CLIMATE CHANGE IMPACT, VULNERABILITY & ADAPTATION OF THE SUNDARBANS COMMUNITY IN BANGLADESH

Workshop on Climate Change Impacts, Vulnerabilities and Adaptation in Sundarbans, Shaheed Nurul Amin Khan Memorial (Multipurpose) Hall, BIAM Foundation, 63, New Eskaton, Dhaka, 28 December, 2011

Jahangir Hasan Masum

Coastal Development Partnership
The wetland communities of the Sundarban

• Sundarban is globally important as a Ramsar site in the “List of International Important Wetlands” and “World Heritage Site”.

• The Sundarbans, the single largest block of mangrove forest in the world, is situated in the Southwest coastal region of Bangladesh.

• The wetland communities of the Sundarban region have been living in harmony with wetlands for nearly 500 years and their livelihood survival is directly linked with the resources of the Sundarbans.

• A 67 cm sea level rise could inundate all of the Sundarbans.

1440 Sundarban-dependent households from Bagerhat, Khulna and Satkhira Districts took part in the study and 50% of them were women.
A 45 cm sea level rise would inundate 75% of the Sundarbans, and 67 cm sea level rise could inundate all of the Sundarbans. Even a 25 cm sea level rise would result in a 40% mangrove loss.
Profile of the Household heads (respondents)

• The average age of the household heads (HHH) is 48 years. The average age the male HHH (51 years) is higher than female HHH (46 years). Among the HHH, 1.4% is person with disabilities.

• More than two-fifth (45.9%) are functionally illiterate. More than half (53.2%) of the women are functionally illiterate, where as 41.7% of the men are found as such.

• Majority (80.1%) of the household heads of the Sundarban community are farmer (34.4%), day laborer (21.6%), housewife (14.0%), and small business (10.1%). Rest Others are bawali, Mawali, Domestic worker, Begger, Painter, Blacksmith, Barber, Tailor, Key maker, Carpenter)

• The average monthly income of the HHH is Taka 2681. The average monthly income of the men (Taka 3663) is 2.2 times higher than the average monthly income of the women (Taka 1698).
Climate Change Impact on the Health of the Sundarbans Community

- Female (%): 8.8
- Male (%): 16.1
- Total (%): 12.4

- Suffered from illness due to flood, cyclone, tornado or any other natural disaster
- Fallen into accident due to flood, cyclone, tornado or any other natural disaster
- Experienced negative impact on health due to climate change
### Awareness of the Sundarbans Community about Climate Change Vulnerabilities and Impacts

<table>
<thead>
<tr>
<th>Perception</th>
<th>Total (%)</th>
<th>Male (%)</th>
<th>Female (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceives that climate change will impact on their children</td>
<td>63.5</td>
<td>66.8</td>
<td>60.1</td>
</tr>
<tr>
<td>and future generations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceives that climate change will impact on their family</td>
<td>64.7</td>
<td>67.2</td>
<td>62.2</td>
</tr>
<tr>
<td>Perceives that climate change is a threat</td>
<td></td>
<td></td>
<td>68.9</td>
</tr>
<tr>
<td>Perceives that climate is changing very rapidly than before</td>
<td>56.3</td>
<td>57.1</td>
<td>55.4</td>
</tr>
<tr>
<td>Reported to know about the causes of climate change</td>
<td></td>
<td>48.5</td>
<td>43.3</td>
</tr>
</tbody>
</table>
Level of Awareness & source of information

- Climate change: Very Aware 16.3%, Moderately Aware 28%, Totally Unaware 55.8%
- Global warming: Very Aware 4.7%, Moderately Aware 43.1%, Totally Unaware 52.2%
- Sustainable development: Very Aware 5.4%, Moderately Aware 19.9%, Totally Unaware 74.7%
- Power of adaptation skills: Very Aware 6.4%, Moderately Aware 23.4%, Totally Unaware 70.2%

Source of information:
- Television/Radio: Female 55.4%, Male 61.6%, Total 67.6%
- Government: Female 35.7%, Male 23.5%, Total 29.6%
- NGO: Female 5.8%, Male 5%, Total 5.4%
- Club: Female 4.4%, Male 2.6%, Total 3.5%
Climate Change Impact on Food Security and Livelihood Security

- Climate Change already have negative impact on access to food
  - Total (%): 33.2
  - Male (%): 33.3
  - Female (%): 33.1

- Climate Change already have negative impact on availability of Food
  - Total (%): 32.4
  - Male (%): 33.5
  - Female (%): 31.3

- Climate Change already have negative impact on livelihood
  - Total (%): 34.4
  - Male (%): 35.4
  - Female (%): 33.5
Flood, cyclone, tornado or any other natural disaster forces the Sundarbans community to change their food habit.
Experience of the Sundarbans Community about Climate Change Vulnerabilities & Impacts

- Don't Know/cannot say
  - Total (%): 36.5, Male (%): 36.8, Female (%): 36.3

- Temperature increased/Feels hotter than before
  - Total (%): 27, Male (%): 28.5, Female (%): 25.6

- Dried up Rivers and canals
  - Total (%): 6.3, Male (%): 4.3, Female (%): 8.2

- Flood at the surroundings of the Household
  - Total (%): 56, Male (%): 56, Female (%): 56

- Household under Flood
  - Total (%): 43.1, Male (%): 42.2, Female (%): 43.9

- Rainfall is reduced
  - Total (%): 83.9, Male (%): 84.9, Female (%): 82.9
Experience of the Sundarbans Community about Climate Change Vulnerabilities & Impacts

