International Workshop On
Climate Change, Environmental Degradation and Migration

Connecting Emergency Preparedness and Response
With
Sustainable Development Through Reinforced Operational Capacities

By: Ahmed Kamal, Member NDMA,
Prime Minister's Secretariat, Government of Pakistan
(Geneva, Switzerland, March 29, 2011)
Sequence

- National Disaster Management System in Pakistan

- 2010 flood - Response

- Future Sustainability
Pakistan’s Geographical Setting
Glaciated Areas & Mountainous Region: Characterized by Flash floods, Avalanches, glaciated blockades/GLOFs, EQs, jungle fire and Land / mud slides.

Plains of Punjab & Sindh: The disasters include River floods, flash floods, hill torrential rains, EQs and droughts in southern Punjab and Sindh.

Coastal Belts: Coastal belt regions of Balochistan & Sindh are hit by Cyclones and Tsunamis besides flash floods.

Common to All: Floods, Flash floods, Droughts, EQs, Fire accidents, Health epidemics, Transport accidents, industrial accidents.
Historical Perspective

Pakistan a disaster prone country – compounded by frequency and nature of disasters

Since then:
- 2 Cyclones
- 2 Floods
- 2 Earthquakes
- 2 Land Slides
- 1 Complex Emergency

- Erosion of Economic Growth and Social Capital
- Unsustainable Development – Pakistan a developing country with emphasis on infrastructure development
- Difficult to achieve Poverty Reduction Goals
Some Major Findings of IPCC
Fourth Assessment Report (AR4), 2007

- 0.6 °C increase in average global temperature during the last century;

- Global temperature most likely to increase by 1.8 - 4.0 °C over the 21\textsuperscript{st} Century. This will be accompanied by:
  - Large changes of temperature and precipitation in different world regions, particularly in Central & South Asia;
Some Major Findings of IPCC
Fourth Assessment Report (AR4), 2007

- Considerable increase in Frequency and Intensity of Extreme Climatic Events (cyclonic storms, floods, droughts etc.);

- Large scale melting of mountain glaciers;

- Increase in average sea level by up to 0.6 m.

**All these changes will adversely affect various socio-economic sectors worldwide.**
Major CC-related Concerns of Pakistan

- Increased variability of Monsoon;
- More rapid recession of HKH Glaciers threatening IRS Flows;
- Reduction in capacity of natural reservoirs due to rise in snowline;
- Increased risks of floods and droughts;
Major CC-related Concerns of Pakistan

- Severe water-stressed conditions in arid and semi-arid regions;
- Food Insecurity due to reduced agriculture productivity;
- Upstream intrusion of saline water in the Indus delta; and risk to mangroves, coral reefs and breeding grounds of fish
Impact of Climate Change and Glacier retreat on UIB Flows

Assumed Climate Change Scenario (CCS):
△ Temp: +3°C, △ Glacier Area: - 50%

Main Results:
1. Annual flows reduced by 15%
2. Intra-Annual flow pattern considerably changed
New & Reinforced Disaster Management System In Pakistan

(Preparedness, Response, Relief, Recovery, Future Sustainability)
The NDM Act, 2010 provides for the following institutional arrangements:

- Disaster management commissions at national (NDMC) and provincial levels (PDMC)
- Disaster management authorities at each level of the government:
  - National (NDMA)
  - Provincial (PDMA)
  - District (DDMA)
- National Institute of Disaster Management (NIDM)
- National Disaster Management Fund (NDMF)
- National disaster management force
Policy and Strategy Framework

DISASTER MANAGEMENT ENCOMPASSES:

Priorities:
- Institution and legal arrangements for DRM
- Hazard and Vulnerability Assessment
- Training, Education and Awareness
- Disaster Risk Management Planning
- Community and Local Level Programming
- Multi hazard Early Warning System
- Mainstreaming DRR into Development
- Emergency Response System
- Capacity Development for Post Disaster Recovery.
National Disaster Management Commission (NDMC)

- National Disaster Management Authority (NDMA)
  - Federal Ministries / Departments / Technical agencies
    - Technical and Research Institutions of Federal Government
      - Tehsil Structure
      - Union Council
      - Community Board Organization (CBOs) / Citizen Community Boards (CCBs)
  - Donor / UN / Media / NGOs
- Provincial / Regional Disaster Management Commissions (PDMCs)
  - Provincial / Regional Disaster Management Authority (PDMA)
    - District and Municipal Disaster Management Authority
      - Media / Banks / Insurance / Private Sector
2010 Floods - Response

Under

New System of Disaster Management
Comparison of Severity

AFFECTED POPULATION

TOTAL AFFECTED – 20.18 MN

- Flood Pakistan
- Earthquake Pakistan
- Katrina Cyclone USA
- Nargis Cyclone Myanmar
- Tsunami Indian Ocean Basin
- Haiti Earthquake
Comparison of Severity

AREA AFFECTED (SQ KM)

