



An Overview of Disaster Management Training & Education in Pakistan



Dr. Muhammad Naseem Baig

PhD Tsinghua University, Beijing

Dean of College of Civil Engineering Risalpur

NUST Pakistan

E-Mail: drbaig@live.com

Dr. Manzoor Hussain

PhD University of Illinois at Urbana-Champaign, USA

Focal Person for Disaster Management and
Head of Transportation & Geotechnical Engineering

NUST Pakistan

E-Mail: mhussain@mce.nust.edu.pk

Cell # +92-323-5423733



UN-SPIDER INTERNATIONAL CONFERENCE

BEIJING, CHINA

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National University of Sciences & Technology

OUTLINE

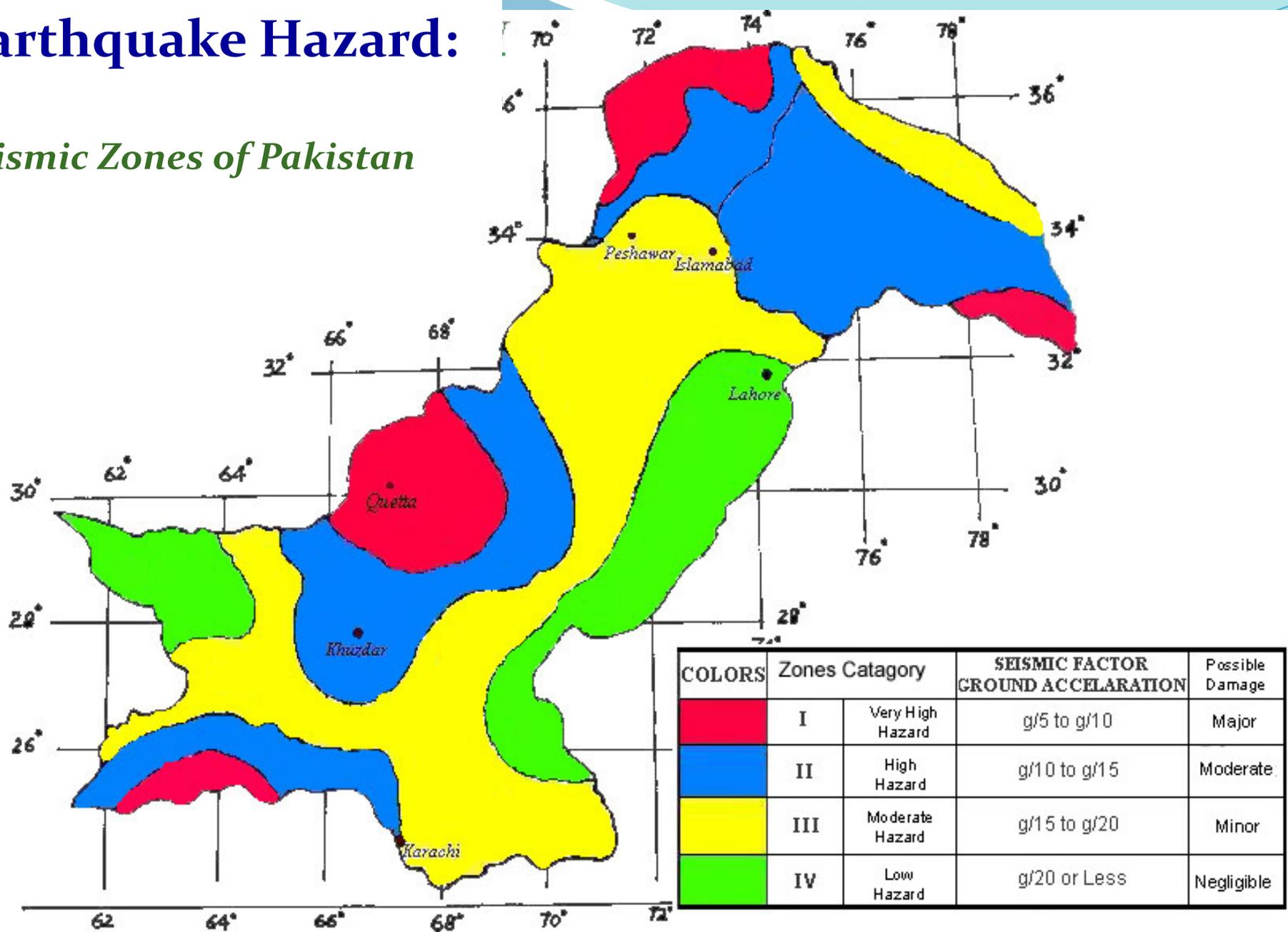
- **Disaster Profile of Pakistan**
- **Institutionalization of Disaster Management in Pakistan**
- **Genesis of Disaster Management Training & Education**
- **Introduction to National University of Sciences & Technology (NUST), Pakistan**
- **Disaster Management related programs being offered at NUST**



