PRE-DISASTER SECONDARY DATA

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Nature of disaster: Cyclones

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COUNTRY PROFILE

CLIMATE AND GEOGRAPHY

- Bangladesh is 147,570 km² and consists of a flood plain made up of the Ganges, Brahmaputra, and Meghna rivers flowing into the Bay of Bengal.
- The river delta comprises over 230 rivers and tributaries.
- Two thirds of its land areas is <5 metres below sea level, however, the southeast is hilly (WB 2011).
- The average temperature in the cooler months is 12-25° C (November – May) and is 23-35° C (June – September). Humidity averages 70% (BBC 2011).
- Bangladesh is globally considered to be one of the most vulnerable countries to climate change. Inland monsoon flooding and intense tropical cyclones are the main climate related hazards (BCCSAP 2009).

POPULATION PROFILE

- The population is 149,772,364, the eighth largest in the world. It is expected to rise to 230 million by 2050 (Census 2011 WB Indicators).
- Disaggregated pre-crisis demographic and socio-economic data from the 2011 Census is available on the Humanitarian Country Task Team's web platform (HCTT).
- Population density is 1,014 people/km², compared 411 in India, 189 in Nepal, and 119 in France. This makes Bangladesh the eighth most densely populated country in the world (WB Indicators)
- 39.7% of the population is <18 years (CEA 2013).
- 7% of the population is over the age of 60, of those 11% is over 80 (UNDESA 2012).
- The average household size is 4.4 persons (urban 4.4 and rural 4.3) (Census 2011).
- 15.6% are female headed households (Census 2011).
- 73% of the population is rural (WB Indicators).
- Bangladesh is 146 of 187 on the Human Development Index, indicating a low level of human development (UNDP 2012)

- The capital Dhaka was ranked the second worst city in the world to live in based on education, health care, infrastructure, culture and environment, and stability (Economist Intelligence Unit 2013).
- The literacy rate is 54.1% for men and 49.4% for women.
- The youth (14–24 years) literacy rate is 75.4%, showing a significant improvement in literacy (CEA 2013 Census 2011).
- The female teenage marriage rate is 32.5% (CEA 2013).

ADMINISTRATIVE DIVISIONS

- Bangladesh is administratively divided into seven Divisions and 64 Districts.
  - Districts are further divided into Upazilas (also known as Thanas). Official data from the BBS (2011) reports 491 Upazilas. This figure does change as Upazila boundaries are redrawn (combining Upazilas or dividing them) a 2012 estimate from the Local Government Engineering Department (LGED) gives the number of Upazilas as 518.
  - These are further divided into Union Parishads of which there are 4,451 in Bangladesh.
- Disaster Management Committees exist at the District, Upazila and Union level (although the level of activity of these DMCs varies).
- Key local government positions responsible for disaster management are:
  - District Relief and Rehabilitation Officer (DRRO) who reports centrally to the Department of Disaster Management
  - Project Implementation Officer (PIO), who reports to the DRRO and exists at Upazila level
  - Upazila Chairman, an elected representative at Upazila level
  - Union Parishad Secretary, a secretary of the Union level Disaster Management Committee
  - Union Chairman and members who are locally elected to represent at the Union level

HEALTH INDICATORS

- The crude birth rate is 17.88 per 1,000 (Census 2011).
- The crude death rate is 4.8 to per 1,000 (Census 2011).
- Fertility rate is 2.2 (Census 2011).
- The infant mortality rate is 37 per 1,000 live births (WB Indicators).
- Maternal mortality rate is 240 per 100,000 (WB Indicators).
- Non-communicable diseases account for 52% of all deaths (WHO 2011).
- Drowning is the leading cause of death for children in Bangladesh aged 2-10 years (WHO 2011 UNICEF 2012).
- HIV prevalence is under 0.1% with an estimated 7,500 PLHIV in Bangladesh (UNAIDS2012).
- 9.07% of the population has a disability (8.1% male and 10% female) (HIES 2010).

ECONOMY AND MARKETS

- GDP growth was 6.1% in 2012.
- Agriculture comprises 19% of the GDP and 23% of export, with rice the staple (MoA, GOB 2013).
- Obstacles such as lack of electricity, land disputes, extreme congestion, and lack of urban planning have hindered economic growth. However, the economy has begun to gain strength, with the potential to generate $40 billion in exports annually from the clothing industry (The Economist 2012).
- Offshore and onshore natural gas reserves may bring future prosperity to Bangladesh (BBC 2012)
- Fluctuating yields, particularly in rice harvests, are associated with climatic conditions and frequency of natural disasters (floods and cyclones). Even when these disasters are low-profile, they can have a devastating impact on food security (UNICEF 2009)

SOCIO-CULTURAL CHARACTERISTICS

- 98% of the population is Bengali (UNHCR 2011, CARE 2011).
- 89.5% of the population are Muslims, with Hindus comprising under 10%, and smaller populations of Adivasis, Biharis, Christians, and Ahmadiyyas (UNHCR 2011, CARE 2011).
- In Khulna and Satkhira Districts, there are two ethnic minority groups, the Mundas or Mahtas. Dalits (untouchables) along with Munda/Mahtas are socially and economically marginalized making them vulnerable to natural shocks (Solidarites 2013).
- Dalits and Munda/Mahtasare routinely discriminated when accessing post-disaster assistance. This includes Dalits not being welcome in cyclone shelters. Dalit NGOs are routinely excluded from networks and coordination with other local NGOs (INTRAC 2010)

- Attacks on minority groups persist. Minorities continue to be subject to violence and other human rights abuses (RDC 2010).
- The Rohingya are an ethnic, linguistic, and religious minority, numbering between 200,000 and 500,000 in Bangladesh they mostly reside in the south east (IRIN 19/11/2013),

MEDIA

- Television is the most popular source of news and entertainment in urban Bangladesh. Urban access to television is 91%, compared to rural areas where access to television is 67% (InfoAsAid 2012).
- Radio ownership has fallen steadily in recent years, from 36% in 1999 to 15% in 2011 (InfoAsAid 2012).
- A 2011 Survey indicated that 73% of radio listeners tuned into stations on their mobile phones, but only 34% still listened to programmes on a radio set (InfoAsAid 2012).
- One in five Bangladeshis do not watch TV or listen to radio at all (InfoAsAid 2012).
- 27% of females and 13% of males do not watch TV, listen to radio, or are reached by any other media on a regular basis (InfoAsAid 2012).
- 40% of Bangladeshi men and 14% of women read newspapers at least once a week (InfoAsAid 2012).

MOBILE PHONES

- The mobile network covers 98% of the population (InfoAsAid 2012).
- Some *mobile holes* exist in the sparsely populated Chittagong Hill Tracts in the southeast, the mangrove swamps of the Southern Sundarbans in the southwest, and in the extreme northwest (InfoAsAid 2012).
- At end February 2012, there were 87.9 million active mobile subscribers (InfoAsAid 2012).
- 66% of all persons aged 15+ years own at least one mobile phone with an active SIM (InfoAsAid 2012).

POVERTY PROFILE

- Poverty is concentrated in three geographic areas: the northwest, which is affected by droughts and river erosion; the central northern region, which is subject to serious seasonal flooding that limits crop production; and the southern coastal zones,which are affected by soil salinity and cyclones (IFAD, 2011).
- Determinants of poverty include:
  - Land Ownership: the chronically poor do not own cultivable land and depend on volatile daily wage incomes. 4.6% of Bangladeshis are landless. 60.5% are functionally landless, owning under ½ acre (HIES 2010).
  - Literacy: poverty rates are higher, in both rural and urban areas, when household heads are illiterate (JBIC 2007).
- Gender: women's wages are half of those of men, and women's employment is often temporary (JBIC 2007).However, poverty levels are lower for female headed households. Using the upper poverty line, the rate is 32.1% for male headed households and 26.6% for female headed households (HIES 2010).
- Monthly income for female-headed households is significantly lower than their male-headed counterparts. Almost all (96%) households reported that men are the only income earners in the household. Out of necessity, relatively more women from the poor are engaged in income earning activities (WFP).

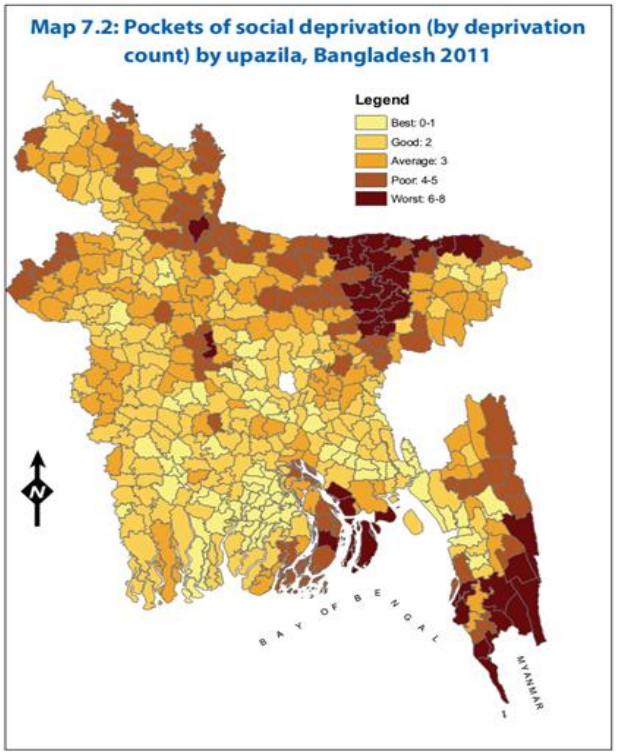


Figure 1: Source (CEA 2013).

- The average monthly income in 2010 was Tk. 11,479 (rural = Tk. 9,648 and urban = Tk. 16,475). There is a significant underreporting of income (HIES 2010).
- The average monthly expenditure in 2010 was Tk. 11,200 (rural = Tk. 9,612 and urban = Tk. 15,531), representing an increase in real expenditure of 36% from 2005 – 2010 (HIES 2010).
- Families receiving remittances have an income on average 82% higher than families not receiving remittances. Poverty rates are 61% lower for remittance receiving families (HIES 2010).
- 32% of the population has taken loans from financial and non-financial institutions, friends, and money lenders (HIES 2010).
- Per-capita income varies significantly by region. Coastal and *char* households have the lowest per-capita income; northwest and drought-prone households enjoy the highest income and expenditure figures (WFP).
- The recently updated social deprivation map, provides a different picture than the poverty map, due to the different indicators used.
- Social deprivation is concentrated in the north, northeast, southeast, and to a lesser extent south central areas. The best performing districts are Khulna and Barisal, while Sylhet consistently lags behind (CEA 2013).

DISASTER MANAGEMENT FRAMEWORK

- Disaster Management is the responsibility of the Ministry of Disaster Management and Relief. Within the Ministry the Department for Disaster Management (DDM) has a policy and advisory role. Bodies which support Disaster Management include the following, many of these are only activated when an emergency is declared by the government (SOD 2010):
  - The National Disaster Management Council is headed by the Prime Minister and is responsible for formulating new policy and delivering directives on all concerns.
  - The Inter-Ministerial Disaster Management Coordination Council is responsible for implementing policy and is headed by the Minister of Disaster Management and Relief.
  - The National Disaster Management Advisory Council is headed by an experienced person nominated by the Prime Minister.
  - The National Platform Disaster Management for Disaster Risk Reduction coordinates and provides necessary facilitation to relevant stakeholders.
  - The Earthquake Preparedness and Awareness Committed is headed by the Minister and Director General (DG) DDM acts as a member.
  - The Cyclone Preparedness Programme Implementation Board reviews preparedness activity in the face of initial stage of an impending cyclone.
  - The Cyclone Preparedness Programme Policy Committee and the Disaster Management Training and Public Awareness Building Task Force coordinate the disaster related training and public awareness activities of the Government, NGOs, and other organisations.
  - The Focal Point Operation Coordination Group of Disaster Management is head by the DG of DDM to review and coordinate the activities of various departments/agencies related to disaster management and also to revive the Contingency Plan prepared by concerned departments.
  - The NGO Coordination Committee of Disaster Management headed by the DG DDM reviews the coordinates the activities of concerned NGOs. The Committee for Speedy Dissemination of Disaster Related Warning/Signals head by the DG DDM to examine, ensure and find out the ways and means for the speedy dissemination of warning/signals among the people.

