for interventions to build resilience to interlinked environmental and security risks among vulnerable communities in Bangladesh. The case study specifically looks at local resilience among the coastal communities in Satkhira and their knock-on effects in terms of migration to urban centres such as Dhaka.

In order to understand local resilience, the case study aims to address two key questions:

1. What are the root causes of vulnerability (to climate and conflict risks)?
2. How can external adaptation interventions (by the state or international institutions) address these root causes of vulnerability?

Findings from the case study lead to the following conclusions:

- Whilst livelihood diversification into perceived “climate resilient” areas such as tailoring, poultry farming, duck rearing, mat weaving and basket making are helping families better cope, they are not seen by beneficiaries as sufficient to build their resilience in and of themselves;
- Livelihood dependency on the Sunderban forests continues despite the security threats people face in accessing the forests. This dependency needs to be reduced;
- In the absence of a comprehensive policy framework, seasonal migration is a significant cost to human development through poor labour arrangements and working conditions of migrants. Safe migration needs to be prioritised to maximise its benefits and also be given due consideration in climate change and development plans;
- Interventions around other sectoral strands such as security and democratic governance could contribute to building community resilience if they are both climate and conflict sensitive.

This study is one of a series of regional studies which aim to present evidence of the interactions between environmental, social, political and economic risks at the local level in Bangladesh, India, Nepal and Pakistan.

1. Introduction

This case study looks at opportunities for strengthening resilience in fragile contexts. It aims to do so by identifying the root causes of vulnerability and non-adaptation to the implications of climate and environmental change among coastal communities in Satkhira district in southwestern Bangladesh and in slum communities in Bangladesh's capital city Dhaka. The case study specifically looks at local resilience among the coastal communities in Satkhira and its knock-on effects in terms of migration to urban centres such as Dhaka. The study aims to identify obstacles to and opportunities for interventions to build resilience to interlinked environmental and security risks in these two different contexts where the consequences of climate change are experienced in divergent ways.

Climate change impacts will inevitably be experienced at the local level and, as a result, responses which address these local impacts will be the most effective. However, desk research in preparation for this project revealed that the large majority of policies on adaptation are made at the capital city or headquarters level. Furthermore, there is little empirical evidence of local-level experiences of climate change impacts, taking into account existing peace and security challenges faced in fragile contexts, available to inform top-down approaches.

In order to understand local resilience, the first question which this case study aims to address is: **what are the root causes of vulnerability (to climate and conflict risks)?** For this, we first looked at the nature of the environmental risks faced and their interaction with existing dimensions of peace and security at the household and village level. The second central question of this paper is: **how can external adaptation interventions (by the state or international institutions) address these root causes of vulnerability?**

This study is one of a series of regional snapshots, which aims to present current empirical examples and qualitative evidence of the interactions between environmental, social, political and economic risks at the local level in Bangladesh, India, Nepal and Pakistan. The research is part of a small-scale pilot project. It is therefore beyond the scope of this paper to provide a comprehensive national survey or in-depth analysis of climate data. Some of the views expressed will be contested, contradicted and contentious, but the research methodology aimed to ensure that as broad a range of views as possible could be collected, so that those developing adaptation responses could have a deeper understanding of the complexities around perceptions and realities. It is intended that further analysis will build on these reflections as part of a necessary discussion on adaptation and resilience in conflict-affected contexts. A summary of key findings from across the four case studies and policy recommendations can be found in the separate executive summary.

2. Background and context

The Intergovernmental Panel on Climate Change (IPCC) Working Group II Report (2007) identified Bangladesh as one of the top countries vulnerable to climate change, already experiencing a rise in temperature and frequency of floods.¹ Bangladesh is one of the most densely populated countries in the world, with approximately 150 million people living in a comparatively small area of 144,000 square kilometres. It ranks 140th out of 177 countries in the Human Development Index and has 40 percent of the population living below the poverty line.² Exposure to natural calamities limits the economic viability of the population, many of whom work in agriculture in climate vulnerable areas. Agriculture is the primary source of employment in Bangladesh, engaging 45 percent of the total population, while contributing only 20 percent to the national income.³ However, agriculture is crucial for national food security and for providing raw materials to the manufacturing industry (e.g. cotton textiles, jute, tea), which is now becoming the lead contributor to the country's national income.⁴

Around 40 percent of the country's total land lies in the Low Elevation Coastal Zone and remains at risk of inundation and riverbank erosion.⁵ The floods of 1998 inundated 700,000 hectares of cropland and the households of 30 million people.⁶ Several studies report that between 64,000 and 100,000 Bangladeshis are rendered homeless every year due to riverbank erosion.⁷ Increasingly, the affected and displaced communities are migrating to cities, primarily the capital city Dhaka in central Bangladesh, or across the border in search of livelihoods. According to two key informants, up to 2,000 people enter the city each day, especially during the monsoon period, and end up in slums. This exacerbates the ecological pressures of the high population density of Dhaka, which is approximately 28,000 people in every square kilometre area.⁸

1 Intergovernmental Panel on Climate Change (IPCC) (2007). *Climate change 2007: Synthesis report*. Geneva: World Meteorological Organization – IPCC Secretariat.

2 United Nations World Food Programme, Bangladesh and TANGO International, USA, 2006.

3 The Independent Commission for Aid Impact (ICAI), 2011.

4 The World Bank (2011). *Climate risk and adaptation: Bangladesh country profile*. Available at http://sdwebx.worldbank.org/climateportalb/doc/GFDRRCountryProfiles/wb_gfdr climate_change_country_profile_for_BGD.pdf

5 V. Sharma and G. Hugo (2009). *Exploring the population-environment nexus: Understanding climate change, environmental degradation and migration in Bangladesh*. Paper presented at the 26th International Population Conference in Marrakech, September 2009.

6 United Nations World Food Programme, Bangladesh and TANGO International, USA, 2006.

7 V. Sharma and G. Hugo (2009). *Op. cit.*

8 *The Daily Ittefaq*, 16th March 2010, p.1, Sujan Saha's paper.

The National Adaptation Programme of Action (NAPA) formulated in 2005 was the first major climate change related policy of Bangladesh. However, the implementation of the NAPA has been poor so far due to the lack of community involvement in the drafting of the NAPA and lack of its wide acceptability among affected communities.⁹ In 2008, the government of Bangladesh developed the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) as a key policy framework for all climate change adaptation and mitigation related efforts. The Bangladesh Climate Change Trust Fund (BCCTF) and the Bangladesh Climate Change Resilience Fund (BCCRF), a multi-donor trust fund, have been set up in support of the BCCSAP. A new department of Climate Change was established by the Ministry of Environment and Forests in 2010 to coordinate implementation of the BCCSAP.

