



## **Mudflow Hazards in the Georgian Caucasus – Using Participatory Methods to Investigate Disaster Risk**

Valentina Spanu (1), Michael McCall (2), and George Gaprindashvili (3)

(1) Center for Advanced Studies, Research and Development in Sardinia (CRS4), Pula, Italy, E-mail: valespanu@crs4.it, (2) Centro de Investigaciones en Geografía Ambiental (UNAM), Morelia, Mexico, E-mail: mccall@ciga.unam.mx, (3) Ministry of Environment and Natural Resources Protection of Georgia, National Environmental Agency, Department of Geology, Tbilisi, Georgia, E-Mail: gaprinda1609@yahoo.com

The Caucasus form an extremely complex mountainous area of Georgia in terms of geology and the scale and frequency of natural disaster processes. These processes, especially mudflows, frequently result in considerable damage to the settlements, farmlands and infrastructure facilities. The occurrence intervals between mudflows are becoming significantly shorter, therefore the most populated areas and infrastructure need to be included in risk zones.

This presentation reviews the case of the mudflow problem in Mleta village in the region of Dusheti where the mudflow risk is critical. The villages of Zemo Mleta (Higher Mleta) and Kvemo Mleta (Lower Mleta) are entirely surrounded by unstable slopes where mudslides, landslides and floods are often generated. These hazards occur at least twice per year and sometimes result in severe events. In 2006 and 2010 in Mleta village a very severe mudflow event occurred creating heavy damage. This paper focuses on the recognition of the importance of cooperating with the local communities affected by these disasters, in order to get useful information and local knowledge to apply to disaster prevention and management.

In October 2010, the EU-financed MATRA Project (Institutional Capacity Building in Natural Disaster Risk Reduction) in Georgia included fieldworks in several locations. Particular attention was given to Mleta village in the Caucasus Mountains, where the activities focused on institutional capacity-building in disaster risk reduction, including modern spatial planning approaches and technologies and the development of risk communication strategies. Participatory methods of acquiring local knowledge from local communities reveal many advantages compared to traditional survey approaches for collecting data. In a participatory survey and planning approach, local authorities, experts and local communities are supposed to work together to provide useful information and eventually produce a plan for Disaster Risk Reduction/Management (DRR and DRM).

Participatory surveys (and participatory monitoring) elicit local people's knowledge about the specifics of the hazard concerning frequency, timing, warning signals, rates of flow, spatial extent, etc. And significantly, only this local knowledge from informants can reveal essential information about different vulnerabilities of people and places, and about any coping or adjustment mechanisms that local people have.

The participatory methods employed in Mleta included historical discussions with key informants, village social transects, participatory mapping with children, semi-structured interviews with inhabitants, and VCA (Vulnerability & Capacity Analysis). The geomorphological map produced on the base of the local geology has been realized with ArcGIS. This allowed the assessment of the areas at risk and the relative maps. We adapted and tested the software programme CyberTracker as a survey tool, a digital device method of field data collection. Google Earth, OpenStreetMap, Virtual Earth and Ilwis have been used for data processing.