

Risk and Vulnerabilities Assessment for Climate Change and Disaster Management (Core)

Code	Credit Hours
DM-806	3 – 0

Course Description:

Aims to introduce the students to different disaster risk and vulnerabilities assessment in the backdrop of recent climate change impacts and making them proficient in making such assessments for different types of disasters related to Pakistan. The students will be trained through field visits and through preparing their own risk and vulnerabilities assessments for disaster prone areas.

Course Content:

Topics	Learning Outcomes
Risk identification	Understanding of Risk and Hazards, Element at Risk and vulnerabilities, Types of vulnerabilities (social, political, economic and geographical), Scale of vulnerabilities (local, regional and national level)
Risk perception	Theories of Risk Perception, Underlying factors for Risk Perception, Biases of Risk Perception
Types, magnitude and frequency relationship	Risk and uncertainty, Certainty and probability, Hazard prediction - trend projection, Hazard prediction - magnitude/frequency analysis, Catastrophes
Climate Change and Vulnerability and Capacity Assessment (VCA)	Concepts and Purpose of VCA, Process of VCA, Outcome of a VCA, Community Based VCA, Climate Change-Disasters-Vulnerability Linkage, Disasters and development, Impact of Climate Change on vulnerabilities of under-developed nations
Formulation of Spatial Data (GIS)	Spatial data quality, decision making and policy analysis, the need for spatial metadata, deriving data quality information in GIS, Positional accuracy, Completeness and logical consistency, Attribute accuracy, Storing and displaying spatial metadata
The Use of GIS in Assessment and Planning	GIS Definition and Components (Geographic Information Framework, GIS Inputs and Outputs), The Potential of GIS for Environmental Assessment and Planning, GIS Applications and Techniques (Digital Mapping, Spatial Analysis, Modeling, Public Participation GIS), Setting the GIS Context (Mitigation Measures, Monitoring, Public Participation)
Hazard/ Risk mapping	Climate Change-triggered Hazard Mapping and Risk Assessment, Elements of Hazard Mapping, Approaches & Methodologies (Qualitative Risk Mapping, Quantitative Risk

	Mapping), Elements of Hazard Mapping (Data Requirements & Availability, Data Standardization, Target User, Scale, Cost and Accuracy), Types of Hazard Mapping (Flood, Landslide, Seismic), Community Hazard Mapping (Need for Community Hazard Mapping, Process/ Methodologies, Community Threat, Scientific Information, Land Use Planning, Risk Assessment), Overview of Hazard Mapping and Risk Assessment Initiatives in South Asia, Risk Profiling in Pakistan
Term-Project related to Hazard/ Risk Mapping	

Textbooks:

No textbook for this course. The course will be based on different reference books, reports, and conference and journal publications.

Reference Material:

1. What is VCA? An introduction to vulnerability and capacity assessment. Handbook: International Federation of Red Cross and Red Crescent Societies.
2. Vulnerability and Risk Assessment – Disaster Management Training Programme www.iaemeuropa.terapad.com/.../UN%20DMTP%20-%20Vulnerability.pdf
3. Disaster Risk Management and Vulnerability Reduction www.adpc.net/infores/adpc-documents/PovertyPaper.pdf
4. Multi Hazard Risk Assessment using GIS www.adpc.net/audmp/rlw/themes/th1-westen.pdf

Pre-requisite: None

Assessment System

Quizzes	15%
Assignments	10%
Mid-Semester Exam	25%
Term Project/Paper	10%
End Semester Exam	40%