9 Z.H. Mukta and K. Hossain (2008). *Climate change adaptation financing: Managing a transparent and pro-poor fund in Bangladesh*. Briefing Note. Dhaka: Campaign for Sustainable Rural Livelihoods (CSRL). Available at http://www.csrlbd.org/resources/climatechange-resources/Climate_Change_Adaptation_Financing_Final.pdf

3. Methodology

Definitions

Climate risks are conceptualised as the product of exposure, sensitivity and adaptive capacity.

Exposure: ‘The nature and degree to which a system is exposed to significant climate variations.’

Sensitivity: ‘... the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli.’

Adaptive capacity: ‘The ability of a system to adjust to climate change to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.’¹⁰

The study opts to supplement the IPCC definition of adaptive capacity to take account of broader social issues. As such, we adopt the term resilience. The concept of resilience lacks a universally accepted and precise definition. However, for this project, we adopt a framework for resilience which is based on a broad conceptualisation of the term and which also draws on the principles of resilience to conflict.¹¹

We define resilience as: ‘The ability of countries, communities and households to anticipate, adapt to and/or recover from the effects of potentially hazardous occurrences (natural disasters, economic instability and conflict) in a manner that protects livelihoods, accelerates and sustains recovery, and supports economic and social development.’

When looking at exposure and sensitivity, this research does not aim to distinguish between climate change and environmental change, but rather considers the two together. Only weather-related events – for example, storms, floods, temperature extremes, extreme events and changing rainfall patterns – are incorporated.

This study is looking at responses to climate variability which can build resilience to combined climate and conflict risks. It is worth noting here that it is violent and armed conflict that we are interested in preventing. **Conflict** occurs when

¹⁰ Intergovernmental Panel on Climate Change (IPCC) [2001]. *Climate change 2001: Impacts, adaptation and vulnerability*. Annex B: Glossary of terms. pp.981-996. Available at <http://www.ipcc.ch/ipccreports/tar/wg2/>

¹¹ See: D. Smith (2004). *The Joint Utstein study of peacebuilding*. Evaluation Report 1/2004. Oslo: Norwegian Ministry of Foreign Affairs.

two or more parties believe that their interests are incompatible, express hostile attitudes or take actions that damage the other's ability to pursue its interests. "Violence" is often used interchangeably with "conflict", but violence is only one means among many that parties might choose to address a given conflict. Non-violent conflict is a normal part of development and human interaction. When violence erupts, however, a profound breakdown in social relationships occurs that will have destructive effects. Armed conflict takes this even further, when violence is organised and sustained over a period of time.

Conflict sensitivity is defined in this project as the capacity of an organisation or individual to:

- Understand the context in which it operates;
- Understand the interaction between its operations and the (conflict) context; and
- Act upon the understanding of this interaction in order to avoid negative impacts and maximise positive impacts on the (conflict) context and the intervention.¹²

Site selection

Dhaka, the capital city of Bangladesh, is exposed to the risks of prolonged flooding and water logging. The floods of 1998 and 2004 were reported to be the most damaging in terms of inundation, with slum dwellers and those living in low lying areas the worst affected. Dhaka was selected as a research site to understand the dimensions of local resilience to these climate risks among second and third generation slum dwellers, who have been living in the city for several decades. In addition, there is an increasing trend of seasonal migration from the coastal areas to urban centres such as Dhaka to access employment opportunities. This is exacerbating the strains on an already congested city.

Satkhira, a coastal district in the southwest of Bangladesh, was selected due to its highly visible and direct exposure and sensitivity to environmental risks, namely cyclones, sea-level rise and saline water intrusion. The district was severely affected by Cyclone Sidr in 2007 and Cyclone Aila in 2009. Satkhira receives a significant amount of attention from donors and development agencies working on climate change. The area is also of particular interest for this study, as communities are exposed to human security risks from armed groups who control access to natural resources in the Sunderbans.

¹² Conflict Sensitivity Consortium [2003]. *Conflict-sensitive approaches to development, humanitarian assistance and peacebuilding: A resource pack*. Available at <http://www.conflictsensitivity.org/publications/conflict-sensitive-approaches-development-humanitarian-assistance-and-peacebuilding-res>

Case study area: Satkhira



Data collection and analysis

Data collection methodology drew on grounded theory (GT) and elements of structured focused comparison (SFC). Given the small-n and comparative nature of the study, grounded theory alone would not have been suitable to build a theory based on such a small and diverse sample size. However, since the first aim of the research was to understand the dimensions of resilience and the implications of climate change and conflict, aspects of the GT approach offered an effective way

to conceptualise what was going on. The broad survey questions were designed to be sufficiently open to capture what specific issues were being faced at the local level, what the main challenges faced by the participants were and how they were trying to solve these challenges.

The study adopts an analytical framework for resilience which aims to understand the root causes of vulnerability to complex risks, as identified by respondents in the field research. The framework thus integrates a livelihoods approach and disaster risk reduction approach. Given the focus on fragile contexts, the research also draws heavily on peacebuilding frameworks¹³ which identify the foundations for peace and security.

The interviews were structured and questions were loosely focused around the independent variables (climate and environmental change events, political context and external interventions). However, they were also sufficiently open to capture other factors outside of these which could play a significant role in affecting resilience.

Between 5th and 22nd January 2013, the research team visited four slums and one brick factory colony in Dhaka, conducting interviews with 21 respondents.¹⁴ In Satkhira, the field research was based on key informant interviews and group interviews with 42 respondents from several villages in the two Union Parishads of Gabura and Burigoalini in the Shyamnagar sub-district of Satkhira.¹⁵ Respondents in Satkhira included *renu* (shrimp spawn) collectors, shrimp farmers, crab collectors, crab fatteners and crab traders, beneficiaries of projects, non-governmental organisations (NGOs), a forest officer and local government officials including the chairmen of both Union Parishads. Additional interviews were conducted with 17 key informants from NGOs and international institutions in Dhaka. The field research was also supplemented with a desk review of national policies and adaptation projects.

13 D. Smith (2004). Op. cit.

14 Some seven respondents were female.

15 Some 13 respondents were female. All efforts were made to ensure that different socio-economic, age, ethnic and religious perspectives were also covered in our selection of respondents.

4. What are the climate and environmental change related risks faced by communities?

The United Nations Development Programme (UNDP) has identified Bangladesh as the most vulnerable country in the world to tropical cyclones and the sixth most vulnerable to floods.¹⁶ The Global Climate Risk Index also cited Bangladesh as one of most affected by the impacts of weather related events (storms, floods, heat waves, etc.) from 1992 to 2011.¹⁷ The BCCSAP is predicated on a forecast sea-level rise of between 0.18 and 0.79 metres and higher and more erratic rainfall. The predicted implications – namely, increased coastal flooding and saline water intrusion into aquifers and rivers in the south of the country – were already being experienced by local respondents in Satkhira. A knock-on consequence of these coastal risks is an increased trend of migration from the vulnerable coastal areas to urban cities, mainly the district capital and national capital.

