U.S. INDIAN OCEAN TSUNAMI WARNING SYSTEM (US IOTWS) PROGRAM

REVIEW OF POLICIES AND INSTITUTIONAL CAPACITY FOR EARLY WARNING AND DISASTER MANAGEMENT IN SRI LANKA

JANUARY 2007

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This publication was produced for review by the United States Agency for International Development. It was prepared by the IRG-Tetra Tech Joint Venture.

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ACRONYMS

ADPC	Asian Disaster Preparedness Center
CHA	Consortium of Humanitarian Agencies
CNO	Centre for National Operations
CRED	Center for Research in the Epidemiology of Disasters
CRMP	Coastal Resources Management Program
DAD	Development Assistance Database
DMC	Disaster Management Center
DoM	Department of Meteorology
DRT	Disaster Response Training
DS	District Secretary
EOC	Emergency Operations Centre
GA	Government Agent
ICRC	International Committee of the Red Cross
ICVA	International Council of Voluntary Agencies
IFRC	International Federation of Red Cross and Red Crescent Societies
JICA	Japan International Cooperation Agency
NBRO	National Building Research Organization
NCDM	National Council for Disaster Management
NDMO	National Disaster Management Organization
NDMC	National Disaster Management Centre
NGO	non-governmental organization
NSF	National Science Foundation
RADA	Reconstruction and Development Authority
SLRCS	Sri Lanka Red Cross Society
SMS	Short Message Service
TAFREN	Task Force to Rebuild the Nation
UDA	Urban Development Authority
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
UNESCO-IOC	United Nations Educational, Scientific, and Cultural Organization Intergovernmental Oceanographic Commission

PREFACE

This activity is conducted under the US IOTWS program area 3: "National Dissemination and Communication of Warnings" and sub-component 3a: "National Disaster Management Capacity Building". The study focuses on the capacities of the Sri Lankan National Disaster Management Organizations (NDMOs) and the various factors such as policies, legislation and institutional systems that govern disaster risk management in Sri Lanka. Nan Borton, a consultant of IRG, and Ramraj Narasimhan and S.H.M. Fakhruddin of ADPC carried out this study over a period of two weeks on behalf of the US IOTWS Program.

This study undertook an analysis of data to inform policy to support NDMO operations, building on the IOC assessment report completed in December 2005 and including a further gap analysis. The study builds upon the premise that early warnings will only be as effective as the collective strengths of policies, laws, institutional frameworks, and capacities of national and local officials responsible for disaster management systems; hence this activity will clarify and advance the political mandate for disaster management responsibilities in Sri Lanka. It also assesses policy and regulatory frameworks that define Sri Lanka's approach to disaster management, and as indicated in the program document, also support targeted national policy and regulatory interventions that strengthen overall national emergency management organizations and systems in Sri Lanka.

The methodology for the study involved the development of a comprehensive instrument, which adopted an indicator-based approach for each element that makes up Sri Lanka's disaster management system. All available secondary information in the form of reports, prior assessments, and others were thoroughly read and assimilated before undertaking a five-day mission to Sri Lanka. This visit focused on meeting with the key stakeholders with a role in disaster management in Sri Lanka, and then seeking additional information or filling in gaps.

The study was greatly facilitated by the excellent guidance and advice provided by the US IOTWS team in Bangkok and Colombo and from ADPC. Finally, the excellent cooperation received in the form of frank and constructive discussions with over 30 stakeholders interviewed in Sri Lanka made it possible and successful.

INTRODUCTION

This report is intended to supplement and update the many excellent assessments that have been undertaken on disaster management and early warning systems in the five tsunami-affected nations. Consequently, it does not repeat the data already available to the reader from such other comprehensive reports as the one done by the United Nations Educational, Scientific, and Cultural Organization Intergovernmental Oceanographic Commission (UNESCO-IOC). This report also does not cover geographic, demographic, or country statistics, all of which are readily available from other sources.

We do include a disaster history for Sri Lanka, taken from the hazards history data base assembled at the Center for Research in the Epidemiology of Disasters (CRED) in Belgium. This disaster history indicates that Sri Lanka is not a highly disaster-prone nation; most of its disasters are the familiar, cyclical annual floods and attendant landslides, and the systems in place are adequate to deal with those. See Annex B for the disaster history.

No nation has in place a system that could have escaped the devastation of the tsunami of December 2004. It was simply too huge, too unexpected (in countries like Sri Lanka and Thailand, which have no tsunami history), and too unpredicted to be manageable by any system in the world. This elementary and obvious fact needs to be remembered by all who are working on improving existing systems. These improvements are necessary and extremely useful, and will extend the lead time people have when a disaster is predicted, but no technology and no system can fully forestall the destruction and death of a magnitude 9 earthquake close to heavily populated shores, as happened that Sunday morning.

It is an assumption of this study that an early warning system is only as good as the nation's capacity to respond promptly to its messages. Therefore, this study looks at the disaster management systems as a whole: preparedness, mitigation and prevention, response, and recovery. These elements inevitably cross into areas covered by ministries without disaster portfolios: land use, agriculture policy, public works, and the like. It is through the awareness of these mainline ministries that actions can be taken which directly link disaster preparedness and mitigation with social and economic development. Without being embraced by the system as a whole, with all elements functioning together, early warnings are unlikely to result in significant improvements in disaster preparedness, prevention, and mitigation.

METHODOLOGY

A three-person team, all with training and experience in end-to-end disaster management, undertook to develop a comprehensive instrument to measure the status of the design and development of policies, institutions, resources and players which must come together to ensure effective and timely utilization of improved early warning. This institutional diagnostic matrix includes four levels of sophistication for each element being assessed; concrete indicators are given for each of these four levels. The matrix can be read alone as a summary of team findings. The report explains why the team made the judgments it did, and it is laid out in the same outline as the matrix for easy cross-referencing.

The team then traveled to Sri Lanka, spending five days interviewing 33 persons in 16 institutions relating to disaster management: the government, the police and the military, and the civil and NGO structures. We tried to do so at all levels of government, from the center through the Districts. Interview notes from all three interviewers were then cut and pasted into an outline of the matrix.

This report was then prepared from the notes of all team members in the matrix, and follows its outline. The matrix itself, with the scores the team agreed upon for each element, is attached (Annex A). Annex C contains a list of persons interviewed.

1. POLICY AND LEGISLATIVE ENVIRONMENT FOR DISASTER MANAGEMENT

1.1 LEGISLATIVE ENVIRONMENT

The tsunami reaffirmed the urgent need for disaster management legislation in Sri Lanka. Quite quickly after the disaster, the Government of Sri Lanka adapted earlier drafts of the DM Bill, and Parliament passed the Sri Lanka Disaster Management Act No 13 of 2005 (May). While national level arrangements are discussed in great depth, provincial, district, and subordinate levels are not—this is probably intended to be worked out in the policy document.

In addition, a Disaster Management Policy was prepared, which is pending ministerial approval, as well as a National Disaster Management Plan. Both the policy and the plan are quite comprehensive, but they still exist largely on paper.

The lack of approval of the policy cripples implementation of a number of critical actions, while leaving some outdated policies in place. Both the legislation and the policy lay out a comprehensive and potentially highly effective system for disaster management. In terms of the legislative environment overall, Sri Lanka rates highly, with clear government commitment and with comprehensive legislation enacted by Parliament. It is not clear when the Disaster Management Policy will be approved.

These new disaster management policies, once sorted through and approved, must also link up with or supersede existing policy—there will be a gap in implementation until the various old and new policies are harmonized, updated, rescinded, or changed. This policy gap could last quite a while and, when added to the other policy gaps and overlap noted below, could hamper the cohesion and effectiveness of disaster management in Sri Lanka for some time to come.

1.2 INSTITUTIONAL ENVIRONMENT

In theory, Sri Lanka has an excellent legislative and policy framework for disaster management; in practice, the picture is far more confused. Some responsibilities are not clear and are in dispute, and policies are not yet in place. Under the new disaster management legislation, two entities were established: a Disaster Management Centre (DMC), and the National Council for Disaster Management (NCDM)[1], headed by the President. The NCDM is the highest authority for disaster management in the country; however, it exists only on paper. It has met only twice since last August.

The DMC is not technically under the NCDM, but instead is under the Ministry of Disaster Management and Human Rights. It is functioning, with a dynamic Minister and Director General and there are some, but not yet adequate, staff. It is housed far from the center of action, though, and the office layout is not conducive to good management. This Centre's 2006 budget was not regularized until June, and it duplicates the services of several other government entities of longer standing. These other entities, all of which have disaster management responsibilities, include the National Disaster Relief Services Centre (previously known as National Disaster Management Centre) of the Ministry of Resettlement and Disaster Relief Services[2]. This overlap is discussed at

[1] The NCDM is gazetted as under the Ministry of Disaster Managemetn and Human Rights

[2] Previously known as Ministry of Disaster Relief Services since Resettlement was under a separate Ministry of Resettlement

greater length elsewhere in this report, but could interfere with effective disaster management, and the system could cost the government—and donors—more than it might otherwise.

Again, because of the lack of an approved disaster management policy, some strong institutions, such as the Reconstruction and Development Authority (RADA), have no legal or legislative framework as yet, lending to the confusion over the extent of their missions. While RADA is doing some impressive thinking and activities to ensure livelihood rehabilitation, others feel this is not RADA's mandate; it is unclear as to whether RADA's work is limited to the effects of the tsunami, or whether it is charged with recovery in general, possibly even outside of the effects of natural disaster.

As a consequence of the lack of clarity in the institutions responsible for disaster reconstruction, the Government of Sri Lanka scores a low grade on institutional environment. This score will increase quickly once the appropriate frameworks are passed; the 2007 budget allocations will also clarify missions and mandates.

It should be noted that the Government undertook an ambitious disaster management plan, called the Road Map, with the help of the United Nations Development Programme (UNDP). The Road Map for Disaster Risk Management is a document that captures the priority activities to be undertaken by various government agencies with a role in disaster management, over the short, medium, and long terms. It aims to coordinate efforts of various institutions, agencies, departments, private sector, and civil society, in the area of disaster management. This clearly identifies the priority initiatives that need to be undertaken by various stakeholders, public and private, to lead to a Sri Lanka that can proactively manage disasters. However, its implementation does depend on donors picking up projects for funding and implementation.

