STEP 5
Conduct analysis, manage data and ensure sustainability

STEP 4
Collect, enter and validate data

STEP 3
Establish the disaster loss database within disaster risk reduction framework

STEP 2
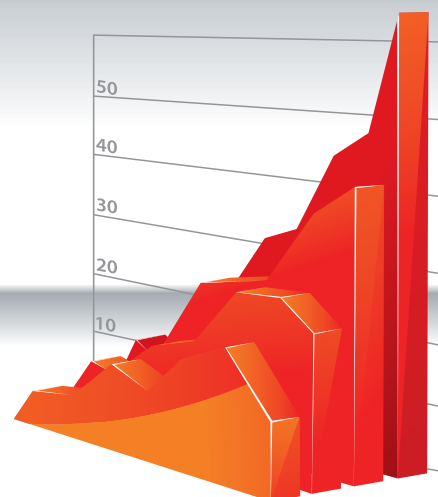Find an appropriate 'home' for the database

STEP 1
Create an enabling environment for disaster risk reduction

Risk Knowledge Fundamentals

Guidelines and Lessons for Establishing and Institutionalizing Disaster Loss Databases

Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction

Risk Knowledge Fundamentals

Guidelines and Lessons for Establishing and Institutionalizing Disaster Loss Databases

Contents

Acronyms

BCPR — Bureau for Crisis Prevention and Recovery (UNDP)

BNPB — National Disaster Management Agency, Indonesia

CO — Country Office (UNDP)

CPR — Crisis Prevention and Recovery

CRED — Centre for Research on Epidemiology of Disasters

DAC — Development Assistance Committee

DDPM — Department of Disaster Prevention and Mitigation (Thailand)

DiBi — Indonesia Disaster Information and Data System

DMC — Disaster Management Centre (Sri Lanka)

DMM — Disaster Management and Mitigation

DRR — Disaster Risk Reduction

GIS — Geographic Information System

GN — Grama Niladhari (Sri Lanka)

GoTN — Government of Tamil Nadu

GRIP — Global Risk Identification Programme (UNDP)

IDP — Internally Displaced Person

Indisdata — Indian Disaster Database

ISDR — International Strategy for Disaster Reduction

IT — Information Technology

JC — Joint Commissioner

M/DM&HR — Ministry of Disaster Management and Human Rights (Sri Lanka)

MIS — Management Information System

MPND — Ministry of Planning and National Development (Maldives)

NCDM — National Council for Disaster Management (Sri Lanka)

NDMC — National Disaster Management Centre (Maldives)

NGO — Non-Governmental Organization

NIC — National Informatics Centre (Tamil Nadu, India)

OECD — Organisation for Economic Co-operation and Development

RCB — Regional Centre in Bangkok (UNDP)

RP — Regional Programme

SC/CRA — Special Commissioner/ Commissioner of Revenue Administration

TOR — Terms of Reference

UNDP — United Nations Development Programme

UNV — United Nations Volunteer

USD — United States Dollars

VAO — Village Administrative Officer

VIT — Vellore Institute of Technology (Tamil Nadu)

Executive Summary

This report documents the experiences of the UNDP Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction (RP) in implementing disaster loss databases using the DesInventar[1] methodology.[2] The RP has been established in response to the Indian Ocean tsunami of 2004, and is managed by the UNDP Regional Centre in Bangkok's Crisis Prevention and Recovery Team. DesInventar is based on a relational database structure and a disciplined expert assisted structure for data collection and classification that permits the homogeneous capture, analysis and graphic representation of information on disaster occurrences and losses.

This report is divided into four sections:

- The first section provides step-by-step guidelines for developing a disaster loss database, based on the RP's experience.

- The second section identifies and documents the processes adopted in each of the tsunami affected countries during the implementation of the disaster loss database.

- The third section discusses and draws key challenges, lessons and good practices from the implementation of disaster loss database in each of the tsunami affected countries.

- The fourth section gives the background on UNDP and the RP, and discusses disaster loss databases in the context of disaster risk reduction (DRR).

In the first section, two options are proposed for the implementation of disaster loss databases. The first option is its implementation within government. The second is a transitional option of implementation by a non-governmental organization endorsed by the government. The government-managed option is the preferred option but should only be selected when a number of essential conditions are in place relating to government's institutional arrangements and legislation. The second option involves the establishment of a disaster loss database 'outside' of government structures. Reasons for selecting the latter option could be that the government does not have policy frameworks in place

to support the implementation and use of a disaster loss database and/or cannot see the full value in such an initiative. Both options follow five generic steps as follows:

Step 1 – Create an enabling environment for disaster risk reduction

Step 2 – Find an appropriate 'home' for the database

Step 3 – Establish the disaster loss database within disaster risk reduction framework

Step 4 – Collect, enter and validate data

Step 5 – Conduct analysis, manage data and ensure sustainability

In the second and third sections, key lessons learned from the implementation of the disaster loss database are identified for future UNDP operations beyond the tsunami affected countries. They include the type of environment required to enable successful deployment and institutionalization, and the various steps that need to be taken and issues to consider for start up, data collection, entry and validation, and ensuring sustainability.

The findings from this review of database implementation concludes that disaster loss databases with validated data and inventories are essential for identifying and tracking patterns of disaster risk, and that they are a fundamental requirement for implementing efficient and effective DRR policies and programmes.

From the RP experience, establishment of the disaster loss database has had mixed results as a consequence of a considerable number of both direct and indirect factors as follows:

Direct Factors

- Approach to implementation at the country level

- Speed of which the RP was established

- Recruitment and staffing issues (at the regional and country levels)

Indirect Factors

- Status of legislation to support disaster management

- Capacity issues including those of national disaster management institutions

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1   DesInventar is developed by the Network for Social Studies on Disaster Prevention in Latin America (LA RED) in late 1993 and used by more than 25 countries.

2   This report is not intended as an evaluation or review of the impact and effectiveness of these databases or the RP.

- Priorities of the host government and priorities of the UNDP Country Office (CO)

- National ownership issues

- Competing priorities for both the government and UNDP CO in response to tsunami recovery efforts (initially less importance was given to data collection)

- Level of support for the establishment of enabling environments for DRR

- Quality of analysis and subsequent perceived value of the database

Until now both Sri Lanka and Tamil Nadu are the most advanced in rolling-out the disaster loss databases, and the best lessons can be gathered from both these cases. In short, both countries have recordings of disaster events for the past 30 years available online, and the databases are institutionalized in relevant government offices, with commitment from government to continue collecting and validating data, and using the database for risk analysis. In Sri Lanka, the disaster loss database was used by the Disaster Management Centre to develop the National Disaster Management Plan. In India, requests from neighbouring states (Andhra Pradesh, Kerala and Pondicherry) for support in the implementation of disaster loss databases are testimonies to its relevance and usefulness. In fact, a number of other states in India have developed or are developing disaster loss databases using the DesInventar platform including Orissa, Uttar Pradesh and Uttaranchal. Detailed description of the implementation process in Sri Lanka and Tamil Nadu is available in Annexes II and III, respectively.

Important lessons and experiences are also available from the implementation in Indonesia, Maldives and Thailand. All of these countries are at very different stages of implementation. In Indonesia, the database was launched in July 2008 but has been rapidly adopted and is being used for guiding the ongoing process of developing a National Disaster Risk Management Plan and for monitoring the impact of crisis to poverty at the community level. In Maldives, progress has been slow due to institutional restructuring, high staff turnover, and inadequacy in staff capacity. In Thailand, the Department of Disaster Mitigation and Prevention that 'houses' the disaster loss database is also developing a GIS/MIS system, similar to DesInventar, for capturing information about disasters and losses, thus slowing progress. The development of an interface between DesInventar and other systems to be able to import and export data is currently being considered.

While the ultimate goal, beyond a professionally populated database and clear analysis, is the full institutionalization of the system that enables government decision makers to plan, prepare and mitigate future disasters, the single major lesson learned so far is that implementation started too late in the tsunami affected countries. As the attention of the countries was focused on immediate priorities (safe grounds, evacuation routes, etc.) after the tsunami disaster, this meant that respective governments were not in a position to optimize the use of loss data for disaster recovery, mitigation and preparedness, in the aftermath. Only recently is there a growing understanding of the importance of DRR and of disaster loss databases as a necessary component for effective DRR.

The key lessons learned from the RP experience in implementing disaster loss databases are listed below. These lessons have been derived from review of related documentations, discussions with technical specialist concerned, and from various missions to the tsunami affected countries.

1. Disaster loss databases must be developed as an **integral part of DRR initiatives.** In the absence of a nationwide risk assessment in these countries, the database is a central tool for governments to better understand the disasters and threats in order to effectively mitigate and prepare for them.

2. An **enabling environment** makes the system work. The enabling environment that needs to be created is one under which government ownership and understanding of DRR initiatives is clear, and the link between these initiatives and the need for validated data to be able to plan and mitigate future disasters is in place. Where necessary, UNDP support should focus on strengthening government systems and capacity where DRR capacities are either not in place or inadequate.

3. Recognize the need for advanced planning, assessment and appropriateness with regards to **identifying counterpart nodal agencies and human resources** at regional and country levels. They are key determinants of the successful implementation of disaster loss databases. Implementation outside of the government system should only be considered as a last option.

4. The process of disaster loss database implementation needs to be **participatory and inclusive,** involving governments and other partners to promote government ownership of the system and its institutionalization.

5. Government must **own the database** from the outset and be self-driven to produce the analysis to assist it with planning and management.

6. Build on **corporate investment** made in developing expertise in the implementation of disaster loss databases and utilization of the DesInventar methodology, for the benefit of effective DRR. Support from the RP has played a crucial role in the successful implementation of the

disaster loss databases and continued support has been deemed necessary.

7. Understand why the data is being collected and what the end use of the data will be. With this understanding the **process and methodology** can be put in place.

8. The **data collection process** must be structured and have cross checks within it. Data records should be from 'agreed and accepted' sources and must be kept and easily accessible. Data collection staff must be trained to understand disaster terminology and the use of the data, and know exactly how to collect it.

9. Division of duties, clear documentation, strict quality assurance and complete records of documentation (data card and photocopy or digital copy of the source of data) kept on file are essential for **data validation.**

10. **Analysis** must be professional, clear, understandable and relevant to the target audience. Different levels of analyses should be prepared depending on the audience of the analysis. But in general, they should comprise quantitative and qualitative information that is user-friendly and supports the decision-making process.

11. Ongoing **training and professional development** for staff and counterparts are essential for effective and coordinated processes towards successful implementation of the disaster loss database and DRR. UNDP should support capacity development efforts for staff, government counterparts and implementing partners through technical advice, specialist training and re-training.

12. **Multi-skilling** of the personnel involved adds greater depth to the quality of the outputs, which require knowledge of several disciplines. As such, a team effort is essential to bring together an all-round interpretation and profile of the data collected.

13. Without **customization,** databases could be a wasted investment. There is a need to provide support in customizing the database to meet the needs of the government, and to ensure that it complements existing government systems and requirements, so that at the end of the day it is actually used.

14. **Locally customized manuals** need to be developed with the target group in mind.

15. More effort needs to be placed in **advocating** for the importance of disaster loss databases. UNDP support should assist in providing government with a better understanding of the use and benefits of a disaster loss

database for DRR policy development, planning and programming.

The RP has developed substantial in-house expertise since its establishment in 2005, contributing significantly to UNDP's decade-long experience in DRR and seven years of experience in implementing disaster loss databases in Asia. This expertise includes not only the physical development of disaster loss databases, but also the creation of an enabling environment required to manage disasters, the detailed technical knowledge of the system and experience in its customization. This report is primarily intended for UNDP COs trying to assist the governments in identifying and reducing disaster risks, but others trying to establish databases would also find it useful. In the fourth section, the RP's efforts in implementing disaster loss databases as part of a broader mandate in DRR are documented.

Introduction

The Indian Ocean tsunami disaster of 26 December 2004 was one of the most devastating natural disasters in history. Within a matter of minutes, approximately 200,000 lives were lost, populations were displaced, and livelihoods, homes and infrastructure were ruined. A massive humanitarian response focusing on both relief and reconstruction was undertaken. UNDP through its Country Offices (COs) supported both national and local authorities by providing humanitarian and recovery assistance to the affected population.

At the regional level in Asia, the UNDP Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction (RP) was conceptualized in response to the 2004 tsunami to support UNDP COs efforts. Strategies are focused on strengthening capacities of tsunami affected countries in disaster risk reduction (DRR), and are in line with the Hyogo Framework for Action (HFA).

Risk identification is one of the five priority areas of the Hyogo Framework for Action: *The starting point for reducing disaster risk and for promoting a culture of disaster resilience lies in the knowledge of the hazards and the physical, social, economic and environmental vulnerabilities to disasters that most societies face, and of the ways in which hazards and vulnerabilities are changing in the short and long term, followed by action taken on the basis of that knowledge.*[3]

In addressing this priority, one of RP's strategies is to enhance institutional systems for building risk knowledge through the development of disaster loss databases. At the core of any risk knowledge efforts is the need for reliable and easily accessible data on hazards, vulnerabilities and risks. Disaster loss databases provides for systematic collection of relevant data, and their validation and sharing, for the historical analysis and potential future disasters based on past evidences.

1.1 Disaster Loss Databases

UNDP through BCPR has been making significant efforts in analysing losses due to natural disasters. The UNDP Report *Reducing Disaster Risk: A Challenge for Development* has developed a Disaster Risk Index, using a number of parameters such as mortality, for all countries in the world.

Similarly, the Centre for Research on Epidemiology of Disasters (CRED) maintains a global database[4] of natural disasters that provides useful information and analyses on various parameters of past disaster events. Munich Re also maintains a database 'NatCatSERVICE'[5] for natural catastrophes. The database allows analysis of regional and global hazards as well as trends.

While these databases provide very useful information about regional and global losses and hazard trends, they provide little information on the occurrence and impacts of natural disasters at subnational levels for national governments to better understand the past and potential risks faced in different parts of the country.

A nationally-owned disaster loss database built using the data collected and validated by national and subnational agencies provides useful information to key stakeholders in a country to better analyse the disaster trends and impacts, allowing policy makers and planners to make informed decisions.

1.2 DesInventar

DesInventar[6] is based on a relational database structure and a disciplined expert assisted structure for data collection and classification that permits the homogeneous capture, analysis and graphic representation of information on disaster occurrences and losses. DesInventar was created by the Network of Social Studies on Disaster Prevention in Latin America (LA Red) in 1994. Over the past 15 years, the DesInventar database and methodology have further developed and been customized to meet the emerging needs of countries, and is now being used in more than 25 countries in Latin America and the Caribbean. In Asia, seven countries–India, Indonesia, Maldives, Nepal, Iran, Sri Lanka and Thailand – have adopted the DesInventar methodology.

The database software is able to generate reports, charts and maps based on the information that has been entered

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3   UN/ISDR, Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters, World Conference on Disaster Reduction, Kobe, Hyogo, Japan, 18–22 January 2005.

4   http://www.em-dat.net.

5   http://www.munichre.com/en/ts/geo_risks/natcatservice/default.apx.

6   For further details on DesInventar see http://undp.desinventar.net.

into the database. The database is very flexible and in Asia the DesInventar software has been customized to meet the needs of the different countries, including the use of local languages, disaster types and non-disaster categories. The successful customization has played a vital role in developing a sustainable system and initiative.

The RP has built on UNDP's experience in assisting countries develop disaster loss databases since 2002, and the use of the DesInventar methodology since 2005 in advocating and implementing the disaster loss databases in the tsunami affected countries. The focus of the RP is in the five tsunami affected countries in Asia – India, Indonesia, Maldives Sri Lanka and Thailand – but by request, support has also been extended to other countries, and a number of regional activities have included the participation of non-tsunami-affected countries.

1.3 About this Report

This report documents the RP's efforts in implementing disaster loss databases using the DesInventar methodology, and captures the lessons learned and good practices that can be applied by other countries. To adequately document the key lessons and practices, a study was commissioned involving the review of relevant documentation and missions to the target countries. The analysis and information presented in this report are based on the information collected during 2008. Two workshops were also organized. The first workshop in May 2008 focused on the process and formulation of the documentation required to draw out the key lessons learned, and the second workshop in September 2008 aimed to finalize and develop consensus on the lessons for the benefit of future programmes in the 'non-tsunami' countries. Based on these lessons, a step-by-step guide for disaster loss database implementation was also developed.

This report is divided into four sections:

- The first section provides step-by-step guidelines for developing a disaster loss database, based on the RP's experience.

- The second section identifies and documents the processes adopted in each of the tsunami affected countries during the implementation of the disaster loss database.

- The third section discusses and draws key challenges, lessons and good practices from the implementation of disaster loss database in each of the tsunami affected countries.

- The fourth section gives the background on UNDP and the RP, and discusses disaster loss databases in the context of DRR.

Disaster Loss Database Implementation: A Step-by-Step Guide

Based on experiences from Asia, there are two options for implementing disaster loss databases. The first option is its implementation within government. The second is a transitional option of implementation by a non-governmental organization (NGO) endorsed by the government and with the management of the data in the hands of the government.

The government-managed option is the preferred option but should only be selected when a number of essential conditions are in place relating to government's DRR institutional arrangements and legislation. Should such arrangements not be in place it is important that support is focused on developing the needed capacity within government, and preparing appropriate policies and government structures. Project managers could also look at either the delayed implementation of the database, or endorse the second option to initially run the database independently of government, but with the medium-term goal of fully integrating the database into a government system.

The second option involves the establishment of a disaster loss database 'outside' of government structures. Justification for doing this may include that fact that the government cannot at the time meet the conditions required for implementation (e.g. the government does not have policy frameworks in place to support the implementation and use of a disaster loss database and/or cannot see the full value in such an initiative).

The second option must have the approval of government and be designed in such a way that through capacity building and skills transfer it has every opportunity of eventually becoming part of the government structure. The ownership and management of the data collected should of course remain in government hands.

The key issues and conditionality for the establishment of the database system are described in Section 4 of this document.

Table 1: Government versus Non-Government Implementation for the Disaster Loss Database

Host	Advantages	Disadvantages	Limitations
Government	• The database links to existing institutional and legal systems • Participation and contribution from key stakeholder agencies • The disaster data collected and analysed provides 'official' status to the database, which means it could be used by policy planners for formulating development policies • 'Official database' has a clear advantage of being a single reference for all stakeholders • Long-term sustainability within government achievable • Clear linkage and use with government decision makers	• May be time-consuming and slow due to internal processes within the government system	• Depending on the capacity of the host government agency, there may be several limitations (such as further enhancement of the database system, analysis for various levels, and improvements of the processes and systems needed to maintain the database, etc.) • Some countries may not consider sharing the data and its analysis with a wider group of stakeholders
Non-Government	• Could be quick to start and build the database • In the separation of the historical data collection from the ongoing database, the historical data collection phase can be completed quicker • Capacity building is not a major component of the implementation	• There may be low acceptance of the database by the government • Due to ownership issues, the other (non-government) stakeholders may not accept the results of the database • Sustainability (without external funding) may be difficult	• A non-government organization may have limitations in accessing disaster data (for both past and future disaster events)

Option 1 – Government Implementation

The following five key steps are involved:

Step 1: Ensuring an enabling environment in the context of DRR

Assess DRR policies, law, regulations and institutional structures that are in place. Initial work and support from UNDP or other agencies should focus on assistance needed by the government in developing appropriate policies, laws, regulations, structures and capacities for the disaster loss database system to be implemented effectively. Support for such activities should not be stand alone but should be part of a wider DRR initiative. Advocacy for DRR and the need for historical disaster loss data should be at the forefront of this step.

Step 2: Finding an appropriate 'home' for the database

It is imperative to ensure that the database is located in the appropriate nodal agency (usually the disaster management agency/centre or possibly the department dealing with statistics) so that a quick start up of operations is feasible.

This step also means that the government will take ownership of this initiative. While the UNDP CO is best placed to describe the local political context and level of government support, where necessary, advisors in regional offices can assist the UNDP CO with in-country assessments of government structures and capacity with regards to disaster management.

The UNDP CO also needs to ensure that the government fully 'buys in' to the importance of data and inventories on disasters to better identify and track patterns of disaster risk and effectively manage and respond to disasters. Government ownership can be expected through cost sharing and/or allocation of full-time staff to support the implementation and the long-term maintenance of the database.

Step 3: Establishing the disaster loss database

This involves the selection of the type of database and the physical Implementation of the database and will involve the following:

- An assessment of local conditions, existing databases and special requirements with regards to customization options that needs to be undertaken with the government. Based on this assessment the software fields will be customized with support from UNDP (or other agencies) and the Disaster Inventories Associate (employed to set up and maintain the disaster loss database), with preference being given to the use or adaption of existing government systems.

- Procurement of equipment will then be required followed by the recruitment of staff (either by UNDP or partner) and the training of staff by UNDP or appropriate specialists.

Step 4: Data collection, entry and validation

This step involves the actual data collection and validation/ verification process with the government. Prior to data collection, the government needs to identify sources of relevant and reliable data that will be collected and inputted in the database. Personnel involved in collecting the data also need to be cleared with the government.

Once verification and data sources are agreed upon, UNDP and the government will embark on the data collection and verification processes as described in Section 4 and the Annexes of this report. As mentioned in Section 4, the separation of the historical data collection and ongoing data collection should be considered.

Step 5: Data analysis, data management and sustainability

This step should be approached with the utmost caution – if not well managed it can result in delays in the institutionalization process and even possibly the discrediting of the database itself. Managed well, this will be the foundation for the institutionalization and long-term sustainability of the disaster loss database.

The quality and completeness of the data are critical to the usefulness of the database system. The analysis must also present information that is relevant and can be used by governments to make decisions.

While the successful analysis and use of the analysis by the government and partners of the government will signal the initiation of the exit strategy for UNDP support, it is desirable that UNDP offers to maintain ongoing quality assurance and training support to these important facilities. As the database is part of a wider DRR initiative in the country, the analysis and findings should feedback into the umbrella DRR programme and be used to guide DRR activities of the UNDP CO and host government.

Option 2 – Non-Governmental Implementation

This second option for implementation could include NGOs, research centres, academic institutions or even UN agencies, but essentially it should be considered an interim option/solution with the medium-term goal of institutionalization within government structures. This option involves the following steps/considerations:

Step 1: Creating an enabling environment for DRR

Where supporting policies, laws, regulations and DRR structures are very limited or not in place, an assessment and identification of these gaps needs to be undertaken. Based on this assessment, initial interventions and support from UNDP should focus on putting in place appropriate legal and institutional arrangements for DRR, and strengthening capacities of the future long-term 'home' of the disaster loss database. Support for such activities should not be stand alone but should be part of a wider DRR initiative. Advocacy for DRR and the need for historical disaster loss data should be at the forefront of this step.

Step 2: Establishing an appropriate 'temporary home' for the database

It is crucial to ensure correct positioning of the database in the appropriate NGO, and that a quick start up of operations is feasible. It is very important that the quality and respectability of the non-government implementing partner be high, as without this, the handover in the medium term to the government may be difficult, and the database and analysis and even personnel from it may not be accepted by the government.

The UNDP CO is well placed to describe the local political context and level of government support towards the proposed implementing partner, and based on this, a decision should be made as to the medium- and long-term implications and sustainability of this using a non-government implementing partner.

Advisors in regional offices can assist the UNDP CO with the assessment of implementing partners and their DM capacity. The UNDP CO needs to work closely with the implementing partner to ensure that the government buys in to the importance of data and inventories on disasters as this will be vital to ensuring that the information and analysis are used by decision makers.

Step 3: Establishment of the disaster loss database

This step involves the selection of the type of database and the physical Implementation of the database and will involve the following:

- An assessment of local conditions, existing databases and special requirements with regards to customization that needs to be undertaken (and while this option is being implemented outside of government, relevant government stakeholders should still be consulted in this process). Based on this assessment, the software fields will be customized with support from UNDP (or other agencies) and the Disaster Inventories Associate.

- Procurement of equipment will then be required followed by the recruitment of staff (either by UNDP or partners) and the training of staff by UNDP or appropriate specialists.

Step 4: Data collection, entry and validation

The data collection and validation/verification process should be confirmed with the relevant government agencies before data collection is initiated. Ideally, the government should confirm the sources of data that are considered appropriate for the database. Personnel involved in collecting the data also need to be confirmed with the government. If government agreement on these issues is not possible, endorsement should be obtained by a credible and neutral agency such as UNDP.

Once verification and data sources are agreed on, UNDP and the implementing partner will embark on the data collection and validation processes as described in Section 4. Separation of the historical data collection and ongoing data collection should be considered and this may in fact be the basis for selecting this second option (to operate outside of government).

For this second option, it is vital that the processes involved in this step are endorsed by the relevant government agencies as they will be the end users of the database and information generated from the database.

The quality and completeness of the data are crucial and important prerequisite to the successful implementation of step 5.

Step 5: Data analysis, data management and sustainability

This step should be approached with total professionalism using internationally acceptable standards, and it should be managed in such a way so as not to result in delays and the discrediting of the database. Implemented effectively with verified data, this will be the foundation for the eventual institutionalization and long-term sustainability of the disaster loss database.

The analysis should provide information that is relevant and can be used by governments to make decisions.

Upon the successful analysis and use of the analysis by the government, acceleration of the institutionalization process of the system can be expected. It also signals the initiation of an exit strategy for UNDP or other supporting agencies. However, the provision of ongoing technical quality assurance monitoring, general technical support and training should be considered. As the database is part of a wider DRR initiative in the country, the analysis and findings should feedback into the umbrella DRR programme and used to guide DRR activities of the UNDP CO and host government.

Disaster Loss Database Implementation in Tsunami Affected Countries

3

This section describes the process of setting up and institutionalizing disaster loss databases in five target countries of the RP – India (in Tamil Nadu State), Indonesia, Maldives, Sri Lanka and Thailand. The process involves not only the physical set up and customization of the databases, but also the creation of an enabling environment for DRR, within which disaster loss databases are used to generate analyses for making informed decisions. Challenges faced, factors that influence the success and failure of the implementation, and lessons learned from the process are documented below by country. Section 4 reviews the experiences in the countries, and presents some key lessons and good practices that can be applied in other countries that are planning to set up disaster loss databases.

Table 2: Snapshot of Disaster Loss Database Implementation in the Five Tsunami Affected Countries

	Tamil Nadu, India	Indonesia	Maldives	Sri Lanka	Thailand
Website	http://www.indisdata-tn.gov.in	http://dibi.bnpb.go.id	http://www.ndmc.gov.mv	http://www.desinventar.lk	Offline
Government partner	Disaster Management and Mitigation Department	National Disaster Management Agency (BNPB)	National Disaster Management Centre (NDMC)	Disaster Management Centre (DMC)	Department of Disaster Prevention and Mitigation (DDPM)
Part of wider UNDP or government DRR initiative	Yes	Yes	No	Yes	No
Status of disaster loss database (as of October 2008)	1976–2007, data collected and validated, analysis undertaken	1997–2007 and ongoing, data collected and validated	1978–2006 (not fully populated)	1974–2008 and ongoing, data collected and validated, analysis undertaken	currently 2006 only
Coverage of the database	State	National	National	National	National
Level/detail of lowest resolution of database	Subdistrict (*Taluk*) level – extensive customization (statewide)	Subdistrict (*Kecamatan*) (initial implementation in 6 focus areas)	Island level (nationwide)	Subdistrict – extensive customization (nationwide)	Subdistrict level (to be nationwide)
Current staffing allocated (as of October 2008)	2 UNDP contracted staff with part-time support for data entry	1 UNDP contracted staff	2 junior government staff	1 UNDP staff, research and data entry staff. Government staff also allocated	1 UNDP contracted staff
Source of data	Government data	Government data	Government records, websites and newspapers	Print media, government	Government data
Local understanding of the benefits of a disaster loss database	Socialization is a continual process as a result of the high turnover of government staff	Strong understanding	Requires more socialization	Strong understanding of the benefits of a disaster loss database	Requires more socialization
Level of analysis undertaken	Preliminary analysis undertaken and completed	No analysis as yet	No analysis as yet	Preliminary analysis undertaken and published	No analysis as yet

3.1 India (Tamil Nadu)

Figure 1: Map of Tamil Nadu, India

The RP support to a disaster loss database in India is implemented in the southern state of Tamil Nadu. The counterpart government department at the state level responsible for DRR is the Revenue Department of the Government of Tamil Nadu (GoTN). At the district level it is the district magistrate office, and at the subdistrict level the subdistrict office. Other government agencies closely involved in the implementation of the disaster loss database include the Fire Department, Meteorological Department, Geology and Mining Department, and Forestry Department.

The online database and website is hosted by the GoTN and is physically located in the premises of the State National Informatics Centre (NIC) located in Chennai.

UNDP has strategically positioned itself directly with the Joint Commissioner (JC) for Disaster Management and Mitigation (DMM) (see Figure 3). A formal notice from the Revenue Department informed all relevant government departments of the establishment of the database and the data collection process. Based on these instructions UNDP recruited two Disaster Inventories Associates and they began the data collection process by contacting government agencies at the state and all 30 districts. Data on all disasters has been collected for the period from 1976 to 2007.

Name of the database:	Indian Disaster Database (Indisdata)
URL of the database:	http://www.indisdata-tn.gov.in
Source(s) of data:	Government records from the state, district and subdistrict levels
Period of data:	1976–2007
Host agency:	Disaster Management and Mitigation Department, State Revenue Department of Tamil Nadu
Staff:	2 Disaster Inventories Associates, 2 interns for data entry
Data collection:	Collected at State, district and subdistrict levels
Data entry:	Based on customized paper-based data cards
Data validation:	Crossing checking of data
Analysis:	Draft preliminary analysis undertaken by the Centre for Disaster Management and Mitigation, VIT

Figure 2: Screenshot of Tamil Nadu's Online Disaster Loss Database
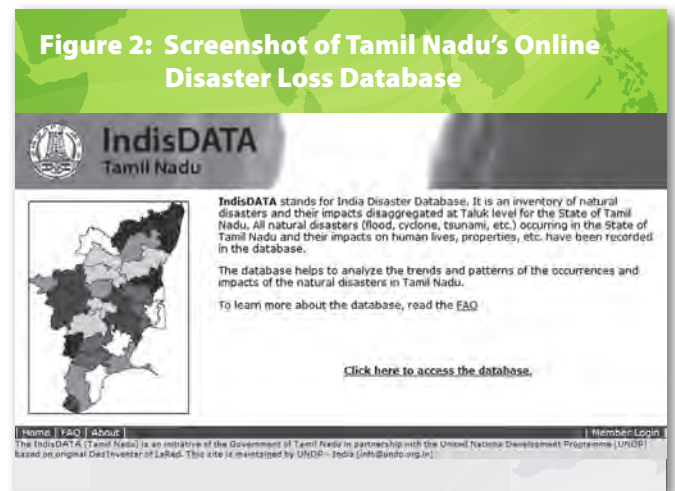
Milestones

- April 2006: Project initiation
- July 2006: Data collection planning
- March 2007: Completed data collection and entry
- July 2007: Validation and hosting online
- November 2007: Additional data collection
- February 2008: Analysis report
- September 2008: Institutionalization

Figure 3: Organigramme for Disaster Loss Database Implementation in Tamil Nadu
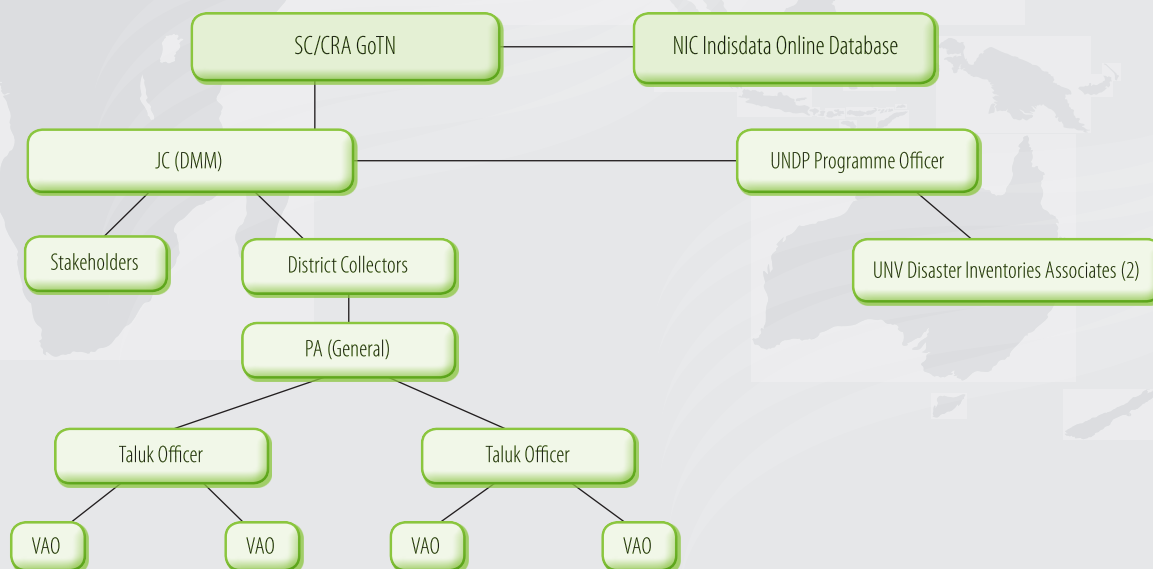
SC/CRA GoTN – Special Commissioner/Commissioner of Revenue Administration, Government of Tamil Nadu

NIC – National Informatics Centre

JC(DMM) – Joint Commissioner (Disaster Management and Mitigation)

UNV – United Nations Volunteer

PA (General) – Personal Assistant (General)

Taluk – Subdistrict

VAO – Village Administrative Officer

All data collected has been entered in the database and they are now being used for detailed analysis, undertaken by VIT. Once finalized, agreed and cleared by the government, the analysis will be made public.