DISASTER MANAGEMENT REGULATORY FRAMEWORK

- In 2012 a Disaster Management Act was passed, creating the framework for Disaster Risk Reduction (DRR) and emergency response management.
  - The National Disaster Management Policy is a strategic policy document describing the broad national objectives and strategies for disaster management.
  - The 2010–2015 National Plan for Disaster Management outlines the systemic and institutional mechanisms for DRR and emergency response management. NB, this Plan along with other key documents such as the Standing Order on Disasters (SOD) precedes the DM Act and the associated creation of a separate Ministry of Disaster Management and Relief and Department for Disaster Management (DDM).
- The Guidelines for Government at all Levels (Best Practice Models) are available to guide the Government's DRR and emergency response management.
- The Standing Order on Disasters (SOD) outlines the national management arrangements and describes the detailed roles and responsibilities of the relevant government bodies at the central and local level (SOD 2010).

- Quantitative information on a disaster in the initial days comes from the Government via their:
  - SOS forms which provide information on approximate loss, damage and emergency requirements, including affected, dead and missing.
  - D-Forms include detailed assessment on damage and loss
- Government sitreps based on this information are produced and published on the DMIC website
- All INGOS and NGOs require Government approval for new projects. An FD6 is used in non-emergency situations and takes a minimum of 45 days to be approved. If a disaster has been declared by the Government, a fast-track system allows for use of the FD7 which can be approved in 24 hours.

DISASTER MANAGEMENT COORDINATION STRUCTURES

- The Local Consultative Group Mechanism (LCG) is one of the key the structures through which the Government engages in dialogue with development partners (www.lgcbangladesh.org)
- There are thematic 18 LCG Working Groups (in addition to the LCG Plenary) including the Disaster and Emergency Relief (DER) which is co-chaired by the Ministry of Disaster Management and the UN Resident Coordinator.
- The DER is mandated to ensure effective coordination of national and international stakeholders around all aspects of the disaster management cycle.
  - DER membership consists of senior decision makers from UN agencies, donors, and a representative of both the INGOs and NGOs.
  - The DER is co-chaired by the UN Resident Coordinator and the Secretary, Ministry of Disaster Management and Relief.
- Within the LCG DER, the Humanitarian Coordination Task Team (HCTT) is a working group which provides an operational level forum for coordinated disaster preparedness, response, and recovery across sectors.
- Membership of the HCTT includes:
  - All cluster lead agencies
  - Two donor representatives
  - Three elected representatives of the INGO Forum Emergency Sub Group
  - One representative of the NGO community
  - IFRC
- In Bangladesh, clusters have been constituted, with Government approval, to engage on disaster preparedness. (This does not imply formal UN Cluster activation).Currently the clusters that have been formed are: WASH, food security, early recovery, health, nutrition, education, logistics, and shelter.
- Cross cluster coordination takes place through the HCTT around preparedness. Clusters are designed to also operate as sub-sets of the relevant thematic LCGs.
- The INGO Forum is a voluntary grouping of all INGOs operating in Bangladesh. The INGO Emergency Sub Committee consists of senior staff of the INGOs that have humanitarian operational capacity.

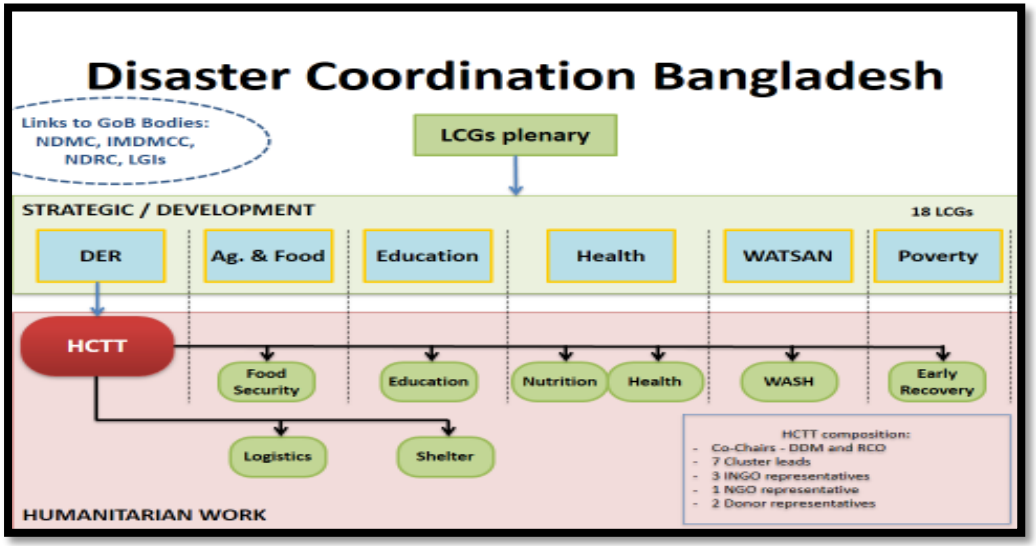


Figure 2 JNA (unpublished)

INFORMATION AND KNOWLEDGE MANAGEMENT

- There are multiple data sources in Bangladesh. For the purposes of disaster management in Bangladesh the key nationally and internationally recognised data sources are:
  - The Census 2011 (Census 2011)
  - The Household Income and Expenditure Survey (HIES 2010)
  - The Multiple Indicator Cluster Survey (MISC 2009)
- These sources have been heavily drawn on for the purposes of this review. A new MICS will be published by the end of 2014.
- The Bangladesh Bureau of Statistics (BBS) also holds a wealth of information provided by surveys and monitoring undertaken by a number of different

government departments. The core data is not easily accessible, which means mining data at any scale is too time consuming at the start of an emergency. During the process of writing these Secondary Data Reviews clusters were asked to identify key baseline indicators from secondary data that they require to carry out thorough needs assessments. Some of these are already available and others will need to be a work in progress. The status of these baselines has been highlighted within the document.

- Information Management is handled both within organisations, UN agencies, INGOs and NGOs as well as in different government departments. For the purposes of Disaster Management there is a Disaster Management Information Centre (DMIC), which is currently in the process of transitioning out of CDMP into the Department of Disaster Management. The information needs of development partners involved in disaster management and the products and services which DMIC can provide is still a work in progress.
- Extracting lessons learnt on disaster response was a key constraint to the secondary data review. There is limited information publically available on low profile disasters. Cyclone responses have the greatest amount of lesson learning, but much is focused on internal and external operational issues, rather than critical analysis of programmatic, strategic, assessment, and coordination issues. This analysis is done, but retained within agency internal documents including progress and donorreports, which makes it difficult to access.

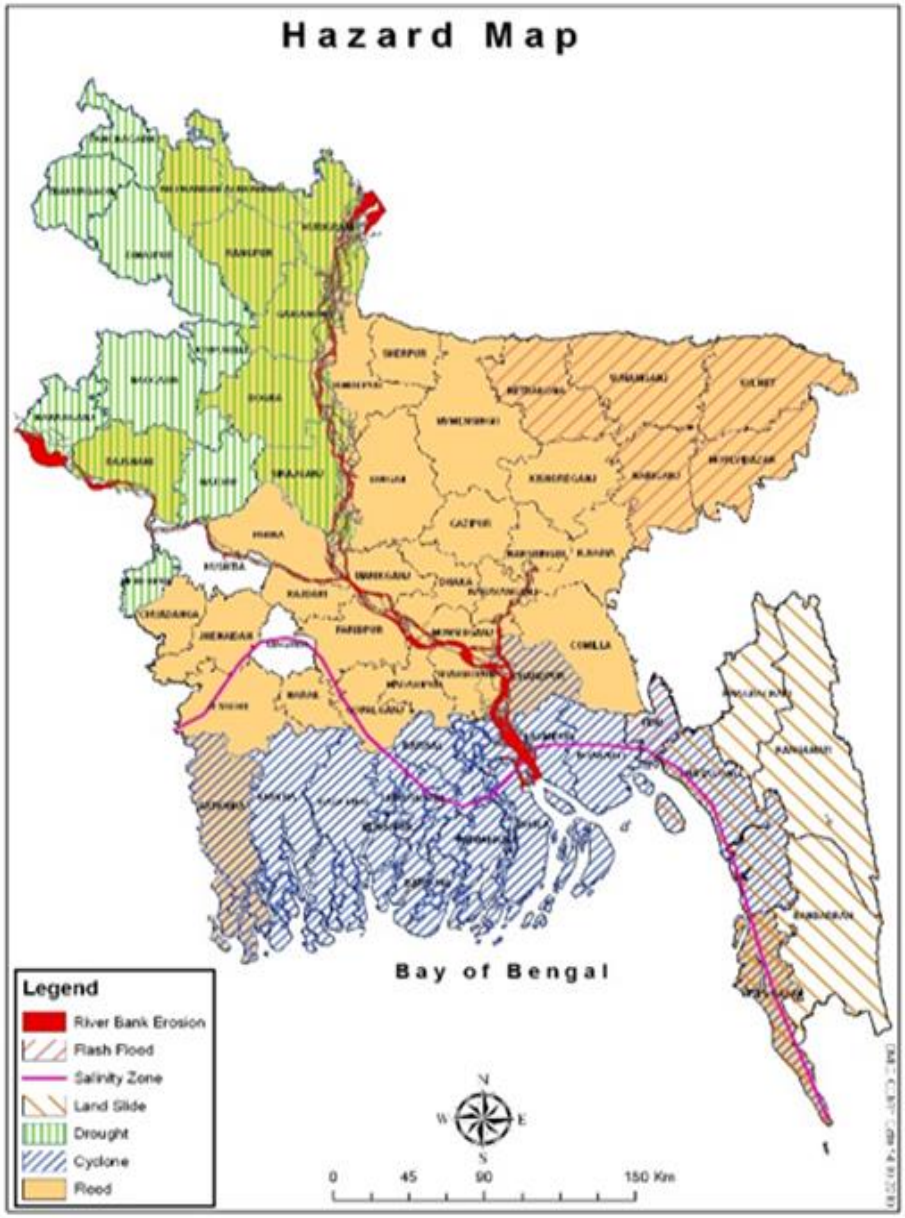


Figure 3: Source: DMIC/CDMP 2010

CYCLONE PROFILE

- The coastal belt of Bangladesh, which comprises of 13 Districts, is at risk from cyclones. There are three distinct geographies of the coastal belt (FSNSP 2010):
  - Southwest region near the Sundarban mangrove forest
  - Active delta area of the central south region
  - Southeast hilly areas region.
- The region includes both small and large islands as well as *char* islands (FSNSP 2010)
- The coastal zone accounts for 32% of the geographic area of the country and 28% of the population (Paul 2009)
- Vulnerabilities for the population of the southern region are (Southern Delta Plan 2013):
  - Threat of cyclones and storm surges
  - Threat of land erosion
  - Deterioration and declining viability of distinctive threatened coastal ecosystems
  - Limited livelihood options
  - Poor level of service provision
  - Changing patterns of land use affecting the coast's morphology and water resources
  - Saline intrusion
  - Waterlogging

CYLCONES IN BANGLADESH

- 24 cyclones have hit Bangladesh in the last 53 years.
- Since 1995, there have been five *severe* cyclones, category 3-5.
- On average, a severe cyclone hits Bangladesh every three years.
- The death toll from cyclones since 1970 is 450,000 (WB 2011)
- There are two cyclone seasons, one from April- May (pre-monsoon), the other from October-November. Historical records suggest that a post-monsoon cyclone is twice as likely as a pre-monsoon cyclone (WB 2011)
- Increases in ocean surface temperature and rises in sea levels as a result of climate change are predicted to increase the intensity of cyclonic storms. Storm surges are expected to cover an additional 15% of the land, with a greater inundation level (WB 2011).
- Cyclones formed in the Bay of Bengal represent 5%-6% of the global total, but 80% of the global destruction of property and lives (Paul 2009)
- The disproportional impact of cyclones associated storm surges in Bangladesh is due to (WB 2011, Paul 2009):
  - Re-curvature of tropical cyclones in the Bay of Bengal
  - A shallow continental shelf, high tidal range
  - The triangular shape at the head of the Bay of Bengal
  - Low lying geography of coastal Bangladesh
  - Large tidal range High population density
  - A lack of coastal protection systems

