Geo-enabled Information for Disaster Risk Reduction

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Disasters in the Hindu Kush Himalayas

The Hindu Kush Himalayan (HKH) region is prone to natural hazards due to its fragile geology, complex topography and relief, tectonic activities, and sensitivity to climatic variability. The region also has high levels of poverty, high population density, and governance issues, which make it more vulnerable to natural hazards.

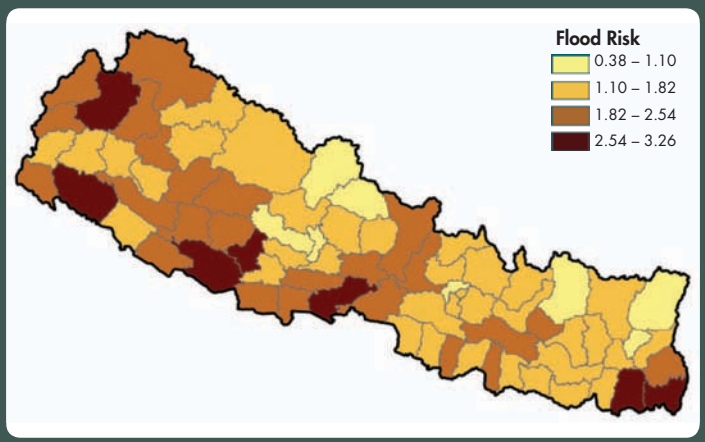
SERVIR-Himalaya and Disaster Risk Reduction

Information about the frequency, types, and location of disasters and their impacts is critical for providing a larger picture of disaster events and trends. One of the five priorities of the Hyogo Framework of Action (HFA) 2005—2015 is to build disaster-related knowledge for designing disaster risk reduction (DRR) strategies and interventions. In line with this, governments around the globe have developed national DRR portals as a one-stop gateway for disaster-related information.

ICIMOD, under the framework of the SERVIR-Himalaya initiative, has developed a disaster information management system (DIMS) as a component of a larger national DRR platform in Nepal.

The DIMS enables the spatial profiling of disasters, which can be integrated with historical records to generate policy-relevant information. The system also provides multi-level hazard, vulnerbality, and risk (HVR) assessement information based on geophysical and socioeconomic parameters. The system provides information on potential hazards, vulnerabilities, and risks in each of Nepal's 75 districts to help support informed decision making.

SERVIR is a regional visualization and monitoring system that integrates Earth observations, such as satellite imagery and forecast models, with in situ data and other information to support timely decision making. SERVIR is a joint initiative of USAID (United States Agency for International Development) and NASA (National Aeronautics and Space Administration). SERVIR-Himalaya is implemented in partnership with ICIMOD with an aim to bridge the gap between scientific knowledge and decision making through applications of Earth observation information in the Hindu Kush Himalayan region. Driven by the motto 'Connecting Space to Village', SERVIR-Himalaya works as a regional resource centre by developing relevant geospatial applications and creating enabling environments for their use.



Features of a Disaster Information Management System in Nepal

The geo-enabled disaster information management system features data and tools that provide easy access to disaster information.

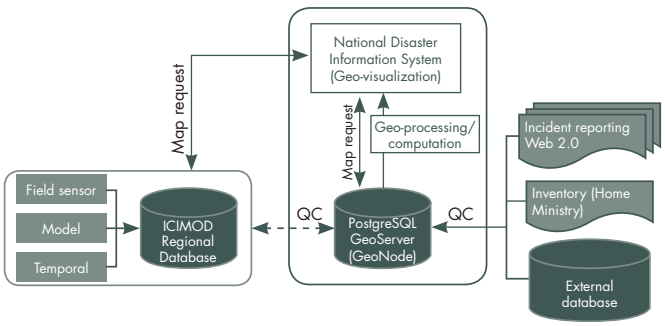
The DIMS hosts historical data from the Ministry of Home Affairs (MoHA) on disaster events from 2000 to 2013, including statistics on the impact of disaster in terms of economic losses, infrastructure damage, and human casualties. Disasters are divided into 18 categories. Data on major flood events, model outputs, and real-time data generated by ICIMOD are also available.

An interactive mapping interface provides statistics on different types of disasters at the regional, zonal, district, and Village Development Committee (VDC) levels, as well as the distribution of disaster impacts, in the form of maps, tables, and graphs.

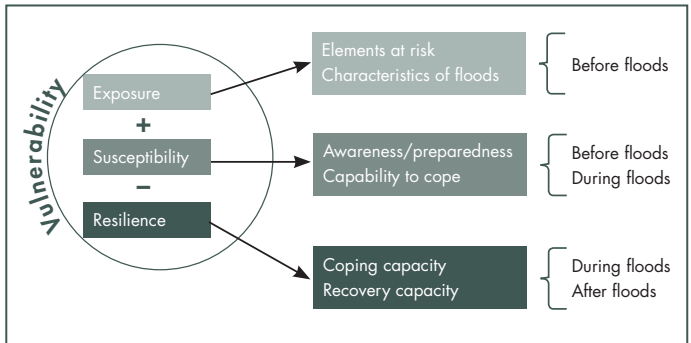
The DIMS has been integrated with the Disaster Risk Reduction (DRR) Portal developed by MoHA which can be accessed at www.drrportal.gov.np.

Hazard, Vulnerability, Risk Mapping at National and Sub-National Levels

A framework for hazard, vulnerability, and risk mapping (HVR) at the national and sub-national levels has also been developed. Profiles for all 75 districts in Nepal were developed using readily available datasets, primarily drawn from national population surveys and national agencies. At the sub-national level, flood analysis has been conducted for one pilot district (Ramechhap), which can be scaled up to cover other districts in Nepal.



System architecture of DIMS
The system operates on different spatial and temporal scales and is integrated with the Nepal DRR portal



Outline of the methodology for vulnerability assessment
Source: UNESCO Institute for Water Education

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