DISASTER PROFILE OF PAKISTAN

Earthquake Hazard:

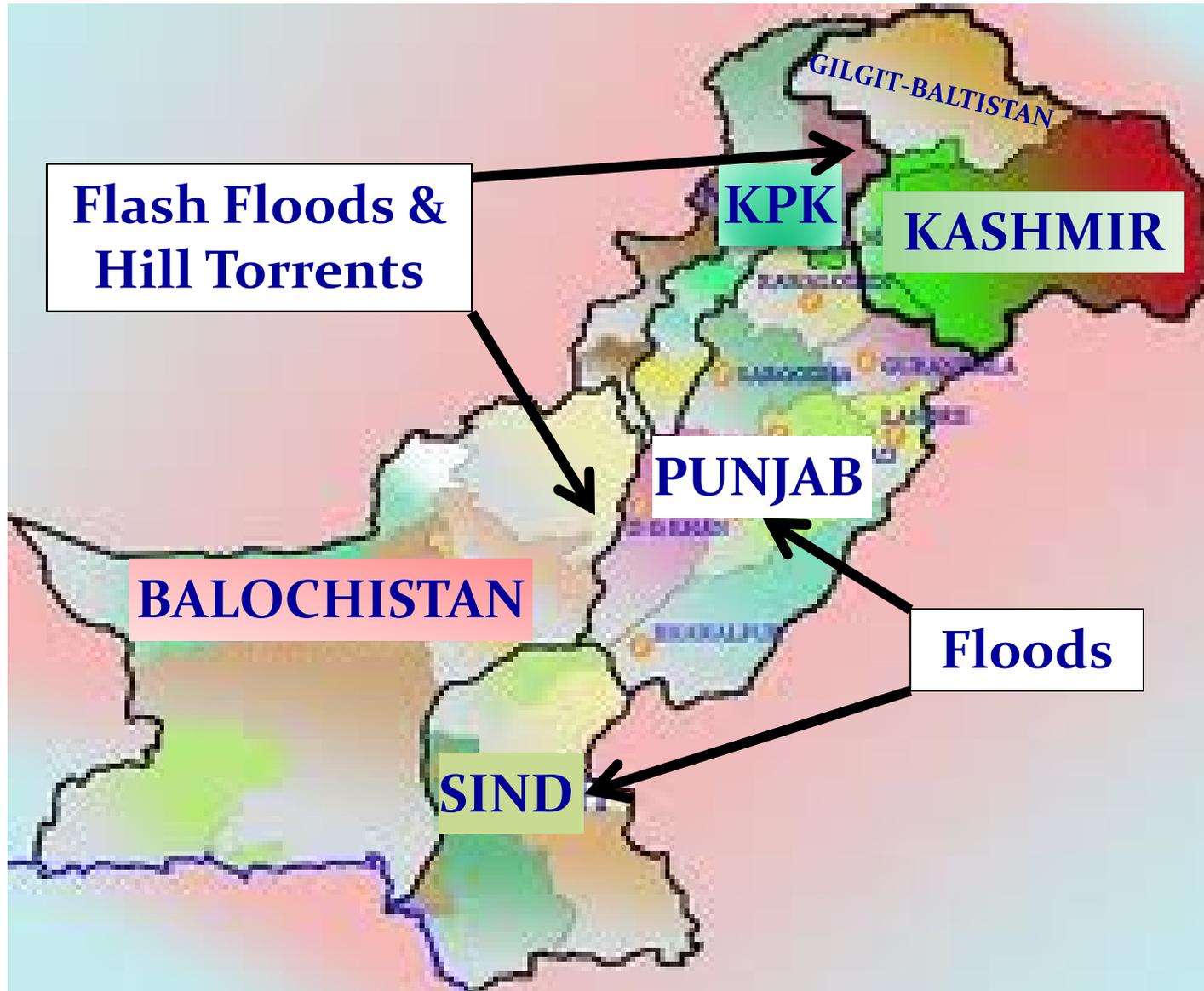
Seismic Zones of Pakistan



MAJOR EARTHQUAKES IN PAKISTAN

- **Quetta** - **1935**
- **Makran Coast** - **1945**
- **Northern Areas** - **1976**
- **Kashmir** - **2005**
- **Ziarat Earthquake** - **2008**

