

## **The importance of information management for disaster reduction in Latin America**

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As in many other areas, information management is also vital in disaster prevention and mitigation. Good quality and easy-to-access information is an important aid for the specialists working in disasters. Decision making, resources optimization for logistics and public awareness programs -just to mention a few- are processes that we found in many areas -also in disaster prevention and mitigation- and that depend heavily on the exchange of and access to clear, opportune and good quality information.

Disaster management involves a wide variety of skills and disciplines from engineering to health care to Information. Hospitals need to be built to withstand winds or earthquakes. Supplies such as food, water, and medicines need to be safely stockpiled and effectively distributed. Sharing of information easily and quickly is necessary.

In fact, managing disasters is managing information because reliable information is the most valued commodity before and after a disaster. Facilitating the access, exchange and diffusion of information will help the actors working in disaster management to improve decision making processes aimed at reducing risks and disasters.

Knowledge engineering, training, and the use of current and emerging technological resources are often decisive factors in making information more meaningful for the many different kinds of users and sectors that are involved in disaster reduction. And those sectors are many indeed as they include scientists, community groups, school teachers and their students, NGOs, disaster management agencies, ministries of health and many more. Even if some of these groups have shared interests, it is also true that each of them may have their special needs and that frequently it will be best to develop and supply different information services tailored to their specific interests and knowledge.

The Internet may also prove a valuable means to promote better inter-institutional cooperation in order to make better use of existing resources and to create new capacities, training programs and technological resources.

Of course, information is not only important for institutions. Individuals have a similar need for disaster reduction-related information. Public awareness programs build on this fact and often seek to foster long-term changes in behavior and to contribute to promoting a culture of disaster prevention.

Latin American and the Caribbean countries have the greatest exposure to disasters of all regions in the world. Their long history of disasters has caused, and continues to cause, enormous suffering in terms of human loss, as well as having a considerable impact on economic development.

Despite the recognition that access to information is essential to disaster preparedness, inadequate information technology, lack of training in how to find and

manage information and lack of awareness about what information is available often prevents or delays access to vital information before, during and after crises.

For more than 15 years, international cooperation has helped improve access to information in these countries that have assisted them to be better prepared to reduce the impact of disasters. As a part of this effort, the Regional Disaster Information Center for Latin America and the Caribbean (Spanish acronym CRID) was created by the Pan American Health Organization (PAHO) in 1994.

Today CRID is a specialized virtual library for disaster information with one of the most important digital libraries on disasters with over 12.000 full-text, searchable documents online for free. It is based in Costa Rica but it serves all the Latin America and the Caribbean Region.

Its mission is to create a disaster prevention culture through the collection and dissemination of information focusing on the following activities:

- to improve compilation, processing and dissemination of disaster-related information;
- to offer quality information services to a wide range of users throughout the region of Latin America and the Caribbean;
- to strength national and local capacities to establish and maintain disaster information and documentation centers;
- to promote the use of electronic technology for the provision of information services;
- to contribute to the development of a regional disaster information system.

CRID offers many services via the web including information on recent disasters, links to many disaster-related resources and a bibliographical database that contains over 16.000 references to disaster documents, mostly of them in PDF. This database is continuously growing from contributions from all the centers associated to CRID.

Since the beginning, CRID has been working with some of the standards and methodologies developed by BIREME, a virtual health library established in Brazil in 1967, thanks to an agreement between the Pan American Health Organization (PAHO) and the Brazilian government.

These standards and methodologies are available on the Internet and compatible with the principal international information sources. In fact, today more than 2.000 institutions are directly or indirectly related to the development, production, operation and use of this Virtual Health Library.

CRID also works in the development of other information management tools to improve the access to information. For example, the development of a search engine for the thematic CD that it produces.

## **The concept of Virtual Library proposed by CRID**

Upon the consolidation of the Internet as the main medium for sources and flows of scientific and technical information, the creation of Virtual Libraries is essential to share and disseminate the information, in this case related to disasters.

