

**SYMPOSIUM ON  
“EMERGING PHENOMENON OF UNTIMELY RAINS / FLOODS IN  
PAKISTAN”  
KEY NOTE ADDRESS  
BY  
ENGR. IFTIKHAR UL HAQ**

**Ladies & Gentleman**

It is my privilege to extend a warm welcome to all including the honourable speakers to this important Symposium on “Emerging Phenomenon of Untimely Rains / Floods 2011 in Pakistan”. Although a number of Seminars on this subject have been held in the past but recurrent floods continue to devastate vast areas, uproot millions of people, destroy crops, result in heavy loss of human and animal lives, destroy houses and infrastructure. Pakistan experienced floods of extra ordinary proportions in the year 2010 in the Indus River System. The 2010 floods are estimated to have caused over \$ 20.0 billion losses affecting about 40 million people, over 3.2 million hectares area, loss of 15% of cotton crop and tremendous loss of human and cattle lives. The flood of 2010 was followed by devastating rains and floods in the year 2011 especially in the province of Sindh. Over half a million hectares of area in Sindh alone was affected by rains and flash floods of 2011. All cotton area under water was damaged. About 50% rice and fodder crop was damaged. Claims of disaster management have proved to be seriously lacking in organization, coordination, availability of resources and resettlement plans and actions. As unusual rains and heavy floods have been a regular phenomena during the last 3 years, including the current year, Pakistan Engineering Congress decided to organize this Seminar with a view to highlight the colossal damages caused by rains and floods and to emphasize the need of addressing this issue, which is now continuously affecting the lives, properties, national assets, national economy and vast areas in Pakistan. The papers being presented by eminent authors highlight this issue with suggestions to address this menace through various short term and long term measures.

There is lot of talk about global warming. This is being considered a major factor affecting eco system resulting in untimely and heavy rains, floods, droughts, melting of glaciers due to rising temperatures etc. Forecasts about rise in temperatures, if true, will adversely affect agriculture, infrastructure, human and cattle life. Global warming resulting in unpredictable climate changes may cause changes in human behaviors as well.

Another sad aspect of our approach to disasters is that instead of building its own system for flood control and disaster management, Pakistan does not lose any time in appealing for international help. Pakistan needs to fully develop its manpower, water, oil, gas, coal, minerals, agriculture, services, science, technical and technology skills to become self sufficient in resources required for rapid economic growth, create safety against disasters and develop disaster management systems. The flood control measures may need strengthening of existing flood protection embankments, building new embankments wherever required, remodeling and rehabilitation of barrages to accommodate highest floods faced during the last 50 years or so, building of storage dams (these will substantially help flood control as well) modernizing and upgrading meteorology system, capacity building and increasing resources of Federal & Provincial NDMA's, increasing afforestation, strengthening support systems at local (tehsil and district) levels, capacity building of Flood Commission and modernizing flood

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warning systems etc. Pakistan & India can also consider to have a joint Flood Commission as cooperation between these two countries can help flood control and flood forecasting.

Ten papers related to the subject of the Symposium are being presented today. These papers deal with various aspects related to rains and floods and suggest ways and means to control floods, minimize losses and steps required for management of disasters caused by rains and floods.

1. The paper “**Adaptation to Untimely Floods**” by **Mr. Kamran Emami and Mr. Saeed Pour Shahidi** discusses challenges of flood engineering and strategies and approaches of flood management. They suggest “The most important challenge of the flood engineers in the 21<sup>st</sup> century is to design and construct safe and low cost hydraulic structures in the shortest possible time. Solution of this problem will, above all require, adopting a holistic and adaptive approach.”
2. The paper “**Estimating Flood – 2010-2011 Extent Using Satellite Remote Sensing Data in Pakistan**” by **Mr. Badar Ghauri** discusses damages, extents and constraints during the floods of 2010 and 2011. He suggests “A careful assessment of changes that occur in earth’s environment, forms a major milestone for effective disaster management. All these can be undertaken through the collection of accurate, reliable and comprehensive set of scientific data.” To augment his idea he suggests,
  - Use of radar images from the International Charter
  - Use of Archived Images and GIS data
  - Combined use of Temporal Optical and Radar Images
  - Use of Web Mapping Capability
  - Use of free Land Sat Images
3. The paper “**Emerging Phenomenon of Untimely Rain, Floods in Sindh and Ways to Mitigate their Damaging Effects**” by **Mr. Jam Mitha Khan** discusses floods by dividing them into three types:
  - Floods in River Indus
  - Rain storm and cyclone floods in coastal belt and central areas
  - Flash floods in hill torrents emerging from catchment areas of mountainous range on right side of Indus

He suggests that each type of flood can be controlled and mitigated by its own structural and non-structural remedial measures. Therefore, the remedial measures should be based on its particular type of flood in particular areas.