FLOODS



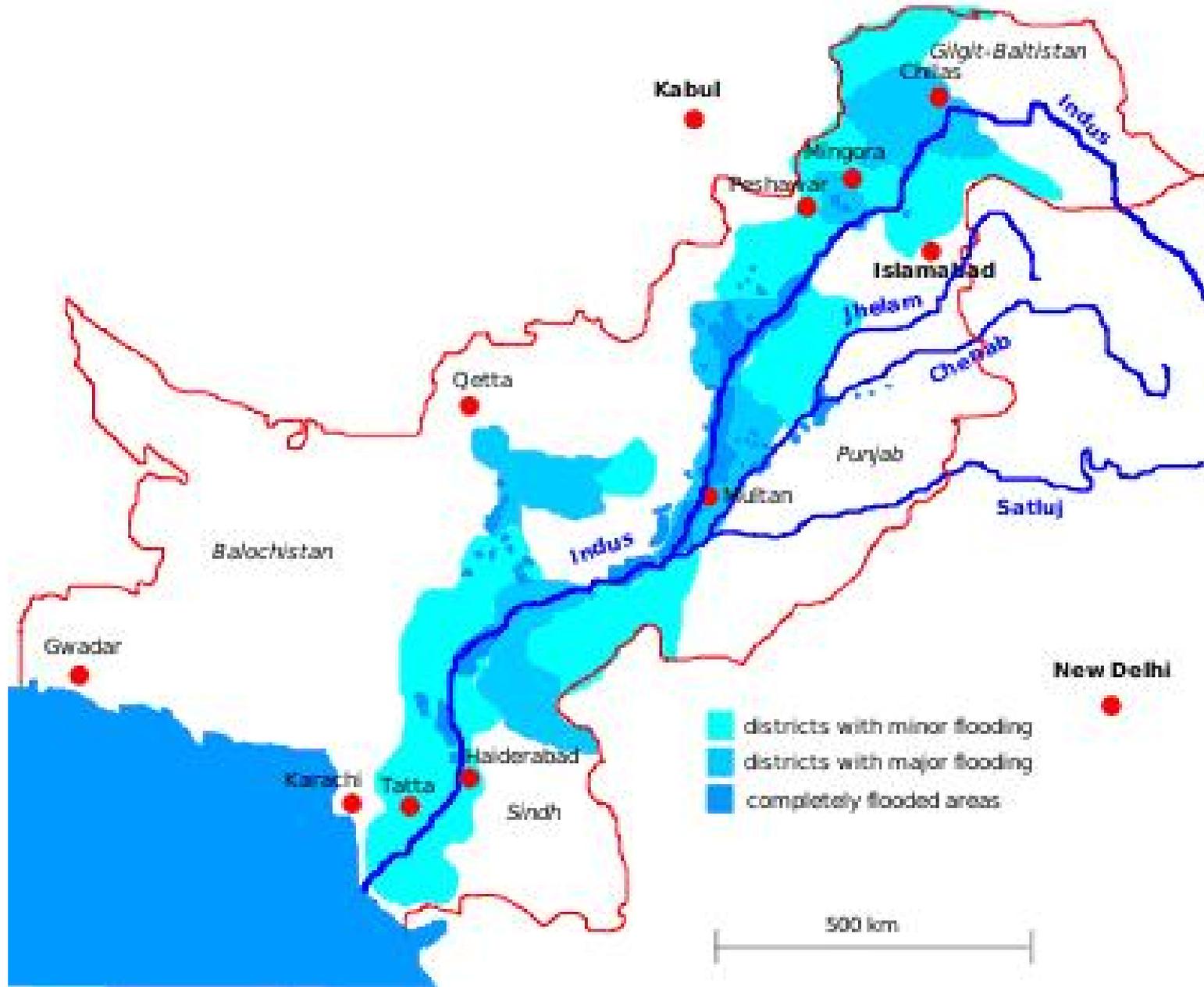
MAJOR FLOOD EVENTS IN PAKISTAN

Year	Lives Lost	Monetary losses (Billion Rs)	Villages Affected	Area Flooded (Sq. Miles)
1950	2910	9.08	10,000	7,000
1955	679	7.04	6,945	8,000
1956	160	5.92	11,609	29,065
1973	474	5.52	9,719	16,200
1975	126	12.72	8,628	13,645
1976	425	64.84	9,150	32,000
1978	393	41.44	9,199	11,952
1988	508	15.96	1,000	4,400
1992	1008	56.00	13,208	15,140
1995	591	7.00	6,852	6,518
1998	47		161	