CRID proposes the development of Virtual Libraries as spaces:

- Where the users can acceded and share services and information resources for the prevention and attention of disasters;
- Able to be a focal point for the summary, the analysis and the dissemination of information;
- A supplier of information products and services;
- With an important role in the transfer of knowledge and, therefore, an incidence in the educational and formative processes;
- A promoter of a culture of exchange of information, considered from a point of view of cooperative actions between institutions and persons who are employed at the management of the risk;
- A common resource for all the persons who are interested for the topic of the information for the prevention and attention of disasters;
- Orientated towards the service and the interaction by the users

The operational principles of this model of a Virtual Library proposed by CRID are the following:

1. **Accessibility:** the resources and services provided by a Virtual Library are accessible by an important range of actors involved in disasters management.
2. **Participation:** management and exchange of information should be based on a collaboration and a system of alliances, with a high degree of participation of the organizations in charge of the prevention and attention of disasters, not only those that spread information, but also those generating it.
3. **Operability:** the use of common methodologies maximizes the possibilities of exchange between the Virtual Libraries. It also improves the training process of human resources and contribute to the availability (in financial terms) of these tools.
4. **Public Service:** a vision focus on serving the users of the Virtual Library and the society as a whole. The Virtual Library will develop a proactive management, creating resources to fulfill the new expectations and needs of information and knowledge arising in the disasters area.
5. **Belonging to a Network:** the Virtual Library will be a part of networks with different interests to strengthen and to combine efforts.
6. **Communication and visibility:** the Virtual Library will have to develop a communication and visibility strategy for a better promotion and diffusion of its resources, to strengthen its relation with users and to improve its participation in disaster management.

This vision claims for the creation of Virtual Libraries where the communication between the user and the library will have a double direction in order to overcome

the traditional link in which the users are just "information consumers" and not producers.

In this vision of a Virtual Library, we consider the user as a professional that assimilates, transforms, transfers and generates some kind of information. Therefore, a Virtual Library might create and develop information products and services based on the user's opinions and suggestions, as far as the changes and advances in their interests.

A Virtual Library can not work in an isolated way. Its strengths will depend on the cooperation with other Virtual Libraries working in a national and sub regional level in order to create a real "spider net" of Virtual Libraries that can cooperate between them.

The aims of this network approach will be to facilitate the access and diffusion of information that may help in decision taking, as far as to obtain a major use of the information resources. The interaction between the Virtual Libraries will make possible to compile, process and use the information in a more effective way, as far as to create new information products and services.

### **The Latin American Network for disaster information: building local capacities in information management for disaster reduction**

Bearing this concept in mind, we can start talking about the efforts carried out by CRID –with the permanent support of international organizations- in order to implement this model in Latin America, a region with important deficiencies regarding information related to disaster management.

As far as for Central America is concerned, the need support for the development of a disaster information system was emphasized by the devastation caused by hurricane Mitch in October 1998, the worst disaster suffered by this region in recent years.

Hurricane Mitch, a category 5 hurricane, struck Central America, hitting Honduras and Nicaragua the hardest. Thousands of people were killed or injured and over 3 million people left homeless. All economic and social lifelines were crippled, as well as the access to health care facilities and communication systems. The damage done in a few days by Mitch totaled over \$5 billion. Mitch brought the critical need for disaster preparedness and prevention activities –from the point of view of disaster information management- to the forefront.

In this context, several organizations, including the U.S. National Library of Medicine, PAHO, the United Nations International Strategy for Disaster Reduction and the European Community Humanitarian Office provided technical and/or financial support for the creation of the Central American Network for Disaster and Health Information (CANDHI) able to collect, disseminate and share information related to health and disasters throughout the region.

The project –executed by CRID- focused on these three areas: the improvement of the technological infrastructure, the training of information specialists on information resources and methodologies, and the development of information products.

This project led to the development of an appropriate technology infrastructure for the participating institutions. It also provided them with basic software for managing information and to create, produce and manage their own digital libraries with bibliographical references, news, alerts, maps and other local information. Some of the Websites are:

El Salvador: <http://desastres.ceprode.org.sv/>

Honduras: <http://cidbimena.desastres.hn/>

Nicaragua: <http://desastres.cies.edu.ni/>

Nicaragua (León): <http://desastres.unanleon.edu.ni/>

Guatemala: <http://www.conred.org/principal.php>

At the beginning of the project the web sites had a similar look and set of capabilities, but now the creativity and skills of every site have taken over and the web sites look different but they share resources and methodologies that enable them to work as an information network.

