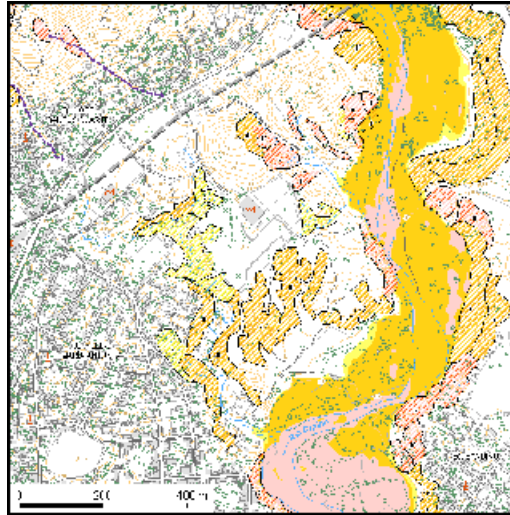


Surveying Geoinformatics

Elaboration of Large Scale Natural Hazard Maps, Nicaragua



Nicaragua is exposed to a range of the most violent natural hazards on Earth, including earthquakes, hurricanes, and volcanic eruptions. The mitigation of these hazards has become a national priority, particularly since hurricane Mitch caused massive losses of human lives, property and infrastructure in October 1998.

Natural hazard maps are an important tool in this effort, provided that those maps identify areas of high risk in order to ensure adequate land use planning at regional and urban levels. Furthermore natural hazard maps identify areas of safe refuge in case of evacuation and facilitate decision-making in case of emergencies.

The project addresses the lack of up to date and accurate hazard information at urban level in Nicaragua by providing innovative multi-hazard maps at a very detailed scale of 1:5,000. The maps cover the urban and peri-urban zones of the municipalities of Ciudad Sandino, Estelí and Ocotal, totalling an area of 110 km².

Hazard zones are delimited according to a three point scale (high – medium – low hazard) for the following themes:

- Seismic hazard;
- Volcanic hazard;
- Landslide hazard;
- Flood hazard.

Map production involves basic cartography at 1:1,000 scale, detailed hazard studies (fieldwork and computer modelling) and integration of all data into a Geographic Information System (GIS) for data analysis, map compilation, layout and printing.

Beside topographic and hazard mapping, the project has a strong institutional strengthening component aiming at enhancing the capacity of both the client organisation INETER and the municipalities in the elaboration of hazard maps and the preparation of mitigation measures for possible natural disasters.

Client:

Instituto Nicaragüense de Estudios Territoriales (INETER), Nicaragua

Main Data:

- Financed by: European Commission
 - Value of services: € 1.180.000
-

Execution:

2001 - 2002

Services:

- Basic cartography: aerial photography 1:5,000 and preparation of topographic maps 1:1,000 (digital and paper)
- Implementation of Geographic Information System (GIS) laboratories at INETER and the municipalities
- Conduction of natural hazard studies: seismology, volcanology, landslide and flood studies (including hydrologic and hydraulic modelling)
- Elaboration of multi-hazard maps at 1:5,000 scale using GIS
- On-the-job training and capacity building
- Preparation of technical manuals
- Dissemination of study methodology and results through workshops, printed and digital documents