MAJOR FLOOD EVENTS IN PAKISTAN

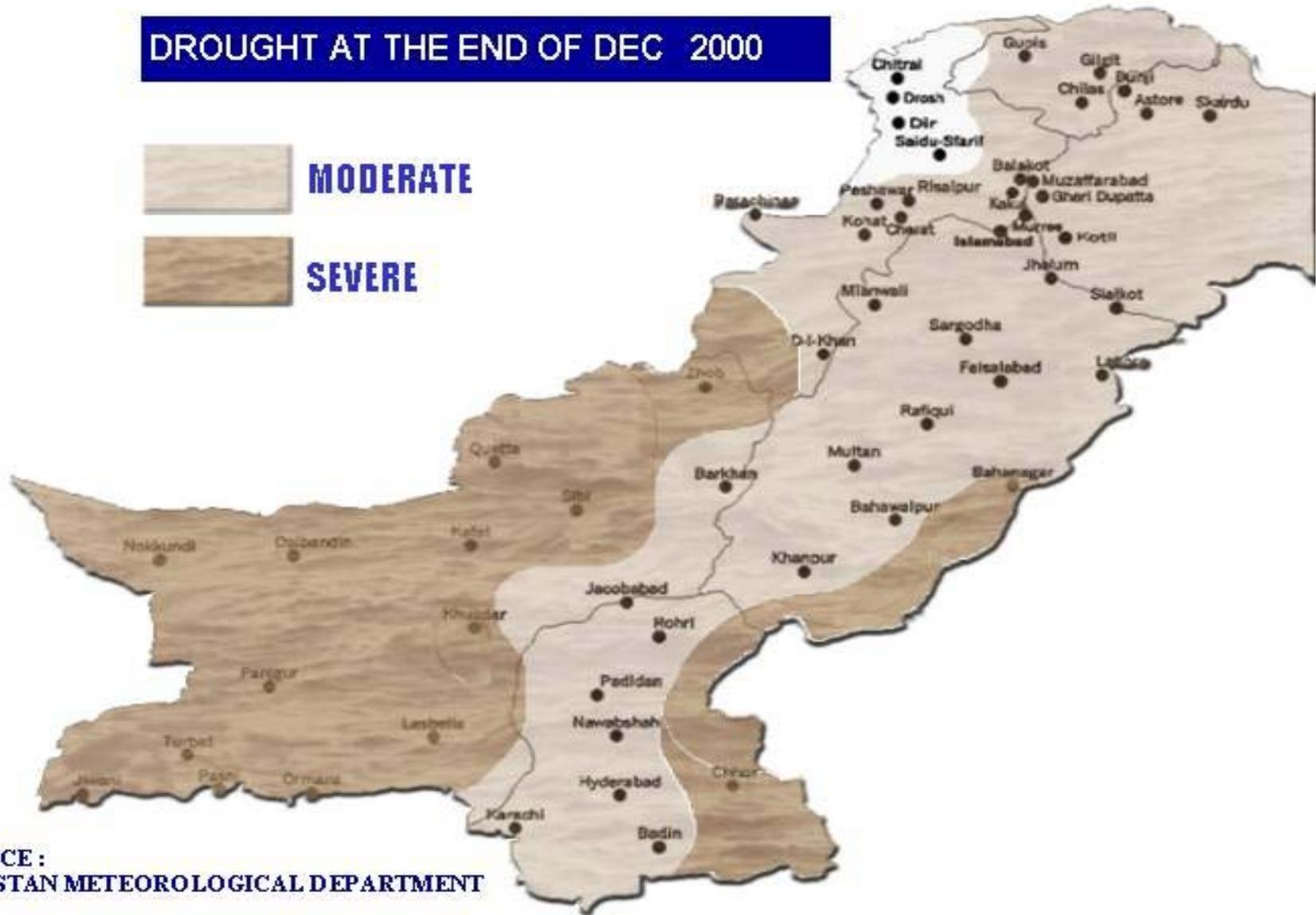
Year	Lives Lost	Villages Affected
2001	219	50
2003	484	4,376
2004	85	47
2005	59	1,931
2007	918	6498
2010	1985	20.18 M Personnel affected
2011	466	9.18 M Personnel affected

FLOOD AFFECTED AREAS 2010



DROUGHT

DROUGHT AT THE END OF DEC 2000



**SOURCE :
PAKISTAN METEOROLOGICAL DEPARTMENT**

MAJOR IMPACTS

- **1997-2002 Drought Period**
 - **People**
 - Died - 120
 - Affected - 2.2 M
 - **Livestock**
 - Died - 2.5 M
 - Affected - 7.2 M
- **The drought was termed as worst in the history of the country**

OTHER NATURAL HAZARDS

- **Landslides**

- Kashmir, Northern Areas and parts of the KPK are vulnerable to landslide hazard (Hattian Bala and Attabad Landslides)