Dhaka has been severely affected by increased extreme temperatures and fog. At the time the research was being conducted, Dhaka experienced its coldest day in 47 years on 10th January 2013. The summers are becoming longer and more intense, with slum dwellers especially suffering from heat stress and water scarcity. Torrential downpour, prolonged flooding and water logging are the major environmental risks that the city is exposed to. This is leading to other hazards – namely, drainage congestion, contamination of water sources and the onset of water-borne diseases such as diarrhoea and typhoid.

Community respondents in Satkhira referred to more intense and unpredictable rainfall in recent years, changes in temperature and the timing of the seasons (winter-summer). All respondents raised concerns about increased flood risks as well as salinity of their land and drinking water. A significant number of community respondents also noted the decreased current in the river which they attributed to the rise in the river bed, siltation and river bank erosion. Changes in river current and temperature have also affected shrimp breeding and catching timings.

All respondents in Satkhira repeatedly referred to the devastation caused by Cyclone Aila in the communities in 2009. Cyclone Aila was the second tropical cyclone to form within the northern Indian Ocean during 2009, slowly intensifying into a cyclonic storm and maintaining its cyclonic intensity for approximately 15

¹⁶ UNDP (2004). *Reducing disaster risk: A challenge for development – A global report*. Available at <http://www.un.org/special-rep/ohrlts/ldc/Global-Reports/UNDP%20Reducing%20Disaster%20Risk.pdf>

¹⁷ S. Harmeling and D. Eckstein (2012). *Global climate risk index 2013: Who suffers most from extreme weather events? Weather-related loss events in 2011 and 1992 to 2011*. Briefing Paper. Berlin: GermanWatch. Available at <http://germanwatch.org/en/download/7170.pdf>

hours after making landfall. Cyclone Aila left 190 people dead, more than 7,103 people wounded and more than 3,928,238 people affected.¹⁸

The cyclone brought with it tidal surges of up to 6.5 metres, affecting coastal districts in Satkhira and Khulna. This surge of water damaged and washed away over 1,742 kilometres of embankments and resulted in prolonged continuation of flooding that communities had to battle with in the immediate aftermath of the cyclone. Much of the damage inflicted by Cyclone Aila was caused by this massive flooding – such as the contamination of drinking water sources with seawater, the killing of fish in the freshwater ponds, the washing away of and damage to shrimp farms and crab hatcheries, and the complete destruction of houses, infrastructure, property, crop land, livestock, poultry and cultivated homesteads. The majority of people were rendered homeless, with few able to seek shelter in nearby cyclone shelters; instead most people sought refuge on roads and the roofs of schools, colleges, mosques and other buildings.

18 International Federation of Red Cross and Red Crescent Societies (2009). *Operational update: Bangladesh – Cyclone Aila*. Available at http://www.ifrc.org/docs/appeals/09/MDRBD004_OU2.pdf

5. What are the pre-existing social, political and economic risks faced?

Governance and power

The local governance administrative structure in Bangladesh is divided into divisions, then into “*Zilas*” (districts), which in turn are sub-divided into “*Upazilas*” (sub-districts), followed by unions and finally by wards. The research was conducted in the Khulna division, in the Satkhira Zila, in the Shyamnagar Upazila and in the two Unions of Gabura and Burigoalini across several wards. Democratically elected local government bodies termed “*Parishads*” or councils exist at both the Upazila and Union level throughout rural Bangladesh. The Ministry of Local Government, Rural Development and Cooperatives (MoLGRDC) at the central government level oversees the entire local government system in Bangladesh. Each union is made up of nine wards, and each ward elects one male ward representative to serve as a member of the Union Parishad. In addition, three women ward members are elected to serve on the Union Parishad, representing three wards each. A Union Parishad chairman is elected from among the constituents of the entire union to lead the Union Parishad for a term of five years.

Elected local government institutions like the Union Parishad still remain weak due to the highly centralised nature of government and political corruption. According to one key informant, local government officials at the union level are lobbying for greater autonomy and more decision-making authority. They are also struggling to circumvent the political influence and manipulation imposed from higher levels of government, especially from Members of Parliament. Two key informants referred to the political pressure and obstructionism which the chairman of Gabura Union has been facing, citing his political affiliation with the opposition party as a likely reason for this obstacle. This has significantly restricted the implementation of government schemes in his Union. In addition to the external political challenges, local government institutions are also characterised by weak administrative capacity, along with limited financial resources and human resource capacity.

The space for NGO activity in Satkhira was very open and respondents from both NGOs and local government confirmed that, for the most part, there was a positive working relationship between them. However, an NGO respondent cited nepotism in the beneficiary selection process as one of the challenges of working with members from the Union Parishad. Local government officials are not only involved in selecting beneficiaries for government schemes and initiatives, but are often involved in determining beneficiaries for projects being implemented by

NGOs. According to the respondent, Union Parishad members have preferences in the selection process and might exclude the poorest of the poor or those considered most vulnerable: ‘Local government is not 100 percent neutral.’

Livelihoods and assets

The majority of livelihoods in Satkhira and the coastal areas more broadly includes *renu*¹⁹ collection, shrimp farming, crab fishing, and crab fattening and fishing. All respondents in Satkhira strongly communicated their income insecurity in interviews and linked it very closely to climate and environmental consequences. The livelihoods in these areas suffered significant damage and loss as a result of Cyclone Aila in 2009 and the consequent flooding and continuous inundation by saline water. Respondents explained that as Aila hit during the harvest time, all valuable export grade shrimps were washed away. Livestock, poultry and homestead/vegetable gardening were also ruined. For many months after Cyclone Aila, people could not resume their livelihoods as most of the shrimp farms and ponds that were damaged by Aila continued to be inundated due to the broken embankments that took a long time to repair.

All respondents referred to the decreasing stock of *renu*, fish and crabs affecting their livelihood as a result of the increased salinity brought about by Cyclone Aila. A significant number noted the reduced current in the river which they attributed to the rise in the river bed, siltation and river bank erosion. Changes in the river current and temperature were also cited as reasons affecting shrimp breeding and catch timings. The decrease in catch communicated by the respondents was being manifested in their increased dependence on the Sunderbans for resources like *renu*, fish, crab, *goalpata*,²⁰ wood fuel and honey.

The Sunderbans remain the most indispensable and largest source of livelihood in the Aila affected Khulna and Satkhira districts. As one fisherman explained, ‘river means Sunderban, Sunderban means river’, thereby according the Sunderbans the status of his greatest livelihood lifeline. However, years of indiscriminate fishing have negatively impacted on the biodiversity of the Sunderban ecosystem, leading to the government imposing bans on entering the Sunderbans during certain times of the year and prohibiting fishing in specific entrance canals.

