

Communication with Hazard Maps in Central America: A multidisciplinary science-media-community network (HazMap_CA)

Project Summary

Countries along the Pacific coast of Central America are exposed to high environmental risk from earthquakes, volcanic activity, tsunamis, meteorological hazards and landslides. Over the past two decades, disasters in El Salvador, Guatemala, and Nicaragua alone have caused over US\$9 billion in damage and affected more than 13.5 million people. Their exposure to these environmental hazards and their vulnerability to being adversely affected by them are exacerbated as a result of both the complex socio-political setting and approaches used in those countries for economic development.

Information about hazards and disasters is very commonly disseminated through maps. Hazard maps that are useful, usable and used have the potential to prevent disasters and build societal resilience. Although maps represent the important outward face of hazard research, they are cartographic representations of inherently complex information, with large associated uncertainties. Further, the effective understanding, perception, experience and usage of maps calls for multidisciplinary engagement. This proposal will bring together and form, for the first time, a network of researchers and practitioners to understand how hazard maps can be used more effectively to communicate hazard information with decision makers, emergency managers, NGOs, and the public before, during and after times of crisis.

The challenges that need to be addressed in doing this demand input from diverse groups, including academic researchers and practitioners and stakeholder groups. Further, while knowledge informed by Western scientific approaches has an extremely important role to play in hazard and disaster management, its utility remains limited if it is not brought into a meaningful dialogue with alternative approaches and understandings. Our intention is therefore to create a network that brings together expertise from natural sciences, cartography, visual geographies, landscape perception, media and communication studies and Central American development studies to facilitate engagement between disciplines that would not normally interact. In combination these can produce a more detailed and multifaceted understanding of how maps are used to convey hazards associated with the landscape. The network will involve bringing together existing, yet separate, working groups who are actively engaged in initiatives to address development and disaster preparedness in Central America. This will be facilitated through two workshops, one in the UK and one in Central America.

Our central aim is to address developmental issues in the region by strengthening existing emergency management systems and creating useful modes of hazard communication

that empower communities, enhance the effectiveness of communication and increase resilience.

Project Objectives

This proposal will bring together and form, for the first time, a network of researchers and practitioners to understand how hazard maps can be used more effectively to communicate hazard information with decision makers, emergency managers, NGOs, and the public before, during and after times of crises in Central America. Our central aim is to address developmental issues in the region by strengthening existing emergency management systems and creating useful modes of hazard communication that empower communities, enhance the effectiveness of communication and increase resilience. By crossing disciplinary boundaries, together we aim to produce a more detailed and multifaceted understanding of communicating hazards through maps. Hazard maps that are useful, usable and used have the potential to prevent disasters and build societal resilience. In particular we aim to optimise the quality and form of natural hazard information for decision-making, to be innovative in the delivery and visualization of research results, and most importantly better understand processes, approaches, outcomes and impacts in a holistic way.

The objective of this work is to establish a network that brings diverse groups together to scope research that can deliver results and meet developmental needs. We will focus on the communication of volcanic, seismic and landslide hazards via maps, and use case studies from El Salvador, Guatemala and Nicaragua. The three main interdisciplinary objectives are to:

1. Facilitate production of maps that are effective at conveying key information. Communication is pivotal to appropriate uptake and adaptation that results in increased resilience.
2. Facilitate the production of maps that support decision-making at governmental, community or personal level. This empowers all decision-makers, which again boosts resilience.
3. Understand how people's experience and knowledge of their landscapes can play an increased and more integrated role in disaster risk reduction and highlight the importance of 'unpacking' resilience.

The network will achieve this through a programme of activities including:

- (i) Strategic reviews to connect literature from diverse fields: To connect and identify common ground between state of the art literature from the diverse disciplines to provide a foundation for the later workshop discussions.

(ii) Partnership building: During the initial months we will focus on strengthening ties and building consensus around common objectives regarding hazard map development and communication.

(iii) UK Kick-off Workshop (Edinburgh): An initial meeting to introduce the network aims in the Central American context, to establish multidisciplinary interest groups and to scope research questions driven by development needs.

(iv) Communicating Hazard Maps in Central America Workshop (Guatemala): A meeting to establish, amongst other things, needs-driven priorities for the region (across El Salvador, Guatemala and Nicaragua), establish end-user and beneficiary groups (communities, NGOs, government Institutions) to define project outcomes so that in-country crisis response, preparation and planning are genuinely benefited.

(v) Conference Activities: We will make opportunities for participants to present findings at different disciplinary events, including to grow the network by recruiting further engagement; presenting outcomes of workshops and fine tuning research questions for future projects by engagement with the broader community.

(vi) Strategic Planning: A final phase will be to map out ways forward for the network and define long-term goals, identify funding opportunities and research groupings for both potential pilot studies and future large multi-disciplinary research initiatives.