Funding Gap Analysis

- Involves collection of data on national revenue and expenditure, especially as associated with disasters

- Based on the quantitative risk assessment of the selected peril, the funding gap analysis considers the time dimension and stated intention of the government's own responsibilities after a disaster event to arrive at an overall assessment of the funding gap that may exist to respond to such disasters
Funding Gap Analysis Approach

- Relies on an extensive data work bringing together comprehensive damage and funding information related to natural disasters for the period 2000 to 2014.

- Meticulous library and internet search which covered various publicly available sources published by the Government of Bangladesh and international organizations.

- The extensive library and internet search has been conducted by multiple persons, which was also cross-checked by different team members to ensure data reliability and accuracy.
Historical Loss due to Catastrophe Damage
Primary Data Sources on Catastrophe Loss

- EMDAT
- Dartmouth Flood Observatory
- Ministry of Disaster Management and Relief
- BMD
- CDMP
- International Federation of Red Cross and Red Crescent Societies
- World Bank
- Munich Re
- Government of Bangladesh
- Other reports and sources
- 96 TCs in Bay of Bengal
- 14 events crossing Bangladesh
  - 9 with significant damage reports
  - 3 with over one million people affected

### Landfalling Tropical Cyclones in Bangladesh from 2000 to 2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Start Date</th>
<th>Name</th>
<th>Type</th>
<th>Life Loss</th>
<th>People Affected</th>
<th>Loss (M USD)</th>
<th>Loss Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>October 25</td>
<td>N/A</td>
<td>Storm</td>
<td>253</td>
<td>15,000</td>
<td>2.4</td>
<td>Inferred</td>
</tr>
<tr>
<td>2002</td>
<td>November 09</td>
<td>N/A</td>
<td>Storm</td>
<td>182</td>
<td>5,000</td>
<td>0.8</td>
<td>Inferred</td>
</tr>
<tr>
<td>2004</td>
<td>October 07</td>
<td>N/A</td>
<td>Depression</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2007</td>
<td>May 13</td>
<td>AKASH</td>
<td>Hurricane</td>
<td>90</td>
<td>80,000</td>
<td>1.0</td>
<td>Inferred</td>
</tr>
<tr>
<td>2007</td>
<td>November 10</td>
<td>SIDER</td>
<td>Hurricane</td>
<td>4,407</td>
<td>8,923,259</td>
<td>1,674.9</td>
<td>GOB</td>
</tr>
<tr>
<td>2008</td>
<td>June 16</td>
<td>N/A</td>
<td>Depression</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2008</td>
<td>October 24</td>
<td>RASHMI</td>
<td>Storm</td>
<td>13</td>
<td>321,839</td>
<td>16.8</td>
<td>Inferred</td>
</tr>
<tr>
<td>2009</td>
<td>April 14</td>
<td>BIJLI</td>
<td>Storm</td>
<td>7</td>
<td>92,558</td>
<td>7.1</td>
<td>Inferred</td>
</tr>
<tr>
<td>2009</td>
<td>May 22</td>
<td>AILA</td>
<td>Hurricane</td>
<td>500</td>
<td>4,826,630</td>
<td>1,149.0</td>
<td>GOB</td>
</tr>
<tr>
<td>2010</td>
<td>October 07</td>
<td>N/A</td>
<td>Depression</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2011</td>
<td>June 16</td>
<td>N/A</td>
<td>Storm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2011</td>
<td>October 17</td>
<td>N/A</td>
<td>Storm</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2012</td>
<td>October 10</td>
<td>N/A</td>
<td>Depression</td>
<td>108</td>
<td>133,688</td>
<td>25.9</td>
<td>Inferred</td>
</tr>
<tr>
<td>2013</td>
<td>May 09</td>
<td>MAHASEN</td>
<td>Storm</td>
<td>17</td>
<td>1,328,237</td>
<td>125.8</td>
<td>Inferred</td>
</tr>
</tbody>
</table>