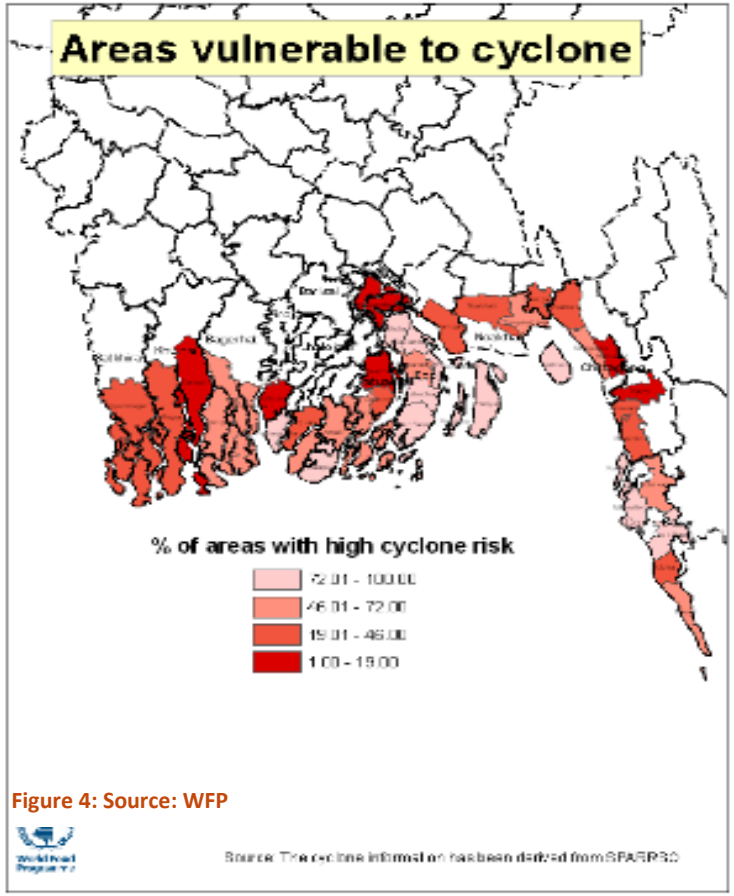


Figure 4: Source: WFP

- Cyclones can be observed in the Bay of Bengal at least six days before they make landfall. However, it is difficult to accurately predict where, when, and at what strength a tropical cyclone will strike. The impact of a tropical cyclone is largely determined by its wind speed, which can be accurately forecasted. Rainfall that occurs as a result of a cyclone can also have a damaging impact and predictions of this are much less reliable. Storm surges that can accompany cyclones are also destructive and prediction models for storm surges are the least developed (JRC 2007).
- Cyclone Sidr was first identified six days before it made landfall. However, it only became a cyclonic storm four days before landfall and cyclonic with hurricane strength winds two days before making landfall.
- The astronomical tide range in Bangladesh is high. In the southwest the tidal range is three metres, rising as the coast moves west to approximately five metres at the mouth of the Meghna estuary, east of Bhola (UNDP 2010).

THE IMPACT OF CYCLONES

- Cyclones cause storm surges which are the difference between the water level under the influence of a disturbance (storm tide) and the normal level that would have been reached in the absence of the meteorological disturbance (WMO 2007).
- Storm surges are the main cause of death during a cyclone disaster. The height of the surge and the resulting distance of inundation varies according to wind speed and tide height (WMO 2007).
- Each cyclone is unique, and each impact different making them difficult to compare. Aila occurred at low-tide, so there was less water and fewer deaths, but medium term recovery needs were great due to resultant waterlogging.
- The scale of inundation depends on the size of the wave. Inundation can render areas uninhabitable as land can take time to drain and causes inland salinity of agricultural land water sources.
    - Cyclone Aila was a slow moving cyclone, remaining cyclonic for 15 hours, making landfall far longer than Sidr.
    - Aila caused damage to an already dilapidated embankment system and washed away 1,742km of embankments creating recurring flooding during high tide for over a year after the cyclone.
    - Cyclone Gorky (1991) had a storm surge with a maximum height of 7.6m that lasted 3–4 hours (Paul 2009). Cyclone Sidr had a storm surge of six metres and lasted 2–3 hours (Paul 2009)
    - Cyclone Sidr left four districts severely affected and eight districts moderately affected; 3.45 million people were exposed to the storm surge (UNDP 2010).
- Aila affected 11 Districts (UNDP 2010).
- Livelihoods of 8.9 million people were affected and damages and losses from Cyclone Sidr totalled US$1.67 billion (GoB 2008).
- The estimated damage of assets from Aila was US$270 million (GWU 2011).

GoB Cyclone Categorisation[1] (SOD 2010)		
Categories	**Winds**	**Typical effects (indicative only)**
Category 1	Strongest gust less than 125 km/h	Negligible house damage, damage to some crops, trees. Craft may drag moorings.
Category 2	Strongest gust 125 – 175 km/h	Minor house damage, significant damage to signs, trees. Heavy damage to some crops. Risk of power failure. Small craft may break moorings.
Category 3	Strongest gust 170 – 225 km/h	Some roof and structural damage. Power failure is likely.
Category 4	Strongest gust 225 – 280 km/h	Ports will experience severe weather storm of great intensity that is expected to cross over or near the port. Significant roofing loss and structural damage. Dangerous airborne debris. Widespread power failure.
Category 5	Strongest gusts more than 280 km/h	Extremely dangerous with widespread destruction.

[1]The categorisations for cyclones in Bangladesh as published in the SODs are slightly different from the Saffir-Simpson Hurricane scale.

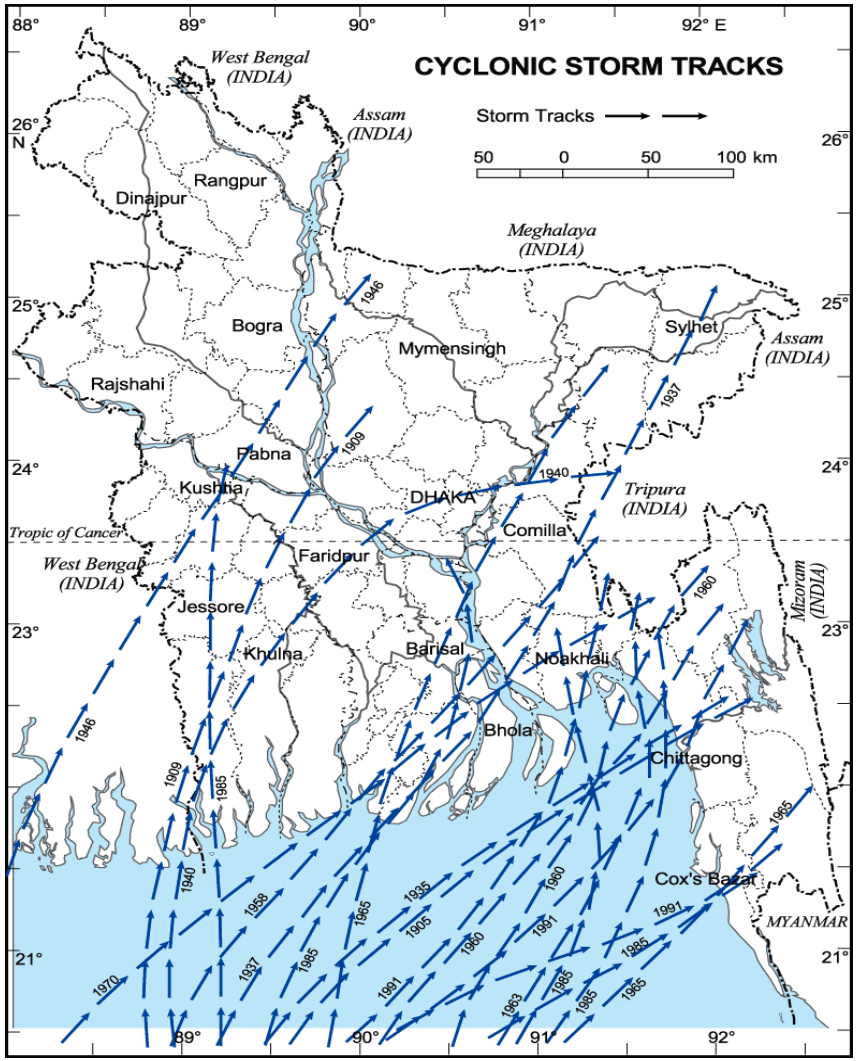


Figure 5; Source: CDMP/DMIC

NATIONAL EARLY WARNING MECHANISMS AND CONTINGENCY PLANS

- Bangladesh has made impressive advances in Disaster Risk Reduction, including a comprehensive early warning system which started with the Red Crescent's Cyclone Preparedness Programme (CPP), established after the most devastating cyclone on record in 1970.
- There are three stages in the early warning dissemination system, including early warning systems (FSC 2013):
  - From the Bangladesh Meteorological Department (BMD) to the local Disaster Management Committees (DMC) (district, upazila and union).
  - Among the members of local disaster management committees, NGOs, representatives of the volunteers and community-based organizations by local DMCs.
  - At household and community levels by the Government-NGO departments, organisations, and volunteers.
- In the CPP, fire services, coastguard, the media, and telecoms providers are used as dissemination media. Megaphones, sirens, and flags are used in danger warnings and great danger warnings to alert the community.
- Detailed weather forecasts warnings as well as flood forecasts and warnings are also available from the BMD.A cyclone is classified as type 1 hazard in Bangladesh and early warning signals for a cyclone are issued by the BMD. General warnings are issued 24 hours before landfall, and danger warnings and great danger warnings are provided 18 hours and 10 hours before respectively.
- Cyclone preparedness plans are available from the following stakeholders, and clusters have updated lists of pre-positioned items in strategic locations:
  - Department of Disaster Management, GoB, April 2013.
  - Contingency Plan for Cyclones in the South, Food Security Cluster, 2013.

CYCLONE SHELTERS

- Cyclone shelters save lives during a cyclone and storm surge. There are over 3,700 cyclone shelters in coastal areas, with plans to construct another 6,800 cyclone shelters by 2025 (Irin 2012).
- DMIC has a database on numbers and locations of cyclone shelters disaggregated to Union level (DMIC 2013).
- Sheltering behaviour is the biggest determinant in mortality in a cyclone; moving to cyclone shelters is what directly affects the mortality rate, not simply having heard the warning (WHO 1993).

- In each cyclone, there is evidence that not everyone who heard the warning went to a cyclone shelter.
- Reasons for not going to the cyclone shelter include: disbelief in the warning.
- Fear of theft (including fear of boat theft which would directly impact livelihoods); and lack of cyclone shelters. It is hard to know which cyclones are going to be dangerous, and it is seen by some as a big investment/risk to leave their homes when access to cyclone shelters along roads that may have been washed away is difficult (Alam and Collins 2010).
- Mobility challenged people must rely on their families to carry and/or transport them to cyclone shelters. Cyclone shelters are not designed according to a standard universal design and tend to be inaccessible for persons with disabilities (INTRAC 2010).
- Timeliness of the decision to go to a cyclone shelter is key. Women may wait for the men to come in from outside before leaving. Delays can mean wind, rain, and water become too constraining to allow for safe travel.
- After cyclone Sidr, many families reported fear of losing their purdah as a reason for not going to cyclone shelters (Paul 2009).
- Less than 2% of cyclone shelters have space for livestock. Where livestock are included, raised areas of compacted land are built (knownas *killas)* for people to leave their livestock. There are a number of recommendations from the Department of Livestock on how to improve *killas*, including raising their height and ensuring that sheds have concrete roofs, so that they can protect more animals (IRIN 2012 DLS GoB).

Figure 6: Source: DMIC 2013

EARLY RECOVERY

- The Early Recovery cluster is part of the humanitarian coordination structure that is formed to:
  - Address issues not addressed by other clusters such as livelihoods; governance; security and rule of law; and crosscutting issues such as environment, and gender.
  - Improve preparedness and coordination of early recovery interventions
  - Sensitize and contextualize the concept of early recovery.
  - Facilitate all sectors to move into the recovery phase
- Early Recovery as a *principle* is inherent in the mandate of every cluster.
- There are four pillars of Early Recovery: livelihoods; governance; environment; and community infrastructure.
- To ensure that Early Recovery is an integral part of all clusters, an Early Recovery Network, comprising of focal points from each existing clusters, is managed under the auspices of the UN Resident Coordinator.

