



COMMUNITY-BASED **DISASTER RISK REDUCTION** FOR A RESILIENT FUTURE

A CBDRR initiative in Bangladesh



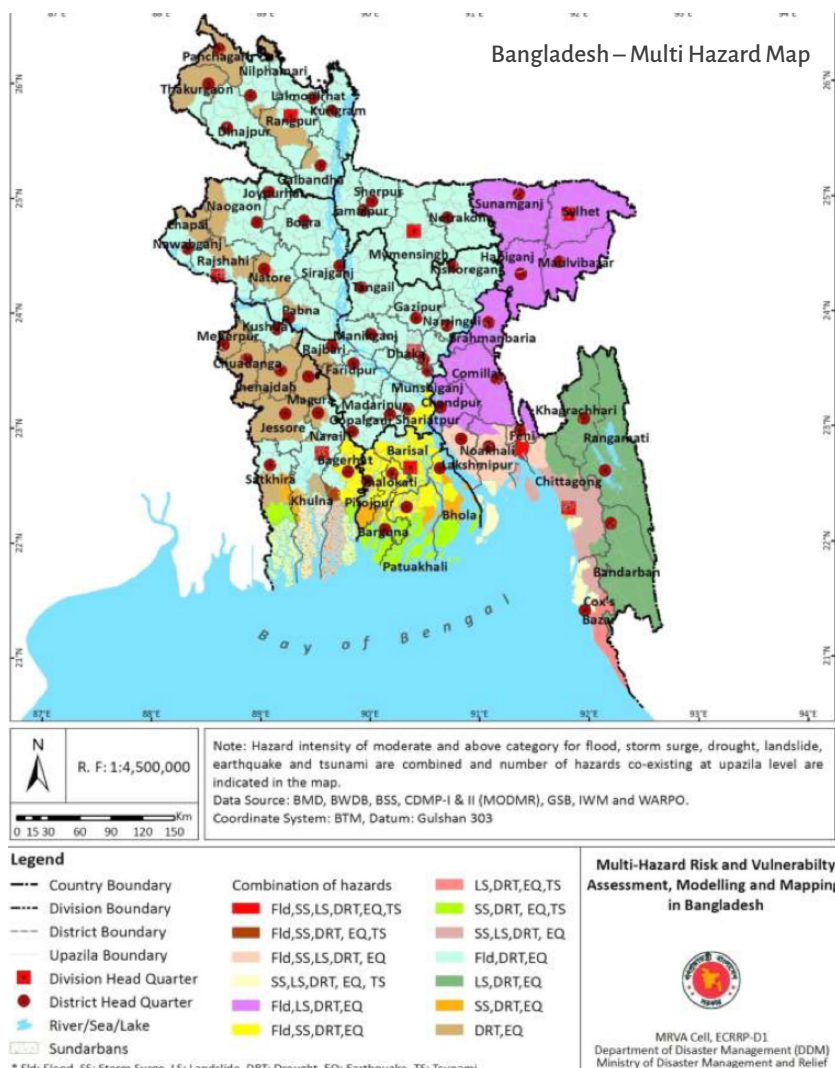
PRAGYA

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1 Bangladesh Is Buffetted by Natural Disasters and Severe Poverty

1.1 Hazards Profile of the Country

- » Bangladesh is **susceptible to multiple natural hazards** including – cyclones and storm surges, droughts, floods, and earthquakes. It is **among the top 15 countries in the world with highest exposure to disaster**.
- » Severe vulnerability however implies that Bangladesh is **among top 5 countries worldwide with highest disaster risk**. (World Risk Index 2017)
- » Storms (cyclones) and floods account for majority of the natural hazards experienced by Bangladesh. 162 Sub-districts across all 8 sub-divisions across the country have high exposure (54 have very high exposure).
- » Cyclones and associated storm surges and floods have led to severe loss of human life. There have been nearly **520,000 natural disaster deaths in the last 40 years** in Bangladesh.
- » 69 districts are also drought prone.
- » **140.23 million people in Bangladesh are at significant risk** to more than one form of natural hazard.
- » According to disaster statistics of over 30 years, Bangladesh experiences average **2.19 flood events per year (associated economic damage USD 165,129.41 /year)** and **3.48 severe storm events per year (associated economic damage USD 49,478.70 /year)**.



