

76 Flood Risk Management In The Upper Tisza Region Of Hungary: A Model-Assisted Stakeholder Approach

BACKGROUND

Because of escalating flood losses, the Hungarian government is concerned about its tradition of taking almost full responsibility for flood risk management, including flood prevention, response, relief and reconstruction. Government authorities would welcome more private responsibility, which economists view as important for providing market incentives that discourage development in high-risk areas. However, Hungarians almost unanimously regard the transfer of full liability for flood losses to citizens, especially those living in very poor areas, as unfair. The attribution of responsibility thus invokes fundamental questions of efficiency, equity and social solidarity in responding to extreme circumstances, especially in poor and vulnerable regions.



How much should people living in non-risk areas contribute to preventing losses and compensating victims in vulnerable

communities, and to what extent should those living or locating in high-risk areas bear the burden? One of the more controversial issues in Hungary, and throughout disaster-prone countries of Europe, Asia and North America, is thus the respective roles of the government and the private market in preventing and pooling disaster losses. Many countries have formally and differentially allocated liability for the financial consequences of extreme events by legislating public-private systems for reducing disaster risks and pooling losses.

OBJECTIVES

With financial assistance from the Swedish FORMAS, a pilot study carried out by IIASA with the Hungarian Academy of Sciences and Stockholm University developed and tested a model-assisted, citizen-participatory procedure for designing a public-private flood insurance system for Hungary with a focus on the economically depressed Upper Tisza river basin. A challenge for this three-year process was to identify the contending perspectives and preferred policy directions for flood risk management held by the stakeholders, and more concretely to identify a consensual policy path for a nation-wide, public-private insurance system.

ACTIVITIES

The project combined interviews with active stakeholders, a public questionnaire to 400 Hungarians and a stakeholder workshop. The stakeholders included government ministries, water authorities, insurance companies, environmental groups, local mayors and residents. A unique feature of this process was a spatially explicit computer model that simulated the economic consequences of different insurance-policy strategies to the government, insurance companies and residents in a pilot area.



ACHIEVEMENTS

The Hungarian stakeholders agreed to a radical change in current practices: Only insured flood victims would be eligible for additional financial assistance in the aftermath of a disaster. They agreed that a public-private flood insurance system should provide support for vulnerable regions, including subsidized premiums for low-income households and nation-wide cross-subsidized premiums.

FUTURE

This pilot study illustrates a new form of policy analysis that makes use of information technology in a participatory, stakeholder setting. As such, this study is relevant beyond Hungary and beyond the flood risk pooling issue. It will be of interest to all countries seeking social consensus for disaster risk management policies.



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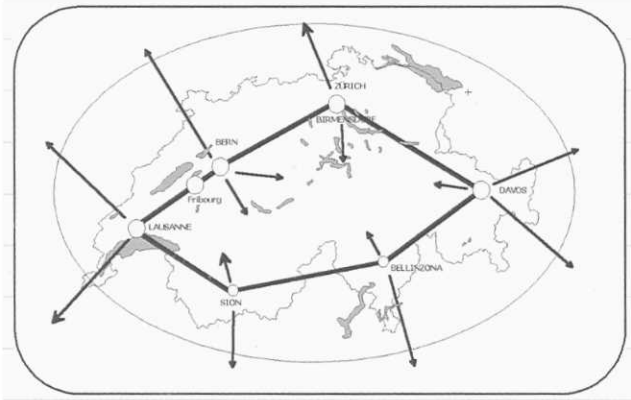
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BACKGROUND

The Swiss Virtual Campus (SVC) is a programme of the Swiss Confederation to support new information and communication technology in higher education. "Dealing with natural hazards and risks - NAHRIS (NATural Hazards and RISks)" is one of the 50 e-learning courses offered through SVC. It is a distance e-learning curricula created by the members of the NATural Hazards Competence Center (CENAT). CENAT is a network of the Swiss Federal Institutes of Technology and several Swiss Universities.

NAHRIS project partners include WSL/SLF Davos, EPF Lausanne, ETH Zürich, University Zürich, University Bern and University Fribourg. Our intensively settled human environment intersects more and more significantly with the world of hazardous natural processes. These processes are complex and their impact can be vast. Hence, dealing with risks demands a broad education in many sub-domains of the earth sciences and the socio-economic field. Inter- and trans-disciplinary training and education of professionals is therefore essential.



OBJECTIVES

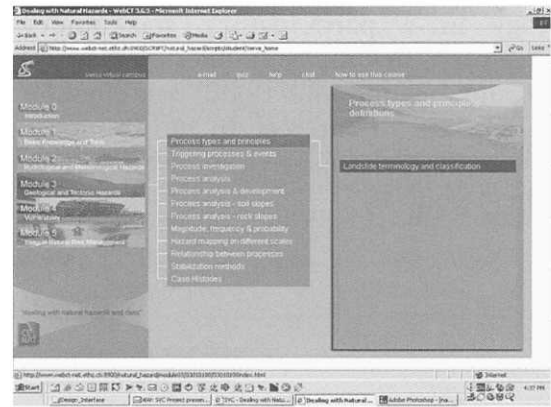
The objective of the NAHRIS is to provide a common educational and cross-disciplinary course program, available to a large number of students (approximately 200 students per semester) These e-learning lessons are prepared for students in higher university semesters, practical engineers and the employees of public services in a broad field of natural hazards and risks management. The modules are integrated into the ECTS credit point system at

Universities. Findings of current research are incorporated directly into the virtual classroom. The course also prepares students for collective tasks in the field.

ACTIVITIES

It consists of 5 modules covering all aspects of the natural hazard and risk domain. Modules are divided into thematic topic groups, where the basic learning object is the learning unit. Learning units are designed to be self-contained modular learning components that can be 'mixed and matched' according to the needs of the course into which they are being incorporated. The course language is English

■Module 1: Basic Knowledge and Tools: In this module, students learn about methods and tools applied in the field of natural hazards. This knowledge includes land survey, GIS technology, remote sensing etc.



■Module 2: Hydrological and Meteorological Hazards: The target of this learning unit is to briefly present the main types of hydrological hazards floods, fluid mass movements, snow avalanches, sediment transport and river erosion, glaciers and permafrost related hazards, and other water related hazards such as ice jam, and tsunamis.

■Module 3: Geological and Tectonic Hazards
Geological and tectonic hazards cover landslide and earthquake processes. This module transfers knowledge on process types, triggering mechanics, process investigation and monitoring as well as process analysis, and modeling and the relationship between different processes.

■ **Module 4: Vulnerability.** Vulnerability defined in this module is "the degree of damage or loss, in probability terms, inflicted on a structure or population of structures by a natural phenomenon of a given magnitude". This module covers the following topics: assessment, civil engineering structures, economical aspects, natural environment and risk reduction measures.

■ **Module 5: Integral Natural Risk Management:** Targets of this learning unit are to understand the conflict between man's land use and natural processes, to recognize the importance of debris cones and to see the influence of growing mobility and population pressure on nature. In addition it will be discussed the different reasons for people's need of protective measures and the importance of the cost-benefit approaches for protective measures.

LESSONS

The modular nature of learning units allows a great deal of flexibility in their application. The didactic relevance is dependent upon the lecturers' teaching strategy. The complex and huge structure of NAHRIS provides an excellent basis for learning units being integrated into a university curriculum or even special designed courses in the field of natural hazards and risks.



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