The clear strengths and concerns of how the disaster loss database has so far been implemented include the following:

Strengths

- Proactive government and steadfast support from nodal agency
- Good governance structures and working conditions resulting in an enabling environment
- Clear direction from the RP
- Clear database and data collection methodology
- Support and lessons from other states in India where disaster loss databases have been implemented
- Strong draft analysis based on information from the disaster loss database
- Flexibility with regards to customization
- Interest and formal requests from neighbouring states to implement the database using the DesInventar methodology

Concerns

- At the district level, there was a lack of understanding on the use of the data.
- Data provided reflected all official data that was available and on record. However, because records are officially destroyed after a certain number of years, the aim of

having information on all disasters was not possible and going back 30 years was difficult.

- While some individuals were very supportive it was not considered a priority at some levels (particularly at the district level). This combined with the high turnover/movement of government staff, made the socialization process difficult.

- No mechanisms are yet in place to record new recent disasters.

- As part of the sustainability of the database it must become part of the Revenue Departments' procedures and staffing allocation, and this has yet to take place.

Overall, the progress in Tamil Nadu to date has been very good and when the analysis is released should result in stronger government ownership and institutionalization of the disaster loss database. The requests from neighbouring states (Andhra Pradesh, Kerala and Pondicherry) for support in the implementation of the database are testimonies to its relevance and usefulness.

For more information on the implementation of the disaster loss database in Tamil Nadu please refer to the documentation in Annex II.

Figure 4: Stakeholders' Meeting in Chennai October 2007

Figure 5: District Level Meeting in Tamil Nadu

3.2 Indonesia

Name of the database:	Disaster Data and Information of Indonesia (DiBi)
URL of the database:	http://dibi.bnpb.go.id
Source(s) of data:	(will be) **Government**
Period of data:	1997–2007 and ongoing
Host agency:	National Disaster Management Agency (BNPB)
Staff:	1 UNDP Staff
Data collection:	Using paper-based data collection format from government validated data
Data entry:	In process
Data validation:	In process
Analysis:	N/A

The Government of Indonesia has demonstrated its commitment to the development of a comprehensive DRR approach by passing a Law on Disaster Management in March 2007, developing a National Action Plan for Disaster Reduction 2006–2009, and establishing a National Disaster Management Agency (BNPB) on 26 January 2008 (as stipulated in the Law on Disaster Management). BNPB replaces BAKORNAS PB (National Coordinating Agency for Disaster Management) to provide DRR guidance and support to line ministries, provinces and districts. BNPB will have counterpart agencies at the provincial and district levels in the near future to enhance coordination and cooperation.

The organigramme below shows the government structure in which the database sits (showing location support from UNDP).

Figure 6: Organigramme for DRR in Indonesia
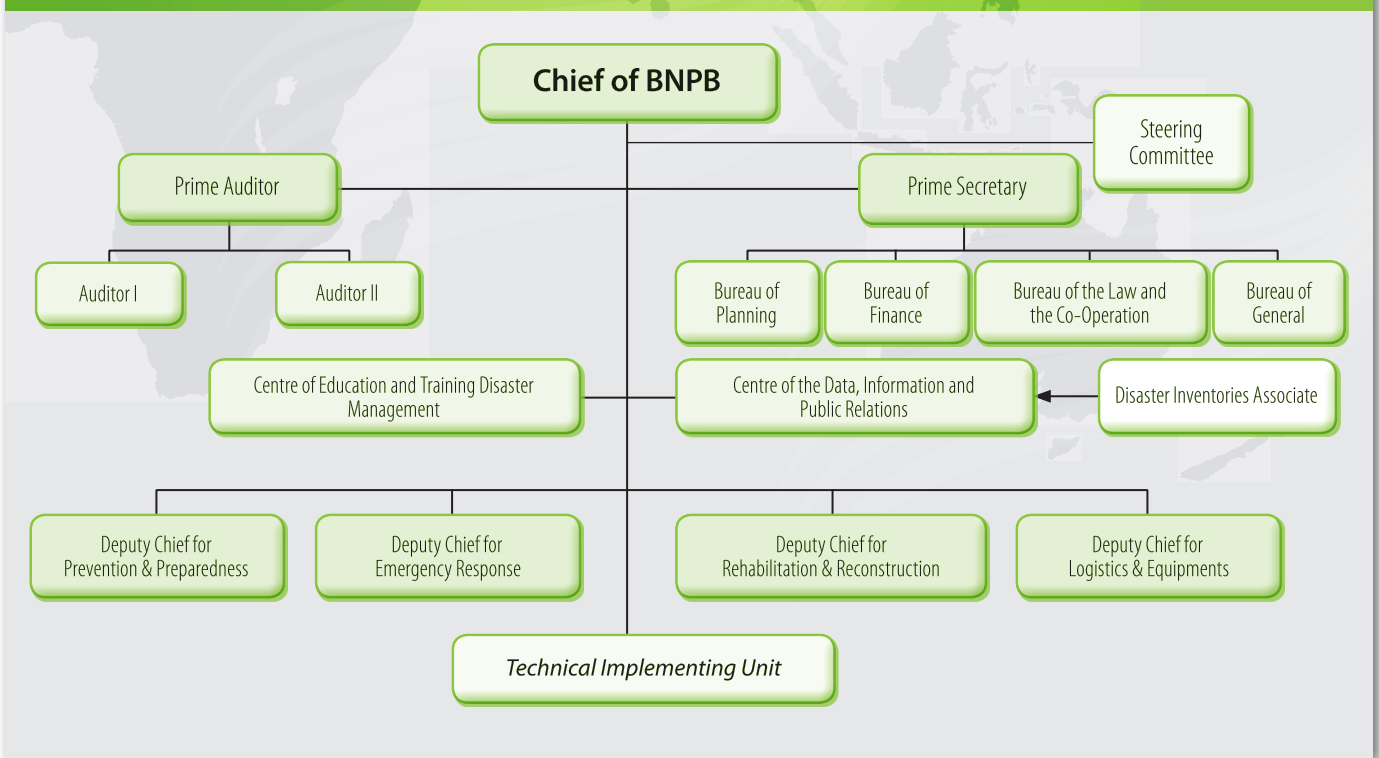
Figure 7: Screenshot of DiBi

The first attempt at the implementing the database was met with a number of difficulties, the most difficult one being that the government DRR framework was being restructured and development of a disaster loss database was not considered a priority for the government. In the absence of required support and guidance from the government due to evolution of new institutional and legal frameworks, the Indonesian database was populated with data from the media and the Internet that were not validated by the government. The database was until very recently hosted by the UNDP CO in Jakarta and data was collected by a Disaster Inventories Associate working from the Jakarta office. Very limited customization was initially offered to the government, and as a result, the government perceived this to be a UNDP initiative/database and not a government one.

With the establishment of BNPB and the conceptualization of the multi-year Safer Communities Through Disaster Risk Reduction in Development Programme as part of the Joint UN Strategic Plan on Disaster Reduction for Sustainable Development, the implementation of the database picked up pace. By mid–2008 the situation in Indonesia is very different from when the database system was first established. DiBi was launched by the head of BNPB in July 2008 with official data for the period 2002–2006. While much work still needs to be done to collect and validate historical disaster data for the past 30 years, great momentum and government ownership is now in place and the future for the database seems very positive.

The magnitude of the tsunami and the restructuring of the DRR sector were very important factors that contributed to the amount of time and importance placed on the establishment of the database in Indonesia. The UNDP CO with support from the RP and in partnership with the Government of Indonesia is customizing the DesInventar system to suit government requirements. BNPB has also been leading the process of collecting and validating disaster data through the Communications Forum that meets regularly to discuss, consult and decide on issues related with DiBi. At the same time, BNPB has been organizing a series of training and socialization events on DiBi. The database is now being used for guiding the ongoing process of developing a national DRR plan and for monitoring the impact of crisis to poverty at the community level.

Figure 8: Launch of DiBi on 29 July 2008 by Head of BNPB

Lessons Learned

A number of important lessons have been learnt with regards to how the first phase of implementation was done and the implications of the approach that was undertaken. These include the following:

- Assurance of government ownership must be of the highest priority

- Socialization and understanding of the database by government counterpart is of great importance

- Government structures, policies and legislation should be in place to create an enabling environment for implementation

- Sustainability is dependent on government ownership and at least initially, perceived need, use and value of the database

- Housing the database within the UNDP CO can make it difficult for the government to take ownership and for the activities to be seen as anything more than just a UNDP activity for UNDP. It can however, support and promote continuity in the long term when the government is ready to take on the database

- Use of non-government validated data will be questioned when analysis is done and when the database is handed over to the government. Repopulation of the database with government validated data may be required

- Limited flexibility in the customization of the database to meet government needs should be avoided and the UNDP CO must be as flexible as possible

The transition during mid–2008 that led to government ownership of the database was a result of:

- The introduction of the Indonesia Disaster Management Law and the creation of BNPB

- The renewed understanding from UNDP CO on the importance of data and inventories of disasters as being vital to identifying and tracking patterns of disaster risk

- Sustained advocacy efforts by both the RP and UNDP CO over a long period to get the government to own and build the database

- The understanding from the government that a disaster loss database is a fundamental requirement for implementing efficient and effective DRR programmes and policies, and for enabling the government to plan and make decisions based on a full understanding of the impacts of disasters

- The flexibility from the UNDP CO in the customization of the database to meet government needs

3.3 Maldives

Name of the database:	DesInventar
URL of the database:	http://www.ndmc.gov.mv http://localhost:8081/DesInventar/
Source(s) of data:	Government records, websites and newspapers
Period of data:	1978–2006
Host agency:	National Disaster Management Centre
Staff:	2 junior government staff
Data collection:	Collected at national, atoll and island level (ongoing)
Data entry:	Based on customized paper-based data cards
Data validation:	Validated by government, data cards checked against government records
Analysis:	N/A

Figure 9: Map of Maldives

Figure 10: Aerial Shot of an Island in the Maldives

The Ministry of Planning and National Development (MPND) was initially the host agency of the disaster loss database before it moved to the National Disaster Management Centre (NDMC). The reason for it being, MPND was the focal agency for data and information management during the 2004 tsunami emergency. Additionally, the ministry had the in-house capacity for data management. Immediately after the tsunami and prior to the establishment of the RP, UNDP supported the initial establishment of the disaster loss database to record loss from the tsunami. During that time, the database was extensively used by the government and donors, and was considered the best reference material on disaster loss from the tsunami. As the focus moved towards recovery and reconstruction, attention to the collection and entry of loss data gradually dwindled down. This resulted in diminished support for the database and its updating.

A year after the 2004 tsunami, the NDMC was established under the Ministry of Defence and National Security. It was declared as the nodal agency for disaster management and risk reduction through a Presidential Directive No. 2006/17. The creation of the NDMC is part the national government's effort to strengthen the DRR capacity of institutions. Over the past two years since NDMC took responsibility for management and maintaining the DesInventar, a number of modifications have been made as part of the customization of the database, making it more country specific and attractive to the government.

Concerns

Great challenges were faced in locating the sources of historical information as official government records were very limited. Initially the MPND organized a stakeholders meeting in May 2006 to identify potential sources of data from different ministries and departments, however the physical collection of data has been very difficult.

Data has been sourced from selective government departments and local media. As the Maldives has only

one state-owned local newspaper, the media source is considered to be reliable and mirroring government records.

Staffing to support implementation of the database has also been a challenge. The turnover of staff has been very high while the capacity of the staff recruited has been at a lower level compared with other target countries of the RP. The high turnover of staff has had a negative impact on the collection of data and the general implementation and support of the disaster loss database.

Lessons Learned

A number of lessons and challenges have been learnt from the implementation in the Maldives and these include:

- Ownership and administration challenges – Greater ownership from the government counterpart is required with further allocation of government staff and the release of staff to travel to the different atolls. As limited records are available on historical data the best way to collect information is to visit the different atolls, and this process is very time consuming and expensive.

- Technical challenges – These include mapping issues (because of the geographical spread of the islands), and thematic analysis also due to the geographic nature of the Maldives, as well as the local customization.

- Staffing challenges – Staffing as mentioned above has been a challenge in Maldives and it has been difficult for UNDP to attract appropriate staff to this initiative. When staff members were recruited it has been difficult to retain them. To date the majority of work in country has been done by one staff member, who decided not to extend his contract after July 2008. This rendered the position for Disaster Inventories Associate once again vacant. In the meantime, the government has deputed its 2 junior staff to carry forward the work on disaster data collection and entry.

- Institutional challenges – Socialization within government has been limited and this has resulted in limited communications between relevant government departments and the NDMC to ensure the data available is collected. The absence of a focal point in most of the government ministries and departments further posed limitations on effective and timely coordination.

Strengths

- Positive relationship with government counterpart (NDMC)

- Strong Support from UNDP CO and the RP

- Increased visibility for UNDP and strengthened role in disaster-related activities

Overall, the status of progress in the Maldives is best described as moving forward and ongoing. To date much has been achieved, but much still remains to be done. Hopefully, with the quick recruitment of new staff and training of the staff, the process can start moving forward at a faster pace. NDMC has a new staff recruited to assist in data management. The government staff members have been coached by the Disaster Inventories Associate on data uploading and some basics of the DesInventar system.

3.4 Sri Lanka

Figure 11: Screenshot of the Sri Lanka Disaster Information System
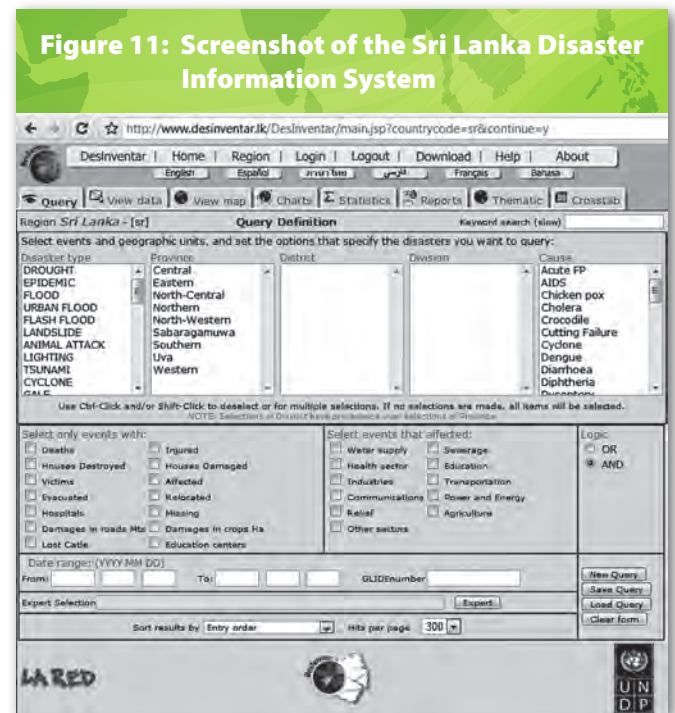
Name of the database:	Sri Lanka Disaster Information System
URL of the database:	http://www.desinventar.lk
Source(s) of data:	Print media, government, NGO and research organizations
Period of data:	1974–2008 (and ongoing)
Host agency:	Disaster Management Centre under the leadership of the Ministry of Disaster Management and Human Rights
Staff:	1 Disaster Inventories Associate, research and data entry staff as and when needed.

Data collection:	Collected at national, district and divisional levels
Data entry:	Based on customized paper-based data cards
Data validation:	Validated by government, data cards checked against government records, internal controls put in place for data entry and quality
Analysis:	June 2007 – Preliminary data analysis undertaken

Figure 12: Report on the Preliminary Analysis of Historical Disaster Information System in Sri Lanka
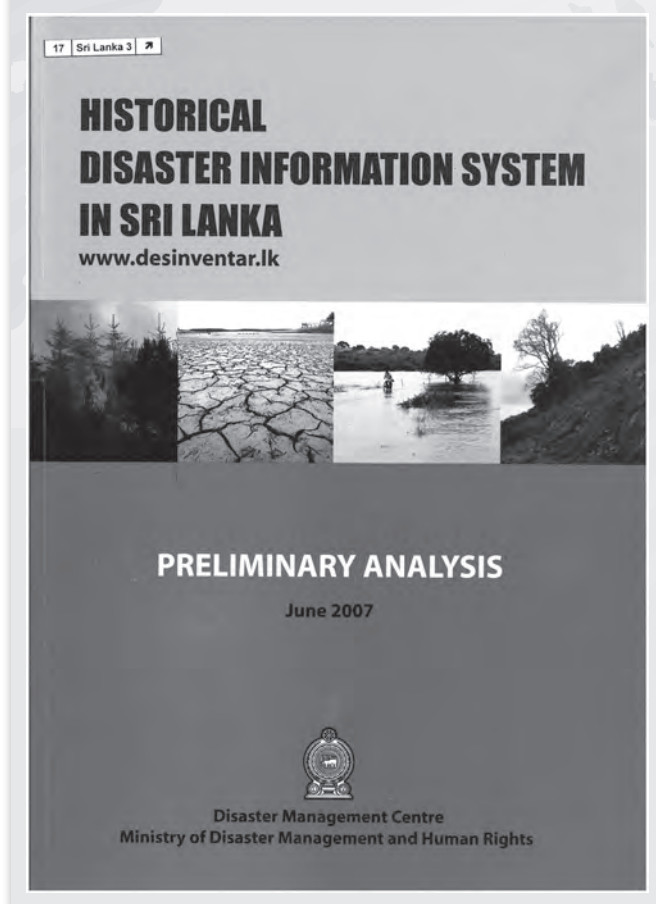
Figure 13: Stakeholders Workshop and Training Workshop on Building Disaster Inventory in Sri Lanka on 3–5 October 2006

The Sri Lanka Disaster Information System is currently the most developed of the tsunami affected countries. The database has been populated and validated, extensive local customization has taken place, preliminary analysis has been completed and published in June 2007. The initial UNDP support to a disaster loss database in Sri Lanka started prior to the 2004 tsunami and although it was not implemented before the tsunami struck, the methodology and socialization process was well under way. The Sri Lanka Disaster Information System was used by the government to provide information and reports on damages to infrastructure during the early months after the tsunami.

With the enactment of the Sri Lanka Disaster Management Act No.13 in May 2005, the National Council for Disaster Management (NCDM) was established as the highest authority responsible for the management of disasters. This was followed by the establishment of the Disaster Management Centre (DMC) to function directly under the NCDM. Thereafter, a separate Ministry responsible for Disaster Management and Human Rights (M/DM&HR) was formed. Presently, the DMC is functioning under the Ministry and is the main authority for disaster management activities covering the whole of Sri Lanka under the guidance of the NCDM and the M/DM&HR. The implementation of disaster loss database in Sri Lanka has been guided and supported by the DMC since the beginning. The UNDP Disaster Inventories Associate is based and works within the DMC.

The organigramme below illustrates the government structure in which the database sits (showing location within government, administrative agencies at the national, provincial and district levels, as well external support from UNDP and UNV).

Figure 14: Organigramme for DRR in Sri Lanka
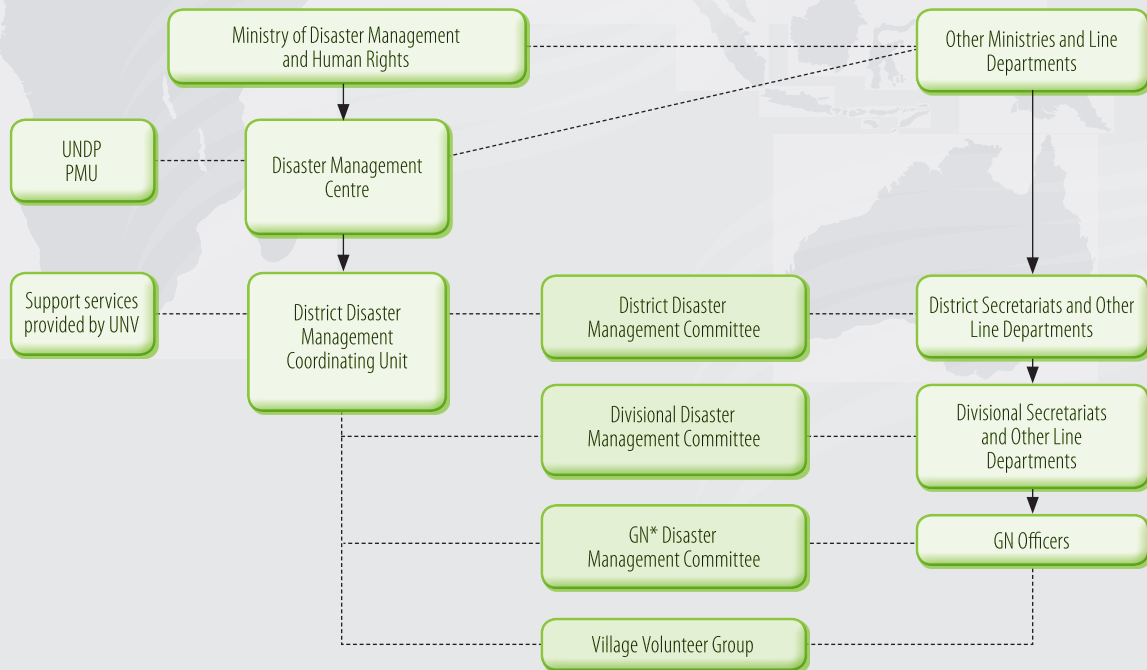
(Note: * Grama Niladhari (GN) is a government officer responsible for handling affairs of central government and whose jurisdiction is generally a few villages.)

Milestones

- **September 2006:**
  - The initial data collection was completed

- **October 2006:**
  - First stakeholder consultation workshop organized
  - First training programme for more than 50 officers from the national and district levels conducted

- **March 2007:**
  - The data collection at the national level from the relevant government organizations was completed

- **June 2007:**
  - Second stakeholder consultation workshop organized
  - Second training programme for about 40 district officers from 9 selected districts conducted
  - The Sri Lanka Disaster Information System was launched
  - The analysis report was launched by the Secretary of M/DM&HR
  - Computers, Internet connectivity and the DesInventar database provided to all districts upon completion of data validation and training

Data was collected from different government organization, as was identified by the DMC, including the Epidemiology Unit of the Ministry of Health, Department of Wildlife Conservation, National Building Research Organization, and other government organizations including two government newspapers. All data entry was done at the DMC, and detailed quality control mechanisms were put in place and data was validated.

Lessons Learned and Challenges

A number of key lessons and challenges can be drawn from the Sri Lanka case.

- It is critical to understand the legal capacity, status as well as the organizational structure of government organizations relevant to disaster management. Awareness of present database systems in operation is also important.

- There needs to be clarity and a common understanding among stakeholders on the type of data to be collected, the source of these data, and the forms in which the data exist. The data must suit the country context, and their accuracy, reliability and acceptability by the government must be established.

- Customization of the software to the local context will assist in the institutionalization process.

- Sufficient attention must be paid to capacity issues and capacity development requirements within the host agency.

- While undertaking analysis, the data and analysis must be undertaken in a way that it meets the needs of the host agency.

- Technical assistance and backstopping services by UNDP CO and the RP are necessary.

Strengths

- Familiarization of the benefits of a disaster loss database prior to disaster

- Strong legislation and government structures to support disaster management in place

- Strong government ownership and institutionalization of the system

- Strong links with other government agencies

- Extensive customization to meet government requirements

Overall, the progress in Sri Lanka is considered an excellent example of clear implementation and sustainability within government structures. Like all implementing countries under the RP, a number of challenges were faced as detailed above, but Sri Lanka has so far progressed well with regards to institutionalization, analysis and sustainability. With government support, a number of events, training sessions and data collection were swiftly undertaken. Initial technical issues were quickly resolved, especially with support from the RP. This success is due to strong commitment and capacity of the DMC, other government departments, DesInventar staff, UNDP CO and the RP, as well as the fact that the initial socialization process started prior to the 2004 tsunami.

For more information on the implementation of the disaster loss database in Sri Lanka please refer to the documentation in Annex III.

3.5 Thailand

Name of the database:	DesInventar
URL of the database:	http://61.19.54.143 (currently offline)
Source(s) of data:	Government, provided by the Department of Disaster Prevention and Mitigation (DDPM)
Period of data:	To be decided by DDPM (2006 flood data recorded)
Host agency:	DDPM, Ministry of Interior
Staff:	1 Disaster Inventories Associate
Data collection:	Collected at provincial, district and subdistrict (tambon) levels

Data entry:	– DDPM plans to collect and enter data at DDPM Bangkok office – Ongoing data will be entered remotely from DDPM provincial offices
Data validation:	N/A
Analysis:	N/A

Milestones

- January 2006:
  – Start up and staff recruited to implement disaster loss database

- February–March 2006:
  – Technical training on DesInventar
  – Meeting organized to introduce DesInventar to DDPM
  – Other formal and informal advocacy meetings within DDPM divisions

- April 2006:
  – DDPM formed a taskforce to oversee implementation

- May 2006:
  – 10 years data collected
  – Customization of standard DesInventar undertaken, including localization into the Thai language

- July 2006:
  – Thai version of DesInventar completed

- September 2006:
  – Thai version of DesInventar installed on DDPM server, DDPM provided digital map (shape files)

- February 2007:
  – DDPM announced the development on their own GIS/MIS system that is used to record disaster inventories

- April 2007:
  – Informal request from government to develop the data interchange between the internal government initiative and DesInventar

Implementation of the disaster loss database started in January 2006 with the involvement of the Department of Disaster Prevention and Mitigation (DDPM) under the Ministry of Interior of the Royal Thai Government. According to the Disaster Prevention and Mitigation Act of 2007, DDPM is the secretariat of the National Disaster Prevention and Mitigation Committee and is by law tasked to coordinate with other government agencies, local administrations and NGOs to manage DRR, including recovery activities. This makes DDPM an appropriate location for the disaster loss database.

In the initial stages of the disaster loss database implementation, DDPM established a multi-ministerial taskforce for overseeing the initiative. At the first taskforce meeting, several recommendations were made to guide the implementation process. The DDPM made available its server for installation of the online version of DesInventar that was used by the Disaster Inventories Associate. The database was then customized to adapt to local conditions and now has both an English and Thai interface, as well as other country specific customization.

A number of formal and informal meetings were held with DDPM officials, however, no data was made available to the Associate to proceed further. To demonstrate the analytical abilities of DesInventar, data from the 2006 floods was entered into DesInventar.

DDPM has an existing in-house database system to record disaster inventories. This system is online and is used as part of their routine work. In late 2007, the DDPM introduced an online GIS/MIS system with abilities to capture information about disasters and losses. This system, developed by a Thai university is similar to DesInventar, and is used for recording natural disaster impacts, road accidents and details of chemical risks.

DDPM is, however, still very interested in DesInventar and wish to link it with the GIS/MIS system so that reports and analysis can be provided in English as well as in a format that will be easier to share with other countries. Thailand is a pilot country for regional ASEAN activities and as such will need to have information in English. The DesInventar system will be able to fulfil this function. However, it is a second priority until the in-house Thai GIS/MIS system is fully established. The development of an interface between DesInventar and other systems to be able to import and export data is currently being considered. The process and lessons learned should be documented for replication in other countries.

Lessons Learned

A number of key challenges and lessons can be drawn from the implementation to date in Thailand.

- It is essential for all stakeholders to have a clear understanding of DRR and the DesInventar methodology.

- The importance of historical data for disaster management has to be developed and accepted within participating government agencies prior to the implementation of DesInventar.

- In cases where a database system already exists, it is important to build and improve on the existing system rather than impose a new system.

- It is crucial that systems developed are open and interoperable to allow for easy exchange of data and information between the different systems.

- For new institutions such as DDPM, it will take time to develop authority and influence.

- Host agency of the database system finds coordination with other government agencies in data collection complex and challenging. Capacity of the host agency needs to be strengthened to promote cooperation and coordination, improve communication, facilitate participatory processes and multi-stakeholder dialogue, and resolve conflict.

- It is very important for the UNDP CO to continue to provide support and work closely with the counterpart government department to ensure that all issues are addressed and implementation is undertaken smoothly by addressing all issues.

Strengths

- As an emerging donor, it is important to note that Thailand did not request for financial support in the aftermath of the 2004 tsunami, but did accept technical support for tsunami recovery-related activities. The recent status of Thailand as a donor has created some issues with the support that could formally be requested by the DDPM to support this initiative.

- Government structures within Thailand are well defined and have strong capacity. With the enactment of the Disaster Prevention and Mitigation Act of 2007, they became even better defined. The DDPM is clearly mandated under the law to house such a database and support from them has been strong and positive.

- Customization was undertaken in Thailand and it is believed that this has resulted in the maintained interest from DDPM as the system has become a 'Thai' system and not a foreign one. The flexibility to adapt and customize the database in Thailand has been one of the strong assets.

Overall, the progress in Thailand, especially related to the institutionalization and customization aspects, has been successful. However, with development of a parallel GIS/MIS system, the next stage of DesInventar implementation will have to wait until the GIS/MIS system is fully installed. In the mean time, the finalization of the interface function could be proceeded with.

Figure 15: Meeting with DDPM Officials chaired by Deputy Director-General

The subsections below detail areas of importance drawn from the experiences of disaster loss database implementation in the tsunami affect countries. These key lessons learned have been identified by UNDP and government staff members that have been working with the RP.

4.1 Nodal Agency / Implementing Partners

The selection and capacity of the Nodal Agency/ Implementing Partner is crucial to the successful implementation and sustainability of the disaster loss databases. The agency/partner should be mandated as the lead disaster management authority in the country.

In both Indonesia and the Maldives, there were changes to the responsible agencies/partners due to institutional restructuring during the set up of the disaster loss databases. In both countries, the 2004 tsunami led to a review of policies and institutional frameworks by the respective governments, which resulted in establishment of new legislations and institutions for DRR. These changes did impact the implementation adversely and caused delays, but these are positive changes that helped to find a 'home' for the disaster loss database in the countries. Continuous engagement with the countries have helped to move forward and make progress that otherwise would not have been possible to achieve in the highly dynamic post-tsunami environment.