**Tropical Cyclones in Bay of Bengal from 2000 to 2013**
Floods during 2000 to 2013

- Some level of flood affected area every year
- 5 years with 20% or more country area affected
- Two years with over 10 million people affected (2004 & 2007)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent Country Affected (BWDB)</th>
<th>Life Loss</th>
<th>People Affected</th>
<th>Loss (M USD)</th>
<th>Loss Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>24</td>
<td>81</td>
<td>3,244,576</td>
<td>500.0</td>
<td>EMDAT</td>
</tr>
<tr>
<td>2001</td>
<td>2.8</td>
<td>19</td>
<td>700,000</td>
<td>70.0</td>
<td>Inferred</td>
</tr>
<tr>
<td>2002</td>
<td>10</td>
<td>161</td>
<td>7,608,837</td>
<td>1,014.6</td>
<td>Inferred</td>
</tr>
<tr>
<td>2003</td>
<td>14</td>
<td>252</td>
<td>7,874,465</td>
<td>969.6</td>
<td>Inferred</td>
</tr>
<tr>
<td>2004</td>
<td>38</td>
<td>910</td>
<td>40,955,375</td>
<td>2,280.0</td>
<td>World Bank</td>
</tr>
<tr>
<td>2005</td>
<td>12</td>
<td>60</td>
<td>1,220,000</td>
<td>122.0</td>
<td>Inferred</td>
</tr>
<tr>
<td>2006</td>
<td>11</td>
<td>105</td>
<td>211,775</td>
<td>21.2</td>
<td>Inferred</td>
</tr>
<tr>
<td>2007</td>
<td>42</td>
<td>1,230</td>
<td>14,000,000</td>
<td>1,066.7</td>
<td>World Bank</td>
</tr>
<tr>
<td>2008</td>
<td>23</td>
<td>28</td>
<td>975,096</td>
<td>166.5</td>
<td>Inferred</td>
</tr>
<tr>
<td>2009</td>
<td>19</td>
<td>16</td>
<td>500,000</td>
<td>50.0</td>
<td>Inferred</td>
</tr>
<tr>
<td>2010</td>
<td>18</td>
<td>119</td>
<td>1,240,000</td>
<td>124.0</td>
<td>Inferred</td>
</tr>
<tr>
<td>2011</td>
<td>20</td>
<td>53</td>
<td>1,853,000</td>
<td>351.3</td>
<td>Inferred</td>
</tr>
<tr>
<td>2012</td>
<td>12</td>
<td>139</td>
<td>5,398,475</td>
<td>572.6</td>
<td>Inferred</td>
</tr>
<tr>
<td>2013</td>
<td>10.6</td>
<td>-</td>
<td>415,250</td>
<td>41.5</td>
<td>Inferred</td>
</tr>
</tbody>
</table>

2007 Floods in Bangladesh (Source: UNOSAT)
Catastrophe Loss Broken Down by Peril

- > 90% of the total damage due to floods (USD 7,650 million) and tropical cyclones (USD 3,000 million).

Source: Various Data Sources Collated by Air-WorldWide and ADPC
Although Bangladesh has not experienced any major natural disaster since 2010, the period 2010 to 2014 has still witnessed an average annual damage due to natural perils of USD 350 million.

- The long-run loss over 15 years: a massive total disaster-related loss of **USD 11,042 million** over the period 2000 to 2014.

2004 floods: USD 2,300 million
2007 floods: USD 1,000 million
2007 Sidr tropical cyclone: USD 2,700 million
2009 Aila tropical cyclone: USD 1,200 million
Funding for Catastrophe Loss
Disaster Funding Data Sources and Primary Components of Funding

- Expenditures made on the recovery, rehabilitation and prevention (RRP) projects
  - Derived from the approved procurement costs of a total of 204 unique tenders implemented over the period 2000 to 2014
  - Source: Annual Development Program of the Planning Commission, Ministry of Planning

- Humanitarian aid
  - Source: Financial Tracking Services of the United Nations Office for the Coordination of Humanitarian Affairs (UN-OCHA) (http://fts.unchoa.org)

- Disaster and climate change-related development assistance
  - Source: Economic Relations Division, Ministry of Finance
Additional Funding Sources and Data

The data are currently missing some **small** emergency response expenditures made by the governmental and nongovernmental layers in disaster situations, but missing these data is unlikely to make a difference to our main conclusions.

- **Disaster Risk Reduction Fund.**
  - The funding amount available could not be identified, but is likely to be modest.

- **Emergency Fund Disaster Management.**
  - The funding amount is confirmed to be small (again, the full amount could not be identified).

- **Fund for Unforeseen Incidents.**
  - Available each year in the order of one billion Taka (USD 14.28 million)
  While this funding can be allocated for any purpose (such as computer purchase) in an ordinary year, in the disaster years it is almost certain that the whole allocation would be spent on disaster risk reduction.

- **Climate Resilience Fund (PKSF)**
  - The funding amount could not be identified.
The total procurement cost of 204 projects over 2000-2014, i.e., the **long-term funding**, is **USD 2,772 million**.
- 2007 witnessed the highest amount of humanitarian aid (USD 300 million), followed by 2004 (USD 100 million). Other years, attracted very low amounts.

- The pre-2007 humanitarian aid average was USD 20.5 per annum.

- Post-2007 average being nearly doubled, USD 37 million per annum.

- The **long-term** humanitarian aid corresponds to a total of **USD 700 million** over the period 2000 to 2014.
The year 2007, when Sidr cyclone occurred, witnessed more than USD 600 million development aid.

The three major contributors in this year are: WB-IDA (USD 323 million), ADB (USD 125 million), and IDB (USD 130 million).

For the long-run perspective, the total disaster and climate change-related development assistance into Bangladesh over the period 2002 to 2012 is found to be USD 1,782 million.
The total long-run funding over 15 years from 2000 to 2014 corresponds to USD 5,254 million.

- Consistent with the severity of the Sidr cyclone, the year 2007 had a total funding of USD 1050 million, followed by 2004 (USD 578 million) and 2008 (USD 506 million).

- The figures also show that only 33% of the total funding is met by domestic resources, while 67% with foreign sources.
Preliminary Results for Historical Catastrophe Funding Gap from 2000-2014

Figure 7. Natural Disasters and Funding Gap in Bangladesh 2000-2014

Funding Gap (Millions of USD)

Preliminary Funding Gap Results

Figure 7. Natural Disasters and Funding Gap in Bangladesh 2000-2014

Funding Gap ( Millions of USD )

- **5 to 10+yr RP (Risk Transfer (public + private))**
- **2 to 5yr RP (Contingent Credit, micro-insurance)**
- **Annual (Reserve Fund)**