THE EARLY RECOVER FACILITY (ERF)

- In Bangladesh, there is a pooled fund in the form of the Early Recovery Facility (ERF).
- The ERF was established by UNDP as a way of financing and implementing emergency response and early recovery efforts to disasters in order to close the gap between the relief phase and long-term recovery.
- There is a programme branch to the ERF which funds early recovery activities and a policy development and capacity building of government branch.
- The ERF is intended to be sufficiently flexibility that it can support and complement national efforts during times of emergency response, when necessary.
- To support the government in times of crisis, ERF has pre-approval to spend up to $60 million at its disposal to be able to quickly respond to emergencies based on build back better approaches.
- The ERF has pre-approval from the Government and does not require additional approval post-disaster.
- The ERF has 49 INGO and NGO partners who are pre-approved and do not require further approvals to commence work.

EDUCATION

EDUCATION KEY CHARACTERISTICS

- Bangladesh has made great gains in education, as per the HDI. But national progress hides regional disparities (CEA 2013).
- Nationally, BANBEIS is responsible for the collection (including annual enrolment data), dissemination, documentation, and publishing of educational information (BANBEIS, accessed 2014).
- There has been an increase in the national primary enrolment rate from 50% in 2007 to 97% in 2013 (DPE).
- The national education policy is for children to start school at the pre-primary level, age 5, using nationally approved minimum standards and curriculum (Education Cluster).
- Just under one in five (18.9%) Bangladeshi girls attended secondary school in 2008. 47% of enrolment in Government secondary schools were girls, and 18% of enrolment in non-government schools was female (BANBEIS).
- Drop-out rates vary according to source and method of measurement. The 2013 ASPR cites a drop-out rate of 27%, but a completion rate of 75% (ASPR 2013). In comparison, the CEA notes that 23% of children aged 6 to 10 are out of school (CEA 2013).
- There is a correlation between remoteness, social deprivation, and out of school children rates. Levels between girls and boys is comparable, and child labour does not appear to be the cause of children dropping out of school (CEA 2013).
- The dropout rate is high due to children's need to help with farming and household chores, child-unfriendly teaching-learning methods, overcrowded classrooms, and unattractive educational environment (UNICEF).
- Of the children interviewed in a 2011 UNICEF study, over 5% of children aged 5-11 are in child labour, increasing to 14% for 12-14 year old children. The proportion of child labourers among children attending school is about 6%, but increases to 22% for children not attending school. Boys are three times more

likely to be involved in child labour than girls. Among boys aged 12-14 years, 23% was involved in some economic activity (UNICEF, unpublished 2012)[2].

National Education Rates	Figures	Source
PRIMARY SCHOOL		
Gross intake rate	106%[3]	(MISC 2009)
National primary school attendance	81% - (83% girls and 80% boys)	(MISC 2009)
School attendance rate for 5 year olds	22%	(MISC 2009)
National attendance rates for the poorest quintile	77% - (82% girls and 73% boys)	(HIES 2010 and Education Cluster)
Primary national enrolment rate	97% - (99% girls and 95% boys)	(ASPR 2013)
Completion rate for five-year primary education cycle	67%	(BANBEIS, 2001)
SECONDARY SCHOOL		
Net Attendance Rate	54% - (59% girls and 50% boys)	(CEA 2013)
Dropout rate	66% girls and 58% boys	(BANBEIS,2007)

CHILDREN WITH DISABILITIES

- The mandate for implementing Education For All lies with the Ministry of Education and the Ministry of Primary and Mass Education, but the education of children with disabilities is managed by the Ministry of Social Welfare and is seen as a matter of charity, not a human rights issue (UNICEF 2013).
- In 2012, there were 89,994 children with disabilities at school (ASPR 2013).

SCHOOL YEAR

- The school calendar for primary and secondary school runs from January to December. Exams are at the end of the year.
- At the Union level there are adaptable school calendars, which officials can adjust due to disasters, but few chose to diverge from the standard calendar.

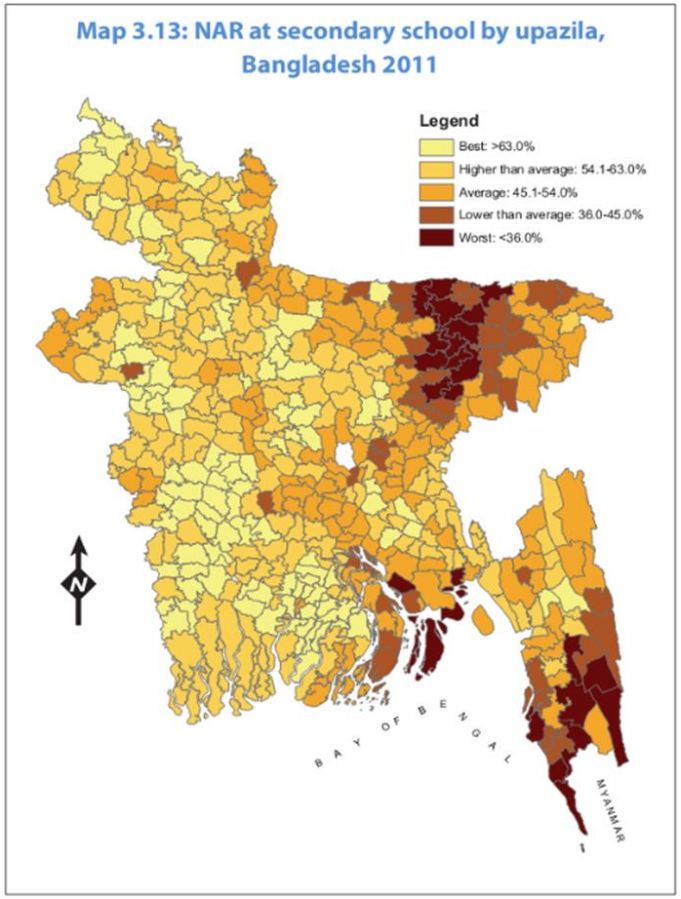


Figure 6: Source: (CEA 2013)

EDUCATION COORDINATION

- The Education cluster for preparedness is operational and co-led by UNICEF and Save the Children. The cluster has agreed to meet on a bi-monthly basis.
- Currently there is not an Education cluster website.
- Primary Education falls under the remit of the Ministry of Primary and Mass Education (MoPME). It is operationalized through the Directorate of Primary Education (DPE) (Education Cluster).

[2] From UNICEF *Out of School Children, 2011-12,* unpublished.

[3] Indicating either that students are double enrolled and/or attendance rolls are not accurately compiled.

- The MoPME and DPE are responsible for all Government primary schools and non-registered Government primary schools.
- The Bureau of non-formal education (BNFE) operates under DPE and is responsible for schools run by civil society. Thebureau is working on an equivalency framework so children from non-government schools are able to sit exams. Currently, only children in BRAC schools are able to sit exams. Government primary schools are free, but students must pay for books, pens etc.
- *Ebtedayee* Madrasa schools are managed by the Madrasa Education Board but recognized by DPE and included in the Annual School Census (ASC). These schools teach with a mixed religious and government curriculum. *Coumi* Madrasa schools do not follow the government curriculum and are not included in the DPE ASC.

- Secondary Education falls under the remit of the Ministry of Education and is operationalised by the Directorate of Secondary and Higher Education.

PRE-CRISIS BASELINE EDUCATION DATA

- There is no integrated management information system for non-formal primary education (ASPR 2013).
- The indicators in the table opposite have been selected as the relevant baselines for Phase 1 and Phase II assessments.

IMPACT OF CYLCONES ON EDUCATION

- Areas most vulnerable to cyclones include the worst performing Upazilas in terms of primary school attendance in Satkhira and parts of Bhola, Noakhali, Cox's Bazaar, and the Char islands of Chittagong. However, there are also best performing Upazilas in Khulna and Pirojpur within the cyclone vulnerable area. (MISC 2009).

SCHOOL CLOSURE

- 42% of schools that had education services disrupted and were closed for classes during 2007 due to disasters were not declared *officially* closed (Plan and SCI 2010).

PRE-CRISIS BASELINE EDUCATION DATA	
Baseline Indicator	**Notes**
Disaggregated demographic data	2011 Census data, available in excel on HCTT web platform. Disaggregated to Union level.
List of schools in the affected area	Data not currently available with the cluster
Number of student's in the affected area	Data not currently available with the cluster
Primary school National Attendance Rate	Data collected for Annual School Survey. Disaggregated data not currently available with the cluster
Secondary National Attendance Rate	Data collected for Annual School Survey, Disaggregated data not currently available with the cluster
At least one toilet in the school	Data collected for Government Primary Schools for the Annual School Survey. Disaggregated data not currently available with the cluster
Separate girls and boys toilets	Data collected for Government Primary Schools for the Annual School Survey. Disaggregated data not currently available with the cluster
Potable water supply[4]	Data collected for Government Primary Schools for the Annual School Survey. Disaggregated data not currently available with the cluster
No. of schools acting as cyclone shelter	Data available with the WASH cluster
Drop-out rate	Data collected for Government Primary Schools for the Annual School Survey. Disaggregated data not currently available with the cluster

- In 2007 after cyclone Sidr, many schools remained closed or had limited functioning due to occupancy of school by affected people (Plan and SCI 2010).
- At least 19% of schools in both flood and cyclone areas experienced over four weeks of school closure in 2007 (Plan and SCI 2010).
- Irregular attendance is a significant problem caused by loss of learning material (Plan and SCI 2010).

[4] There is no standardised water quality testing in Bangladesh. The focus of the school water supply is to ensure there is water available for handwashing not drinking water (UNICEF KI).

- At least 3% of the students dropped out as a direct result of floods and cyclones, with a negligible gender difference (Plan and SCI 2010).
- Other reasons for dropout include (Plan and SCI 2010):
  - Temporary relocation as a result of disaster
  - Engagement in family income immediate after a disaster
  - Early marriage
- Girl children, especially girls in class four and five, face specific challenges accessing education during disasters due to: household responsibilities; early marriage; and privacy related issues such as absence of separate toilets in the school (Plan and SCI 2010).

PHYSICAL IMPEDIMENT TO ACCESS

- Disasters can constrain school access with children unable to reach schools because of destroyed roads and embankments (Plan and SCI 2010).

LOSS OF DAMAGE TO LEARNING MATERIALS

- Learning materials, furniture, and extracurricular materials can be badly damaged during cyclones. For Government schools, there is no specific Government budget line to replace these losses (Plan and SCI 2010).
- The current early warning messages disseminated by both Government and non-Government actors do not include call for protection of teaching and learning materials in the cyclone area (Plan and SCI 2010).

IMPACT OF CYCLONES ON SCHOOL STRUCTURES

- School buildings are often used as safe havens or cyclone shelters (KI, Education Cluster, 2013).
- Under PEDP II, all schools built on the coastal belt were also built as cyclone shelters (KI, Education Cluster, 2013
- Schools used as shelter experience damage to their infrastructure, learning environment and WASH facilities.
- Cyclone shelter management guidelines were approved in 2012. Clarity of the roles and responsibilities of stakeholders managing a shelter to minimise damage to the school and learning environment while the school is used as shelter remain vague (KI, Education Cluster, 2013)

LESSONS LEARNT

- Management of school facilities, when used as cyclones shelters, and ensuring that teaching materials and school assets are safe-guarded during periods when schools are used as cyclone shelters will be a key advocacy point pushed by the Education cluster under the DRR/EiE framework in 2014 (KI, Education Cluster, 2013)
- 49% of cyclone affected schools in one study area reported no recovery at all in the school's physical infrastructure. School WASH facilities are identified as a main neglected focus of recovery efforts (Plan and SCI 2010)

GAPS IN INFORMATION

- Accurate information on school closure due to cyclones.
- Figures on numbers of schools beyond registered and non-registered.
- Access to core data from which the ASPR and BANBEIS take their figures
- Information and lessons learnt on impact of cyclones on education

FOOD SECURITY AND LIVELIHOODS

KEY CHARACTERISTICS

- The coastal belt is one livelihood zone, based on homogenous food security and livelihood characteristics

Acute Analysis IPC Phase (IPC 2013)			
District	**IPC Phase 3**	**District**	**IPC Phase 2**
Pirojpur	3	Jhalokati	2
Satkhira	3	Bagerhat	2
Khulna	3	Feni	2
Borguna	3	Lakshmipur	2
Barisal	3	Chittagong	2
Patuakhali	3	Bhola	Not included
Cox's Bazaar	3		
Noakhali	3		

- 65% of households in the southern region is functionally landless, that is, the average household has less than 0.5 acres of land. The average land ownership is 0.72 acres, which is below the national average of 0.79 acres. A challenge for the agricultural sector is the lack of cultivatable arable land (BBS 2010 Southern Delta Plan 2013)

LIVELIHOODS

- 46% of households in the southern region are small farmers (with less than 2.5 acres). This figure is in line with the national average of 45%[5] (Southern Delta Plan 2013).
- 28% of households in the region are agricultural labourers, the highest prevalence is in the southwest. This group can be characterised by (Southern Delta Plan 2013):
  - Seasonal employment and unemployment
  - Low demands for labour for most of the year because most are single cropping areas
  - Low wage in the lean season (September to October)
  - Discriminatory wage for women
  - High levels of debt
  - Migration to nearby cities for several months of the year.
- Salt farming is largely concentrated in Cox's Bazaar (Southern Delta Plan 2013).
- Fishers are those employed by boat owners on a seasonal basis. The main fishing areas are: Barguna where 38% of the households are fishers; Khulna where it is 29%; and Jhalokati 26% (Southern Delta Plan 2013).
- Shrimp fry collection relies on cheap labour to carry out the work. There is a high number of children involved in this livelihood activity (Southern Delta Plan 2013).
- Forest dependent households live in or near the Sundarbans and depend on extracting natural resources. Poor people also collect firewood from the newly established forests in the *char* islands in Patuakhali, Bhola, and Noakhali (Southern Delta Plan 2013).