Some of the software products implement in these libraries come from BIREME, the PAHO regional library in Brazil that, having developed a set of tools and methodologies widely in use among medical libraries in the region, was a natural choice of platform for information management. More recently, CANDHI has implemented its own new information tools, such as a meta search engine to allow retrieving the information available in all CANDHI sites, and tools to help producing digital documents.

During the project, a series of training courses, coordinated both by the National Library of Medicine and CRID, were taught to the participating sites. A train-the-trainers approach was used, so that the information professionals trained during the courses could, in turn, conduct training courses for other information disasters and health professionals in their countries and encourages the use of these resources by professionals responsible for or involved with disaster planning and prevention.

Moreover, during the project's implementation, the CANDHI participating institutions were able to digitize and to publish electronically around 12,000 full-text documents, which is approximately half a million pages. A totally remarkable number, given the resources involved.

Today we have a network of 10 disaster information centers in 6 countries, working together to collect, organize and disseminate vital information on health and disasters. All CANDHI centers have information specialists or librarians knowledgeable on the technologies to develop and manage local information products.

The 10 centers created in Central America are being used by local and sub-regional institutional and individual users for providing information on disasters. They do not only respond to a growing information demand, they are also taking a proactive role in reaching out to their communities to promote a disaster prevention culture.

Today, building upon the original CANDHI network, a greater network of disaster-related information centers continues to develop at the regional level of the Andean countries (Bolivia, Colombia, Ecuador, Peru and Venezuela), **the BiVa-PaD network (Virtual Libraries in the Andean Region for Prevention and Attention of Disasters)**.

With an overall population of 120 million inhabitants, Andean countries suffer frequently from severe natural disasters. These disasters have a devastating impact on human life, economy and environment. The social and human cost of these disasters in terms of property damage and life loss as well as the disruption of communities and livelihood has also placed a considerable strain on the social component of the affected areas and the Andean countries ability to recover and further develop.

In July 2004, the Andean Strategy to Prevent and Deal with Natural Disasters was adopted as a way to enable the Andean Community (CAN) countries, together and in a systematic and planned way, to prevent and cope with the consequences of disasters.

Since September of 2006, with funding from the Disaster Prevention Program for the Andean Community (PREDECAN) funded by the European Commission, PAHO and ISDR, CRID has been involved in the development of this disaster-related information network.

This project responds to a need expressed by the Andean Community Region governments regarding timely access to accurate information on health and its relation with disasters. Access to information is also an integral part of the action lines of the PREDECAN project, the regional plan of CAPRADE (The Andean Committee for Disaster Prevention and Assistance), the Pan American Health Organization, the Regional Disaster Information Center for Latin America and the Caribbean (CRID) and the International Strategy for Disaster Reduction (ISDR), organizations that have made an agreement to develop these activities.

The overall objective of this project is to contribute to reduce the vulnerability and the impact of disasters that may occur in the five Andean countries. Providing timely access to accurate disaster and risk management information in these countries will facilitate a better coordination and will foster disaster prevention, mitigation, preparedness, awareness and reconstruction activities, as well as promoting the exchange of experiences and lessons learned between the countries.

In the five countries participating in the project (Bolivia, Colombia, Ecuador, Peru and Venezuela) the leadership of the project was recommended to the institutions coordinating the national system of Civil Protection (or the equivalent one), despite the fact that in several of them the technical or institutional weaknesses are evident. Nevertheless, the decision was taken to achieve a major impact.

These institutions directly involved in the project are:

- Bolivia: Viceministerio de Defensa Civil y Cooperación al Desarrollo Integral (VIDECICODI).  
<http://www.defensacivil.gov.bo/>
- Colombia: Dirección Nacional de Prevención y Atención de Desastres (DGPAD).

- <http://www.dgpad.gov.co/>
- Ecuador: Dirección Nacional de Defensa Civil.  
<http://www.defensacivil.gov.ec/>
- Perú: Instituto Nacional de Defensa Civil (INDECI).  
<http://www.indeci.gob.pe/>
- Venezuela: Dirección Nacional de Protección Civil y Administración de Desastres.  
<http://www.pcivil.gob.ve/>

These five institutions are receiving the equipment, software and abilities necessary to build the virtual libraries that will be the focus of a national network in each of the countries:

- Methodologies for the selection, evaluation and processing of technical documentation and other information resources that will be included in the bibliographical databases;
- Methodology for the establishment of Virtual Libraries through a document-guide specially created for the project;
- For the content analysis, the Centers have been provided with the Disasters Controlled Vocabulary (VCD), created by CRID to allow the assignment of key words to describe the content of a document in a standardized form. In the context of this project, an actualization of this Vocabulary is taking place;
- For the development of professional capacities and abilities for the personal involved in these BiVa-PaD Centers, the project is organizing three kinds of workshops: two regional (with the participation of all the countries involved in the project) and one national (each BiVa-PaD Center will be in charge of the organization of this workshop);
- The Website that will hold the Virtual Library with a meta search engine that will allow to look for documents in the Virtual Libraries of the other Andean countries.
- Assistance and technical help for digitalization.

