Fact sheet

Natural Hazard Mapping and Local Risk Management

Schweizerische Eidgenossenschaft
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Cooperación Suiza
en América Central

In October 1998, Hurricane Mitch struck Central America, leaving gaping wounds not only because over ten thousand persons perished, but also because entire communities were wiped off the map and the landscape was drastically altered. The pain was exacerbated by the mourning for the dead, changes in geography and the destruction of infrastructure, which in turn led to displacements and a worsening of people's living conditions, in particular among the most vulnerable sectors of the population.

Technical staff making a risk map in 2003 at the Dipilto mayor's office, province of Nueva Segovia, Nicaragua. © SDC

Considering the magnitude of the damage, the most urgent task was to rebuild and rehabilitate everything the hurricane had destroyed. It soon became obvious that national institutions and local governments lacked the instruments, tools and resources to deal with the emergency, and were quite unprepared to respond vis-à-vis a disaster of these proportions.

In the face of large-scale disasters such as Hurricane Mitch, it becomes a matter not only of being prepared to respond adequately to the emergency, but also to reduce risks and vulnerability. For this reason, the Swiss Agency for Development and Cooperation (SDC) began a *Disaster Prevention Programme* (PREVAC, acronym in Spanish) by means of a pilot project in Nicaragua which aimed to help local governments to map the main hazards in their municipalities.

The idea was to provide them with technical tools and strengthen their capacities to identify and manage risk zones, while incorporating these to their municipal planning and development processes. This first project generated some simple, practical methodologies and instruments, which were then combined with the local knowledge of municipal technicians. It then served as a model for similar work in other countries in the region.

How is disaster risk managed?

In the first place, it is necessary to identify and map risks, in order to know how the impact caused by these can be prevented and mitigated, above all in areas inhabited by the most vulnerable segments of the population. To that end, we embarked upon a three-stage, step-by-step procedure involving the following key actions during the implementation periods detailed below:

Stage 1

Development of the methodology, pilot run and transfer to whoever might need it (2 to 3 years)

With support from national and international experts, a methodological proposal was formulated that focused on the main threats in the municipalities. In the case of the *Disaster Risk Reduction Programme in Central America (DRR Programme)*, these were unstable terrain and flooding.

What is indispensable?

- Encourage national institutions to adopt and institutionalise the methodology.
- Run pilots of the methodology in different contexts in order to adapt it to local conditions, taking into account availability and access to quality data, existing human resources and capacities, and technical know-how.
- Validate the products, risk maps and studies with local governments and other users.
- Provide theoretical and practical training regarding the methodology for national experts.
- Organise multidisciplinary groups, have them undertake a study and make a hazard map, under the supervision of national and foreign experts.

Stage 2

Awareness-raising on the importance of local risk management (1 year)

Once the maps have been made, studies carried out and plans formulated, hazards and risks were identified. Popular, simple and clear versions of these instruments were prepared for dissemination among the population.

What is indispensable?

- Popular versions of the studies and maps.
- Ensure these are disseminated among the population.
- Offer technical assistance to local governments so the maps, studies and risk plans are used in municipal development planning.
- Issue ordinances that regulate the use of risk zones.
- Update these instruments periodically.

Stage 3
Integrated Disaster Risk Management, including Climate Change Adaptation (permanent)

We accompanied local governments in order to strengthen their Integrated Disaster Risk Management (IDRM) and Climate Change Adaptation (CCA) capacities, thus preparing them to respond more effectively in emergencies.

What is indispensable?

- Establish municipal and community committees and disaster response brigades, while preparing contingency plans, evacuation routes and holding drills.
- Offer training on IDRM and CCA at different levels.
- Issue ordinances to regulate the use of risk zones.
- Consider the impacts of climate change when carrying out risk analyses.
- Hold awareness-raising campaigns to inform and involve the population in all actions.

What resources are needed? A person in charge of coordination and staff specialised in natural risks, specifically as regards mapping and risk analysis, geology, hydrology, geotechnical and hydraulic engineering, agronomy and forest engineering, among others.

Who is responsible for implementation? National institutions, environment ministries, universities, UN agencies and local organisations.

How to achieve successful local risk management

- Accompany local governments so that the risk maps, studies and plans are used in municipal development planning.
- Ensure that the identified risks are taken into consideration when designing investment projects.
- Promote the issuance of ordinances that regulate land use in risk zones, as well as the implementation of measures intended to reduce the risk of disasters.
- Implement IDRM and CCA measures.

Prepared to better manage risks ...

> “We built a house near a ravine … at that time we didn’t know we were in danger, but when we made the map, it turned out the house was in a risk zone, so we dismantled it and moved to a flat area, where we built a bigger one. You’re grateful when someone informs you of something important”.

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