FOOD SECURITY

- The southwest region is a food deficit area where net food production and diversity of food production have declined significantly over recent decades. Increasing shrimp production has reduced the diversity and quantity of food production particularly for local consumption (Pravda, 2011).
- The key findings of the IPC Acute Analysis in the coastal belt were (IPC 2013):
  - For almost every district, dietary diversity of women and food consumption of households is very poor.
  - Prevalence of chronic energy deficiency among women is very high and nutritional status of children is very poor.
  - Food availability is not a major limiting factor for most of the districts, but access to food poses a challenge.
- The coastal region has an annual *lean* season in September and October, before the harvest period. This period is characterised by reduction in number of meals, out-migration of male labour and increased prevelance of malnutrition (IPC 2013).

SHRIMP FARMING

- Since the 1990s there has been a prolifertion of shrimp farms established along the coast. Shrimp farmers have trapped brackish water in areas that were formally used for rice cultivation. Rice farming requires 40 labourers per acre as opposed to shrimp farming which requires two people per acre (Solidarites 2013 INTRAC 2010)
- There are two types of shrimp farmed in Bangladesh (INTRAC 2010):
  - Bagda shrimp farming requires 50 acres to make shrimp farming viable, this amount of land would traditionally be expected to be owned by owned by 35–40 people. There is also the need for investment in embankments, sluice gates and fry staff.
  - Golda shrimp can be farmed on a small scale on homesteads and rotated with crops. There are NGO supported projects looking at organic shrimp production.
- Bagda shrimp farms are capital intensive so often owned by wealthier members of the community and large areas are also owned by absentee landlords who buy up the land from small farmers (Solidarites 2013)
- Crop yields have reduced as land has been taken up by shrimp farming and, once inundated with salt water becomes unusable for agriculture and there are less daily labour opportunities as shrimp farming is less labour intenstive. There are

[5] This figure appears to contradict the figure of 65% of households being functionally landless and must be further explored.

questions being raised about the long-term viabilty of shrimp farming as the nutrients in pond soil become depleted (INTRAC 2010, Solidarites 2013).

AGRICULTURE

- Soil salinity is the one the main constraints to agricultural production in the south. This is caused by; withdrawal of fresh water upstream through barrages, irregular rainfall, introduction of brackish water for shrimp culture, faulty management of sluice gates and polders and regular tidal intrusion during high tides. Salinity levels range from 10% in the monsoon season to 40%, in the dry season, compared with ocean water which has an average salinity of 3.5% (Southern Delta Plan 2013)
- The polder system initially greatly boosted food production in the region, but now is mired *in second-generation* problems, siltation, drainage, waterlogging, and salinity (Southern Delta Plan 2013)
- Challenges to the coastal area include (Southern Delta Plan 2013):
  - Rise in sea level
  - Coastal and riverbank erosion (e.g. the island, Sandwip, has lost 180km^2 in the last 100 years)
  - Salinity, particularly in the southwest
  - Waterlogging, which is now an annual occurrence, where some areas are reported to be under water for 6 – 8 months of the year
  - Polder dilapidation. The Bangladesh Water Board has categorised 51 as *most vulnerable* and 55 as *medium vulnerable*.
  - Land use conflict between shrimp farmers and crop farmers who have diametrically opposed water needs
  - Lack of quality water for irrigation.

LIVESTOCK

- Livestock is an important sub-sector for the rural landless and for marginal and small farmers. It is labour intensive, providing employment opportunities and a regular monthly income through the sale of milk, eggs, poultry and goats (GoB 2008).
- Main livestock assets are poultry (chicken, ducks, goose, pigeon, Koel), goat, sheep, cows, buffalo, and pigs (KI, ACF 2014).
- Poultry farming can be further categorised as (KI, ACF 2014):
  - Backyard where 2-50 indigenous birds are kept. Poor households keep the birds inside their house, richer households prepare separate sheds near the house.
  - Small commercial farming of 500 to 10,000 birds, including birds for both meat (broiler) and egg (layer) production. Practiced mostly by medium and rich farmers who have a separate bird shed and use improved modern techniques
  - Large commercial farms
- Landless and small farmers keep goats and sheep or one or two cows for milk and ox for fattening. Poor households keep larger livestock in and extra shed by their house. Comparatively bigger-scale farmersmay keep up to twenty cows separately to their houses(KI, ACF 2014).
- In the coastal belt, farmers keep buffalo for both milk and draught purposes(KI, ACF 2014).
- For poor households, livestock is usually only one element of a diversified livelihood.

MARKETS

- Institutional credit in the south is very low. 80% of loans are from *mohajans* and *dadanders,* private money lenders who charge high rates of interest, roughly 10% per month, and have other negative terms attached to loans (Southern Delta Plan 2013).
- Market density in the southern region is lower than in other parts of Bangladesh, meaning that there are high levels of monsoon losses due to poor market infrastructure (Southern Delta Plan 2013)
- Market places are exposed and vulnerable to cyclones and storm surges, however ,reports suggest that after cyclone Sidr markets re-established rapidly (Southern Delta Plan 2013)

FOOD SECURITY AND LIVELIHOODS COORDINATION

- The Food Security cluster meets regularly in Dhaka. Technical Working Groups are set up on an *ad hoc* basis to work on particular issues (including needs assessment).
- The cluster is co-led by WFP and FAO in Dhaka. District focal points in all coastal belts are a work in progress and will be rolled out in 2-3 pilot districts during 2014. The cluster has up-to-date mapping in the form of a 4W (using the new standardised IMWG tool).

- In times of an emergency, the roles and functions of the cluster and government are outlined in chapters 4 and 5 of the FSC Cyclone Contingency Plan (FSC Contingency Plan 2013)
- There is a comprehensive cluster website, http://foodsecuritycluster.net/
- As reflected in the contingency plan, all cluster members have agreed on[6](FSC Contingency Plan 2013):
    - A standardised recommended response package for dry food for the first 7 days (immediate response)
    - A recommended short-term (week 2-8) standardised food package (food only)
    - A recommended short-term (week 2-8) standardised package (cash and food mix).

PRE-CRISIS BASELINE LFS DATA

- The VAM Unit in WFP is preparing a compendium of proxy indicators/variables of food security and nutrition along with their disaggregation level and source, not published yet (KI, VAM, 2014).
- The VAM unit has also requested the Bangladesh Bureau of Statistic (BBS) to generate food security related proxy variables at Upazila level from the 2011 Census. This should include percentage of households with major income sources from agriculture lay labour and those with major income sources from non-agricultural activities (KI, VAM, 2014).
- Key indicators to provide a baseline for Phase 1 and Phase 2 assessments have been agreed by the FSC Technical Working Group as:

Baseline Indicator	Notes
Demographic data	Census data, available in excel on HCTT web platform in excel.
Poverty levels	Available from WFP, in excel. Disaggregated to Upazila level.
Livelihood groups	The JNA is in discussion with the cluster and IMWG about where and how to access this data.
Number of landless	Disaggregated to Division level in the HIES. The JNA is in discussion with the cluster and the information management working group about where and how to access this data.
IPC classification	Acute analysis available for coastal Districts.

[6]The above applies to cyclone based emergencies but it is anticipated that these packages will be recommended for flooding as well.

- Additional pre-crisis data should include seasonal price trends and access to markets.
- The Bangladesh Integrated Food Security Phase Classification (IPC) is housed within FAO and provides a set of protocols to classify the severity and causes of food insecurity and provide actionable knowledge by consolidating wide-ranging evidence. It is a process for building technical consensus among key stakeholders. The Acute Food Security Situation for the coastal region has been completed, and other zones are planned to follow.

IMPACT OF CYCLONES

- The socio-economic impact of Sidr falls into four main categories (GoB 2008):
    - Reduced food supply (mainly rice)
    - Reduced income and employment
    - Reduced availability of agricultural inputs
    - Increased prices of food and agricultural inputs
- The Food Security and Livelihoods cluster uses planning figures for four different scenarios, ranging from a category 1 or 2 cyclone affecting 500,000 people to a category 5 cyclone affecting 5 million people. An estimated potential caseload is then calculated using the number of people living under the poverty line, because it is known that these are most vulnerable to disasters and least likely to be able to recover on their own. Based on this approach the cluster estimates (FSC 2013):
    - 40% of those under the poverty line will require emergency food/cash assistance
    - 40% of those with livestock or involved in crops, horticulture and aquaculture will require assistance
    - 100% of those who depend on capture fisheries will require assistance, since this livelihood is sustained amongst the most poor
- The following potential impacts of a cyclone have been identified by the food security cluster (FSC 2013):

FOOD

- Disrupted food supply due to market disruption and loss of food stock, especially nutritious food

- Negative coping mechanisms (reduction of meals, amount of food or quality of food, sale of productive assets, etc.)
- Loss of means (equipment and location) to prepare food.

LIVELIHOODS

- Loss of livelihoods (agriculture and non-agriculture based) and reduced purchasing power
- Loss of/ damage to individual and community assets
- Loss of income earning opportunities.

AGRICULTURE

- Loss of agricultural production across the value chain
- Loss of crops and seeds leading to food insecurity in the locality till next harvest
- Loss of/damage to agricultural lands and embankments, caused by debris and waterlogging/flooding
- Damage to fisheries and pond fisheries / fisheries and shrimp aquaculture sectors
- Emerging and re-emerging infectious deceases amongst livestock.

LIVESTOCK

- In 1991, over one million cattle were lost in a tidal surge and flooding that followed super cyclone Marian. In 2007, one million livestock died in Cyclone Sidr, a significantly less powerful storm (IRIN 2012).
- In Cyclone Sidr, almost 80% of livestock and 76% of birds drowned in the tidal surge. There was also destruction of animal shelters, fodder, and pasture (GoB 2008).

OTHER

- Price hikes of essential commodities
- Displacement and migration of mainly the male population
- After Tropical storm Mahasen, the most commonly cited coping strategy identified in the Phase III assessment was borrowing money at high interest rates (ER Cluster 2013).

[7]No information on timeframe of markets re-establishing.

FOOD SECURTY AND LIVELIHOODS RESPONSE LESSONS LEARNT

- After Cyclone Sidr, 95% of local markets resumed functioning again after the cyclone[7], and food was available on the market (albeit at high prices). This indicates that cash-based responses were appropriate within this context and in terms of contributing to the recovery of local traders and economies. Cash for Work is the most effective way of targeting the most vulnerable as only the poorest will participate (Care 2008, UNICEF 2009).
- Cash for Work activities which focus on embankment rebuilding/strengthening must have adequate technical supervision and technical standards drawn up and agreed by development partners (UNDP 2012).
- After Cyclone Sidr, the need for improved socio-economic baselines was identified (Care 2008)
- To improve minimum standards the FSC has developed *Guidelines on good agricultural practice in a cyclone response.* These promote standardisation and government consultation (FSC 2013).
- Although there are regional food preferences, a standardised food basket is being promoted by the Food Security cluster (FSC). The food basket was agreed jointly by the FSC and the Nutrition cluster, and it places adequate nutritional value as the priority, with consideration to preferences (FSC TWG 2014).