These priorities for action are consistent with the Sri Lanka Disaster Management Act No. 13 of 2005, and are also in line with the Hyogo Framework for Action 2005-2015, which the Road Map will work towards implementing in the next decade. The Road Map covers the areas of:

- Policy, Institutional Mandates, and Institutional Development;
- Hazard, Vulnerability, and Risk Assessment;
- Tsunami and Multi-hazard Early Warning Systems;
- Disaster Preparedness Planning and Response;
- Disaster Mitigation and Integration into Development Planning;
- Community-based Disaster Management; and
- Public Awareness, Education, and Training.

Volume II of the Road Map consists of project proposals under these seven components, and each proposal incorporates details of the agencies involved, objectives, outputs, activities, time frames, and geographical area of implementation, along with the budget required, funding status, and the lead agency. The Government itself has taken 12 of these proposals for funding from its own budget, and some proposals involving the Irrigation department and early warning network for major flood basins are being funded by JICA. This Road Map, so laboriously put together after the tsunami, now needs to be reviewed so that a report can be made on how many of the proposals have been funded and are being implemented. While the Government did set priorities, it is not currently clear which activities still need funding, and what can proceed—or is proceeding—under donor funds.

1.3 POLITICAL ENVIRONMENT

In the absence of clear legislative and policy guidance, an ad hoc practice under which the Government creates, restructures, changes, and removes various disaster management systems from ministry to ministry and department to department seems to have been in place, at least during the first year of the disaster. This has led to some bureaucratic infighting and confusion at the national level. Some of the duplication is due to political pressures, which may be difficult to overcome.

However, despite the confusion and growing pains, there is no question that the Government of Sri Lanka is fully committed to strengthening disaster management. Equally, there is no doubt that the

system will improve and smooth out with continued usage and coordination. In the vital area of budgets, the system is normalizing rapidly; at a recent budget meeting, the funding request for the DMC was 1 billion SLR for 2007 (US$10 million).

1.4 POLICY FORMULATION

The policy for disaster management is new and not yet approved. It is in the process of Cabinet review now. Consequently, in a real sense, no disaster management policy exists.

However, the national Disaster Management Policy was prepared in an open and participatory manner, with excellent coordination and input from other relevant government actors. For example, the Landslide Studies and Services Division of the National Building Research Organization (NBRO)[3] was included in putting the DMC policy together, as was the Coastal Conservation Department (covering environmental and human degradation to coastal areas). Both see a valuable role for themselves in mitigation and prevention policies, through such means as coastal setbacks and the introduction of designs for landslide/flood-proof housing. Other governmental stakeholders, such as the provincial, district and divisional administration, Ministry for Social Welfare, and RADA were also directly involved in the creation of the policy.

Further, NGOs in Sri Lanka, both local and international, were given the opportunity to comment on the new Disaster Management Policy before it moved forward. While they were not a formal part of policy formulation, their thoughts and ideas were given expression through this comment period, according to the Consortium of Humanitarian Agencies (CHA).

Other policies still need to be formulated. The Coastal Resources Management Program (CRMP) pointed out that the existing policies of this department are aimed at human activities, and that no policy for protection of coastal resources from tsunami or other major sea storms is in place. CRMP will work with the Disaster Management Center to formulate such policies.

Legislative and legal frameworks and policies must be drawn up to spell out the mandate of RADA, which lacks legal sanction, and it is not clear whether their work is limited to tsunami recovery, or to recovery from all disasters.

The policy on coastal set-backs has been highly controversial. Prior to the tsunami, the policy was that buildings had to be at least 35 meters from the shore, based on the Coastal Zone Management Plan which divided the coast into approximately 72 segments, for defining the minimum setbacks in each. Before allowing rebuilding, however, the setback was extended up to 200 meters. That caused an uproar, not only from fishing villages but also from resort hotels, and the policy was revised. Now, essentially, an interim guideline prepared by the Coastal Conservation Department requires a minimum of 35 meters for setbacks.

Other significant policy gaps exist in land use in urban and rural areas, and where there are policies and/or legislation, enforcement is lax. While there are guidelines prohibiting construction on certain slopes, they have not been enforced, and unsafely sited and poorly constructed dwellings are common in the towns and cities. Existing Environmental Impact Assessments do not adequately take disaster hazards into account, and this must be changed if mitigation of known, regular hazards such as flooding and landslides is to be integrated government-wide.

1.5 POLICY SUPPORTS DISASTER MANAGEMENT AT ALL LEVELS

The proposed policy will support disaster management in its fullest sense at all levels of government. In actual practice, such support already exists for the district administration, and has for some time. As described below, there are procedures for rapid cash transfer to the Districts, and an automatic devolution of authorities to the District Secretary when the President declares a disaster. These were all functioning during the time of the tsunami.

[3] Now part of the Ministry of Disaster Management and Human Rights

The Government is also adding to those supports. For example, an Emergency Response Committee and Plan for Colombo and its suburbs is currently being put in place, and the Ministry of Health is working on Hospital Emergency Preparedness policies, procedures, and operation. Further, a government circular has been sent by the Ministry of Disaster Management and Human Rights to all Districts to create District and Divisional Disaster Management Committees, which will be chaired by the District Secretary at District Level and the Divisional Secretary in divisions, and will include participation from the Pradeshiya Sabha (elected local authority) Chairmen. The policy aims to support the provincial and the local administrations with more resources than in the past.

1.6 INVOLVEMENT OF OTHER GOVERNMENT STAKEHOLDERS

As described, the policy was developed with the involvement of other stakeholders. The Disaster Management Centre drafted the policy, which was circulated to the various relevant ministries at the working level for input and suggestions. In addition, several policy meetings were held, and a total of perhaps 35 line agencies were involved in policy formulation. Some provincial, district and divisional administrations were also consulted.

1.7 LINKAGES WITH OTHER GOVERNMENT POLICIES

This area remains weak, as there is a clash among old and new policies, and many new policies emphasizing mitigation must be drafted and approved. The policy also needs to be linked to land use planning, urban development, environmental and coastal management policies, physical planning, national resource development, by-laws of local governments, and other important areas. Overall, however, the Government of Sri Lanka deserves praise for its attempts to coordinate legislation, policy, and operations with all players. While there are still shortfalls—the new Disaster Management Centre's stakeholder meetings should include NGOs and other private players—departments and ministries hold a surprising number of coordinating meetings.

2. NATIONAL DISASTER MANAGEMENT OFFICE OR EQUIVALENT

2.1 MANDATE

2.1.1 GOALS AND OBJECTIVES OF NDMO

The focal point for disaster management in Sri Lanka is the Disaster Management Centre (DMC) under the Ministry of Disaster Management and Human Rights, with functions of relief services under the National Disaster Relief Services Centre (NDRSC) of the Ministry of Resettlement and Disaster Relief Services and a plethora of other government institutions have some involvement. Till recently when by order of the President, the National Disaster Management Centre was renamed National Disaster Relief Services Centre and its mandates restricted to relief services, mandates of these entities remained ambiguous. so thatthe agencies involved in disaster management hadtheir own goals and work plans, but often unfunded, or duplicative, or at cross-purposes with the goals and plans of another. In the more technical areas, such as the Meteorology Department or the Coastal Management systems or the NBRO, their goal is to support the Disaster Management Centre (DMC), and they are clear on their mandates and how to fulfill them.

After the tsunami, in the absence of the new legislation and before the Disaster Management Centre was established, the Department of Meteorology (DoM) requested the Presidential Secretariat to set up an Interim Committee for Early Warning, which was the focal point for all tsunami warning activities. Because the DoM was operational round-the-clock, it was asked to chair this committee, and it has been greatly involved in subsequent meetings and discussions with the Indian Ocean Commission concerning establishment of a warning system and/or center.

This committee also included the National Science Foundation (NSF), which initially was charged with the responsibility of creating awareness among schools, research related to hazard warnings, and mapping. Not much has yet been realized in this area other than the translation of a book for school children about tsunamis, which incidentally, was already available in local languages, through Sarvodaya. Consequently, school level awareness programs are now being carried out by the DoM and the DMC, along with some other stakeholders and NGOs.

As Chair of the Early Warning Committee, the DoM was moved into the Ministry of Disaster Management and Human Rights, and virtually runs the Early Warning Unit for the DMC. Plans have been approved to recruit additional personnel for the Early Warning Unit and the rest of the DMC. The DMC will only coordinate early warnings provided by others, as it has no forecasting capacity of its own.

2.1.2 MANDATE IS RECOGNIZED AND ACCEPTED BY OTHERS

As described above, mandates were often not clear, or overlapping and contested till recently, so it was not possible to determine the agency responsible and accountable for any disaster management activity with full clarity and agreement, with the exception of the mandates of various technical ministries to provide data on impending floods and other disasters. This situation has been remedied by clear demarcation of DMC as the lead Disaster Management focal point with only relief support services in the event of a disaster to be provided by the NDRSC.

Disaster Management, after the 13th Amendment to the Constitution, while not specifically listed as a subject in the Ninth Schedule of the Constitution of Sri Lanka, can be inferred to be a shared

responsibility of both national and local governments, due to listing of "Relief of distress due to floods, droughts, epidemics or other exceptional causes and rehabilitation and resettlement of those affected" under the Concurrent List.

The structure of government administration is illustrated in Annex D, and is made up of a national government (ministries and departments) under the President and the Prime Minister, responsible to the Parliament; the national government is represented in the 25 districts by the District Secretary (also called the Government Agent—DS/GA), who has a coordinating role of all the line departments represented in the district, and reporting authority over the Divisional Secretaries in the 300 Divisions, who in turn command the Grama Niladharies, of which there are over 14,000.

In parallel is the Provincial system of administration instituted through the 13th Amendment to the Constitution in 1987, as an attempt to decentralize governance. This system is made up of a Governor, who is appointed by the President; a Chief Minister elected from among a Board of Ministers, who is responsible to the elected members of the Provincial Council. The administration functions at the Provincial level are handled by the Chief Secretary through the Provincial Secretariat, which coordinates all the Provincial Ministries and departments. The local authorities are the Pradeshiya Sabhas, Urban Councils (or Municipal Councils), as appropriate to the area, and are headed by an elected Chairman (or Mayor) with administrative functions handled by the appointed Secretary.

