Establishing and Institutionalizing Disaster Loss Databases in Latin America

Guidelines and Lessons

GRIP
GLOBAL RISK IDENTIFICATION PROGRAMME

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Acronyms and Abbreviations

CAPRADE	Comité Andino de Prevención y Atención de Desastres [Andean Committee for Disaster Prevention and Care]
CBDF	Cuerpo de Bombero metropolitano de Caracas [Fire Department of Metropolitan Caracas]
CENTRO	Centro de Estudios Sociales y Ambientales [Center for Social and Environmental Studies]
CEPREDENAC	Centro de Coordinación para la Prevención de los Desastres Naturales en América Central [Coordinating Center for Natural Disaster Prevention in Central America]
CIESAS	Centro de Investigación y Estudios Superiores en Antropología Social [Center for Research and Advanced Studies in Social Anthropology]
COEN	Comité de Emergencia Nacional [National Emergency Committee]
CONACYT	Consejo Nacional de Ciencia y Tecnología [National Council of Science and Technology]
CONPES	Consejo Nacional de Política Económica y Social [National Council of Economic and Social Policy]
COOPI	Cooperazione Internazionale [International Cooperation]
COPECO	Comisión Permanente de Contingencias [Permanent Contingency Commission]
CSAM	Centro de Servicios Ambientales de Matanzas [Center for Environmental Services of Matanzas]
DDI	Disaster Deficit Index
DesInventar	Disaster Inventory System
DNPCAD	Dirección Nacional de Protección Civil y Administración de Desastres de Venezuela [National Directorate for Civil Protection and Disasters Management of Venezuela]
EAFIT	Escuela de Administración, Finanzas y Tecnolgía [School of Management, Finance and Technology]
EM-DAT	Emergency Events Database
ENSO	El Niño-Southern Oscillation
EPN	Escuela Politécnica Nacional [National Polytechnical School]
ERD	División de Respuesta a las Emergencias [Emergency Response Division]
FLACSO	Facultad Latinamericana de Ciencias Sociales [Latin American School of Social Sciences]
FUNDE	Fundación Nacional para el Desarrollo [National Foundation for Development]
FUNVISIS	Fundación Venezolana de Investigaciones Sismológicas [Venezuelan Foundation for Seismological Research]
GRIP	Global Risk Identification Programme
IAI	Inter American Institute for Global Change Research
IDB	Inter American Development Bank
IDEA	Instituto de Estudios Ambientales de la Universidad Nacional de Colombia [Institute of Environmental Studies of the National University of Colombia]
IFRC	International Federation of the Red Cross

INETER	Instituto Nicaragüense de Estudios Territoriales [Nicaraguan Institute of Territorial Studies]
ISDR	International Strategy for Disaster Reduction
ITDG	Intermediate Technology Development Group
LA RED	La Red de Estudios Sociales en Prevención de Desastres en América Latina [Network for Social Studies on Disaster Prevention in Latin America]
LDI	Local Disaster Index
NGO	Non-governmental organization
NODS	National Office of Disaster Services
OPAMSS	Oficina de Planificación del Área Metropolitana de San Salvador [San Salvador Metropolitan Area Planning Office]
OSC	Observatorio San Calixto
OSSO Corporation	Corporación Observatorio Sismológico del Sur Occidente [South-western Seismological Observatory]
OXFAM	Oxford Committee for Famine Relief
PESCA	Program to Expand Scientific Capacity in the Americas
PREDECAN	Prevención de Desastres de la Comunidad Andina [Andean Community Disaster Prevention Project]
PVI	Prevalent Vulnerability Index
RMI	Risk Management Index
SGCAN	Secretaria de la Comunidad Andina [General Secretariat of the Andean Community]
SICA	Sistema de la Integración Centroamericana [Central American Integration System]
SINAPRED	Sistema Nacional para la Prevención, Mitigación y Atención de Desastres [National System for Disaster Prevention, Mitigation and Relief]
SINAPROC	Sistema Nacional de Protección Civil (Panama) [National Civil Protection System]
SNDC	Secretaría Nacional de Defensa Civil [National Secretariat for Civil Defense]
SNET	Servicio Nacional de Estudios Territoriales [National Service for Territorial Studies]
SNPC	Sistema Nacional de Protección Civil [National Civil Protection System]
UNDP	United Nations Development Programme
UWI	University of the West Indies
VIDECICODI	Viceministerio de Defensa Civil y Cooperación al Desarrollo Integral. [Vice Ministry of Civil Defense and Integrated Development Cooperation]

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1. Introduction

This document presents the results of a consultancy commissioned by UNDP to document and analyze the development of historical databases on the losses and damage caused by disasters in Latin America.

The objectives of the work were outlined as follows:

- To identify and document the processes undertaken by each country to develop their own inventories and to extract lessons learned from those experiences;

- To analyze such processes within the framework of the formulation of recommendations for the establishment of National Disaster Observatories, accounting for issues related to effort sustainability, institutionalization levels of database operations and uses, the creation of standard analytical products and the different potential users. This also involves the consideration of cooperation options with GRIP in the creation of National Loss Data Observatories;

- To develop two case studies in selected countries that illustrate both the successes and limitations in the implementation of such processes.

The documentation and analysis processes included the following general tasks:

- Collecting and arranging existing information, particularly at three levels:
  i) Documents of a "technical nature", be they tools for the development of DesInventar (handbooks or user guides, training schemes, etc.) or reports on the different processes developed (mission technical reports), including documents on database status at different stages, institutional agreements for development, database cleansing and complementation;
  ii) Records of the results obtained from various analyses based on the databases (different uses for the information compiled);
  iii) Documents addressing conceptual discussion, methodology and different uses for the information (meeting acts, discussion papers, etc.).

- Preliminary analysis of the information collected;

- Interviews with key people to establish baselines for the different processes;

- Summary of results.

Methodologically, the implementation of the documentation and analysis process accounted for the following key criteria:

- First, a presentation of the origin and conceptualization of the disaster inventory system, including discussion on the foundational hypotheses, developments and transformation that occurred over time and with practice, as well as the various planned and emerging uses;

- Second, it was deemed advisable that the documentation and analysis should account for the historical development of disaster inventory systems. Therefore, this first approach was divided into three main stages or phases, with a minimum of 6 participating countries involved in a multinational project: Phase I, system development pilot phase (1994 - 2000), which led to the development of a first system and analytical use of the information based on formulated hypotheses; Phase II, marked by the development of databases within the framework of the IAI-LA RED project on the El Niño phenomenon (2000 - 2005); and

Phase III (2005 - 2009), marked by the development and updating of databases in the contexts of the PREDECAN and GAR projects;

- While this is the ongoing thread in the development of historical disaster inventories, different events during the three phases also allowed for advances in countries that were not included in the above-mentioned processes. Such countries tend to share the following features: countries that collected historical inventories at some point but did not conduct any subsequent cleansing or updating, and countries where information was collected through special missions for specific events such as Hurricane Mitch;

- Third, efforts were made to highlight some elements, without being limited to just these, from the experience that may support the proposal to develop "Disaster Observatories" in different countries. Special attention is given to institutional features (type of organization that has promoted the development of the inventory system), key actors involved, regular users and uses of the information, as a means to explore the different possibilities and institutional modalities and social actors that could ensure a sustainable process during the development of inventories/observatories;

- Finally, the use of disaster inventory systems and the information they contain indicates, in part, the potential impact, usefulness and uses that they can have. Therefore, use is one key element of the analysis from a methodological point of view.

This document is divided into five main sections. The first section highlights elements related to the origin and conception of the inventory system and its major developments over time. Based on the documentation developed in the process, the second section describes its main stages as well as other parallel processes. The third section presents aspects related to the main actors involved in the construction of the inventories. The fourth section addresses system users and the various modalities of data use. Finally, the fifth section summarizes the primary results and provides recommendations for the development of "Disaster Observatories" based on this experience.

2. Origin and Conception of the Disaster Inventory System

2.1 DesInventar and its origins

The need for historical disaster databases arises within a particular context. A significant transformation in the approaches to and conceptualization of risk and disasters that occurred in Latin America in the late 80's and early 90's. This transformation involved three main elements: a) the recognition that "disasters are not natural"; b) the recognition of the role of "vulnerability" in the creation of risk, as opposed to the conception that puts hazard (the natural event) at the center; and c) the hypothesis that the shaping and construction of risk is mainly social and responds to or is determined by several types of social processes within the scenario of particular territories and social conditions.

The Network for Social Studies on Disaster Prevention in Latin America (LA RED) was created in 1992. Initially, it developed a series of comparative cross-country studies on risk and disasters. The aim was to support the three elements mentioned above. These works were based on a set of working hypotheses (including those three elements) that supported the importance of the local element both in the construction and management of risk, as well as the existence of processes that are common to several countries in the region, among others.

DesInventar was set up in this context as a collective and multinational initiative (in the framework of LA RED) aimed at generating historical data on disaster-related damage that served as the empirical basis for the verification of the hypotheses. This would further evolve into conceptual and methodological developments, and the development of information systems for data collection, research and analysis on damage related to a variety of disasters, with different levels of observation and data resolution.

2.2 Conceptualization of the Inventory System

The very conceptualization of the Disaster Inventory System was boosted by the need in many countries for basic empirical information to document and analyze past disasters over the longest period of time possible. Several questions (and hypotheses) arose that were solved over time.

First, what was the relation between risk (which refers to the probability of damage and loss occurrence associated with hazard and vulnerability conditions) and its historical manifestations (i.e., real damage and losses.)

Second, whether the historical behavior of risk manifestations or materializations provides information about current and future risk, in particular, whether specific hazard and vulnerability conditions can be deduced from such behavior. In other words, whether risk manifestations history can be related to the development of the social processes that shape risk.

Third, whether historical changes in risk manifestations are indicators of changes in hazard or vulnerability conditions, how and to what extent.

Fourth, whether analyses on different scales of observation and levels of resolution (territorially speaking) provide relevant elements for new insight into risk and its manifestations (importance of local context, recurrence of losses caused by low-intensity events within a territory, processes of risk accumulation, and others).

These were some questions that, from the LA RED viewpoint, required the development of a document database that included information about all types of effects caused by disasters (manifestations of risk), including large disasters not fully documented such as the case of

daily low-intensity disasters that have a significant cumulative impact.

Based on that information, the aim was not only to document disasters, but also to investigate possible related processes, doing so in a comparative manner in order to find similarities and differences across countries, and establish associations and trends, if deemed necessary.

The above led to a number of tasks that marked the conceptualization and development of the Disaster Inventory System:

a) A collective effort by research groups from different countries to design, develop and maintain DesInventar;

b) A collective process of conceptualization and definition of the Inventory System's contents: what kind of information had to be compiled, what variables had to be considered; what were the associations among them; what level of resolution and type of representation should be used, and, mainly, what the proposed, discussed and accepted definitions meant for the conceptualization and understanding of risk;

c) Based on the aforementioned, the development of inventories that are systematic, homogeneous and comparable across countries, with geographical representation of the information at different levels of observation and resolution. This necessarily implied the development of a data compilation, storage and retrieval system;

d) It can thus be said that DesInventar pioneered the development of national historical disaster databases, using a well-defined methodology that allows for the comparison of different databases, geographical representation and inquiries by different user types.

3. Main Stages of the System Development Process

The development of the Disaster Inventory System was threefold: as a system involving a broad discussion on the system's concepts, variables, elements and timeframe; as a project that involved several countries and research centers at the same time; and as a project whose results should be public in all aspects.

The project was preliminarily formulated at the Third General Meeting of LA RED (Puerto Escondido, Mexico, 1993) and formalized during its Fifth General Meeting (Tarapoto, Peru, 1994). The Project General Coordination was entrusted to the Southwestern Seismological Observatory (OSSO) of the Universidad del Valle, Colombia, which is the entity embodying LA RED in Colombia, and supported in turn by LA RED nodes in Mexico (CIESAS), Central America (FLACSO - General Secretary) and South America (ITDG, Peru).

The main stages or phases in the development of the project from 1994 to present were:

- Phase I: Pilot project developed between late 1994 and early 2000. The results of the pilot phase were shared and discussed during the "DesInventar en América Latina y el Caribe: Balance y Perspectivas" [DesInventar in Latin America and the Caribbean: Assessment and Perspectives] Workshop held in Paracas, Perú, in late March 2000;

- Phase II: IAI-LA RED project developed between 2000 and 2004. One key element of this phase was to incorporate the development of DesInventar, updating the databases of participating countries and the information thus obtained to analyze relationships between the manifest risk and ENSO;

- Phase III was developed from 2005 to the present. It includes the developments made within the framework of the PREDECAN[1]-CORPOSSO project for Andean countries including Venezuela, and the UNDP project on Extensive Risk[2].

Along with the three main phases, different situations arose that allowed various applications of the inventory system including: collecting and analyzing information in cases of disaster; collecting historical information in new countries that were not part of the aforementioned projects, and the development of inventories in Asian countries.

The main aspects of each phase are outlined next. For each phase, the countries involved and the processes that made the construction of inventories possible in each country are highlighted.

