



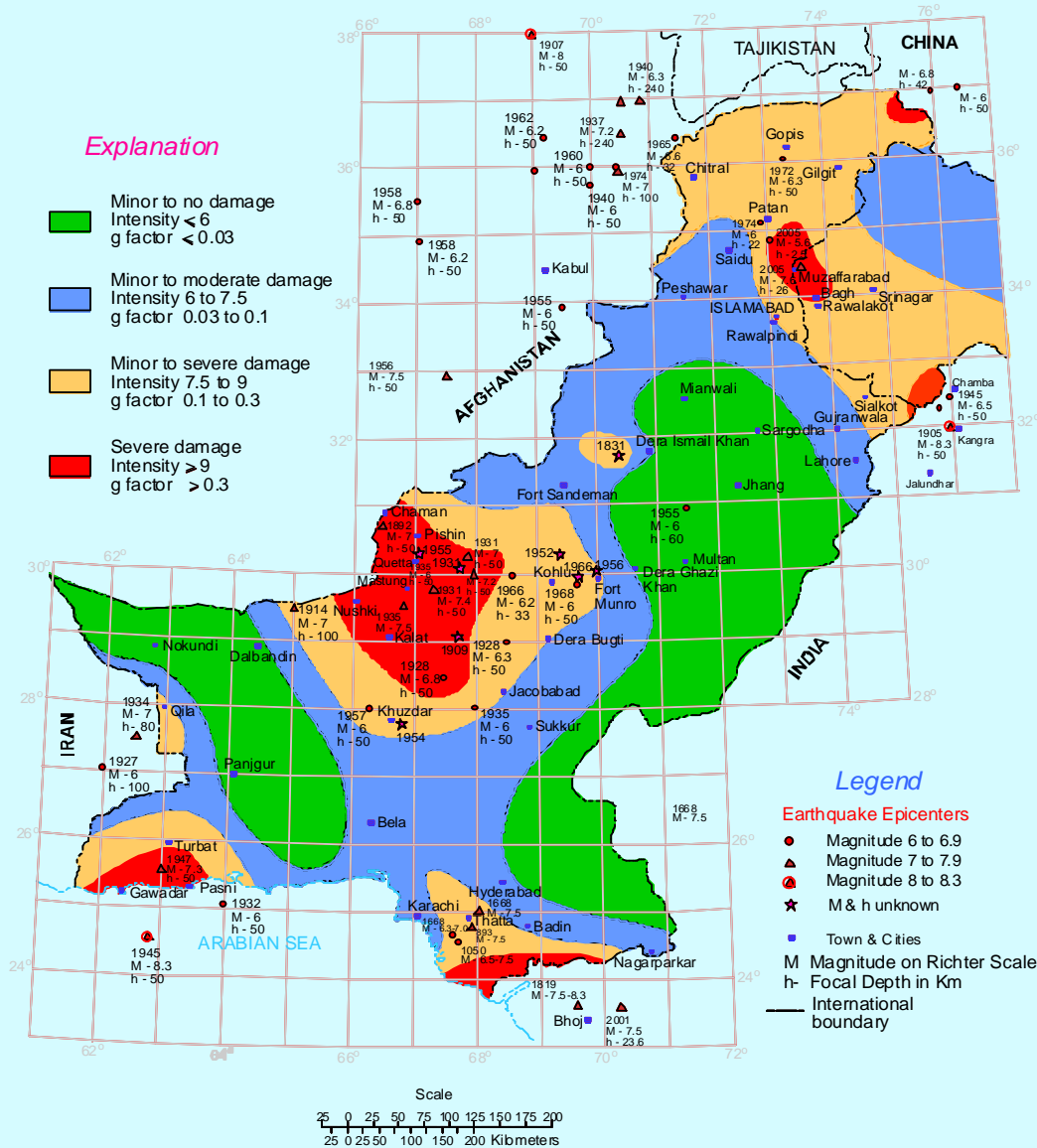
ACTIVITIES OF GEOLOGICAL SURVEY OF PAKISTAN ASSOCIATED WITH THE 8TH OCTOBER, 2005 EARTHQUAKE OF PAKISTAN