This parallel system of governance demonstrates Sri Lanka's path to decentralization. According to the Ministry, disaster management has to be decentralized, which means giving responsibilities to the districts and provinces. Provinces tend to have more human resources and limited material resources. Some awareness programs for the provincial councils are being carried out, but the provincial level infrastructure is missing.

In practice though, Disaster Management activities are largely administered in collaboration with the District and Divisional Secretariats only (as representatives of the national government) only. The provincial and decentralized government apparatus is not involved, both by omission and by lack of capacities.

This raises the whole issue of parallel structures between districts and provinces, and between the DMC under the Ministry of Disaster Management and Human Rights and NDMC under the Ministry of Relief. These are the most potentially damaging aspects of this parallel system.

2.1.3 INSTITUTIONAL STRUCTURES

The Disaster Management Centre (DMC) was established in July 2005 along with the National Council for Disaster Management (NCDM) as the lead agency on disaster risk management in the country. In December 2005, the Ministry for Disaster Management was established, and in February 2006, this Ministry was renamed the Ministry of Disaster Management & Human Rights, giving an additional human rights portfolio to the Ministry. The DMC is now part of this Ministry of Disaster Management and Human Rights.

The National Disaster Relief Services Centre (NDRSC) of the Ministry of Resettlement and Disaster Relief Services used to be the nation's other disaster management center, with its own staff and Emergency Relief Unit (on paper), under a second Ministry charged with disasters. As mentioned before, this centre is now mandated only for relief activities, and till then some felt that there were too many disaster agencies, stating that that in itself is a disaster. Others feel there are still levels of overlap in the system, suggesting that too many Ministries involved in disaster management is a danger.

There was also a Ministry of Resettlement, whose functions the team did not have time to investigate[4]. Additionally, the Reconstruction and Development Authority (RADA) works on tsunami disaster recovery, especially in housing and livelihood programs. RADA itself is the

[4] Resettlement is no longer a separate ministry and is now part of the Ministry of Resettlement and Disaster Relief Services

outgrowth of several previous agencies, including the Centre for National Operations (CNO) and the Task Force to Rebuild the Nation (TAFREN), which were the first entities created by the President to coordinate the tsunami response. None of these predecessor entities had legal or legislative frameworks. The Ministry of Social Services and Welfare plans to continue supporting some areas of disaster response through social service workers and the proposed Care Centers to be built in tsunami-vulnerable districts in conjunction with Save the Children.

The Ministry of Social Services and Social Welfare previously had the disaster relief portfolio, but their mandate was removed when the NDMC (now NDRSC). was moved to the Ministry of Disaster Relief Services and the DMC was created under the new Ministry for Disaster Management and Human Rights. Social Welfare turned over their entire relief stockpile infrastructure: warehouses, vehicles, and staff (except Social Service Officers) to the NDMC (now NDRSC). Some sections in this Ministry remain deeply concerned that in turning over the disaster response functions, the special needs of the highly vulnerable, the elderly and the disabled will not be taken into account. The Ministry of Social Welfare can provide psycho-social counseling to victims, for example, and staff feel that those services will now be lost to disaster victims.

To underline the degree of confusion in disaster responsibility, when a number of villagers were left homeless in a recent incident, the Secretary of this Ministry was instructed by the highest level to support the relief assistance to the affected areas, despite the absence of any mandate to do so, due to the recent shifting of NDMC.

Several government officials pointed out the allocation of the 2007 budget should make things clearer. At one of the national budget meetings on August 15, 2006, it was stated that the Disaster Management Centre is responsible for disaster preparedness and mitigation, that the Ministry of Disaster Relief Services does relief and reconstruction, and that RADA only takes care of the tsunami recovery. NDMC would be limited to relief only, with no involvement in mitigation or preparedness, and on-going programs of the NDMC relating to training that were funded from the 2006 budget would be curtailed automatically due to the removal of this funding in the 2007 budget.

Other players, whose roles are more support functions and who work with DMC, include the Urban Development Authority, which does its flood mapping from information given by the Irrigation Department. Landslide zone maps are produced by the National Building Research Organization (NBRO- which is now part of the Ministry of Disaster Management and Human Rights), and have been incorporated in the National Physical Planning Department's fragile areas guidelines. These maps have also been used in the Land Use Policy Planning Division of the Ministry of Agriculture's draft land use policy.

Sri Lanka has no land use policy, although they have land use plans, most of which include landslide hazards zones. A land use policy has been under discussion since 1960; recently it has re-emerged as a priority, and is being worked on under the Ministry of Agriculture.

The Irrigation department was involved in the working group for the Road Map and has, for many years, worked on mitigation activities for floods, especially in Colombo.

RADA also supports and collaborates with the DMC. The DMC wanted to create its own database to coordinate with NGOs and civil society actors involved in disaster management. However, the Centre has agreed to use the existing RADA databases, called Development Assistance Database (DAD), to avoid duplication. RADA is also part of the Technical Advisory Committee of the DMC.

Despite the chaos, real progress is being made. There is a high degree of coordination, with the DMC holding regular meetings for all government stakeholders, and weekly meetings in some special sectors. All the players know each other, and through years of working together, have a high degree of cooperation. The problem is lack of clarity of responsibility, the solution is coordination, and it is quite thoroughly practiced in Sri Lanka. The DMC still needs to reach out to civil society, religious organizations, and NGOs more, but it realizes that and has included NGOs in its discussion of the new rules for NGO registration. The DMC is still weak in partnerships with donors, as well.

The District Coordinators of the DMC run evacuation and other drills on an ad hoc basis. They are also conducting awareness programs in schools. They carry out preparedness activities in coordination with the military, the police, and the special task force. Each of the 11 District Coordinators has a team of 20 trained men; civilians are currently being recruited and trained to take up the Coordinator role in those districts currently free of the conflict.

Also, in the last few months, the DMC has begun to develop a strong human resources base, and most necessary equipment is on order. The DMC has credibility throughout government, and is generally recognized as the central player; senior civil servants come to its meetings, and its budget request is expected to be funded[5]. While the Center still lacks human resources as well as equipment for its Emergency Operations Center (EOC), this situation is slated to change by the end of this year, as staff recruitment, hiring and training are currently taking place. Most of the current staff are also employed on a contract basis.

The UNDP ongoing projects for Disaster Management have been providing technical assistance, staff, UNV volunteers, and equipment to the Government of Sri Lanka to improve its overall disaster management capacity for several years now, well pre-dating the tsunami.

UNDP helps with the recruiting and training of DMC staff, and has funded 6 or 7 positions there, as well as provided United Nations Volunteers to the unit. The UNDP itself is staffing up, with 10 more staff expected at the district and divisional levels. In total, there will be almost 30 UNDP staff at the district level to support disaster management activities and to collaborate with the DMC District Coordinators. UNDP staff report that this period now is a building time, and that the full energy and capacity of the DMC will be visible by December 2006.

UNDP's assistance is highly visible throughout the government, and the improvements it has brought about, linked to the very high capability of Sri Lankan officials and others, have made disaster management policies and procedures far more effective in this nation than could otherwise be possible.

2.1.4 ADMINISTRATIVE STRUCTURES

In actual practice, in terms of decision making, delegation of authority and timely response, these structures work very well. There are pragmatic and operational systems at the District, Divisional, and village levels. Authorities are in place which allows the District Secretary full latitude for action and spending when the Head of State declares a disaster. See below for a full discussion

2.1.5 POLITICAL ENVIRONMENT

Again, despite the confusion of mandates, the political environment is extremely supportive of disaster management throughout the nation.

2.2 DISASTER MANAGEMENT CAPACITIES

2.2.1 TECHNICAL AND HUMAN RESOURCES

The human capital in Sri Lanka is of enormous value. The people working in the various disaster structures, both within and without the government system, are dedicated, intelligent, trained, and active. None shirk responsibility; none is without adequate, if not abundant, resources in both budget and staffing terms. All are dedicated to establishing and maintaining the best possible disaster management system in their country.

No one, including the Ministry for Disaster Management and Human Rights itself, is as yet satisfied with the manpower capacity of the DMC. This may be because there has been some delay in getting approval of positions, but that was not formally stated. This Ministry does have a plan for an additional 77 positions, which has been approved by the Ministry of Public Administration. These

[5] Already approved by the time this report was finalised

positions will strengthen planning, management, and the legal office for Human Rights. All these positions will be permanent.

The infrastructure for the Disaster Management Centre is in place but needs upgrading to meet international standards. Most of the necessary equipment for the Emergency Operations Centre (EOC) has not yet arrived, and staff is inadequate for now.

The Technology and Mitigation Division under the DMC is particularly understaffed with inadequate resources, although other parts of government make up for this to some extent. For example, the DMC has no GIS mapping capacity, and so the Urban Development Authority (UDA) does this for them, as well as doing the demographic and social assessments for urban development plans. The Technology and Mitigation department at the DMC is also developing material on the prevention of avian flu, as well as working on legislation to keep the canals in Colombo free of debris and clogging, minimizing flood damage. These are ambitious plans for a unit with only 2 technical staff.

The organizational structure of the DMC is undergoing review, and is not yet finalized. The Center is currently assessing the number of professional staff required to carry out its mission. The DMC is going to establish an emergency operations center in each district, and all will be linked under the National Emergency Operations Center (EOC) in Colombo. The National EOC will act as the high command but, in emergency situations, a district can seek help from other districts. The EOC at the DMC will operate round-the-clock.

Although the EOC will get communications gear from UNDP, the DMC feels the police have the most robust communications system in the nation, and plans to link to that. There will be a Police Communicator and equipment located at the DMC. In its 2006 budget, the DMC has 200 million SLR (US $2 million) for drought, landslide and flood mitigation.. The DMC also has received 100 million SLR (US $1 million) from the World Bank to for equipment such as boats and ambulances for the districts.

After the tsunami, the Government realized that the most frequent hazards in Sri Lanka are hydro-meteorological, and that therefore strengthening the observation systems of the Department of Meteorology was a priority. Over US$4 million (SLR 400 million) has been allocated towards this in the 2006 budget. Procurement is still on-going.