3.1 Phase I: 1994 - 2000

3.1.1 LA RED pilot project

The pilot project officially started in late 1994. The initial objectives can be outlined as follows:

a) Discuss and agree on conceptual and methodological criteria for the analytical treatment of small, medium and large disasters;

b) Gather information on disasters that occurred between 1990 and 1994, with

1 PREDECAN (Prevención de Desastres en la Comunidad Andina [Disaster Prevention in the Andean Community]) is a cooperation project between the General Secretariat of the Andean Community and the European Union in the area of risk management and disaster prevention.

2 Within the framework of ISDR's Global Assessment Report for Disaster Risk Reduction, databases of eight Latin American countries were used to search for risk manifestation patterns, in particular, to illustrate intensive (occasional, low recurrence and causing serious damage) and extensive (high recurrence, in wide areas and low damage if taken separately) risk manifestations.

sources available for a sample of eight countries in Latin America (Mexico, Guatemala, El Salvador, Costa Rica, Colombia, Ecuador, Peru and Argentina); and

c) Develop a system tool for that purpose.

Research groups of LA RED national database hosting institutions that participated in the above-mentioned countries include: CIESAS (Mexico); FLACSO-General Secretariat for Guatemala, El Salvador and Costa Rica; OSSO (Colombia), National Polytechnic School (Ecuador), ITDG (Peru) and CENTRO (Argentina). All of them are academic/research institutions, excepting ITDG, which is an NGO.

As a result of the project, disaster inventories were developed in the eight countries, with homogeneous coverage for the period 1988 - 1997 (ten years), though some databases compiled data for longer periods (see Table 1).

Despite the limitations displayed by these first data sets, they provided a big picture of the spatial and temporal behavior of the disasters that occurred in those countries. According to final country reports presented at the end of the pilot project during the closing workshop held in Paracas, Peru in March 2000, the total number of records obtained was 39,400[3] ,of which 37,210 correspond to the period that is common to the eight databases.

3.1.2 Parallel projects

In parallel to the pilot project, particular circumstances presented themselves or inter-institutional agreements were reached during the period 1994 - 1999 that allowed for the widening of the range of countries in which Disaster Inventory Systems were developed. This parallel development presented three main modalities:

a) Use of DesInventar in cases of disaster/emergency to compile loss information

DesInventar, as an "academic" tool for collecting historical information, was flexible enough to adapt to field collection of information on damage caused by a disaster, and therefore to serve in decision-making about response and reconstruction processes. Thanks to the joint efforts of LA RED and CEPREDENAC (by virtue of an agreement signed in 1993), DesInventar was used to collect data on losses and damage caused by Hurricane Mitch in Honduras and Nicaragua, which resulted in the development of specific databases for these two cases. Through CEPREDENAC, the OSSO Corporation developed a technical assistance program for damage assessment, to support the Permanent Contingency Commission (COPECO) of Honduras and the Civil Protection System of Nicaragua. In 2001, under the agreement between CEPREDENAC and LA RED, this experience allowed for the provision of technical assistance (in particular training workshops on the DesInventar methodology and software tool) to national/official institutions working on disaster prevention and response in El Salvador (COEN), Honduras (COPECO), Panama (SINAPROC) and Nicaragua (INETER).

UNDP, in agreement with Venezuelan authorities, conducted a second mission in the context of the damage and losses caused by heavy rains on December 15 and 16, 1999, in Venezuela. Within the framework of this mission, the OSSO Corporation developed the inventory of damages associated with the rains and trained CONACEM staff in the use of DesInventar. This mission allowed the Fire Department of Caracas, which had begun to record emergencies in this system in 1998, to strengthen its capacities. Similarly, FUNVISIS began to systematize losses associated with earthquakes and landslides. The data gathering and documentation was part the organization's focus activities.

b) Use of DesInventar to gather loss and damage information on a daily basis

In the case of Panama, DesInventar was used for the first time to gather information on the damage and losses caused by different types of disasters that occurred in the country. By agreement with SINAPROC, the process began in 1998 and, although information was partially collected in previous periods (there is

3 The number of datasheets was obtained from Country Reports of LA RED "Disaster Inventories in Latin America" Project, using DesInventar for the period 1988 - 1998, except for Colombia, Panama and Peru where the source was Velásquez, A. and Rosales, C. (1999).

evidence of events recorded even in the late nineteenth century), the bulk of the database and systematic information starts from 1998 forward. Initially, the system was implemented at a provincial level (each province completed its own DesInventar and reported records to a central authority). With time and experience, SINAPROC decided that it would receive provincial and local reports in various reporting formats and feed the database daily from headquarters.

c) Historical inventories

Within the framework of LA RED, a process to develop disaster inventories in Bolivia and Paraguay was undertaken as an initiative of the LA RED group in Ecuador, with resources from the RHUDOAID project, along with the development of the training project implemented by LA RED at that time (1998). Training workshops were conducted with civil protection or defense systems in the two countries, which did not lead to significant developments in terms of inventories. Only Bolivia gathered some information to feed DesInventar following the workshops. This was performed in an uneven and unsystematic manner and was not done publicly until the development of Phase III of DesInventar (see below).

3.1.3 Main results of Phase I

The main results of Phase I of DesInventar development can be summarized as follows:

a) Developed inventories

Table 1 shows the different inventories developed over the period, specifying the country, the type of inventory, the period covered, number of records and the entity in charge. The colors in the table mark the difference between inventories developed within the framework of the project and those resulting from subsequent agreements or particular circumstances.

b) Implementation methodology

The experience accumulated in the development of inventories and the needs presented by the different types of existing demand led to a significant systematic implementation process of the inventory system. Three types of instruments were primarily designed for that purpose:

- A Methodological Guide to the Inventory System, a result of the discussions maintained over the pilot project, summarizes the collective agreements on the content of the system. There are two versions of the Guide available: one from 1998 and the

Table 1: Databases developed during Phase I of DesInventar (1994 - 2000)

Database	Observation scale/ type	Period	Number of records	Project	Entity in charge
Argentina	National historical	January 1988 - December 1998	2883	LA RED Pilot	CENTRO
Colombia	National historical	1914 - 1998 (March)	6997	LA RED Pilot	OSSO
Costa Rica	National historical	1980 - 1998 (April)	2575	LA RED Pilot	FLACSO
Ecuador	National historical	1990 - 1998 (April)	513	LA RED Pilot	EPN-Equilibrio
El Salvador	National historical	1980 - 1988 (June)	648	LA RED Pilot	FUNDE-OPAMSS
Guatemala	National historical	1988 - 1998 (June)	1549	LA RED Pilot	FLACSO
México	National historical	1980 - 1988 (March)	3479	LA RED Pilot	CIESAS
Perú	National historical	1970 - 1998 (April)	17263	LA RED Pilot	ITDG
Panamá	National historical	1896 - 1999 (1 May 10)	1276	LA RED- CEPREDENAC	SINAPROC
Honduras	Effects of Hurricane Mitch	1998-10-26	297	LA RED-CEPREDENAC	CEPREDENAC-OSSO
Nicaragua	Effects of Hurricane Mitch	1998-10-26	146	LA RED-CEPREDENAC	CEPREDENAC-SINPAPROC
Venezuela	Disaster in Vargas State	1999	471	LA RED-UNDP	OSSO

"latest" one from 2000. The latter was updated in 2003;

- Three technical User Handbooks (for each module existing at the time: DesInventar, DesConsultar and DesImportar), for the use and operation of the system;

- The definition of a DesInventar implementation process common to all countries involved, based on the definition of an archetypal process to be developed and an archetypal workshop to be conducted that are flexible enough to adapt to different environments. The following elements were defined for the archetypal process:

  i) Initial training workshop on the use and application of the methodology and software;

  ii) The signing of an agreement between LA RED-OSSO Corporation and the interested entity, which commits to the development of the inventory;

  iii) Once the inventory development process has begun, a follow-up process with the entity to ensure the installation of the database and the resolution of technical and methodological issues that may arise;

  iv) When agreed, after the inventory has been established, support is provided for the first analysis of the information compiled.

c) First analytical results

The reports presented by different working groups during the "DesInventar en América Latina y el Caribe: Balance y Perspectivas" workshop, held in Paracas, Peru, March 30 and 31, 2000, provided a first analysis of the information gathered. Each participating country, i.e., the eight countries involved in the pilot project plus Panama, Bolivia and Venezuela, presented preliminary analyses of the databases, whether for the whole period covered or specific events.

The book "Escudriñando los desastres a todas las escalas" ["Insight to disasters on all scales"], (Velásquez and Rosales, 1999) presents an analytical summary of what was developed during Phase I of the creation of DesInventar (see www.desinventar.org).

In addition, the DesInventar data is first used during this period as the basis and subject of analysis of a graduate academic thesis (Sanahuja, H. "El daño y la evaluación de riesgo en América Central" ["Damage and Risk Assessment in Central America"] San José, Costa Rica, 1999).

3.2 Phase II: 2000 - 2005

3.2.1 ENSO-related Risk Management in Latin America Project

Between 2000 and 2005, the continuity of the work on loss and damage to historical inventories was ensured by the IAI-LA RED project.

Within the framework of US CNR-sponsored projects, LA RED presented a proposal to the Inter-American Institute for Global Change (IAI) to produce and disseminate new scientific knowledge and information about the patterns, causes and disaster risk management related to ENSO in Latin America. This is to facilitate the application of ENSO forecasts and early warning; increase the relevance, effectiveness and efficiency of risk management policies, plans and programs; and maximize the use of research, networking, dissemination and training capacities in the region.

As part of this project, an agreement was reached to update and cleanse existing databases in Argentina, Colombia, Costa Rica, Ecuador, Mexico and Peru (countries that participated in the first phase of DesInventar development) and build the corresponding databases in Brazil and the State of Florida (USA). Additional funding by the IAI through its fishing project, also allowed for the establishment of the Chilean database.

The work of upgrading and cleansing existing inventories and building new ones was coordinated by the OSSO Corporation and sought to expand coverage to the period 1970 - 2004

(with the exception of Chile, whose database only accounted for data until 2000). All information collected, updated and cleansed was central to the analysis of spatial, temporal and semantic patterns of risk in the selected countries and for different types of analytical approaches to the relationship between ENSO and disasters in the countries.

All countries achieved the expected results in terms of databases, with the exception of Brazil. The database established in the state of Paraiba was not fed.

3.2.2 Parallel projects

a) Using DesInventar in cases of disaster/ emergency to collect information on losses

i) January 13 and February 13, 2001 earthquakes in El Salvador

On the day of the first earthquake, CEPREDENAC requested that the OSSO Corporation organize a technical support mission to systematize the effects associated with the January 13, 2001 earthquake within the framework of the CEPREDENAC-LA RED Agreement. The mission provided the big picture of the distribution of effects across lives, dwellings, infrastructure and environment on a municipal scale. This first mission was conducted between January 18 (five days after the earthquake) and February 8, 2001. Following the second earthquake on February 13, 2001, a second mission was conducted from February 16 to 25, 2001.

The missions contributed to improving knowledge management through the collection and systematization of earthquake effects with the DesInventar methodology and software. The building of the database on earthquakes permitted for the timely provision of data, graphics and consolidated cartography to institutions making decisions on response, restoration and reconstruction issues. These institutions include the COEN, the Army, and different Ministries (in particular, Agriculture, Health and Environment).

As in the case of prior technical assistance (Mitch and torrential rains in the State of Vargas, Venezuela), the mission conducted implementation workshops with different institutions and laid the foundations for the development of DesInventar in El Salvador.

ii) June 23, 2001, Southern Peru Earthquake

On June 23, 2001, an earthquake of serious magnitude struck the departments of Arequipa, Tacna and Moquegua and part of the Ayacucho department in Southern Peru. For this reason, the Office of the UN Resident Coordinator in Peru organized an interagency mission, in agreement with the Government of Peru and supported by the Emergency Response Division (ERD) of the United Nations Development Programme (UNDP), to formulate a Strategic Framework for Sustainable Recovery and Vulnerability Reduction for the affected area. The missions' main activities involved the systematization of information on the impact of disasters and hazards in the area and further analysis of this information; identification of priorities for action; and the design of appropriate mechanisms to develop intervention in the current stage of reconstruction. DesInventar was used as the tool to support these activities – both the systematization of information on the effects associated with the June 23 earthquake, which had already been retrieved by several institutions in the country, and the analysis of this information compared to the effects of disasters of lesser impact caused by different types of events, accumulated in Southern Peru over the last 30 years.

b) Historical inventories

Phase II of DesInventar opportunity to develop historical inventories in several countries emerged in the form of occasional funding, either direct or as part of a LA RED project.

i) Dominican Republic

Following the impact of Hurricane Georges in 1998, a Disaster Prevention Subprogram was formulated and developed by

the Technical Secretariat of the Presidency of the Dominican Republic with technical and financial support from the Inter-American Development Bank (IDB). LA RED participated in this sub-program, through a consortium with ODC-INGENIAR and ICF Consulting, in developing Component 4 on prevention, mitigation and response institutions equipped with modern and effective institutional instruments. The project was developed between October 2000 and July 2002, and covered several subject areas or key activities aimed at strengthening institutional capacities for risk management and disaster prevention, in particular, the design and implementation of a national risk management system in the Dominican Republic; the adaptation of the existing institutional framework; the review and reformulation of action plans; training of officials of the System institutions; and the development of information and communication strategies.