Hazards Risk Exposure Category by Sub-districts

Flood prone

54 Sub-districts have very high exposure
108 sub-districts with high exposure

Landslides prone

34 sub-districts with high / very high exposure

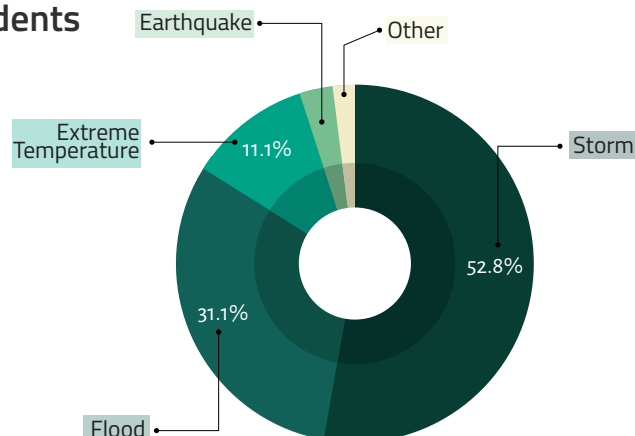
Storm surge exposure

5 sub-districts with high / very high exposure

Drought risk

69 sub-districts exposed to drought risk

Frequency of Natural Hazard Incidents



1.2 ... and its Development Profile

Exposure Category	Flood	Strom Surge	Landslide	Drought	Earthquake	Tsunami
Not Exposed	144	455	401	0	0	524
Very Low	123	39	0	475	261	14
Low	48	29	91	69	9	2
Moderate	67	16	18	0	274	2
High	108	3	14	0	0	0
Very High	54	2	20	0	0	2
Total	544	544	544	544	544	544

- » Bangladesh is the largest LDC (Least Developed Country) in terms of population size. **Over 45 million people, nearly a third of the total population, live below the poverty line**, and a significant percentage of them live in life-threatening deprivation.
- » It also **ranks the 6th (among the 10 most-affected countries) on the Long-Term Climate Risk Index**. Impacts of climate change in Bangladesh has triggered mass migration of people. The growing numbers of environmental refugees take shelter on the riverine islands (*char*) and on the margins of Dhaka and other large cities in Bangladesh.
- » 90% of the country reside within 10 ft above sea level. River bank erosion and flooding are key drivers of displacement. 20% percent of the land in Bangladesh is expected to be inundated by the sea, and **nearly 20 million people (1 in 7 people in Bangladesh) would suffer displacement by 2050, and resulting destitution**.
- » In an average year, approximately one-quarter of the country is inundated; every 4-5 years, there is a severe flood that may cover over 60% of the country. These extreme weather events due to changes in climate, **mostly affect population living in the remote Islands and *char* lands**.
- » The repeated natural disasters weaken the already deficient infrastructure and services, and education, health, livelihoods are adversely affected during disasters. Bangladesh continues to face water scarcity and **water quality concerns and waterborne diseases continue to claim the lives of over 100,000 children annually**.
- » Poverty and disasters also affect the women disproportionately. Bangladesh is a source country for trafficking in women and children, and it is estimated 50,000 Bangladeshi girls are trafficked into India every year. **Incidence of trafficking spikes after disasters**.

2 *Chars* / River Islands Are the **Most Vulnerable**, Their Population the **Most Disadvantaged**

Focus on *Chars* in Bangladesh

- » Rivers in Bangladesh are morphologically highly dynamic, and the main rivers are braided.
- » **Char** is a tract of land or sand bar emerging as an island within the river channel or as attached land to the riverbanks, as a result of the dynamics of erosion and accretion in the rivers. Chars are of 2 kinds:
- » **Mainland Chars:** those which are adjacent to mainland; accessible without crossing the main river channel
- » **Island Chars:** those are disconnected from mainland and surrounded by water for significant portion of the year
- » The **Chars are highly dynamic** too. Each year, some chars are washed away, while the process of accretion creates newer chars elsewhere.
- » One of the most vulnerable population in Bangladesh are the dwellers of Island *Chars* formed by riverine & deltaic deposits of 3 main large and dynamic rivers: Brahmaputra, Ganges, Meghna.
- » An estimated **6.5 million Bengalis are Char dwellers**.
- » **Each year nearly 26,000 people lose their land to floods/erosion** in Bangladesh; many of these landless opt to start life afresh on the highly unstable *Chars*.
- » Any newly emerged *Char* is government property. Flood affected families submit petitions to the government for portions of this land, which may or may not be granted after years of struggle.
- » *Chars* lack almost all basic services. Access to education, healthcare and other extension services and support are limited. **Char communities lack capacity to cope with recurrent flood and erosion.**
- » *Chars* economies are largely dependent on agriculture & fishing.