2.1.1.A SCIENCE AND TECHNOLOGY INITIATIVES FOR DISASTER REDUCTION

The hand of the DMC is strengthened greatly by the various science and technology initiatives for long-term strategic planning being undertaken such as through scenario modeling such as in Peraliya train tragedy, and for coastal cities. The National Atlas prepared by the Census Department of Sri Lanka not only has the details of damages at a greatly disaggregated level but also various data which can be used for disaster management planning. LIDAR surveys have also been conducted in collaboration with the Italian Government around the island for coastal bathymetry, which will help in modeling of tsunami propagation.

There is a very unique initiative through the Joint Operations HeadQuarters (JOHQ) which has a GIS in place to reach warnings to very specific communities through the network of police stations.

2.2.2 RESOURCES AND PLAN FOR COMMUNICATION OF EARLY WARNING

Both the resources and the plans for Early Warning are in place, and have been used for years. The Sri Lanka Police have the most robust communications system, and they are charged with delivering the early warnings to their police stations, which use vehicles with loud speakers to spread the word to the communities. When there is adequate notice, this has worked well in the past, and is familiar to all players. To ensure redundancy early warning is currently disseminated through multiple means - the media channels, the district authorities and also the police control room.

However, post-tsunami, consideration is being given to upgrading the communications. There is a plan, but as yet no funding for it; the Ministry of Disaster Management and Human Rights is

reviewing proposals from various countries outlining potential communications systems. The Ministry expects funds from some foreign governments for the EOC.

The Irrigation department issues written flood warnings to the media and police when rivers reach a certain stage, or when rainfall exceeds normal ranges and may result in flooding. They get rainfall data from the Meteorology Department, but issue flood warnings themselves. The department also does river flow monitoring, also as early warning for flooding.

2.2.3 PUBLIC AWARENESS OF EARLY WARNING SYSTEMS

The public is quite aware of the use of local constables to pass on early warnings, and TV and radio are also used. New awareness programs are being prepared for schools, and training and drills are being undertaken in some districts. Both government and private agencies are involved in these efforts.

2.2.4 RESOURCES AND PLAN FOR COORDINATION OF RELIEF EFFORTS

At the District level, the District Secretary/Government Agent coordinates all relief flows and actors. For example, in Matara District, District Secretary Mr. H.G.S. Jayasekara named his planning officer as the NGO Relief Coordinator. The two men held virtually daily meetings to coordinate the relief efforts, both in general and by sector (health, etc.) Both NGOs and government officials attended.

Though the District Disaster Preparedness Plan had been formulated, it was only in English, relatively new and had not been rehearsed, so the effectiveness of the tsunami response actions was due to the quick-thinking and expertise/experience of the various officials.

It seems that the system at the district and divisional level is far more pragmatic and well-understood than it appears from the Center and in most cases functions effectively. For example, at the time of the tsunami, a national emergency was declared by the Central Government. This provided the District Secretary of Matara, Mr. H.G.S. Jayasekara, with the authority to commandeer, by force if necessary, essential items such as food and other relief goods, and private vehicles. He had authority to close all petrol stations in order to preserve fuel solely for tsunami rescue and relief efforts, and he forced shop owners to open their stores so that he could purchase relief goods and food. He received an immediate transfer of 10 million Sri Lankan Rupees (US$ 100,000), which he could spend without reference to existing procurement rules and without prior permission from other government officers. (This fund transfer is not an automatic one; the government in this case realized the enormity of the disaster, and made the transfer to the GA.) Under the authority of the disaster declaration, the GA had full control over the police and the military, which carried out relief efforts under his orders. Because of these authorities, he was able to provide homeless tsunami victims with shelter, food, and water within a very short period of time.

Mr. Jayasekara learned of the tsunami only by being swept away by it as he shopped for vegetables on that Sunday morning. Somehow, he was washed up and, after a few hours in the hospital, sent out police vehicles to summon all the government officers in the district and the division, and even line departments. He set up office under the Matara Bo Tree, as his office had been destroyed, and set about bringing succor to the people in his charge.

Coordination meetings were set up by the GA to share information and coordinate efforts of all government and civil society actors. These were chaired by the most senior Minister elected from the Matara District, the Foreign Minister, and included the local authorities as well as various party MPs. Party differences were put aside as a result of the scale of the devastation. From day one, the GA used these meetings to set priorities for all actors. Throughout the emergency, the GA reports that he felt he had adequate resources and authorities to carry out his responsibilities.

2.2.5 RESOURCES AND PLAN FOR COORDINATION OF RECOVERY EFFORTS

At the local level, the District and/or Divisional Secretaries are charged with coordinating recovery efforts, and some feel that the provincial and local administrations have not been involved. The

technical support and help from several central government agencies are called upon at this time; for example, RADA's main purpose is to assist in recovery activities with particular regard to housing and livelihood recovery. Other departments and ministries provide guidelines of safe and environmentally sound recovery efforts, with development clearly in mind.

2.2.6 ENSURE RECOVERY SUPPORTS DEVELOPMENT GOALS

All parts of government appear to be keenly aware of the necessity of linking recovery to development, and a wide range of mitigation guidelines, from housing reconstruction to coastal reef rehabilitation, exist in the planning and in the implementation of recovery activities. RADA would like to see a disaster assessment included in all construction plans; although it cannot make this law, it is encouraging compliance as best it can. "Building back better" is not just a slogan in Sri Lanka. Enforcement, however, remains problematic.

2.3 FINANCIAL RESOURCES

2.3.1 ALLOCATION OF RESOURCES

As seen, in the case of the tsunami the Central Government made an immediate transfer of funds to the District Secretary, along with all the necessary authorities to spend without regard to normal procurement processes.

2.3.2 EMERGENCY NATIONAL FUND

There is no national emergency fund created by the Government.

2.3.3 EMERGENCY FOOD RESERVES

Generally, there is no such food reserve for disasters, but there are stocks kept aside for the humanitarian situation due to the conflict. However, the military makes available any extra food it has for its own personnel, and various NGOs like the Sri Lanka Red Cross do have warehoused relief food and other relief goods. Upon the declaration of a disaster, the District Secretary has the authority to commandeer food and relief goods from private stores and shops. Oxfam has stockpiles in different districts that it works in. This has come in very handy during the on-going conflict crisis in the Northeast to which NGOs and the ICRC do not have access any longer.

2.3.4 UPKEEP OF EMERGENCY EQUIPMENT

As in most countries, maintenance and upkeep are a problem. The Irrigation department, for example, gets only about 25% of the funds it needs for the regular maintenance of Sri Lanka's network of earthen flood control dams, many of them hundreds of years old.

2.3.5 PROCUREMENT PROCEDURES

Procurement procedures are waived upon a Presidential disaster declaration.

2.4 OTHER CRITERIA: WORK CULTURE, INTEGRATION OF GOVERNMENT LEVELS

The work culture appears professional, competent, and results oriented. While there are the normal secrecy and turf battles, Sri Lankan Government officials appear to have figured out ways to coordinate themselves out of difficulty. The Technical Committees set up under the Ministry of Disaster Management and Human Rights and the DMC, is one mechanism to ensure that most relevant institutions, including universities and research institutions, are brought together and their involvement in DM promoted.

The various levels of government are extremely well integrated vertically. For example, the NDMC has 25 District Officers (as mentioned, the DMC has 11 District Coordinators as of now, but is recruiting more). Both get monthly reports from each District Secretary and team. The NDMC District Officers are recent graduates who were given government jobs under a scheme introduced by the President. They are called "Development Assistants (Disaster Relief)." The 11 DMC District Officers are military, on contract to the DMC. As military, they cannot work in the Districts in the contested areas of the Northeast, and the DMC is therefore recruiting civilians for those positions.

3. MILITARY AND POLICE

In Sri Lanka, the military have a role in disaster situations, but the police are the major players. It is through the police communications that early warning messages are sent, and it is the police who assist the District Secretary in reaching inaccessible areas, providing communication links and bringing officers in for meetings and the like. LikThe Police come under the District Secretary's control in a Presidential-declared emergency, while the military also collaborately very well with the District Secretary.

The DMC and forces linkages are very close, and all forces have their own disaster management plans for their personnel, which they exercise periodically.

The police are training, two-person teams for emergency rescue management. Police teams have close links with the health personnel at various levels. The police are also training 72 constables in first response—first aid, fire control, search and rescue—who will then be able to train those who are posted at local levels.

The police are also planning to provide first responder training to some NGOs and residents in hazard areas, but this is to happen at local levels through the trained trainers from the police department, since it will be very difficult to bring in civilians to the training institute, which is in a controlled access area.

There is a Police Inspector General's Command Group, consisting of all branches of the police, which controls all the forces in the nation and operates the nationwide communications system except for the armed forces.. This is the communication system which is well recognized as the most robust in Sri Lanka. An emergency 119 system has recently been introduced; it is available throughout the nation and is toll-free.

4. NGOS AND CIVIL SOCIETY

There were more than 60 NGOs in Matara District for the relief and recovery phases of the tsunami disaster, and the District Secretary named a staff person to be the overall NGO coordinator. This was effective and very well received by NGOs and government alike, as it allowed a more efficient relief process.

After the immediate relief phase, housing was a major problem area for coordination, as was livelihood recovery. The Government approach to reconstruction areas outside the buffer zone was called "owner driven," and consisted of cash grants to homeowners to build or repair their homes according to one of the Government plans, although changes to the plans were allowed. These houses are over 94% complete. Many NGOs, however, used the "donor driven" approach for resettlement sites, in which they purchased materials, contracted labor, and built houses for the tsunami victims. This approach is seriously lagging behind, and has resulted in skyrocketing prices for construction materials and for labor.

There is a clear backlash in the press and in the Government against NGOs at the moment, based largely on a misunderstanding of their role as donors and of their overhead cost structures. The Consortium for Humanitarian Agencies (CHA), however, feels this is a passing thing, and that better coordination between NGOs and government would dispel some of the misunderstandings.

CHA is concerned, as are its members, with trying to come to terms with operating in a conflict situation where rebels do not respect international humanitarian law and the Geneva Accords, such as neutrality, the free flow of humanitarian goods, the provision of assistance to all sides in a conflict, and the protection of humanitarian workers. The recent murders of 17 aid workers, and the bombing of clearly-marked Red Cross ambulances, may mark the end of a quiet period in Sri Lanka.

The Sri Lanka Red Cross Society (SLRCS) plans to try to fit into the District level disaster management schemes, with local societies and International Federation of Red Cross and Red Crescent Societies (IFRC) assisting in training. The IFRC is assisting the SLRCS in Disaster Response Training (DRT) at national and regional levels, and the DMC District Coordinators are invited to be part of these sessions.

