Developing Post Graduate Course on Floodplain and Disaster Management

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Focus of the Presentation

- Floods In Bangladesh
- What type of Courses can be offered on Floodplain and Disaster Management
- Strength of Independent University, Bangladesh to offer post graduate course on Flood Plain and Disaster Management in collaboration with Can Tho University, Vietnam and Middlesex University, UK.
Bangladeshis make their way through the destroyed village of Kanchpur in 2004  Pavel Rahman / AP
Flooding is a Regular Phenomenon in Bangladesh
Bangladesh in Ganges Brahmaputra and Meghna Basin

The Ganges, The Brahmaputra, The Meghna River Basin

Total Basin Area 1.75 Million sq km

1.08 m Sq Km

GANGES

0.577 m Sq Km

BHUTAN

0.091 m Sq Km

BANGLADESH

CHINA

INDIA
Main Features of Floods In Bangladesh

- Some 1,360,000 million m$^3$ of discharge originates outside the country.
- Between 80 to 85% of this discharge is generated during June to October.
- Only 7.5% of the total catchment areas of the GBM river systems fall within Bangladesh.
- The rivers also carry 1.2 to 2.4 billion metric tons of sediments to the Bay of Bengal.
Types of Flood

- Normal Inundation
- Big River
- Flash
- Local Rainfall
- Tidal - due to Storm Surges
Causes of Floods in Bangladesh

**Short-term Causes**

1. Monsoon Downpour
2. Synchronization of Flood Peaks

**Long-term Causes**

1. Local Relative Sea Level Rise (7mm/year around the coastal areas of Bangladesh - Emery and Aubrey, 1990)
2. Inadequate Sediment Accumulation (5-6 mm/year - Khalequzzaman, 1989)
3. Subsidence and Compaction of Sediments
4. Riverbed Aggradations
5. Deforestation in the Upstream Regions
6. Damming of Rivers
7. Soil Erosion due to Tilling
8. Rapid Urbanization
9. Seismic (Earthquake) and Neo-tectonic Activities
10. Greenhouse Effect
Economic Sectors Affected by Flood

Income Generating Aspects
- Crops
- Fisheries
- Industries

Population and Ecological Aspects
- People
- Health and Sanitation
- Forest Flora and Fauna

Settlement and Planning Related Aspects
- Rural and Urban Settlements
- Transportation and Communication Infrastructure
Effects of Global Warming

- More evaporation in the Bay of Bengal
- More rainfall in the Himalayan foothill region
- Flooding between 20-40 percent more land than today
Effect of Sea Level Rise

A one meter rise in sea level would inundate 17% of Bangladesh (Ali and Huq 1989; See Figure 2), and a two meter rise would inundate the capital.
What Kind Of Courses Can We Offer?

- **MSc Course**: Regular graduates with versatile background
- **Diploma or Certificate Course**: Employees of Flood Hazard Related Programs
- **Short Course**: Community Workers or Volunteers at the Grassroots level
Proposed Courses for MSc in Floodplain and Disaster Management

A. Core Courses: (18 credits)
- Principles of Environment and Ecology
- Environmental Pollution and Mitigation
- Environmental Impact Assessment and Risk Management
- Business and Environmental Management
- Environmental Policies, Negotiations and Applications
- Research Methodology

B. Optional Courses (3 x 3 = 9 Credits)
- Flood Plain Resources (Geomorphology, Geology, Biodiversity, Land and Water Resources)
- Hazard Analysis and Risk Management
- Flood Intervention and Management
- Livelihood and Resilience (Socio-economic condition, health and sanitation, technological adaptation for agriculture, forestry, fishery and biodiversity, innovative practices etc.)
- Natural Resource Management and Development Planning
- Geographic Information System