With the ecosystem of the Sunderbans threatened, the government has instituted an annual two-month ban during the breeding season to preserve the stock of

¹⁹ The local term for shrimp spawn.

²⁰ Local name of the *Nypa Fruticans*, a tree whose leaves are used to make thatched roofs.

fish, shrimp and crabs. With the Sunderbans being preserved, communities believe that the catch of fish, shrimp and crabs is much higher in the forests. However, the ban is perceived as an obstacle to people's ability to earn an income and sustain their households. One respondent mentioned fishing secretly during the night to circumvent the ban imposed. Various associated expenses of entering the Sunderbans are an added hardship communicated by the respondents. For example, the Boat Licence Certificate (BLC) now has to be renewed annually, while permits issued by the Forest Department have to be purchased to undertake fishing in the Sunderbans. The security threats of tiger attacks and “*dacoits*”²¹ in the Sunderbans are additional risks faced by the communities in pursuing their livelihood in the forest (discussed in more detail under the section below on safety and security).

For many years, floods have been bringing saline water further inland, destroying the rice fields that once sustained the villages. The onset of shrimp farming has further aggravated the levels of salinity, with shrimp farms replacing the once widespread rice paddies in Gabura and Burigoalini. Shrimp farmers, some of whom are landowners and some of whom lease their land, spoke of the difficulty they face in accessing and transporting water to their shrimp farms. To remedy this, they operate the already existent sluice gates and illegally constructed water pipes beneath the embankments to allow saline water into their farms. Following Cyclone Aila, the Water Development Board has banned the use of sluice gates and the entry of saline water into shrimp farms. However, the practice has continued, as the shrimp farmers interviewed emphasised that they were only protecting their source of livelihood and income. The Water Development Board has subsequently filed many cases against over 200 people for damaging the embankments that are meant to protect communities against saline water intrusion through the illegal construction of pipes and the operation of sluice gates. Although salinity was already affecting the possibilities of cultivation in the area, the onset of shrimp farming is further aggravating the possibility of livelihood options such as paddy, vegetation, homestead gardening and livestock rearing. In turn, the livelihood of shrimp farmers is unsustainable and increasingly under threat by government action and climate events.

Safety and security

People living in the coastal areas of Bangladesh and close to the Sunderbans have been dependent on the mangrove forests for their livelihood for many years. However, livelihood dependency on the Sunderbans is threatened by tiger

²¹ *Dacoit* is an Anglo-Indian term used to denote banditry or armed robbery.

attacks and *dacoits*. The local government even has a scheme to provide a Widow Allowance/Widow Cards (*Bidhoba Bhata*) to women whose husbands have been exposed to tiger deaths. The other imminent threat faced by communities in the Sunderbans is the problem of *dacoits*. The *dacoits* are runaway criminals from the nearby coastal communities who target fishermen and crab collectors entering the Sunderbans, abducting them and holding them to ransom. The extortionary practices of the *dacoits* have become so institutionalised that local fishermen in advance of their fishing trips to the Sunderbans purchase “yellow payment slips” to safeguard against abduction in the Sunderbans. However, as there are three different *dacoit* groups operating in the Sunderbans, safety is never a guarantee.

Respondents saw a clear difference between the safety risks posed by tigers and those from the *dacoits*. Referring to the tiger attacks, one respondent stated: ‘It is Allah’s wish, there is nothing to be done.’ However, in the case of the *dacoits*, respondents expected the government to guarantee their safety and protect them from such criminality.

Through support from the government and international donors, cyclone warning systems are in place, so fishermen can return to the land and people can seek shelter. However, some respondents complained that cyclone shelters that have been built to ensure people’s security are mismanaged and too small to accommodate all the people in the area. A few respondents also referred to the lack of sanitation facilities in these shelters and the difficulty women face in terms of lack of privacy. For many, the nearest cyclone shelter is simply too far away to reach during a cyclone.

Respondents working in the brick factory in Dhaka also referred to instances where their security was under threat. According to male respondents, in the evenings there is a threat of kidnapping and theft from people’s homes. As a result, some people do not feel safe leaving their homes even after sunset and feel restricted in their mobility to visit the *bazaar* (market) or the main road. Unlike in the established slums where there are informal security mechanisms in place, informal or formal safeguards for guaranteeing physical security are non-existent for workers in the brick factories.

Wellbeing

Most respondents referred to the lack of income necessary to run their household. Respondents cited two primary mechanisms they employed to cope with the insufficient capital: borrowing money or taking on loans; and temporary migration by male members to supplement their household income.

A group interview with *renu* collectors (predominantly women) revealed that because of lack of income for household expenditure, they often take on a loan from agents with the promise of the next day's catch. Whether the catch is more or less than the equivalent loan amount, the *renu* collectors are not paid any additional money for the surplus catch nor do they have to pay back any money to the middlemen if the catch has been lower than the value loaned. But with the catch of *renu* generally in decline, this loan mechanism was proving to be more of a loss for them. Respondents also referred to the need to borrow money in advance of fishing trips to the Sunderbans to pay for a boat, forest licence and ransom money should they be abducted by *dacoits*. Respondents cited various sums ranging from BDT 20,000²² (€200) to BDT 50,000 (€500) as the amount of ransom money that they could be charged with.

Migration was seen as potentially beneficial in economic terms, but was not viewed favourably by community members in terms of their wellbeing. NGO respondents confirmed that it was low or lack of income that was pushing men to temporarily migrate and work in brick factories or as day labourers. The large majority of respondents interviewed in the brick factory in Dhaka explained that they felt homesick and nostalgic for their life back in their villages. If opportunities to earn a higher income existed within their coastal communities, they would not feel compelled to search for work elsewhere.

With climate change extending the lean periods, men are being forced to stay away for longer periods. For women, the impacts of migration have meant that they are becoming the sole caretakers at home and burdened with more work, including ensuring their family's food security while their husband is away. Even in the wake of Cyclone Aila, when there was mass out-migration as a survival strategy, the migration was temporary and most people returned to these areas. An NGO project coordinator stated: 'Many people migrated because of Aila. There were no employment opportunities. But it was not permanent migration. They came back once there was a congenial environment. The majority of people try to live here.'

22 €1 = approximately 100 Bangladeshi Taka (BDT) as at 27th March 2013.

Box 1: Challenges of seasonal migration to the brick factories in Dhaka

Based on interviews with people who have been seasonal migrants and family members of migrants.