In its mission statement, the Sri Lankan Red Cross Society (SLRC) says its goal is to "…maintain and to improve community resilience to cope with and manage natural and man-made disasters." The local society, however, remains skeptical of the potential for success of the DMC, and in general is not active in NGO-government coordination.

A large NGO has discussed future programming with the DMC. They would like to work on:

- Policies and Best practices relating to disaster management, and
- Integrating disaster planning into development programs.

This agency, wisely, has chosen to sidestep the confusion over roles and authorities, and deals only with the DMC.

The NGO sector for disaster management, despite the involvement of many local and international NGOs, appears somewhat uncoordinated and weak, overall. One international NGO noted that most international NGOs simply overlooked the local NGO capacity, and ran somewhat rough-shod over their relief attempts; the international NGOs who did not have a long-term presence in Sri Lanka appeared ill informed and intent on their own approach, with little coordination with government or with other NGOs. Some were simply ignorant, but some were dishonest; both the international umbrella agencies of INGOs, such as InterAction in the U.S. and ICVA in Europe need to try to figure out a way to deal with illegitimate NGOs. So, too, must recipient governments.

While there is a well designed and widely accepted Code of Minimum Standards for Humanitarian Activities, there is no enforcement mechanism for it, and it remains unknown to too many "overnight" NGOs and to too many government disaster systems.

In Sri Lanka (as elsewhere) the NGOs are poor at sharing their resource information with governments and at inviting government participation in their planning and programs. The DMC is not the only entity which needs to get better at coordination.

5. CURRENT SYSTEM CAPACITY

5.1 EARLY WARNING

Early Warning is conveyed through multiple means to ensure redundancy. Dissemination is simultaneously and parallely to the media channels, to the district authorities and also to the police control room. According to the Chief Inspector of Police in Matara District, as soon as a warning is received at the Matara Base station from the IG command in Colombo, it is communicated simultaneously to all the police stations, who then take it further down to villages through vehicles with the loud-hailers, which are located in each police station.

The police stations have identified safe areas (high ground) to which the vulnerable communities are evacuated. They also have plans and procedures to divide and cover the coastal areas to ensure that the warnings reach the people with minimal delay. The warnings are considered legitimate by villagers, who know to go to the identified high ground. Public awareness programs are widespread, and with Sri Lanka's very high literacy rate, the general population is fully aware of hazards, of warnings, and of what to do when a warning is given.

There are some pilot initiatives to address the last mile communication issues such as through innovative means like satellite radio receivers. Some very conventional means like push bicycles to village level government officials are also being undertaken in tandem with sophisticated means like sirens which are planned in over 50 locations. Staff of UNDP's Disaster Risk Management program was scheduled to meet with the DMC by mid-August specifically to discuss early warning mandates; UNDP feels too much is going on at cross purposes in this arena. A full meeting to coordinate early warning, consisting of all stakeholders, has been scheduled in September 2006 and is also planned in August 2007 to consolidate on the agreed roles.

The DMC is planning to establish warning towers in the coastal zone; three sirens were set up with support from UNESCAP in coastal areas. Some negotiations are going on with the private mobile system operators such as Dialog to see if they could send warning messages using SMS (text messaging) in selected areas. At most, this would reach 10% of the population, however. They are also discussing getting mobile service providers to establish alarm devices in public place.

5.2 OVERALL DISASTER READINESS

5.2.1 THE NATIONAL DISASTER MANAGEMENT ORGANIZATION(S)

The DMC will soon be far better staffed and equipped than the NDMC, especially if it is true that no funds will be allocated to the NDMC (now NDRSC) for similar activities in 2007. This should clear the way for more donor funding to go to the DMC (some donors are still funding the NDMC- now NDRSC), and with new hires and good training, the DMC should be fairly well prepared by the start of 2007. It will still need a lot of work, experience, and consolidation, but it should be ready to oversee disaster preparedness, mitigation, response, and recovery. The Center to village connections are in place, as are trained staff at District levels. There is no inventory of stockpiles anywhere in the system, nor is there much knowledge of what is available, but this can occur later—an automated system is being put in place with UNDP assistance, but it will take some time to become operational.

5.2.2 OTHER MINISTRIES

The Ministry of Disaster Relief Services[6] is the mystery in the system; all the other ministries recognize their role in support (usually technical, like mapping and guidelines) of the DMC. The

[6] Now called the Ministry of Resettlement and Disaster Relief Services

Ministry of Social Welfare also remains a bit unclear in terms of its role during response and recovery.

5.2.3 MILITARY

The military is fully integrated into the government's early warning and response systems, and is part of the Police Inspector General's Command Group. It is subject to the District Secretary when the President has declared a disaster.

5.2.4 NGOS AND CIVIL SOCIETY

This sector remains outside of government information sharing, early warnings, and coordination overall. It will be a weak partner until it is informed of and invited into the national disaster management system.

None of the remaining INGOs in Matara District is undertaking work in disaster management as yet, although some appear to be planning such programs. The question of whether they would seek to link their plans to the government system is unclear, and an independent approach could present a series of policy and procedural problems in the future. The one exception to the above is JICA (Japan International Cooperation Agency), which has undertaken hazard mapping, as a demonstration case, but has no plans for a comprehensive disaster management program. The Government has set the NGO priorities as completion of all housing projects by the end of 2006.

Recovery and reconstruction plans, other than housing and repair of infrastructure, are still in the formative stages.

Given the actual way in which disaster response unfolded in Matara District at the time of the 2004 tsunami, and given the wide range of forecasting and warning systems in place in the technical ministries, the overall state of disaster readiness in Sri Lanka is high.

5.3 RECOVERY AND RECONSTRUCTION

5.3.1 DATA COLLECTION ON DAMAGE AND NEEDS

A great deal of data have been assembled on destruction and on such short-term needs as housing, school repair, hospital re-equipping, and the like. Not as much data are available on some of the longer term recovery needs, such as coastal rehabilitation, and prevention and mitigation measures. There is no central database that collects these data and needs assessments.

RADA does assessment and monitoring and is heavily involved in the policy aspects of recovery, such as buffer zones. It seeks reality-based policy setting. RADA has the Development Assistance Database (DAD), which all players agree is not working perfectly. Created at the time of the tsunami from off-the-shelf software, it is being adapted and improved, but it is the only database that captures donor assistance. Up to US $2.4 billion worth of assistance has been captured in the database, but the system lacks quantitative indicators for outputs.

RADA plans livelihood recovery actions and policies, although it says the needs are not yet accurately assessed. Most livelihood recovery activities to date have been more supply driven than needs driven. For example, several officials told us that there are just too many boats of the wrong specifications being given out all over the country.

RADA says Sri Lanka lacks baseline data for affected households. The National Data Centre, set up under the Presidential Secretariat with advanced equipment and mobile vans, has completed mapping almost 80% of the beneficiaries or affected persons. Details such as names and numbers of family members, occupation, damage to housing, cash grants received, along with the thumb impression and photo identity of the head of household is stored in an electronic database. In the future, this may be expanded to include all the population. This information is also handed over to the DSs' offices so they can track recovery efforts in their districts. However, according to RADA, beneficiary

tracking systems are not in place, and the Government has no idea who is actually living in the tsunami housing now.

5.3.2 STAKEHOLDER INVOLVEMENT AND PARTICIPATION

Sectoral agencies are heavily involved with the DMC in terms of recovery planning, but NGOs are not. Local communities, however, generally are involved in these discussions, as the central Government has staff located at the local level throughout the country to ascertain progress and problems.

5.3.3 COASTAL COMMUNITY RESILIENCE

The Coastal Conservation Department's coastal zone structures are 90% repaired, and the department is implementing a Greenbelt program with local NGOs, under which trees and shrubs are re-planted in coastal areas from which they have long been absent. It has finished a survey of sand dune rehabilitation, but has not yet begun the work.

The department's job is to link coastal policies on the prevention and mitigation of environmental degradation to economic development, and it now also links this work to that of the Disaster Management Centre. Prior to the tsunami, the department's work had exclusively been with human degradation of coastal resources, particularly mangroves, fish, and pollution. Since the tsunami, however, it has been active and creative in changing the focus of its studies and materials to developing policies and programs to mitigate the potential impact of storm surges, tsunamis, and similar extreme circumstances.

The department is committed to participatory planning for Special Area Management (SAM) Sites, and is organized in an end-to-end fashion to ensure it occurs. The Coastal Resource Management Program has social organizers at the village level, who work with villagers to develop coastal resource management action plans, such as replanting mangroves. They are working with NGOs on the introduction of energy efficient cookers for villagers, to protect mangroves and trees, and they have been involved at the local level in evacuation planning since the tsunami. This office also provides materials for fishermen to make seine nets (the very large ones on which a hundred families or so rely); but it has run into serious procurement problems.

The department is also organized at the district level, with District Coordinators, whom the head feels are excellent. He also believes that the most critical link in the end-to-end chain is from the district to the community level.

The Coastal Resources Management Program also has educational programs in primary schools, although the materials have not yet been updated to focus on storm-related damage. Coastal resource management is a part of the school curriculum throughout Sri Lanka in grades 6 to 11.

5.3.4 BUILDING BACK BETTER

As previously explained, the notion of mitigating risk through intelligent recovery design, and of supporting development by lessening the potential impact of disaster, is a clearly understood and overtly practiced approach of the Government of Sri Lanka.

5.3.5 TRANSPARENCY IN BENEFITS AND ENTITLEMENTS

The schedule of reparations for damage from natural disaster is public knowledge, and redress is available through the village, division, and district level offices of government.

6. SUMMARY AND RECOMMENDATIONS

6.1 STRENGTHS

Given the policy gaps and overlaps in institutional structures, Sri Lanka has an abundance of strengths:

1. In comparison with other disaster-prone countries such as Indonesia, Sri Lanka isreally not very disaster prone. Annual flooding occurrences are well prepared for, warnings go out in plenty of time, and the system responds as it is supposed to.
2. Sri Lanka has a high literacy rate and a well-educated population. It is small, compact, and largely homogeneous. Messages, both of warning and of an educational nature, are easily transmitted and absorbed.
3. Government Service attracts superb people: highly educated, experienced, motivated, and hard working.
4. The country has the political will to support end-to-end disaster management systems, including early warning, and it is rapidly attaining the resources needed to do so.

