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Capacity building for Disaster Geo-information Management
www.itc.nl/unu/dgim
In 2005 the United Nations University (UNU) appointed the International Institute for Geo-Information Science and Earth Observation (ITC) as Associated Institution. The Mission of ITC is to “aim at capacity building and institutional development of professional and academic organizations and individuals specifically in developing countries and emerging economies” and is principally identical to the mission of UNU, which is “to contribute, through research and capacity building, to efforts to resolve the pressing global problems that are the concern of the United Nations, its Peoples and Member States”.

The UNU-ITC School for Disaster Geo-information Management (DGIM) was established in 2006. The main objective of DGIM is to support capacity building of organizations in developing countries through training of individuals in the collection, management, analysis and dissemination of spatial information before, during and after disaster events, in order to reduce the impacts of natural and related environmental hazards.

Worldwide we are faced with a rapidly growing number of disasters, due to increased vulnerability and climatic extremes. There is an urgent need to include the concepts of disaster risk management into planning, sustainable development and environmental impact assessment. The evaluation of the expected losses due to hazardous events requires a spatial analysis, as all components differ in space and time, using tools that handle spatial information, such as geographic information systems (GIS).

One of the important requirements to carry out an effective disaster risk management is capacity building and training of disaster management experts and professionals. The Hyogo Framework of action 2005-2015 of the UN-ISDR indicates risk assessment and education as two of the key areas for the development of action in the coming years.

Research

Within DGIM much attention is paid to knowledge development and research collaboration. This is realized through research projects, PhD research, and visiting scientists. Research projects are mostly through Netherlands funding, the European Commission, or through research agreements with partners in other countries (e.g. in India, Thailand and China). Currently, around 20 PhD researchers are enrolled in research projects under DGIM. Some of the topics of PhD research are:

- Multi-hazard risk assessment and management
  - Geoinformation for measuring urban vulnerability: Lalitpur (Nepal) and Medellin (Colombia)
  - SDIS for urban vulnerability reduction of slum areas in Ahmedabad (India)
- Multi-hazard risk assessment for an urban area (Yen Bai town), Vietnam.

Landslide hazard and risk assessment

- Multi-scale landslide risk assessment in Cuba
- Modelling the effect of vegetation on debris flows (Kerala, India)
- Runout assessment of mountain hazards (Italy and France).

Flooding

- Integrating local knowledge into GIS-based flood risk assessment (Naga City, Philippines)
- Flood modelling (Ethiopia).

Earthquakes

- Empirical relations from topographic and geotechnical effects on soil response (Costa Rica)
- Seismotectonics of the Magadi basin: InSAR (Kenya)
- Earthquake induced landslide dams. A case study from Schuine, China.

Land degradation

- Soil predictive modelling and spatial analysis (Thailand)
- Scaling spatial variability of rainfall and erosivity (Cape Verde)
- Hyperspectral remote sensing and soil properties for erosion modelling (Ethiopia).

Partner institutes/partner organisations

The School has contacts with a large number of organizations. Some of these are:

International

- UN-ISDR; UNOOSA; UN-ESCAP; UNU-BHS; UNU-ISS; Kopernikus; GMES; IRC; WFP; FAO.
- Asia
  - CDUT / SKILP, China; IRS, MIRC, GIS, NIDM, India; Gadjah Mada University, Indonesia; NCEO, Pakistan; ICM/DG, IIR, Nepal; AICTD, Sri Lanka; PGSI, Sri Lanka; APOC, AIT, Thailand; RIGMR, Vietnam.
- Africa
  - UCFD, Kenya; Makerere University, Uganda; ARU, Tanzania; Federal University of Technol- ogy, Minna, Nigeria; Midlands State University, Zimbabwe; Moi University, Eldoret, Kenya; Uni- versity of Dakar, Department of Geography, Senegal.
- Latin America
  - CEPREDENAC, Central America; CSICA, UNAM, Mexico; CLAS, Bolivia; Universidad de San Car- los, Guatemala; CYTED.
- Europe
  - Universities of Vienna, Utrecht, Wageningen, Geneva, Barcelona, Milano, Dortmund, Caen, Grenoble, Oslo, Durham; IGN Norway; CNR-IPI, Italy; MTS, Belgium; BGR, Germany.

Advisory services

DGIM is involved in the implementation of several projects, varying from multi-year projects co-funded by the research programme of the European Commission, to short-term on-the-job training to local governments. In our project activities in Africa, Asia and Latin America, DGIM intends to collaborate as much as possible with their university network partners. Funding comes from the Netherlands government, European Commission, and International Organizations (e.g. Worldbank, UNESCO, USAID).
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