A historical disaster inventory was built for the period 1966 - 2002 as part of the activities. The inventory showed that although the country focused on the major impacts associated with Hurricanes David, Frederick and George, there is a significant number of less serious events with variable effects that may be seriously affecting the population and economic sectors over the long term through their cumulative effects (LA RED, ODC-INGENIA, ICF Consulting, 2002).

ii) DesInventar in the Caribbean, UNDP project

Under the RLA/01/013 UNDP regional project (Risk Management in the Caribbean), a component called DesInventar Caribbean was formulated. This component was implemented through a Memorandum of Understanding signed between LA RED and UNOPS, and its goal was to develop a disaster inventory in four Caribbean countries, in order to prove its benefits and, if appropriate, implement widespread disaster inventories throughout the countries of the Caribbean Basin. Cuba, Jamaica, Trinidad and Tobago and Haiti were initially selected. The inventories were to cover the period between January 1, 1971 and December 31, 2000.

The difficulties encountered in developing the inventory in Haiti, in terms of limitations on collecting information for the selected period and the conditions of political and institutional instability in the country, led to the exclusion of Haiti from this group of countries and the subsequent inclusion of Guyana, as agreed with UNDP.

In the case of Jamaica, Trinidad and Tobago, and Guyana, an agreement was established with the University of the West Indies to conduct collecting tasks for the inventory. For that purpose, working groups were set up in each country; capacity-building processes were developed as planned; and the collection, recording, review and analysis of information were carried out. While in Jamaica, the work was done directly by the university. In the case of Trinidad and Tobago and Guyana, joint work was undertaken with national civil protection agencies.

Cuba's case was different. Given the political sensitivity towards the management of the existing information, the UNDP Resident Representative in Cuba committed itself to establishing political contacts and institutional linkages necessary for the development of inventories. Training workshops and the preparation of the geographical portion of the inventory were conducted in this context, with the participation of the Cuban Civil Defense. However, it was not possible to know about further development of the inventory. We do not know if the Cuban Civil Defense finally used DesInventar (although there are signs that it did), nor was it possible to view the inventory. During several visits to the island, relations with the Civil Defense Manager were resumed. He stated that they were using the inventory and would make it public once completed. Subsequently, within the context of a different project and more limited geographic scope, it was possible to start

building an inventory for the province of Matanzas, which is described in Phase III of the system.

In the first three cases, the inventory was developed for the period initially proposed (and in some cases until 2002), but follow-up to see if it was periodically updated or what has been the actual use after project completion was not possible. In the case of Haiti, and in the context of other initiatives undertaken by members of LA RED in that country, unsuccessful efforts were made to resume the development of the inventory and only occasional information on recent events is available (especially the two events in 2004 in Gonaives and Fond Verrettes).

iii) El Salvador

The construction of a historical inventory began in May 2005 within the framework of a cooperation agreement between the National Service of Territorial Studies (SNET) and the OSSO Corporation. SNET built an inventory for the period 1900 - 2003, with UNDP funding. Once the inventory was completed, SNET updated data until 2005. The period 2006 - 2008 was updated in the context of the ISDR "Extensive Risk Analysis in Latin America" Project.

The main sources are periodicals such as La Prensa Gráfica and El Diario de Hoy (newspapers), as well as documents from the Historical Archives such as the Official Journal, to complement data from the first half of the twentieth century. The inclusion of the information collected in DesInventar by the National Emergency Committee (COEN) for the January and February 2001 earthquakes and data collected in the first historical data base for the 1980 - 1998 is still pending. SNET continues to update the data, although inconsistently despite their interest in maintaining it.

3.2.3 Main results of Phase II

The main results of Phase II of DesInventar development are outlined as follows:

a) Developed or complemented inventories

Table 2 presents the list of inventories that were developed or completed during Phase II of the project. Those inventories can be divided into four main categories:

- Inventories developed during Phase I and complemented and used in Phase II. This includes the inventories of the following countries: Argentina, Colombia, Costa Rica, Ecuador, Mexico and Peru. They were all updated within the framework of the ENOS Project, which shows the continuity of the process;

- Inventories built in the context of the ENOS Project and therefore new in Phase II: Chile, Florida (USA) and State of Paraiba (Brazil);

- Historical inventories developed thanks to participation in different projects: Dominican Republic, Jamaica, Guyana, Trinidad and Tobago, and El Salvador; and

- Occasional inventories for disaster/emergency situations: El Salvador (January 13 and February 13) and Southern Peru.

b) Main analytical results

The main results of Phase II are summarized as follows:

i) First, the analysis of the spatial, temporal and semantic patterns of risk manifestations associated with ENSO, an IAI output that primarily used DesInventar information. These results are documented both in annual country reports and final project reports by country, as well as in two publications by the project: Lavell, A. and Brenes, A. (Compilers) (2008) "ENOS: Variabilidad Climática y el Riesgo de Desastre en las Américas: Proceso, Patrones, Gestión" ["ENSO, Climate Variability and Disaster Risk in the Americas: Process, Patterns, Management"], and Wilches, G. "QU-ENOS PASA? Guía de LA RED para la

Table 2: Databases developed or updated during Phase II of DesInventar (2000 - 2005)

Database	Observation scale/ type	Period	Number of records	Project	Entity in charge
Argentina	National historical	1970 - 2003	14516	ENSO Project	CENTRO
Colombia	National historical	1914 - 2002	17507	ENSO Project	OSSO-Universidad del Valle
Costa Rica	National historical	1970 - 2003	4462	ENSO Project	FLACSO
Ecuador	National historical	1970 - 2003	3589	ENSO Project	EPN-Equilibrio
Mexico	National historical	1970 - 2002		ENSO Project	CIESAS
Peru	National historical	1970 - 2003	19408	ENSO Project	ITDG
Chile	National historical	1970 - 2000	3479	LA RED Pilot	CIESAS
Florida (USA)	National historical	1970 - 2001	9810	ENSO Project	Florida University
Jamaica	National historical	1973 - 2002	859	UNDP Regional Project	LA RED-University of the West Indies
Trinidad and Tobago	National historical	1966 - 2002	661	UNDP Regional Project	LA RED-University of the West Indies
Guyana	National historical	1972 - 2002	136	UNDP Regional Project	LA RED-University of the West Indies
El Salvador	National historical	1900 - 2003	4749	UNDP-funded consultancy	SNET
Dominican Republic	National historical	1966 - 2002	2112	IDB-funded consultancy	LA RED
Peru	June 2001 quake effects	2001-06-23	1851	UNDP mission for reconstruction	LA RED
El Salvador	January 13 and February 13 quakes effects	2001-01-13 2001-12-13	306	LA RED-CEPREDENAC	LA RED-CEPREDENAC-COR-POSSO

Gestión radical de riesgos asociados con el fenómeno ENOS" ["ENSO What? LA RED Guide to Getting Radical with ENSO risks"], IAI-LA RED-OXFAM, November 2007. The latter is a synthetic and "popular" version of the project results;

ii) Second, the study "Análisis Comparativo de Bases de Datos de Desastres" ["Comparative Analysis of Disaster Databases"] by LA RED and OSSO Corporation during the second half of 2002, which allowed, for four selected countries, a comparison between a global database with mainly national resolution and national databases, with municipal resolution or the equivalent. One of the main results of this study, beyond the comparison itself, was to stress the importance of national databases with appropriate regional resolutions and the need to encourage that process;

iii) Third, the various analyses carried out for each country that developed a new inventory and mission reports, especially in the case of Southern Peru, which provided an analytical overview on how to approach a policy of sustainable reconstruction from the information gathered and country context;

iv) Finally, it is worth noting that a number of graduate theses (many of which were developed within the framework of the IAI project) enriched the analysis of manifest risk in many countries, and the development, especially in Colombia and Argentina, of local inventories with other levels of resolution, for local analysis of manifest risk.

3.3 Phase III: 2006 - 2009

Phase III of the development of the Disaster Inventory System primarily addresses two opportunities: a) the updating and construction of databases for the Andean countries under the "Support to Disaster Prevention in the Andean Community - PREDECAN" project; b) the analysis of "extensive risk" for the "Global Assessment Report on Disaster Risk Reduction",

which allowed for the update of eight databases in Latin America to December 2007.

3.3.1 PREDECAN project

The General Secretariat of the Andean Community (SGCAN), through CAPRADE, and within the framework of the EU-funded PREDECAN project, contracted the OSSO Corporation to carry out the consultancy "Creación y actualización y/o homogeneización de inventarios de desastres por eventos históricos y cotidianos en al Subregión Andina" ["Creation and updating and/or homogenization of disaster inventories by historical and daily events in the Andean Region"].

The aim of the study was to strengthen the overall construction process of daily and historical disaster inventories in the Andean subregion, by means of (a) the construction of historical disaster inventory; (b) strengthening institutions' capacities for disaster loss analysis and systematization; (c) developing an online version of the DesInventar software; and (d) the publication and sharing of results.

Historical inventories of Colombia, Ecuador and Peru were updated as part of this work and national historical inventories were constructed for Bolivia and Venezuela for the period 1970 - 2006.

In the cases of Colombia and Peru, inventories were updated by the institutions already working on them (OSSO Corporation in Colombia and ITDG in Peru). In the case of the other three countries, institutional development was promoted with the participation of the national disaster prevention and response agencies, although in the case of Bolivia, the main task of feeding the database was conducted by the San Calixto Observatory. Some aspects of the development of databases in these three countries are worthy of further consideration:

a) The case of Ecuador: Although there was a historical inventory, it had not been officially used by the country's Department of Civil Defense. The institutional changes made in 2007 - 2008, which meant the creation of the Secretariat for Risk Management within the Ministry of Internal and External Security, facilitated the use of the instrument as an official instrument and its online operation from 2007. Also, the existing historical basis was given to the Secretariat, which is considering, from its point of view, including this information in the official database;

b) The case of Venezuela: As noted in previous phases, existing inventories were specific (Vargas State) and partial (Caracas Fire Department and FUNVISIS). Under the PREDECAN, project data was collected and integrated, an inventory for the period 1970 - 2006 was created and institutional processes were developed, especially the National Civil Protection Department under the Ministry of Interior, for the continuous updating and maintenance of the database;

c) The case of Bolivia: As mentioned in Phase I of the inventory system development, efforts were made to initiate the creation of a database for Bolivia. A workshop was conducted during the process. The initiative gathered new momentum within the framework of the PREDECAN, which allowed for the development of the 1970 - 2006 database (based on the little information that existed to date) by the Seismological Observatory of San Calixto, and the initiation of a process of institutionalization with the Vice Ministry of Civil Defense of Bolivia. Although there are no institutional guidelines for assigning systematization roles to the entity's staff, at least one person continues to monitor and record data in Excel and DesInventar formats for the years 2007 and 2008.

3.3.2 Extensive Risk Project

As part of the necessary inputs to the chapter on extensive risk analysis of the Global Assessment Report 2009 (GAR 2009), a set of DesInventar databases in Latin America and Asia were analyzed. To that end, the historical databases of nine Latin American countries (Argentina, Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Venezuela, Peru and Mex-

ico) were cleansed and updated to 2007. In Latin America, the project was coordinated by the OSSO Corporation and developed with the support of institutions and independent researchers who had previously participated in the construction of disaster inventories, as shown in Table 3.

In the case of Andean countries (Colombia, Venezuela, Ecuador, Peru and Bolivia), the results of the PREDECAN project were resumed and databases updated to December 2007, with the exception of Peru. In the rest of the countries, where in most cases databases were updated to 2004, they were updated to December 2007. In the specific case of Mexico, a special analysis of the existing database was undertaken and records for the period 1980 - 2007 were supplemented, revised, refined and updated.

3.3.3 Parallel projects

Regional analysis of disaster losses and socio-economic variables in the Gran Chaco

In the context of the V DIPECHO Action Plan, the International Federation of Red Cross and Red Crescent Societies established an inter-institutional cooperation agreement with the OSSO Corporation, in order to form an overall picture of the behavior of emergencies and disasters of varying impact on the Gran Chaco region of Argentina, Paraguay and Bolivia. As a result of this agreement, an inventory of Paraguay was developed for 2008 as well as the analysis of impacts and losses caused by emergencies and disasters based on the information contained in this inventory and the historical databases of Argentina and Bolivia. Similarly, training on the use of DesInventar was provided to the National Emergency Department of Paraguay. Various entities contacted in the country all agreed on the importance and utility in decision-making of creating an information management center responsible for centralizing information on risks and disasters, as well as encouraging the use of DesInventar in the region. These were some of the suggestions presented at the International Forum "Regional Dimension of Risk and Disasters in the Gran Chaco" held in March 2009 by DIPECHO, within the framework of the "Preparedness and multi-hazard risk reduction in the Gran Chaco" project, in support of cross-border development policies in South America. They were to contribute to recognizing multi-hazard problems in the subregion of the Gran Chaco to make decisions aimed at reducing disaster risk in communities in the region.

DesInventar as academic subject - CEPREDENAC

The Coordination Center for Natural Disaster Prevention in Central America (CEPREDENAC), with the support of AECI, UNDP and the University of Alcalá (UAH, Spain) promotes and supports a "Training program for incorporating disaster risk management into development programs and projects" implemented in a mixed format and through the UAH computer platform. As part of the first-year curriculum, the OSSO Corporation offered an online course entitled "Disaster inventories as a tool for risk reduction: the DesInventar methodology" within module II "Risk scenarios and hazards: disasters as a consequence of risk". It was a 12-hour course and the corresponding content and assessment materials were prepared. Topics of the course included: disaster inventories; comparative losses in the region; small and medium disasters; and the DesInventar methodology.