Key Lesson: Recognize the need for advanced planning, assessment and appropriateness with regards to identifying counterpart nodal agencies and human resources at regional and country levels. They are key determinants of the successful implementation of disaster loss databases. Implementation outside of the government system should only be considered as a last option.

Recommendations

- An assessment of the proposed implementing partner with respect to its mandated functions and linkages with sources of reliable disaster data is essential to determine its ability as a potential host. An informal capacity assessment identifying strengths and weaknesses of the selected implementing partner, and its ability to perform the required functions for collection and hosting of the

database should be undertaken. The project work plan should address the strengths and weaknesses of the implementing partner.

- The implementing partner should be part of the government system and has the authority needed to be able to collect and validate data, disseminate the analysis, and ensure effective management and use of the data analysis.

- Institutionalization should occur when the full benefits of the system are realized, customized to government needs, and ideally, integrated with other systems that are already in place and/or adapted to also include information outside the traditional fields of a disaster loss database.

- Where national legislation and structures are not in place, implementation of the disaster loss database should be carried out in parallel with other UNDP programmes and initiatives, to support and build disaster management capacities, systems and structures in the target country.

4.2 Government Ownership (and Government Staff)

It must be very clear that the government in each country is the owner of the database and not UNDP nor the agency operating the system in the case where the government has agreed to the engagement of an NGO or private company.

Government ownership of the database, as well as the implementation and analysis processes is vital with regards to sustainability and use of the findings from the database. Sustainability will only occur if the system is tailored to the government's specific requirements and needs, and is provided with useable information for planning and decision-making.

There are two main processes/outputs – the historical data collection and the collection of current data. While these are traditionally done with the same government department they can also be undertaken by different entities.

Key Lesson: Government must own the database from the outset and be self-driven to produce the analysis to assist it with planning and management.

Recommendations

- The socialization of the benefits and value of a disaster loss database should be systematic and thorough.

- The request from the government for support from UNDP should be very clear and based on a full understanding of the need and benefits of such a database.

- Government ownership should involve the appropriate disaster management agency and other relevant agencies within the government structure[7] that will use the data and analysis to make important decisions.

- Customization of the database should be made in every country to specifically meet the direct and indirect needs of the government.

- The function and responsibilities of historical data collection and ongoing data collection should be separated.

4.3 Database for Disaster Risk Reduction

At the core of DRR is the identification of the likelihood of disaster events and both the degree of exposure and vulnerability. One of the best ways to identify potential future disasters is by tracking previous disasters and their impact in some form of a database so that analysis can be undertaken. The identification of the risks and disasters allows risk levels and risk factors to be mitigated.

Key Lesson: Disaster loss databases must be developed as an integral part of DRR initiatives. In the absence of a nationwide risk assessment in these countries, the database is a central tool for governments to better understand the disasters and threats in order to effectively mitigate and prepare for them.

Recommendation

While benefits can be drawn from a standalone disaster loss database, its implementation as part of a broader DRR initiative in any country would increase its effectiveness.

4.4 Support / Specialist Technical Backstopping from UNDP

The RP has developed a great amount of in-house expertise in DRR. This expertise includes not only the physical development of disaster loss databases but also the creation of an enabling environment required to manage

disasters, the detailed technical knowledge of the system and experience in its customization.

For the tsunami affected countries the RP has provided substantial financial support to the UNDP COs to recruit specialist staff, procure equipment and implement the activities associated with the disaster loss databases. This support from the RP has played a crucial role in the successful implementation of the disaster loss databases in the target countries. Ongoing technical support from the RP should be continued for the benefit of the target countries. It will also enable UNDP to build its niche in this area and be identified as the UN agency specializing in the establishment, customization and institutionalization of disaster loss databases.

Key Lesson: Build on corporate investment made in developing expertise in the implementation of disaster loss databases and utilization of the DesInventar methodology, for the benefit of effective DRR. Support from the RP has played a crucial role in the successful implementation of the disaster loss databases and continued support has been deemed necessary.

Recommendations

- Ongoing technical support provided by the RP has played a crucial role in the successful implementation of the databases. Continued regional support is required to ensure the full benefits of the databases.

- A regional hub that provides technical and non-technical support to multiple countries should be given priority as a cost efficient way for UNDP to implement such initiatives and to consolidate its position as the lead agency in this field.

- UNDP should continue to support disaster loss databases as an integral part of DRR programming.

4.5 Data Collection Methodology (Including Data Cards)

The data collection methodology should be agreed upon from the outset and should take into account a number of factors including: lessons from previous data collection process in the country of implementation, the definition of the end use of the data (how the information will be used should drive the data that is collected), the process of data collection, the sources of data, the validation process and the analysis that will be undertaken.

Based on all of these variables, customization of the process and the tool will need to be undertaken: The customization should include:

- End use of the data

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7   Such as an inter-ministerial body involving the key infrastructure and social services ministries.

- Sources of data (government, NGOs, media, research institutions, universities)

- Validation process

- Country specific data cards (customized)

- Country specific definitions defined (customized)

- Country specific hazards defined (customized)

- Type of analysis to be undertaken based on data

Examples of key definitions/lists of hazards are provided in the glossary in Annex I.

Key Lesson: Understand why the data is being collected and what the end use of the data will be. With this understanding the process and methodology can be put in place.

Recommendations

- There should be a clear understanding of the end use of data, the type of analysis and applications that will be required by the government, and any other issues that may arise with the official validation of the data.

- The supporting documents in Annexes II and III should be used as clear examples of how data has been collected and how customization has been undertaken.

4.6 Data Collection Process and Sources

The data collection process and sources of data are very important with regards to the information that will be collected, then validated and entered into the database. The 'RIMRO' principle (rubbish in means rubbish out) starts here. If poor data is collected then poor data is entered into the system, resulting in poor and even meaningless analyses.

The sources of data must be reliable and government-/counterpart-approved. As a general rule of thumb, direct sourcing of data from official government records is preferred as they are usually reliable and consistent. Media sources do not always provide the level of detail required and can sometimes over estimate the impact of the disaster – they should be sourced with caution.

The data collection process must be very systematic and structured, have strict quality assurance with checks in place, and records available for different levels for quality control, cross checking and final validation. This process will often involve the recruitment of short-term and temporary staff.

All staff collecting data will need to be trained in data collection, and briefed about DRR in general, including

types of disasters and disaster management. Data collection personnel should also have a clear understanding of the value of the data they are collecting and how the data will be used by the government.

The process must take into account customization of the database and the level down to which the database will record (province, district and subdistrict). In Sri Lanka[8] for example, some initial data was collected at a higher level than what was later required and further collection was then undertaken at a lower administrative level. While this makes for interesting cross checking, it is best for the government counterpart to decide at the beginning what level they require data at.

Key Lesson: The data collection process must be structured and have cross checks within it. Data records should be from 'agreed and accepted' sources and must be kept and easily accessible. Data collection staff must be trained to understand disaster terminology and the use of the data, and know exactly how to collect it.

Recommendations

- Prior to the collection of data, the benefits of the different data sources (from government, NGOs, media, research agencies, etc.) should be assessed with the government, and based on the assessment, agree on a list of reliable data sources.

- The government should determine the disaggregation of data at which past and future disasters will be recorded.

- The data collection process should involve the recording and storage of the source of data, and a copy of the data source should be kept on file for future cross checking.

- Data collection staff should be trained in disaster terminology and precise data collection methodology.

4.7 Data Validation (Systems)

Data validation is an important step in database implementation. The data must be validated prior to any form of analysis – should the analysis provide findings that are new or different from standard expectations then these will be questioned, and the source and validity of the data should be reviewed. All data must be verifiable at any point in time and as such, systems must be in place to ensure the quality and validity of the data.

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8   Sri Lanka is a good example where the process was very systematic. Electronic copies of all data cards with attached copies of the source of data (either media or official government record) are kept on file, and based on reference numbers can be recalled and crossed checked at any time. Separation of duties for the data collection and data entry processes also enables further cross checking and oversight.

Key Lesson: Division of duties, clear documentation, strict quality assurance and complete records of documentation (data card and photocopy or digital copy of the source of data) kept on file are essential for data validation.

Recommendations

Validation or quality control mechanisms should include:

- Separation of duties between data collection and data entry.

- Verification that the information on the data card corresponds with the copy of the data source attached to the data card.

- Verification that the same disaster has not been recorded based on different sources of data from different organizations.

- Sampling of the data, and checking data cards and source of data should automatically be done once data is in the system.

- Future version of the DesInventar platform will include a new validation tool that will enable a hidden function for data that has yet to be validated.

4.8 Analysis

To date, both Sri Lanka and Tamil Nadu have undertaken analysis and produced reports.

The analysis that is undertaken from the database must be of high quality and provide information that will assist the government in planning and preparedness, and in making decisions. The scope of the disaster loss database, including types of disasters and the level of detailed information to be provided (provincial, district, subdistrict, village) should be discussed and agreed to by all key stakeholders at the outset and before the system becomes operational. The GIS/mapping function is a very useful tool for displaying analysis.[9]

Key Lesson: Analysis must be professional, clear, understandable and relevant to the target audience. Different levels of analysis should be prepared depending on the audience of the analysis. But in general, they should comprise quantitative and qualitative information that is user-friendly and supports the decision-making process.

Recommendations

- The standard template for analysis could be used to generate basic results from the database.

- Analysis should be tailored to meet the needs of the host government.

- The quality and completeness of the data are crucial for useful analysis, and where data is weak the analysis should state this clearly.

4.9 Training

Training is required in technical database issues, data collection and entry, data analysis, DRR issues and disaster-related terminology. Training to date has taken place at two levels – at the regional level by the RP in the training of Disaster Inventories Associates in-country; and at the national level by the Associates to other local staff.

Key Lesson: Ongoing training and professional development for staff and counterparts are essential for effective and coordinated processes towards successful implementation of the disaster loss database and DRR. UNDP should also support capacity development efforts for staff, government counterparts and implementing partners through technical advice, specialist training and re-training.

Recommendations

- Formal training materials based on the experience of this programme need to be further developed, refined and adopted as standard documents.

- Ongoing technical refresher training should be part of any commitment made by UNDP to continue technical support.

- Customized in-country training and training materials need to be developed based on the guidelines provided in Section 2. These guidelines provide the basis for the further development of cross-referenced training materials for the region.

- At the regional level, specific guidance and training on data analysis needs to be undertaken with target countries.

4.10 In-country Technical Support and Staffing

Technical support for the implementation of the databases in the target countries has been provided by the RP, and in-country by a range of variously skilled professionals. Sample terms of reference (TOR) for personnel in the RP and in-country (Disaster Inventories Associates, data collection staff, data entry staff) are provided in Annex VI. The TOR for new recruits should be reviewed and modified in light of the competencies of existing staff members, in order to create a strong team with skills and experiences that are diverse but complement each other.

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9   Examples of standard mapping functions, tables and graphs are displayed in Section 4.15.

Key Lesson: Multi-skilling of the personnel involved adds greater depth to the quality of the outputs, which involve knowledge of several disciplines. As such, a team effort is essential to bring together an all-round interpretation and profile of the data collected.

Recommendations

- The current TOR for positions involved in the programme would benefit from a review based on the actual work experience of the current team members.

- In the future, recruitment of staff skills and experience in the following key areas should be considered: experience in working with the government, level of computer skills, ability to manage data collection, knowledge of disaster management/risk reduction, and multi-disciplinary skills and understanding.

4.11 Customization and Local Adaptation

Customization and local adaptation are fundamental to implementing a sustainable database that meets the requirements of a particular country's needs. It also helps to ensure that the database becomes part of government systems and not a standalone one.

In the tsunami affected countries, customization has included, among other things, changes to local language scripts, modification of definitions based on local understanding and types of disasters, and development of local manuals and different mapping functions. Detailed examples of the different customization undertaken at the country level are provided in the country specific documentation in Annexes II and III.

Key Lesson: Without customization databases could be a wasted investment. There is a need to provide support in customizing the database to meet the needs of the government, and to ensure that it complements existing government systems and requirements, so that at the end of the day it is actually used.

Recommendations

- Current government systems and the database need to be independently assessed so that there can be effective dialogue with government to make the system complementary to the current government systems.

- Customization should meet the needs and requirements of the government and be able to interoperate with other government systems.

4.12 Need for Tools / Manuals

Standard tools and manuals are vital in the establishment of the disaster loss databases. Annexes II and III include information on the locally developed disaster database technical and non-technical manuals. The DesInventar manual (now version 7.9) has been updated and local manuals have been produced at the country level. A quick five-step guideline has also been developed by the RP (see Section 2).

Key Lesson: Locally customized manuals need to be developed with the target group in mind.

Recommendations

- The Disaster Inventories Associates should be familiar with the manuals of the disaster loss database.

- Local versions of the manual in local languages should be developed as well as versions specific to different target groups.

- Existing manuals need to be updated.

- There is currently scope to further develop these manuals based on inter-country exchanges and experiences, and this should be given priority.

4.13 Advocacy Tools / Support

A number of standard advocacy tools have been developed at the regional level and localized at the country level. The greatest advocacy tool is the production of analysis from country specific database that meets the needs of government and is able to result in decision being made based on this knowledge.

The GIS and mapping function in taking samples of country specific database provides clear, visual examples for the development of local advocacy tools. Brochures on the DesInventar databases in Indonesia, Sri Lanka and Thailand can be found in Annex XI.

Specialist advisors from the RP can also advocate for disaster loss databases, and if requested by the UNDP CO, presentations can be made to governments on all aspects of the disaster loss database.

Key Lesson: More effort needs to be placed in advocating for the importance of disaster loss databases. UNDP support should assist in providing government with a better understanding of the use and benefits of a disaster loss database for DRR policy development, planning and programming.

Recommendations

- Standard advocacy materials provide an overview of the benefits and key features of disaster loss databases with clear examples from the region. These need to be updated on a regular basis.

- Local adaptation of the RP advocacy material should be undertaken at the country level (RP staff has assisted in this process in the tsunami affected countries). Similarly, these materials should be regularly updated.

- To date, insufficient resources have been allocated to this important area and as such, donors and other agencies are not well informed of the achievements made under this programme. Additional resources from the regional and country level need to be allocated to advocacy.

4.14 Examples of the Use of DesInventar for Decision-making

As can be seen from the country specific sections above and country specific documentation in the annexes of this report, the implementation of the disaster loss databases and the integration of the databases into government systems have not yet been fully achieved, although in countries such as Sri Lanka the process is very close to fruition.

The use of the information from the disaster loss database will only occur when the correct and complete analysis of data from within the database is undertaken and provides the government with the information they require to make decisions.

The importance of clear analysis is key to the institutionalization of the system, and this is based on the use of the information from the database by the government and other entities to make informed decisions. The Maldives, Sri Lanka and Tamil Nadu databases have all been used by the government and donors for generating information and reports detailing the impact of the tsunami and other more recent disasters. However as an institutionalized tool supporting the development of government policy and decision-making, this has yet to be achieved.

4.15 Mapping and GIS

The mapping function of the disaster loss database being implemented in the tsunami affected countries has a strong interface. Digital maps can be imported into the disaster loss database using standard formats such as ArcView and Mapinfo.

Some knowledge of mapping (GIS) is required to import and adjust the maps within the database and can be done relatively easily; the Maldives, however, has had some issues as a result of the large number of islands/atolls and the distances between each island.

The GIS mapping function is a useful tool and a clear way to display information for analysis and advocacy purposes. The maps and charts in Figure 16 are taken from the Tamil Nadu database and are very much a standard function of the disaster loss database being implemented in all countries under the RP. They are an excellent way of presenting the data and analysis from the database.

There is also scope for the GIS components of these databases to be better integrated into the GIS/MIS systems of other UN agencies such as for food security and poverty mapping. The Vulnerability Analysis Mapping System of the World Food Programme has useful data as does the Food and Agricultural Organization, the United Nations Environment Programme and the World Bank with their in-country databases that could be linked to. Possible links or interfaces with other UNDP specific databases such as the Development Assistance Database would also provide interesting analysis.

4.16 Benefits of a Disaster Loss Database

The key benefits of a validated disaster loss database are without doubt that it empowers the host government to clearly identify and follow patterns of disaster risk, thus, contributing to the implementation of efficient and effective disaster risk management programmes and policies.

The populated database can identify disaster prone areas and destructive hazards by a number of different variables including financial cost (loss), damage to infrastructure, loss of life and many other variables depending on the customization of the database. The disaster loss database can also be used to monitor progress on DRR initiatives. For example, the impact of policies aimed at reducing the destruction of houses can be measured using the database. Based on information from the database, the governments are then able to prioritize future DRR activities.

Figure 16: Maps and Charts Generated from Indisdata

Hazard Profile - Tuticorin District
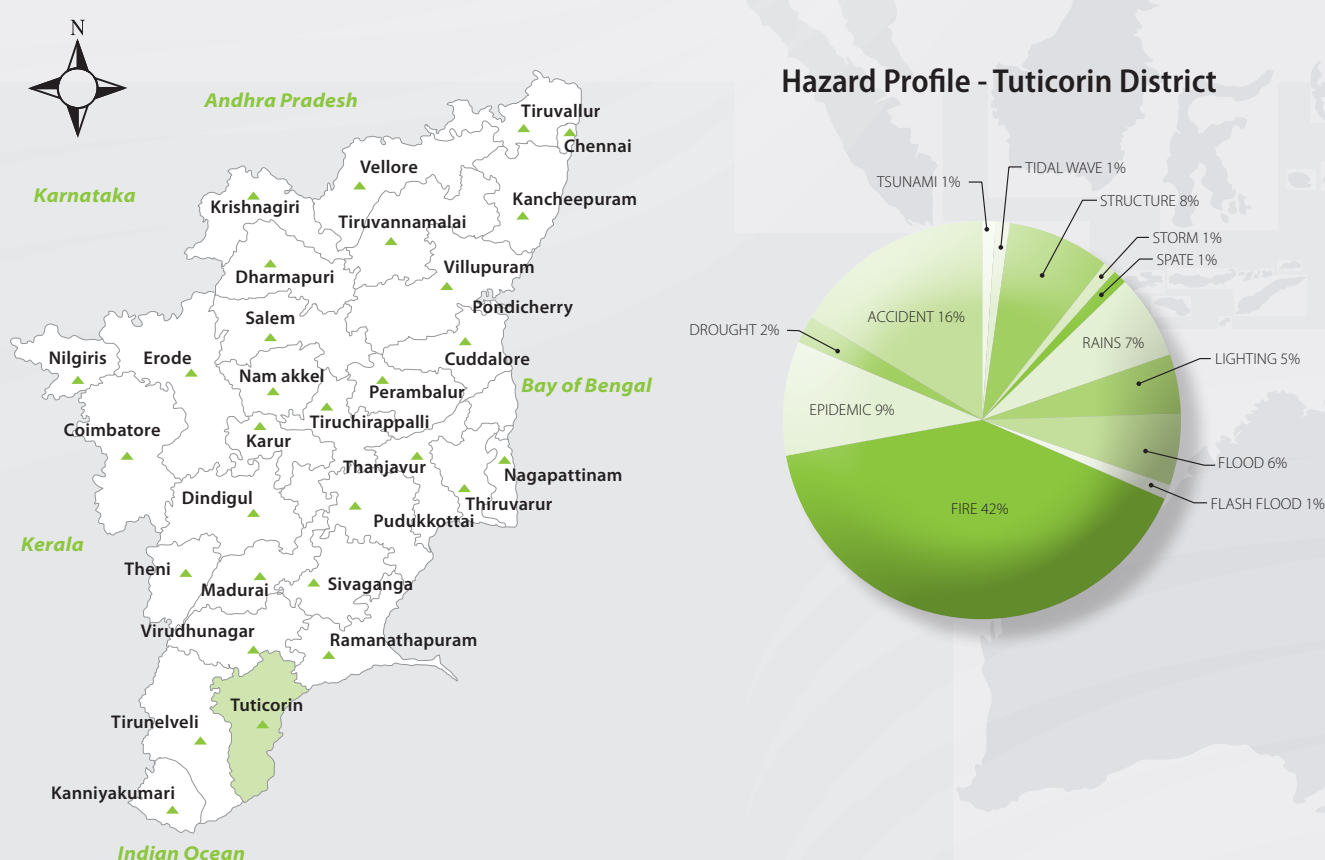
Taluk-wise Impact of All Hazards (1976–2006)

Block	Data Cards	Deaths	House Destroyed	House Damaged	Affected	Evacuated	Losses in Rupees	Damages in crops Ha	Lost Cattle
ETTAYAPURAM	1	1	0	0	0	0	0	0	0
KOVILPATTI	8	5	0	0	0	0	650,000	0	0
OTTAPIDARAM	2	3	0	0	0	0	0	0	0
SATHANKULAM	8	3	52	1	12	0	1,900,000	0	0
SRIVAIKUNDAM	6	2	6	4	32	0	808,300	0	3
THIRCHENDOR	16	11	138	7	0	60	1,120,000	0	0
TUTICORIN	32	90	66	8	15	350	158,622,000	0	0
VILATHIKULAM	8	4	0	0	38	92	600,000	0	0
TUTICORIN DT	5	9	143	786	0	0	0	7,140	2
TOTAL	86	128	405	806	97	502	163,700,300	7,140	5

Note: The class representing "0" impact includes when no disaster data was reported or no data in the time of data collection.

    * Taluk level information was not available at the time of data collection

Continued from previous page

Tuticorin District

All Hazards – Data Cards
Upper Limit

	2
	8
	16
	32

Tuticorin District

All Hazards – Deaths
Upper Limit

	2
	3
	5
	90

Tuticorin District

All Hazards – Destroyed Houses
Upper Limit

	6
	52
	138

Tuticorin District

All Hazards – Losses in Rupees
Upper Limit

	600000
	650000
	1120000
	158622000
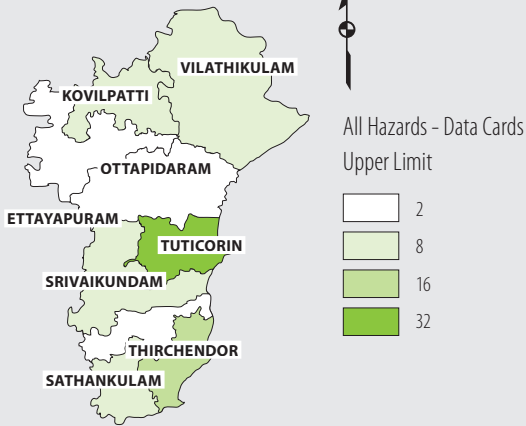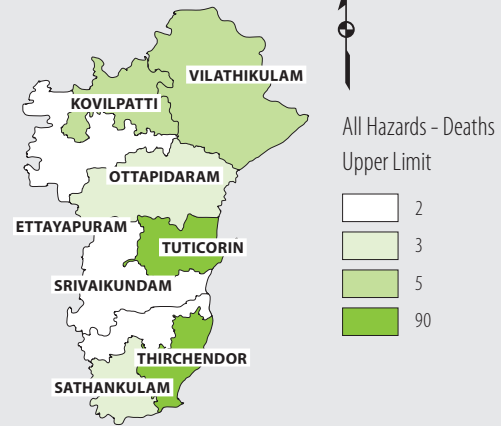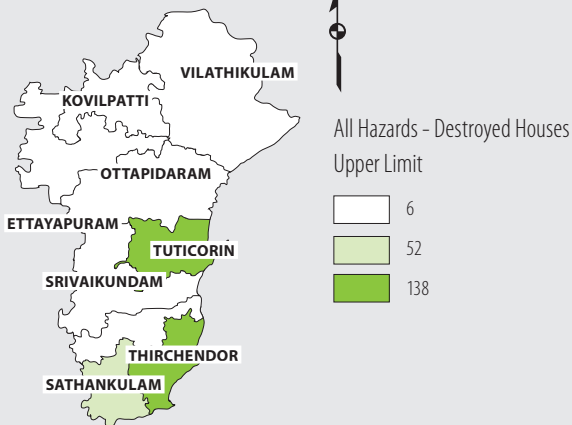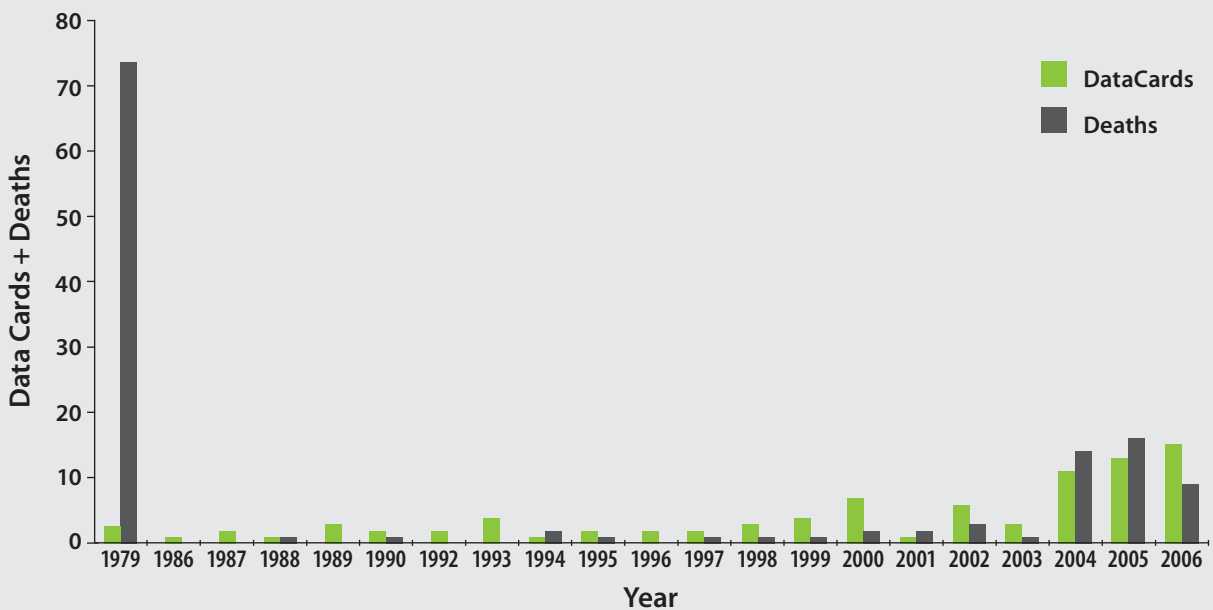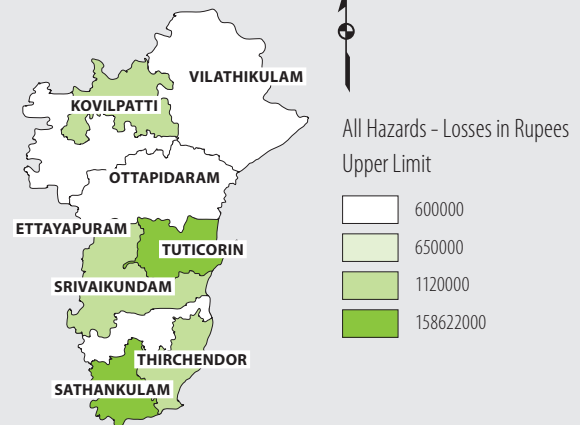
The Role of UNDP in DRR and Disaster Loss Database Implementation

5.1 UNDP Regional Centre in Bangkok

UNDP is one of the largest global public sector actors in the area of natural disaster reduction. In the Asia-Pacific region, the Crisis Prevention and Recovery (CPR) Team based at the UNDP RCB supports UNDP COs and their national partners in conflict prevention, natural disaster reduction, and post-crisis recovery to bridge the gap between emergency relief and long-term development. The RCB assisted in the response to the 2004 tsunami disaster, and continues to help countries strengthen their DRR capacity through the RP.

5.2 Efforts of UNDP in Disaster Loss Databases

Prior to the establishment of the RP in November 2005, UNDP initiated its first disaster loss database pilot project in the region in 2002 in the state of Orissa (India), and later in Nepal and Sri Lanka, using the DesInventar methodology and its customizations. All these efforts were then supported by the Bureau for CPR's office for South and South West Asia located in New Delhi.

During the implementation of disaster loss database in the tsunami affected countries, there has been demands expressed by other countries and states, including 'non-tsunami' affected countries, for technical support in such programme activities.

In India, disaster loss databases are in various stages of development in several northern and southern states. Although the RP's activities in India is focused on the state of Tamil Nadu, disaster loss databases are being established in the southern states of Andhra Pradesh, Pondicherry and Kerala by the United Nations Team for Recovery Support using the experiences and lessons learned from setting up disaster loss database in the state of Tamil Nadu. New Delhi, Uttar Pradesh and Uttaranchal in India are also implementing the disaster loss database using the DesInventar methodology as part of the joint Disaster Reduction Programme of the Government of India and UNDP India. Iran has also implemented a disaster loss database.

While these 'non-tsunami' states/countries have been involved in various regional activities of the RP, the programme has not always been involved in the implementation process. Nonetheless, exchange of experience and lessons with other programmes have contributed to building the knowledge base for disaster loss database implementation. For instance, the Nepal implementation is an interesting example as it has been managed by an NGO, and the database and systems have been established within the NGO itself (the National Society for Earthquake Technology). Training in the DesInventar system and methodology took place in Nepal in 2002, and the collection of data was completed in 2003 and covered a 33-year period.

5.3 UNDP and the Global Risk Identification Programme[10]

As one of the five priority action areas in the HFA, risk identification has been given a high priority. The Global Risk Identification Programme (GRIP) has been established by UNDP, and works with both international and local expert institutions and authorities in various aspects of risk and loss assessments in five key areas. The main objective of GRIP is the creation of an improved evidence base for disaster risk management, including a global disaster loss database. The five key areas of focus of the GRIP programme are:

- Capacity development
- Demonstrations
- Enhanced global disaster loss data
- Risk analyses for management decision-support in high-risk countries
- Global risk update

The RP collaborates with GRIP in organizing learning and sharing events for the participants from the tsunami affected countries. These events have also been attended by some non-tsunami countries. GRIP is currently working with 10 Asian countries in the establishment of Disaster Loss Data Observatories that will monitor, record and document the impact and effects of natural disasters in a systematic manner.

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10 For more information about GRIP see http://www.gripweb.org.

5.4 UNDP Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction

Figure 17: Countries Indicating Disaster Loss Database Implementation

The RP implements its activities under three outcome areas:

1. Enhanced institutional systems for building risk knowledge and application in planning and decision making for risk reduction, response and recovery.

2. The effectiveness and coherence of end to end early warning systems are enhanced.

3. Within the context of the United Nations International Strategy for Disaster Reduction (UN/ISDR) System, the capacities of national institutions for DRR are strengthened.

These are the recently realigned outcomes to reflect the holistic approach to DRR that the programme implements, and the RP's responsiveness to the specific requirements and requests from countries in the region for support. To date, the RP has provided demand-driven technical advice, facilitated cross learning events and initiated partnerships that have led to positive progress in developing DRR capacities. These include improved information management capacity, better early warning and risk assessment practices, and enhanced skills of managers and personnel in different aspects of DRR.

Relating to disaster loss databases, the RP has moved to support all of the following five steps identified for their implementation in tsunami affected countries:

1. Establishing an enabling environment for DRR

2. Finding an appropriate 'home' for the database

3. Establishing the disaster loss database within DRR framework

4. Collecting, entering and validating data

5. Analysing and managing data, and ensuring sustainability

The RP works with UNDP COs, national disaster management agencies and other counterparts at the national and local levels to support and enhance the enabling environment required to implement disaster loss databases and broader DRR initiatives. The RP has contributed significantly to a coherent and consistent approach to DRR in the region, and has promoted knowledge sharing across countries, providing opportunities for countries in the region to learn from each other at regional forums and training events. The range of regional cross-learning and sharing events

organized by the RP to assist and support the building of disaster loss databases in the five tsunami affected countries include, in chronological order:

1. Regional DesInventar Training Workshop, 6–9 February 2006, Bangkok: This was aimed at providing training to the Disaster Inventories Associates implementing DesInventar in each country.