- **REVISION/UPDATION OF BUILDING CODE OF PAKISTAN**
- **PROBABILISTIC SEISMIC HAZARD ESTIMATION FOR THE ISLAMABAD AND RAWALPINDI AREAS**
- **PREPARATION OF LANDSLIDE RISK ASSESSMENT MAP OF EARTHQUAKE AFFECTED AREAS**
- **REPORT ON GEOTECTONIC SET UP AND STATUS OF EARTHQUAKE HAZARD STUDIES IN PAKISTAN**
 - **Geological Map of Pakistan**
 - **Tectonic Map of Pakistan**
 - **Seismo-tectonic Map of Pakistan**
 - **Seismic Hazard Zone Maps of Pakistan**



REVISION / UPDATION OF BUILDING CODE OF PAKISTAN

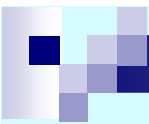
- Preliminary seismic design parameters and criteria for earthquake resistant design of buildings in Islamabad-Rawalpindi region
- Seismic design parameters, criteria and provisions for earthquake resistant design of buildings in Pakistan
- National Building Code which shall be completed under the stage shall incorporate the provision of earthquake resistant design practice



SEISMIC HAZARD ZONES OF PAKISTAN

G factor /damage zone of different cities of Pakistan

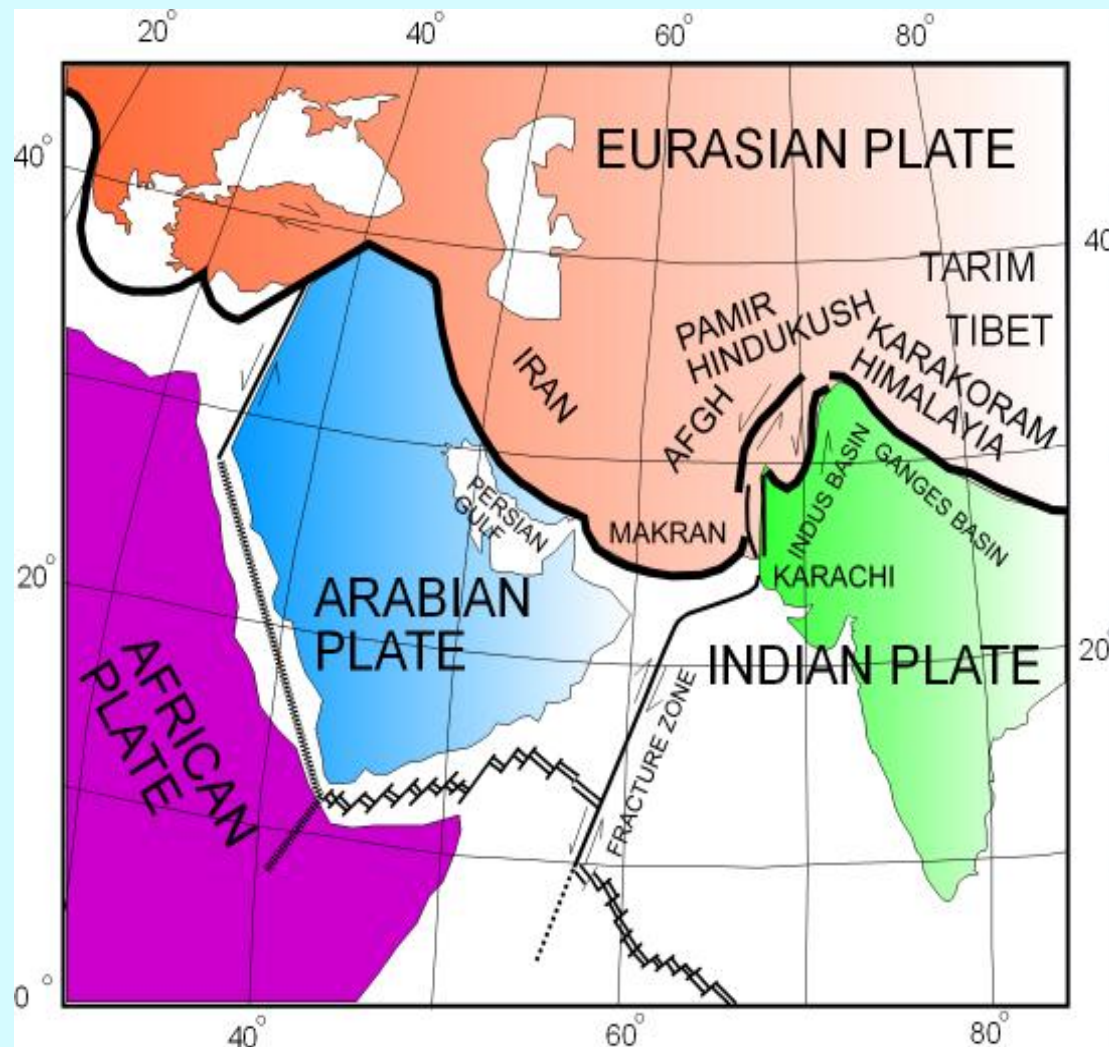
Cities	Damage Zone classification	G factor
Nokundi, Dalbandin, Panjgur, Bhawalpur, DG Khan, Multan, Bhawal Nagar, Faisalabad, Jhang, Sargodha, Mianwali	Zone I Minor	$g \leq 0.03$
Bella, Sukkur, Zhob, Bannu, Kohat, Gujranwala, Lahore	Zone II Minor to moderate damage	$g = 0.03-0.1$
Islamabad/Rawalpindi Turbat, Kohlu, Jacobabad Dera Bughti, Khuzdar, Karachi, Thatta, Sialkot Jehlum, Peshawar Chitral, RawalaKot Abbottabad	Zone III Moderate to severe damage	$g = 0.1-0.3$
Quetta, Mastung, Noshki, Kalat, Chaman, Pishin, Muzaffarabad, Balakot, Turbat, Pasni, Gwadar & Run of Kuch	Zone IV Severe damage	$g \geq 0.3$