4. The paper “**An Appraisal of 2011 – Rain Damages in Sindh**” by **Mr. Asjad Imtiaz Ali, Mr. Javed Iqbal Bokhari, Qazi Tallat and Mr. M. Siddiqui** discusses the causes of 2011 Rain/Flood damages. To avoid such a situation in future he suggests:
  - Conducting comprehensive survey of all rain affected areas to identify flood risks

- Installation of pumps in ineffective gravity drainage areas
  - Formulation of district level Flood Management Plan
  - Enhancement of discharge capacity of drains
  - Up-gradation of flood protection facilities/ bunds on urgent basis
  - Restrict and Monitor settlements in low lying areas
5. The paper “**Multi-hazard Vulnerability Scenario for Disaster Risk Management in Karachi**” by **Mr. Yawer Ansari and Mr. Amir Sohail** lays emphasis upon the need for a tangible National Disaster Management Strategy to build resilience of cosmopolitan population in general and under that strategy they recommended that Multi-Hazard vulnerability Assessment of Karachi should be carried out. They suggest:
- Development of Seismic Hazard Microzonation (SHM) Maps based on Total Hazard using GIS techniques.
  - Preparation of Mitigation Strategies along with Contingency Planning.
  - Review of Existing Building Bylaws to mainstream Disaster Risk Reduction.
  - Capacity Building of Stakeholders for both Institutions and Communities to enhance the disaster resilience and response capacity.
6. The paper “**Unprecedented 2011 Rains / Floods in Pakistan and Action Needed**” by **Engr. Zafar Iqbal** highlights the causes and extents of damages of 2011 floods. He suggests that while making action plan for future flood hazards, due consideration should be given to the:
- Increase in discharge capacity of drains
  - Additional drains
  - Independent natural Dhoras Network and Syphons across Main Drains for diversion of Flows.
  - Control of Tidal Impact and Sea Water Intrusion by Construction of Outfall Structures.
  - Remodeling of Weirs and Increasing Size of Inlets and Culverts Constructed across Drains.
  - Identification and Strengthening the natural Depressions for enhancing their Storage Capacities.
  - Diversion of Storm Water to Deserts.

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7. The paper “**Rainfall Deluge Management – A Case Study of Sindh Province in Pakistan**” by **Mr. Muhammad Idris Rajput** highlights the existing available drainage system and its failure during the flood hazard 2011. He suggests the construction of drainage system in areas where it was absent in addition to the improvement existing drainage system.
8. The paper “**Disastrous Effects of Rain 2011 in Sindh, Pakistan**” by **Mr. Bakhshal Khan Lashari and Mr. Zarif Iqbal Khero** discusses the causes and effects of floods. They suggest following systems implementation to control disasters caused by floods:
  - Basin Flood Management
  - Integrated Flood Management Plan
  - Integrated Water Resources Management (IWRM)
9. Paper on “**Managing Floods in Pakistan : From Structural to Non-Structural Measures**” by **Dr. Asad Sarwar Qureshi** relates to the floods of 2010 and 2011 in Pakistan to anticipate climatic change which ultimately lead to rapid glacier melting in the Himalayas and increased variability of monsoon and winter rains and the loss of natural reservoirs. To accomplish this he recommends the following:
  - Enhance Flood Forecasting and Flood Warning Capacity
  - Restoration of existing Wetlands,
  - Proper Planning of Urban Development,
  - Improving preparedness and relief services
  - Increasing coordination between different Provincial and Federal Departments involved in water management and flood protection
10. Paper on Integration of Disaster Risk Reduction (DRR) into **Water Sector by Mr. Ahmed Kamal, Member (DRR), NDMA.**

According to Mr. Ahmed Kamal, Pakistan’s exposure to natural hazards and disasters could be ranked between moderate to severe. High priority hazards in terms of their frequency and scale of impact are floods, drought, earthquakes wind storms and landslides that cause wide spread damage and losses. According to him DRR, being operative at all levels and across sectors, the concerted effort of integrating it into development activities requires consensus and active participation of decision makers and planners at the national level and all related institutions, ministries with equal support from donor and development communities. He recommends mainstreaming of DRR into development.

In the end I would again like to thank you all for bearing with me for this key note address. It is time now for the honourable authors to present their papers and recommendations. Pakistan Engineering Congress will summarize the recommendations to be presented to the appropriate Authorities at the Federal & Provincial Levels.

**Pakistan Paindabad**