2. Workshop to Improve the Compilation of Reliable Data on Disaster Occurrence and Impact, 2–4 April 2006, Bangkok: The workshop was organized jointly with CRED and GRIP of UNDP. The workshop aimed to compile and synthesize experiences in Asia in the development, enhancement and maintenance of disaster loss databases.

3. Regional Workshop on Improving Risk Knowledge, 14–16 November 2006, Bangkok: This workshop focused on discussing ways of improving risk knowledge and how risk knowledge is helpful for decision-making in recovery, risk reduction and development programmes.

4. Regional Workshop on Building Risk Knowledge: Enhancing Applications of Disaster Loss Databases, 2–4 July 2007: This provided eight 'clinics' on the analysis and applications of the historical disaster data compiled by the countries.

5. Regional Technical Refresher Course on DesInventar, 4–5 December 2007, Bangkok: The course was aimed at training the participants on some of the advance features of DesInventar and addressing the common issues faced by the countries.

6. Regional Inception Workshop on Extensive Risk, 6–7 December 2007, Bangkok: The objective of the workshop was to deepen understanding of and to analyse the trends and patterns caused by frequently occurring but localized disaster events, thus providing better understanding of human and physical losses using the historical disaster database developed by the tsunami affected countries.

7. Scoping Workshop on Development of Tool-Kit and Documentation of Experiences of Building Disaster Loss Databases, 29–30 May 2008, Bangkok: The significance of this workshop was the agreed design and format of the documentation of experiences and lessons learned from the implementation of disaster loss databases, which was the start of the process of preparing this report.

8. Final Workshop on Development of Tool-Kit and Documentation of Experiences of Building Disaster Loss Databases from Tsunami Affected Countries, 25–26 September 2008, Bangkok: The significance of this workshop and the output was the review and finalization of this report. Non-tsunami-affected countries also attended this finalization workshop and as a group were able to share experiences and lessons learned from disaster loss database implementation. All comments made of the draft report presented have been included in this final report.

A *Manual on DesInventar* (version 7) and a *Guide on Preliminary Analysis* have been developed with support from the RP, and further revisions and new manuals are in the process of development. The DesInventar Manual is a handy reference technical guide for disaster loss database managers, aimed at providing details of various functions of the DesInventar too, including explanations of data fields and terminology, entering, storing and editing data, set up and administration of the database, user access control, etc. The Guide on Preliminary Analysis provides step-by-step instructions on analysing data and producing spatial and temporal outputs for specific disaster events and selected administrative areas.

All in all, the capacity, expertise, local knowledge of the region and experience in DRR that the RP has developed in more than three years of implementation, is a significant contribution to UNDP's knowledge base. Disaster loss database implementation is also an important niche UNDP has built up where government counterparts are now recognizing UNDP as the UN agency specializing in the establishment, customization and institutionalization of disaster loss databases.

There is a strong demand from target countries as well as other countries in the region for the RP to continue providing technical support in implementing disaster loss databases.

The RP's support to the five tsunami affected countries in implementing disaster loss databases has included financial support for equipment, provision of full-time staff, training for the staff, opportunities for sharing and exchanging experiences, technical backstopping in database customization, assistance in the development of work plans, and guidance on the implementation process.

UNDP Regional Centre in Bangkok through its Crisis Prevention and Recovery team will continue to build on its niche in providing technical support to the development and institutionalization of disaster loss database. In addition, the RP will continue to support and document ways in which loss databases are being used to support decision-making in each country. Currently in 2008, these databases have been used to support analysis of disaster and poverty linkages.

6 Conclusion

This report is intended to provide a road map for the replication of disaster loss databases in Asia and the Pacific. It is clear from the review of the RP's work associated with disaster loss databases that having easily accessible information on previous disasters and their impact is the most efficient way to conduct analysis of disasters, and plan and mitigate future disasters. It is also clear that the RP has guided and driven the implementation of disaster loss databases and DRR initiatives in the tsunami affected countries in Asia.

Based on demand, the RP has developed this report to document the process, challenges and lessons learned from the experience of implementing disaster loss databases in the tsunami affected countries, including the type of environment required to enable successful deployment and institutionalization; the various steps that need to be taken and issues to consider for start up; data collection, entry and validation; and ensuring sustainability.

The RP's effective implementation of disaster loss databases has benefited partners that are engaged in early warning systems, building and applying risk knowledge to reduce the impact of disasters, strengthening disaster preparedness and enhancing post-recovery management.

Obviously, each country will offer quite different challenges and among these challenges will be those that UNDP can influence and those that it cannot. It is therefore essential to have a clear understanding that the successful implementation is contingent on a number of factors beyond the physical database itself, and requires the allocation of substantial resources and time. Otherwise, any investments may well be at considerable risk.

To summarize, key factors identified in this report for consideration when implementing disaster loss databases include the following:

- Promote a clear understanding that data and inventories of disasters are vital for identifying and tracking patterns of disaster risk, and that they are a fundamental requirement for implementing efficient and effective DRR programmes, policies and planning.

- Recognize that the establishment and support of an enabling environment for DRR to assist with the institutionalization and long-term sustainability of a disaster loss database must either be in place, or fully resourced or provided for in such an initiative.

- Aim to create a database initiative in conjunction with other disaster-related capacity building activities and within government structures to ensure local ownership and management of the data.

- Customize the system to meet national conditions including language, definitions of disasters and the local situation.

- Ensure that data collection and validation are from agreed and accepted sources, and involve government counterparts in this process.

- Produce high quality analysis from the database that can assist governments in disaster planning and preparedness, and in making informed decisions.

- Ensure that technical support is in place for the system even after the disaster loss database has been successfully implemented.

- Follow five key steps to successfully implement a disaster loss database:

  Step 1– Create an enabling environment for disaster risk reduction

  Step 2 – Find an appropriate 'home' for the database

  Step 3 – Establish the disaster loss database within disaster risk reduction framework

  Step 4 – Collect, enter and validate data

  Step 5 – Conduct analysis, manage data and ensure sustainability

Figure 18: Steps for Establishing and Institutionalizing Disaster Loss Databases

| STEP 1 Enabling Environment | STEP 2 Appropriate Home for Database | STEP 3 Establishment of Disaster Database | STEP 4 Data Collection, Entry and Validation | STEP 5 Analysis, Management and Sustainability |

Acknowledgements

Annex I – Glossary

Capacity

A combination of all the strengths and resources available within a community, society or organization that can reduce the level of risk, or the effects of a disaster. Capacity may include physical, institutional, social or economic means as well as skilled personnel or collective attributes such as leadership and management. Capacity may also be described as capability (ISDR).

Capacity Development

The process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time.

*On the other hand, **capacity building** commonly refers to a process that supports only the initial stages of building or creating capacities and alludes to an assumption that there are no existing capacities to start from. Capacity building can be relevant to crisis or immediate post-conflict situations where existing capacity has largely been lost due to capacity destruction or capacity flight (UNDP).*

Capacity Assessment

An analysis of current capacities against desired future capacities, which generates an understanding of capacity assets and needs, which in turn leads to the formulation of capacity development strategies (UNDP).

DesInventar

A data collection and analysis methodology that uses open-source computer software to record and assess disaster losses and trends. This methodology and software has been used by UNDP in the implementation of disaster loss databases in the tsunami affected countries (DesInventar).

Disaster

A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses that exceed the ability of the affected community or society to cope using its own resources. A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Disaster Loss Database

A database that records and stores information about occurrences and impacts of disasters and allows retrieval of information based on a defined criteria. It allows analysis of occurrences and impacts of disasters over time and space in a systematic manner to support preparedness, mitigation, early warning systems and response.

Disaster Risk Management

The systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.

Disaster Risk Assessment/Analysis

A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

The process of conducting a risk assessment is based on a review of both the technical features of hazards such as their location, intensity, frequency and probability; and also the analysis of the physical, social, economic and environmental dimensions of vulnerability and exposure, while taking particular account of the coping capabilities pertinent to the risk scenarios.

Events

The following events are **defined by DesInventar** as a phenomenon, whether natural or not, which, once triggered, produces adverse effects on human lives, health and/or social and economic infrastructures.

Flood

Water that overflows rivers or streams and runs slowly or quickly on small or large areas.

Urban Flood

Storm water that gets collected in city or urban areas after heavy rains due to blocking or under capacity of storm water drains.

Flash Flood

The sudden overflowing of a river, violent water flow in a river or stream, or unexpected violent water flow on drainage path or land. Flash floods can be caused by rain, a reservoir dam overflowing/bursting/breaching, or abundant landslides on a watershed or basin. Flash floods usually carry tree trunks and/or fine to bulky sediment.

Surge

On land – This can be a surge of water mass due to overflowing or breach of a reservoir dam. This would be synonymous with flash floods.

Sea surge – Sea tides breaking on the shore and flooding the coastal areas. It can result in erosion of beaches and sand banks.

Alluvium

Torrential water flows dragging large amounts of solid material (pebbles, stones, and rock blocks) common in dry regions or river beds produced by heavy rain.

Landslide

All mass movements other than surface erosion of a hillside. This event includes terms such as precipitation of earth, settling, horizontal land thrust, mass movement, displacement and detachment of soil masses on watersheds or hillsides.

Rock Falls

Movement of rocks on hillside or watersheds slowly or rapidly.

Land Subsidence

Subsidence, collapse of caves or mines due to a vacuum/void formed under the ground surface, naturally or as a result of human activities.

Drought

Unusually dry season, without rain or with shortage of rain. As a whole, these are long periods (months and even years).

Epidemic

An infectious disease attacking many individuals in a community during short terms (days, weeks, months maximum) such as cholera, typhoid, bubonic plague, etc., which already exists in the region or the population concerned; or the appearance of an infection previously absent.

Earthquake

All movements in the earth's crust causing any type of damage or negative effect on communities or properties, such as the collapse of buildings and destruction of life and property. The event includes terms such as earth tremor, earthquake and vibration. Sometimes there can be cracking of the crust of the earth.

Storm/Gale

Rain accompanied by strong winds and/or lightning. There is no difference between 'storm' and 'gale'. The term wind storm is also used. Gale is a very strong wind. The term is synonymous with gust.

Lightning (Thunderstorm)

Electrical Storm – Concentration of atmospheric static discharges (lightning), with effects on people, cattle, domestic properties, infrastructure (mains, for example, causing blackouts), and industries. It is different from 'storm' in that thunderstorms are not accompanied by rain and gusty winds.

Tornado

Tornados are winds whirling around a small area of extremely low pressure, usually characterized by a dark funnel-shaped cloud causing damage along its path; usually without rain or little rain. The term is synonymous with whirlwind.

Cyclones

High speed whirling winds moving in a circular path (of about 100–300 km diametre) in an anticlockwise direction around an extremely low pressure area at the centre. Strong whirling winds accompanied by rain. They are originated in the Bay of Bengal.

Forest Fire

Forest fire includes wild fire, bush fire or grass fire. The event includes all open-air fires in forests, natural and artificial forests, plains, etc.

Urban or Industrial Fire

Urban or industrial fire, but not including forest fires, covering extensive damage. They could be due to natural phenomena such as lightning and earthquakes, or due to accidents, technology failure, etc. They may also be caused

by arsonists or careless smokers, by those burning wood or by clearing a forest area.

Rain

Precipitation, including punctual, persistent or torrential rain, or rain exceeding the average rainfall of the specific region; also unusually long rain periods. Rain includes terms such as downpour, cloudburst, heavy shower, deluge, persistent drizzle, squalls, etc.

Sedimentation

Deposits of solid material on hillsides and river beds produced by mass movements or surface erosion with damages on crops, utilities or other infrastructure.

Soil Erosion

Washing away of soil down the surface of hill slopes or mass movements due to storm water flow during intense rains. This can cause sedimentation in streams/rivers and areas at the toe of the hills.

Coastal Erosion

Variations of the coast line and/or maritime zones near the coast. Includes formation and destruction of islands, beaches and sand banks, and erosion of cliffs affecting populations, navigation, etc.

Hailstorm

Frozen raindrops that fall violently in the form of hard pellets. The term is synonymous with hailstones and precipitation of hail.

Frost

Temperature low enough to cause freezing with damaging effects on population, crops, properties and services.

Heat Wave

Rise of atmospheric average temperature well above the averages of a region, with effects on human populations, crops, properties and services; long lasting period of extremely high surface temperature.

Cold Wave

Lowering of atmospheric average temperature well below the averages of a region, with effects on human populations, crops, properties and services; long lasting period with extremely low surface temperature.

Tidal Wave

Great sea waves breaking on the shore, abrupt rise of tidal water moving rapidly inland from the coast or mouth of an estuary; includes waves caused by cyclones, gales or storms (other than tsunami or seaquake), by rise of average sea level during the phenomenon 'El Niño'.

Tsunami

The term is applied only to a series of large waves generated by sudden displacement of seawater due to under-sea movements (caused by earthquake, volcanic eruption or submarine landslide); capable of propagation over large distances and causing a destructive surge on reaching land breaking on the shore. Tsunami ('wave in the port' in Japanese) is the Japanese term for this phenomenon, which is observed mainly in the Pacific, has been adopted for general usage.

Animal Attack

Attacks by elephants or other wild animals, including snake bites.

Plague (Insect Infestation)

Proliferation of insects, animal pests or parasites affecting communities, agriculture, crops, cattle or stored perishable goods, for example, rats, locusts, african bees, etc.

Biological Event

Destruction of biological species for known or unknown reasons. These events may be associated with pollution or drastic changes in environmental parameters. Disasters from insects or animal pests affecting communities, cattle or stored perishable goods should be reported under *Plague*.

Pollution

Concentration of polluting substances in the air, water (surface/ground) or soils, at levels harmful to human health, crops or animal species.

Boat Capsize

Overturning of a boat due to hitting the water-bed or due to sea-disturbances.

Leak, Oil Spill

Leak of harmful liquid, solid or gas substances, toxic/lethal chemicals, explosives and other hazardous materials, whether radioactive or not, generated by technological accidents, human fault or transportation accidents. Oil spills in the sea from vessels/crafts. Radiation leakages – 'Industrial Radiation'. Gas leaks from industrial sites – 'Industrial Gas Leak'.

Chemical Spill

Accidental release occurring during the production, transportation or handling of hazardous chemical substances and forms a disaster subset of disaster type 'Industrial Accident'.

Structural Collapse

Damages or collapse of any type of structure including buildings, for reasons such as excess weight in public places, bridges, etc.; can include industrial structures (Industrial Collapse) or domestic/non-industrial structures. This event includes damage that, although not taking the structures to the point of collapse, does make them unusable. Damages in structures caused by natural phenomena are reported as an effect of these phenomena.

Explosion

Explosions of any type. Explosions involving buildings or structures, can either involve industrial structures (Industrial Explosion), or domestic/non-industrial structures (Miscellaneous Explosion).

Panic

Panic or mass hysteria among people concentrated in a certain place (stadiums, theatres, etc.) that can kill or injure them, and cause physical damage. Includes panicky situations caused by early warnings about incoming events. An example is the panicky situation created by possibility of elephant attack during a procession with hundreds of elephants where thousands of people are gathered along the route.

Industrial Accident

Technological accidents of an industrial nature/involving industrial buildings (e.g. factories). They can include chemical spill/leak explosions (Industrial Explosion), radiation leakages (Industrial Radiation), collapses (Industrial Collapse), gas leaks from industrial sites (Industrial Gas Leak), poisoning (Industrial Poisoning), fires (Industrial Fire), and other technological accidents involving industrial sites.

Accident/Transport Accident

Accidents to describe technological transport accidents involving mechanized modes of transport, involving airplanes, helicopters, airships and balloons (Air Transport); accidents involving sailing boats, ferries, cruise ships, other boats (Boat Transport); accidents involving trains (Rail Transport); and accidents involving motor vehicles on roads and tracks (Road Transport). They include transportation accidents generating spills or leaks of harmful substances, regardless of the cause.

Miscellaneous Accident

Disaster type term used to describe technological accidents of a non-industrial or non-transport nature (e.g. houses); includes explosions (Misc. Explosion), collapses (Misc. Collapse), fires (Misc. Fire), and other miscellaneous accidents involving domestic/non-industrial sites.

Contamination/Poisoning of Air/Water

Poisoning or contamination of atmosphere or water courses due to industrial sources (Industrial Poisoning).

Snowfall

Anomalous fall and accumulation of snow, especially when it occurs in zones not subject to seasonal changes. This term refers to events where precipitation exceeds the average multi-annual values, causing especially serious effects.

Volcanic Eruption

Volcanic eruption with disastrous effects, eruption and emission of gas and ashes, stone falls (pyroclast), flows of lava, etc. This event includes eruption of sludge volcanoes found in some Caribbean regions.

Avalanche

Rapid and sudden sliding and flowage of masses of usually unsorted mixtures of rock material, snow and ice, or they could be solid waste, in case of massive dumps; same meaning as slide.

La Niña ('little girl' in Spanish)

It is essentially the opposite of El Niño. The ocean becomes much cooler than normal. Although, La Niña is not as well understood as El Niño, it is thought to occur due to an increase in the strength of the trade winds. This increases the amount of cooler water that upwells toward the West Coast of South American and reduces water temperatures.

Hazard

A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption, or environmental degradation.

Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydro-meteorological and biological) or induced by human processes (environmental degradation and technological hazards).

Hazards can be single, sequential or combined in their origin and effects. Each hazard is characterized by its location, intensity, frequency and probability.

Hazard Analysis

Identification, studies and monitoring of any hazard to determine its potential, origin, characteristics and behaviour.

Mitigation

Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

Natural Hazards

Natural processes or phenomena occurring in the biosphere that may constitute a damaging event. Natural hazards can be classified by origin namely: geological, hydro-meteorological or biological. Hazardous events can vary in magnitude or intensity, frequency, duration, area of extent, speed of onset, spatial dispersion and temporal spacing.

Preparedness

Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

Prevention

Activities to provide outright avoidance of the adverse impact of hazards, and means to minimize related environmental, technological and biological disasters.

Depending on social and technical feasibility, and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education related to DRR, changing attitudes and behaviour contribute to promoting a 'culture of prevention'.

Risk

The probability of harmful consequences or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions. Conventionally, risk is expressed by the notation: Risk = Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability.

Beyond expressing a possibility of physical harm, it is crucial to recognize that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes.

Sustainable Development

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Sustainable development contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and the future needs (Brundtland Commission, 1987).

Sustainable development is based on socio-cultural development, political stability and decorum, economic growth, and ecosystem protection, which all relate to DRR.

Vulnerability

The conditions determined by physical, social, economic and environmental factors or processes that increase the susceptibility of a community to the impact of hazards. For positive factors that increase the ability of people to cope with hazards, see definition of capacity.

1. **Name of disaster loss database:** Indian Disaster Database (Indisdata)

2. **Start date:** February 2006

3. **Implementing and partner agencies:**

   a. **Implementation strategy/arrangements – Government Ministry, Nodal Agency/Department, Partner Agencies/Stakeholders (at country/provincial/district/subdistrict level)**

      Nodal agency state level coordination – Revenue Department (SC/CRA office)

      District Magistrate office – district level

      Taluk office – subdistrict level

   b. **Which agency is implementing the loss database and the relationship with other departments/agencies/ministries**

      SC/CRA office under the Revenue Department banner.

      SC/CRA office is the highest authority in the revenue department and the district/subdistrict officials are administrated under this revenue department. The SC/CRA officer is also the State Relief Commissioner who receives data on all disasters in the state.

   c. **Other agencies involved in data collection/provision of data**

      Fire Department

      Meteorological Department

      Department of Geology and Mining

      Forest Department

   d. **Background on government ownership/reorganization/adaptation**

      Data is collected from authentic sources identified in consultation with Nodal Agency/UNDP and others involved. Hosted in 'gov.in' domain.

   e. **Institutionalization of the system/process**

      The NIC Officers have been trained for future data entry process. The officers will be the master trainers in data entry to others.

   f. **Decision-making support/administrative support/policy-making by government**

      Identified as a decision support system by stakeholders. Called for initial meeting on 29 March 2008. Should consolidate the position by advocacy.

   g. **Background on government ownership – What is the involvement of government and how is their involvement in implementation, proactiveness of government in implementation. Government benefits – More information on the benefits of the loss database for government**

      The nodal agency has provided the necessary support in all activities of the project.

      The government will have a system to systematically record all the disastrous events at the lowest possible geographical level.

   h. **Reference any specific government regulations/structures regarding the establishment and implementation of DesInventar**

      Letter from SC/CRA office in initiating data collection through the government mechanism.

4. **Key definitions:**

   Disaster events listed in DesInventar based on the identification of the events by the High-Powered Committee nominated by the Government of India for this purpose.

5. **Resources in the establishment of DesInventar:**

   Staffing

   Two Disaster Inventories Associate (UNV)

   Two interns for data collection and entry

6. **Equipment:**

   Budget/funding

   Funding from RP

   Institutional and logistics support from UNTRS

   Two HP laptops, printer for UNVs

   Two laptops on rent for project interns

   Dell 1950 Rack Server for hosting the database

7. Description of database:

http://www.indisdata-tn.gov.in is physically located at NIC campus. The domain is active and alive but the system was shut down in the NIC premises for operational reasons.

Focus:

Level (village/ subdistrict/district/provincial/ national)

Data collected at state, district and subdistrict levels.

State -> 30 districts -> 201 subdistricts (Taluk)

Country specific modifications to database (including type of events/causes/extended data cards/ language/user interface/integration with other databases)

Data card used for physical data collection was bilingual (English and Tamil).

The user interface and training was in English only.

8. Background of implementation of database:

Key activities and achievements – quarterly basis or based on milestones

3 Months (April 2006) – Project initiation by signing the MOU with SC/CRA GoTN and UNDP
Two UNV Disaster Inventories Associates were recruited and trained by the RP

6 Months (July 2006) – Data collection planning
Two interns were inducted for data collection and entry

12 Months (March 2007) – Completed data collection and entry. Data entered in two laptops by
the interns and later the two databases were merged as one

18 Months (July 2007) – Validation and hosting. The entire data cards were validated by:
Comparing it with hard copies of data cards. Procured Dell 1950 Server and mounted in rack
Website registered with gov.in domain
Software installed in server and made online by mapping IP

21 Months (November 2007) – Additional data collection was carried out using daily reports from districts
Data entered online referring the records

24 Months (February 2008) – Analysis and institutionalization. CDMM-VIT was selected for carrying out the analysis, and the draft report comprising three chapters is ready

9. General challenges encountered during implementation:

Technical (such as issues of map importing, using of different server version, databases etc.)

There were a lot of discrepancies in the DesInventar maps of Tamil Nadu and no guidance from any quarter regarding the source of map to rectify this problem.

Internal and external issues

After numerous email exchanges between all concerned, it was finally decided to collect data to Taluk level.

Political issues

Data collection process was delayed following the General Elections in May 2008.

10. Addressing of general challenges encountered during implementation:

Technical – Procured latest maps from government and rectified the map problems.

Human Resources – Recruited two interns for full fledged data collection.

Institutional – Data collection was carried with the assistance from the Joint Commissioner (Disaster Management and Mitigation) office.

Political Issues – Started the data collection process from districts after the new government formation.

11. What need does the database meet and for whom?

UNDP CO – As input to the Global Assessment Report of UN/ISDR.

Potential users – Research scientists, planners, policy makers.

Government – To keep track of the disaster events and systematic recording of events.

12. Organization of database-related events:

Events
29 March 2006 – Initial stakeholders meeting was called to initiate the proceedings
29 September 2006 – An interim stakeholders meeting was called to expedite the data collection

Trainings
27–28 September 2006 – A two-day training workshop of District Information Officers from all districts was held.

13. External support provided from UNDP CO and RCB:

UNDP CO – Supported by DRM project personnel in implementation.

UNDP RCB – Visits from RCB for guiding and motivating the project personnel in project implementation.

Training by RCB

Funding and equipment from RCB

Nodal Agency/Partner Agencies/ Stakeholders/ Others:

Necessary permission/introductory letters sent from nodal agency to all stakeholders and district offices.

14. **Planning of data collection and level (provincial/ district/subdistrict/village):**

Location of data sources (Media/Agencies/ Government/etc. please detail)

Government Departments/Agencies

Fire Department

Indian Metrological Department

Geology and Mining Department

Location of data sources (Country/Province/ Districts/Subdistricts)

Province – State level government agencies/Central government institutions

Districts – District Magistrate Office

Subdistricts – Taluk Office and VAO Offices

Data collection methodology (electronic/hard copy/others)

Through the customized data cards designed for the purpose.

Data collection plan/strategies (HR/Logistics/ Equipment/Training)

Initially at the state level agencies, and then travelled to district and subdistrict levels for data collection.

Travelled to all districts. Trained the officials in data collection.

State level agencies coordinated with their district/ subdistrict offices in data collection.

Allocation of staff (please provide numbers/ cost/ time and tor)

Two interns from UNDP

Nodal officer at each district/government agencies

Local Adaptation

The events were redefined matching local needs.

Data cards were made bilingual for better understanding by department officers.

15. **Data source:**

Government

Government Departments/Agencies

Central Government institutions

Fire Department

Indian Meteorological Department

Geology and Mining Department

Relief Commissioner Office

Daily reports from districts

Advantages of different sources of data

Comprehensive data of an event will be available since the different departments offer varying perspectives on the disaster.

Problems/challenges with other sources of data

Needs to be cautious of duplications – the entering of data on the same disaster event more than once.

Lessons learned

Although multiple sources can lead to repetition, with proper planning and strategy it can become an advantage.

16. **Data collection process:**

Bottlenecks and how they were addressed

Data was first collected from state agencies. This was followed by data collection at district level offices. The data cards were kept and amendments made accordingly.

Time needed for data collection

Variable time was required as response from various quarters were different.

Type of quality control put in place (please provide some details and more under the Validation section)

Since data was collected from authentic sources only, the validation work was reduced to a large extent. But strict quality control measures such as cross checking with source, comparing with other sources, etc. was carried out.

Challenges in the data collection process

There are no uniform and receptive responses from stakeholders needed to push things from SC/CRA office to expedite the process.

17. Data validation:

Data entry process

Data entered in data cards with source name and operator name.

How the data was received and in what form

Data was received in hard copies of data cards.

How data entry was carried out

Interns entered data using the data cards, in separate laptops and then merged to produce one set of data.

Challenges in data entry and how these were resolved (repetition, multiple locations)

Repetition was approached on a case by case basis rather than a standard procedure.

Effects such as death and housing damaged were taken from Revenue source. Others such as evacuation and rescue were taken from the Fire Department, and road damage from the Highways Department.

Process of validation

Entered data was checked with physical data cards.

For accuracy, data was checked with government officials of the department.

Quality control/mechanisms put in place

Data from the Revenue Department was given weightage as it was the nodal agency. Information on death and property damage was primarily from the Revenue Department.

Solutions

For example, a flood-related accident was reported by both the Revenue Department and the Fire Department. The number of deaths was the same from both sources, but the Fire Department also provided information on the number of people rescued. A single entry was made with the information on death from the Revenue Department and rescue from the Fire Department.

18. Analysis:

Type of analysis undertaken

Preliminary analysis undertaken by a local university (VIT).

How the analysis was done

Using the database and referring to disaster-related journal and reports.

Analysis undertaken by

Centre for Disaster Management and Mitigation – Vellore Institute of Technology

Dissemination of analysis

Analysis results will be published as a booklet with consent from all involved.

Use of analysis (by decision makers for planning activities/allocating funding for disaster planning/ preparedness)

This can be determined with the publishing of the analysis report.

Period of analysis and frequency

Data is available from 1975 onwards. A good amount of data is from 1996–2006 so this period can be considered for analysis.

19. Use of analysis by government:

By decision makers

In the course of time things may move in this direction based on the acceptance of the analysis report by key government stakeholders.

Use by NGOs

Government agencies do wish for NGOs to adopt the system, and an action plan is being developed for engaging NGOs in the process.

20. Sustainability:

Key elements of sustainability

Government ownership and acceptance is vital for sustainability. Continued updating of the database from selected agency is required.

Issues specific to government sustainability

Advocacy is required for the acceptance of the system and its sustainability.

Issues specific to UNDP support for sustainability

Both RCB and CO to support the government in all acts for sustaining the initiative.

Political issues

Government reluctant to put the database online due to political issues.

Government ownership issues

Government reluctant to accept the system as it cannot dedicate its workforce to this initiative.

Human resources

Training the users in data entry and maintenance of the system.

Future direction/use of data and database

Institutionalizing the entire system will be the right direction.

21. What enabling factors contributed to successful implementation of the database?

1. The availability of data from authentic government agencies.

2. Proactive and steadfast support from SC/CRA office and district officers.

3. Data collection methodology and advocacy in data collection.

4. Dedicated and goal-oriented workforce from UNDP RCB.

5. Good work culture prevailing in the province.

22. What factors contributed to delays in the implementation of DesInventar?

1. General election in May 2008.

2. Officers were instructed to prioritize the popular schemes introduced by the government.

3. The real requirement was misunderstood by officials in the lower ranks.

4. Transfers of officials.

23. Support provided from the UNDP RCB and CO (Regional Programme) (please detail all support provided to date):

Training provided – Initial training in Feb 2006, advanced training in Dec 2007

Resources – Laptops, travelling allowance.

Backstopping – technical support.

Other – Guidance in the implementation of DesInventar.

24. Additional support required from the RP or others:

a. Based on current status of implementation (additional support required)

Training – Training in GIS integration with DesInventar.

Funding – Support from the RCB to sustain the activities.

b. If initiating a new database what support needs to be made available from UNDP RCB RP

Funding – Required to start the project and other activities.

Staffing – Expert support to implement the project.

Training – Training in software and disaster management using master trainers.

Technical support – required to make the necessary customization to suit the new region and country specific requirements.

Manuals/tools – Availability of software manuals and toolkit will be advantageous.

25. How has this database increased UNDP and the governments' role in disaster loss coordination/ disaster mitigation/disaster planning/ preparedness?

UNDP – Will be helpful in designing the future plans of DRM.

Government – Key role can be possible with right approach.

Other – NGO/Research personnel.

26. What do you feel are the key lessons that have been learnt in the establishment of the database?

1. There was no systematic approach in recording the disaster losses.

2. Need to create one for long-term preparedness and mitigation planning.

3. A first attempt in creating such database.

4. Will be a decision support system to the administrators/ planners in government.

27. What aspects of the implementation of the database could be replicated in other countries?

1. Nodal agency identification.

2. Stakeholders selection.

3. Data collection methodology and process.

4. Data was collected at the subdistrict level, and stakeholder agencies' officers were directly involved in data collection.