- **Crop/Homestead damage**
  - Currently risky (%): 2.4
  - Ongoing challenge (%): 2.4
  - Few times a year (%): 33.7
  - No Changes (%): 61.6

- **Soil erosion or lands slide**
  - Currently risky (%): 19.4
  - Ongoing challenge (%): 14.7
  - Few times a year (%): 40
  - No Changes (%): 26

- **Hurricane or tornado damage**
  - Currently risky (%): 2
  - Ongoing challenge (%): 2
  - Few times a year (%): 47.8
  - No Changes (%): 48.1

- **Flood/water related changes**
  - Currently risky (%): 1.9
  - Ongoing challenge (%): 18.7
  - Few times a year (%): 20.1
  - No Changes (%): 59.3
Major Stakeholders for addressing climate change impact on the Sundarbans Community

- Local bazaar Samity: 0.8%
- Social / Cultural club: 17.6%
- Civil society: 23.7%
- Political personality: 7.5%
- Local youth community: 36.4%
- Religious personality: 24.5%
- Locally Elected Representatives (Union Parishad): 48.2%
- Local Government Officials/GO: 74.9%
- NGO/NGO Samity: 57.8%

Legend:
- Climate change Adaptation (%)
- Climate change Awareness (%)
### Ranking of the most Important Stakeholders for addressing climate change impact

<table>
<thead>
<tr>
<th>Ranking of the most Important Stakeholders for addressing climate change impact</th>
<th>climate change Awareness</th>
<th>climate change Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGO/NGO Samity</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Local Government Officials/Government</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Locally Elected Representatives (Union Parishad)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Religious personality</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Local youth community</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Political personality</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Civil society</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Social / Cultural club</td>
<td>7</td>
<td>8</td>
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<tr>
<td>Local bazaar Samity</td>
<td>9</td>
<td>9</td>
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</table>

More than four-fifth (82.8%) of the Sundarbans Community reported that there are no GO/NGO initiatives for climate change adaptation in their locality.
Ways to Reduce Climate Change Vulnerabilities

• To reduce climate change vulnerabilities, more than four-fifth (82.0%) of the Sundarbans Community is willing to take responsibility and more than two-third (67.8%) is willing to take part in any activities.

• Nearly four-fifth (78.3%) of the Sundarbans Community reported that any kind of organizational intervention/support is needed for them to reduce climate change vulnerabilities.

• It is quite interesting that majority of the Sundarbans community put highest emphasis on Rigorous Awareness (81.0%) as a need to address the negative impact of climate change. Besides that, Financial Ability (56.1%) and Strong Social Linkage (44.2%) are the two major needs to address the negative impact of climate change.

• More than one-tenth of the Sundarbans community needs Government support (18.6%) and NGO program (12.4%) to address the negative impact of climate change.
People’s Climate Change Adaptation Action Plan (PCAP)

PCAP is a community devised down-to-earth & practical climate adaptation action plan to document realistic, need-based and concrete adaptation options for addressing climate change impact in their respective community.

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>People’s Climate Change Adaptation Action Plan (PCAP) by the Sundarbans Community</th>
<th>Bagerhat</th>
<th>Satkhira</th>
<th>Khulna</th>
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<tbody>
<tr>
<td>1</td>
<td>Nursery and Organic Seeds (local plants, rice &amp; vegetable) development nursery</td>
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<td></td>
<td>Undertaking social forestry as a means of alternative livelihood and</td>
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<td></td>
<td>improving social inclusion for the marginalized groups/ Integrated</td>
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<td></td>
<td>Nursery &amp; Plantation to supply fuel wood for rural poor</td>
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<td>2</td>
<td>Individual and cooperative based agriculture/ Saline tolerated rice and</td>
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<td></td>
<td>vegetable cultivation using organic fertilizer to ensure food security</td>
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<td>3</td>
<td>Livestock project/ Goat rearing, Duck rearing, Dairy farm</td>
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<td>4</td>
<td>Integrated and mixed aquaculture development to ensure food security</td>
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<td>5</td>
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<td>Serial No.</td>
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<td>6</td>
<td>Project for training on handicrafts and cottage industry and providing financial support</td>
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<td>7</td>
<td>Community water &amp; sanitary service to provide drinking water and sanitation facilities</td>
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<td>8</td>
<td>Environment friendly crab cultivation</td>
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<td>9</td>
<td>Awareness raising on climate change for bio-diversity conservation and sustainable development &amp; livelihood through different cultural activities, environment and social development</td>
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<td>10</td>
<td>Environment friendly Chula/ cooking stove to protect air pollution, stop carbon emission, forest resource preservation, fuel savings and protecting women from health hazards</td>
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<td>11</td>
<td>Coastal livelihood development project by providing training on income generation activities</td>
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<td>12</td>
<td>Alternative income generation opportunities like ecotourism and processing of medicinal products.</td>
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<td>13</td>
<td>Fruit tree plantation in the homestead and adjacent areas with suitable species</td>
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<td>14</td>
<td>Early warning system for predicting climate change induced vulnerability of agricultural systems</td>
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<td>15</td>
<td>Apiculture (wild &amp; domestic honey productions &amp; sales, and also household nutrition)</td>
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</tbody>
</table>
The Circle of Hope
Looking towards gender-responsive climate resilient development approach

Climate change adaptation is a people’s issue, an issue of local governance
THANK YOU FOR YOUR KIND ATTENTION