- **Avalanches**

- Gyari avalanche is latest case in point
- Continuous threat in northern areas

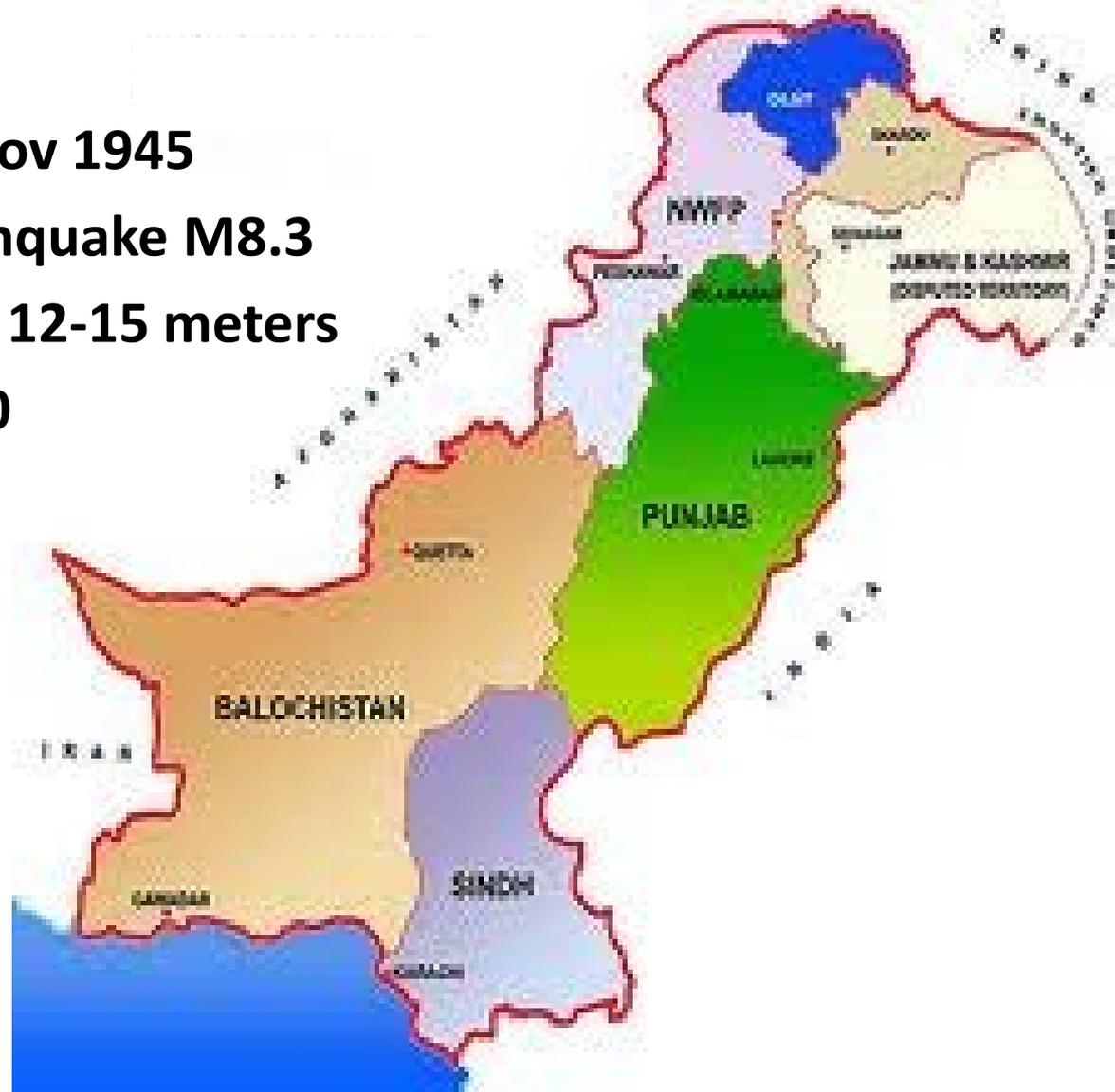
- **GLOF**

- Phenomena is more common in Indus Basin
- 52 out of 2420 lakes in Indus basin are continuous threat
- Global warming can increase the potential of GLOF

OTHER NATURAL HAZARDS

● Tsunami

- A big tsunami - 28 Nov 1945
- Cause - Earthquake M8.3
- Height of se waves - 12-15 meters
- Loss of lives > 4000



OTHER NATURAL HAZARDS

- **Cyclones/Storms**

- **Coastal belt of Pakistan (especially in Sindh) is highly vulnerable to cyclones**
- **Fourteen cyclones recorded : 1971 - 2001**
- **The cyclone of 1999 in Thatta and Badin districts wiped out 73 settlements, killed 168 people and 11,000 cattle. Nearly 0.6M people were affected.**