3.3.4 Main results of Phase III

Below is an outline of the main results of Phase III of the development of DesInventar:

a) Developed or complemented inventories

Table 3 presents the inventories developed or complemented during Phase III of the project. Significantly, eight out of nine countries (all except Bolivia), had already participated in Phases I and II and, therefore, constitute the core of the project development, both in terms of temporal coverage of the databases and continuity of effort.

Table 3: Databases developed or updated during Phase III of DesInventar (2006 - 2009)

Database	Observation scale/type	Period	Number of records	Project	Entity in charge
Argentina	National historical	1970 - 2007	17833	Extensive Risk Project	CENTRO
Bolivia	National historical	1970 - 2007	1729	PREDECAN and Extensive Risk Projects	San Calixto Seismic Observatory
Bolivia	Daily	2007 - 2008	1190	Civil Defense and PREDECAN Project	Civil Defense
Colombia	National historical	1914 - 2007	25857	PREDECAN and Extensive Risk Projects	OSSO Corporation
Costa Rica	National historical	1970 - 2007	9718	Extensive Risk Project	FLACSO
Ecuador	National historical	1970 - 2007	4521	PREDECAN and Extensive Risk Projects	EPN
Ecuador	National historical	2008 - present	1520	STGR- PREDECAN Project	Risk Management Technical Secretariat
El Salvador	National historical	1900 - 2007	5399	Extensive Risk Project	SNET
México	National historical	1980 - 2006	17172	Extensive Risk Project	Elizabeth Mansilla
Peru	National historical	1970 - 2006	20551	PREDECAN and Extensive Risk Projects	ITDG
Venezuela	National historical	1970 - 2007	4855	PREDECAN and Extensive Risk Projects	María Beatriz Aranguren in the coordination for the historical database. DNPCAD initiated the updating of the inventory with 2009 data.

b) Main analytical results

Main analytical results for this period include:

i) A set of PREDECAN final project documents consisting of an analysis of the databases by country and one regional analysis, as well as five papers on the countries to be published by the project;

ii) The preparatory documents of the "Global Assessment Report on Disaster Risk Reduction" in relation to the analysis of "extensive risk" not only use data from eight Latin American countries for this purpose but also draw on contributions to methodology and focus on carrying out the analysis. The project was coordinated by the OSSO Corporation and developed with the support of institutions and independent researchers that had previously participated in the construction of disaster inventories in these countries. The analytical results are presented in a final report and 13 annexes that include national analysis reports, a report of the Andean Subregion, a Cali case study and initial methodological and conceptual papers.

4. Main Actors in the Development of Inventories

One major asset of the process described above was the set of actors involved in the development of the inventory systems. Unlike many other projects in the field of risk management, which tend to be very individual (or institutional) or with very few actors, one of the characteristics of the development of the Disaster Inventory System is that it was supported from the beginning by a wide range of institutions and individuals who devoted time and effort and contributed their theoretical, practical and methodological capacity to the process.

One basic consideration lies at the core of the analysis of the main actors: this process has been and is a collective venture that involves, at every stage and in various countries, a relatively large number of people and institutions in various stages and moments of the project.

Establishing a typology of actors always means limiting (to a certain extent) the scope of reality to primarily reflect institutional aspects (in several senses of the term.) But behind these institutions, there are always people, groups of people and teams without whom this development would have been impossible.

At first, a distinction could be drawn between academic institutions (research centers and universities), development NGOs and government agencies responsible for disaster prevention and response.

Such a typology is somehow defined at the outset of the system's development: driven by LA RED and its supporting institutions, it was clear from the outset that most of the institutions involved would belong to the first or second group. However, the intention of making DesInventar a useful tool for decision-making led to explore, with varying success in different countries, the possible participation of government agencies.

From another point of view, a differentiation can be made between the actors who built and developed the inventories, and those who, being equally important, facilitated their development. In this analysis, we will establish three categories of actors: i) universities and research centers, including non-governmental organizations of various kinds; ii) official bodies related to disaster response and/or risk management; and iii) facilitating entities.

4.1 Universities and research centers, including NGOs

Table 4 presents the list of research centers that have participated at some stage in the development of DesInventar disaster inventories. In the case of research groups or centers, these are both bodies attached to universities and independent organizations with lines of research that go beyond risk and disaster issues. Some of these entities are part of LA RED supporters. In the case of NGOs, they are often organizations that support development in the countries in which they operate, whose missions also go beyond risk management. In both cases and contrary to what happens with government agencies responsible for these issues, the overall design integrates development with risk and environmental management. Very few of these organizations, almost none, work exclusively on risk management issues.

Table 4: Universities and research centers

Database	Entity in charge	Type of institution
Argentina	CESAM - Center for Social and Environmental Studies	Non-profit organization focused on research, technical assistance, and capacity-building. It promotes initiatives through the development of social, urban, and environmental studies with an interdisciplinary approach.
Bolivia	San Calixto Observatory	Private institution whose main activities are Meteorology, Seismology and Astronomy.
Brazil	UNCAL - Federal University of Paraíba	Higher education institution specializing in research and extension, under the Ministry of Education.
Chile	School of Agrarian Studies - National University of Chile	State higher education institution (national and public), engaged in higher education, research, development and extension in sciences, humanities, arts and technology.
Colombia	Southwest Seismological Observatory - OSSO and OSSO Corporation	OSSO is a research group whose mission is the generation of knowledge on hazards, vulnerabilities and risks, initially ascribed to the Universidad del Valle. Since 1996, OSSO has been supported by the OSSO Corporation, an NGO dedicated to promoting, supporting and implementing scientific research related to the Earth dynamics and interactions with society.
Costa Rica	FLACSO-Costa Rica	The Latin American Faculty of Social Sciences is a regional and autonomous international organization, consisting of the countries of Latin America and the Caribbean.
Cuba	CSAM	The Center for Environmental Services of Matanzas is a Cuban entity attached to the Provincial Delegation of the Ministry of Science, Technology and Environment in the province of Matanzas. Its mission is to develop scientific, development and technological innovation research projects, as well as technical-scientific consultancy services in environmental management.
Ecuador	Polytechnic National School	This public university produces, disseminates and applies scientific and technological knowledge.
Ecuador	Equilibrio	Working group on disasters, environment and society
El Salvador	FUNDE	The National Foundation for Development (FUNDE) is a non-governmental organization for research, socio-economic policy formulation, advocacy and promotion of development, with a focus on most disadvantaged populations
Guatemala	FLACSO-Guatemala	The Latin American Faculty of Social Sciences, is a regional and independent international organization. It aims to promote education, research and technical cooperation in the field of social sciences in the region.
Jamaica	UWI - University of the West Indies	The University of the West Indies is an international institution serving the countries of the Caribbean Commonwealth. Its aim is to promote higher education and critical research to meet regional needs.
La Florida (USA)	Florida University	It is a major public university with a wide variety of academic programs. It also promotes academic research and belongs to the Association of American Universities.
Mexico	CIESAS	The Center for Research and Higher Studies in Social Anthropology is a federal public institution that is part of the CONACYT Centers System. CIESAS is devoted to the study of national issues through research and training of specialists in the fields of social anthropology, history, ethnohistory, linguistics and other social sciences.
Peru	ITDG	Non-governmental international organization that seeks to contribute to the sustainable development of poorer people through research, application and dissemination of appropriate technologies. Regional headquarters are located in Lima, Peru
Dominican Republic	FLACSO	The Latin American Faculty of Social Sciences is a regional and independent international organization. It aims to promote education, research and technical cooperation in the field of social sciences in the region.
Venezuela	FUNVISIS	The Venezuelan Foundation for Seismological Research, is an institution that promotes permanent research and specialized studies in seismology, seismic engineering and geological sciences, in order to contribute to reducing the country's vulnerability.

Within the first type and especially in the case of Colombia, it is worth mentioning the building of DesInventar databases within academic theses. In general, these are not national databases, the subject of this document, but databases with other levels of observation and resolution. Table 5 presents a list of these contributions.

Table 5: Databases built by independent researchers

Country - database	Author	Research project	Institution
Colombia - Antioquia (except the metropolitan area)	Camilo Polanco	Undergraduate thesis in Geology. Inventory and systematization of natural disasters reported in the municipalities of Antioquia, excepting the municipalities of Valle de Aburrá, for the period 1920 - 1999.	EAFIT University
Colombia - Antioquia (metropolitan area)	Ricardo Saldarriaga	Undergraduate thesis in Geology. Inventory and systematization of natural disasters reported in the municipalities of Valle de Aburrá, for the period 1900 - 2002.	EAFIT University
Colombia - Cali (urban area)	Nayibe Jiménez	Undergraduate thesis in History. Historical and urban elements in the generation of flood and landslide disasters in Cali, 1950 - 2000.	University of El Valle
Colombia - Pereira	Beatriz Rojas	Thesis article: A reading of the generation of hazardous conditions in Pereira from disaster history. In: Lopez, Carlos and Cano, Martha (eds.) Environmental Change in Historical Perspective.	Technological University of Pereira.
Colombia - Popayán (urban area)	Javier Bentancourt and Tulio Clavijo	Undergraduate thesis in Geography. Application of methodological tools for the recognition of hazardous events of anthropogenic and natural origin in the area of the municipality of Popayan.	Technological University of Pereira.

Table 6: Government agencies

Database	Institution in charge	Type of institution
Bolivia	Civil Defense	Entity under the Vice Ministry of Civil Defense and Cooperation for Integral Development (VIDECICODI). It is the executive decision-making body of the Ministry of Defense in regard to activities on risk management and cooperation of the Armed Forces to integral development.
Ecuador	Technical Secretariat for Risk Management	Systemic organization for risk reduction and emergency and disaster management under the Ministry for Coordination of Internal and External Security which assumed all powers, duties, functions, representations and delegations previously exercised by the National Directorate of Civil Defense.
El Salvador	SNET	The National Service of Territorial Studies aims to contribute to the disaster prevention and risk reduction and to promote and facilitate the design of policies, strategies, programs and projects.
Honduras	COPECO	Permanent Contingency Commission. National entity to adopt policies and measures to serve the population, renovation and reconstruction of areas damaged by the impact of natural phenomena that affect the economic activity and welfare of the population, and plan and develop activities to prevent negative consequences in hazard-prone areas.
Nicaragua	SNDC	(Now SINAPRED) Its mission is to coordinate and promote risk reduction caused by natural and anthropogenic phenomena that affect the safety of persons and goods in the country.
Panamá	SINAPROC	National Civil Protection System of Panama. It is responsible for planning, research, management, supervision and organization of policies and actions to prevent material and psychosocial risks, and to gauge the potential danger that can result from natural and anthropogenic disasters. It is also in charge of disaster response.
Venezuela	DNPCAD	National Directorate for Civil Protection and Disasters Management. Entity responsible for planning, coordinating, implementing and monitoring all prevention and response actions, measures and processes needed to ensure the protection of any person in any situation involving hazard, vulnerability or risk.
Venezuela	CBDF	The Fire Department of Caracas, is a safety agency for the prevention, investigation, protection and control of phenomena threatening individual or collective security of lives and property of individuals and corporations.

4.2 Government agencies related to disaster response and risk management

The second group includes government agencies related to disaster response or risk management that have participated in the building of disaster inventories. Table 6 presents the national entities responsible for the administration and support for emergency response in each country.

Some of them have occasionally participated in the construction of inventories (Honduras and Nicaragua for Hurricane Mitch, for example). Others have been involved in a more permanent manner in the development of historic inventories and are likely to continue the process:

- Panamanian SINAPROC has fed the database on almost a daily basis since 1998;
- El Salvador's SNET updated the existing database and seeks permanent feeding;
- From the work and results achieved under the PREDECAN Project, the Technical Secretariat of Risk Management in Ecuador and the National Directorate of Civil Protection in Venezuela began online and official feeding of the database.

4.3 Entities that facilitate the process

A number of entities and agencies have participated in different roles as facilitators of the inventory development process. The roles played by the agencies depended on the circumstances, interest and facilitation opportunities. They can be summarized as follows:

i) Some agencies have played a role that goes beyond facilitation. This applies, for example, to CEPREDENAC and the strategic alliance established with LA RED. In this regard, not only has it assumed the role of promoter and supporter of the inventory and its uses, but was also committed to its promotion and dissemination, both in terms of historical inventories and specific inventories in Central America;

ii) Other agencies have played the role of promoters and financiers. In particular, the PREDECAN Project in the Andean region sought, not only to update the inventories (or create them where none existed), but to promote their use and maintenance in these countries; and UNDP-BCPR-ISDR, who simultaneously required different types of analysis, facilitated the updating of inventories and promoted and financed their development (the Caribbean) or complementation;

iii) Finally, the third group is made up of entities that financially supported the development of inventories, either directly (DFID Great Britain, in the case of the pilot project), or in the framework of a subregional project that included one component with DesInventar (IAI), or occasionally (IDB in the case of Dominican Republic).