In Gabura and Burigoalini, migration was primarily being undertaken by the men in the community to work in brick factories in Dhaka. The men resorted to migration to cope with the lean season and earn an additional income. According to one respondent, there are contractors who come to his community and nearby villages in search of cheap labour. They sometimes appoint local leaders and task them with finding people from among the community to migrate and work in the brick factories. People are required to sign contracts and as many people in the community are not literate, they do not understand the terms and conditions they are signing up to. A respondent mentioned that sometimes they are promised BDT 20,000 (€200) but that at the end of the work period they receive only BDT 10,000 (€100), with contractors claiming that those were the formal, contractual terms of agreement.

According to a brick factory worker in Dhaka who migrated from Satkhira, financial constraints led to his migration to Dhaka. Although migration has positively affected his life in terms of improving his standard of living, he misses his family and his home in the village and if opportunities existed in his home village, he would move back. He outlined: 'I am a slave for money and basic needs. I can hardly manage time to visit my family. I wish to be with them but that is beyond my dream because of financial insecurity and less opportunities in the village.' Another respondent said that migration was not desirable because it meant being away from his family and missing out on his children's life: 'Who would want their children to be away from their parents?'

Those returning from the brick factories reported that the conditions in the factories were 'terrible'. Moreover, the men from these coastal areas do not always have the strength to undertake the type of manual labour expected of them. If they try to escape, court cases are filed against them, which they cannot afford to pay the expenses for. The courts are presented with evidence in the form of written and signed contracts and therefore the seasonal migrants are implicated, resulting in the migrant's family incurring more debt than when they left for employment in the brick factories. One respondent reported that his neighbour had a court case filed against him two months ago for escaping from the brick factory prematurely.

6. What are the likely new and future vulnerabilities?

Long-term consequences of increasing salinity

All respondents highlighted the increase in salinity as one of the damaging consequences of Cyclone Aila. Salinity has damaged land and soil fertility, with many respondents complaining about the inability to use the land for homestead gardening and vegetation. It has affected their drinking water supply and health and their ability to rear livestock, as well as reducing the stock of fish in rivers. Exacerbating the problem of salinity is years of shrimp farming that have rendered acres of land unfit for cultivation.

The coastal embankments have also been under serious threat of violation by shrimp farmers who operate sluice gates and allow saline water to enter into their shrimp farms. The livelihood of the shrimp farmers is therefore unsustainable environmentally. It is also aggravating tensions within the community between the mostly landowning shrimp farmers and those without land and working in non-shrimp farming occupations (such as those working as day labourers, mud cutters, boat makers and carpenters) who are relatively poorer. Respondents from the non-shrimp farming communities claimed that shrimp farming was permanently destroying the possibility of other livelihoods in areas such as agriculture, which was more viable in terms of providing livelihoods to a larger number of people. They claimed that shrimp farms employ a fraction of the people needed to harvest rice. The respondents expressed concern that the natural increases in salinity and man-made contributions to its rise will further exacerbate the already strained livelihood options of people living in these coastal areas. One respondent also complained that: 'the few labourers the shrimp farmers do employ are from neighbouring villages and not from within the community. By increasing the salinity of the already saline land, they are destroying all hope for any other livelihoods.'

Embankment breaches

The embankments in Gabura and Burigoalini were constructed around the early 1960s to provide protection to people and save the arable land from saline water. However, with shrimp cultivation beginning in the late 1980s, shrimp farmers constructed pipes and installed sluice gates in the embankments to pump salt water into their shrimp farms that weakened the embankments. The embankments were never properly maintained or repaired. A handful are made of brick, but most, like the one in Gabura, are made only of mud and have never been fortified with anything stronger. The embankments therefore failed to withstand the pressure of

the massive tidal surge that swept along the coastal belt in the form of Cyclone Aila. The embankment in Gabura Union breached in eight places along the Kholpetua River on the night of the cyclone. Vast areas of both Unions continued to be inundated, as it took several months to even complete the repair works of the small breaches. People from the communities helped to repair the damages both voluntarily and under the food for work programme. However, at present, the state of the embankment is such that it cannot and will not withstand another cyclonic attack of the same scale as Aila. Fortifying the embankment would require very large financial investments, which the government of Bangladesh cannot afford or sustain. These areas therefore continue to be vulnerable to threats of flooding and the devastating consequences of cyclonic disasters, and the viability of embankments as a solution is questionable.

Increased migration to urban centres

Migration is not new in Bangladesh. However, more people are being forced to migrate temporarily from coastal areas to urban centres in search of employment opportunities, as their primary livelihoods in the coastal areas are becoming more insecure due to various climate and environmental risks. Respondents in Burigoalini said that most of the seasonal migrants from their communities move to cities like Dhaka to work in the brick factories during the lean season to earn an additional income. The majority of these migrants live in slums that are located in environmentally vulnerable locations in the city. The living conditions in these slums are characterised by poor sanitation and hygiene as well as scarcity of safe drinking water. As the numbers of migrants steadily increase, the already weak urban infrastructure will face severe strains. The city will have to cope with increasing numbers of squatter settlements and slums, along with increasing pressures on services such as the provision of water, electricity, gas and sanitation.

Table: Climate change impacts and their implications for conflict drivers

| Climate/Environmental change impacts | Implications for existing conflict drivers/risks to peace |
|---|---|
| Increase in the frequency and intensity of natural disasters, especially cyclones | <p>Increased dependence on aid and support of NGOs</p> <ul style="list-style-type: none"> – Tensions within the community over perceived favouritism in beneficiary selection – Deepening political apathy and deterioration of the social contract <p>Increased pressure on already weak infrastructure (e.g. embankments)</p> <ul style="list-style-type: none"> – Reinforces frustrations and grievances against political representatives <p>Loss of assets</p> |
| Increase in salinity, destroying land and agricultural production | <p>Rising food insecurity</p> <p>Tensions between shrimp farmers (relatively wealthier and sometimes landowners) who are further aggravating land salinity and non-shrimp farming communities whose livelihood options are being compromised</p> <p>Strained relationships between shrimp farmers and local government over the operation of sluice gates</p> <ul style="list-style-type: none"> – Court cases against shrimp farmers but no concrete alternative livelihood strategies to move away from shrimp farming |
| <p>Increase in salinity, destroying fish species and affecting stocks of <i>renu</i> and crabs</p> <p>Climate affected livelihoods push more people into the Sunderbans, where they face security threats</p> | <p>Increased frustration at the government's inability to protect people</p> <p>Increased pressure on the Sunderbans; tensions between communities and forest officials/local government officials tasked with preserving the Sunderbans</p> |
| <p>Health problems arise as a result of extreme salination of drinking water</p> <p>Increased seasonal/temporary migration as climate dependent livelihood options become scarce and more risky</p> | <p>Unhealthy people have decreased livelihood options</p> <p>Dislocation and displacement; more female-headed households; breakdown of the family unit; physical isolation</p> <p>Increased pressure on urban centres due to higher rural to urban migration</p> |

7. Are there observable constituent factors of resilience in this context?

Ethnic cohesion

Many key informants cited a relatively homogenous population in Bangladesh as a dimension of resilience. The fact that there are a few ethnic and religious divisions within the community was understood to be a historical indicator and indicated that rifts along social lines would be unlikely. However, a number of respondents did note that if increased pressure on natural resources was to result in social dislocation, the first line would be religious, where there are mixed Hindu and Muslim communities. Key informants in Dhaka identified this as both a national and trans-boundary security risk: they explained that there have already been violent responses against Hindus in Bangladesh in response to perceived negative decisions made over the border by India.