Assessment of earthquakes and related hazards in the earthquake hit areas

- Probabilistic Seismic Hazard Estimation for the Islamabad & Rawalpindi areas
- Preparation of Landslide Risk Assessment Map of Earthquake affected areas
- Landslide Risk assessment Map of Hattian Bala Landslide
- Potential Hazards of Landsliding and Mitigation Measures of Earthquake hit areas
- International Conference on 8th October 2005 Earthquake in Pakistan, its implications & Hazard mitigation

- Pakistan is surrounded by active tectonic zones which passes through Himalayan Karakoram regions, Afghanistan and Iran





Collaborative Projects

- Mapping Project of the Surface Fault Ruptures Associated with 2005 Earthquake, Pakistan
(Japan)
- Neotectonics and Quantification of Current Post-Seismic Deformation after the October 08, 2005 Earthquake
(France)
- Investigation of Landslide Mechanism in the area affected by Earthquake
(UK)
- Risk Evaluation of Landslide reoccurrence by the Aerial Photo interpretation and the AHP Decision.
(Japan)



Structure for Disaster Risk Reduction and Response

- National Disaster Management Commission
- National Disaster Management Authority
- Provincial Disaster Management Commission
- Provincial Disaster Management Authority
- District and Municipal Disaster Management Authority
- Tehsil and Town Structure and Responsibilities
- Community Based Organizations



National Disaster Management Commission

- Policies on Disaster Risk Management
- National Framework Plan
- Plan preparation for Ministries/Divisions
- Guidelines for Federal & Provincial Authorities
- Funds for Mitigation, Preparedness & recovery measures
- Support of other countries
- Prevention of disaster-mitigation-preparedness



Plan for Earthquake Hazard Mitigation

- Produce Seismological maps showing geographic distribution of earthquake
- Draw seismic hazard maps in terms of intensity, acceleration, velocity etc
- Draft seismic parameters for earthquake resistant codes
- Measure soil effects and produce microzonation maps
- Formulate plans for post-earthquake resistant code and disaster relief at regular intervals.



NEW SCHEME

**Establishment
of Institute of Seismotectonics
and Geohazards Studies
(2006 – 2011)**



Major functions of the Scheme

- **Seismology and Geophysics:** Responsible for seismic hazard zoning, isoseismal maps, risk assessment and prediction, microseismicity of active faults, analyses of seismic events and strong motion data, application of related geophysical techniques like gravity, magnetism, resistivity, electromagnetism, stress and strain measurements.
- **Seismotectonics and Engineering Geology:** Studies related to tectonic features, neotectonics, active fault systems, detailed surface geological mapping, sub-soil investigations, landslide studies and risk reduction measures, slope instability, groundwater studies, radon gas emission and geotechnical studies.