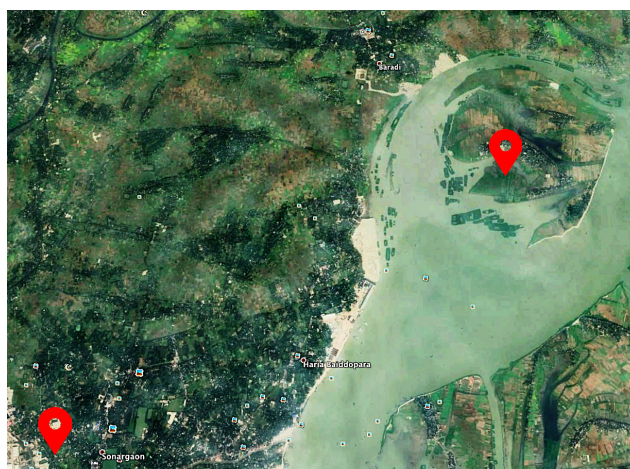
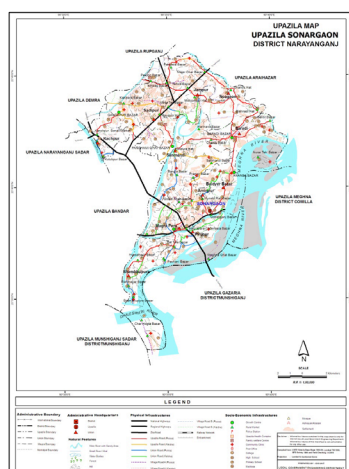
3.1 Geographic & Development Map of Island *Chars*

- » Riverine island *chars* are scattered across **100 upazilas / sub-districts** and **32 districts**.
- » **Most char communities are poor**, and have **very low disaster resilience** while being **highly vulnerable to disasters**.
- » They are characterised by: abysmally poor access to healthcare, education, and sanitation and safe water, and grave gender inequality and VAWG.

Char area	Districts	Main characteristics
Northern Chars	Rangpur, Lalmonirhat, Nilphamari, Kurigram, Gaibandha	<ul style="list-style-type: none"> Chars in the Jamuna and Teesta rivers. 73% people in these chars are poor; 26% of these are extremely poor Many development organisations are present in these areas. Chars are characterised by high out-migration
North-western Chars	Chapai Nawabganj, Rajshahi, Kushtia, Pabna, Sirajganj, Bogra districts	<ul style="list-style-type: none"> Chars in the Padma and Jamuna rivers. 37-55% people in these chars are BPL Incidence of river erosion and flashfloods are high. Very few development organisations are present due to communication barriers and long distance from the mainland/town.
Mid Chars	Tangail, Jamalpur, Sherpur, Rajbari, Shariatpur, Madaripur, Faridpur, Munshiganj, Narayanganj districts	<ul style="list-style-type: none"> Chars in Padma, Brahmaputra, Meghna and Madhumati rivers 67% people in these chars are poor; 20% of these are extremely poor The chars experience drought, low water flow as well as flash floods some of which is attributed to the upstream dams controlled by India
Southern Chars	Chandpur, Noakhali, Borguna, Patuakhali, Bagerhat, Khulna, Satkhira districts	<ul style="list-style-type: none"> 25-31% people in these chars are BPL These estuarine chars are prone to severe river/storm surge erosion, salinity and seasonal floods.

3.2 Process

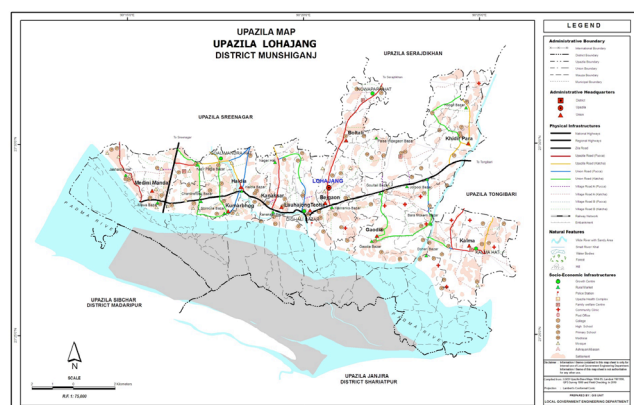
Surveyed area: **Narayanganj**



Nuner Tek char on Meghna river

Sonar Gaon Sub-district in Narayanganj district

Surveyed area: **Munshiganj**



Char on Padma river

Louhajang Sub-district in Munshiganj district

3.3 FINDINGS : Key Development Issues

Abysmally poor Healthcare services

- » Only 8% chars had health facilities in the same char; usually people have to travel to another char or the mainland for health services.
- » Very few women take recourse to institutional deliveries; 62% deliveries are done by untrained midwives. Mothers typically display poor nutritional status; 40.3% have chronic energy deficiency (CED); 47.1% are anaemic.
- » Children are malnourished and lack access to healthcare. 53.6% children are stunted (chronic under nutrition), 45.8% under-weight (acute and chronic); 20% were wasted (acute) and 52% anaemic. Only 50% children receive vaccination.