6.2 WEAKNESSES

1. The great weakness is the current lack of an approved, directive disaster management policy. No single entity currently has overall responsibility for disaster management in Sri Lanka, while far too many government institutions feel—and often rightly so, given the multiplicity of old policies and guidelines—they have some responsibility.
2. An equally great problem is the conflict in the Northeast, where a major portion of the tsunami damage is located. Because of the fighting, NGOs and government officials cannot travel to the area to render assistance; in mid-August 2006 there were approximately 50,000 persons internally displaced by the war (in addition to those displaced by the tsunami) for whom assistance is lacking.
3. There are significant policy gaps, which are mentioned throughout this report. However, in most cases government officials seem aware of these gaps, and while Sri Lanka could well benefit from some technical assistance in the formulation of specific policies (set back policies, for example) the system seems capable of redressing these gaps.
4. A great weakness, of course, is the lack of policy guidance for the Disaster Management Centre and the other recently cobbled-together entities of Government, such as RADA and the Ministry of Disaster Management and Human Rights. This has resulted in the potential for virtually complete duplication of services, as well as the lack of clarity of roles and responsibilities. The Disaster Policy simply has to be clear, unambiguous, and in place.

6.3 RECOMMENDATIONS

1. Despite the obvious and understandable political pressures and issues involved, the Government of Sri Lanka needs to improve the transparency and accountability of its disaster management systems.
2. Donors, including USAID and UNDP, could coordinate to do a better job of assisting the Government of Sri Lanka to harmonize and simplify its systems. Donors should be clear that

their interest is in seeing that the disaster management policy be approved and implemented; private donors such as INGOs need to be clear whether their funding and programs support, or further muddy, disaster management in Sri Lanka.

3. The Government should consider not creating any new structures prior to Cabinet approval of the Disaster Management Policy. Instead, it could clarify and simplify it through a thoughtful reassignment of responsibilities.

4. There seems to be considerable room for an informal donors group, made up of Ambassadors and Chiefs of Mission from donor nations, to coordinate the assistance given in a more thoughtful way, and to put gentle but coordinated pressure on the Government to repair those parts of the system which remain broken. Again, it is in the donor's interest in assisting government to making the most of its great potential for excellent disaster management.

ANNEX A: MATRIX FOR SRI LANKA

1. Policy, Legislative, and Institutional Environment

Criteria	Development Stage Indicators			
	1	2	3	4
Legislative Environment for DM	Does not exist	Based on cabinet paper or circular or directive	Legislation under development	Approved legislation exists
Institutional Environment	No formal institutions	Formal institutional framework only on paper	Institutional framework present but insufficient (Overlaps and duplication)	Roles and responsibilities of each institution involved in DM vis-à-vis others is written down , well understood and used
Political environment	No observable political will	Political commitment vocal but no actions yet	Strong political will and some but insufficient action.	Significant political support and commitment to DM available
Policies relating to Disaster Management(DM)	No or outdated DM policies	New policies prepared but not yet comprehensive or approved	Comprehensive policies exist but not yet fully exercised	Approved policy exists; adequately covers a broad spectrum of activities from response to recovery to mitigation and encourages incorporation of DM concerns into normal development
Policy Formulation	By fiat or not undertaken	Several but not all government stakeholders involved	Inclusive of government entities; insufficient in civil society and/or military involvement and acceptance	Thoroughly consultative; adequate opportunities for involvement of all stakeholders; feedback sought and received
Policy supports disaster management at all government levels	Only central government involved	Central and province level government involved	Full authority granted at all levels except community	Provides for and supports decentralization of DM, to all levels
Involvement of various other government stakeholders	Only one central entity involved	Only main line ministries involved	Includes some the other necessary Ministries: health, agriculture, local government	Actively encourages comprehensive involvement; addresses cross-cutting concerns of DM within various sectors
Linkages with other government policies	No official methods of linking	Linkages on paper only	Links in place but not fully utilized	Explicitly identifies links to DM in existing policies and ordinances

Criteria	Development Stage Indicators			
	1	2	3	4
	Only in DM policies	Others weakly/insufficiently engaged	Good for mainline ministries but not comprehensive	Risk reduction concerns explicit in relevant policies, regulations- as land use planning etc

2. National Disaster Management Office (NDMO)
Disaster Management Centre, Sri Lanka

Criteria	Development Stage Indicators			
	1	2	3	4
A. Mandate				
NDMO goals and objective statements	No statements exist	Written goal statements but inadequate/ outdated	Goals clear to government only; not comprehensive	Covers all aspects of disaster management including incorporation of DRR in development
NDMO mandate recognized and accepted by others in and outside of government	Nobody recognizes mandate/authority outside NDMO	Recognized only in mainline ministries/not fully accepted	Recognized by essential ministries but not known to public/local governments	Mandate of NDMO well-recognized and accepted by all other stakeholders, who agree to its coordinating role.
Institutional Structures	Not considered	Systems in place only for mainline ministries	Systems operative throughout central government; weak elsewhere; (roles and responsibilities unclear)	Operational roles/responsibilities with other DM organizations well laid-out and effective
Administrative Structures—for decision making	No such structures yet in place; timely response unlikely	Beginning to address issues; timely response still uncertain	Reporting/decision lines unclear and/or waivers not adequately stated.	Administrative structures, waivers, etc. exist to provide rapid response and support to cut through bureaucracy
Administrative Structures—for coordination	-do-	-do-	-do-	-do-
Administrative Structures—for delegation of authority	-do-	-do-	-do-	Direct reporting to the highest level
Administrative Structures—for timely response	System contains too many lag points; not responsive	Warnings timely at HQ, next steps unclear	Warnings reach provinces in timely fashion but forwarding warnings to users is slow	Warnings delivered and received at all levels; no lag time in response
Political environment	Does not exist	Much political jockeying slows things down	Necessary support generally but not always available	All necessary support available
B. Disaster Management Capacities				
i. Technical and Human Resources				
Staffing	Inadequate: untrained and/or high turnover; duties unclear	Marginally adequate: few trained/experienced professionals; high turnover	Keep trained staff but need more training and support staff	Fully staffed with plans and resources for skills development through training etc.
Resources and plan for communication of early warnings	Not thought through nor purchased	Plans, but inadequate. Equipment inadequate. No public awareness	Both plans and equipment in place but untested. Insufficient public awareness	Redundant communications gear to ensure rapid dispersal of early warning information
Public awareness of early warning systems	Need not recognized	Education planned but not done	Some public education	Widespread understanding

Criteria	Development Stage Indicators			
	1	2	3	4
Resources and plan for response coordination at all levels	Not in place	On paper but under staffed/untrained	Somewhat operative at national level; other levels lack adequate training and equipment.	Fully functional command / operations center, with necessary technical skills and human resources exists- 24x7; good surge capacity at anytime.
Resources and plan for coordination of relief efforts	Not yet undertaken	Plan exists but excludes donors, entities	Well planned and resourced but no coordination capacity with civil/private sector (NGOs, etc)	Procedures, plans and resources available for coordination; well understood, accepted, and used by all stakeholders
Resources and plan for coordination of recovery efforts	Not in place; recovery efforts uncoordinated and unequally applied	In place; does not include all ministries (agriculture, health, etc) in planning recovery	All requisite host government agencies in place but foreign recovery programs not aligned	Full recovery effort, including all players, planned and coordinated to ensure adequate coverage of disaster area and appropriate use of materials, labor, etc.
Resources and plan to ensure recovery efforts support development goals of nation	Not yet considered	Exists only in mainline ministries; no civil society input planned.	Includes all relevant government ministries but excludes non-government responders	All recovery efforts are weighed and approved against long-term development effects; private sector responders in complete accord.
ii. Financial Resources				
Allocation of resources	All resources donor - dependent	Budget funded but insufficient	Funding remains subject to political/economic pressures on government	Commensurate with mandate and covers all phases of the DM Cycle, including development
National Disaster Fund	Does not exist	N/A	Exists but not adequate nor protected	Fund put aside to be used in the event of a disaster; established procedures for compensation, relief support exists
Emergency food reserves	-do-	-do-	-do-	-do-
Allocation for maintenance and routine upkeep of all emergency/relief equipment	Does not exist	Being put in place but money is scarce; donors do not provide	Some donors provide; inadequately protected or misused	Exists; donors expect to provide along with donated equipment
Procurement procedures	Chaotic	Work only with high-level involvement	Work in normal (but not extreme) disaster situations	Crisis procedures exist which can fast-track any necessary procurement of services or goods

Criteria	Development Stage Indicators			
	1	2	3	4
C. Other Criteria				
DM functions exist at all levels of government	Exist only at the Centre	Exist only at the Centre and Provinces (districts)	Exist but does not function at all levels	Branches of NDMO/ DM institutions exist and function at all decentralized administrative levels
Work Culture	Information not shared; secretive and competitive environment (NDMO shares, not others)	Clear lines of authority but too high level and authoritarian	Culture adapts to emergency response readily and efficiently; other facets of DM still too non-collaborative.	Participatory, consultative to authoritative, appropriate to the phase of disaster management

3. Related Ministries/Departments/Institutions

Criteria	Development Stage Indicators			
	1	2	3	4
Development Activities	Risks not considered in other ministry planning	Only 1-2 ministries consider risk in development planning	All ministries are cognizant of risk in their planning	Development activities take into consideration disaster risks
Enforcement of guidelines, policies and legislation	Not enforced	Some enforcement, but erratic	Good enforcement but limited by lack of funds/staff	Enforce existing policies/ guidelines/ regulations that address disaster risk concerns
Collaboration	Do not work with NDMO	Meet very rarely with NDMO	Regular meetings held but not decision-making	Collaboration with DM agencies is well established
Recovery & Reconstruction	No concept	Concept exists but not backed by capacity	Concept, skills and capacity exists but not backed by resources	Building back better is ingrained in work culture; necessary knowledge, resources and skills available
Disaster Preparedness	No plans or procedures exist	Some plans and procedures in place but rarely updated	Plans, procedures exist but cannot be applied due to some constraints	Contingency plans and operating procedures exist, guide actions after a disaster, and are reviewed and updated regularly

