

SEISMIC HAZARD MICROZONATION (SHM)

A Step Forward to Earthquake Preparedness !

Seismic Hazard Microzonation has Applications in All Sectors of Development / Redevelopment:

- * SHM for Landuse Management
- * SHM for Infrastructure
- * SHM for Urban Development
- * SHM for Industrial Development
- * SHM for Defense and Strategic Installations
- * SHM for Seismic Retrofit
- * SHM for Nuclear Power Generation Plant and Nuclear Waste Disposal Site
- * SHM for Environment Impact Assessment (EIA)
- * SHM for a Project of any dimension . . .

Services Offered by HA&DM Group of DM&R Division, NESPAK

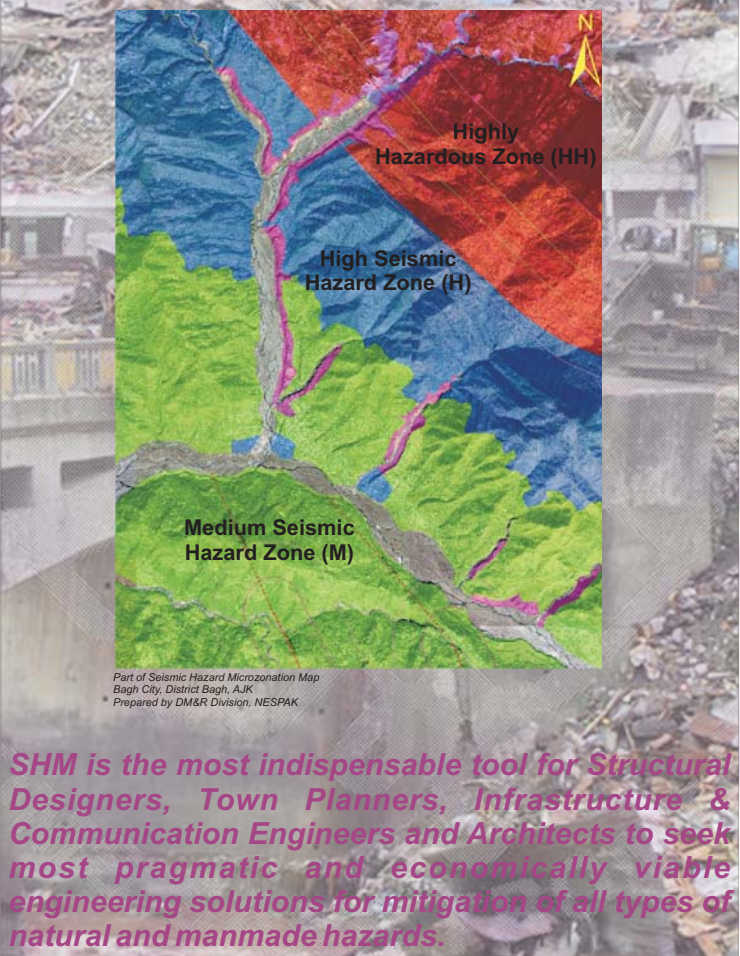
HA&DM group of DM&R Division (NESPAK) renders highly profound professional skills in the areas of

1. Hazard Based Reconstruction Suitability Assessment of about Eight Thousand (8000) Reconstruction Sites in all sectors of development.
2. Seismic Hazard Microzonation Studies for major municipalities of KPK and AJK such as Balakot, Muzaffarabad, Rawalakot and Bagh.
3. Seismic Hazard Microzonation Studies for delineation of more than Forty (40) areas for new settlements
4. Seismic Hazard Microzonation Studies of New Balakot City at Bakriyal, District Mansehra, KPK and about Twenty (20) Satellite Towns in District Muzaffarabad, AJK
5. Seismic Hazard Microzonation Studies for more than twenty (20) prestigious and major projects undertaken by ERRA, Government of Pakistan (GoP), World Bank, Asian Development Bank (ADB), Islamic Development Bank (IDB) and other international funding agencies , NGO's and CBO's.