Poor access to quality Education services



- » Many chars have no schools and children have to go the mainland for schooling.
- » Of chars with schools, 55% schools are not conducive to learning due to poor construction and lack of infrastructure and TLMs. 22% teaching positions remain vacant; 57% teachers live in mainland and are frequently absent; govt appointed teachers often hire individuals living in that particular char to work as their substitute whom they call “Proxy teachers”.
- » Enrolment rate is only 60% in the chars; primary schooling completion rate is 50%; high school is in the mainland and very few children (<20%) can continue to high school.
- » Very few children read at grade appropriate levels (e.g. only 11% of the children in Grade 2, read at grade-appropriate level).

Gender inequity and VAW

- » In Bangladesh 52% girls are married before the age of 18; child marriage is more rampant in char households. Many families are forced to sell assets, such as livestock, in order to pay dowry.
- » Girls and women are vulnerable to trafficking. Both child marriage and trafficking cases go up after disaster events.
- » Male members often migrate to mainland / towns for livelihoods. Around ¼ of char households are female headed and significantly poorer.
- » For a child living on the chars the average distance to school is >3 miles; hence the girls start going to school few years later than the boys and drop out early due to lack of safety along the long desolate stretches to school.



Poor access to safe water & sanitation; Lack of hygiene

- » Open defecation, use of hanging latrines are common in the chars; the unhygienic latrines are usually made of bamboo and sacks, and offer little privacy.
- » In many chars the ground-water contains high concentration of iron (> 5.0 mg/l) and arsenic (>0.30 mg/l).
- » Houses remain under water for weeks during floods and the scale of damage discourages people from spending money on building toilets.

Extreme poverty and vulnerable livelihoods

- » Many chars experience food insecurity for 6-10 months of the year, characterised by reduced food intake and number of meals; Over ¾ of total income is spent on food
- » Newly emerged chars are a pocket of extreme poverty; 90% households are BPL and fall within the poorest 10% of the rural population
- » Char dwellers are effectively landless (having lost land due to river erosion), have access to poor quality land; only 38% of households own any land - on an average <0.25 acre (<0.1 hectare); land grabbers and robbers often seize the harvest
- » Livestock, poultry and fishing constitute the main livelihoods of char dwellers; a large number of population work as daily wage labourers and do not have regular incomes.



References — · CLP baseline survey 2010 · Ansari et. Al. (2012); Contextual Analysis of Char Program — concern Worldwide · Kabir, R.D. (2006) The state of Char Education in Bangladesh · Pragma Field Survey (2018) · Khan A. I. et. Al. (eds) 2015; First National Char Convention 2015
 — · Ansari et. Al. (2012); Contextual Analysis of Char Program — concern Worldwide · Pragma Field Survey (2018); Inter press service (2017); Stopping Child Marriage Forever · Room to Read (2015); Helping Some of the Most Vulnerable Girls in Bangladesh Do the Impossible · Haneef, C. et al. (2014) ; CLP's influence on dowry and violence against women on the chars · UNICEF Bangladesh (2008)
 — · Ansari et. Al. (2012); Contextual Analysis of Char Program — Concern Worldwide · Pragma Field Survey (2018) · Bangladesh: Char Development and Settlement Project Design Completion Report — Appraisal (2009) · Khan A. I. et. Al. (eds) 2015; First National Char Convention 2015

Low disaster resilience

- » In a life time a char dweller can experience moving to several chars
- » Chars at risk of annual flooding and erosion - 98% of chars face river erosion, 88% face seasonal flooding
- » Newly emerged chars are a pocket of extreme poverty; the households fall within the poorest 10% of the rural population
- » When disaster strikes, the char households become even poorer and are forced to move to even more vulnerable areas



DISASTER EVENT AUGUST 2017 FLOODS

- » Due to heavy monsoon rains and flooding in upper reaches of the main rivers, all 8 administrative divisions of Bangladesh experienced devastating floods in **August 2017**.
- » **9787 villages** in 208 sub-districts spread across 32 districts in Bangladesh were flooded affecting **8.2 million people**
- » **103,855 houses were fully damaged** and 633,792 houses were partially damaged across the districts
- » The floods resulted in **147 deaths**
- » **605,074 hectares cultivated land** were affected; 70,705 drinking water sources and 38 water treatment plants were affected; 1409 medical teams had to be pressed into action
- » 11,359 km roads were damaged; 949 bridges and culverts were affected; It took about a month for flood water to recede