Migration

Although migration was viewed unfavourably among the respondents from our two Unions, it was also one of the main mechanisms through which people could earn an additional income. Migration is primarily undertaken by men in the community to work as seasonal workers in the brick factories in Dhaka and, in this respect, migration was considered to be economically beneficial. In Burigoalini and Gabura, seasonal labour migration is used to cope with the lean period from October to February, when there is little alternative work available to generate an income.

Access to credit, saving schemes and alternative livelihoods

Bangladesh has an extensive and active network of NGOs operating both at the national and the local level. In both Unions visited in Satkhira, NGO activities are focused on climate change, disaster risk reduction, and alternative livelihood provisions such as sewing/tailoring, poultry farming, duck rearing, mat weaving and basket making. Most of these schemes are helpful coping mechanisms for households, rather than long-term resilience building strategies. This is because they bring in additional income into households rather than ensure income security through a secure livelihood. Many of these NGOs also promote savings and credit schemes, making it easier for people to access capital. One NGO representative interviewed said that his NGO provided loans to people out of work or for people to start a microenterprise, along with seasonal loans and home repayment loans. The

representative explained that as the NGO levied no fees or expected no collateral, these loans were preferred over government loans. Different savings schemes are also available, but as most people do not have enough income to make ends meet, the savings culture is absent in these communities. The Vulnerable Group Feeding (VGF) scheme is attempting to build a small amount of savings in exchange for monthly provision of rice to vulnerable communities (see section on VGF).

8. What are the gender dimensions of climate risk and resilience?

Climate and environmental impacts in terms of reduced *renu*, fish and crab catch are forcing men to enter the Sunderbans more frequently where they are being exposed to the security threats that exist in this area (see section above on safety and security). Men are also the primary migrants from the coastal areas and while migration brings with it economic benefits, it also requires them to be away from their homes and spend less time with their families (see section above on wellbeing). Migration also brings other risks such as exploitation by contractors (see box above on the challenges of seasonal migration to the brick factories in Dhaka). Male respondents living in accommodation around the brick factories also expressed their fear of the risks of kidnapping and theft of their property if they ventured out at night in the vicinity (see section above on safety and security).

Women have become more active as a result of the various negative environmental consequences on people's livelihood and income security. Most of the women interviewed were income generators for their families, with the majority involved in *renu* collection. NGO awareness-raising activities highlighting the benefits of women working and contributing to the household is another reason for their greater involvement. Many climate adaptation programmes have prioritised women headed households, single women (widowed or abandoned), disabled and elderly women, designing alternative livelihood jobs for them.

The involvement of women in income generation and alternative livelihood schemes has resulted in benefits and challenges. One female beneficiary of an alternative livelihood programme who was interviewed stated that she had been trained as a tailor but often did not have enough capital to purchase cloth and sustain her business. Her husband at the time was working in a brick factory in Dhaka. To generate more income, she started collecting *renu* early in the morning. However, she explained that the time taken to go fishing was encroaching on her household responsibilities, such as cooking and getting her daughter ready for school. Although she was contributing to the household income, the additional burden of responsibility was in her opinion affecting the time she spent with her daughter. At the same time, however, she was able to invest the additional income in her daughter's education, which she considered a very positive thing.

Women also had physical and cultural challenges in building climate resilience, especially during Cyclone Aila. According to both male and female respondents, women's attire (the *saree*) and hair were cited as examples of social restrictions that

delayed women from getting to safe spaces in times of emergency. The traditional long hair of rural Bengali women and their *sarees* got entangled with the huge stems and branches of large trees uprooted during the storm. This prevented many women from reaching safe spaces even though they could swim. Once in the cyclone shelters, a few respondents also referred to the lack of sanitation facilities and the lack of privacy experienced by women.

9. How does the national political context affect resilience?

Current Climate Change Strategy

Bangladesh has two national strategies on climate change: the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) and the National Adaptation Programme of Action (NAPA). The Ministry of Environment and Forests drafted the NAPA in 2005. The BCCSAP extended the NAPA, setting out long-term strategies and development priorities, and is the only officially endorsed government strategy on climate change. All key informants in Dhaka agreed that climate change is a bipartisan issue (perhaps the only one) in Bangladesh's otherwise highly adversarial political context. As one key informant outlined: 'Framing of climate change as a justice issue is very strong in Bangladesh, and climate change has successfully crossed the political divide and can be used a unifying factor.'

However, a number of expert key informants from the Dhaka-based development agencies raised concerns regarding the lack of participation in the planning, design and implementation of the BCCSAP. According to one key informant, 'the BCCSAP is an expert driven document drafted by consultants from the international donor institutions and policy elites in Dhaka'. The plan is also based entirely on global models and predictions from the IPCC's third and fourth Assessment Reports, which are now outdated. Moreover, it is deemed insufficiently granular to offer meaningful models to guide adaptation policy responses at the local level. Although the country is made up of five ecological zones and 30 agro-ecological zones, the BCCSAP uses a global model which considers the whole country in a single grid.²³

The national institutional set-up

The national set-up for climate change adaptation is complex. Multiple ministries in Bangladesh (such as the Ministry of Environment and Forests, Ministry of Water Resources, Ministry of Local Government, Rural Development and Cooperatives, Ministry for Fisheries and Livestock, Ministry of Food and Disaster Management and Ministry of Agriculture) share responsibility for implementing climate change adaptation policies and measures. In practice, however, there is no clear division of responsibilities and mandates between the various ministries. This problem also exists in the vertical governance structure of Bangladesh, where offices at different

23 M.S. Raihan, M.J. Huq, N.G. Alsted and M.H. Andreassen [2010]. *Understanding climate change from below, addressing barriers from above: Practical experience and learning from a community-based adaptation project in Bangladesh*. Dhaka: ActionAid Bangladesh.

levels also have overlapping responsibilities and functions. Respondents from development agencies stated that the overlap in functions and responsibilities, combined with the politics around the different roles on the ground, posed a major obstacle to implementing any project on the ground (climate change or otherwise). Key informants within donor institutions also reflected that the lack of clarity over roles and responsibility made it difficult to know which part of government to engage with.

