GIS for Disaster Risk Management

Background

Rapid population growth and urbanization combined with extreme climatic events are causing a rapid increase in vulnerability of communities exposed to hazardous events. As a result, disasters are taking an increasingly heavy toll on life and property. Unplanned growth, both in urban and non-urban areas, calls for adequate preparation to reduce the impact of disasters. This creates a need to utilize disaster risk information during planning for effective coping mechanisms for disaster risk reduction.

Disaster risk information is spatial in nature and Geographic Information Systems (GIS) play an important role in disaster risk assessment and management. For this, there is a significant need to create awareness among the disaster management professionals regarding the importance of GIS usage.

Event Objectives

The main aim of this course is to provide an overview of the use of spatial information in disaster risk management. The course not only reveals what spatial data is and how it is collected, but also emphasizes the use of such spatial data during pre- and post-disaster management, such as during early warning, hazard, vulnerability and risk assessment, damage assessment, as well as in the design of risk reduction measures. The course ultimately hopes that scientific advancement can be utilized for better disaster risk reduction practices.

Learning Objectives

Upon completion of the course, the participants will be able to:
Define and describe basic concepts and terminology related to geospatial information technology
Explain the advantages and limitations of using geospatial information in disaster risk reduction
Apply basic methods and functionalities of GIS software (ESRI ArcGIS) to produce geographic information
Identify, access, search, collect, organize and analyze geospatial data relevant to disaster risk reduction
Produce basic maps using GIS Software
Apply GIS methods for disaster risk assessment and disaster risk reduction planning

CONTENT AND STRUCTURE

The course is structured around the following modules:

MODULE 1: Core/Basic Information
- Basic concepts and terminologies of disaster management
- Basic concepts of GIS and remote sensing
- Introduction to spatial information
- Handling spatial information (Introduction to ArcGIS)

MODULE 2: Post-Disaster Impact and Damage Analysis
- The use of satellite imagery for disaster relief and recovery
- Impact analysis and preliminary damage assessment
- Building damage assessment

MODULE 3: Pre-Disaster Risk Assessment
- Hazard Assessment
- Elements at risk and vulnerability assessment
- Types and methods of risk assessment, risk evaluation, cost-benefit analysis

MODULE 4: Risk Information for Risk Reduction Planning
- Risk evaluation
- Visualization of risk information
- Risk information and spatial planning

MODULE 5: Mini-Projects

METHODOLOGY

The course has a mixture of adult learning methodologies such as interactive lectures, discussion sessions and group exercises. A mini-project will additionally allow participants to practice GIS application in their own situation of selected hazard type and disaster management phase. Participants can bring their own dataset to the practice in the course, if they have any.

ADDITIONAL INFORMATION

This course is co-organized by the Asian Disaster Preparedness Center (ADPC), the Asian Institute of Technology (AIT), the Faculty of Geo-Information Science and Earth Observation of the University of Twente, the Netherlands (ITC) and UNITAR/UNOSAT.

There is no GIS prerequisite knowledge for participants who are interested in this course.

Interested persons can apply as individuals although preference will be given to those sponsored by an organization. Registration should be done through the ADPC website. An application form is available at http://www.adpc.net/training/download.
Find more information regarding this event here.

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