5. Applications of Databases and Main Users

The inventories developed have had several applications and uses by different types of users. There are three main types of users:

- First, actors involved in the development of inventories, who have used them in research and analysis projects;

- Second, actors who have not contributed to the construction of inventories but have found their information appealing and illustrative, and have used them to support hypotheses or analytical approaches or to show problems within a broader scope;

- Third, the unknown user, who has regularly visited the DesInventar website, consulted the in formation, downloaded software and databases and worked with them. There is not much information available on this group. Apart from the number of downloads from the Web, little can be said, although this number and the distribution by country appear meaningful.

5.1 Actors/users

While each inventory to be developed, especially in the last phase of system development, has a specific purpose, all inventories are built according to consistent conceptual and methodological terms that are generally shared by all the actors/users. One of the criteria is the comparability of the information collected in each country.

Thus, most of the uses by actors/users (pilot project, IAI, predict and GAR) are of two types of analysis: national level, specific to each country, and subregional (or other country grouping) level, for comparative purposes.

In the four cases, the direct users of the information (those who carry out the analysis) are essentially the same as those who gathered the information and continued to be actors/users over the 15-year process, with the exception of Venezuela and Bolivia (and part of Ecuador), due to the creation of new institutions.

The same happens in the case of databases built as part of technical assistance missions in national emergencies caused by great impact disasters, including the technical assistance mission to assess the impact of the June 2001 earthquake in southern Peru, where a strategic framework for sustainable recovery and vulnerability reduction in the affected area was developed. The comparative analysis between the inventory of the earthquake effects and the historical database concluded that the disaster associated with the earthquake occurred in a context of vulnerability and risk accumulation in the Southern region, with an incremental pattern in the number of disasters in the 30 years that preceded the analyzed disaster.

5.2 International organizations and national and international reports and projects

Inventories have been a useful reference for understanding the situation of disasters in Latin America, in publications such as the 2004 UNDP Global Report on Disaster Risk Reduction by UNDP and the 2005 IFRC World Disasters Report.

Similarly, they have been the subject of deeper analysis on the impacts and their behavior, in the context of projects financed by international organizations such as the EU, IDB, UNDP, ISDR and IFRC. Projects executed in the context of PREDECAN consultancies to update inventory and analysis of the Andean subregion and that of ISDR on extensive risk analysis have already been discussed, so this paragraph will only highlight three types of applications made with funding from international organizations.

a) "Comparative analysis of disaster databases" Project

The study "Comparative analysis of disaster databases" was carried out by LA RED and OSSO (with the support of the OSSO Corporation), under contract with the United Nations Development Programme, within the framework of Working Group 3 (on risk, vulnerability and impact assessment) of the ISDR Inter-Agency Task Force on Disaster Reduction. The objective of this project was to compare two types of databases, one of global coverage (CRED's EmDat) and another one focused on Latin America (DesInventar databases) for four countries on the continent: Jamaica, Chile, Panama and Colombia.

b) Risk Management Indicators Project

This IDB-funded project was developed by the Institute for Environmental Studies (IDEA) of the National University of Manizales. An indicator system consisting of four types of indicators consisting, in turn, of variables representing risk factors and each country's performance in terms of risk management, was developed as part of this project. The indicators were applied in twelve countries in Latin America: Argentina, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Jamaica, Mexico, Peru and Trinidad and Tobago. The indicators designed were: Disaster Deficit Index (DDI), Local Disaster Index (LDI), Prevalent Vulnerability Index, (PVI) and Risk Management Index (RMI).

From this set of indicators, we want to stress the importance of the LDI, which uses DesInventar databases as its primary source of information. This indicator seeks to represent the social and environmental risk resulting from frequent and low intensity events that affect the local and subnational levels and, in particular, the most vulnerable socio-economic population sectors. This indicator captures the incidence and uniformity of the distribution of local (municipal) effects caused by different phenomena. The higher the relative value of the index, the more uniform the magnitude and distribution of effects among the municipalities of a country and, conversely, lower LDI values correspond to low spatial distribution of effects. This indicator was slightly amended within the framework of a project that examined the local impact of minor and moderate disasters in Colombia (IDEA-LA RED, 2006).

c) Reports of Argentina, Bolivia and Ecuador

These countries have used the respective disaster inventories to describe the risk and/or disaster situations in each country in the context of funding initiatives from a number of international organizations. Each of these implementations has been recorded in a publication (see Table 8 for list of publications).

In Argentina, as part of an awareness-raising strategy for institutional actors aimed at promoting the incorporation of prevention and disaster risk reduction into the development of land-use planning policies at the national level, pictures of the hazard and vulnerability assessments were developed for each province. They were developed by provincial teams using the information available at the national and provincial level as the historical basis of DesInventar. The aim of the publication of the results is to provide an initial response to information needs on the subject.

In Ecuador, the inventory was an important input for the first part of the document "Mapping of risks and capacities in Ecuador" (2001), in which an evaluation of natural hazards was undertaken in order to create information tools that allowed COOPI (Italy) and Oxfam (Great Britain), two non-governmental organizations specializing in humanitarian issues, to establish geographic priorities for their interventions in the country.

In Bolivia, the historical inventory developed for the period 1970 - 2007 served for the preparation of the "Bolivia Country Document. Proposal for the 6th DIPECHO Action Plan" (2008), which describes the situation in the country, in terms of geophysical, economic and social conditions; identifies risk issues; describes and analyzes risk scenarios; and identifies risk reduction guidelines.

Table 8: List of publications with reference to DesInventar

Title	Author	Year
Cartografía de Riesgos y Capacidades en el Ecuador [Mapping of Risks and Capacities in Ecuador]	Florent Demorales, Robert D'Ercole	2001
Los desastres ocurridos en la República Dominicana 1966 - 2000 [Disasters occurred in the Dominican Republic 1966 - 2000]	IDB, LA RED-INGENIAR Project	2001
Análisis Comparativo de Bases de datos de desastres [Comparative Analysis of Disaster Databases]	UNDP	2002
World Disasters Report	IFRC	2003, 2005, 2006
Reducing Disaster Risk: A Challenge for Development	UNDP	2004
Indicadores de Riesgo de desastre y de Gestión de Riesgos [Disaster Risk and Risk Management Indicators]	Omar Darío Cardona-IDB-IDEA (National University of Manizales).	2005
Bolivia Country Document. Proposal for the 6th DIPECHO Action Plan	Acción contra el hambre, Oxfam,Coopi, IFRC, Civil Defense-Bolivia, Care, PAHO, Soluciones prácticas (former ITDG), Save the Children	2008
Estrategia Nacional para la Reducción de Riesgos y desastres [National Strategy on Disaster and Risk Reduction]	Technical Secretariat for Risk Management - Ecuador	2008
Cuadro de situación provinciales de amenazas y factores de vulnerabilidad en la República de Argentina [Provincial scenarios of threats and vulnerability factors in Argentina]	UNDP-Argentina; Undersecretariat of Public Investment Territorial Planning (MINPLAN)	2008

5.3 Institutions and implementation at the national level

This category includes implementation processes conducted by national public entities to support their specific functions, such as the cases of Colombia and Costa Rica. In the first case, for example, the National Planning Department of Colombia carried out a loss estimation analysis, cost quantification and a comparison to investments in disaster issues. These analyses are captured in the report "Study on disasters in Colombia: Estimated losses and quantification of costs" in the context of the study "Defining the State's responsibility, its exposure to natural disasters and the design of mechanisms to cover the State's residual risks" by the consulting firm ERN (which stands for Natural Risk Evaluation), specialized in risk and disaster issues (Cardona and others 2004).

Data from the Colombian inventory was even used as a reference for the 2004 CONPES 3318 document on "Authorization for the Nation to hire foreign credit operations with multilateral banks for up to USD $260 million to partially finance the program on reducing the vulnerability of the State in the face of natural disasters."

In Costa Rica, an annual report on major social, economic and environmental indicators, among others, has been developed since 1994 that enables a tracking of the country's development. One component of the report covers the environmental situation and presents an overview of the damage and losses caused by disasters based on the information compiled by DesInventar inventories (reports for the years 1999 to 2006).

5.4 Graduate theses

Undoubtedly, one of the potential uses of the inventory is to serve as input for research conducted within the framework of undergraduate and graduate theses. It is likely that data was used for these purposes, as inventories are available on the World Wide Web. Of the works known to have used this data, some have been developed within the framework of research projects coordinated by LA RED and others were developed independently. The following is a list of these works:

Table 9: Graduate theses

Costa Rica	Haris Eduardo Sanahuja Rodríguez	Master's Thesis in Geography: Sanahuja. El Daño y la evaluación del Riesgo en América Central. ["Damage and Risk Evaluation in Central America"]	University of Costa Rica
Colombia-Risaralda	Marcela Muñoz Escobar	Undergraduate thesis in Environmental Management. Análisis de la inversión en prevención y atención de desastres en el departamento de Risaralda para el período 1993 - 2002 [Analysis of investment in disaster prevention and response in the Department of Risaralda for the period 1993 - 2002]	Technological University of Pereira.
Colombia	Ana María Arango	Undergraduate thesis in Geology Inventario de eventos geológicos ocurridos en Colombia entre 1970 y 2006 con el software DesInventar (elaboración, actualización, depuración y análisis) [Inventory of geological events that occurred in Colombia between 1970 and 2006 using the DesInventar software (development, updating, cleansing and analysis)] (2007)	Universidad EAFIT
Mexico	Fernando Briones Gamboa	Doctorate thesis. La construction du risque: L'isthme de Tehuantepec face au phénomène climatique "El Niño" [The construction of risk: The Tehuantepec Isthmus and the El Niño Phenomenon] (Oaxaca, Mexico)	École des Hautes Études en Sciences Sociales. EHESS-Paris
Mexico - Guadalajara (Jalisco)	Juan Manuel Rodríguez Esteves	Doctoral thesis in Social Sciences, specialization in Social Anthropology: Esteves, J. M. La Construcción social del riesgo de desastre: ENSO (El Niño/Southem Oscillation) en la cuenca del río Tijuana [The social construction of disaster risk: ENSO (El Niño/Southern Oscillation) in the Tijuana river basin] (Honorable mention and recommended for publication) (2007).	CIESAS
Mexico	Fercia Angulo Fernández	Master's degree thesis in Culture and Thinking in Latin America. Angulo, F. El Niño, inundaciones y estrategias adaptativas en Tlacotalpan y Cosamalopan, Veracruz [Floods and adaptation strategies in Tlacotalpan and Cosamalopan, Veracruz] (2006)	UACM
Mexico	José Alfonso Hernández Gómez	Master's degree thesis in Social Anthropology. Hernandez, J. A. La Construcción social del riesgo a inundaciones y su asociación con El Niño. El caso de la subcuenca del río Omitlán, Guerrero. 1982 - 83 y 1997 - 98 [The social construction of flood risk and its relation to El Niño. The case of the Omitlán river sub-basin, Guerrero. 1982 - 83 and 1997 - 98] (2006)	CIESAS
Mexico	Myriam de la Parra Arellano	Undergraduate thesis. De la Parra, M. Degree in Anthropology. Desastres y pobreza, Los desastres vistos como un problema no resuelto del desarrollo. [Disasters and Poverty. Disaster as an unresolved development issue] (honorable mention in graduate exam) (2005)	ENAH

6. Conclusions and Recommendations

This final chapter presents the main conclusions drawn from the above analysis and a series of recommendations that links the work done on Historic Inventories to the development of Loss and Damage Observatories proposed by GRIP. The conclusions will highlight the elements that made the development and maintenance of the DesInventar project over fifteen years possible, stressing those aspects that may be of interest for the development of observatories. In terms of recommendations, there is a focus on the tasks that need to be developed in Latin America to ensure that inventories are supplemented, maintained and developed and that they are used for their intended purposes.

6.1 Conclusions

The analysis above led to a number of conclusions that may be summarized as follows:

1. One first element of note is that the draft Historical Disaster Inventory System has been maintained, overall, over the past fifteen years. Despite differences among countries, this very fact proves its sustainability. Also, a number of elements that have made this sustainability possible include:

i) Being a response to a need. The inception of DesInventar occurs in a context marked by an emergent concern about the so-called small and medium scale disasters, at a time when the issue of risk and disaster analysis and disaster was being boosted and discussed within the framework of the International Decade. Paradigm shifts generated at the time, especially in Latin America, led to a different consideration of risk and disasters, and the history of the manifestations of risk and their temporal and special occurrence began to be considered as important elements;

ii) Having been developed collectively. The role of LA RED and its managing institutions, particularly OSSO, ensured rich discussion on the definitions and concepts that underlie the inventory system, facilitated the creation and development of databases within this discussion and enabled the establishment of the relatively homogeneous set of development processes, through the management and technical assistance conducted by the project coordination;

iii) Having maintained the same institution in charge of project coordination and technical assistance to involved countries and institutions for fifteen years. This has facilitated the systematization of experience, the revision and updating of databases, the development of methodologies and user guides and momentum towards the analysis of the information as such;

iv) Having had institutional and financial support that has secured the development of the project within the framework of different activities throughout the period. This includes not only funding the pilot project and the development and/or supplement of databases by IAI, PREDECAN and GAR, but also the development of strategic partnerships such as one with CEPREDENAC, to develop activities in Central America;

v) Making the information, databases and query module public and therefore available to any person or institution. This is crucial to the dissemination of the system as well as in promoting the analysis of the different manifestations of risk by different people.