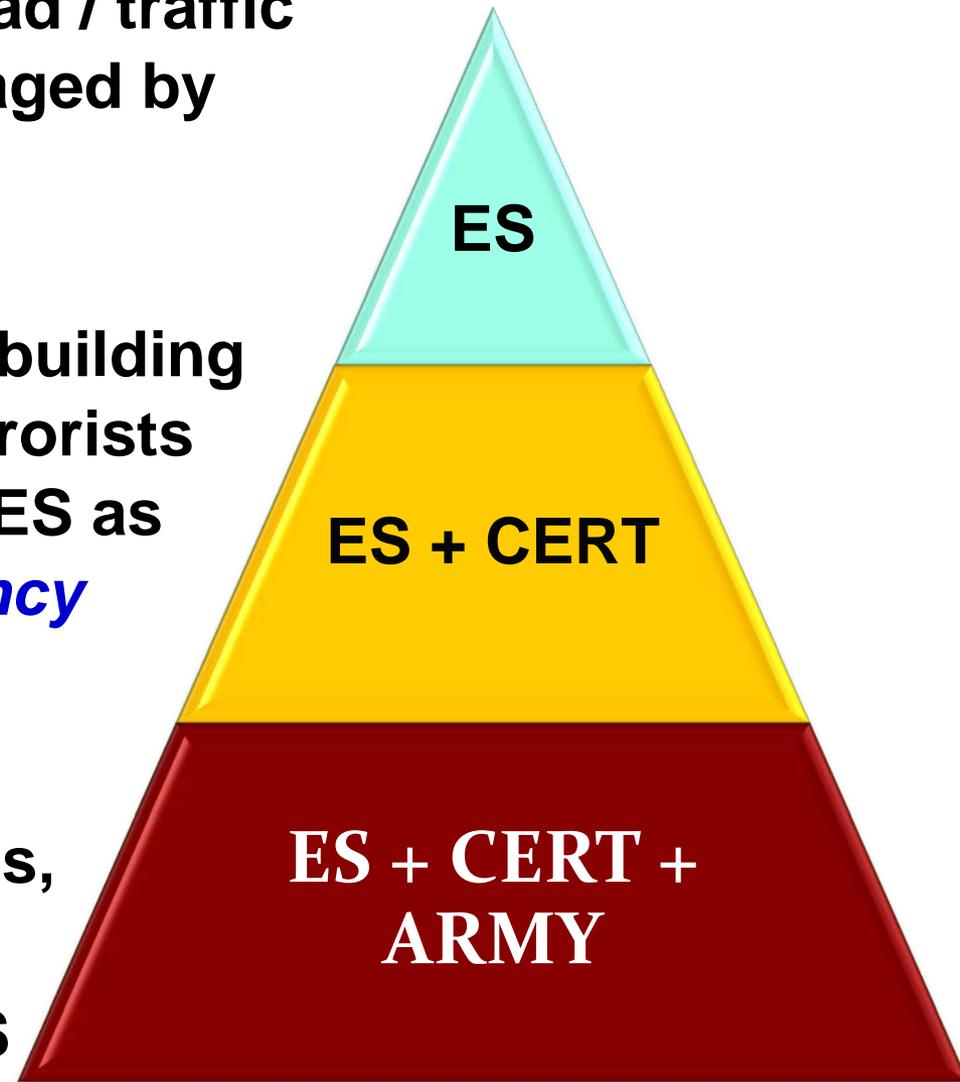
Institutionalization of Disaster Management in Pakistan

GENESIS OF DM ORGANIZATIONS

- **Reactive policy (Rescue and Relief oriented) till Kashmir Earthquake 2005**
- **Establishment of ERRA - 2006**
- **National Disaster Management Ordinance 2006**
 - **National Disaster Management Commission (NDMC)**
 - **National Disaster Management Authority (NDMA)**
 - **National Institute of Disaster Management (NIDM)**
 - **Provincial DMCs and PDMAs**
 - **District DMAs (DDMAs)**
- **National Disaster Risk Management Framework 2007**
- **National Disaster Management Act 2010**
- **National Disaster Response Plan 2010**
- **Ministry of Climate Change created - 2012**

DM RESPONSE TIERS

- Small scale disasters like road / traffic accidents, fires etc are managed by *Emergency Services (ES)*
- Medium scale disasters like building collapse, train accidents, terrorists attack etc are managed by ES as well as *Community Emergency Response Teams (CERT)*
- For large scale DM like floods, earthquakes etc, *Army* is called upon in addition to ES and CERT