5. Hard copies of data cards were used for easy reference.

28. What aspects of the implementation of the database should not be replicated in other countries?

1. Merging of database should be avoided. A single database should be used for data entry at all times.

2. It is important to have a clear idea of the availability of data.

29. Key advantages/disadvantages with how DesInventar was implemented in your country:

Advantages

1. Proactive government and steadfast support from nodal agency.

2. Best governance and working conditions.

3. Logistics/administrative/technical guidance from the RP/CO.

Disadvantages

1. Low cadre officials do not understand the need for database, although the support was there.

2. Data collection will be the same as government mechanism.

3. The data collected may be politically correct but may not be the reality.

4. Priority of officials.

30. Contact Persons (please provide the email and telephone of the focal points for this Good Practice Documentation):

UNDP Country Office focal point – PO(DRM)

chandrima.biswas@undp.org

muhammed.akram@undp.org

Government Focal point – JC(DMM)

jcdmm@tn.nic.in

Website: http://www.indisdata-tn.gov.in

1. **Name of disaster loss database:** Sri Lanka Disaster Information System

2. **Start date:** February 2006

3. **Implementing and partner agencies:**

   a. **Implementation strategy/arrangements – Government Ministry, Nodal Agency/Department, Partner Agencies/Stakeholders (at country/provincial/district/subdistrict level)**

   Activities pertaining to the Sri Lanka Disaster Information System are performed by the Disaster Management Centre (DMC) under the leadership of the Ministry of Disaster Management and Human Rights (M/DM&HR), with the assistance of the United Nations Development Programme (UNDP).

   b. **Which agency is implementing the loss database and the relationship with other departments/agencies/ministries**

   Activities pertaining to Sri Lanka Disaster Information System are implemented by the DMC with the assistance of UNDP.

   c. **Other agencies involved in data collection/provision of data**

   There are specialized state organizations responsible for different hazards and they take the leadership in collecting disaster-related data through their district offices and district administrations.

   Information on disasters occurring within the district is reported to the Divisional Secretariat by the Grama Niladhari (GN) Officers, and from there, it is related to the District Secretariat. Other organizations that are within the district may assist them in this process.

   At the time of disaster, information related to the damages caused in each sector is collected directly by these particular state organizations within the district with the assistance of other organizations, as required.

   d. **Background on government ownership/reorganization/adaptation**

   With the enactment of the Sri Lanka Disaster Management Act No.13 of 2005 in the Parliament of the Democratic Socialist Republic of Sri Lanka in July

2005, the National Council for Disaster Management (NCDM) was established as the highest authority responsible for the management of disasters. This was followed by the establishment of the DMC to function directly under the NCDM.

Thereafter, a separate ministry (M/DM&HR) was formed. Presently the DMC is functioning under the Ministry. Accordingly, the DMC is the main authority for disaster management activities covering the whole island of Sri Lanka under the guidance of the NCDM and the M/DM&HR.

In this manner the establishment and updating of the Sri Lanka Disaster Information System are done as regular activities within the programmes of the DMC, with the active participation of other relevant organizations.

   e. **Institutionalization of the system/process**

   The DMC, under the guidance of the M/DM&HR, coordinates the activities with other relevant ministries and national level organizations.

   The DMC has already established District Disaster Management Coordinating Units (DDMCUs) in 25 districts that work directly with the District Secretaries. These units coordinate disaster management activities within their respective districts together with the District Secretariat and other organizations.

   f. **Decision-making support/administrative support/policy-making by government**

   All the activities are carried out with the knowledge and guidance of the DMC. The coordination with all government and non-governmental organizations (NGOs) is done with the participation and involvement of the DMC and the M/DM&HR.

   Activities at the district level are carried out along with the relevant district offices of various government organizations and NGOs, under the guidance of the District Secretary and coordinated by the DDMCUs.

   Examples:

   • Making all national and district level organizations knowledgeable about all activities are done in writing by the DMC.

- The financial requirements for the connected activities are provided by the DMC in accordance with the written requests of the District Secretaries. Financial assistance for these programmes is granted by UNDP.

- The collection of related data by the government departments/agencies is done by their officers at the national and district levels.

g. **More information on the benefits the government will have from the disaster loss database**

As the Sri Lanka Disaster Information System has relevant information on each disaster that is provided by specific organizations, they could use the information to suit their needs. In the same way, anyone can have access to the relevant information freely.

The DMC can use this information for the following requirements:

- To identify most disaster prone GN division in each Divisional Secretariat division (in the multi-hazard context).

- To identify most disaster prone GN division in each Divisional Secretariat division (for one specific hazard event).

- To identify most destructive hazard in each GN division based on historical data.

- To minimize the damages caused by disasters based on the above information.

- To plan, prepare and activate programmes pertaining to early warnings and prior preparations to suit each district based on the above information.

- To prioritize and give preference to select future disaster management activities depending on areas that are more vulnerable.

- To identify disaster risks prevalent within the districts and accordingly, strengthen the capacity of relevant governments and NGOs in planning appropriate disaster management activities.

4. **Key definitions:**

Including complete list of hazards used in database/disasters/causes/variables/fields and effects

All interpretations (definitions) related to disasters have been done with the coordination of respective government organizations to suit the country context. All prevalent hazards have been considered.

5. **Resources in the establishment of DesInventar:**

Staffing

A Disaster Inventories Associate has been appointed for this activity under the guidance of UNDP. Research Assistants were recruited on many occasions in order to collect and enter data into the computer system. They were university undergraduates studying various computer programmes as well as technical courses. At the beginning, they were employed through a private company. Later, they were recruited directly by UNDP on a short-term contract.

The group of officers attached to DesInventar is functioning in an office housed in the DMC and are attending to all activities under the direction and guidance of the Director General, and the Director of the Disaster Mitigation and Information Technology Unit. The Disaster Preparedness and Planning Unit, Training and Public Awareness Unit, and Emergency Operations Unit give necessary advice and assistance continuously to conduct these activities. In addition, UNDP directs and supervises the entire programme of activities.

6. **Equipment:**

Budget/funding

Total financial assistance for the required equipment is provided by the UNDP RCB to establish the Sri Lanka Disaster Information System.

7. **Description of database:**

Location – In government or authentic (include physical/URL/domain)

As the DMC does not possess the required initial resources such as high-speed Internet connection and server machine to host the database, it has been hosted online with the support of another organization.

Sri Lanka Telecom, leader in providing Internet facilities in Sri Lanka, provided the required technical infrastructure for database hosting. Further, Sri Lanka Telecom is providing assistance to maintain the security of the database while resolving some technical problems in the system.

The updating of the database is done remotely from the DMC. Sri Lanka Telecom has made a monthly payment for installing the database on the Internet, and the financial commitment for this is made by UNDP.

Sri Lanka Disaster Information System is located in the government website, under http://www.desinventar.lk.

Level (village/subdistrict/district/provincial/national)

From inception, the collection of data was carried out at provincial, district and divisional levels, but presently it is expected to go down as far as GN divisions.

Country specific modifications to database (including type of events/causes/extended data cards/language/user interface/integration with other databases)

The following disasters were included as relevant to Sri Lanka: urban floods, flash floods, damage by animals, diseases not contagions etc.

The following additional variables were included in the information system to obtain further data about the effects of disasters in each of the various fields:

Human Lives

No. of females dead

No. of males dead

No. of females injured

No. of males injured

No. of females affected

No. of males affected

No. of families affected

No. of families in IDP camps

No. of people in the camps

No. of families evacuated

No. of families relocated

No. of IDP camps

Other Buildings

No. of fully damaged government premises

No. of partially damaged government premises

Loss in Sri Lankan Rupees for government premises

No. of fully damaged shops

No. of partially damaged shops

Loss in Sri Lankan Rupees for shops/business premises

Loss in Sri Lankan Rupees for houses

Agriculture

Paddy land in hectares

No. of paddy farm families

Loss in Sri Lankan Rupees for paddies

Other farm lands in hectares

No. of other farm families

Loss in Sri Lankan Rupees for other farms

Relief

Payment for relief – lost life

Payment for relief – injury and disability

Payment for relief – emergency supplies

Payment for relief – fully damaged houses

Payment for relief – partially damaged houses

Payment for relief – livelihood options

Payment for relief – loss of crops

Payment for relief – loss of livestock

General

Event number

Rainfall recorded (mm)

No. of GN divisions affected

No. of villages affected

Loss in Sri Lankan Rupees for other sectors

Livestock

No. of livestock families affected

No. of livestock affected

Loss in Sri Lankan Rupees for livestock

Cattle/Buffaloes

Figury

Goat

Poultry

Transportation

Name of roads damaged

Loss in Sri Lankan Rupees for MC/UC/PS roads damaged

Loss in Sri Lankan Rupees for national roads damaged

Loss in Sri Lankan Rupees for provincial roads damaged

Total loss in Sri Lankan Rupees for roads damaged

Name of bridges damaged

No. of bridges damaged

Loss in Sri Lankan Rupees for bridges damaged

No. of culverts damaged

Loss in Sri Lankan Rupees for culverts damaged

Name of railways damaged

Total loss in transportation (Sri Lankan Rupees)

Industries

Name of industries affected

Loss in Sri Lankan Rupees for industries

Irrigation

Loss in Sri Lankan Rupees for tanks damaged

No. of tanks affected

No. of partially damaged River Flood Protection Systems

8. Background of database implementation:

Key activities and achievements

The initial collection of the data was carried out from August to September 1996.

The collection of data at the national level from the relevant government organizations was carried out from January to March 1997. Validation of the data collected earlier was done and data found missing from the previous data collection exercise was included in the latter exercise.

Gathering of data at the district level was carried out in two stages. At the first stage, 12 districts were selected and data was collected from November 2006 to March 2007. In the remaining 13 districts data was collected from October 2007 to June 2008.

The Sri Lanka Disaster Information System was made available on the Internet in June 2007 and preliminary data analysis report was launched on the same day.

The first training programme for a selected group of officers from the national and district levels was conducted in October 2006. A second training programme for district level officers from nine selected districts was conducted in June 2007.

9. General challenges encountered during implementation:

Technical (such as issues of map importing, using of different server version, databases etc)

At the beginning, there were minor problems in the software but they were rectified later.

There is a problem with obtaining the latest updated maps for the Divisional Secretariat and GN divisions.

10. Addressing of general challenges encountered during implementation:

Technical

UNDP and the DMC are providing the relevant assistance.

Others

- Involvement of different stakeholders (Department of Agrarian Services, Department of Wildlife Conservation, National Disaster Relief Services, NBRO, etc.) in collecting information related to the various disasters can be observed in Sri Lanka. Therefore, no one agency has access to all information related to different disaster occurrences. This situation is a challenge for sustaining, maintaining and updating DesInventar as it will require coordination of several organizations.

- Lack of exchange of relevant data between the respective organizations.

- Data has been collected to suit the requirements of individual organizations, and data is available in various types of formats.

11. Organization of database-related events:

Events

The first stakeholder consultation workshop was held in October 2006.

- The workshop was held to enable the sharing of progress on the development of the database and discuss the findings of the preliminary analysis on disaster trends and impacts, and to agree on the strategy for institutionalization of the system in the country.

- More than 100 participants representing the government, NGOs, UN agencies and universities participated in the workshop.

The second stakeholder workshop was held in June 2007. The outcomes that were expected through the workshop were as follows:

- Inputs from policy- and decision-makers on the usefulness of the historical disaster analyses from the database.

- Identification of database outputs that will be useful at national and subnational levels for planning and development purposes.

- A data collection format agreed upon by all stakeholders.

- An effective system to collect divisional level data across the country in each district to ensure regular flow of data.

The Disaster Information System in Sri Lanka was launched by the Secretary of the M/DM&HR on June 2007 with a link on the DMC website (http://www.desinventar.lk).

The following events were organized at the subnational level for government officials on DesInventar and the data validation process:

- Stakeholder and data validation workshop in Kegalla district on 26 October 2007, Matale on 29 October 2007, Polonnanruwa on 6 November 2007, Kurunegala on 9 November 2007, Monaragala on 14 November 2007, Anuradhapura on 16 November 2007, Badulla on 26 December 2007, Nuwara Eliya on 10 January 2008.

- Consultation meeting for data validation at district and divisional levels. A meeting was held in December 2006 at the DMC for the district officers of Colombo, Gampaha, Kandy, Puttalam, Kalutara, Galle, Matara, Hambantota, Ratnapura, Ampara, Trincomalee and Batticola.

- Awareness workshop on DesInventar and data validation process for district disaster management coordinators in Mannar, Vavuniya, Mullaitivu, Kilinochchi and Jaffna districts. A workshop was held in January 2008 at the DMC.

Trainings

First DesInventar training workshop was held in October 2006.

- More than 50 officers selected from national and subnational level government agencies were trained at the workshop.

Second DesInventar training workshop was held in June 2007.

- Nearly 50 government officials selected from nine districts, DDMCU staff, UNVs and Data Entry Operators were trained.

- Computers and the DesInventar database were given to nine districts after completion of data validation and training.

12. External support provided from UNDP CO and RCB:

Financial support has been provided for the human resources required (Disaster Inventories Associate since February 2006, and data entry operators from time to time). Arranging stakeholder and training workshops at the national level, data collection at district level, development of infrastructure facilities at the national and district levels, hosting database online, provision of computers for 25 districts, and other required logistics, were among the key contributions for developing DesInventar in Sri Lanka by RCB.

Technical support has been provided by RCB for the development and customization of software to suit the country context, and for capacity building of the Disaster Inventories Associate.

13. Planning of data collection and level (provincial/district/subdistrict/village):

Location of data sources (Media/Agencies/Government/etc. please detail)

Organizations have been identified as sources for obtaining disaster-related information. They are print media, government, NGOs and research organizations.

Newspapers

Various systems and methods have been used in collecting and maintaining the data in governmental organizations from a very long period. As a result it was noticed that there are various difficulties in the collection of disaster data since 1974.

Examples

- Except for the data related to communicable diseases, all other disaster-related data were only available for a period of less than 10 years since they had commenced accumulating such data.

- The available data was limited only to special situations and they were present only as summarized reports.

Accordingly, it was decided to collect the relevant data by using print media, right from the inception. The main reasons for identifying the print media as the first source for this purpose was that the reports of most incidents that had taken place since the year 1974 were available. Also based on such information and data collected from the print media, it became easier to obtain further detailed information through government organizations.

Two newspapers published in Sinhala (*Dinamina*) and English (*Daily News*) were selected for this purpose. These newspapers have been published by the Associated Newspapers of Ceylon Ltd., which is a state organization.

The newspapers that had been published from the year 1974 to 1976 were obtained from the Department of National Archives, and those from the year 1976 onwards from the National Library Documentation Centre.

Government organizations

The data from state organizations was of diverse formats as stated below:

- Weekend reports on disasters

- Abridged reports on special incidents

- Daily reports on disasters
- Requests made for relief aid

However this information was present separately in the organizations at the national level and in the district level. Therefore, it was decided to collect this information in two stages – initially, at the state level and thereafter, at the district level. Collection of data possessed by NGOs and research organization has not been done up to date.

Data collection methodology (electronic/hard copy/others)

The data from government organizations was available in the form of reports. It was not possible to bring those written reports out of the premises nor was it possible to take photocopies. Likewise, with newspaper from the relevant organizations. As a result, all copies of past newspapers and reports of the government organizations had to the photographed.

14. Data source:

Government

The DMC has identified responsible organizations who take appropriate action for various types of disasters, and also those who collect and store the related information at the national and district levels.

The following organizations have been linked and associated to collect the data at the national level:

- Epidemiology Unit of the Ministry of Health
- Department of Social Services
- Department of Wildlife Conservation
- Department of Fire Services of the Colombo Municipal Council
- National Building Research Organization

The following organizations have been linked and associated to collect the data at the district level:

- District Secretariats
- Divisional Secretariats
- Agrarian Services Department
- Wildlife Conservation Department
- Provincial Councils/Local Authorities

Media

The two newspapers *Daily News* and *Dinamina* published by Associated Newspapers of Ceylon Ltd. have been identified and selected.

Advantages of different sources of data

There was no database in Sri Lanka where past disaster data and information have been collected and maintained before the initiation of the Sri Lanka Disaster Information System.

Initially, it was believed that data collection at the level of Divisional Secretariats would suffice for disaster management. Later, it came to be understood that the data maintained even at the level of Divisional Secretariats was not sufficient. Also, when the data is collected it should cover all disasters as far as possible.

In consideration of the above-mentioned points it was revealed that the following results could be obtained by collecting data from various sources:

The government organizations have data only on the recent past, but it is possible to obtain basic historical disaster data that dates back many more years with the assistance of newspapers. The reports in areas that had been affected as a result of disasters are published in the newspapers correctly at the level of Divisional Secretariat or GN.

The data that government organizations had collected had been for the purpose of granting assistance to the affected, i.e. information of those who were eligible for aid and those who provided assistance were recorded. In these instances, it is possible that there is a difference between the recorded data and the actual data. However, the newspapers do the reporting of these news items without any basis for aid and assistance.

When information on past disasters was gathered from government organizations, researchers found that the dates of the disasters were not recorded correctly. In certain instances, only the date of the incident, the date on which relief aid was requested and the date on which relief aid was given were recorded. And in the same way, there were instances where the year or the month and the year were recorded, but the correct date or the most near date of the incident could be found in newspapers. The data cannot be entered into DesInventar unless the year, month and day of the disaster event are known.

Various government organizations collect the data on one disaster but respond separately in the affected sectors. In the same manner, various organizations collect the information of effects of the same sector and respond to them separately. Only under these circumstances, the information has to be collected from all concerned government organizations.

Problems faced while collecting relevant data from various sources

In newspapers:

- Data on damages caused by disasters is given only at the district and the national levels.

- Some calamities are reported inadequately in the news print. In the majority of instances, the newspapers report only the damages caused to people, properties and crops.

- When there are minimal effects and when such incidents are taking place continuously, such news are sparingly reported in newspapers.

- The same incident is reported in the newspapers for only a couple of days.

- Government organizations have data only for a very short period of time (less than 5 years).

- There are instances where the effects of disasters are not being reported as the collection of data is based only for the purpose of relief aid.

There are problems in summarizing all the information as every individual organization have been collecting the effects of one single disaster in various types of formats, and also only as relevant to one's own field of interest. And in some of these instances, the damages caused by each disaster have not been identified separately.

Example 1

If there had been floods along with landslides and some other calamity on the same day, all the incidents are reported as either floods or that of landslide, or as both.

Disaster data is not collected at the level of either the Divisional Secretaries Division, GN Division or by all the concerned organizations. In certain cases, only the place of occurrence is mentioned. In such occasion, the DMC has to find out the Divisional Secretaries area where the incident had taken place.

Example 2

For damages caused by wild elephants, only the addresses where the incidents had taken place are reported. Similarly, in case of a fire, the fire brigade that attended to it reports the address of the place of incident only.

Certain organizations base their collection of data on their subject area only, and as required by their administrative units. As a result, there are problems in separating such data at the level of Divisional Secretaries.

Example 3

The information on communicable diseases is reported based on the requirements of the Ministry of Health Units.

Lessons learned

While considering the existence of original information and the data preserved with them in respect of past disasters to make proper use of the original information, both the government organizations and newspapers are very important and valuable.

If the DMC wants to make use of the data for effective management, it is very important that such data is collected at the level of the GN divisions, as it is the lowest level in the administrative set up.

The basic data on all the incidents is very valuable in the analysis of correct data and information during the particular period along with how such incidents had an impact on various fields. For this purpose the data has to be collected through many original sources.

The government organizations as well as the district level organizations should pay more attention when collecting original data and information. Certain districts have disaster data that is inherent for those districts only, and there are instances where such data and information are not available at the national level.

After conducting an extensive survey, it is very important to trace the original source to explore as to which is the most suitable before collecting the required data.

Example

The DMC collected information on contagious diseases with the assistance of past newspapers, and the relevant data had be collected again by going through the end of week reports prepared and maintained by the unit that has been established for the control of contagious diseases by the Department of Health.

15. Data collection process:

From daily newspapers.

The collection of data was carried out from the beginning of August 2006 to the end of September 2006.

Ten Research Assistants were recruited for this exercise, and they were all graduates. They were given substantial training at the beginning about disaster management, types of disasters and the methods adopted in data collection.

As the newspapers could not be taken out of the premises where they have been preserved for the collection of the required data, all extracts of reports found in the above-mentioned daily newspapers were photographed with digital cameras and thereafter, all such news extracts photographed were printed.

A form was designed and the Research Assistants had to fill in the form accordingly, taking all the facts appearing in every newspaper report, facilitating the collection of the required data.

All the forms that had been duly filled were filed along with the extracts of the particular news report. The research assistants were recruited by UNDP through the private organization named "B Connected" and they were paid a monthly remuneration.

Government organizations

The collection of data through government organizations was carried out on two occasions. They were done separately taking national organizations first and the district level organizations thereafter.

Collection and the recording of data from the national level organizations were carried out from November 2006 to January 2007. In this connection, national level organizations were earmarked by disaster type:

- Communicable diseases – Epidemiological Unit, Ministry of Healthcare and Nutrition

- Human and wild elephant conflicts – Department of Wildlife Conservation

- Fire hazards – Fire Service Department of Colombo Municipal Council

- Provision of Relief Aid – Department of Social Services (up to the year 2004)

All these organizations were coordinated by the DMC. Each of these organizations had in their possession the related data in all types of formats, and all such documents were available in written form, but permission was not granted to take the original documents out of the government offices.

Three Research Assistants were engaged in this activity and they photographed all original documents in each organization, and the DMC had them printed subsequently. The Research Assistants thereafter filled up the relevant forms based on the information printed out, and were filed along with the related forms that had been completed.

The data collected from the national level organizations was in different formats, while the names of the related Divisional Secretaries divisions had not been included, except for the addresses of the places of incidents.

Example

- The data on fires was in existence only in relation to the address of the place of the fire.

- Incidents of damages caused by wild elephant were indicated by the place of the incident, or the address of the place of resident of the person subjected to damage.

Government organizations at the district level

Collection of data from government organizations at the district level was carried out in two stages with the assistance and cooperation of the following:

- Office of the District Secretary

- Office of the Divisional Secretary

- Department of Agrarian Services

- Fire Brigade Unit of the Local Authority

- Office of Wildlife Conservation Department

- DDMCU

Stage 1

The first stage was conducted in 12 districts from January to May 2007.

- Initially, a programme was conducted to educate all the District Disaster Management Coordinators as to how the data had to be collected and the manner in which relevant ideas and facts could be obtained.

- Thereafter, the District Disaster Management Coordinators trained a group of persons selected from the district unit.

- A form evolved for the collection of data. It was prepared and printed, and given to the respective DDMCUs to be sent to the respective Divisional Secretary's offices for the officers there to collect the necessary information.

- The data of the Divisional Secretariats was given by the Social Service Officers and the GN Officers and this information was certified as correct by the Divisional Secretaries.

- Travelling expenses were paid to those who were sent to Divisional Secretaries Divisions to obtain the required data with the assistance of UNDP through the District Secretary.

- The District Secretary directed the collection of data within the district and the DDMCU gave their fullest cooperation in this exercise.

- The collection of data was coordinated by the DMC and UNDP.

Stage 2

Data collection in the second stage was carried out in 13 districts from October 2007 to March 2008.

- Programmes to raise awareness of those in the selected organizations within every district were conducted.

- With the concurrence of those organizations, one officer was selected to represent the respective organizations within every division, and the forms for the collection of data were given to that particular officer.

- In this exercise, Social Service Officers represented the District Secretaries Offices, and the District Agricultural Officers represented the Department of Agrarian Services. Two Social Service Officers were selected to represent the Central Government as well as the Provincial Councils in a few of the districts.

- All documents indicating the information required were directed to the DDMCU through the District Secretary with his/her certification.

Challenges in data collection process

The existence of data in varied formats in the national level organizations.

Examples

- Data on fire hazards is maintained in accordance with the address of the place of incident. The Fire Brigade does not maintain the details of damages and losses caused.

- Data on wild elephant hazards includes only address of the person who had been subjected to the danger. Data on the damages caused and those who were subjected to the perils are not reflected, but only mentioned as either loss of life or damage to property. On certain occasions, a rough estimate of the damages is mentioned and only the sum of money received in respect of that damage is indicated.

Some organizations are in the habit of collecting the data based on their administrative unit requirement and connected to their subject matter.

Examples

- The Department of Wildlife Conservation while collecting information in respect of their work does it in accordance with the administrative unit of their offices.

- The Unit established for the control of contagious diseases collects the data based on the MOH area.

Several organizations have been collecting the effects of one single disaster in various types of formats, and the data is only relevant to one's own field of interest.

Example

- The wildlife conservation offices maintain the data as reported to them in respect of harm done to lives of people and damages to property. The data on the damages to crops by elephants is directed to either the Provincial Councils or National Relief Services Centre. If such agricultural crops have been insured, the information is reported to the Agriculture Insurance Department.

The majority of government departments collect and maintain the data only for the purpose of giving relief aid. Therefore the details of those who do not qualify to receive relief aid, but are adversely affected, are not reported or recorded.

Detailed information in government organizations at District and Divisional Secretaries' areas on the damages and adverse effects caused to the people during previous disasters is present only for a period of five years or less. According to the normal system followed in government departments, information beyond the five years is sent to the Department of Archives or is destroyed.

All information exists in the form of written reports in various types of formats, and annually the files are changed. Accordingly, when it is required to refer to information pertaining to former incidents, these officers are compelled to search for them in all the files, which is very time consuming. These officers are not bound legally to supply these data directly to the DMC, and further, they require additional time for such an exercise.

When indicating the date of an incident, in some instances only the year is mentioned, and on other occasions, the month and the year only.

If in a district other disasters occurs along with floods such as landslides, adverse effects of these other disasters are presented as from floods only, and data has not been collected on the other incidents.

16. Data validation:

Data entry process

Data entry was done at the DMC. For this exercise three Data Entry Officers were employed. They were recruited by UNDP on a short-term contract, and worked under the supervision of the Disaster Inventories Associate.

The data was entered through a computer network installed at the DMC. The main database was established in one computer and the data was entered through other computers at the Centre. No effort was made to maintain the database separately at any instance, and to enter all the data later and put them together. Accordingly no problems were encountered while entering the data.

However, it will be very important to set up a mechanism to enter the data separately while using it, and to collect it together subsequently. All organizations at the national and district levels possess low technological facilities, and as a result, use of the Internet as well as computer network facilities are not possible.

Process of validation

The information on disasters and their effects are recorded in a two-fold system.

- The Grama Seva Officer conveys the information on disasters and their adverse effects in his division to the Divisional Secretary who in turn refers the information to the District Secretary. During this process the Divisional Secretary or the District Secretary refers the same information to any other responsible organization in the area.

- In certain instances the information is reported directly to the state organization.

Examples

- Information on communicable diseases or any other such diseases are sent to the health-related, authorities, and road accidents to the hospitals or police stations.

- Impact on different sectors is conveyed to the following organizations:

  – Telecommunications – telecom organizations

  – Highways – District Councils/Provincial Councils/ Central Government

  – Water supply – National Water Supply and Drainage Board

  – Fisheries – Department of Fisheries

  – Education – Department of Education

  – Health – Ministry of Health

The information on specific disasters and their adverse effects are reported through a few relevant organizations.

- Wild elephant damage – Loss of life and damage to property to the Department of Wildlife Conservation; damage to agricultural crops to the Provincial Council or National Relief Services Centre.

- Communicable and non-communicable diseases – Relevant information to hospitals and health centres; relief/aid to the National Relief Services Centre.

- Fires – Fire brigade units of local authorities or police stations; the damages caused to District Secretary's office or any other relevant organization.

Similarly, many organizations collect information of adverse effects on the same field through various disasters.

- Damages caused to agricultural crops – Where crops are insured data is sent to the Agricultural Insurance Board; crops not insured to National Disaster Relief Services Centre; and small category disasters are dealt with by the Provincial Councils.

The accumulation of information on disasters and reporting are done with the intention of expecting aid or to grant aid. Aid or assistance will be granted only if the required conditions are fulfilled (the circular letter 2007/10 issued by the National Disaster Relief Services Centre gives further details). According to this circular there are many instances where the information of those who have been subjected to disasters and those who did not receive any aid or assistance are not revealed.

When aid is granted, the following requirements have to be fulfilled by the recipients:

- The family's monthly income should be less than Rs. 3,000 to be eligible for relief aid under small-scale and out spread disasters.

- Relief aid is awarded to those living in temporary centres irrespective of the family income.

- Aid is granted on behalf of the deceased even if their income is a little above Rs. 3,000 per month.

- In granting aid to damaged housing, the monthly income should be less that Rs. 3,000. No aid is given for business premises and for public buildings.

After considering all the above factors and the correctness of the data, the following course of action was followed:

- Identifying the organizations at national and district levels from where complete information could be collected, giving preference for the data collected from those organizations in respect of disasters.

Examples

- Communicable diseases – Epidemiology Unit, Ministry of Health

- Kidney diseases – Kidney clinics

- Relief aid – National Disaster Relief Service Centre

- Floods, landslides, lightning strikes, high winds – GN Officers, Divisional Secretaries and District Secretaries

Preference is given to organizations that are responsible for obtaining data connected to various hazards.

Examples

- The effects on the lives of people at the time of a disaster could be obtained from GN Officers and Divisional Secretaries, through District Secretaries.

- Granting of relief/aid – National Disaster Relief Services Centre and Provincial Council.

The DMC has been compelled to obtain data from various organizations depending on the nature of the disaster and the sector, and resulting damages.

Obtaining information from newspapers is being carried on a continuous basis and it is very useful to identify the incident right at the beginning.

Quality control mechanisms put in place

- Before the data is entered into the computer they were recorded in a specially prepared form called a data card.

- Initially, the forms were filled and completed with the data collected from the newspapers, and thereafter, such data was entered in the computer.

- Again new forms were filled with the information collected from national level government

organizations. And thereafter, that data was compared with the data already computerized, and entries were updated or entered as new data as appropriate.

- While collecting data from the organizations at the district level the particular form was used directly. Information obtained by using the format was compared again with the data in the database and they too were updated as necessary or entered as new data.

- All these forms were filed along with the initial reports according to the year of the incident of disaster.

The accuracy was established in the data as mentioned above by obtaining the required data from various selected original sources.

The field (variable) used for the collection of data on the effects of disasters in different areas was designated to suit the country context.

Example

- The people who were affected by epidemics were entered as affected; but in other countries such people had been entered as injured.

Examples of issues with data

- A disaster that took place on one particular day was given in different original sources of information as happened on various dates. In this respect, prominence was given to the most suitable original source of information.

- In certain original sources, the data on the very same occurrence had been given at the district and divisional levels. In such instances, the data pertaining to District Secretary divisions was entered into the computer separately from those of the district. When this procedure is followed it avoids the data of the Divisional Secretaries level being entered under the respective district level.

- There were instances where mention was made of only those who were affected, without indicating the number of families. And in the same way, the numbers of families had been mentioned without indicating the number of persons affected. In such instances, it was considered that a family consisted of five members.

- There were cases where data on several disasters that had taken place on the very same day in two locations in the same Divisional Secretary's division was recorded in one single report. In such instances, the adverse effects due to each calamity were identified separately. When such separation was not possible only the data on the location of each disaster was entered separately in the database.

- The information received at the time of a disaster or immediately after such an occurrence, was not entered in the database immediately after the receiving such information. Entering of such data in the database was carried out only after confirming the accuracy and after comparing the information received once a full assessment of the damage had been conducted.

17. Analysis:

Type of analysis undertaken

A preliminary data analysis report was presented in June 2007. The principle intention of this presentation was to provide an understanding of existing data and their analysis to those employed in the organizations at the national and district levels.

How the analysis was done

The analysis was done at the national and district levels on a few selected disasters and their effects. The basic analysis tool found in DesInventar was used in this exercise. The data connected with the disasters that had taken place from the year 1974 to 2006 was the basis of this analysis.

Analysis undertaken by

UNDP and the DMC.

Dissemination of analysis

The presentation of the analysis report was ceremonially performed by the Secretary of M/DM&HR in 2007. At the same time, the database was made available online.

Use of analysis (by decision makers for planning activities/allocating funding for disaster planning/preparedness)

This analysis available on the Internet was made use of by various organizations for obtaining various information that are related to their disaster management activities, but to date, the data and the information prepared have not been used for planning or prioritization of related programmes. Further, the data has not been made use of to identify the most disastrous calamities and the areas that have been affected by these disasters in the immediate past.

The following factors have been identified as the reasons for not using this information practically and in a useful manner:

- Data collection is not complete and not all data validated.