Local governance structure

Many of the national ministries involved with climate change adaptation have departments at the Upazila level and some at the Union Parishad level. In practice, this results in difficulties in ensuring coordination not only between the various local departments of each line ministry, but also in coordinating effective vertical accountability towards the respective national ministries.

At the Upazila level, both the Upazila Chairman and the *Upazila Nibahi* Officer (a civil servant) are responsible for coordination. However, one key informant explained that the lack of clarity over roles between these two officials in the Upazila Parishad has resulted in conflicts between the two over who should engage with the international organisation.

Key informants and community respondents also referred to MPs engaging in local affairs, positioning themselves as the representatives of local development. Key informants felt that this shift was financially motivated, especially in light of efforts to disburse climate change aid at the lowest administrative level. One respondent from a bilateral donor explained that this tension between local governance providers risks making one of their existing projects on working with MPs to link them to their constituencies a possible driver of conflict between MPs and Union Parishad officials.

The financial dependence of local government institutions on the centre also emerged as a challenge for effective functioning at the local level, as officials could not independently plan projects or immediately respond to local needs and priorities. Local government respondents also expressed frustration at their lack of staff capacity and resources, which they believed were central to effective delivery of services to their respective local communities.

10. How do external interventions affect resilience factors?

Vulnerable Group Feeding (VGF)

The VGF programme is one of the social safety net initiatives underway in Bangladesh. It was launched in 1975 by the World Food Programme (WFP) as emergency aid in disasters to provide relief to those vulnerable to hunger. The Department of Food and Disaster currently provides food subsidies to the poorest under this programme.

The VGF programme used geographic targeting, then beneficiary selection conducted by local committees based on a wide range of categorical indicators (including personal characteristics, assets, family composition). In general, it includes the following categories of people:

1. Daily labourers whose income is low or irregular;
2. Landless people or those who have less than 0.15 acres of land;
3. People with disabilities; and
4. Poor women and men affected by natural disasters.

A local government official from Burigoalini Union explained that through the VGF programme, the government was providing 30 kilograms of rice per month for two years. The beneficiary in return would deposit BDT 24 (€0.24) every month, which after two years would be returned, thereby resulting in a small savings deposit. One family was entitled to one card once in their life. The government official further explained that the chairman of the Union Parishad receives VGF cards from the Upazila Parishad which are privately distributed among the various members of the Union Parishad. The members then visit their respective wards and make a call for application for the VGF cards. Based on the applications but also their own local knowledge, the VGF cards are allocated. In the last round of applications, the government official was allocated 10 cards even though the number of those eligible was 30. There was consensus among all the local officials interviewed that the VGF scheme never sufficiently met demand.

A common cited criticism of the VGF card scheme is that distribution of cards often fails to reach the poorest. It is also thought that there is a degree of favouritism in the beneficiary selection process.

Alternative livelihood programmes

Following Cyclone Aila, many NGOs have focused on promoting alternative and diversified livelihood options such as tailoring, the rearing of goats, chickens and ducks, and mat weaving, with many programmes specifically targeting women. Some project beneficiaries have been able to raise their household income through participation in these programmes. The programmes have also increased the voice and participation of women in communities by making them more financially independent than they have ever been.

Nevertheless, some respondents also spoke of the challenges in transforming these new ventures into sustainable income generating options. One female beneficiary explained that an NGO had provided her with 27 ducks and BDT 2,000 (€20); however, she had to spend BDT 3,000 (€30) to build a shed for the ducks. Two months later, only one egg had been laid from among the 27 ducks. The respondent believed that she did not have enough money to properly feed and care for her ducks which is why they were not laying eggs. Another respondent, a beneficiary trained as a tailor, also said that she did not have enough money to keep her business going. A significant number of project beneficiaries and key informants explained that while these schemes can be helpful in supplementing income, they do not by themselves provide a primary source of alternative income and should not be promoted as doing so by aid providers.

11. What are the constraints on effective governance at the local level?

Our research focused on the lowest level of government – that is, at the level of the Union Parishad. Interviews with the chairmen of our selected unions in Gabura and Burigoalini revealed that the capacity of the Union Parishad to respond to environmental and climate change threats is weak. Based on our interviews and observations, it was evident that they need more financial and technical support to fortify the embankments, build infrastructure and diversify people’s livelihoods in order to reduce their dependence on the Sunderbans. The Union Parishad chairmen also felt ill-equipped to deal with the security threats faced by people in the Sunderbans. Dealing with the *dacoits* and the security risks they pose to communities would require the full support of the national government and the strength of the border guard and coast guard. At present, however, only forest officials are tasked as caretakers and protectors of the Sunderbans. In an interview with a forest officer, he confirmed the need for the army, border and coast guard to boost security patrolling within the Sunderbans. The Gabura Union Parishad chairman suggested that ‘regular patrolling or permanent establishment of the army might help, if not completely solve the problem’. Within the community, there was a sense of fatalism regarding the issue of tiger attacks; however, there were very real and strong expectations that the government should shoulder responsibility to protect them from the *dacoits*.

The lack of local capacity extends beyond government responses to environmental and climate change risks to general government schemes and development initiatives. A female ward representative of Burigoalini mentioned that the allocation of VGF cards in her community did not match demand. The chairman of Burigoalini Union confirmed this. This was also the case for many of the other government schemes underway in these communities. The female ward representative recounted a story of having to travel to Cox’s Bazaar for work reasons when the VGF and pregnancy card allocations were taking place among the members of her Union Parishad. When she returned, all the card allocations and call for application announcements in the villages had taken place. She came to learn that although 150 applications were put in from her three wards, she had only been allocated 30 cards for distribution among the applicants. The chairman of Gabura Union stressed that lack of government support to the people could be a significant trigger for conflict. The local government’s lack of capacity to provide for the impoverished and the government’s need to prioritise among the most vulnerable could be misconstrued as providing preferential treatment to some. At the same time, the psychological implications of losing faith in government could drive people to violence.

One key informant confided that the current chairmen of the two Unions belong to an opposition party and that they faced political obstacles in their roles. In Burigoalini in particular, initiatives of the chairman were being blocked. Most recently, he also faced speculative allegations of corruption. According to the key informant, these charges were politically motivated and brought about by the rival political party.

12. How can resilience be strengthened?

The following offer concrete suggestions aimed at addressing some of the specific obstacles to resilience identified in this case study.