- » In Munshigunj district 52 villages in 2 sub-districts were ravaged by floods.
- » **Pragya surveyed** flood-ravaged areas in the **island Chars on Padma river in Louhajang Teotia, Munshigunj district.**
- » Displaced families were identified: 55 in Degholi village, 27 in Jhautia, 65 in Paikara, 67 in Rautgaon.
- » Displaced from Doalir char, Shahinhati char, Brakhamongaon where land got eroded by Padma river.
- » The families lost their animals, trees and crops.
- » In the immediate aftermath, they had no access to potable water, food and sanitation for days; suffered from diarrhoea, skin diseases and malnourishment.
- » None of them had a source of stable income; all were in debt; most earning members worked as daily wage labour.
- » **Most families have relocated several times in last 20 yrs**



Image Source: Onneyshan NGO

Md. Halim Howlader [Male; 45 years; Degholi village]

"In every rainy season, the river swells up. Every time the tidal surge in the Padma River, seems higher than earlier. So during every monsoon, we are afraid of flood and land erosion. During the flood of 2017, there were heavy rains for two days and water level rose so high that all the houses of Doalir char drowned fully. We had no drinking water and no food. Sanitation problem was acute. The snakes moved around and bit several people. Since then our family haven't had a proper meal. Last year my wife Farida gave birth to 2 children (a boy and a girl). They are both look ill."

- » In March 2018, displaced families **continue to suffer hunger**, with adults having to skip a meal 1 out of 3 days, children having to skip a meal every 1 out of 5 days; at least twice a month they have to borrow food.
- » Most families have a single room in a single tin shed with mud flooring. The families pay 3000-4000 BDT per year to landowners / touts as rent; landowners often force them to leave when they receive any better bargain.
- » Displaced families have to access drinking water from sources 1-2 km away; often **forced to use arsenic contaminated water**. Most have no sanitation facilities; some use makeshift latrines with cloth/bamboo screens, others **defecate in the open**.
- » The children still have no access to school or child friendly spaces. **Child marriage and trafficking of girls** are prevalent; the girls have to travel 2-3 km and cross the river to reach school which is often unsafe, hence many of them drop out.



Shikha Akhter [Female; 15 years; Jhautia village]

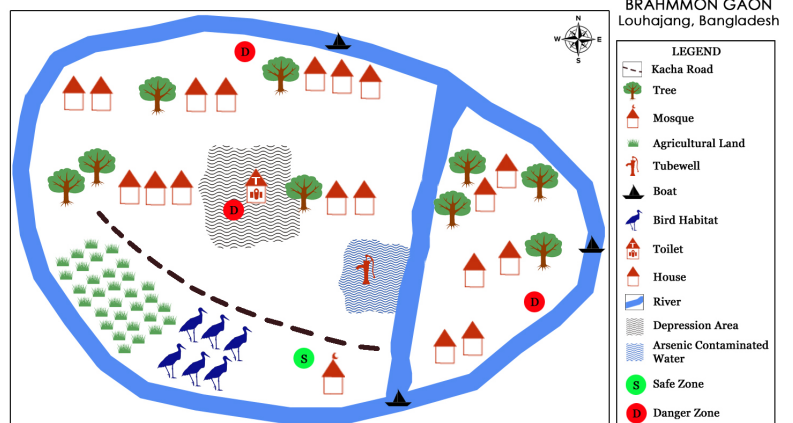
"Bangladesh is land of rivers. Every year we are scared of the raging flood waters in Padma River. Last year the water level went so high that all houses of Shahinhati were almost under water... I am studying in class ten and have to appear for final examination. During the floods I could not study properly, so could not complete my course. How could I study when none of us could even have a proper meal?"

Noorjahan Begum [Female; 40 years; Paikara village]

"I used to live in Brakhamongaon Char with my husband, my two daughters and two sons. We do not have any land. My husband works as a farm labour on other people's land. During the floods, I tried to save what I could with some help from my neighbours, when the Padma River engulfed our house and washed away all the materials. I took loan of 20,000 taka and came to stay in this char. I am now working with my husband on other people's farms. I hope someday I'll receive permanent land from the government to cultivate on my own. Training on income generating activities would be useful for all of us staying here. We can then hope for better lives."