- The lack of a perceived need for an analysis of the data in the level of GN Officers or Divisional Secretaries.

- Non-existence of required guidelines for identifying –

  – The areas affected by regular disasters in Divisional Secretary divisions and GN divisions.

  – Divisional Secretary's divisions or GN divisions that are prone to given disasters.

  – The most devastating disaster in a given District and Divisional Secretary's area.

- The database has not been introduced separately to the relevant organizations at the national and district levels.

18. Use by government and non-government agencies:

- All districts do not succumb to the same disaster, and there are disasters that are inherent to each district. If there is more than one disaster to which a given district is prone, the particular disaster that brings about the largest amount of damage must be identified. All Divisional Secretary Divisions in a District are not subjected to danger in the same level and they vary in different areas.

- It is important to identify the areas that are subjected to heavy damages and uncertainty while attending to give assistance in respect of each of disaster. In the same way it is important to identify the adverse effects of disasters if concentrations for relief activities are confined only to pre-determined areas.

19. Sustainability:

This programme of activities is performed by the M/DM&HR and the DMC, including the maintenance of the database. UNDP provides the required financial and technical assistance.

The maintenance and updating of the database is done by the DMC while coordinating with the organizations at national and district levels.

DDMCUs have been established in all districts of Sri Lanka. They coordinate the disaster management activities of the district under the direction of the District Secretary. Further these units will conduct the collection and updating of the database within that particular district.

The assistance of organizations at the national and district levels is compulsory to update and maintain the database. DMC has increased accessibility to the database by making it available online on the Internet. The DMC is also agreeable to providing necessary assistance to any organization preferring to maintain a database of its own.

The DMC has established in its premises an Emergency Operation Centre (EOC) that is functioning on a 24/7 basis,

i.e., all 7 days of the week and 24 hours every day. This EOC coordinates with all DDMCUs during emergencies. Also, it is the responsibility of these units to update the database in the future at the national level.

The first training programme to train a group of national and district level officers on building the database was held in 2006. The second training programme was held in June 2007 for selected officers covering those using database and updating it at the district level, District Secretariat and the DDMCUs. Selected officers from nine districts participated in this programme. Thereafter, a computer and the database were provided to each of these district units.

The DMC introduced a common form for data collection that could be used at the time of disasters in the districts through the District Secretary, as various organizations use different types of forms at such times. Now these responsible organizations submit the information within 24 hours of the disaster in the presented form.

The Centre conducts various types of informative programmes at the district level at present, in order to further strengthen the system of reporting the information about disasters.

At present, the DMC is contemplating the use of school children to report minor but frequently occurring incidents, with the assistance of the GN Officers. These types of incidents are underreported in the present system.

The centre has plans to conduct another training programme for a selected group of officers covering all districts, and to provide those districts with computer facilities and the Internet with access to the database system. Trained personnel in all districts are expected to participate in the preparation of reports and other related activities at the district level.

20. What enabling factors contributed to successful implementation of the database?

Identifying relevant government organizations and providing appropriate guidance and support.

- Technical and financial assistance provided by UNDP CO and RCB.

- Collection of data to suit the country context in proper stages and establishing their accuracy.

- Plan activities after identifying the actual requirements to suit the country context and making use of them appropriately.

21. What factors contributed to delays in the implementation of DesInventar?

- Various organizations responsible for collecting disaster data, but not delivering outputs in time.

- Inadequacy of exchange of relevant data and insufficiency of coordination between the respective organizations.

- Existence of the available data in different types, as such data has been collected to suit the requirements of individual organizations.

- Spending a long time to collect the data with the assistance of government officers, as this is not a part of their regular duties.

- Non-existence of a direct and efficient system to report the related news at the instance of disaster.

- Receiving information that is different from one another that have been recorded from various sources.

22. Support provided from the UNDP RCB and CO (Regional programme) (please detail all support provided to date):

Required financial and technical assistance for the following activities have been provided since the year 2006 to date.

Training provided

Required assistance for participation was provided for the following training programmes, and informative and exchange of experience workshops:

- Regional DesInventar Training Workshop, 6–9 February 2006, Bangkok.

- Workshop to Improve the Compilation of Reliable Data on Disaster Occurrence and Impact, 2–4 April 2006, Bangkok.

- Regional Workshop on Improving Risk Knowledge, 14–16 November 2006, Bangkok.

- Regional Workshop on Building Risk Knowledge: Enhancing Applications of Disaster Loss Databases, 2–4 July 2007.

- Regional Technical Refresher Course on DesInventar, 4–5 December 2007, Bangkok.

- Regional Inception Workshop on Extensive Risk, 6–7 December 2007, Bangkok.

Resources

All facilities and requirements such as computers, stationery etc. were provided in order to conduct the programmes in the 25 districts, covering the whole country.

23. Additional support required from the RP or others:

Analysis

In Sri Lanka different types of major hazards are prevalent in different districts. It is necessary to do the following analyses using the existing DesInventar:

- Identifying the most disaster prone GN division in each Divisional Secretariat division (in the multi-hazard context).

- Identifying the most disaster prone GN division in each Divisional Secretariat division (for one specific hazard event).

- Identifying the most destructive hazard in each GN division based on historical data.

- Using existing variables (deaths, affected, destroyed and damaged houses, crop damage) in the above-mentioned analysis?

- Is it necessary to put weight on each variable or give economic value for each variable? Sufficient information is not available to put economic value on it.

- What are the available methods for analysis? Do we have to develop our own criteria to suit the country context?

Software customization

- It is necessary to customize the existing interface in a user friendly manner.

- Once the existing system is customized to suit the country context, how can it be updated using the proposed new version once it is released by the DesInventar team?

- How to customize the existing system including synchronization facilities?

- Then each and every district can update the database in their computers. They can synchronize all district databases at the national level within a given specific time period.

- How to identify the number of events without doing an analysis in the lowest geographical level?

User manual

- The existing user manual (Version 7) has to be updated according to the new version (7.9).

- More details have to be included under the following topics in to the existing user manual, e.g.

  - How to import maps

  - Server configuration

  - How to add local language

24. How has this database increased UNDP and the governments' role in disaster loss coordination/ disaster mitigation/disaster planning/ preparedness?

With the use of a database of this nature, the DMC, UNDP and other organizations could obtain the required information for various activities of disaster management:

- Planning of disaster management programmes after identifying the disasters prevalent in each and every district and also the area that are most prone, and give such areas preferential attention.

- Identifying areas that have been subjected to more calamities for the purpose of identifying mitigation activities.

- Conducting pre-disaster and preparedness programmes and workshops depending on the information of damages caused as a result of past disasters and in accordance with the disaster patterns of such areas.

- Planning of long-term programmes after identifying the pattern of each and every disaster taking place in each and every area along with their period of time.

- Identifying disasters that occur as a result of modern tendencies and the areas that have been subjected to tragic circumstances as a result of such disasters, and arrange programmes to prevent them.

25. What do you feel are the key lessons that have been learnt in the establishment of the database?

- Identify and understand the legal capacity and status, as well as the organizational set up when selecting government organizations to manage disasters.

- Identify ways in which data can be used to suit the requirements of the country and its disaster management activities.

- Obtain an accurate understanding right at the beginning about the data to be collected, in respect of disasters and their definitions.

- Plan the collection of relevant data only after identifying the original sources, the form in which the data exists, and the present systems in operation.

- Decide on the administration unit for the purpose of data collection, taking into consideration the capacity of the lowest unit formed for the purpose as well as the most important administrative unit in the use of this data.

- Prepare and draw up a proper system in order to establish the genuineness to suit the original sources of information from where the data is being collected.

- Prepare the analysis of data in such a manner that suits the requirements prevailing in the country.

- Collect the data from selected original sources accepted by the government. The data should also be suitable to the country.

- Customize the database to suit the requirements of the country.

26. What aspects of the implementation of the database could be replicated in other countries?

In deciding the administrative unit for the purpose of collecting the data, every consideration has to be made on the ability of the unit to collect the data through the lowest unit as well as in the usage of this data.

- At the beginning, the District Secretary's division was selected as the lowest administrative unit taking into consideration the way in which the data is presented as well as technical reasons, but later it was decided to collect and enter the data at the level of the Grama Seva Officers depending on the requirements of the usage of such data.

27. Key advantages/disadvantages with how DesInventar was implemented in your country:

Advantages – Existence of the requirement of maintaining a database by all government organizations and receiving their assistance for the same.

Disadvantages – Various organizations joining in the functions of collecting the data, and at the same time, there is an absence of proper coordination.

28. Contact Persons (please provide the email and telephone of the focal points for this Good Practice Documentation):

UNDP CO focal point

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Government focal point:

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Director General

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E-mail: dgdmc@Sltnet.lk

Website: http://www.desinventar.lk

Annex IV – Generic Work Plan for Disaster Loss Database Implementation

Proposed Period: 1 Year

ACTIVITIES	Month 1		Month 2		Month 3		Month 4		Month 5		Month 6		Month 7		Month 8		Month 9		Month 10		Month 11		Month 12	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Preparing for Disaster Loss Database																								
1.1 Consultations with host government on building disaster loss database	█																							
1.2 Identification of host agency for disaster loss database	█																							
1.3 Detailed discussions with host agency on initiating disaster loss database project and required support to implement it	█	█																						
1.4 Develop a draft proposal for setting up disaster loss database		█																						
1.5 Sharing of proposal with key stakeholders to get their inputs		█																						
1.6 Establishment of a mechanism (such as Steering Committee) to oversee and guide the implementation of disaster loss database		█																						
1.7 Mobilize resources to implement disaster loss database			█																					
2. Setting Up																								
2.1 Identifying office space and support for hosting the database			█																					
2.2 Recruitment of Disaster Inventories Associate		█	█																					
2.2 Training and orientation for the Associate				█																				
2.4 Procurement of required hardware (server, laptop, printer) and software					█	█																		
2.5 Procurement of digital base map with codes and boundaries					█																			
2.6 Installation, configuration and adaptation of DesInventar software					█																			
2.7 Technical Training on DesInventar Tool							█																	

Continued from previous page

ACTIVITIES	Month 1		Month 2		Month 3		Month 4		Month 5		Month 6		Month 7		Month 8		Month 9		Month 10		Month 11		Month 12	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3. Building the Database: Data Collection and Entry																								
3.1 Finalize the data collection format							■																	
3.2 Identify potential sources of historical disaster data							■																	
3.3 Present the work plan, data collection format, etc. to the Steering Committee to get inputs								■																
3.4 Develop a clear strategy and plan for collection and validation of data								■																
3.5 Pilot test the data collection format and prepare for collection of data								■																
3.6 Start the data collection process through line agencies, district offices and other sources as identified earlier								■	■	■	■	■	■	■	■	■								
3.7 Recruit Data Entry Operators, as and when needed											■	■	■	■	■	■								
3.8 Continue with simultaneous data collection and entry								■	■	■	■	■	■	■	■	■								
3.9 Regular visits to line agencies, specialized departments, districts and other agencies to provide and to collect necessary information																								
3.10 Present the progress, bottlenecks, gaps and other issues to the Steering Committee																■								
3.11 Continue with the data collection and entry, and complete the process																■	■	■						
3.12 Technical help and troubleshooting			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4. Analysis of data and preparation of report																								
4.1 Undertake analysis of historical disaster data																			■	■	■			
4.2 Preparation of draft analysis report																					■			
4.3 Presentation of the findings of the analysis in a Stakeholders' Meeting																					■			
4.4. Finalize the report based on the inputs from the Stakeholders' Meeting																					■			
4.5 Publication and dissemination of analysis																						■		

Continued from previous page

ACTIVITIES	Month 1		Month 2		Month 3		Month 4		Month 5		Month 6		Month 7		Month 8		Month 9		Month 10		Month 11		Month 12	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5. Institutionalization and sustainability																								
5.1 Engage with host agency to ensure enough technical expertise and skills are transferred to the designated staff member(s) on all aspects of the DesInventar tool																						▓		
5.2 Ensure the on-line availability of database																						▓		
5.3 Host agency to allocate suitable human and financial resources to continue to maintain the database																							▓	▓
5.4 Propose a system for collection and entry of disaster data regularly																							▓	▓
5.5 Regularly maintain and update the database, and provide data and analysis to other agencies as per needs																							▓	▓

Annex V – Generic Budget Items for Disaster Loss Database Implementation

(Proposed Period: 1 Year)

S.No.	Item/Activity	Unit	Unit Cost (USD)	Cost (USD)
1	National Disaster Database Manager (full time–one year)–salary cost	12 months		
2	Provincial Disaster Database Coordinators (if needed)–salary cost	9 months		
3	Data Entry Operators–salary cost	9 person-months		
4	National consultation workshop (1/2 day) (including host agency and key stakeholder agencies)	1		
5	National training (TOT) workshop on DesInventar for 4 days–1 Manager and Provincial Coordinators (to impart training on DesInventar methodology and plan data collection)	1		
6	Travel costs (within country) to collect and verify data–travel cost and allowances (it is expected that travel to each of the district will be required)	1		
7	Provincial/ District level awareness workshop (max. 1/2 day for provincial/ district level stakeholders)	1 for each district		
8	Procurement of digital base map of the country with names and codes including subdistrict boundaries	1		
9	Office support costs (reproduction, stationery, Internet connectivity, etc.) – lump sum			
10	Hardware costs (1 laptop for Manager + 1 laptop each for provincial coordinators) Printers			
11	Database hosting costs – server cost – monthly running cost (Internet connection and/or server rental)			
12	Stakeholders meeting (1 day each) – first meeting to share progress on data collection (after about 6 months of starting the activity) – second meeting after about 1 year to share preliminary analysis			
13	Report printing (of preliminary analysis) and dissemination costs			
14	Miscellaneous			
	Total estimated cost (USD)			

Note:

1. Depending on the size of the country, provincial Disaster Database Coordinators may not be required.

2. The actual number of Data Entry Operators will depend on the volume of historical data.

3. Some of the costs mentioned above may not be applicable as these may be provided by the host government as in-kind contribution.

4. Procurement of hardware (laptops and printers) may vary from one country to another depending on the needs and availability.

Annex VI – Sample Terms of Reference for Disaster Loss Database Staff

Sample 1: Terms of Reference for a United Nations Volunteer to Work as a Specialist Disaster Inventories Associate

Post Title:	United Nations Volunteer – Specialist Disaster Inventories Associate
Department/ Section:	UNDP
Location:	National Disaster Management Centre
Duration of Assignment:	6 –12 months with possibility of further extension

This post is a United Nations Volunteers Programme Assignment and based on the values of free will, commitment, engagement and solidarity, which are the foundations of volunteerism. Volunteering brings benefit to the individual volunteer. It makes important contributions, economically, as well as socially. It contributes to creating social cohesion and capital, through helping to build trust and reciprocity among citizens.

The United Nations Volunteers is the UN Organization that supports sustainable human development globally through the promotion of volunteerism and mobilization of volunteers. It serves the causes of peace and development through enhancing opportunities for participation by all peoples. It is universal, inclusive and embraces volunteer actions in all its diversity.

Volunteerism is diverse and is embedded in all cultures and traditions. In this context, as a United Nations Volunteer you are encouraged and expected to relate to local volunteerism, and to be identified with the concept. You are expected to regard your national colleagues as peers and together uphold trust as volunteers among yourselves and within the communities and the organization you are assigned to.

Description of main responsibilities

Adapt, as part of the 'Information Management' team the DesInventar (disaster inventories) methodology to the specific national context taking into account the specific institutional and methodological concerns.

- Participate in regional workshops to technically develop/ upgrade the DesInventar methodology.
- Support the adaptation of the DesInventar methodology into country specific contexts.
- Develop a core group of DesInventar practitioners and trainers amongst partner agencies and organizations.

Develop disaster inventories in the national context.

- Participate in national DesInventar training workshops.
- Validate the national disaster inventories using the DesInventar methodology for the past 20 years.
- Continually evaluate and further develop disaster databases developed using the DesInventar methodology.

Develop online version of the 'Disaster Inventories Mapping' tool – DesInventar.

- Support the development of a web-based system of the DesInventar mechanism to capture historical data and ongoing events both from the online and standalone systems.
- Assist in the establishment of a website that allows for a consolidated view on DesInventar in the region.
- As part of the 'Information Management' team develop a web-based tool based on DesInventar to analyse the datasets of the region.

Establish national linkages of the 'Disaster Inventories Mapping' tool – DesInventar with other similar methodologies, government institutions/counterparts and other relevant organizations.

- Analyse disaster trends via the DesInventar methodology and subsequently, share them with policy- and decision-makers, under the guidance of an Information Systems Specialist and Consultant.
- Brief policy- and decision-makers on the possible applications of the disasters inventory.
- Explore the potential for the technical expansion of DesInventar to be used as a tool for national post-disaster assessments.

- Institutionalize DesInventar (country specific applications) within partner government agencies.

Create awareness and train UNVs and other project staff working on DRM, including select DMC staff, on the DesInventar methodology.

- Assist the districts in developing district specific databases if necessary.

In addition, as a UN Volunteer, the candidate will:

- Identify, as far as possible, ways to promote local volunteerism through the implementation of the project by establishing links with local volunteer organizations and other volunteer presence in the field, strengthening the network and facilitating synergies with other UNVs in the country, etc.

- Actively participate in UNV activities organized or developed in the country and contribute to UNV Communications Unit with photos and stories about implementation and progress of the project, highlighting the volunteer component in it.

- Promote and support the visibility of the UNV component in most of the communications tools or strategies designed for and carried on during the implementation of the project, as well as during contacts with partners and local, national and/or international authorities. In addition to the project reports, complete the regular UNV reports requested by the UNV COS.

Required qualifications, skills and experience

- Masters degree or equivalent experience in a discipline relevant to Information Technology, with formal education in international development and/or disaster management.

- 2+ years experience in disaster risk reduction and/or the design of information systems and database development in support of disaster risk management functions and/or development initiatives.

- Experience of working within the UN System preferred though not mandatory.

- Good communications skills in English. Knowledge of at least one Asian language preferred but not mandatory.

- Experience of working closely with government counterparts.

- Experience in designing Internet-based distribution networks.

- Proficient in HTML, ASP, ADO, VBScript, JavaScript, SQL-Server, Photoshop, CGI.

- Experience of designing and developing web sites.

- Working knowledge and experience of Adobe Photoshop, MS Access, and Oracle.

- Proficient in Windows XP, Windows 2000, Windows 95/98, Windows NT 4.0 and RedHat Linux operating systems.

- Working knowledge of Active Server Pages, Java, Java Server Pages, SQL and OQL, Syndeo API, XML/XSL preferred.

- Excellent communication and interpersonal skills, team oriented work style, interest and experience of working in multi-cultural environment.

Volunteer involvement: Previous background and experience in volunteering as well as a commitment to volunteerism as a critical element in community development are highly desirable. The candidate should possess personal cultural sensitivity and commitment to the values and principles of volunteerism.

Sample 2: Terms of Reference for Project Assistant in Tamil Nadu, India

I.   General information

Title:	Indisdata Project Assistant
Number of positions:	2
Duration of internship:	6 Months
Agency:	UNDP, Government of Tamil Nadu
Duty station:	Chennai

II. Background

Over the past few decades, disaster losses worldwide have grown exponentially. In parallel with this there has been a growing awareness within the disaster management community for greater impetus on comprehensive disaster risk management rather than just post-disaster relief or better response preparedness. However, this growing awareness has yet to adequately translate into tangible action that is focused on systematic risk management across all sectors and across all geographic levels. On the ground in actual implementation, post-disaster relief and response (and at the most better response preparedness) for big disasters (rather than small, medium and large disasters) remains the dominant paradigm. Creating political and bureaucratic will to manage disaster risk *before* disasters occur continues to be a great challenge. At the same time, when resources have been made available for disaster risk reduction, there have

been few tools available at the disposal of decision makers to prioritize action in an objective manner.

In the disaster management parlance, disaster risk is a product of hazard, vulnerability and exposure. In some countries, particularly in the developed world, inductive approaches have been used to determine disaster risk using an overlay of detailed multi-hazard maps, and the level of exposure (population density, infrastructure, etc.) to vulnerable elements. These approaches are very useful and rigorous. However, in most situations, this can be very expensive and time consuming. While an inductive approach carried out to its last step, will be extremely valuable (and neat), experience shows that it takes four to five years to yield results that can be used for risk reduction planning on a large scale.

In such a context, analysis of a systematic geo-referenced inventory of small-, medium- and large-scale disasters could help provide surrogate indicators for disaster risk. Systematic tracking of occurrence of small and medium disasters along with the large disasters will provide the necessary *disaster intelligence* to keep a tab on the emerging patterns of disaster risk and then look at the underlying causes. Such a deductive approach could corroborate the inductive approaches outlined in the previous paragraph.

One of the objectives of the Government of India–UNDP Disaster Risk Management Project is *networking knowledge on effective approaches, methods and tools for disaster risk management, developing and promoting policy frameworks at State and National levels.* The project, launched in 169 multi-hazard prone districts of 17 states is being executed by the Ministry of Home Affairs with UNDP's support. The implementation of the project in these states would be the responsibility of the respective state government. Under this project, the Ministry of Home Affairs and UNDP plans to prepare Vulnerability and Risk Reduction Reports to facilitate integration of vulnerability reduction into development programmes, and appropriate and effective allocation of resources to the needy states. Better understanding of the vulnerabilities of various areas and the developments that have led to the increase/decrease of it would give an indication of the areas that the government will have to focus. The Ministry of Home Affairs and UNDP propose to undertake this exercise in collaboration with the state nodal agencies and research institutes in various states, with the involvement of other stakeholders.

On a pilot basis, an effort towards building an inventory was undertaken at Tamil Nadu, and 30 years of data has been collected at present. The analysis of the database will contribute to a comprehensive report on vulnerabilities in the State. There is a need to upscale this initiative and do similar inventorization and analysis for the whole country.

Under the UNDP-GoTN Disaster Management Programme, Indisdata methodology is adopted for the analysis of temporal and spatial distribution of the disasters and its effect on life, livelihood, economy, etc. and to establish its linkage with development.

III. Objectives

The broad objective of the Indisdata Project in Tamil Nadu State, is to create systematic disaster inventories for the last 30 years (1977–2007) to facilitate an analysis of existing hazards, vulnerabilities and risks experienced across space and time. This analysis of past trends will also have prospective implications that can be projected through analyses of trends and variable patterns. The final purpose is to utilize the disaster inventories collected through the Indisdata system, to build a platform for risk management activities that address the disaster management cycle; from mitigation to post-disaster response and recovery. Qualitative and quantitative evaluation of vulnerability and risk growth requires a sound basis in documents and records including past and present disasters. In view of this, the key objectives of this project are to:

- Identify the key hazards in the state of Tamil Nadu
- Develop a continually updated database of losses from disasters
- Obtain data in a quick, efficient and cost-effective way
- Identify the pattern, frequency, distribution and effects in space and time and its linkage with development
- Analyse the response mitigation measures taken in the past and its effect on the pattern

Apart from the above-mentioned objectives at the state level, it is proposed that a vulnerability report should be prepared using the data collected. The next steps could be the institutionalization of the Indisdata system through GoTN.

Some of the possible uses of the vulnerability report include:
- Increasing awareness among the stakeholders
- Improving early warning and emergency response
- Fostering long-term recovery by improving coordination across government and other agencies
- Focusing on disaster prevention as well as response
- Suggesting and prioritizing appropriate mitigation measures

IV. Description of responsibilities

The incumbent under the direct supervision of Disaster Inventories Associate UNDP in Chennai and guidance of Project Officer (DRM) in UNDP:

1. Develop a strategy to capture relevant data on disasters in the state by looking at the Tamil Nadu implementation experience.

2. Collect and collate retrospective data on all disasters in the state of Tamil Nadu.

3. Develop a geo-referenced inventory of small-, medium- and large-scale disasters.

4. Collect all other datasets (demographic, economic, health, etc.) relevant for a preliminary vulnerability analysis.

V. Expected outcomes

- Collection and collation of disaster datasets (causes and effects) for 30 years.

- Systematization of data entry in the Indisdata Platform.

- Identification of the key challenges and possible solutions.

VI. Qualifications and experience

1. University degree preferably in Geography, IT, Statistics or Mass Communications.

2. Diploma in Information Technology or familiarity with data entry, preferably knowledge of Windows, MS office (Word, Excel, Access) is a must.

3. Prior experience of working with government is desirable.

4. Interest in historic data collection and analysis and prior experience in it.

5. Good team player with the ability to build cordial working relationships with partner organization.

6. Excellent communication skills (Both Tamil and English).

Annex VII – Terms of Reference for the Development of this Disaster Loss Database Report

Post Title:	International Consultant (Loss Database Documentation)
Agency/ Project Name:	UNDP Regional Centre, Bangkok/ Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction
Country of Assignment:	Thailand, with travel to India (Tamil Nadu), Indonesia, Maldives, Sri Lanka

1. General Background

The Indian Ocean Tsunami disaster of 26 December 2004 was one of the most devastating natural disasters in recent history. Within minutes, almost 200,000 lives were lost, populations were displaced, and livelihoods, homes and infrastructure were destroyed, setting back hard-earned development gains for decades. UNDP through its country offices and disaster reduction and recovery experts has since the Tsunami–in support of national and local authorities – provided humanitarian and recovery assistance to the affected population. In support of these country interventions a UNDP-BCPR Regional Tsunami Recovery Programme has been technically assisting UNDP Country Offices in mainstreaming risk reduction into the recovery process. The Regional Programme (RP) under the auspices of the Regional Centre in Bangkok has been providing technical assistance to the Tsunami affected countries in the areas of 'Information Management, 'Training & Learning' and Early Warning Systems, since November 2005.

The Information Management component of the Regional Programme was designed to achieve '**Increased capacity for analysing disaster trends and their application in decision-making.**' To meet this outcome, the RP has been advocating and supporting development of disaster loss databases using DesInventar[11] tool in the five tsunami affected countries, viz. India (Tamil Nadu state), Indonesia, Maldives, Sri Lanka and Thailand.

The Regional Programme has extended its support to the 5 countries by way of supporting a full time staff, imparting technical training to the staff, providing opportunities for sharing and exchanging experiences, and technical support in developing work plan and the implementation of activities.

There has been mixed progress in each of the 5 countries on account of various factors such as – enactment of legislation and establishment of national disaster management institutions after the 2004 tsunami, competing priorities in response to tsunami recovery according less importance to compilation of disaster inventories, capacity of institutions, etc. While there has been a clear acknowledgement of the usefulness of the disaster loss databases for disaster risk reduction, its role and integration with the existing legal and institutional frameworks is yet to evolve to ensure its institutionalization and sustainability.

Prior to the launch of the Regional Programme in November 2005, first disaster loss database in Asia was developed in the state of Orissa (India) in 2002, and later in Nepal. However, it is to be noted here that such a coordinated and coherent effort of building disaster loss database across the five tsunami-affected countries has been undertaken in Asia for the first time by UNDP to support disaster risk reduction and there have been rich experiences gained, important lessons learnt and notable progress made in the tsunami-affected countries.

During the implementation of disaster loss database in the tsunami-affected countries, there has been need and demand expressed by other non-tsunami countries such as Nepal, Pakistan and Iran for technical support and participation in the programme activities. Within India, disaster loss databases are in various stages of development in several states in northern and southern part of India, while the Regional Programme's support and activities are limited to the state of Tamil Nadu.

The Regional Programmme has collaborated with UNDP's Global Risk Identification Programme (GRIP) in organizing a number of learning and sharing events for the participants from the tsunami-affected countries. These events were also attended by the non-tsunami countries. GRIP is currently working with ten Asian countries for the establishment of Disaster Loss Data Observatories which will monitor, record

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11   DesInventar was developed in late 1993 by the Network for Social Studies on Disaster Prevention in Latin America (LA RED).

and document the impact and effects of natural disasters in a systematic and homogenous way.

The Regional Programme is also collaborating with UN/ISDR to develop a methodology for analysing disaster risk and poverty linkages. The existing disaster loss databases from Orissa and Tamil Nadu states of India, Sri Lanka, Iran, and Nepal will be used to undertake the analysis in Asia. The findings of the analysis will contribute to the Global Assessment Report by UN/ISDR which is scheduled for launch in June 2009 by the UN Secretary General.

Given the development of disaster loss databases in Asia and the interest and commitment of the countries to disaster risk reduction, the Regional Programme intends to document the experiences, challenges and factors contributing to success and slow progress with the goal of making them available widely to assist the countries in pursuing policy and decision-making making based on evidences for enhanced recovery and risk reduction.

2. Objectives of the Assignment

- To identify and document the processes adopted in each of the tsunami-affected country during the implementation of the disaster loss database

- To analyse the processes in each country to draw lessons and challenges

- To produce guidelines for building disaster loss database to help other countries learn from the experiences of the tsunami-affected countries

- To review the role and function of the Regional Programme in the implementation and technical support and to discuss and propose enhanced roles and functions to support the countries in the region.

3. Scope of Work

The consultant will undertake the following:

a. Review the Regional Programme document to get an overview of the goal of the programme, particularly expected outcome of the Information management component with respect to improved information management systems

b. Familiarize with the DesInventar tool and its data organizing and analytical abilities

c. Review the regional workshop materials to familiarize with the topics discussed and issues identified with respect to building risk knowledge

d. Based on the available materials, draft an outline of the process documentation

e. Review and comment on the TOR of short-term consultants to be engaged by the Regional Programme to provide inputs on the implementation of disaster loss databases in Sri Lanka and India

f. Participate in a 'Scoping Workshop' attended by the Associates

- to discuss and to identify the processes in each country for documentation purposes

- to establish and validate the need of products, services and tools, and

- to review the role, function and support by the Regional Programme

g. Develop detailed outline of the process documentation based on the discussions with the Associates and Regional Information Systems Specialist and inputs from the Scoping Workshop

h. Share the detailed outline of the process documentation with short-term consultants, DesInventar Associates and UNDP DRM focal points to get relevant information and to set up meetings and discussions with relevant stakeholders in each country

i. Undertake mission to each country to seek further details of the processes and hold discussions with key counterparts in the CO and government institutions to better understand the stakeholders' perspectives in each country

j. Prepare a draft of the Process Documentation for each country, including analysis of the processes to derive lessons and challenges

k. Establish and identify the need of reference materials required by the countries starting to build disaster loss databases

l. Review the GRIP and consult with GRIP Coordinator to identify the potential linkages with respect to the establishment of disaster loss observatories

m. Present the draft Process Documentation, reference materials and proposed roles and functions of the Regional Programme in a review workshop attended by the Associates

n. Submit final report incorporating the inputs from the Review Workshop.

The consultant will seek inputs from Regional Programme Coordinator, Regional Information Systems Specialist, Disaster Inventories Associate based at UNDP Regional Centre. The DesInventar Associates in the tsunami-affected countries will provide inputs through email and telephone as

and when needed. Further technical inputs will be provided by GRIP Coordinator and Programme Analyst of UNDP/BCPR/ GRIP based in Geneva.

4. Final Products

The following are expected from the consultant:

- Documentation of the process in each of the 5 countries capturing the commonalities and specificities of each one of them

- Analysis of the processes in each country with a view to drawing lessons and discuss the potential options/ issues with respect to institutionalization, sustainability and integration with the on-going DRR work in the country

- Identification of the role of the Regional Programme in implementing and supporting the development of disaster loss database and propose the potential/ emerging role of the Regional Programme in support of the implementation/ facilitation and application of disaster loss database in the countries of Asia

- Identification of the linkages with GRIP and outline potential areas and opportunities for collaboration

- Development of list of reference materials for use by countries planning to implement disaster loss database

- Step-by-step guide for the implementation of disaster loss database in "non-tsunami" countries

In addition, the consultant will participate and contribute to two workshops planned during the consultancy period to provide inputs to the consultancy.