2. The second element of note is flexibility in the use of the Disaster Inventory System. While the initial aim was to gather historical information for research purposes, different situations

and opportunities allowed for the application of the concept and methodology to other activities. This applies particularly to the collection of damages that occurred in the case of major disasters and the analysis of such information for the purposes of the recovery process and subsequent reconstruction (Hurricane Mitch in Honduras and Nicaragua, 1998, disaster in Venezuela Vargas State, 1999, earthquakes in El Salvador, 2001, earthquake in southern Peru, 2001.)

3. One third element is the usefulness and applications of the information and the Inventory Systems for the analysis of risk manifestations at different levels:

i) One result of the development of all the databases has been an analytical (or, at least, descriptive) preliminary paper with the information available. This creates a primary set of documents that allow for a first type of information use;

ii) For cases in which databases have been updated, there are analytical papers developed at the end of the update, whether as a result of the update itself, or because the update was done within the framework of a project involving such an analysis. The latter includes the analytical results of the IAI project (see the project's annual reports and, especially, final reports by country), and the PREDECAN and GAR projects (extensive risk analysis for several countries in Latin America.);

iii) Moreover, the information collected and the databases have been used to support the analyses of national and international agencies and to promote the use of new tools (indicators) and new approaches to extensive risk.

4. Concerning the development of inventories, a typology based on the stage of development can be established for Latin America. This classification involves 20 countries and a specific region (Gran Chaco).

i) Inventories that, through different projects or needs, have been updated to 2006 or 2007 – that is, those that have been regularly updated or are the product of recent projects. This is the case of Argentina, Bolivia, Colombia, Costa Rica, Ecuador, El Salvador, Mexico, Panama, Peru and Venezuela;

ii) Inventories that were built within the framework of various projects or activities, but were not updated after completion: Chile, Florida (USA), Guatemala, Guyana, Jamaica, Trinidad and Tobago, and the Dominican Republic. With the exception Florida, which was updated to 2004, all were updated to 2002;

iii) Inventories whose development processes were initiated but not fully completed (or there is no information available): Cuba and Haiti;

iv) Inventories currently under construction: Paraguay and the Gran Chaco.

5. Many actors and users have been involved in the development of the Inventory System and the analysis of information. The main characteristics of the actors and users can be summarized as follows:

i) A high percentage of actors/users are academic and research institutions, non-governmental and international organizations (such as UNDP, IDB, CEPREDENAC);

ii) The participation of national government agencies has occurred to a lesser extent and has taken different forms: a) government agencies that have undertaken the development, feeding and maintenance of databases and, in most cases, defined the use of the DesInventar tool as "official"; this includes Panama (pioneer since 1998), Ecuador, El Salvador and Venezuela; b) governments that have not assumed the responsibility of the database but use the information for decision making (Colombia and Argentina) – the case of Colombia is important because the system itself provides information to be entered in the database – ; and c) those who have used the

information and supported data gathering occasionally: Nicaragua and Honduras (Hurricane Mitch), and Bolivia;

iii) The third category of actors/users consists of those who use the information and databases for their own analyses and can be divided into two categories: a) the development of academic activities (undergraduate theses), and b) the use of information to support views either in policy documents (the case of the National Planning Department in Colombia, UNDP-Ministry of Planning in Argentina or documents on the State of the Nation in Costa Rica), methodology and analysis proposals (IDB Indicators project) or analysis papers by international organizations (IFRC, UNDP, ISDR).

6. In short, over 15 years, the Historical Disaster Inventory Project (DesInventar) has not only proven to be helpful and useful but has also ensured continuity in terms of coordination, conceptualization and development methodology. Additionally, it has involved many actors at different levels (international, national and even local) and of different natures (academia, governmental and non-governmental organizations, governments in some cases), which helps to ensure their development and use. Finally, from a conceptual perspective regarding risk-related issues, the process has prompted new lines of research (small and large disasters, extensive and intensive risk, relation between past disasters and ENSO, relation between risk manifestations and socio-economic variables) that have contributed to broaden the analysis spectrum and the type of assumptions and results that can be obtained.

6.2 Recommendations

The existing databases can serve as the basis for the activities of National Disaster Loss Observatories. However, their implementation involves identifying the main actions to be developed, including updating the existing inventories and initiating their development where they do not exist or have not been developed. These activities can be divided into two main categories: a) the technical development of the Inventory System (development, update, revision and use), and b) the development of a management, coordination and technical assistance system to allow it.

1. Coordination and technical assistance

The development of National Disaster Loss Observatories is conceived so that there are centers or bodies that provide support and technical assistance to countries for the design, development and operation of observatories at the regional level. Although these are not limited to a specific tool, the experience developed by the Disaster Inventory System can support this task. There are three important elements: a) the continuity of guidance, technical development and development by a leading organization; b) the collective nature of the work, which permitted, in the context of a broader discussion, the definition of a common and shared consensus to guide the work; and c) the development of sufficient flexibility to adapt to different conditions, needs and situations and to adopt the necessary working mechanisms with various organizations (not limited to a single type of these).

These three elements must be ensured by whichever entity is to assume the responsibility for the support and technical assistance in the development of Observatories.

2. Inventory development, update, revision and use

Regarding the development, updating, revision and use of inventories as part of the work of Observatories, the baseline situation is different in each country. However, some major actions may be recommended:

i) Strengthening the capacities of the countries with the most updated inventories (10 countries), which can be divided into two different categories: a) countries where the government has assumed updating and maintenance functions (Ecuador, El Salvador, Panama and Venezuela), which implies specific work with relevant government institutions. Ongoing inventories for Paraguay and Gran Chaco also fall under this category; and b) countries where up-

dates and continuity have been ensured by non-governmental bodies, which also require support for continuing the process and complementing the existing institutionalization (Argentina, Mexico, Colombia, Costa Rica, Peru and Bolivia);

ii) The updating of the databases that were built, but have had no continuity in their development. Here, actors and responsible bodies should be identified (whether governmental or non-governmental). It would be useful to build on the experience of those who originally worked on them (Chile, Dominican Republic, Guyana, Guatemala, Jamaica, and Trinidad and Tobago) and the recovery of the unsuccessful experiences (Cuba and Haiti);

iii) The development of inventories where they do not exist: Belize, Honduras, Nicaragua, Lesser Antilles and Uruguay.

The above should be taken into account in the formulation of a Work Plan that will combine the current conditions of development of the inventory system in each country with the proposed recommendations.

7. Annex

A. Country sheets

Table 10: Country sheet Argentina

Basic information		
Period	1970 - 2007	
Last update	31/12/08 Make sure dates all in same format and English	
Coverage	National	
Resolution level	Department	
Number of records	17 833	
Information sources	Newspapers: El Clarín and La Nación, daily newspaper with national coverage edited in Buenos Aires. La Prensa, La Razón, Crónica and El Cronista were also consulted. Other sources: Civil Defense.	
Implementation process		
The development and updating of this inventory has been conducted under the continued responsibility of CENTRO, within the framework of different projects fostered by LA RED and CENTRO.		
Institutionalization		
Implementing entity	CENTRO	
Institutional use of system	- CENTRO has been coordinating the disaster inventory system for 15 years - Ongoing database cleansing and updating conducted - Inventory used for analysis in research projects	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	CENTRO, OSSO Corporation, LA RED, IDEA
	Public and private institutions, both national and international	UNDP, ISDR, Undersecretariat of Public Investment Territorial Planning
Product list	- Report of Argentina, February 2000 (Pilot Project "Disaster Inventory") - Argentina. II ENSO REPORT. IAI. 2000 - 2001 - Argentina. Scientific Progress Report. Year III May 2003 - ENSO Final Report - "Risk Urbanization and Territorial Expansion in Latin America" Final Report. Annex 2 Manifestations of intensive and extensive risk in Argentina. September 2008. - Discussion paper. "Provincial scenarios of hazards and vulnerability factors in Argentina" September 2008.	
Sustainability		
The inventory was updated to the extent permitted by resources allocated for that purpose.		
Needs		
- Inventory updated to 2009. - Resources for ongoing updates.		

Table 11: Country sheet Bolivia

Basic information		
Period	1970 - 2007	
Last update	January 30, 2009	
Coverage	National	
Resolution level	Municipal	
Number of records	1728	
Information sources	Newspapers: El Diario (national newspaper) and, from 2007, La Razón.	
Implementation process		
The development and updating of this inventory was conducted under the responsibility of San Calixto Observatory, within the framework of different projects such as PREDECAN and Extensive Risk.		
Institutionalization		
Implementing entity	San Calixto Observatory	
Institutional use of system	Analysis within the framework of the project by which the inventory was developed.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	San Calixto Observatory
	Public and private institutions, both national and international	PREDECAN, ISDR, OXFAM
Product list	- CAPRADE-PREDECAN Project. Creación y/o actualización de inventarios históricos de desastres en la Subregión Andina. [Creation and/or update of historical disaster inventories in the Andean Subregion.] Report on the analysis of data on losses caused by disasters in Bolivia. May 2008. - Project CAPRADE-PREDECAN. Article-Bolivia. Pérdidas por desastres de gran y pequeño impacto en Bolivia, 1970 - 2007 [Losses caused by low and high impact disasters in Bolivia, 1970 - 2007]. - ISDR Project. Urbanización de los riesgos y su expansión territorial en América Latina. [Risk Urbanization and Territorial Expansion in Latin America.] Final Report. Annex 3: Manifestations of Intensive and Extensive Risk in Bolivia. September 2008. - Bolivia Country Document. Proposal for the 6th DIPECHO Action Plan. October 2008.	
Sustainability		
Lack of continuity in updating. This inventory was developed within the framework of two projects, therefore the data contained in it corresponds to the period covered by these two projects.		
Needs		
Inventory updated to 2009.		

Table 12: Country sheet Colombia

Basic information		
Period	1914 - 2007. Systematic data for the period 1970 - 2007	
Last update	March 11, 2009	
Coverage	National	
Resolution level	Municipal	
Number of records	25 858	
Information sources	Official: 1993 - 2007. Directorate for Disaster Prevention and Assistance Newspapers: 1917 - 1969. National and regional newspapers 1970 - 2007. El Tiempo National Newspaper	
Implementation process		
The development and updating of this inventory has been conducted under the responsibility of OSSO Corporation, within the framework of different projects fostered by LA RED and OSSO Corporation. DPAD data has been used since 1993.		
Institutionalization		
Implementing entity	OSSO Corporation	
Institutional use of system	- OSSO Corporation has been coordinating the inventory system for 15 years. - Ongoing database cleansing and updating conducted. - Inventory used for analysis in research projects.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	OSSO Corporation, LA RED, IDEA
	Public and private institutions, both national and international	National Planning, PREDECAN, ISDR
Product list	- IAI-LA RED Report "Gestión de riesgos de desastres ENSO en América Latina. Colombia Los pasos de El Niño 1980 - 2001: Algunas interpretaciones, oportunidades y utilizaciones". ["ENSO disaster risk management in Latin America. Colombia El Niño's Path 1980 - 2001: Some interpretations, opportunities and uses"] Annual Report, Years 1, 2, 3. - Fenómeno ENSO en Colombia. Una visión nacional y regional de los impactos asociados. [The ENSO Phenomenon in Colombia. National and regional view of associated impacts] Final Report. - OSSO Corporation Project. Transferencia y apropiación de resultados de investigación en ofertas amenazas ambientales para la gestión del ordenamiento territorial en el Norte del Cauca y Sur del Valle. [Transfer and ownership of research results in environmental hazards/opportunities for territorial planning in Norte del Cauca and Sur del Valle.] - CAPRADE-PREDECAN Project. "Creación y/o actualización de inventarios históricos de desastres en la Subregión Andina." [Creation and/or update of historical disaster inventories in the Andean Subregion. Report on the analysis of data on losses caused by disasters in Colombia]. May 2008. - CAPRADE-PREDECAN Project. Article Pérdidas por desastres en Colombia, 1970 - 2007 [Losses caused by disasters in Colombia, 1970 - 2007]. - UNDP Project. Análisis comparativo de bases de datos de desastres. [Comparative analysis of disaster databases] Final Report. November 30, 2002. Annex VI Country analysis, the Colombian case. - ISDR Project. "Urbanización de los riesgos y su expansión territorial en América Latina" "Risk Urbanization and Territorial Expansion in Latin America" Final Report. Annex 4 Manifestations of intensive and extensive risk in Colombia. September 2008. - Conpes Document 3318 - Colombia. 2004. - ERN. Estudios sobre desastres ocurridos en Colombia: Estimación de pérdidas y cuantificación de Costos. [Studies on disasters occurred in Colombia: Estimate of losses and quantification of cost] - Disaster Risk and Risk Management Indicators. - OSSO Corporation. DesInventar o descubriendo lo Invisible, Ocurrencia y persistencia de desastres en América Latina. [DesInventar or discovering the invisible. Disaster occurrence and persistence in Latin America]. Unpublished paper. - Marulanda, M. and Cardona, O.D. Análisis del impacto de desastres menores y moderados a nivel local en Colombia. [Impact analysis of minor and moderate disasters in Colombia at the local level]. 2006	
Sustainability		
The OSSO Corporation has kept the inventory up-to-date with resources dedicated for that purpose.		
Needs		
- Inventory updated to 2009. - Resources for ongoing updates.		