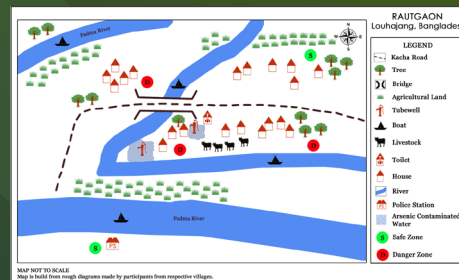
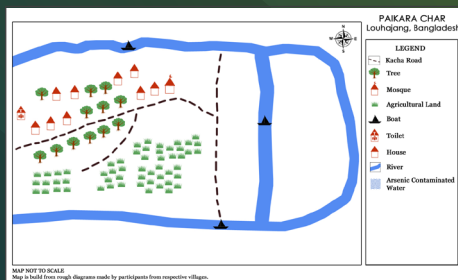
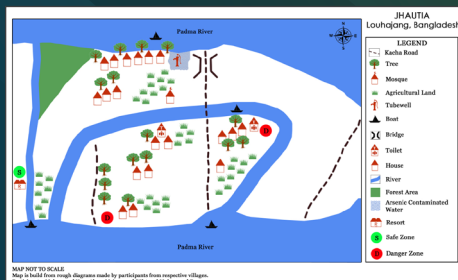
3.4 Hazard, Vulnerability & Capacity Mapping

- » Participatory HVCA exercises for *Char* communities conducted by Pragya, engaged members from 7 Char communities to prepare Hazards and Vulnerability maps for their villages. Transect walks on the char island were followed by HVCA sessions.
- » Resources and vulnerabilities of specific char communities were identified.
- » Detailed HVCA maps were prepared for use to orient the communities on preparedness plans.
- » Mitigation actions for hazards were identified and helped participants prioritise action options to reduce vulnerabilities.
- » The HVCA were shared with local government which has sought research support for mapping and creating an evidence-base to trigger government action for *Char* communities, and help joint action towards resilience building.



MAP NOT TO SCALE
Map is built from rough diagrams made by participants from respective villages.
Participants- Fakhi Akhtar, Rosina Akhtar, Irdu Akhtar, Jarna Begum, Rahima Begum, Jyotsna Begum, Rangmala Begum, Rashida Begum, Muntaz Begum and Phiku Begum





Hazards	Vulnerabilities	Capacities
<ul style="list-style-type: none"> ▪ Riverine floods ▪ Thunderstorms ▪ River bank erosion ▪ Submergence of vital infrastructure ▪ Arsenic contamination ▪ Droughts 	<ul style="list-style-type: none"> ▪ Isolated from mainland; poses difficulties for emergency aid / evacuation ▪ Lack of / poor toilet structures, spread of pathogens from open defecation, water-borne diseases ▪ Lack of flood resilient houses; many people don't have land or own houses, they stay on rented accommodation ▪ Poor transport and communication infrastructure; lack of bridges ▪ Lack of knowledge regarding danger zones, safe zones, evacuation routes; low lying areas within chars get frequently inundated ▪ Lack of CSOs working specifically on DRR ▪ Not enough boats for evacuation; leads to capsizing / drowning ▪ Poor educational attainment; no schools on char land ▪ Lack of healthcare facilities; delays in transportation is often fatal ▪ Scattered population ▪ Prevalence of VAW - early marriage, dowry, divorce, trafficking ▪ People lose crops, belongings due to raids by Dacoits/robbers 	<ul style="list-style-type: none"> ▪ Community solidarity ▪ Good rapport with civil society ▪ Educated youth ▪ Local government has a disaster management plan ▪ Local government is supporting rehabilitation of distressed families through allocation of 'khas' land (government land) ▪ Skills – farming, fishing, skilled labourer
		<p>Resources</p> <ul style="list-style-type: none"> ▪ Community Center in mainland can be used for meetings and also as emergency shelter ▪ Boats ▪ Mosque