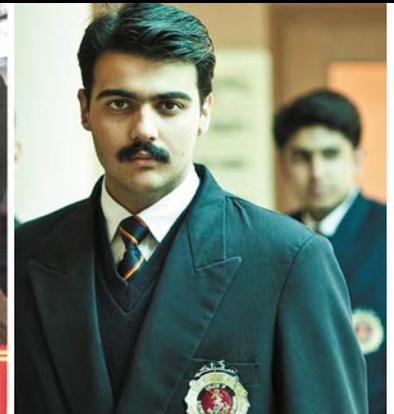




NATIONAL UNIVERSITY OF SCIENCES AND TECHNOLOGY (NUST)

HISTORICAL PERSPECTIVE

- **Established** **1991**
- **Awarded Charter** **1993**





Chancellor

- **Prime Minister**

Chief Executive

- **Rector**

Parent Ministry

- **Ministry of Science & Technology**

MISSION

To Develop NUST as a
Comprehensive, Research-led
University with a focus on
Technology,
Innovation and Entrepreneurship



UNIVERSITY RANKINGS

WORLD RANKING

- Top 500 (417th) Universities of the World
- Engg & IT: Top 250 Universities of the World

ASIAN RANKING

- Overall 108th University of Asia
- Engineering & IT: 53rd
- Life Sciences & Medicine: 87th

Source: QS World and Asian Rankings

ABOUT NUST

- **Constituent Institutions : 18**
- **Programs:**
 - **UG : 27**
 - **PG : 34**
- **Fields:**
 - **Engineering**
 - **IT**
 - **Medical & Bio Sciences**
 - **Management Sciences**
 - **Basic Sciences**
 - **Social Sciences**
 - **Art, Design & Architecture**





STUDENT POPULATION

Category	Strength
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UG	8,846
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MS/MPhil	2,240
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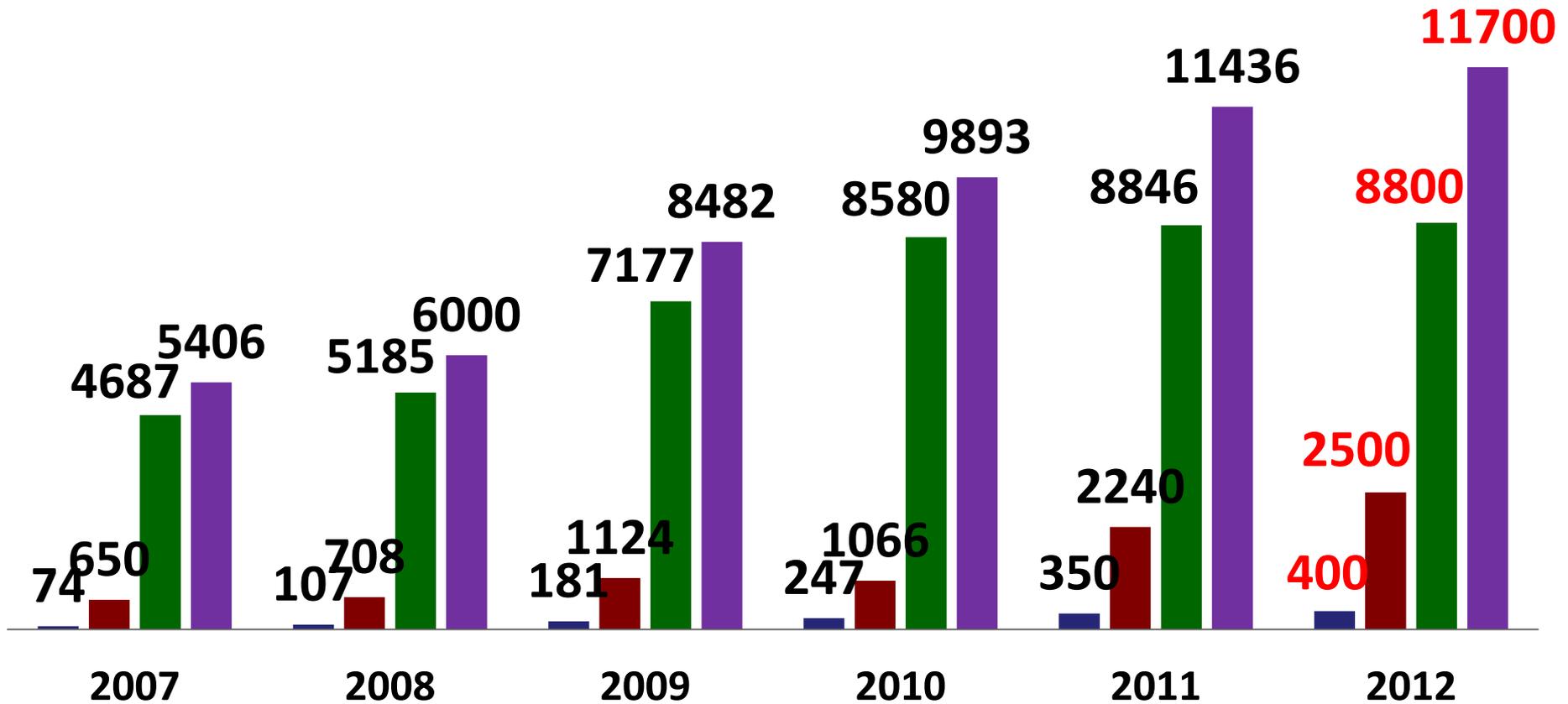
PhD	350
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Total	11,436
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PROGRESSIVE INCREASE IN TOTAL STUDENT STRENGTH