Table 13: Country sheet Costa Rica

Basic information		
Period	1968 - 2007	
Last update	August 26, 2008	
Coverage	National	
Resolution level	District	
Number of records	9718	
Information sources	Official: 1995 - 2007. National Emergency Commission - CNE: Data on daily emergencies at national level. Newspapers: 1970 - 2007. La Nación (most widely read national newspaper) Other sources: Fire Department of Costa Rica; Ministry of Health, in particular cases.	
Implementation process		
The development and updating of this inventory has been conducted under the continued responsibility of FLACSO, within the framework of different projects fostered by LA RED and Allan Lavell (?).		
Institutionalization		
Implementing entity	Latin American Faculty of Social Sciences - FLACSO Costa Rica	
Institutional use of system	- FLACSO has conducted database updates since its creation in 1996. - The inventory is used to analyze patterns of loss within the framework of research projects and, since 1999, for the development of the chapter "Armonia con la naturaleza" ["Harmony with Nature"] included in State of the Nation Report on Sustainable Human Development, produced by the government since 1996.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	- FLACSO - Graduate theses (such as Sanahuja, H. E.; 1999).
	Research centers	LA RED, OSSO Corporation, IDEA
	Public and private institutions, both national and international	State of the Nation Program, ISDR
Product list	- State of the Nation Program. State of the Nation Report on Sustainable Human Development. Years 1999 - 2006. - LA RED Pilot Project. Report of Costa Rica, February 2000. - IAI-LA RED Project. Gestión de riesgos de desastres ENSO en América Latina. [ENSO disaster risk management in Latin America.] Progress Technical Report. Years 2 and 3. - Project ISDR. Urbanización de los riesgos y su expansión territorial en América Latina Report final. ["Risk Urbanization and Territorial Expansion in Latin America"] Final Report. Annex 6 Manifestations of intensive and extensive risk in Costa Rica. September 2008. - Master's Graduate Thesis: Sanahuja. El Daño y la evaluación del Riesgo en América Central. ["Damage and Risk Evaluation in Central America"] September 1999.	
Sustainability		
The inventory was updated to the extent permitted by resources allocated by LA RED for that purpose.		
Needs		
- Inventory updated to 2009. - Resources for ongoing updates.		

Table 14: Country sheet Chile

Basic information		
Period	1970 - 2000	
Last update	August 28, 2003	
Coverage	National	
Resolution level	Commune	
Number of records	11 337	
Information sources	Newspapers: El Mercurio (national newspaper).	
Implementation process		
Between 1999 and 2005, the National University's School of Agrarian Sciences joined the IAI-LA RED Project "ENSO Disaster Risk Management in Latin America" to develop the inventory with the support of the PESCA project.		
Institutionalization		
Implementing entity	Department of Environmental Sciences and Natural Resources	
Institutional use of system	Inventory development	
Applications		
Access	Public, available at http://desinventar.org	
User types	Academic	School of Agrarian Sciences of the National University of Chile
	Research centers	IAI, LA RED, IDEA
	Public and private institutions, both national and international	UNDP
Product list	- IAI-LA RED Project. ENSO Disaster Risk Management in Latin America. Progress Reports. - Análisis comparativo de bases de datos de desatres [Comparative analysis of disaster databases] Final Report. November 30, 2002. Annex III Country analysis, the Chilean case. - IDB-IDEA. Risk Indicators Project. 2005.	
Sustainability		
Sustainable only during the year that the project received financing.		
Needs		
Resources for ongoing updates.		

Table 15: Country sheet Dominican Republic

Basic information		
Period	1966 - 2000	
Last update	June 30, 2001	
Coverage	National	
Resolution level	Municipal	
Number of records	2112	
Information sources	Newspapers: Listín Díario	
Implementation process		
This database was developed as a result of LA RED participation in the Presidency Technical Secretariat (STP) and IDB Disaster Prevention Subprogram.		
Institutionalization		
Implementing entity	FLACSO	
Institutional use of system	Inventory used for analysis within a research project.	
Applications		
Access	Public, available at http://desinventar.org	
User types	Academic	FLACSO
	Research centers	LA RED, IDEA, ODC-INGENIAR and ICF Consulting
	Public and private institutions, both national and international	
Product list	- Project on Prevention, mitigation and response institutions equipped with modern and effective institutional instruments. Report on the disasters occurred in Dominican Republic 1966 - 2000. INGENIAR, LA RED, ICF. - IDB-IDEA. Risk Indicators Project. 2005.	
Sustainability		
The database was not maintained for a number of reasons.		
Needs		
Resources for ongoing updates.		

Table 16: Country sheet Ecuador 1970 - 2007

Basic information		
Period	1970 - 2007.	
Last update	October 29, 2008	
Coverage	National	
Resolution level	Canton	
Number of records	4513	
Information sources	Official: 1997 - 1998 Reports of the Civil Defense Provincial Boards Newspapers: 1970 - 2007 El Comercio de Quito, and El Universal de Guayaquil.	
Implementation process		
The development and updating of this inventory has been conducted under the continued responsibility of the National Polytechnic School, within the framework of different projects fostered by LA RED and OSSO Corporation.		
Institutionalization		
Implementing entity	EPN (Polytechnic National School)	
Institutional use of system	- Database cleansed and updated within the framework of diverse projects. The EPN has maintained the database since 1996 through the different stages. - Database used to develop analyses, reports and studies.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	EQUILIBRIO, IDEA, OSSO Corporation
	Public and private institutions, both national and international	EPN, PREDECAN, OXFAM, PREDECAN, ISDR
Product list	- LA RED Pilot Project. Ecuador Report. Disaster Inventory in Ecuador Period 1988 - 1998, Quito, November 1999. - Report IAI-LA RED "Gestión de riesgos de desastres ENSO en América Latina. [ENSO disaster risk management in Latin America.] Final and Progress Report. - Project CAPRADE-PREDECAN "Creación y/o actualización de inventarios históricos de desastres en la Subregión Andina." [Creation and/or update of historical disaster inventories in the Andean Subregion. Report on the analysis of data on losses caused by disasters in Ecuador]. May 2008. - Project CAPRADE-PREDECAN. Paper Ecuador, Losses caused by low, high and extreme impact in Ecuador, 1970 - 2007. - Project ISDR. "Urbanización de los riesgos y su expansión territorial en América Latina" ["Risk Urbanization and Territorial Expansion in Latin America"] Final Report. Annex 5 Manifestations of intensive and extensive risk in Ecuador. September 2008. Final report. - Demoraes and D´Ercole. Cartografía de Riesgo y capacidades en el Ecuador. [Risk and Capacity Mapping in Ecuador] Assessment previous to NGOs response plans. Disaster prevention, mitigation and preparedness. Capacity Assessment in Ecuador. 2001. - IDB-IDEA. Disaster Risk and Risk Management Indicators. 2005	
Sustainability		
The EPN has updated the inventory to the extent that it was included in projects fostered by LA RED and OSSO Corporation.		
Needs		
- Inventory updated to 2009. - Resources for ongoing updates.		

Table 17: Country sheet Ecuador 2007 - 2009

Basic information		
Period	2007 - 2009.	
Last update	March 17, 2009	
Coverage	National	
Resolution level	Canton	
Number of records	1479	
Information sources	Official: Provincial Boards in coordination with primary national bodies such as the Fire Department, Red Cross and Police	
Implementation process		
The development and updating of this inventory has been conducted under the continued responsibility of the Technical Secretariat for Risk Management since 2007, within the framework of the "Creation and/or updating of historical disaster inventories in the Andean Subregion" CAPRADE project.		
Institutionalization		
Implementing entity	Technical Secretariat for Risk Management - STGR	
Institutional use of system	- The Technical Secretariat for Risk Management coordinates data input since 2007. - Permanent data entry is conducted by Civil Defense Provincial Boards - Information is expected to be useful in creating reports on periodical losses to support decision-making on related issues.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	
	Public and private institutions, both national and international	Technical Secretariat for Risk Management
Product list	STGR. Proposal of a National Strategy for Disaster and Risk Reduction. November 2008	
Sustainability		
The Technical Secretariat for Risk Management has assumed the coordination of data entry and centralization as part of its activities.		
Needs		
Technical and methodological support for ongoing inventory cleansing.		

Table 18: Country sheet El Salvador 1900 - 2008

Basic information		
Period	1900 - 2008	
Last update	February 24, 2009	
Coverage	National	
Resolution level	Municipal	
Number of records	5399	
Information sources	Governmental: 1900 - 1913 National Archive Official Gazette, Health Reports, Government and reports,1901 - 1914: Government General Archive 2004 - 2007: Fire Department, Civil Protection, some city halls Newspapers: 1934 - 2007. La Prensa Gráfica and El Diario de Hoy, Periodico MAS, Diario El Salvador, Diario Nuevo, Sucesos Migueleños. Other sources: Study on earthquakes, CEPRODE, CLESSA, CAES,EEO, SIGET	
Implementation process		
The development and updating of this inventory has been conducted under the responsibility of SNET since 2005. Initially supported by UNDP, it was updated as part of SNET's activities with the support of ISDR Intensive and Extensive Manifestations of Risk Project (2008). As a result of the effects of the January 13 and February 13, 2001 earthquakes, a database was created with support of CEPREDENAC and LA RED, within the framework of a technical mission to support the systematization of effects. The result was a 306-entry database, under the responsibility of COEN. The impact of these earthquakes was a relevant precedent for the creation of the SNET.		
Institutionalization		
Implementing entity	National Service of Territorial Studies - SNET	
Institutional use of system	Updating of database	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	LA RED, OSSO Corporation
	Public and private institutions, both national and international	SNET, UNDP, ISDR, CEPREDENAC
Product list		
Sustainability		
The SNET continues to update the inventory, though not in a systematic manner. The inventory has been updated to the extent that resources were allocated for that purpose.		
Needs		
- Inventory updates to 2009, including information such as 2001 quake effects. - Resources for ongoing updates.		

Table 19: Country sheet El Salvador 1980 - 1998

Basic information		
Period	1980 - 1998	
Last update	February 1, 1999	
Coverage	National	
Resolution level	Canton	
Number of records	648	
Information sources	Official: CEPRODE (Center for Protection against Disasters) Newspapers: El Diario Hoy, La Prensa Gráfica 1985 - 1989 and 1992: data deficit	
Implementation process		
The Salvadoran database was first developed by FUNDE (National Foundation for Development) and then supported by PRISMA (Salvadoran Foundation for Development and Environment Research) and OPAMSS (Planning Department of the Metropolitan Area of San Salvador). This database was developed within the framework of LA RED Pilot Project, Phase I.		
Institutionalization		
Implementing entity	FUNDE-OPAMSS	
Institutional use of system	The inventory was used for analysis within a research project.	
Applications		
Access	http://desinventar.org	
User types	Academic	
	Research centers	LA RED, FUNDE
	Public and private institutions, both national and international	OPMASS
Product list	LA RED Pilot Project. El Salvador: El Salvador: Over a decade of "natural" disasters. 1999.	
Sustainability		
The database lacked continuity. The FUNDE team that promoted the database was dissolved.		
Needs		

Table 20: Country sheet Guatemala

Basic information		
Period	1998 - 2000	
Last update	December 31, 2000	
Coverage	National	
Resolution level	Municipal	
Number of records	2418	
Information sources	Newspapers: La Prensa Libre, Siglo XXI, La Hora and El Periódico.	
Implementation process		
The development of this inventory was conducted under the responsibility of FLACSO Central America, within the framework of different projects fostered by LA RED. The inventory was implemented during Phase I of LA RED Pilot Project.		
Institutionalization		
Implementing entity	FLACSO	
Institutional use of system	Inventory used for analysis within a research project.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	FLACSO, LA RED, IDEA
	Public and private institutions, both national and international	
Product list	- Document: Readings on risk and vulnerability in Guatemala, using the DesInventar tool. - Risk Indicators Project	
Sustainability		
The database was not maintained for a number of reasons.		
Needs		
Resources for ongoing updates.		