4. Military/Police

Criteria	Development Stage Indicators			
	1	2	3	4
Involvement in disaster management planning	Have their own plan, uncoordinated	Basic MOU on planning responsibilities, no follow-up	NDMO and military coordinate disaster planning; do not include other responders	Full range of responders involved in planning.
Involvement in disaster response	Ad hoc, involves only military	Roles and responsibilities beginning to be spelled out with NDMO	NDMO and military roles clear; other responders not informed	Full range of responders are involved in or aware of disaster plans.
Clarity of coordination	None	Military coordination limited to military	NDMO and military coordinate; others excluded	Full range of responders coordinate frequently and actively
Clarity of command/control functions	Clear only in military	Clear in military and NDMO, but not vis-à-vis each other	Joint understanding of command control between NDMO and military only	Full range of responders understands and is trained in command and control scenario
Resources, including relief goods, transport, communications	No stockpiles	NDMO stockpiles some relief goods, as does military	NDMO/ military share electronic inventory of goods and equipment but NGO/donors not included	Assets brought by each player fully understood and stockpiled with electronic records
Training	None other than normal military	Officers trained	Wide military training in response	All training coordinated with NDMO
Response Time	Unknown; no (joint) drills held	Some players drilled and response time slow	Joint response training; drills show good response	Response training offered to all players and at all levels; rapid response time (72 hours)
Capacity	No resources or trained personnel available for disaster response	Inadequate resources or trained personnel available for disaster response	Resources or trained personnel available for disaster response but delays in deployment	Adequate resources and trained personnel available for deployment at short notice
Foreign assistance (if permitted)	No procedures for dealing with foreign military			Procedures exist for coordinating with foreign military personnel deployed for humanitarian disaster response activities
Early warning communication	Communication systems are restricted to military/ police use	Communications systems used but do not link with other civilian systems	Procedures and plans for use of communication systems for disseminating warnings are in place but do not dovetail with national/ local preparedness & response plans	Procedures and plans for use of communication systems for disseminating warnings are in place and dovetail with national/ local preparedness & response plans

5. NGOs/IOs/Civil Society

Criteria	Development Stage Indicators			
	1	2	3	4
Involvement in disaster management planning	Have their own plans, uncoordinated with government or other NGOs	Some civil society organizations coordinate with each other	Some civil society organizations and government coordinate disaster planning; do not include other responders	Full range of responders involved in planning.
Involvement in disaster response	Ad hoc, depending on donors	Organization mandates relief work but not specific skillsets (Red Cross)	Organizational mandate supported by trained personnel and resources are insufficient (Oxfam)	Organizational mandate supported by trained personnel and required resources
Clarity of coordination in disaster response	Have their own plans, uncoordinated with government or other NGOs	Some civil society organizations coordinate with each other	Some civil society organizations and government coordinate disaster planning; do not include other responders	Full range of responders coordinate frequently and actively
Resources, including relief goods, transport, communications	No stockpiles	Some civil society organizations stockpiles relief goods	NGO/donors share inventory but not coordinated with the government	Assets brought by each player fully understood and stockpiled with electronic records

6. Current System Capacity

Criteria	Development Stage Indicators			
	1	2	3	4
A. Early Warning *				
End-to-End Warning	Warning is held up at the central level	Warnings reach the sub-national level with some delay	Warnings reach users at local level but not promptly	Message gets from Center to village level rapidly
Warning Dissemination Systems	Basic; numerous equipment shortcomings	Developed beyond basic; but equipment shortcomings remain	Advanced, state-of-the-art in some areas; some equipment shortcomings evident	Advanced, state-of-the-art in most areas, no major equipment shortcomings; inter-operability of systems ensured
Comprehension and legitimacy of warnings	Warnings not trusted or understood	Warnings understood but not trusted	Warnings understood and trusted but do not know how to respond	Warning understood and seen as legitimate by local actors and community; response actions are fully comprehended
When warning are issued – clarity of decision making	Basic; no lead from government; no consistency	Intermediate level with lead from government; partly consistent; partly inconsistent	Higher level with lead from government; higher levels of consistency	Advanced, with lead from government, low levels of inconsistency
Extent of EW communication with other stakeholders	Virtually non-existent	Partially developed; many links; much room for improvement.	Well developed, many links exist; dialogue developing well	Fully developed, links with all stakeholders, frequent dialogue
Public awareness raising about warnings	Non-existent or virtually so	Efforts are apparent to develop awareness programs	Programs exist; rely on narrow range of methods; significant shortcomings; not evaluated	Comprehensive; regular awareness raising, using combination of methods; evaluated
Public education about hazard and hazard warnings	Non-existent or virtually so	Efforts to include material in the school curriculum are apparent; other methods are ad-hoc	Embedded in school curriculum; linked to some exposure in audio-visual and printed media; either unevaluated, or special needs and ethnic minorities are distinguished	Integrated approach employing school and college curriculum; audio-visual and printed media; effectiveness formally evaluated; ethnic minority and special-need groups given special attention
Judgment of warning effectiveness by agencies	Denial of failings and limitations; no evaluation	Some recognition of failings and limitations; efforts to identify improvements but little achieved; irregular evaluation	Wider recognition of failing and limitations; some improvements made; evidence of some stakeholder involvement; regular evaluation	Full recognition of failings and limitations in past; improvements demonstrable; regular evaluation involving full range of stakeholders

* Parker, 1999 (Adapted and extracted)

Criteria	Development Stage Indicators			
	1	2	3	4
B. Overall Disaster Readiness				
	Overall procedures not in place below national level	Center to province in place, untested	Apparent connection top to bottom but untested; some questionable communications gear	Established procedures for passing on EW and declaring state of emergency at both national and sub-national levels exist
NDMO	No written system in place	Written system covers only NDMO and military at Center and provinces	Complete written system but not all stakeholders involved	Response measures to be undertaken by all actors upon declaration of an emergency are written down and understood
	No stockpile/ inventory exists	Inventory of stockpiles not automated	Inventory of stockpiles automated, but not updated nor accessible at all levels	Fully automated inventories regularly updated and are accessible at different levels of the administrative structure for deployment in a response
Other Ministries	Have no sense of their role in a disaster	Aware that disasters affect their work but have no sense of mitigation	Some mitigation in their plans but no written role in disaster	Roles clear and practiced, written out
Military	Act separately from NDMO; own chain of command	At cabinet level there is coordination, but not at field level	NDMO and military in full accord up and down levels; insufficient NGO and civil society understanding of mil. role	Fully integrated in government EW and response systems
	Military role unclear, ad hoc	Military has own system in place but not coordinated with NDMO	NDMO and military coordinated, but no public education/NGO understanding	Clear and in legislation and military doctrine
NGOs and Civil Society	Act entirely independently; not part of government planning	Some coordination among private agencies; most not disaster-focused	Clear coordination of disaster-related NGOs, meet with government	Clear roles and responsibilities identified; procedures for registration of new/ international NGOs clear and understood and easy
	Government does not register foreign entities	NGOs are registered; not donor nations; no interface with government on hazards/needs	Relief agencies and government know each other; some joint planning	Established procedures for foreign donor assistance exist along with mechanisms to communicate actual needs

Criteria	Development Stage Indicators			
	1	2	3	4
C. Recovery & Reconstruction				
Data Collection-damages; needs	No coherence in data collection or needs assessment	Some sharing of systems and needs assessments	Coherent system in place, but not used fully to direct reconstruction efforts	Sectoral departments have procedures in place to collect and pass on estimates of damages and needs to NDMO/ agency in charge of recovery and reconstruction
Stakeholders involvement & participation	No involvement	Limited participation	Stakeholders participate but cannot influence decisions	Procedures to consult involve survivors in the recovery and reconstruction efforts are in place; sectoral agencies continue to play important roles with NDMO involved in coordination
Coastal Community Resilience (CCR)	Recovery programs do not consider CCR	NGOs aware and use CCR approach in village level planning	Government and civil society aware and practice CCR in recovery planning	CCR well understood and practiced in all recovery efforts among the coastal communities
Building back better	No concept	Concept exists but not backed by capacity	Concept, skills and capacity exists but not backed by resources	Recovery and reconstruction activities are strongly guided by disaster risk considerations and building back better
Transparency in benefits and entitlements	No transparency	Benefits and compensation packages are known but not the procedures to get at them	Benefits, compensation packages procedures to access them are known but cannot seek redress of grievances (limited redress only)	Affected/ beneficiary lists are transparent; benefits, compensation, and entitlement criteria are in public domain; grievance redress procedures are in place

ANNEX B: SRI LANKA DISASTER HISTORY (1957-2006)

Dates: Start, End date	Location:	Disaster: Type, Subtype, name	Numbers:	
25-Dec-57	__	Wind Storm, cyclone	200; 250000	killed; affected
22-Dec-64	Trincomalee, East coast	Wind Storm, cyclone	206; 100000; 280,000; 37,300;	killed; homeless; affected; '000 US $ damage
Sep-66	Southwest	Flood	23; 100,000; 252,347; 5,000	killed; homeless; affected; '000 US $ damage
18-Oct-67	(1) Colombo area, (2) North, North Central, East provinces	Flood	24; 47,000; 3,000	killed; affected; '000 US $ damage
1-Jan-67	Nationwide	Epidemic; Malaria	2; 200,000	killed; affected
25-Dec-69	East, North, Central & South provinces	Flood	62; 1,000,000; 8,500	killed; affected; '000 US $ damage
Jul-74	__	Slides; Landslide	27	killed
4-Dec-74	__	Transport Accident, Air	191	killed
Oct-77	__	Slides; Landslide	27	killed
1977	__	Drought	250,000	affected
1-Jan-77	__	Epidemic; Diarrheal/ Enteric; Cholera	728	affected
24-Nov-78	East coast	Wind Storm, cyclone	740; 5,000; 1,000,000; 100,000	killed; injured; affected; '000 US $ damage
Nov-78	Jaffna Peninsula	Flood	1,000	affected
May-78	__	Flood	10; 1,000	killed; affected
Jan-79	__	Drought		
1980	Central	Drought		
7-Dec-81	North	Flood	7; 20,000	killed; affected
1981	__	Drought		
12-Dec-82	Matale (Central regions)	Flood	34; 30,000	killed; affected
May-82	South	Flood	20; 100,000; 1,000	killed; affected; '000 US $ damage
1982	__	Drought	2,000,000	affected