Annex VIII – Concept Note on the Development of Tool-Kit and Documentation of Disaster Loss Databases[12]

1. Background

The Indian Ocean Tsunami disaster of 26 December 2004 was one of the most devastating natural disasters in recent history. Within minutes, almost 200,000 lives were lost, populations were displaced, and livelihoods, homes and infrastructure were destroyed, setting back hard-earned development gains for decades. UNDP through its country offices and disaster reduction and recovery experts has since the Tsunami–in support of national and local authorities – provided humanitarian and recovery assistance to the affected population. In support of these country interventions a UNDP-BCPR Regional Tsunami Recovery Programme has been technically assisting UNDP Country Offices in mainstreaming risk reduction into the recovery process. The Regional Programme (RP) under the auspices of the Regional Centre in Bangkok has been providing technical assistance to the Tsunami affected countries in the areas of 'Information Management, 'Training & Learning' and Early Warning Systems, since November 2005.

The Information Management component of the Regional Programme was designed to achieve *'Increased capacity for analysing disaster trends and their application in decision-making.'* To meet this outcome, the RP has been advocating and supporting development of disaster loss databases using DesInventar[13] tool in the five tsunami affected countries, viz. India (Tamil Nadu state), Indonesia, Maldives, Sri Lanka and Thailand.

The Regional Programme has extended its support to the 5 countries by way of supporting a full time staff, imparting technical training to the staff, providing opportunities for sharing and exchanging experiences, and technical support in developing work plan and the implementation of activities.

There has been mixed progress in each of the 5 countries on account of various factors such as – enactment of legislation and establishment of national disaster management institutions after the 2004 tsunami, competing priorities in response to tsunami recovery according less importance to compilation of disaster inventories, capacity of institutions, etc. While there has been a clear acknowledgement of the usefulness of the disaster loss databases for disaster risk reduction, its role and integration with the existing legal and institutional frameworks is yet to evolve to ensure its institutionalization and sustainability.

Prior to the launch of the Regional Programme in November 2005, first disaster loss database in Asia was developed in the state of Orissa (India) in 2002, and later in Nepal. However, it is to be noted here that such a coordinated and coherent effort of building disaster loss database across the five tsunami-affected countries has been undertaken in Asia for the first time by UNDP to support disaster risk reduction and there have been rich experiences gained, important lessons learnt and notable progress made in the tsunami-affected countries.

During the implementation of disaster loss database in the tsunami-affected countries, there has been need and demand expressed by other non-tsunami countries such as Nepal, Pakistan and Iran for technical support and participation in the programme activities. Within India, disaster loss databases are in various stages of development in several states in northern and southern part of India, while the Regional Programme's support and activities are limited to the state of Tamil Nadu.

The Regional Programmme has collaborated with UNDP's Global Risk Identification Programme (GRIP) in organizing a number of learning and sharing events for the participants from the tsunami-affected countries. These events were also attended by the non-tsunami countries. GRIP is currently working with ten Asian countries for the establishment of Disaster Loss Data Observatories which will monitor, record and document the impact and effects of natural disasters in a systematic and homogenous way.

The Regional Programme is also collaborating with UN/ISDR to develop a methodology for analysing disaster risk and poverty linkages. The existing disaster loss databases from Orissa and Tamil Nadu states of India, Sri Lanka, Iran, and Nepal will be used to undertake the analysis in Asia. The findings of the analysis will contribute to the Global Assessment Report by UN/ISDR which is scheduled for launch in June 2009 by the UN Secretary General.

Given the development of disaster loss databases in Asia and the interest and commitment of the countries to disaster risk

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12   Developed in early 2008 to document the experiences of disaster loss database implementation.

13   DesInventar was developed in late 1993 by the Network for Social Studies on Disaster Prevention in Latin America (LA RED).

reduction, the Regional Programme intends to document the experiences, challenges and factors contributing to success and slow progress with the goal of making them available widely to assist the countries in pursuing policy and decision-making making based on evidences for enhanced recovery and risk reduction.

2. Objective

- To identify and document the processes adopted in each of the tsunami-affected country during the implementation of the disaster loss database

- To analyse the processes in each country to draw lessons and challenges

- To produce guidelines for building disaster loss database to help other countries learn from the experiences of the tsunami-affected countries

- To review the role and function of the Regional Programme in the implementation and technical support and to discuss and propose enhanced roles and functions to support the countries in the region

3. Overview of Progress

The following provides an overview of the basic set-up and progress in each country.

A. Country Level

India: The disaster loss database in India is being implemented in the southern state of Tamil Nadu, which was hit by the 2004 tsunami. The Revenue Department of the Government of Tamil Nadu, the government agency for disaster risk reduction in the state, has been engaged since the beginning to guide and to support the implementation of the database.

As per the instructions of the Tamil Nadu government, the two DesInventar Associates contacted a number of agencies in the state and all the 30 districts to collect data on the disasters and their impacts in the state. Numerous visits were made to the districts to collect historical disaster data from the official records. The data collected has been entered in the system and it can be used for understanding and analysing disaster trends and their impacts in space and time.

Since the beginning of the implementation of DesInventar in Tamil Nadu, the following events were organized:

1. Stakeholders' Consultation Meeting, 29 March 2006, Chennai: To present the methodology to the stakeholders and to identify the sources of historical disasters data.

2. State Level Training Workshop, 27–28 September 2006, Chennai: The workshop was aimed at imparting training to the district officials on using the DesInventar tool.

3. Stakeholders' Meeting, 29 September 2006, Chennai: Preliminary finding from the analysis of data was shared at the meeting.

The database has been further cross-checked and updated with various relevant sources within Government of Tamil Nadu. As of January 2008, about 13,000 data cards were entered in the system. An analysis of the historical disaster database is underway.

Indonesia:

The Indonesian database was developed and hosted by UNDP Jakarta office. A DesInventar Associate working from the Jakarta office collected the past historical data primarily from media sources.

Due to the institutional restructuring for DRR in Indonesia, there was lack of clarity on the host of the disaster loss database and with the agreement of Bakornas PBP (National Coordinating Board for Disaster Management) the UNDP Jakarta supported the development of the database. The completed database with about 5,000 data cards was hosted at **http://202.155.137.102/DesInventar**.

A National Workshop on Risk Knowledge was organized in Jakarta on 7 November 2006 to share the analysis of the data. About 40 stakeholders attended the workshop.

Maldives:

Following the tsunami of December 2004, initially the Ministry of Planning and National Development (MPND) was the host agency of the database. There were challenges in locating the sources of historical information. The MPND organized a Stakeholders' Meeting in May 2006 to identify potential sources of data from different ministries and departments.

Simultaneously with the implementation of disaster loss database in the country, institutional restructuring for disaster risk reduction was going on which resulted in creation of National Disaster Management Centre (NDMC) under the Ministry of Defense and National Security. The departure of the Associate in August 2006 negatively affected the data collection process and it also took significant amount of time to find a replacement.

Overall, the progress in Maldives was slow due to institutional restructuring and lack of a full-time staff to undertake the work.

Sri Lanka:

In May 2005, the Government of Sri Lanka enacted a new legislation for Disaster Management and created the Disaster Management Centre (DMC) under Ministry of Disaster Management & Human Rights. The implementation of disaster loss database in Sri Lanka has been guided and supported by the DMC since the beginning. The Associate has been operating from the premises of the DMC.

Sri Lanka had a disaster loss database developed by the National Disaster Management Centre (NDMC) under Ministry of Social Welfare. After the training of the Associate in February 2006, the work in Sri Lanka started by undertaking a massive review and validation of the database. Significant amount of time was devoted in validating the database and a huge number of data cards were removed due of incomplete or incorrect information.

Afterwards the Associate systematically started collecting data from various agencies and districts and it took significant amount of time to collect and enter data. Sri Lanka became the first country to publish a preliminary analysis of the database. The database provided inputs to the National Disaster Management Plan being developed by the DMC. The entire process was fully supported by the DMC.

During the implementation, the following events were organized:

• Stakeholders' Workshop in October 2006

• National Training Workshop in October 2006

The database was formally launched in June 2007. The database can be accessed at **http://www.desinventar.lk**.

Thailand:

The Department of Disaster Prevention & Mitigation (DDPM) of the Royal Thai Government has been the designated focal agency for the implementation of the disaster loss database in Thailand. Initial meeting with DDPM resulted in the need of a Thai version of the DesInventar tool. This prompted addition of Thai language interface to the DesInventar tool and helped it to become Unicode compliant.

The Associate in Thailand worked closely with DDPM and as a result the DDPM constituted a Task Force for Overseeing the Implementation of disaster loss database in Thailand. The first meeting of the Task Force was convened in July 2006 and several recommendations were made to guide the implementation. The DDPM also made available it server for installation of the on-line version of DesInventar which was used by the Associate.

Several rounds of formal and informal discussions were held with DDPM officials, yet no data was made available to the Associate to proceed further. Data collected from 2006 flood was entered to demonstrate the analytical abilities of the DesInventar tool, yet no further data was made available.

B. Regional Level

Since November 2005, the Regional Programme has organized the following events to help build disaster loss databases in the five countries:

1. Regional DesInventar Training Workshop, 6–9 February 2006, Bangkok: This was aimed at providing training to each of the DesInventar Associates implementing DesInventar in each country.

2. Workshop to improve the Compilation of Reliable Data on Disaster Occurrence and Impact, 2–4 April 2006, Bangkok: The workshop was organized jointly with Centre for Research on Epidemiology of Disasters (CRED), Belgium and Global Risk Identification Programme (GRIP) of UNDP. The workshop aimed at compiling and synthesizing experiences in Asia in the development, enhancement and maintenance of historical database development and disaster losses.

3. Regional Workshop on Improving Risk Knowledge, 14–16 November 2006, Bangkok: This workshop focused on discussing ways of improving risk knowledge and how risk knowledge is helpful is decision-making in recovery, risk reduction and development programmes.

4. Regional Workshop on Building Risk Knowledge: Enhancing Applications of Disaster Loss Databases, 2–4 July 2007: The workshop focused to provide 8 'clinics' on the analysis and applications of the historical disaster data compiled by the countries.

5. Regional Technical Refresher Course on DesInventar, 4–5 December 2007, Bangkok: The Refresher Course was aimed at training the participants on some of the advance features of DesInventar and addressing the common issues faced by the countries.

6. Regional Inception Workshop on Extensive Risk, 6–7 December 2007, Bangkok: The objective of the Inception Workshop was to deepen understanding of and to analyse the trends and patterns caused by frequently occurring but localized disaster events, thus providing better understanding of human and physical losses using the historical disaster database developed by the tsunami affected countries.

A Manual on DesInventar Server 7.0 was developed and also a Guide on Preliminary Analysis was made available.

4. Documentation of Experiences and Lessons Learned

It is proposed to take a review of processes involved in the development of the database and various available products and tools to support the processes. Deriving from the experiences of the Regional Programme, the following needs to be documented:

- Process Documentation

- Products, services and tools to support the disaster loss database

- Role and functions of the Regional Programme

- Guidelines for new countries intending to develop disaster loss databases

Each one of these is discussed below.

4.1 Process Documentation

Based on the extensive experience of implementing disaster loss database in the five countries, it is proposed to document the entire process of the implementation to share the experiences and lessons learned.

Broadly the following specific areas are identified for documentation of the processes:

4.1.1 Enabling Environment:

To pursue systematic and long-term disaster risk reduction, it is vital to have institutional and legal frameworks in place with clear roles and responsibilities of key stakeholders. A functioning national DRR agency with clear mandate and functions along-with appropriate budgetary support and technical staff are pre-requisite to implement long-term risk reduction measures.

4.1.2 Recruitment Process: Internal to UNDP (SSA/SC/ UNV)

There have been different recruitment modalities pursued in each of the five countries. Although internal to UNDP system, it is important to review it with a view to drawing lessons with respect to different contract modalities at UNDP building disaster loss database.

4.1.3 Qualifications of the Associates:

Based on the experience in the countries, it was noted that there are three important qualities required in the Associates for successful implementation of the disaster loss database:

a. Appropriate level of IT skills to be able to effectively and efficiently understand the DesInventar methodology used for building the disaster loss database. This was required as an essential skill without which it would have been difficult for them to understand and manipulate the data and manage the database. Of course, persons with advance IT skills contributed to further development of the DesInventar tool.

b. Ability to organize, coordinate and manage the data collection and entry process. Since all countries underwent the data collection and entry of several thousand records, these processes could have been better managed.

c. Experience in working with government institutions. As government in each country in the primary owner of the data for disasters and their impacts, a good understanding of the functioning is required on the part of the Associates to get across various government departments at different levels.

4.1.4 Ownership of the Disaster Loss Database:

There has been mixed experiences in the countries due to the evolving nature of the institutional systems for disaster risk reduction after the tsunami. Lack of clear mandated institution for disaster risk reduction has adversely affected the entire process of building the database as the ownership is not associated with an existing institution.

4.1.5 UNDP CO and National Government Partnership:

This has played an important role in providing overall support to the development of disaster loss database. In countries where there has been good on-going partnership between national government DRR focal agency and UNDP CO, the collaboration has contributed positively to the development of the disaster loss database and also the usefulness of the database has been recognized.

4.1.6 Capacity and Support of UNDP CO:

Since the development of disaster loss database has been supported and implemented through the UNDP COs in the five tsunami affected countries, the available capacity and support from the CO has been crucial in guiding the entire process of the database development. Where there was lack of available capacity and poor support, the sufficient progress has not been made.

4.1.7 Source(s) of Disaster Loss Data:

There has been sufficient discussion about government versus media data, both at regional and country levels. Depending upon each country's context and the commitment and support from the government, each

country was encouraged to identify what it considered reliable and credible data.

4.1.8 Data Collection and Entry Process:

Both data collection and entry have been significant time-consuming processes. Data collection has been paper-based where the data cards were filled for each lowest identified geographical unit and later they were complied centrally to allow entry after careful scrutiny. Data entry has been centralized requiring data entry operators to enter data simultaneously.

4.1.9 Data Validation and Quality Control:

Even when the source of data is from government records, there have been inconsistencies in terms of reported losses. At times, careful discretion was required to arrive at the most accurate data.

4.1.10 On-Line Hosting of the Database:

Although perceived to be less important, yet it was considered useful to host the database on the web for two reasons – it allows public access to the database and secondly it allows data entry from a number of remote points. Of course, the remote data entry feature was underutilized although it could have resulted in significant reduction of data entry time.

4.1.11 Analysis of the Disaster Loss Database:

Preliminary analysis of historical disaster data was carried out in Sri Lanka and was published. The Analytical Report was formally launched by the Disaster Management Centre (DMC) of the Government of Sri Lanka. The DMC now plans to undertake a new version of the analysis since it has completed collection and verification of data for the entire island. Similar efforts are being made in Tamil Nadu where the process of data collection and entry is over.

4.2 Review of Products, Services and Tools to Support Processes

There have been a number of products and tools required for supporting the processes involved in the implementation. It is also proposed to review these products and tools with a view to assess their efficacy in supporting the processes and to receive feedback to further improve them.

4.2.1 Training on DesInventar Tool

There were 2 technical training courses organized under the Regional Programme.

Feb 2006: Regional Training on DesInventar Methodology

Dec 2007: Advance Technical Course on DesInventar

The first course aimed at the newly recruited Associates to familiarize them with the DesInventar methodology and on-line data entry and analysis tool.

The second training course was organized to impart training on some of the advance features of DesInventar tool.

4.2.2 Training Products

The following training products have been produced:

1. User Manual for DesInventar Server version 7.0

2. Quick User Guide

These were disseminated to the Associates.

4.2.3 Analysis Tools

A Guidebook on undertaking Preliminary Analysis was developed and shared with the Associates. The Guidebook provides detailed account of various analytical features of the DesInventar tool.

Necessary training and technical support for analysis was provided remotely and also during the training and missions.

4.2.4 Development of DesInventar Tool

Prior to the Regional Programme, DesInventar software tool existed as a stand-alone tool. During the course of the implementation of the Regional Programme, a web version 7.0 was launched, it was made Unicode compliant and as a result Thai and Arabic languages were added to the web interface.

There were several bugs identified and fixed. Need for more customization of the interface was noted and technical support was extended to address the needs of the countries.

4.2.5 Applications of Disaster Loss Database

Integration of the disaster loss database in the overall disaster risk reduction framework of each country has yet to happen. In Sri Lanka, the loss data has been used in providing inputs to the National Disaster Management Plan also it has been used for reporting the disaster impacts in the aftermath of a flood disaster. However, its application as a tool to support policy and decision-making is yet to be achieved.

4.3 Role and Functions of the Regional Programme

As stated earlier, this has been an undertaking of its first kind by UNDP to promote and support disaster loss databases

in the five tsunami-affected countries in Asia. The Regional Programme has supported these databases by providing technical support, opportunities for sharing and cross-learning, and by enhancing the DesInventar tool. A further assessment of the existing role needs to be made with a view to improving it, identifying the gaps and also strengthening its linkages with global programme such as GRIP. During the course of the implementation of the disaster loss databases, there have been new opportunities which need to be reviewed and analysed to address the needs of the disaster prone countries in Asia. The following factors play role in defining new role and function of the Regional Programme:

- Rich experience of the implementation of the disaster loss database in the five tsunami-affected countries

- Presence of experienced and trained Associates in the countries

- Excellent working relationship with the UNDP COs in the region

- Emerging needs and demands of non-tsunami countries for technical support

- New opportunities to systematically implement disaster loss databases in the countries to better implement coherent and standardized databases

4.4 Guidelines for development of disaster loss databases by other countries ("non-tsunami")

There has been participation by non-tsunami countries in the regional cross-learning and sharing events. The Regional Programme has not been able to attend to the requests from non-tsunami countries purely due to the inherent nature of the programme. The needs of the non-tsunami countries exist in the form of training, orientation to the methodology and access to documentation, training materials, technical expertise, and support for customization of the DesInventar tool to each country's unique national context, etc.

It is proposed to develop simple step-by-step guidelines to help the "non-tsunami" countries. The guidelines will provide step-by-step process to assist a country develop its own disaster loss database. Such guidelines will be useful for the DRM staff of UNDP CO to help them better understand the entire process of building the disaster loss database, instead of undertaking a fragmented piece-meal approach.

5. Methodology for Undertaking Process Documentation

The UNDP Regional Centre proposes to hire a consultant to undertake the documentation of the processes outlined above and develop guidelines for use by other countries planning to develop their own disaster loss databases. It is

envisaged that two workshops attended by the Associates will be organized – first to introduce and to get feedback on the entire process of documentation and to capture commonalities and specificities of each country. The second workshop will allow the countries to review and discuss the final outputs.

6. Expected Outputs:

The process documentation is expected to produce the following:

- Documentation of the process in each of the 5 countries capturing the commonalities and specificities of each one of them

- Analysis of the processes in each country with a view to drawing lessons and discuss the potential options/issues with respect to institutionalization, sustainability and integration with the on-going DRR work in the country

- Identification of the role of the Regional Programme in implementing and supporting the development of disaster loss database and propose the potential/emerging role of the Regional Programme in support of the implementation/ facilitation and application of disaster loss database in the countries of Asia

- Identification of the linkages with GRIP and outline potential areas and opportunities for collaboration

- Development of list of reference materials for use by countries planning to implement disaster loss database

- Step-by-step guide for the implementation of disaster loss database in "non-tsunami" countries

References:

1. Tsunami monthly reports prepared by the UNDP Regional Centre

2. Regional Programme quarterly reports

3. Individual country level work plans and progress reports

4. Regional workshop materials

5. National workshop materials

6. On-line disaster databases

    a. Tamil Nadu – **http://www.indisdata-tn.gov.in**
    b. Sri Lanka – **http://www.desinventar.lk**
    c. Indonesia – **http://202.155.137.102/DesInventar** (off-line)
    d. Thailand – **http://61.19.54.143/** (off-line)

7. Reports from international consultant

Introduction

The Regional Programme on Capacity Building in Risk Reduction implemented by the UNDP Regional Centre Bangkok since November 2005 has been providing technical assistance to the tsunami affected countries to support early recovery and to build capacity for risk reduction.

Working towards the outcome of '***Increased capacity for analysing disaster trends and their application in decision-making',*** the Regional Programme has been advocating and supporting development of disaster loss databases using DesInventar[15] tool in the five tsunami affected countries, viz. India (Tamil Nadu state), Indonesia, Maldives, Sri Lanka and Thailand.

Responding to the need of other countries and to continue to support disaster risk reduction, the Regional Programme has undertaken the documentation of the experiences with the view of helping the other "non-tsunami" countries to build their respective disaster loss databases.[16]

It is hoped that the documentation will greatly help to capture the experiences from the tsunami-affected countries and to help develop simple guidelines for development of disaster loss databases.

Attended by the focal points implementing disaster loss databases in the tsunami affected countries, this Scoping Workshop aims to start the process of the documentation.

Objectives of the Workshop:

- To share and to analyse the processes in each country/ state during the implementation of the disaster loss database, including challenges and lessons learned

- To identify the processes to be used in the documentation of the experiences from the tsunami affected countries and agree on a time-line for completion of the documentation

- Based on the experiences of the implementation, identify additional support that would improve the development of disaster loss database in the other countries

- To review the role and function of the Regional Programme during the implementation of the disaster loss databases with the view of identifying required regional roles and functions to support the implementation of disaster loss databases

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14 Organized to document the experiences of disaster loss database implementation.

15 DesInventar was developed in late 1993 by the Network for Social Studies on Disaster Prevention in Latin America (LA RED).

16 For further details, see Annex VIII for the Concept Note on Development of Tool-Kit and Documentation of Experiences of Building Disaster Loss Databases prepared by the Regional Programme.

Agenda

Thu 29 May 2008

0900–0930	Registration	
0930–0940	Welcome Remarks	Regional Programme
0940–0945	Self-Introductions	All participants
0945–1015	Development of Tool-Kit and Documentation of Experiences of Building Disaster Loss Databases	Presentation and discussions
	Objectives of the workshop	
	Overview of Global Risk Identification Programme (GRIP) – Disaster Loss Data Observatories	
1015–1045	Knowledge Management	Sawitree Limvongsakul, RCB
1045–1100	Coffee Break	
1100–1500	**Country presentations and discussions** (Sri Lanka, Tamil Nadu, Maldives, Indonesia, Thailand, Orissa, Iran, and other states of India) – About 20 minutes each	Each country/state will present on the experiences of the implementation as per the guidelines provided
	Sri Lanka	Dinesh Rajapaksha
	Tamil Nadu	Muhammed Akram
	Maldives	Shuhaadh Ibrahim
1230–1330	Lunch	
	Indonesia	Ridwan Yunus
	Thailand	Pairach Homtong
	Orissa	Kalika Mohapatra
	Iran	Shaswati Das
	Other states of India	Sreeja Nair
1500–1530	Experiences from the Regional Programme	Rajesh Sharma
1530–1600	Coffee Break	
1600–1700	Session on SNAP	Daniel Tshin, RCB to provide orientation on SNAP which can be used by us for sharing documents, etc.

Fri 30 May 2008

0900–1030	**Plenary Discussion I: Identification of key processes for documentation**	Discussion will also include identifying a schedule for visiting the countries and key stakeholders who can provide valuable inputs to the country documentation
1030–1100	Coffee Break	
1100–1230	**Plenary Discussion II: Identification of specific inputs/ materials to support the implementation in the countries**	This will help to identify details of what additional document (manuals, training, technical skills, etc.) are needed and which should be made available to the countries
1230–1330	Lunch	
1330–1500	**Plenary Discussion III: Identification of regional roles and functions to support the implementation**	Based on the experiences and the need, it is expected to identify the regional roles functions to better support the implementation of the disaster loss databases
1530–1600	Coffee Break	
1600–1615	Summary and next steps	

Participants List

Country	No.	Name	Organisation	Designation	Contact information	
					Address	E-mail
Thailand	1	Pairach Homtong	UNDP, RCB	DesInventar Associate	4th Floor UN Service Building, Rajdamnern Nok Ave, BKK 10200	pairach.homtong@undp.org
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	3	Sanny Jegillos	UNDP, RCB	Regional Coordinator	4th Floor UN Service Building, Rajdamnern Nok Ave, BKK 10200	sanny.jegillos@undp.org
	4	Yuki Gotanda	UNDP, RCB	Consultant	4th Floor UN Service Building, Rajdamnern Nok Ave, BKK 10200	yuki.gotanda@undp.org
	5	Justin Shone	UNDP, RCB	Consultant (Loss Database Documentation)	4th Floor UN Service Building, Rajdamnern Nok Ave, BKK 10200	justin.shone@undp.org
	6	Shaswati Das	Freelance		Sor 3 Sonplu, Sonplu House, BKK	shaswati.das@gmail.com
Maldives	7	Shuhaadh Ibrahim	UNDP Maldives	Disaster Information Officer	UN Building, Buruzu Magu, Male Maidives	shuhaadh.ibrahim@undp.org
India	8	Sreeja Nair	National Institute of Disaster Management, Ministry of Home Affairs, Govt of India	Assistant Professor, Division of Hydro-Meteorological Disasters & IT	5-B, I.P. Estate, IIPA Campus, Ring Road New Delhi - 110 002 INDIA	sreejanair22@gmail.com
	9	Kalika Mohapatra	UNDP (Orissa office at Bhubaneshwar)	Senior Programme Associate	UN HOUSE – II, 256, FORESTPARK, BHUBANESWAR, ORISSA, INDIA	kalika.mohapatra@undp.org
	10	Mohammed Akram	UNDP Chennai	Disaster Inventories Facilitator	Apex Towers,4th Floor 54,2nd main Road ,R.A.Puram CHENNAI 600 028	muhammed.akram@undp.org
Sri Lanka	11	Dinesh Rajapaksha	UNDP, Sri Lanka	ICT Manager	202-204 Bauddhaloka Mawatha, Colombo, Sri Lanka	epadinesh@yahoo.co.uk
Indonesia	12	Ridwan Yunus	UNDP Indonesia	Programme Associate-Information Management	Menara Thamrin, Floor 8-9, Jl. MH Thamrin Kav. 3, Jakarta10240	ridwan.yunus@undp.org

Guidelines for Country Presentations

To enable clear and high-quality documentation (on processes, successes, failures, lessons learned, challenges, etc.), it is important that each country provide comprehensive details on the experiences in the implementation of DesInventar, while keeping in mind the purpose of the documentation of experiences we are undertaking and initiating in this process at the scoping workshop in Bangkok. The Concept Note does provide some of these processes (although not an exhaustive list), but we request that each country include the details which are specific to their own context in their presentations.

Each country should cover in their presentations the period from the beginning of the implementation (Feb 2006 in the case of the tsunami affected countries) to the current situation and share their experiences following the outline below *(please note that the workshop will be informal and we will be encouraging very open discussions).*

Key Outline for Country Presentations:

- Please detail a brief background and bio data of how DesInventar has developed so far, including:

  – Resourcing (staff/ equipment/ office/ funding) provided by UNDP and or Govt or?

  – Location of DesInventar (govt department/ ministry), possible future location of DesInventar if appropriate (possible organigramme of where the database sits within Government

  – Key activities/ achievements/ issues against a time line from the start of DesInventar in your country at intervals of 3 months, 6 months, 9 months, 12 months, 15 months 18 months, 21 months, 24 months

- **Initiation/ Starting-up**: Following the DesInventar training in February 2006 in Bangkok , each country started working on building a disaster loss database. During the first few weeks/ months many challenges were encountered by everyone as they were trying to navigate one's way forward in the respective country. There may have been administrative challenges and issues regarding support from various quarters. Please recall all the challenges you encountered and how you addressed them (include the support and guidance from UNDO CO and the Govt).

- Looking back over the last 2 years, please **identify what could have helped you** (any additional document, training, manual, guidance, resources etc.) better to overcome the challenges you faced.

- **Planning for data collection**: How did you locate the sources of data? How did you finalize your data collection plan? What strategies you adopted and why? Did you opt for paper based data collection? Why?

- Please discuss if you believe the **approach adopted** in your country was the best one or how you would do it now based on your experience.

- **Data collection process:** Please describe in details how you went about collecting data. What were the bottlenecks and how you addressed them? What support you required and how did you get it? How much time it took you to collect data? How did you undertake quality check and how did you validate data with another source(s). Please cite specific examples of the mistakes/ errors that were made and how they were identified and corrected?

- **Data entry process**: How did you receive data and in what form? How did you carry out data entry? What challenges? How could you do it better? Single database versus multiple databases – how did you resolve this issue?

- **Preliminary analysis**: Did you undertake analysis of the data? If yes, how did you do it? How it was disseminated? Please share your experiences on undertaking and sharing the analysis? Was the data used by decision makers to plan activities/ allocate funding for disaster planning/ preparedness?

- **Organization of events**: Please list all the events you organized (meetings, workshops and trainings) and their purposes and target participants. Any feedback on how they could have been better.

- **Sustainability:** Please provide what you think are the key elements to the sustainability of DesInventar in your country.

- **Support from the UNDP RCB (Regional Programme)** feedback on the nature, level scope, frequency of support, and comments on additional support that could now and could have previously been provided.

Additional inputs: Please also comment on the following and other issues relevant to your context.

- Institutional support (both general office support and technical guidance)

- Any issues with IT or internet connectivity which affected/ helped your work?

- Mechanism (formal/ informal committee) to guide the implementation

- Did you feel that you needed additional training? Identify topics?

- Did you find the regional events useful?

The above is a guideline to assist in the development of your presentation. Please feel free to include additional items relevant to your specific country context (please also provide if appropriate handouts or factsheets that may have been developed on DesInventar in your country. We look forward to the open discussions during the Scoping Workshop.

Introduction

The Regional Programme on Capacity Building in Risk Reduction implemented by the UNDP Regional Centre Bangkok since November 2005 has been providing technical assistance to the tsunami affected countries to support early recovery and to build capacity for risk reduction.

Working towards the outcome of '**Increased capacity for analysing disaster trends and their application in decision-making',** the Regional Programme has been advocating and supporting development of disaster loss databases using DesInventar[18] tool in the five tsunami affected countries, viz. India (Tamil Nadu state), Indonesia, Maldives, Sri Lanka and Thailand. The following databases are available online:

Tamil Nadu (India):   http://www.indisdata-tn.gov.in
Sri Lanka: http://www.desinventar.lk
Indonesia: http://dibi.bnpb.go.id

Starting in May 2008, the Regional Programme started the process of documenting knowledge and experiences of building disaster loss databases in the tsunami affected countries with the goal of developing simple guidelines for building disaster loss databases. A Scoping Workshop was organized in Bangkok on 29–30 May 2008 to discuss and identify key aspects of the implementation of disaster loss databases that need to be documented and to develop an outline of the Tool-Kit for disaster loss database. An International Consultant was hired by the Regional Programme to capture the experiences and analyse them to derive key lessons learned and challenges and produce steps for building the disaster loss database.

Based on the collection of information and missions to the tsunami affected countries, a draft document has been prepared for review and finalization at the workshop scheduled on 25–26 September 2008.

It is expected that the Regional Workshop will help to review and finalize the documentation by seeking inputs from the tsunami countries and other participating "non-tsunami" countries planning to build their respective disaster loss databases.[19]

The workshop will be attended by the focal points implementing disaster loss databases in the tsunami affected countries. In addition selected "non-tsunami" countries will also attend the workshop with a view to learning from the experiences of the tsunami affected countries and to know more about the processes involved in building a disaster loss database.

Objectives of the workshop:

The following are set as objectives of the workshop:

- Review the draft documentation of implementation from each country/ state, including challenges and lessons learned

- Share the experiences of the implementation of disaster loss databases in the tsunami affected countries with other countries attending the workshop

- Review the consolidated implementation outline for new countries

- Based on the experiences of the implementation, identify additional support that would improve the development of disaster loss database in other countries

- Finalize documentation of the implementation in the tsunami countries and documentation for development/ printing of toolkit.