KEY INFORMATION GAPS

- Baseline figures for seasonal migration
- Collated food security and livelihoods lessons learnt.

HEALTH

KEY CHARACTERISTICS

- Health service provision is through the Government, the private sector, and the NGO sector.
- The health services provider structure is built on the country's administrative pattern which follows the national government, divisional, district, Upazila, Union, and Ward administrations (Health Sector Profile 2010).

- Bangladesh faces many challenges in improving the health status of the population and in particular of the poor and vulnerable. Maternal and neonatal mortality, although decreasing, are not reducing at an acceptable rate (Health Sector Profile 2010).
- Health care is provided for free at the community clinic level (Health Bulletin 2012).
- The for-profit sector is a key service deliverer for all income groups (providing 30% of services to the poorest two quintiles). There is a modest role played by the NGO sectorwhich typically provides less than 10% of services for all income groups (with perhaps slightly more for the poorest quintile) (Health Sector Profile 2010).

MATERNAL HEALTH

- The maternal mortality rate is 194 per 100,000 (BMMS 2010).
- Antenatal care for women by medically trained personnel increased from 33% 1999-2000 to 55% in 2011 (HPNSDP 2013).
- An estimated 73% of births are attended by non-medically trained persons (UNFPA 2013).
- In 2010, 76% of deliveries took place in the home (UNFPA 2013).
- Close to 7,000 mothers die each year due to pregnancy-related causes (UNFPA 2013).
- Nearly two-thirds of all maternal deaths are the direct result of obstetric complications (UNFPA 2013).
- Unmet need for family planning has increased from 11% in 2004, to 17% in 2007(UNFPA 2013).

CHILD HEALTH

- The infant mortality rate is 36 per 1,000 live births (SVRS 2010).
- Drowning is the leading cause of death for children aged 2-10 years, followed by pneumonia, and malnutrition (UNICEF 2005).
- Drowning, usually occurs close to home, in and around the local community, and the majority of drowning deaths occur during sunny weather. It is a neglected form of child mortality and often goes unreported (UNICEF 2012).
- The leading causes of mortality for infants are pre-term birth, pneumonia and birth asphyxiation (UNICEF 2005).
- The leading causes of morbidity for infants are acute respiratory infections (ARI), diarrhoea, and malnutrition (UNICEF 2005).
- The leading causes of morbidity for children aged 1-17 are ARI, diarrheal diseases, and fever UNICEF (UNICEF 2005).
- The Bangladesh Health and Demographic Survey(BDHS) 2007 indicates that only about 37% of sick children receive care from a trained provider, with girls and the poor having lower rates(BDHS 2011).
- 86% of children 12 – 23 months are fully vaccinated; the figures is 85% for girls and 87% for boys (BDHS 2011).
- Coverage for measles is 88%, the GoB target is 90% (BDHS 2011).

DISEASE

- Diarrhoea is highly prevalent throughout the year, but typically spikes in April and October (Icddr,B I/V 2013).
- The main public health diseases are tuberculosis, malaria, dengue and soil-transmitted helminthiasis (WHO 2010).
- Cox's Bazaar and Chittagong are the only coastal districts with malaria; 80% of Bangladesh's malaria is confined to the hilly districts, away from the coast (CDC 2012).
- Dengue Fever has increased due to rapid urbanisation and high urban and peri-urban population density (CDC 2012).
- There is no routine surveillance of levels of *aedes* mosquitoes which carry dengue (CDC 2012).

NON-COMMUNICABLE / CHRONIC DISEASE

- Non-communicable diseases account for 52% of all deaths, 27% due to cardiovascular disease and 9% to cancer (WHO 2011).
- Injuries account for 10% of all deaths (WHO 2011).

HIV

- HIV prevalence is under 0.1% with an estimated 7,500 PLHIV in Bangladesh (UNAIDS 2012).
- Chittagong and Khulna have the highest number of new cases after Dhaka Division (UNAIDS 2012).

DISABILITY

- 9.07% of the population has a disability (8.1% male and 10% female). The figure is 9.63% in rural areas and 7.49% in urban areas (HIES 2010).

- Disability caused by injury, after infancy, is more than twice as likely to happen to boys as to girls (UNICEF 2005).

HEALTH COORDINATION

- In Bangladesh, WHO-BAN has been leading the UN DER (Disaster and Emergency response) health Cluster and ensuring health sector coordinating mechanisms involving UN agencies, NGOs, CBOs, Health authorities, donors, and community members, including between the centre and the field, and other sectors/clusters.
- The Health cluster responds to both emergencies and to assess health sector preparedness activities on an ongoing basis (ERM 2012).
- The Ministry of Health and Family Welfare (MoHFW) is responsible for the implementation, management, coordination and regulation of national health and family planning related activities, programs and policies.
- The MoHFW regulates the private and NGO sector.

HEALTH PRE-CRISIS BASELINE DATA

- All Government health facilities are mapped in this link Health Infrastructure in Bangladesh.
- Health Data is available through the Health Management Information System

CONTINGENCY PLANNING AND PREPAREDNESS

- The Emergency Preparedness and Response Programme is an active unit of Directorate General of Health Services for adequate disaster preparedness activities and response to emergencies (EPR 2013).
- Health cluster information management tools such as UN-DER Health Cluster Standard Operating Procedures, post disaster disease surveillance for morbidity and mortality, Agency Inventory format, and the 3W were developed and finalised in 2012 (ERM 2012).
- The Directorate General Health Services, WHO, and other stakeholders manage a buffer stock of drugs and medical supplies which in the past have been used during emergencies at district and Upazila levels, including emergency drugs (antibiotics, IV fluids, antipyretics, analgesics, topical ointments, drops, nebulizer, anti-snake venom injections etc.) (Health Cluster 2013).
- The buffer stock has been used during emergencies for immediate treatment of diarrhoeal diseases, ARI, ear, eye and skin infections, injury and is essential for containing post-disaster disaster outbreak and reducing mortality (Health Cluster 2013).
- A number of guidelines exist for health professionals and community health volunteers for disaster preparedness and response and are available through the health cluster (EPR 2012).

IMPACT OF CYCLONES ON HEALTH SERVICES

- Cyclones cause the greatest number of deaths of all disasters in Bangladesh. Traumatic injury is the main cause of death in cyclones, therefore it is essential to ensure the availability of trained personnel for first aid, CPR, mass casualty management (KI Health Cluster 2013).
- Post disaster disease outbreaks can be triggered by damaged water and sanitation systems. Diarrhoea, ARI, and skin-eye-ear infections are common in post disaster situations (ERM 2012).
- The public health needs of the affected population increase as a consequence of people living under open sky, a lack of safe drinking water, and damage to sanitary systems (KI Health Cluster 2013).
- Due to the available buffer stocks of drugs, there was no significant mortality observed during either cyclone Sidr 2007 or cyclone Aila 2009 (KI Health Cluster 2013)
- Cyclone Sidr affected damaged or partially damaged 351 health facilities, affecting health services for 900,000 people (UN Assessment 2009 and GoB 2008).
- Cyclone Sidr affected the delivery of health care in the following ways (UN Assessment 2009):
    - Increased patient load
    - Disrupted the electricity and water supply
    - Damaged overhead water tanks
    - Damaged life-saving equipment in remote areas.
- Local health personnel may themselves be injured or be unable to reach health facilities immediately after a disaster (KI Health Cluster 2013)
- Findings from an assessment one year on from Cyclone Aila found (UN Assessment 2010):
    - Initial assessments revealed minor damage in the health sector and no significant outbreak of disease. But given the limited support for rehabilitation, the overall situation in most affected areas had worsened.
    - Those living on embankments suffered from a range of diseases like diarrhoea, skin infection, and pneumonia etc.

- Most cultivable land remained inundated by saline water. Crops and vegetables did not grow, resulting in micronutrient deficiency and malnutrition.
- Village doctors and birth attendants had insufficient or, in some case, no training and were unaware of basic treatment protocols for common ailments.
- For many people on the embankments, there were reports of psychosocial depressive illnesses which remained untreated as there was no psychosocial support provided.
- Although there had been no increase in the number of deaths or large scale outbreaks of disease to date, this could reflect improper surveillance.
- Most pregnant women living on the embankments delivered their babies in their shelters on the embankments, with the assistance of a Traditional Birth Attendant, where available.
- Focus group discussions revealed that many women wanted to delay their next pregnancy until they were in more suitable living conditions. Limited reproductive health and family planning services were offered at health facilities.

KEY INFORMATION GAPS

- Lessons learnt documentation remains scant
- An agreed list of pre-crisis baseline data
- Information on the impact of disasters on health-seeking behvaiour

INFRASTRUCTURE / LOGISTICS

LOGISTICS KEY CHARACTERISTICS

- The inland water system in Bangladesh is 8,705km long with 3,060km of main cargo routes. The network is reduced to 5,200km in the dry season (data from 2006) (GoB 2008)
- Main roads are under the jurisdiction of the Roads and Highways Department. Smaller roads, which make up 91% Bangladesh's roads, are under the jurisdiction of the Local Government Engineering Department (LGED) (GoB 2008).
- 9.5% of roads are paved (GoB 2008)
- There are three international airports in Dhaka, Chittagong and Sylhet (Airport Authority 2013).
- There are a further 13 domestic airports; Barisal, Comilla, Cox's Bazar, Ishurdi, Jessore, Khulna, Rajshahi, Rangpur, Saidpur, Sandwip, Shamshernagar and Thakurgaon (Airport Authority 2013).
- Over 87 million passengers are carried annually and more than 58 million ton of cargo is transported annually.
- MAF operates a sea plane which can be chartered and usually prioritises humanitarian flights during times of disaster.

Seasonal Effect on Transport (Logistics Cluster 2013)

Transport	Comments	From month	To month
Road Transport	Availability of trucks affected by the mango and Boro Season. Road transportation is first choice when delivering relief material	May	July
Rail Transport	Rail is used for transporting relief material. Movement of trains is affected during floods due to water logging on the tracks.	July	October
Air Transport	Air transport is seldom used for distribution of relief material due to the presence of a good road network.	November	February
Waterways transport	Port operations are hampered only during extreme floods. Most relief material into Bangladesh is transported by sea. Inland river transportation is used to transport relief material in Bangladesh due to the presence of a river port and a good river transport network.	January	December

ELECTRICITY

- 56.1% of the population has access to electricity. The figure is 52.8% in urban areas and 13.6% in rural areas (CEA 2013).
- Demand for electricity drops after a major emergency due to the damage to housing and small and medium scale industries (GoB 2008)

LOGISTICS COORDINATION

- The Logistics cluster is led by WFP.
- The Logistic Cluster meetings are held on monthly bases with participation from UN and INGOs

CONTINGENCY PLANNING AND PREPAREDNESS

Logistics cluster contingency plan is being prepared (March 2014).

- The Directorate of Food has set up an early warning system for floods which enables Local Supply Depots and the Central Stores Depots to adopt contingency measures (Logistics Cluster 2013)
- The Water Development Board passes regular information on water levels due to incessant rains and floods to the Directorate of Food who in turn passes on this information to the districts (Logistics Cluster 2013).
- During an alarm situation, the Central Stores Depots and Local Supply Depots erect a Baffle Wall up to three feet at the entrance of the godowns/warehouses to prevent water from entering inside (Logistics Cluster 2013).
- There are numerous warehouses owned (leased) by UN and INGOs throughout the country that are identified and mapped for emergency preparedness.

IMPACT OF CYCLONES ON ACCESS

TRANSPORT

- Most of the roads destroyed by Cyclone Sidr were embankment-cum-roads, which were destroyed by the tidal surge (GoB 2008)
- The impact on the road network of Cyclone Sidr should be seen within an overall context of a failing road network (GoB 2008)
- Main roads should be restored as a priority, but secondary roads should not lag behind (GoB 2008)

ELECTRICITY

- Power supply after Cyclone Sidr was disrupted in the whole country for one day (GoB 2008)
- There was no significant damage to power plants (GoB 2008)
- Within five days of Cyclone Sidr the transmission system was fully operational (GoB 2008)
- Distribution systems took many months to repair (GoB 2008)

COMMUNICATIONS

- Mobile operators were not severely affected by Sidr, within a month there was only 7% of non-operational facilities in the affected areas (GoB 2008)

INFORMATION GAPS

- The Logistics Capacity Assessment will be updated at the end of March 2014
- Impact of destroyed roads and waterways on the response and early recovery
- There is no analysis of availability of key relief items for a major emergency
- Number of days until mobile phone communication is expected to be repaired.