C. Thesis (6 Credits)
The Independent University, Bangladesh (IUB) was established in 1993.
It established a second campus at Chittagong in 1999 and is the first private university, in Bangladesh to extend its teaching facilities to the port city of the country.
The University has 4 schools offering 15 undergraduate and 8 graduate programmes.
At IUB, we have a close-knit academic community with an enrolment of 3054 students of whom 69% are male and 31% are female.*
IUB employs a total of 125 full-time faculty. **
IUB Central Libraries in Dhaka and Chittagong campuses are a gateway to information for students, faculty and staff. The libraries contain over 21,000 volumes and subscribes to over 100 journals and periodicals. The libraries have online access to Emerald, Jstor, Oxford University Press Journal and Hinari. All books and journals titles can be accessed through IUB library online databases. The Chittagong campus has an American Corner for information on USA.
IUB Link Programmes

List of institutions:
- Hamline University, St. Paul, Minnesota (USA)
- Southern Illinois University at Carbondale (USA)
- Higher Education Consortium for Urban Affairs (HECUA), Minnesota (USA)
- University of Colorado at Boulder (USA)
- Brown University, USA
- The Centre for the Demography of Aging at Harvard University, USA
- The Department of Population and International Health at the Harvard School of Public Health, USA
- Middlesex University, UK
- Luton University, UK
- Pokhara University, Nepal

The University has also membership of a number of international academic associations which include:
- American Association of University Administrators (AAUA)
- Association of the Universities of Asia & the Pacific (AUAP)
- International Association of University Presidents (IAUP)
- International Association of Universities (IAU)
Undergraduate Programmes

- **School of Environmental Science & Management (B.Sc.)**
  Environmental Management, Population Environment, Land and Water Resources Management

- **School of Liberal Arts & Science (BSS)** Media & Development Communication

- **School of Business (BBA)** Accounting, Economics, Finance, General Management, Marketing, Management Information System (MIS)

- **School of Engineering & Computer Science (B.Sc.)** Computer Engineering Computer Science Computer Information System Electrical & Electronic Engineering Electronic & Telecommunication Engineering
Post Graduate Programmes

- MBA
- MSc Computer Science
- MSc Telecommunication Engineering
- MSc Computer Networks & Communications
- MSc Software Engineering
- MSS in Development Studies
- Master of Public Health (MPH)
- Master of Science in Environment Management
Disaster Related Courses in Masters in Public Health (MPH)

Environmental Sciences:

- **Elective I**: HSC-517: Environmental and Social Impact Assessment.
- **Elective II**: HSC-518: Natural Hazards, Risk Assessment & Disaster Management.
- **Elective III**: HSC-519: Geographic Information Systems-I.
<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ENV 501:</td>
<td>Sustainable Development</td>
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<tr>
<td>ENV 510:</td>
<td>Environmental Science and Pollution Control Policies</td>
</tr>
<tr>
<td>ENV 520:</td>
<td>Environmental Performance Evaluation</td>
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<tr>
<td>ENV 530:</td>
<td>Disaster Risk Management</td>
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<tr>
<td>ENV 601:</td>
<td>Wastewater Management</td>
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<tr>
<td>ENV 610:</td>
<td>Global Climate change and Adaptation</td>
</tr>
<tr>
<td>ENV 620:</td>
<td>Air Quality Management and Modeling</td>
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Undergraduate Level

- A compulsory course on “Natural Hazards, Risk Assessment and Disaster Management” for the students majoring in Environmental Management
- Geography Skills
- Advanced GIS
Strength of School of Environmental Science and Management

- Professors: 5
- Assistant Professors: 5
- Senior Lecturers: 1
- Lecturers: 8
- Junior Lecturer: 1
<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Last Degree</th>
<th>Specialization</th>
</tr>
</thead>
<tbody>
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<td>MS (BRAC University)</td>
<td>Disaster Management</td>
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Lab Facilities at SESM

- Environmental Chemistry Lab
- Environmental Biology Lab
- GIS Lab
- Computer Lab
Wishing a successful implementation of the proposed programme

THANK YOU