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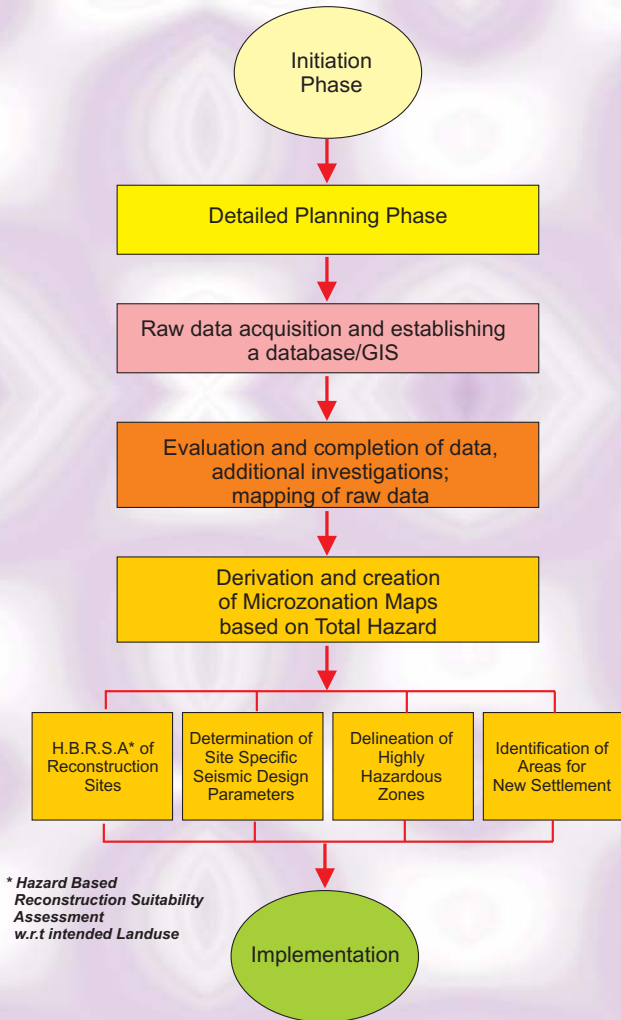
Seismic Hazard Microzonation (SHM) is the state of the art science to mitigate earthquake risk by Hazard Based Landuse Management.



SHM is the most indispensable tool for Structural Designers, Town Planners, Infrastructure & Communication Engineers and Architects to seek most pragmatic and economically viable engineering solutions for mitigation of all types of natural and manmade hazards.

At the same, it imparts vision to financiers, investors, planners, policy making experts in Government Enterprises and Non-Govt. Organizations to make appropriate decisions for sustainable development.

Work Methodology of SEISMIC HAZARD Microzonation Process



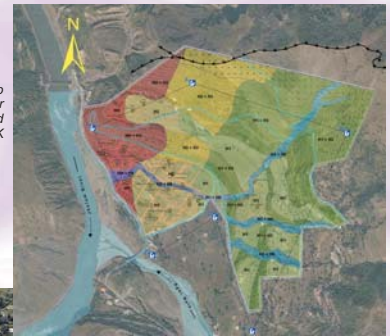
Total Hazard

SHM involves the process of identification and delineation of microzones of natural & manmade hazards based on the concept of Total Hazard.

Total Hazard involves the gross effect of all types of Direct and Indirect Natural & Manmade Hazards associated with an earthquake to which the area under study may be subjected within a defined of time.

As per requisites laid down by Disaster Risk Management (DRM) standard, all Buildings / Construction Codes should be respected as a minimum requirement. However, in perspective of area specific Geologic, Seismic & Geotechnical conditions and the implications of the intended landuse of proposed development, a relatively higher design spectra is generally required as described by SHM.

Seismic Hazard Microzonation Map
King Abdullah University, Chhattar
Kalas Campus Muzaffarabad
Prepared by DM&R Division, NESPAK



Mass Destruction in HFT Rupture Surface Zone, Balakot City, KPK, October 08, 2005 Earthquake



Margalla Tower Turned into a Heap of Rubble Islamabad City

Creation of SHM Maps involves the following major aspects:

- * Earthquake Hazard Parameters
- * Surface Faulting and Tectonic Deformation
- * Ground Shaking Intensity
- * Liquefaction, Ground Spreading and Settlement Susceptibility
- * Slope Stability Problems like Landslides and/or Rock Falls
- * Earthquake Related Flooding



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