Table 21: Country sheet Guyana

Basic information		
Period	1972 - 2002	
Last update		
Coverage	National	
Resolution level	Subregion	
Number of records	136	
Information sources	Newspapers: Guyana Chronicle	
Implementation process		
Institutionalization		
Implementing entity		
Institutional use of system		
Applications		
Access		
User types	Academic	
	Research centers	
	Public and private institutions, both national and international	
Product list		
Sustainability		
Needs		

Table 22: Country sheet Honduras

Basic information		
Period	October 26, 1998	
Last update		
Coverage	National	
Resolution level	Municipal	
Number of records	297	
Information sources	Official: CNE/I.G. COPECO, SOPTRAVI	
Focus	1998 Hurricane Mitch Effects in Honduras	
Implementation process		
The Permanent Contingencies Commission (COPECO), through CEPREDENAC, agreed with LA RED on a technical assistance program for the assessment of the effects of hurricane Mitch.		
Institutionalization		
Implementing entity	COPECO	
Institutional use of system	- Training workshops on the use of the program were conducted. - A first phase of effect gathering and processing was developed.	
Applications		
Access	Public, available at http://www.desinventar.org	
User types	Academic	
	Research centers	LA RED, OSSO Corporation
	Public and private institutions, both national and international	COPECO
Product list	Technical assistance to assess the effects of the hurricane in Honduras, November 17 December 8, 1998. Mission Report.	
Sustainability		
This inventory had a specific objective: the assessment of the effects of Hurricane Mitch. Therefore, further data extension or updating was not conducted.		
Needs		

Table 23: Country sheet Jamaica

Basic information		
Period	1973 (October) - 2002 (May)	
Last update	June 1, 2002	
Coverage	National	
Resolution level	District (Subnational level)	
Number of records	859	
Information sources	Official: Office of Disaster Preparedness and Emergency Management - ODPEM Newspapers: Gleaner newspaper	
Implementation process		
Institutionalization		
Implementing entity	University of West Indies	
Institutional use of system		
Applications		
Access	Public, available at http://desinventar.org	
User types	Academic	University of West Indies
	Research centers	LA RED, IDEA
	Public and private institutions, both national and international	UNDP
Product list	- UNDP-OSSO Corporation. Project "Análisis comparativo de bases de datos de desastres". [Comparative analysis of disaster databases] Final Report. November 30, 2002. Annex IV Country analysis, the Jamaican case. - IDB-IDEA. Risk Management Indicators Project. 2005.	
Sustainability		
This inventory was not updated on a regular basis.		
Needs		
- Contact with the body responsible for the development of the inventory or other entities to create possibilities for ongoing inventory updates. - Resources for ongoing updates.		

Table 24: Country sheet Mexico

Basic information	
Period	1980 - 2006.
Last update	August 31, 2008
Coverage	National
Resolution level	Municipal
Number of records	17 172
Information sources	Official: 1992. Records of the National Civil Protection System Newspapers: 1980 - 2006 El Excélsior, El Universal and La Jornada
Implementation process	
The development and updating of this inventory was conducted under the continued responsibility of CIESAS, within the framework of different projects. A cleansing and updating process was conducted with support from the Intensive and Extensive Manifestations of Risk Project (ISDR-OSSO Corporation), under the responsibility of Elisabeth Mansilla (LA RED).	
Institutionalization	
Implementing entity	CIESAS
Institutional use of system	- CIESAS has coordinated the disaster inventory system for 15 years. - Regular database cleansing and updating coducted. - Inventory used for analysis within a research project.

Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	- Article in the Cristobal Colon University Magazine, Number 20. Author: Myriam Giselle de la Parra. - Doctoral theses: Fernando Briones Gamboa (EHESS) Juan Manuel Rodríguez (CIESAS) - Graduate theses (Master's degree): Fercia Angulo Fernández (UACM) José Alfonso Hernández Gómez (CIESAS) - Undergraduate theses: Degree in Anthropology. Myriam de la Parra Arellano (ENAH) Leticia González Álvarez (ENAH)
	Research centers	CIESAS, LA RED, OSSO Corporation, IDEA
	Public and private institutions, both national and international	PREDECAN, ISDR
Product list	- LA RED Pilot Project. Mexico Report, December 1999 - IAI-LA RED Project Gestión de riesgos de desastres ENSO en América Latina. [ENSO disaster risk management in Latin America.] Technical Progress Report 2000 - 2001. Years 2, 3. - Project ISDR. "Urbanización de los riesgos y su expansión territorial en América Latina" ["Risk Urbanization and Territorial Expansion in Latin America"] Final Report. Annex 7 Manifestations of intensive and extensive risk in Mexico Costa Rica. September 2008. - Paper. Pobreza y Desastres en México, Un estudio exploratorio. [Poverty and Disasters in Mexico. A scoping study] - Project BID-IDEA. Indicadores de Riesgo de desastres y de Gestión de Riesgos [Disaster Risk and Risk Management Indicators] - Doctoral thesis: Briones, F. La construction du risque: L´isthme de Tehuantepec face au phénomène climatique "El Niño" [The construction of Risk: The Tehuantepec Isthmus and El Niño phenomenon] (Oaxaca, Mexico 2008) - Doctoral thesis in Social Sciences, specialization in Social Anthropology: Esteves, J. M. La Construcción social del riesgo de desastre: ENSO (El Niño/Southem Oscillation) en la cuenca del río Tijuana [The social construction of disaster risk: ENSO (El Niño/Southern Oscilation) in the Tijuana river basin] (Honorable mention and recommended for publication) (2007). - Master's degree thesis in Culture and Thinking in Latin America. Angulo, F. El Niño, inundaciones y estrategias adaptativas en Tlacotalpan y Cosamalopan, Veracruz [Floods and adaptation strategies in Tlacotalpan and Cosamalopan] (2006) - Master's degree thesis in Social Anthropology. Hernandez, J. A. La Construcción social del riesgo a inundaciones y su asociación con El Niño. El caso de la subcuenca del río Omitlán, Guerrero. 1982 - 83 y 1997 - 98 [The social construction of flood risk and its relation to El Niño. The case of the Omitlán river sub-basin, Guerrero. 1982 - 83 and 1997 - 98] (2006) - Undergraduate thesis. De la Parra, M. Degree in Anthropology. Desastres y pobreza, Los desastres vistos como un problema no resuelto del desarrollo. [Disasters and Poverty. Disaster as an unresolved development issue] (2005) - Undergraduate thesis. González, L. Degree in Archaeology. El Niño perdido en la historia de México. Busqueda desde una perspectiva multidisciplinaria. [The lost child-El Niño- in the history of Mexico. A multidisciplinary search] (2001 - 2002)	
Sustainability		
The inventory was updated to the extent permitted by resources allocated for that purpose.		
Needs		
- Inventory updated to 2009. - Resources for ongoing updates.		

Table 25: Country sheet Nicaragua

Basic information		
Period	October 26, 1998	
Last update		
Coverage	National	
Resolution level	Municipal	
Number of records	146	
Information sources	Official: National Civil Defense System Data from the 1995 census (Institute of Statistics and Census) was also included.	
Implementation process		
The Permanent Contingency Commission - National Civil Defense System, through CEPREDENAC, agreed with LA RED on a technical assistance program for the assessment of the effects of hurricane Mitch.		
Institutionalization		
Implementing entity	Civil Defense	
Institutional use of system	- Training workshops on the use of the program were conducted. - A first phase including effect gathering and processing was developed.	
Applications		
Access	Public, available at http://desinventar.org	
User types	Academic	
	Research centers	LA RED, OSSO Corporation
	Public and private institutions, both national and international	Civil Defense
Product list	Technical assistance to assess the effects of hurricane Mitch in Nicaragua, November 30 - December 8, 1998. Consolidated Report.	
Sustainability		
This inventory had a specific objective: the assessment of the effects of Hurricane Mitch. Therefore, further data extension or updating was not conducted.		
Needs		

Table 26: Country sheet Panama

Basic information		
Period	1929 - 2008	
Last update	June 29, 2008	
Coverage	National	
Resolution level	Corregimiento (district subdivision)	
Number of records	3539	
Information sources	Official: 1929 - 2008 National Civil Defense System-SINAPROC Newspapers: 1929 - 1996. La Prensa and La Critica for specific days.	
Implementation process		
The development and updating of this inventory has been conducted on an ongoing basis under the responsibility of SINAPROC. The inventory started in 1997. For its implementation, the record format used to date (news sheet) and the DesInventar basic sheet were integrated. Until late 1998, centralization of the information provided via telephone and radio throughout the provinces was conducted by SINAPROC headquarters. Subsequently, provincial office officials were trained in sending emergency reports to headquarters using the new news sheet. Methodological inconsistencies found in data recorded by the provinces, however, have led to a return to the previous process of centralization.		
Institutionalization		
Implementing entity	SINAPROC	
Institutional use of system	- The disaster inventory system in the country is coordinated by SINAPROC. - Ongoing inventory updates. - Inventory used to give workshops to other institutions. - Inventory used for reporting on registered emergencies. - Inventory used for analysis within a research project.	
Applications		
Access	Public, available at http://desinventar.org	
User types	Academic	
	Research centers	
	Public and private institutions, both national and international	SINAPROC
Product list	- La Red Pilot Project. Report of database analysis in Panama. 1999. - UNDP-OSSO Corporation. Project "Análisis comparativo de bases de datos de desastres". [Comparative analysis of disaster databases] Annex V Country analysis, the Panamanian case. 2002.	
Sustainability		
SINAPROC has managed to consolidate a continuous database, which is updated on a daily basis and used officially.		
Needs		
Technical and methodological support for SINAPROC staff in charge of the database to improve and correct some methodological weaknesses.		

Table 27: Country sheet Peru

Basic information		
Period	1970 - 2006	
Last update	October 2, 2008	
Coverage	National	
Resolution level	District	
Number of records	20 551	
Information sources	Official: 1994 - 1996 Statistical Yearbooks published by INDECI Newspapers: 11 national newspapers; most data was extracted from El Comercio newspaper.	
Implementation process		
The development and updating of this inventory has been conducted under the continued responsibility of ITDG, within the framework of different projects fostered by LA RED and OSSO Corporation.		
Institutionalization		
Implementing entity	ITDG	
Institutional use of system	- Database cleansing and updating conducted. - Inventory used for analysis within research projects. - Database used to analyze data associated with the June 23 earthquake, to compare accumulated effects over the last 30 years in Peru's Southern Region,to disasters of lesser impact caused by different types of events, using the new records of earthquake-related effects.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	LA RED, ITDG, OSSO Corporation
	Public and private institutions, both national and international	UNDP, PREDECAN, ISDR
Product list	- IAI-LA RED Project. Gestión de riesgos de desastres ENSO en América Latina. [ENSO disaster risk management in Latin America.] Scientific Progress Report Annual 1999 - 2000. Year 1 (2000), Year 2 (2002). Summary of Progress Report Year 3. - CAPRADE-PREDECAN Project. "Creación y/o actualización de inventarios históricos de desastres en la Subregión Andina." [Creation and/or update of historical disaster inventories in the Andean Subregion.] Report on the analysis of data on losses caused by disasters in Peru. May 2008. - CAPRADE-PREDECAN Project. Paper- Peru. Losses caused by disasters in Peru, 1970 - 2006. - UNDP. Strategic Framework for Sustainable Recovery and Vulnerability Reduction in the area affected by June 23 earthquake in Peru. Mission Report. - ISDR Project. "Urbanización de los riesgos y su expansión territorial en América Latina". ["Risk Urbanization and Territorial Expansion in Latin America"] Final Report. Annex 8 Manifestations of intensive and extensive risk in Peru. September 2008.	
Sustainability		
The inventory was updated to the extent permitted by resources allocated for that purpose.		
Needs		
- Inventory updated to 2009. - Resources for ongoing updates.		

Table 28: Country sheet Trinidad and Tobago

Basic information		
Period	1966 - 2000	
Last update		
Coverage	National	
Resolution level	Provincial (Subnational)	
Number of records	661	
Information sources	Newspapers: Trinidad Guardian	
Implementation process		
Institutionalization		
Implementing entity		
Institutional use of system		
Applications		
Access	Public, available at http://desinventar.org	
User types	Academic	
	Research centers	LA RED, IDEA
	Public and private institutions, both national and international	UNDP
Product list	IDB- IDEA. Risk Management Indicators Project	
Sustainability		
This inventory was not updated on a regular basis.		
Needs		
- Contact with the body responsible for the development of the inventory or other entities to create possibilities for ongoing inventory updates. - Resources for ongoing updates.		

Table 29: Country sheet Venezuela

Basic information		
Period	1970 - 2007	
Last update	February 6, 2009	
Coverage	National	
Resolution level	Parish	
Number of records	4855	
Information sources	Newspapers: mainly El National and El Universal (national newspapers).	
Implementation process		
This inventory was developed within the Project "Creación y/o actualización de inventarios históricos de desastres de la Subregión Andina" [Creation and/or updating of historical disaster inventories in the Andean Subregion], implemented by the Andean Community and CAPRADE. The National Directorate of Civil Defense and Disaster Management (DNPCAD) is committed to the continuity of inventory updating. This means that from 2008 on, data will come from an official source.		
Institutionalization		
Implementing entity	National Directorate of Civil Defense and Disaster Management - DNPCAD	
Institutional use of system	The DPCAD will update the database with information registered by State Civil Defense Directorates. This process is in its initial stage.	
Applications		
Access	Public, available at http://www.online.desinventar.org	
User types	Academic	
	Research centers	OSSO Corporation
	Public and private institutions, both national and international	PREDECAN, ISDR
Product list	- CAPRADE Project. "Creación y/o actualización de inventarios históricos de desastres en la Subregión Andina." [Creation and/or update of historical disaster inventories in the Andean Subregion. Report on the analysis of data on losses caused by disasters in Venezuela]. May 2008. - ISDR Project. "Urbanización de los riesgos y su expansión territorial en América Latina" ["Risk Urbanization and Territorial Expansion in Latin America"] Final Report. Annex 9 Manifestations of intensive and extensive risk in Venezuela. September 2008.	
Sustainability		
DNPCAD is committed to initiating a process of inventory updates. To date, staff members have been trained and one person has been appointed to be in charge if this process.		
Needs		
- Inventory updated to 2009. - Technical and methodological support to DNPAD staff in charge of inventory updates.		

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