AREA AFFECTED – 132,000 SQ KM
Coordination & Logistic Flow Mechanism Between NDMA, ARMY & Humanitarian Organizations

Based on relief deployment plan of International Organizations, Regional Hubs exercise control on the chains operating under Army Field Formations / District Governments.
**Comparison**

**DEATHS / INJURED**

- **DEATHS**:
  - 1961

- **INJURED**:
  - 2907

**Legend**:
- Deaths
- Injured

**Cases**:
- **Pakistan Floods**: Deaths 1,961, Injured 2907
- **Earthquake Pakistan**: Deaths 73,338
- **Katrina Cyclone USA**: Deaths 1,836, Injured 0
- **Nargis Cyclone Myanmar**: Deaths 84,537, Injured 19,359
- **Indian Ocean Tsunami**: Deaths 238,000, Injured 230,000
- **Haiti Earthquake**: Deaths 300,000, Injured 300,000
<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>People Rescued</td>
<td>1.4 m</td>
</tr>
<tr>
<td>Food Assistance</td>
<td>10-12 m / month</td>
</tr>
<tr>
<td>WASH</td>
<td>50 % Approx</td>
</tr>
<tr>
<td>Health</td>
<td>17.6 m</td>
</tr>
<tr>
<td>Shelter</td>
<td>1 m</td>
</tr>
<tr>
<td>Log</td>
<td>12000 tons air lifted</td>
</tr>
<tr>
<td>Relief Camps</td>
<td>103 / 5928</td>
</tr>
</tbody>
</table>
- Mode
  - Helicopter
  - Hovercraft
  - Boats
  - Field Rescue Teams

- People Rescued : 1.4 m
### Watan Cards

<table>
<thead>
<tr>
<th>Province/Region</th>
<th>Distribution Centres</th>
<th>Cards Processed</th>
<th>Amount Disbursed (Billion Rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>28</td>
<td>608,825</td>
<td>11.977</td>
</tr>
<tr>
<td>Sindh</td>
<td>41</td>
<td>586,329</td>
<td>10.663</td>
</tr>
<tr>
<td>KPK</td>
<td>27</td>
<td>203,259</td>
<td>3.952</td>
</tr>
<tr>
<td>Balochistan</td>
<td>09</td>
<td>106,089</td>
<td>1.952</td>
</tr>
<tr>
<td>AJ&amp;K</td>
<td>10</td>
<td>10,437</td>
<td>0.200</td>
</tr>
<tr>
<td>Gilgit-Baltistan</td>
<td>07</td>
<td>3,397</td>
<td>0.063</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>122</strong></td>
<td><strong>1,524,082</strong></td>
<td><strong>28.807</strong></td>
</tr>
</tbody>
</table>

Overall Coverage is 91%
Relief & Early Recovery Strategies

- Relief
  - Winter
  - Survival
  - Return
- Early Recovery
  - Shelter
  - Agriculture
  - Community restoration
  - WASH
  - Communication
  - Health
  - Education
  - Mainstreaming
New & Reinforced
Disaster Management System In Pakistan

Future Sustainability
Medium Term Plan (2011-2015)

- Focus on District Capacity Enhancement;
- Multi-Hazard Risk Assessment of Major Human settlements and Economic Centers;
- Technical Studies on Climate Change Associated Hazards;
- A more robust NIDM to continue DRM capacity building activities;
- Preparation/Updating of District and Provincial Disaster Management Plans;
- Training resilient communities through an extensive CBDRM activities;
Medium Term Plan (2011-2015)

- Assisting Technical agencies in developing comprehensive multi-hazard early warning systems;
- Mainstreaming DRR efforts in Provincial P&D Departments and line Departments;
- Gap Analysis and revamping local Response Capacities;
- Safer School and Hospital Initiatives
Guiding Principles of NDMA’s Mid-Term Plan (2011-2015)

- To address the full spectrum of DRM cycle;
- To ensure enhancement of capacities of scientific and technological agencies;
- Gender issues and environmental concerns are an integral part of the Plan;
- To recognize the importance of both structural and non-structural mitigation measures;
- To focus on building awareness, orientation and technical capacities of all the public and private sector stakeholders;
- Stressing creating public-private partnerships, networks of stakeholders at the federal, provincial and district level for better coordination;
- To ensure a pool of specialized personnel for managing DM institutions through NIDM.
On the basis of the experiences and lessons learnt, the following areas have come out to be the most critical for Robust DM System:

- Capacity Building;
- Building Response Capacities including Warehousing/strategic stockpiling;
- Advocacy;
- Information Management and communication Architecture;
- Mainstreaming DRR into Development; and
- Contingency Planning
Critical Areas for Future

- Pre flood management plan for the major climate change prone areas;
- Legislations to control habitation in the command area;
- Determination of escape route to channel the flood waters;
- Re location of villages on the safer ground;
- Strengthening of infrastructure by adoption of climate proofing measures
THANK YOU