Moreover, each BiVa-PaD center has the assistance of one consultant specialized in information management, computer science or communication (depending on the necessities) to help the institutions to develop the Virtual Library and the national network.

The project of creating a Virtual Library in each of these institutions and a national network supporting it in each country is a process not exempted of difficulties.

We face important institutional difficulties, a lack of human resources with abilities in information management and an institutional zeal to share information related to disasters. For this reason, apart from all the activities developed to increase the capacities, there is a big part of awareness to be done with the institutions and organizations to convince them about the importance of sharing information that can be very relevant and useful for disaster management. It is necessary to make these institutions to understand that to reduce the impact of disasters and to create a culture of disaster prevention, it is essential to collect, index, manage, store, disseminate and share information related to disasters.

Apart from this, in all these countries with a big incidence of disasters the experience of professionals engaged in disaster work frequently goes unpublished or consists of

presentations made at conferences of which there is little record or in training courses for which there is often no formal curricula. To make these reports and materials available in a global way is another necessary challenge.

### **Towards a Latin America network of Virtual Libraries specialized in disasters management information**

The creation and strengthen of these national networks of Virtual Libraries specialized in disaster management information does not have any sense if there is not an effort to make them part of a bigger structure.

Today the **Central American Network for Disaster and Health Information (CANDHI)** is a network with ten centers in Panama, Nicaragua, Honduras, El Salvador and Guatemala with the required knowledge, training, technical support and technological tools and resources in order to create electronic information services that they make available to their communities. In some months, **the BiVa-PaD network (Virtual Libraries in the Andean Region for Prevention and Attention of Disasters)** will be fully operative with five Virtual Libraries in each of the Andean countries (Bolivia, Colombia, Ecuador, Peru and Venezuela) and a national network in each of these countries.

The challenge for the Virtual Libraries today is not about having information, because with a simple search on Internet through one of the search engines available on the net we will find a lot of information, even too much information. The challenge for the new Virtual Libraries is to be able to systematize all the information in order to create products and services adapted to the user's necessities working in a collaborative way with other libraries.

With all these experiences as a foundation and with the collaboration of PAHO/WHO, the NLM and the ISDR, the Regional Disaster Information Center for Latin America and the Caribbean (CRID) aims to build in the near future a "Latin American Virtual Disaster Information Library Network".

The creation of such a network would allow the knowledge and information compiled in a local and national sphere accessible to other countries and practitioners throughout the region and beyond.

Moreover, it will strengthen the cooperation between the countries of the region in this thematic in order to conquer the financial difficulties and those related with the absence of human resources.

In addition, this collaboration in a bigger network will have the following advantages:

- The creation of new information products and services in a variety of subjects relating to disasters such as public health and disasters, hospitals and vital infrastructure safe from disasters, disasters and climate change, local risk management, etc;

- To optimize the resources and the methodologies through the integration of capacities with other Virtual Libraries and the establishment of strategic alliances and cooperation;
- To develop new capacities and tools for information management in terms of digitalization, preservation of digitalized information, new search engines to find information from all of the participating centers in a more accurate and efficient way...
- To make joint efforts in the search for future support in order to develop common initiatives in the medium to long term to conquer the financial difficulties and those related with the absence of human resources;
- An increased visibility for these libraries throughout the Latin American countries.

Despite many people in Latin America and the Caribbean not having access to computers or the Internet, the vast majority of NGOs, governments, universities, social organizations, and other organizations do and can assist in disseminating related information within their communities at all levels, regional, national and local.

The creation of a **“Latin American Virtual Disaster-Related Information Library Network”**, will strengthen the various networks and initiatives to improve access to information in a way that will decisively contribute to reducing the impacts of disasters throughout the Latin American region.