The workshop will include presentations, discussions and group work.

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17 Organized to finalize and validate the documentation of the experiences of disaster loss database implementation.

18 DesInventar was developed in late 1993 by the Network for Social Studies on Disaster Prevention in Latin America (LA RED).

19 For further details, see Annex VIII for the Concept Note on Development of Tool-Kit and Documentation of Experiences of Building Disaster Loss Databases prepared by the Regional Programme.

Agenda

Thursday 25 September 2008

0900–0915	Registration	
0915–0930	Welcome Remarks	Regional Programme
0930–0940	Self-Introductions	All participants
0940–0950	Objectives of the workshop	
0950–1000	Overview of the Development of Tool-Kit and Documentation of Experiences of Building Disaster Loss Databases in Tsunami Countries	Presentation on the purpose, process and output of the documentation and discussions
1000–1010	Overview of Regional Programme	Presentation on the establishment/ progress to date of the Regional Programme
1010–1025	Overview of Disaster Loss Database – DesInventar Methodology	Presentation on the DesInventar Methodology
1025–1045	Coffee Break	
1045–1215	**Session I: Tsunami Country Presentations** • Sri Lanka • Tamil Nadu (India) • Indonesia	Each country to present (15 minutes each as per the presentation guidelines) to share the experiences with "non-tsunami" countries plus discussion.
1215–1315	Lunch	
1315–1400	**Session I (cont.)** • Maldives • Thailand	
1400–1500	**Session II: Non-Tsunami Country Presentations** • Bhutan • Cambodia (TBC) • Lao PDR (TBC) • Philippines (TBC) • Mongolia • Papua New Guinea • Vietnam	Each country to present (7 minutes each as per the presentation guidelines) to share status of disaster data collection and analysis in their respective countries.
1500–1520	Coffee Break	

1520–1700	**Session III: Review of Documentation – Lessons Learned – Comments / Discussions**	This Session will present, discuss and validate key lessons learned from the tsunami affected countries and agree on the recommendations as per the draft report
1700–1730	"Hands-On" Session on DesInventar (Optional)	During this optional session, interested participants will be provided a "hands-on" orientation on a DesInventar database.

Friday 26 September 2008

0900–1030	**Session III: Review of Documentation (contd.)**	
1030–1100	Coffee Break	
1100–1230	**Session IV: Steps for the Implementation of a Disaster Loss Database**	Presentation and discussions outlining key steps for the implementation of disaster loss database. Validation and inputs from non-tsunami countries.
1230–1330	Lunch	
1330–1500	**Session V: Need and Support for all Countries**	This Session will capture country-specific as well regional needs and required support for the implementation of disaster loss database in both tsunami affected and "non-tsunami" countries. The Session will include a introductory presentation, group work and presentations by each group
1500–1530	Coffee Break	
1530–1600	**Session V: Contd.**	
1600–1630	Closing Remarks	UNDP Regional Programme

Session I: Guidelines for Presentations for Tsunami Affected Countries

[Maldives, Sri Lanka, Tamil Nadu (India), Indonesia, Thailand]

Presentation: Maximum 15 Minutes per country

The purpose of this session is to provide comprehensive details on the experiences (on processes, successes, failures, lessons learned, challenges, etc.) in the implementation of DesInventar is the tsunami affected countries (Tamil Nadu in India, Sri Lanka, Indonesia, Maldives, and Thailand) and help other participating countries to understand the processes involved in the implementation of disaster loss database.

Each country should cover in their presentations the period from the beginning of the implementation (i.e. Feb 2006) to the current situation and share their experiences following the outline below.

Key Outline for Country Presentations:

- **Please detail a brief background and bio data of how DesInventar has developed so far, including:**

  – Resourcing (staff/ equipment/ office/ funding) provided by UNDP and or Govt or?
  – Location of DesInventar (govt department/ ministry), possible future location of DesInventar if appropriate (possible organigramme of where the database sits within Government
  – Key activities/ achievements/ issues against a time line from the start of DesInventar in your country at appropriate intervals (such as 3 months, 6 months, 12 months, 18 months, 24 months)

- **Initiation/ Starting-up**: Following the DesInventar training in February 2006 in Bangkok, each country started working on building a disaster loss database. During the first few weeks/ months many challenges were encountered by everyone as they were trying to navigate one's way forward in the respective country. There may have been administrative challenges and issues regarding support from various quarters. Please recall all the challenges you encountered and how you addressed them (include the support and guidance from UNDO CO and the Govt).

- **Planning for data collection**: How did you locate the sources of data? How did you finalize your data collection plan? What strategies you adopted and why? Did you opt for paper based data collection? Why?

- Please discuss if you believe the **approach adopted** in your country was the best one or how you would do it now based on your experience.

- **Data collection process:** Please describe in details how you went about collecting data. What were the bottlenecks and how you addressed them? What support you required and how did you get it? How much time it took you to collect data? How did you undertake quality check and how did you validate data with another source(s). Please cite specific examples of the mistakes/ errors that were made and how they were identified and corrected?

- **Data entry process**: How did you receive data and in what form? How did you carry out data entry? What challenges? How could you do it better? Single database versus multiple databases – how did you resolve this issue?

- **Preliminary analysis**: Did you undertake analysis of the data? If yes, how did you do it? How it was disseminated? Please share your experiences on undertaking and sharing the analysis? Was the data used by decision makers to plan activities/ allocate funding for disaster planning/ preparedness?

- **Organization of events**: Please list all the events you organized (meetings, workshops and trainings) and their purposes and target participants. Any feedback on how they could have been better.

- **Sustainability:** Please provide what you think are the key elements to the sustainability of DesInventar in your country.

- **Support from the UNDP RCB (Regional Programme)** feedback on the nature, level scope, frequency of support, and comments on additional support that could now and could have previously been provided.

Additional inputs: Please also comment on the following and other issues relevant to your context.

- Institutional support (both general office support and technical guidance)

- Any issues with IT or internet connectivity which affected/ helped your work?

- Mechanism (formal/ informal committee) to guide the implementation

- Did you feel that you needed additional training? Identify topics?

- Did you find the regional events useful?

The above is a guideline to assist in the development of your presentation. Please feel free to include additional items relevant to your specific country context (please also bring additional materials such as handouts or factsheets that may have been developed on DesInventar in your country).

Session II: Guidelines for Presentations for "Non-Tsunami" Countries

[Bhutan, Cambodia, Lao PDR, Mongolia, Philippines, PNG, Vietnam]

Presentation: Maximum 7 Minutes per country

The purpose of this session is to provide details on the current status of Disaster Management in "non-tsunami" countries and help other participating countries to understand the status of Disaster Management and what arrangements exists for collection and compilation of disaster occurrences and impacts.

The key outline for Country Presentations (four slides are suggested for your presentations):

- **Slide 1: Current status of Disaster Management (institutional and legal) in your country**
- **Slide 2: Types of Disasters in your country**
- **Slide 3: How disaster data is currently collected, compiled, stored and analysed in your country**
- **Slide 4: Future Plans for Disaster Management and disaster data**

The above is a guideline to assist in the development of your presentation. Please feel free to include additional items relevant to your specific country context (please also bring additional materials such as handouts or factsheets that may have been developed on Disaster Management in your country).

Session III: Review of Documentation – Lessons Learned – Comments / Discussions

The main purpose of this Session is to share lessons learned from the implementation of disaster loss databases in the tsunami affected countries and to validate the key lessons learned and recommendations emanating from the tsunami affected countries.

Based on the draft report, discussions will be held around the following key aspects:

- Importance of Nodal Agency/ Institutionalisation/ Implementing partners
- Government Ownership (and Staff)

- Support / Backstopping from RCB
- Data Collection Methodology (including data cards)
- Data Collection Process and Source (media govt)
- Data Validation (systems)
- Data Analysis
- Training
- Technical support: Staffing
- Customisation and Local Adaptaion
- Need for tools/ manuals
- Examples of best practices
- Advocacy tools/ support
- GIS and Mapping
- Benefits of a Disaster Loss Database

For each of the item listed above, the discussions will be held based on the experiences from the tsunami affected countries and review of key recommendations as made in the draft report will be undertaken with a view to finalizing them.

It is expected that the discussions on some of the key lessons learned will be brief while some topics will be discussed in detail.

Session IV: Steps for the Implementation of a Disaster Loss Database

The main purpose of this Session is to review the 5 Key steps as identified in the draft document. Based on discussion and comments the Key steps will be adjusted to reflect the confirmed key steps in implementing a disaster loss database.

Based on the draft report, the key steps are:

STEP 1: Enabling Environment

STEP 2: Appropriate "home" for the database

STEP 3: Establishment of disaster database

STEP 4: Data collection and Validation

STEP 5: Data Entry, Analysis and Management

For each of the steps listed above, the discussions will be held based on the experiences from both tsunami and non-tsunami affected countries and review of key recommendations as made in the draft report, with a view to finalizing them.

It is expected that the discussions the key steps will be discussed in detail.

Session V: Need and Support for all Countries

The main purpose of this Session is to capture country-specific information on the needs and support required in the establishment of Disaster Loss Databases in both Tsunami and non Tsunami Affected countries. This Session will include an introductory presentation, followed by group work and presentations by each group.

Participants List

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Continued from previous page

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Some basic facts about DIBI

Introduction

Several types of small and medium natural disasters occur in the country regularly impacting the lives of the people of Indonesia negatively while major natural disasters have devastating impacts on human lives, infrastructure and overall development in general.

With increased frequency and intensity of natural disasters, the damages and losses are increasing. Preparedness, prevention and mitigation are becoming a priority for governments, NGOs and national & international agencies. There is a growing need for a disaster inventory and an analysis tool to facilitate understanding of disaster patterns and trends to improve disaster management.

The BNPB as the national disaster management agency has the mandate to collect and analyze information about the occurrence and impacts of natural disasters in the country. The disaster database will help BNPB in policy and decision making and to channelize funds and efforts based on the trends and patterns provided by the analysis of disaster data. The availability of disaster information and its analysis will greatly help all stakeholders to focus their disaster risk reduction efforts in a coherent way across the country,

Adoption of DesInventar methodology for Indonesia

Under the Safer Communities through Disaster Risk Reduction (SC-DRR) project supported by the UNDP Jakarta office, the BNPB is collaborating with UNDP Regional Centre in Bangkok to adopt DesInventar methodology[1] for Indonesia. The UNDP Regional Centre in Bangkok has supported the

Reported deaths due to landslides in Jawa Barat (2002-06)

implementation of DesInventar methodology in other tsunami affected countries and it will provide necessary technical support by way of software installation and set up, technical training and overall guidance and support to the development of disaster database for Indonesia. In addition, regular opportunities for participating in regional learning events and visit to other countries in the region will be provided to help BNPB establish the disaster database.

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[1] DesInventar was developed in late 1993 by the Network for Social Studies on Disaster Prevention in Latin America (La Red) to build systematic disaster inventory databases.

Establishing disaster database at BNPB

As indicated above, the BNPB will seek necessary support from UNDP is establishing disaster database. The UNDP will provide initial support for a full-time staff at SC-DRR office to set up and configure the database on the server.

The database is set up and configured and is available online at http://dibi.bnpb.go.id and is populated with the official data available with BNPB for the period 2002-06.

Initially the historical disaster data, as per the agreed format, will be collected from the identified provinces. Necessary orientation and training will be provided to staff in these provinces to collect and enter disaster data.

Simultaneously, BNPB will organize "Communication Forum" which will provide a platform for all key stakeholders to discuss and agree on issues related with disaster data. The BNPB will work closely with stakeholders to collect and validate disaster data and ensure its availability to everyone.

In addition, the BNPB will institutionalize a system for regular reporting of disaster events so that future disaster events are recorded in the system. Based on the experience of building the database from the pilot provinces, the disaster data from the entire country will be collected and entered in the system.

It is aimed that the analysis of data will provide help the government and other stakeholders to better plan their development programmes and target their investments better.

Regular monitoring of disaster impacts over an area will help to better understand if the policies and other programmes are helping to reduce the losses from disasters.

Disaster database will also help the Government of Indonesia to report on the progress under the Hyogo Framework of Action (HFA). The database will provide details of losses at province, district and sub-district levels, thus allowing for in-depth analysis of progress made in reducing losses through the implementation of various preparedness and mitigation programmes, capacity building activities, to achieve the goal of reducing the losses.

Lastly, it is expected that in the long term the BNPB would have established a good disaster database covering the entire country and it would regularly publish and share data with all key stakeholders.

For more information please contact: Ridwan Yunus (ridwan.yunus@undp.org)

Historical Disaster Information System in Sri Lanka

Disaster Management Centre
Ministry of Disaster Management and Human Rights
In Partnership with
United Nations Development Program, Sri Lanka
United Nations Development Program, Regional Center, Bangkok

www.desinventar.lk, www.dmc.gov.lk

Introduction

Disasters cause significant damage to property and livelihoods. With the rapid urbanization during twentieth century, impact of disasters have increased drastically disrupting development efforts, especially in developing countries. Disasters are becoming more frequent and more devastating causing much concern globally.

Sri Lanka is prone to natural disasters such as floods, cyclones, droughts, landslides and sea erosion. Floods and landslides are more localised and seasonal, while droughts and cyclones are less frequent but impact lager land areas. To effectively plan for and respond to these disasters, there is a need for systematic data and information on disasters. The Disaster Management Centre (DMC) of the Ministry of Disaster Management and Human Rights has been working to build a **Historical Disaster Information System (DesInventar)** in Sri Lanka, to address this need.

What is DesInventar?

DesInventar is a data collection and analysis methodology which uses a set of open–sourced software programmes to help record, and assess disaster trends, as well as their impacts on communities. Reports, charts, and maps that are generated by DesInventar allow local officials to become more aware of trends and patterns and to identify vulnerabilities.
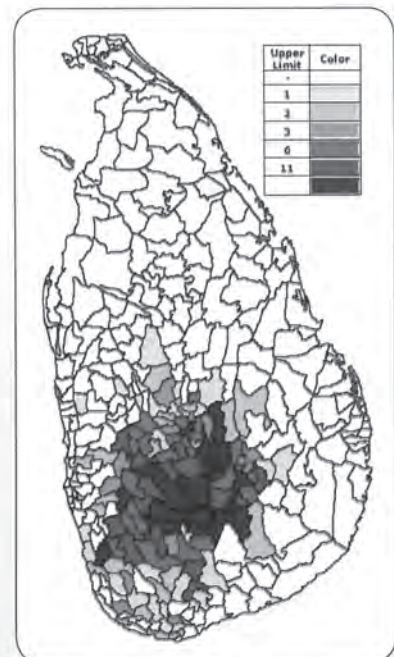
Who Created DesInventar?

DesInventar was created in 1992 by La Red (The Net work for Social Studies on Disaster Prevention in Latin America). Over the past decade, it has been further developed as circumstances dictate.

Where Has it Been Used?

So far DesInventar has been made use of in more than 20 countries in Latin America and the Caribbean. It is one of the world's few specialized tools for the creation and analysis of disaster inventories.

Upper Limit	Color
1	
3	
3	
6	
11	

Landslide Prone DS Divisions

Many of the region's national emergency agencies have introduced DesInventar for risk analysis, and mitigation, as well as to support early warning systems. DesInventar has also supported the creation of preparedness and mitigation plans and has tracked the effects of many large–scale natural disasters, such as El Nino in Peru, hurricane Mitch in Honduras, and earthquakes in El Salvador. It has also been used in Armenia and Colombia.

In Asia disaster inventories have been built for the states of Orissa and Tamil Nadu in India (www. indisdata-tn.gov.in), Kathmandu in Nepal, Sri Lanka (www.desinventar.lk) and Indonesia (http:// desinventar.un.or.id/)

What Are the Benefits of DesInventar?

DesInventar is a tool that helps to analyze the disaster trends and their impacts in a systematic manner. With increased understanding of disaster trends and their impacts, better prevention, mitigation and preparedness measures can be planned to reduce the impact of disasters on communities.

Impact on Housing: Damaged and Destroyed Houses for all Hazards (1974-2007)

Flood	Cyclone	Tsunami	Gale
Landslide	Animal Attack	Storm	Coastal Erosion
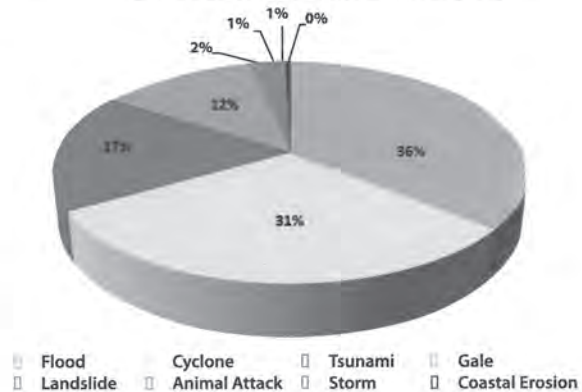
How Does DesInventar Work?

The DesInventar methodology collects disaggregated data geo-referenced to small and manageable geographical units, such as Districts and Divisions. The methodology establishes precise definitions of types of events, effects, and causes so that collected data is homogeneous, and comparable in terms of time, as well as with other regions. The methodology features two main software components:

1. The **DesInventar module** which provides the means to enter disaster information in to a database: Data is entered by filling forms with predefined fields (space and time data, types of events causes, sources). The number of human casualties, relocated and evacuated people, damaged and destroyed houses, losses to infrastructure as well as economic sectors are some of the variables that can be recorded.

2. The **DesCounsultar module** allows the access and analysis of the database by queries that may relate to variables, such as effects, types of events, causes, sites, dates, etc.: This module allows the graphic representation of the problem through tables, graphs and thematic maps.

The Data Collection Process

There are three aspects that have been considered at the time the process began.

1. The definitions of disaster events in the database.

2. Possible levels for data collection (National / Sub national).

3. Sources of information.

With UNDP assistance, information regarding past disaster incidents from 1974 to date have been collected from newspapers taking the Divisional Secretariat (DS) as the lowest administrative unit. Two newspapers (Daily News and Dinamina) published by The Associated Newspapers of Ceylon Ltd., a government institution, were selected for the data collection in the initial stage, which was completed in September 2006.

The first stakeholder consultation and software training workshop was held in October 2006. The workshop was held to enable the sharing of progress on the development of the database, findings of the preliminary analysis on disaster trends and impacts and finally to agree on the strategy for institutionalization of the system in the Island.

The feedback received from the participants at the stakeholder workshop resulted in the second phase of data collection and validation which began in December 2006 at national level and at sub national levels.

The following agencies were involved in the national level data validation which was completed in April 2007.

DesInventar Stakeholders' Workshop, 3rd October 2006

- ∞ Department of Meteorology.
- ∞ Epidemiological Unit of the Ministry of Health.
- ∞ Department of Social Services.
- ∞ Department of Wildlife Conservation.
- ∞ Colombo Municipal Council.
- ∞ National Building Research Organization.
- ∞ Fire Services Department of Colombo Municipal Council.

In the mean time, validation of existing data and collection of additional data were commenced and completed in nine districts (Colombo, Gampaha, Galle, Hambantota, Kalutara, Kandy, Matara, Puttalam, and Ratnapura) with the assistance of District and Divisional officials.


DesInventar Training Workshop, 4th - 5th October 2006

DesInventar Trained Batch

There are several qualifications and limitations of the Historical Disaster Information System and the preliminary analysis that have to be taken into consideration and these are listed below.

∞ There can be confusion over the interpretation of the variables "Number of Reports/ Records/ Data Cards." A report corresponds to the damage and losses that have occurred in a DS Division as a result of medium or large scale disaster event.

∞ There are 25 Districts in Sri Lanka and data collected from media sources has been validated for nine Districts, through Government sources.

∞ Data from various Government sources regarding the same event can be conflicting.

∞ Data collected and validated from sub-national levels is only available for the last five years, prior to that records are only available from media sources.

∞ Media reports contain very little detailed information on impacts on infrastructure, agriculture, river flood protection systems, water supply, power and energy, communication, education, health and industry.

∞ Often newspaper reports capture information about the impacts of a disaster at the District level and therefore it is difficult to disaggregate the information and discern which specific Divisions would have been affected and how.

∞ Media reports are often not detailed enough to describe impacts at Divisional level.

∞ For epidemics weekly reports related to epidemic events in the country from 1974 to 2006 were collected from Epidemiological Unit of Ministry of Health. There are more than 40,000 data cards available of which 10,899 were entered.

∞ From the information available it is not possible to determine economic losses, but only the cost of relief distributed.
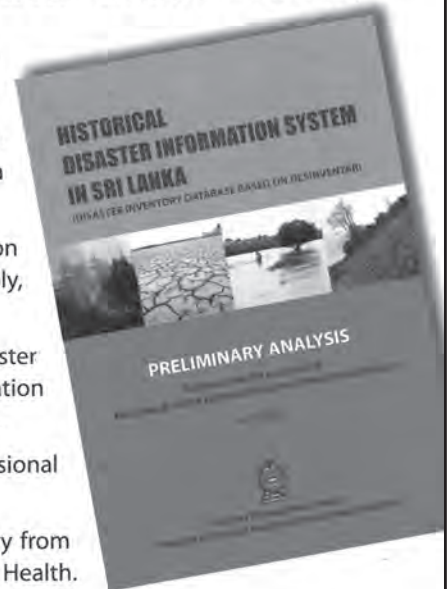
The web based database can now be accessed at: **www.desinventar.lk**. There is also a link to the database on the DMC website: **www.dmc.gov.lk.**

Data Validation and Additional Information

The DMC is in the process of validating existing disaster information and also collecting additional information regarding disaster incidents. The DMC would greatly appreciate it if interested persons could contribute to this on going process.

Comments and feedback regarding data in the existing system would be of immense value to the DMC in improving the Historical Disaster Information System.

Disaster Management Centre
Ministry of Disaster Management and Human Rights

In Partnership with
United Nations Development Program, Sri Lanka
United Nations Development Program, Regional Center, Bangkok

For more information please contact:
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ความรู้เบื้องต้นเกี่ยวกับ DesInventar

บทนำ

ภัยพิบัติจากคลื่นยักษ์ซึนามิ (Tsunami) แสดงให้เห็นว่า ควรทำการปรับปรุงการบันทึก และวิเคราะห์แนวโน้มของการเกิดภัยพิบัติทั่วทั้งภูมิภาคเอเชียใต้ และเอเชียตะวันออกเฉียงใต้ หลายทศวรรษที่ผ่านมา นอกจากต้องเผชิญกับภัยพิบัติครั้งใหญ่ๆ แล้ว ทั่วทั้งภูมิภาคต้องเผชิญกับพิบัติภัยจากธรรมชาติทั้งขนาดกลางและเล็กจนนับครั้งไม่ถ้วน ข้อมูลทางสถิติทั้งจำนวนและผลกระทบจากภัยพิบัติขนาดเล็กๆ ไม่ว่าจะเป็นน้ำท่วม ได้ฝุ่น รวมทั้งความแห้งแล้ง ยังอยู่ในระหว่างการจัดเก็บหรืออาจจะไม่ได้รับการจัดเก็บข้อมูลเลย หากข้อมูลที่ได้รับการปรับปรุงอย่างต่อเนื่อง จะทำให้สามารถแจ้งเตือนและประเมินความเสียหายได้อย่างมีประสิทธิภาพ อีกทั้งยังทำให้สามารถบรรเทาทุกข์จากภัยพิบัติต่างๆ ได้อย่างทันท่วงที

DesInventar คืออะไร

ระบบ DesInventar คือกระบวนการจัดเก็บและวิเคราะห์ข้อมูลผ่านโปรแกรมคอมพิวเตอร์แบบเปิด (Open sources) ช่วยทำให้จัดเก็บข้อมูล วิเคราะห์แนวโน้มที่กระทบต่อชุมชนได้อย่างเป็นรูปธรรม รายงานต่างๆ ที่ได้จาก DesInventar มีทั้งข้อมูลตาราง กราฟ และแผนที่ทางภูมิศาสตร์ ทำให้ทางการเฝ้าระวังทั้งจากแนวโน้มและรวมทั้งรูปแบบในการเกิดภัยพิบัติ ทำให้การจำแนกความเสียหายทำได้อย่างรวดเร็ว ส่งผลให้การเตรียมการป้องกันสามารถทำได้อย่างทันท่วงที ผลกระทบที่เกิดขึ้นกับชุมชนก็จะน้อยลง

ตัวอย่างภาพจากรายงานของ DesInventar
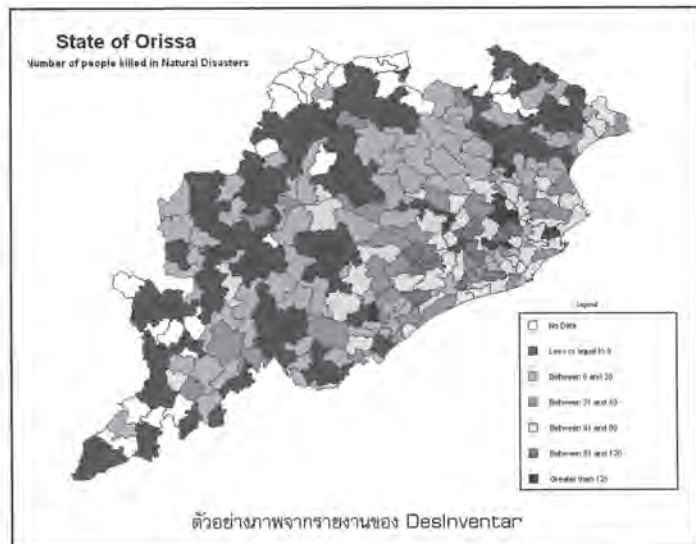
ใครเป็นผู้สร้าง DesInventar

La Red หรือเครือข่ายเพื่อการศึกษาผลกระทบจากภัยพิบัติต่อสังคมแห่งอเมริกาใต้ ได้ทำการสร้างระบบ DesInventar ขึ้นราวๆ ปี พ.ศ. 2535 และตลอดระยะ 10 กว่าปีที่ผ่านมา ได้มีการปรับปรุงและพัฒนาอย่างต่อเนื่อง ในแถบอเมริกาใต้และคาริเบียนมากกว่า 20 ประเทศมีการบันทึกข้อมูลในระบบแล้ว และที่สำคัญอีกประการหนึ่ง คือ DesInventar เป็นหนึ่งในไม่กี่ระบบทั่วโลกที่ใช้เป็นเครื่องมือสำหรับจัดเก็บและวิเคราะห์ข้อมูลทางภัยพิบัติในปัจจุบัน

มีที่ไหนบ้างที่ใช้ DesInventar

หลายๆ ประเทศในภูมิภาคอเมริกาใต้และคาริเบียน DesInventar ได้รับการทดสอบและใช้จัดเก็บข้อมูลอย่างต่อเนื่อง หน่วยงานระดับชาติในหลายๆ ประเทศ ได้ใช้ DesInventar เพื่อการวิเคราะห์ความเสี่ยง

ช่วยสนับสนุนระบบแจ้งเตือนภัย นอกจากนี้ DesInventar ยังถูกใช้ช่วยในการวางแผน และเตรียมการบรรเทา สาธารณภัย อีกทั้งยังใช้ติดตามผลกระทบและความเสียหายที่เกิดขึ้นในวงกว้างอีกด้วย อาทิเช่น ผลกระทบจาก ปรากฏการณ์เอลนีโญ ในประเทศเปรู พายุเฮอริเคนมิทช์ในประเทศฮอนดูรัส แผ่นดินไหวในประเทศเอลซัลวาดอร์ รวมถึงประเทศอาร์เมเนียและประเทศโคลัมเบียอีกด้วย

สำหรับในภูมิภาคเอเชีย ระบบได้ถูกพัฒนาและปรับปรุงเพื่อใช้ในรัฐโอริสสา ประเทศอินเดีย รวมทั้งใน ระดับประเทศอย่างเนปาล และล่าสุดหลังเกิดเหตุการณ์คลื่นยักษ์ซึนามิ ประเทศศรีลังกาและมัลดีฟได้นำระบบไป ใช้แล้วเช่นกัน

ประโยชน์ที่จะได้รับเมื่อนำระบบ DesInventar มาใช้ในภูมิภาคเอเชีย

เมื่อมีการจัดเก็บข้อมูลของภัยพิบัติทั้งใน ระดับเล็ก กลาง และใหญ่ ทำให้สามารถใช้เป็นตัวชี้วัด ความเสี่ยง และความเสียหาย รวมทั้งรูปแบบที่จะเกิด จากภัยพิบัตินั้นๆ ได้เป็นอย่างดี สามารถแสดง แนวโน้มการเกิดภัยพิบัติ และความเสียหายที่เกิดโดยมี ค่าใช้จ่าย และค่าบำรุงรักษาที่ต่ำกว่าระบบอื่นๆ ไม่ว่า จะใช้ระบบนี้ในระดับนานาชาติหรือท้องถิ่น

ภาพแสดงข้อมูลความเสียหายของรัฐโอริสสา
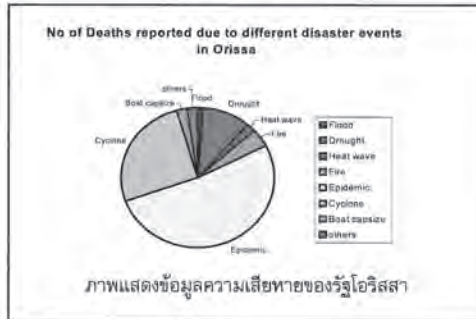
ระบบ DesInventar ทำงานอย่างไร

ระบบจะทำการรวบรวมข้อมูลที่กระจัดกระจายอยู่ในระดับหมู่บ้าน ตำบล หรืออำเภอ โดยอาศัยการ แหล่งอ้างอิงทางภูมิศาสตร์ ระบบมีการกำหนดนิยามของข้อมูลพื้นฐาน เช่น ชนิดของเหตุการณ์ (Events) ผลกระทบ (Effects) สาเหตุ (Causes) ทำให้ข้อมูลที่ถูกจัดเก็บมีความเป็นอันหนึ่งอันเดียวกันในทุกๆ ภูมิภาค ทำให้สามารถเปรียบเทียบข้อมูลระหว่างกันได้ นอกจากนี้ระบบยังมีคำแนะนำเพื่อแก้ปัญหาเบื้องต้นในระหว่างทำ การเก็บรวบรวมข้อมูลอีกด้วย

ระบบ DesInventar มีส่วนประกอบ 2 ส่วน คือ ส่วนแรก DesInventar เป็นส่วนที่ทำ หน้าที่จัดเก็บข้อมูลภัยพิบัติต่างๆ ลงระบบฐานข้อมูล ข้อมูลสำคัญต่างๆ จะประกอบไปด้วย พื้นที่ เวลาที่ เกิด เหตุการณ์ สาเหตุ และแหล่งที่มาของข้อมูล จำนวนคนที่บาดเจ็บ ตาย ย้ายที่อยู่อาศัย อพยพ สิ่ง ปลูกสร้างที่ได้รับผลกระทบ สาธารณสมบัติที่ได้รับ ความเสียหาย อีกทั้งยังสามารถบันทึกข้อมูลความ เสียหายทางเศรษฐกิจได้อีกด้วย

อบรมการใช้ Desinventar ที่ประเทศอินโดนีเซีย

ส่วนที่สอง คือ DesConsultar เป็นส่วนช่วยในการวิเคราะห์ข้อมูลผ่านตัวแปรต่างๆ เช่น ผลกระทบ ชนิดของเหตุการณ์ สาเหตุ บริเวณที่เกิด วันที่เกิด ในส่วนนี้ยังสามารถรายงานผลในรูปแบบกราฟ ตาราง รวมทั้ง แผนที่แสดงระดับให้เห็นอย่างชัดเจน

หากต้องการข้อมูลเพิ่มเติมติดต่อ คุณราเจส ชามา RPCB-UNDP อีเมล์: rajesh.sharma@undp.org