Continued support to livelihood diversification

Community members identified livelihood and income security as one of the main factors of resilience. As the primary livelihoods of people in Gabura and Burigoalini are directly being affected by changes in climate, livelihood diversification into non-climate dependent areas such as tailoring, poultry farming, duck rearing, mat weaving and basket making are important areas for investment. These initiatives are already underway and being implemented by some NGOs in Gabura and Burigoalini and should continue to be supported. However, in introducing these livelihood options to communities, it is important to manage expectations of people in terms of the earning potential these livelihoods provide. It is important to communicate that these alternative livelihoods are measures to supplement household income and might not always work as the primary source of income to support household expenditure. Ensuring the sustainability and continuation of the livelihood after the completion of the project is equally important. According to one key informant and a beneficiary of an alternative livelihood project, tailoring was more profitable than duck rearing and homestead gardening.

Ensuring safe access to the Sunderbans and reduced livelihood dependence on the forests

Despite the security threats faced by people in the Sunderbans when fishing or collecting honey and *goalpata*, the mangrove forests continue to serve as a livelihood lifeline to the majority of people living in the coastal areas of Satkhira. The problem of *dacoits* is widely known and yet no investments are being made to ensure the safety of people entering the forests. Local government officials and Sunderban forest officials are unanimous in admitting to their lack of capacity in formulating a strategy or response to the challenge. They explain that dealing with the *dacoits* and the security risks they pose to communities requires the full support of the national government and the strength of the border guard, coast guard and army. One way through which the security situation in the Sunderbans can be remedied is through the introduction of community policing. Community policing to protect the tigers in the Indian part of the Sunderbans was devised to ensure wildlife conservation. A similar approach to ensuring the protection of those entering the forests against the *dacoits* would be a useful avenue to explore.

Raising awareness about the need to preserve the ecosystem of the Sunderbans and the long-term gains of sustainable use of the natural resources of the forests are an important first step towards reducing people's dependence on the Sunderbans. However, these alone are not enough. Equally, if not more important, is the need to provide alternative sources of income. The livelihood diversification activities currently underway, although important, will not lead to reduced dependence on the Sunderbans. This is because the diversified livelihood options, as mentioned above, serve to boost and supplement a household's income (in the same way that seasonal migration does) and thus provide only short-term economic benefits. They do not successfully become the primary source of income. According to three respondents including the forest officer, alternative livelihood initiatives in Gabura and Burigoalini have not provided the same level of income as that earned through livelihood options available in the Sunderbans. Two respondents suggested that investment in industry was needed in these areas, such as starting a production factory for garments. This would provide people with steady incomes and also dissuade people from having to migrate in search of work. While this specific idea might not be feasible given that these areas are environmentally precarious, there is a need to explore livelihood options that can genuinely break people's dependence on the Sunderbans.

Ensuring safe migration for seasonal migrants

Seasonal migration is increasingly becoming an inevitable part of the economic life of those from coastal areas, as livelihood options are increasingly being threatened by climate and environmental impacts. However, despite the increase, migration is not currently considered in the climate change policy responses. In the absence of a comprehensive policy framework and strategy, seasonal migration and in some cases distress migration are a significant cost to human development through poor labour arrangements and working conditions of migrants (especially in the brick factories). Safe migration therefore needs to be prioritised to maximise its benefits and to be given due consideration in climate change and development plans.

Ensuring the climate sensitivity of other areas of sectoral programming

Respondents in Satkhira strongly communicated that physical insecurity was a contributory factor to their vulnerability. A number of community members explained that they were forced to illegally enter the Sunderbans to collect fuel wood and non-timber products to supplement their incomes. In addition, they have to pay off the local *dacoits* who control access to the Sunderbans. These community members expressed frustration at the failure of local government to

address the security issue, with some respondents articulating very low levels of confidence in local governance. There are a number of external activities around other sectoral strands such as security and democratic governance (for example, initiatives by the US Agency for International Development (USAID) in Bangladesh – see box below), which could contribute to building community resilience if they are both climate and conflict sensitive.

Box 2: USAID Bangladesh building resilience

USAID's Country Development Cooperation Strategy for Bangladesh has four development objectives of engagement to promote a 'knowledge based, healthy, food secure, climate resilient middle income democracy'. Development Objective 1 is Democratisation and Governance; Development Objective 2 is Food Security; Development Objective 3 is Health; and Development Objective 4 is Climate Change, under which support is given to projects promoting the co-management of natural resources between relevant line ministries and supporting Climate Resilient Ecosystems and Livelihoods.

Interviews with mission staff indicated that there were clear and recognised linkages between climate change programming, health and food security. However, there were also areas of work under the democratisation strand which could be seen to be addressing or have the scope to address dimensions of resilience identified by community respondents in our case studies. For example, the objective of the Democracy and Governance programme – increasing citizens' confidence in local and national governance – directly addressed one of the major obstacles to resilience identified by community members: lack of trust and accountable local government and their weak capacity. The resilience building potential of these activities was not nevertheless explicitly recognised. Based on a preliminary review, initiatives under Development Objective 1 of the Country Development Cooperation Strategy – such as increasing the transparency of public institutions (anti-corruption), increased access to information, community policing (particularly of areas rich in natural resources) and work to promote decentralisation in the West of the country – could easily contribute to building community resilience (as identified by respondents in Khulna) if they were made climate sensitive.

Investing in infrastructure

The present condition of the embankments in Gabura and Burigoalini is such that they will not withstand another cyclonic attack of the same scale as Aila or Sidr. Fortifying the embankments, unfortunately, requires financial investments on a scale which the government of Bangladesh will find it difficult to mobilise. In the face of climate uncertainty, the extent to which the embankments need to be raised or expanded will also give way to technical debates that might remain unresolved. At the very least, the government has to ensure that damaged areas of the embankments are fortified and that there is effective control over the operation of sluice gates that are weakening the foundations of the embankments.

In addition, there needs to be major investments in developing the water infrastructure of the coastal districts. The quality of water supply in these areas has been adversely affected by salinity and all respondents referred to the negative health consequences of drinking water affected by salinity. Investment in water purification is an immediate priority for these communities.

Expanding and strengthening the provision of local government schemes

Bangladesh has social security systems in place that cater for the needs of vulnerable people. Such systems hold tremendous potential for strengthening resilience. To improve the livelihoods of households and strengthen their opportunities for food security, the government has started social protection programmes such as cash for work and food for work. Schemes such as widow cards, elderly cards, disability cards and pregnancy cards are valuable safety net mechanisms. Most of these schemes also target those who are most vulnerable to climate and environmental variability. However, because these cards are subject to a quota system, they do not adequately respond to the scale of requirements of the local communities. Often, as resources for schemes like the VGF card are inadequate, politicisation and favouritism in distribution takes place. The financial resources behind these schemes therefore need to be suitably expanded. It is also imperative that capacity building at the local government level, both in terms of human resources and technical know-how, takes place to ensure effective implementation.

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