Increase: More than Double

■ PhD ■ MS/Mphil ■ UG ■ Total



A scientist in a white lab coat is operating a blue laboratory machine. The scientist is looking down at the machine, and their hands are on the top and side of the device. The background is a bright, clean laboratory setting.

FACULTY STRENGTH

- **PhD + Fellowships - 377 (45.8%)**
- **MS/MSc + MPhil + Memberships - 446**
- **Total - 823**

CIVIL ENGG COLLEGE & SCHOOL

- **Military College of Engineering (MCE) Risalpur**
 - **PG Programs in:**
 - **Disaster Management**
 - **Disaster Mitigation & Reconstruction Engg (DM&RE)**
 - **Construction Engg & Management**
 - **UG Program in Civil Engg since 1952**
- **School of Civil and Environmental Engg (SCEE), Islamabad**
 - **NUST Institute of Geo Informatics System (IGIS)**
 - **NUST Institute of Environmental Sciences & Engg (IESE)**
 - **NUST Institute of Civil Engg (NICE)**
 - **National Institute of Transportation (NIT)**

MILITARY COLLEGE OF ENGINEERING



GENESIS OF DM TRAINING & EDUCATION

- MCE started conduct of Program for Enhancement of Emergency Response (PEER) Courses under NDMA - **2007**
- Approval of training package for DM courses - **2008**
- First course in Disaster Management - **2009**
- PEER and DM courses organized so far - **19**
- Courses being scheduled per training year - **4**
- Two MS programs commenced from Fall 2012:
 - **Disaster Management (DM)**
 - **Disaster Mitigation & Reconstruction Engg (DM&RE)**



Disaster Management Related Programs being offered at NUST, Pakistan

DISASTER MGMT CURRICULUM

1. Fundamentals of Disaster Management
 2. Policies, Planning and Strategies for DM
 3. Disaster Risk and Vulnerabilities Assessment
 4. Disaster Preparedness and Response
 5. Disaster Recovery and Project Management
 6. **GIS &RS for Disaster Mapping & Management**
 7. Community Based Disaster Risk Mgmt
 8. Environmental Framework on Disasters
 9. Earthquake Disaster Assessment and Mitigation
 10. **Climate Forecasting and Early Warning System**
 11. Flood Hazard Assessment and Remediation
 12. Complex Humanitarian Emergency Management
 13. Public and Mental Health Aspects of DM, Psychotrauma
Consequent to Disasters
- Core Courses
- Elective Courses

DM&RE CURRICULUM

1. Fundamentals of Disaster Management
 2. **GIS&RS for Disaster Mapping and Management**
 3. Disaster Risk Assessment and Mitigation
 4. Adv Structural Analysis
 5. Disaster Risk Eval and Retrofitting of Existing Structures
 6. Seismic Design of Reinforced Concrete Structures
 7. Seismic Design of Masonry Structures
 8. Structural Dynamics
 9. Geotechnical Earthquake Engg
 10. Landslide Analysis and Mitigation
 11. Foundation Engg (Deep Foundation)
 12. Flood Hazard Modelling and Flood Forecasting
 13. **Climate Forecasting and Early Warning System**
 14. Earthquake Seismology and Earthquake Hazard
- Core Courses
- Elective Courses

CONCLUSIONS

- **Pakistan is highly disaster prone country with multiple types of threats**
- **Pakistan has reasonably progressed in developing DM related organization (NDMC, Ministry of Climate Change, DMAs etc.)**
- **Shift from reactive to proactive approach to deal with the disasters**
- **Steps taken to impart DM related training and education are encouraging**

Way Forward

- Carrying out research on DM related issues using latest scientific tools available that can be applicable to Pakistan and to the rest of world
- Planning to hold an International Conference on **Disaster Management** in second half of 2013



THANKS

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