NUTRITION

NUTRITION KEY CHARACTERISTICS

- Child <5 nutrition has decreased since the 1990s, but the rate of reduction has been slow (UNREACH, Unpublished)
- Chronic stunting and wasting are persistent challenges (UNREACH, Unpublished)
- The pattern and change in wasting has been small and inconsistent.

BDHS National Nutrition Data		
Type of Malnutrition	**2007**	**2011**
Wasting	17%	16%
Severe wasting	3%	4%
Stunting	43%	41%
Severely stunted	16%	15%
Underweight	41%	36%
Severely underweight	12%	10%

- The main causes of under nutrition are inadequate hygiene (hand-washing) and inadequately diversified diets of mothers and young children (KI, Nutrition cluster, 2014).
- Due to maternal malnutrition and early pregnancy, one in five babies is born with a low birth weight (WFP 2012).
- Seasonality remains an important issue in malnutrition. Summer months see higher levels of malnutrition, connected with childhood morbidity and restricted access to food. This matches the cyclone and flooding season which leads to

increased diarrhoeal diseases which in turn is linked to increases in malnutrition (UNICEF 2009).

- The coastal belt has the greatest prevalence of underweight children, including wasting and acute malnutrition. This is also the case for underweight girls, but not underweight women (FSNSP 2013).

NUTRITION COORDINATION

- Nutrition falls under the Ministry of Health. The Institute of Public Health Nutrition (IPHN) is responsible for formulating policy and strategies for nutrition activities, programmes, research, training, and surveillance. It hosts the National Nutrition Services (NNS) which aims to reduce the prevalence of malnutrition among the people of Bangladesh with special emphasis on children, women, adolescents, and underprivileged sections of society (IPHN).
- The Nutrition cluster for preparedness meets on a monthly basis, coordinated by UNICEF and co-chaired by IPHN.
- Sub-national cluster coordination mechanisms have been established, with District disaster focal points identified, and district disaster management committees trained on nutrition in emergency.
- The 3W mapping and cluster contact list has been updated and is available via the Nutrition cluster.

PRE-CRISIS BASELINE NUTRITION DATA SURVEILLANCE

- Nutrition data is collected by a number of different actors including, the BDHS, the Food Security Nutritional Surveillance Project (FSNSP) and individual agency nutrition surveys
- FSNSP provides up-to-date seasonal information on nutrition and food security in six regions of Bangladesh as well as nationally. The data is collected for the post Aman season (February – April), Monsoon (June – August) and post Aus Harvest (October – December) (FSNSP 2013).
- A set of standard nutrition indicators have been integrated into routine Health Management Information System which will substantially increase nutrition data available from monthly health clinic reports, including information on coverage of essential nutrition interventions, and the anthropometric status of children. This information will allow trend analysis at disaggregated levels, which is critical to early warning.
- IPHN/NNS recently established a Nutrition Information and Planning Unit to regularly monitor and analyse the nutrition situation based on a diverse range of sources, including routine information from the Health sector, FSNSP surveillance, surveys, etc.

CONTINGENCY PLANNING AND PREPAREDNESS

- In collaboration with the Ministry of Food and Disaster management, the NNS is developing a guideline for disaster preparedness that aims to prevent and treat malnutrition after disasters. Once completed, all health workers will be trained so that they are able to respond to the nutritional needs of the population in case of an emergency. A strong emphasis is for Health Workers to promote, protect and support breastfeeding, and appropriate complementary feeding and hygiene among children <2 (IPHN).
- The Nutrition cluster maintains a district level inventory of stocks pre-positioned by cluster members, including anthropometric equipment and essential nutrition supplies.
- A detailed Nutrition cluster contingency plan is being finalised
- The Nutrition cluster has established a Rapid Nutrition Assessment Team (RNAT) which is expected to lead post disaster rapid nutrition assessments and nutrition surveys
- Phase three assessment guidelines for nutrition are under development.
- The Nutrition cluster has contributed to setting standards for scaling-up a full set of direct nutrition interventions needed to prevent under-nutrition and micronutrient deficiencies, through development of job aids and tools under the *Nutrition in Emergencies* national training module.

IMPACT OF CYCLONES ON NUTRITION

- In light of the high prevailing rates of malnutrition, the nutrition situation could easily and quickly deteriorate after a cyclone.
- In a disaster, a lack of shelter and/or water will result in decreased hygiene, often with limited available space where women feel comfortable to continue breastfeeding and/or engage in complementary feeding (KI, Nutrition cluster, 2014).
- In a disaster, food crops and market are destroyed and/or disrupted resulting in less access to diversified nutritious food leading to inadequate energy and micronutrient intake (KI, Nutrition cluster, 2014).

- Lack of shelter/water and disruption to livelihoods are typically the first sectors to be compromised when a disaster hits which is why under-nutrition is often aggravated soon after an emergency (KI, Nutrition cluster, 2014).
- In cyclone prone areas, pre-crisis vulnerability in relation to nutrition and the impact on food and livelihoods could impact child feeding practices that could further compromise nutrition.
- Cyclones may not have a direct and immediate impact on nutrition, but they create situations that increase vulnerability and can lead to a rise in under-nutrition in a short amount of time, complicated by factors such as inadequate hygiene, a lack of shelter for private and safe spaces for women to breastfeed or feed children, and inaccessibility to nutritious food. The nutrition situation of pregnant/lactating women and children, who are most vulnerable, should be closely monitored at all times (KI, Nutrition cluster, 2014).

LESSONS LEARNT

- Concurrent sectoral interventions implemented post disaster will go a long way in mitigating and reducing the deterioration of nutritional status.
- Nutrition sensitive strategies should be mainstreamed into responses of key sectors (KI, Nutrition Cluster, 2014):
  - Food security/livelihoods to ensure vulnerable populations have access to and consume adequately diversified nutritious diets.
  - Shelter to ensure mothers have safe, private, and hygienic spaces to breastfeed infants and young children need to be established immediately after a disaster so that breastfeeding can continue.
  - WASH to ensure caregivers hand wash with soap before handling of food and feeding to avoid contamination and subsequent illness in children that can lead to under-nutrition. This includes practical measures (ie provision of water and soap) as well as health education.
  - Health infrastructure and provision is required to ensure essential health and nutrition services are delivered by health providers at quality and scale to vulnerable populations (including micronutrient supplementation, counselling and promotion, disease management, management of acute malnutrition, etc.).

INFORMATION GAPS

- Impact of cyclones on nutrition status
- Lessons learnt from previous nutrition responses.

SHELTER

SHELTER KEY CHARACTERISTICS

- Shelter responses are usually comprised of emergency shelter, transitional shelter, and permanent housing.
- There is no clear written definition of *partially* or *completely destroyed* houses, the consensus among shelter cluster partners is:
  - Partially damaged is where any component of a house (roof/ wall/foundation/column) is damaged, but the house is repairable.
  - Completely destroyed is when the house is severely damaged or washed away and cannot be repaired

Shelter Types in Bangladesh	
Pucca	Fully brick structures
Semi-pucca	Floors and/or walls made of brick and the rest made from tin (metallic sheet)
Kutcha	Floors made of soil and roof and walls made of tin
Jhupri	Floors made from soil and roof/walls made from bamboo

EMERGENCY SHELTER

- Temporary shelter – emergency response is defined as *a temporary structure which provides adequate shelter for a short period of time immediately after the event* (Shelter TWG).
- Where possible, shelter materials used for emergencyresposnes should be appropriate for early recovery. This can be difficult due to the different needs for building on embankments and on flat ground (Shelter Cluster TWiG 2009).

TRANSITIONAL SHELTER

- Transitional shelter – semi durable shelter – transitional response is defined as *a structure which provides adequate shelter which covers a period of time from the emergency phase until longer term durable solutions can be provided. If required they can be dismantled and relocated (Shelter Cluster TWG).*
- Transitional shelter (TS) interventions must consider land rights issues. In Bangladesh, where population density is high it can be difficult to get Government

approval for transitional shelter sites due to political concerns, resentment by host populations, fear the site may become permanent, or fear the value of the land may be reduced (unpublished UNDP).

- Types of transitional shelter include dispersed settlements, collective centres, and cluster transitional shelter.

Main Features of Standardised Transitional Shelter (Shelter TWG 2013)	Flooding and cyclones in inland and coastal areas
Plinth	Height variable Above 1 ft HFL, 5" Brick wall with 10" X 10" brick pillar
Columns and frame	10 No RCC (5 in x 5 in with T section)
Wall Cladding	CGI + Bamboo Mat
Trusses and CGI fixing	Timber truss , Tin Screw (Bolt), Cyclone strap
Foundation	Below 1.5 ft GL , T Shape
Roof shape	hipped
Roof slope	30- 35 degree
Length of Canopy	1.5 ft
Plinth space for veranda	6ft wide extended earth filling
Ceiling	bamboo mat
Window	3 No (Beneficiary choice)
Door	2 No (Beneficiary choice)
Height (PL to Ceiling)	minimum 7 ft
Latrine	Single Chamber, minimum 5 to 7 ring, Bamboo/ wooden Pole, .24 mm CI sheet for wall cladding, 0.30 mm CGI sheet, Ramp, fero-cement work
Gender	Partition, Two no of door, secured toilet
Disability	Staircase/ramp
Age	Staircase/ramp (Railing for older people)

PERMANENT HOUSING

Permanent house – durable solution – recovery response is defined as *a permanent structure built to normal national standards appropriate for the exposure to hazards* (Shelter TWG).

SHELTER COORDINATION

- The Shelter cluster is led by UNDP during non-emergency periods and led by IFRC during emergency responses.
- The shelter cluster for preparedness is established and meets regularly. There is a Technical Working Group who meet on a regular basis.
- There is a website which is a resource for humanitarian agencies working in the Shelter sector (Shelter Cluster).
- The location of NFIs is still under discussion in Bangladesh between the shelter cluster, early recovery cluster and the food security cluster (KI, Shelter TWG, 2014).
- The shelter cluster are in the process of agreeing a standard shelter kit package.

PRE-CRISIS BASELINE SHELTER DATA

Baseline Indicator	Notes	Location
Disaggregated demographic data	2011 Census data, available in excel on HCTT web platform. Disaggregated to Union level.	JNA Baselines
Type of housing	2011 Census data, available in excel on HCTT web platform. Disaggregated to Union level.	JNA Baselines
Land Ownership	Disaggregated to Division level in the HIES. The JNA is in discussion with the cluster and the information management working group about where and how to access this data.	n/a

DISTRICT	Type of Structure (%) (Census 2011)			
	Pucka	Semi-pucka	Kutcha	Jhupri
Satkhira	n/d	n/d	n/d	n/d
Bagerhat	8	14	73	5
Khulna	11	20	66	2
Pirojpur	7	13	79	2
Barguna	5	10	83	3
Patuakhali	5	11	81	3
Bhola	4	14	78	5
Lakshmipur	10	10	78	2
Noakhali	10	10	77	4
Feni	20	5	60	1
Chittagong	21	17	56	7
Cox's Bazar	9	14	63	14

PRE-POSITIONING AND CONTINGENCY PLANNING

- There are pre-positioned shelter items, by both cluster members and the Government. These are currently in the process of being mapped.

IMPACT OF CYCLONES

- Cyclone Sidr destroyed nearly 1.5 million homes, four times more than were destroyed by the 2005 Pakistan Earthquake (IFRC 2008).
- In areas assessed after Tropical Storm Mahasen, 94% of the housing was *kutcha,* with corrugated iron roofing and corrugated iron or timber planks for walls, timber of bamboo frames, earth floors and clay plinth foundations (Shelter Cluster 2013).
- The greatest need of those with damaged houses after Mahasen was identified as cash to help them repair or rebuild their homes. The second priority was corrugated iron and timber (Shelter Cluster 2013),
- After cyclone Sidr, there were concerns about the dangerous methods which people were using to rebuild their houses, where there was no external assistance (IFRC 2008).
- After cyclone Aila people were displaced onto embankments, ring roads, and high strips of land (IOM DTM 2010).