	Inland <i>Char</i> villages away from river banks	<i>Char</i> villages on the river banks
SHORT TERM PRIORITIES	<ul style="list-style-type: none"> ▪ Support for income generation (livestock, plastic ponds etc) 	<ul style="list-style-type: none"> ▪ Support for income generation (livestock, boats and fishing nets etc)
COMMON SHORT TERM PRIORITIES	<ul style="list-style-type: none"> ▪ Flood proofing of existing houses ▪ Identification of safe zones and evacuation routes ▪ Construction of appropriate toilets ▪ Hygiene awareness sessions ▪ Training of Dhais / Traditional Birth Attendants on safe delivery and maternal and neonatal health care 	
LONG TERM PRIORITIES	<ul style="list-style-type: none"> ▪ Promote fast growing, stress tolerant crop varieties ▪ Introducing crop insurance 	<ul style="list-style-type: none"> ▪ Plantations to prevent river-bank erosion ▪ Creation of embankments, gabion walls to prevent river-bank erosion
COMMON LONG TERM PRIORITIES	<ul style="list-style-type: none"> ▪ Building flood-proof schools and shelters ▪ Mobile education units (School on boat); re-enrollment of children; support for innovative TLMs ▪ Vocational skill building ▪ Training on kitchen gardens and food storage techniques for emergencies ▪ Primary health center on chars; Water Ambulance for emergencies and emergency helpline ▪ Solar lamps / RE powered equipment ▪ Advocacy to benefit displaced families through government programmes - linkage with social protection schemes for farmers and fishermen; housing schemes for BPL families; food security scheme; watershed development programme ▪ Prepare guidelines for waste management and toilet construction on <i>chars</i>; linkage with govt's sanitation programme ▪ Awareness campaign to prevent school dropouts and stop child labour ▪ Training of women & girls, men & boys on prevention of VAW; formation of protection committees ▪ Improving infrastructure for transport and communication – boats, bridges, mobile phones ▪ Detailed GIS mapping of <i>chars</i>, demographic and socio-economic survey to facilitate planning and integration with local disaster management plan 	

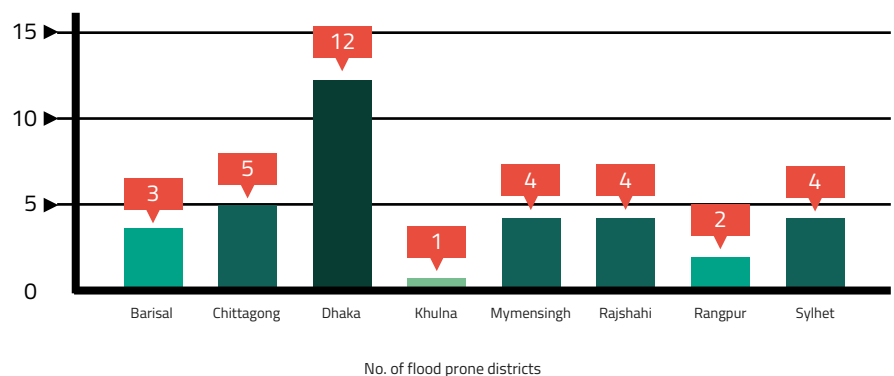
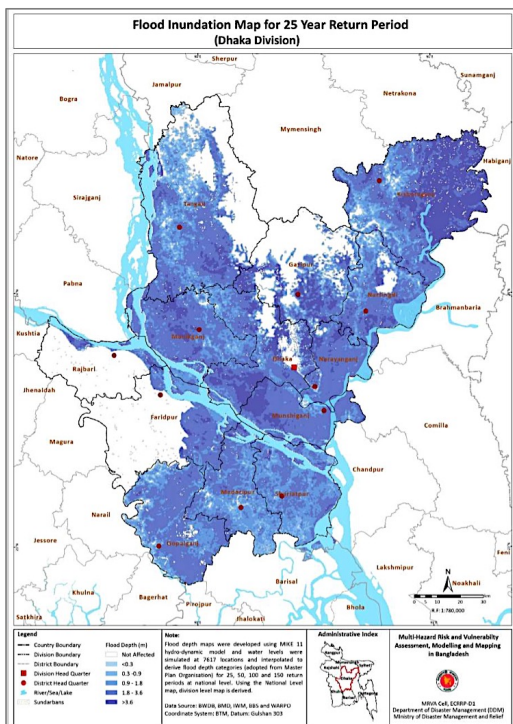
4.1 Pragya's Programming Aims

- » Enhancing disaster resilience among the vulnerable Char communities with **risk reduction measures** for natural disasters along with effective disaster response, and a focus on **empowerment of women and girls** and protection from trafficking and other forms of violence.
- » Improving development status and building adaptation to climate change, with a focus on **water and sanitation and livelihoods and poverty reduction**.



4.2 Prioritised Target Area

- » **Flood is the most frequently occurring hazard in Bangladesh.** Bangladesh ranks first in the world in terms of % country GDP regularly exposed to inland flooding (4.75% of country GDP per year) and second in terms of population exposed (3.48 million).
- » Of the 8 administrative divisions in Bangladesh, **Dhaka division has the highest number of districts with exposure to floods.**



Target Area: char islands along the flood-prone Padma and Meghna rivers across 10 districts in Dhaka division

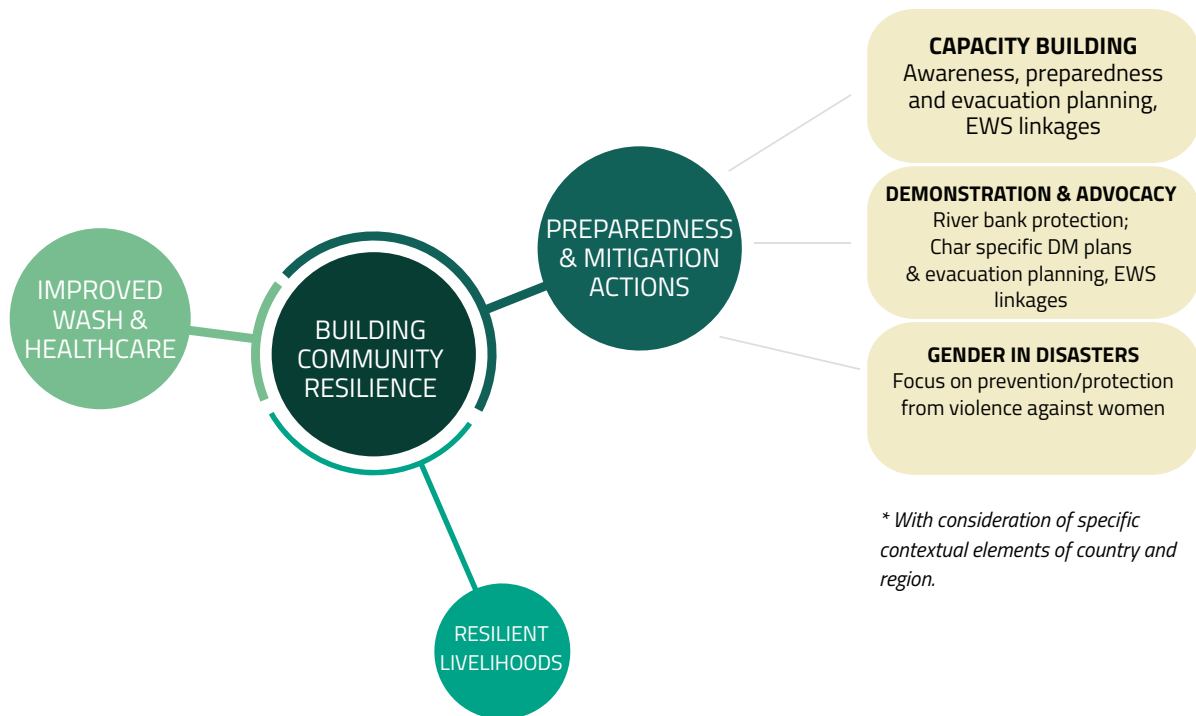
- » **12 out of 13 districts in Dhaka are flood prone** and account for over 1/3rd of all flood prone districts across the country.
- » **Dhaka also has the highest number of documented char islands** in the country (18.93% of documented *chars*).
- » The proposed interventions would focus on char islands along the flood prone Padma and Meghna rivers across 10 districts in Dhaka division.

District	Identified Chars
Dhaka	108
Faridpur	151
Kishoreganj	143
Madaripur	133
Manikhanj	113
Munshiganj	113
Narayanganj	86
Narsingdi	148
Shariatpur	131
Tangail	64
Total	1190



4.3

Pragya Model* for Empowerment & Resilience Building



PREPAREDNESS & MITIGATION ACTIONS



PRAGYA PROGRAMME IN MUNSHIGANJ DISTRICT

Rehabilitating Livelihoods for Displaced Communities Support and Training for Goat rearing

Male participant from Jhautia village, Munshiganj, Bangladesh

"None of us properly knew about livestock care. I learnt about the ideal space, food and medicines that the goats would need. Earlier I thought that goats only like small leaves. But now I know that they like food full of coarse fibre, including rice and wheat bran, Bengal gram."



PRAGYA PROGRAMME IN MUNSHIGANJ DISTRICT

Access to Safe Water and Improved Hygiene-
Provision of BCSIR-certified water filters for arsenic
removal and Hygiene & Sanitation Awareness

**Female participant from Jhautia village,
Munshiganj, Bangladesh**

"I had so many queries on my mind, I needed to share them with someone. Nobody comes to our village to patiently teach us these things... I learnt about the different ways in which we need to wash our hands. I feel itchiness because of the unclean clothes that I wear throughout the day. My clothes get wet as I swim across the small rivulets and I keep walking from one end to another in the wet clothes, waiting for them to dry out on their own..."



**Female participant from Rautgaon village,
Munshiganj, Bangladesh**

"Nobody sees anything wrong in the way girls and women are treated. We have also internalized such behaviour as normal."



**Male participant from Jhautia village,
Munshiganj, Bangladesh**

"It opened our minds. More such sessions need to be organized."