Recent cyclone impact on shelter			
Disaster	**Shelter affected (HH)**	**Displaced(HH)**	**Where**
Sidr	1,425,024 (CDMP sitrep, 29 Nov 2007)	4.4 million (OCHA)	Cyclone shelters, Embankment, Road, Host family
Aila	630,000 (Shelter cluster sitrep 090703)	75,000	Embankments, Ring Roads
Mahasen	135,236 (GoB)		

LESSONS LEARNT

- Transitional shelter responses are unable to include landless families, therefore leaving out the most vulnerable members of the community. This has been noted in lessons learned after Sidr, Aila, and Mahasen. The chronic complexity of land reform and landlessness should not be underestimated and a *quick-fix* of these issues following a disaster is unlikely (KI Shelter Cluster TWG 2014).
- After Sidr, Aila, and Mahasen, there were significant gaps in the shelter response. After Sidr, the quantity of the response planned in the Early Recovery Framework (55,000 shelters) did not compare well against the need (i.e. 1.5 million shelters destroyed or damaged). After Aila, 7,700 resilient houses were built, but 243,000 were destroyed (UNDP 2012 Early Recovery Review, 2007).
- One constraint to assessing shelter damage after tropical storm Mahasen was distinguishing between houses damaged by the storm and the chronic problem of sub-standard housing (Shelter Cluster 2013).
- Untangling the actual situation in relation to the shelter response is complicated by inconsistencies between reports. For instance, more than a year after the cyclone, UNDP estimated that 170,000 families were still without housing while Oxfam cites 276,000 (Early Recovery Review, 2007).
- There must be identification of how self-recovery is expected to explain the gap between the planned responses and identified needs. The joint UNDP assessment of December 2008 found that an estimated 43% (a range of 10% to

81% across affected districts) of families rebuilt or rehabilitated their housing themselves.

- While self-recovery is an important sign of resilience, one concern expressed with the large number of self-built emergency shelters is that they will not withstand the monsoon. Self-recovery must not be undermined, but rather monitoring and support of repair should be provided (KI, Shelter TWG, 2014).
- Difficulties in accessing remote communities, transporting materials (i.e. damaged roads etc) and accessing materials were obstacles to an effective shelter response.
- Lessons learnt by Oxfam after cyclone Sidr included (unpublished Oxfam GB):
  - The shelter kits took too long to arrive, were too heavy and unsuitable, for example many contained metal elements which are not recommended for use in a high salinity and humid region.
  - People also needed non-traditional skills to use the materials which required external assistance.
  - An increase in child marriage and polygamous marriages were two of the unintended outcome of OGB's policy of giving all transitional shelter kits to women headed households and handing over materials to the woman in the household
  - OGB assumed that a household was a single generation plus children. This meant extended families had to split up to each get a kit, thus eroding traditional support structures. If they did not split up different generations had to share rooms, which is not in keeping with local custom.

KEY INFORMATION GAPS

- Data from previous responses on migration and displacement, including, numbers who migrated as a result of the disaster and length of time displaced into collective shelters.

WASH

WASH KEY CHARACTERISITCS

- Water quality in Bangladesh is compromised by the presence of **arsenic** detected in 61 of 64 districts of Bangladesh. It is at dangerous levels for at least 20 million people. In 2006, contamination levels were estimated to be 20% at source and 12% at point of consumption. The Bangladesh acceptable level of arsenic in drinking water is <50 micrograms per litre; the WHO global standard is <10 micrograms per litre (UNICEF 2009).
- Up to 53% of the coastal region suffers from saline intrusion in surface water (Haque 2006).
- There are no systematic mechanisms for water quality monitoring and surveillance in Bangladesh (UNICEF 2009a).
- Only one third of secondary towns have piped water, and where it exists it is often contaminated due to leakages and intermittent supply (UNICEF 2009a).
- There are greatly varying figures on sanitation coverage due to different terminology for improved sanitation (UNICEF 2009a).
- The National Sanitation Strategy aims to have 100% of the population with access to sanitary latrines by 2015. Currently, 60% of the population has latrines, 32% hygienic and 25% unhygienic (DPHE).

Bangladesh Sanitation Definitions (MISC 2009)	
Hygienic sanitation facilities – GoB	**Improved sanitation facilities - WHO/UNICEF JMP**
Facilities that are individual or shared by maximum of two households	Individual facilities
Flush or pour-flush toilet/latrine to: ▪ Piped sewer ▪ Septic tank	Pit latrine with a slab and water seal
Pit latrine with a slab and water seal	Pit latrine with slab and lid, no water seal
Pit latrine with slab and lid, no water seal	Pit latrine with a slab and flap, no water seal
Pit latrine with a slab and flap, no water seal	Pit latrine with a slab but no lid nor water seal
VIP latrine	VIP latrine
Composting latrine	Composting latrine

WASH COORDINATION

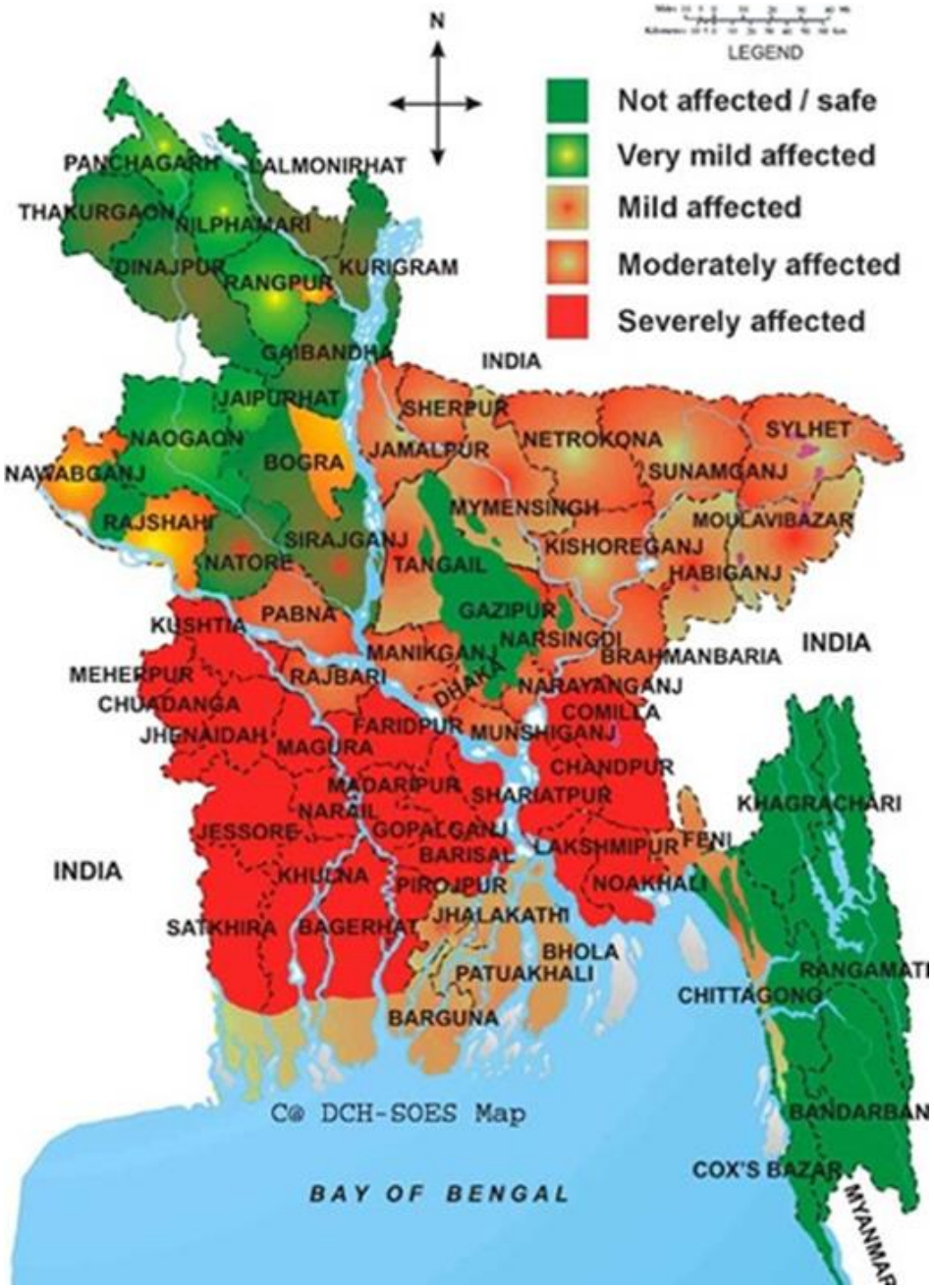
- At the national level, the Local Government Division of the Ministry of Local Government, Rural Development and Cooperatives is responsible for the overall development of the Water Supply and Sanitation (WSS) sector.
- The Department for Public Health Engineering (DPHE) is responsible for implementation of GoB WSS projects.

- The DPHE is represented down to the Upazila level; at the Union level, there is a Union WASH Committee.
- The WASH cluster for preparedness is functioning and is coordinated by UNICEF's WASH department and co-coordinated the DPHE.
- The WASH cluster has allocated WASH District Focal Agencies for the nine cyclone prone Districts whose role is to (WASH cluster ToRs):
  - Coordinate with the DPHE, other actors, and the District Relief and Rehabilitation Officer
  - Plan and implement responses, including leading on JNA Phase III assessments, contingency planning, and implementing agreed cluster action plans
  - Train and capacity-build to ensure skills transfer at the District level and to ensure local actors are familiar with JNA tools.
  - Monitor and report to the national cluster.
- Accountability is to the national cluster and no message or action should be taken on behalf of the cluster without discussion with the national cluster.
- The WASH cluster website is currently under construction.

PRE-CRISIS DATA

- The WASH cluster has collated pre-crisis data for specific at risk Upazilas in nine cyclone affected Districts. Indicators included are (WASH cluster 2014):

Indicator	Notes
Number of water points	Government only
Arsenic contamination	
Sanitation coverage including	Unimproved, improved, shared and open defection
Number of primary schools	Government, registered non-government and community schools
Number of cyclone shelters	Total number, capacity and other use
Number of toilets in shelters	Separate male/female, which floor and water supply
Water supply in shelters	



- The data sources used for the pre-crisis data are:
  - The Multiple Indicator Cluster Survey (MISC 2009)
  - The Bangladesh Health and Demographic Survey (DHS 2011)
  - World Bank: Hard-to-Reach Areas (Hard-to-Reach 2011).
- There is currently no repository or mapping of hygiene baseline, however operational agencies in cyclone affected areas have hygiene surveys which they can share.

LIMITS OF PRE-CRISIS DATA

- The WASH cluster did not include hygiene baselines, as these are not included in any national/international surveys, which provide geographically disaggregated data.
- The indicators do not provide information on whether WASH facilities within cyclone shelters are currently functioning or not functioning.
- National level surveys are not annual, therefore at times data is out of date.
- Disaster responses in certain areas can dramatically alter coverage, which is not reflected in this data
- There is no comparable data on hygiene practices.

CONTINGENCY PLANNING AND PREPAREDNESS

- The WASH cluster has developed a Contingency Plan for 2014. This plan estimates a worst case scenario of a caseload of 1.7 million affected people for a severe cyclone and the least severe cyclone having a caseload of 790,000 affected people.
- There is an up-to-date list of prepositioned supplies, government, UNICEF, and cluster members in the plan.

IMPACT OF CYLONES ON WATER SUPPLY

- Past experience of cyclones has been:
  - Cyclone Sidr flooded large numbers of water points and contaminated water sources (UNICEF 2009a).
  - Responses have been slow; two years after Cyclone Aila, 21,683 affected people still did not have access to safe drinking water (Aila Recovery Assessment 2011).
  - After Mahasen, there was a decrease (3%) in the number of people using tube wells as their main water source.

IMPACT OF CYCLONES ON SANITATION

- Experience from Mahasen has been (WASH Cluster 2013):
  - 79% of those assessed stated that their latrines were destroyed, resulting in an increase in open defecation at an average rate of 5%, in one district where the increase was 33%.
  - After Sidr, close to 100% of latrines were reported as completely damaged and unusable (Save the Children, 2008).
  - Those using unimproved sanitation reported higher incidences of diarrhoea, skin diseases, and stomach diseases[8].
  - The key challenge to rehabilitating latrines was lack of access to required materials, then lack of availability of materials. Skilled labour was available, but not accessible.
  - There were no reported land grievance issues.

GAPS IN INFORMATION

Lessons learnt from WASH interventions.

[8] At the time of the assessment, this finding was not cross-referred with health data. It is not clear that it would add value as not everyone attends health centres which input into Health Information Systems.