Dates: Start, End date	Location:	Disaster: Type, Subtype, name	Numbers:	
Dec-83	North, North Central, Eastern provinces	Flood	3; 250,000; 1,000000	killed; homeless; affected
1983	__	Drought	1,800,000	affected
Jul-84	Ratnapura, Kegalce, Gampaka, Colombo	Flood	3; 70,000	killed; homeless
7-Jan-84	North and Eastern regions	Flood	3; 250,000; 100,000	killed; homeless; affected;
Nov-84	__	Flood	2,000	'000 US $ damage
24-May-84	Kalutara district + Southwestern districts	Flood	45; 70000; 85000	killed; homeless; affected
Nov-85	__	Wind Storm, storm	8,000	affected
3-May-86	Colombo	Transport Accident, Air	22	killed
Jan-86	Badulla, Nuwara-Eliya districts (Eastern and central provinces)	Flood	43; 64,485; 934	killed; affected; '000 US $ damage
20-Apr-86	Tricomalee, Kantalai	Misc Accident; Misc: Collapse; Dam	39; 8,000; 40,000	killed; homeless; affected
22-Oct-87	Batticaloa	Transport Accident, water	24	killed
Nov-87	__	Epidemic; Arbovirus; Encaphalitis	53	killed
1987	North, Northeast	Drought	2,200,000	affected
17-Jan-89	Ahungalle	Transport Accident; Rail	52	killed
Mar-89	North and East	Drought	806,000	affected
30-May-89	Colombo, Gampaha, Kegalle, Ratnapura, Kalutara, Galle, Matara, Nuwera Eliya, Aranayake districts	Flood	325; 1,000; 200,000; 300,000; 35,000	killed; injured; homeless; affected; '000 US $ damage
24-Dec-90	Ampara	Flood	40,000	affected
9-Nov-90	Puttalam	Transport Accident; Water	25	killed
6-Jan-90	Ampara, Badulla, Kandy, Kurunegala, Matale, Monaragala, Nuwera, Eliya, Polonnaruwa, Trincomalee districts	Flood	33; 400,000	killed; affected
24-Apr-91	Badulla	Transport Accident; Road	20	killed
2-Jun-91	Galle, Kalatura, Colombo, Gampaha districts	Flood	27; 197,151; 100,000; 30,000	killed; homeless; affected; '000 US $ damage
Dec-92	__	Flood	1; 11,140; 394;810; 2,750	killed; homeless; affected; '000 US $ damage
5-Jun-92	Galle, Gampaha, Kalutara districts (Colombo)	Flood	14; 250,000; 250,000	killed; homeless; '000 US $ damage

Dates: Start, End date	Location:	Disaster: Type, Subtype, name	Numbers:	
25-Jan-93	Trincomalee (Kaddiyar Bay)	Transport Accident; Water	60	killed
15-Dec-93	Batticaloa, Polonnaruwa, Anuradhapura, Northern Mannar, Vavuniya and Trincomalee districts (Northern Jaffna Peninsula)	Flood	150,000	affected
8-Oct-93	Kodigama	Slides; Landslide	65; 130	killed; affected
28-May-93	Colombo, Southern Kalutara, Galle, Matara, Ratnapura areas	Flood	8; 40,000; 140,000; 32	killed; homeless; affected; '000 US $ damage
27-Nov-94	Batticaloa, Trincomalee districts	Flood	478,150; 228	homeless; '000 US $ damage
Nov-94	Battocaloa, Ampara	Flood	100,000	homeless
Jan-94	Colombo	Flood	150,000	homeless
13-Sep-95	Near Colombo	Transport Accident; Air	75	killed
7-May-95	Western, North Western, Sabragamuwa and Southern Provinces	Flood	3; 120,000	killed; homeless
28-Apr-95	Jaffna (Colombo Province)	Transport Accident; Air	45	killed
3-Sep-96	Ella	Transport Accident; Road	20	killed
9-Jun-96	Ratnapura district	Flood		
14-May-97	Batticaloa	Industrial Accident; Ind:Poisoning; Alcool	25	killed
24-Aug-97	Badulla	Transport Accident; Road	10; 58	killed; injured
20-Feb-97	Mannar Sea	Transport Accident; Water	130	killed
29-Sep-98	Jaffna	Transport Accident; AOR	55	killed
17-Jul-98 to 20-Jul-98	Colombo Galle Kalutara Gampaha	Flood	135,000	affected
Oct-99	Colombo, Kegalle, Badulla, Matara, Wellawaya (cities) Level 1 = Sabaragamuwa, Southern, Uva, Western	Epidemic; Measles	1; 5936	killed; affected
17-Apr-99 to 22 -Apr-99	Ratnapura, Colombo, Gampaha, Kalutara, Galle, Matara, Kandy, Kegalle; Level 1 = Central, Sabaragamuwa, Southern, Western	Flood	6; 375,000	killed; homeless
28-Dec-98 to Jan-99	Batticaloa, Trincomalee, Vavuniya (Eastern and Northern)	Flood	2; 75,000; 154,485	killed; homeless; affected
24-Dec-00 to 28-Dec-00	Ampara, Batticaloa, Anuradhapura, Trinacomalee, Mannar, Polonaruwa districts	Wind Storm, cyclone	5; 375,000	killed; affected
18- Nov-00 to 22-Nov-00	Ampara, Batticaloa, Polonnaruwa districts (Oriental province)	Flood	3; 300,000; 3,000	killed; affected; '000 US $ damage
25-Sep-00	Matara	Epidemic, Arbovirus, Dengue	2; 113	killed; affected

Dates: Start, End date	Location:	Disaster: Type, Subtype, name	Numbers:	
18-Sep-00 to 22- Sep-00	Galle, Matara districts	Flood	2; 100,000	killed; affected
30-Mar-00	Near Anuradhapura	Transport Accident; Aior	40	killed
Aug-01	Hambantota, Kurunegala, Puttalam, Ratnapura, Moneragala, Badulla, Ampara districts	Drought	1,000,000	affected
18-Aug-01	Near Kurunegala	Transport Accident; Rail	13; 40	killed; injured
Feb-01	Matale district	Flood	160	homeless
1-Aug-02	Eastern coast	Transport Accident; Water	10	killed
16-Dec-02 to 20-Dec-02	Batticaloa, Polonnaruwa, Anuradhapra, Kilinochchi, Trincomalee, Amaprai, Puttalam districts (Eastern and North Central provinces)	Flood	500,000	affected
Jun-02	Hambantota, Ratnapura, Moneragalda districts	Drought	557,000	affected
13-Jan-02	Near Rambukkana	Transport Accident; Rail	13; 100	killed; injured
17-May-03 to 26-May-03	Ratnapura, Matara, Galle, Hambantota, Kulatara, Nuwara, Eliya districts	Flood; Flash Flood	235; 695,000; 29,000	killed; affected; '000 US $ damage
26-Dec-04	Jaffna, Trincomalee, Mullaitivu, Trincomalee, Batticaloa, Ampara, Hambantota, Matara, Galle, Kalutara, Colombo, Gampaha districts	Wave / Surge; Tsunami	35,399; 23,176; 480,000; 516,130; 1,316,500	killed; injured; homeless; affected; '000 US $ damage
11-Dec-04 to 23- Dec-04	Kilinochchi, Jaffna, Vavuniya, Mullaitivu (North) Polonnaruwa, Anuradhapura (North Central), Batticaloa, Amparai, Trincomalee (Eastern) Matara (South)	Flood	6; 200,000	killed; affected
21-Nov-05 to 23- Nov-05	Colombo, Ratmala, Gampaha (Western) Trincomalee (Eastern) Jaffna, Killinocchi, Mullaitivu (Northern)	Flood	6; 145,000	killed; affected
27-Apr-05	Polgahawela	Transport Accident; Rail	33; 30	killed; injured

Source: "EM-DAT: The OFDA/CRED International Disaster Database www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium"

ANNEX C: LIST OF PERSONS/ORGANIZATIONS INTERVIEWED

Interview List—Sri Lanka Visit (August 10-16, 2006)

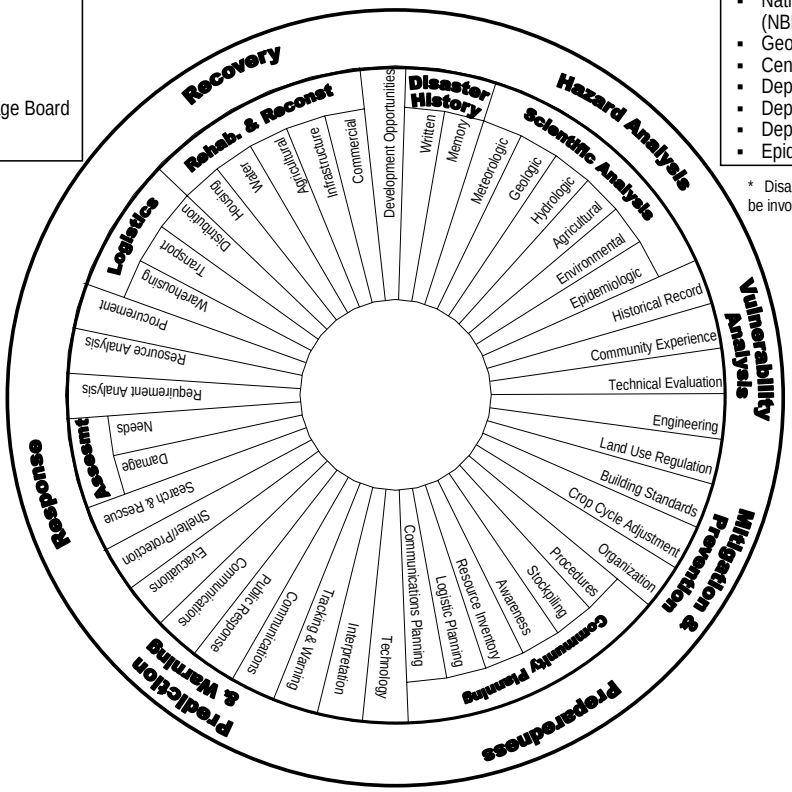
Organizations	Persons Met
Ministry of Disaster Management & Human Rights	Secretary - Mr. P D Amarasinghe
Disaster Management Centre (DMC), Ministry of Disaster Management & Human Rights	Director General - Major General Gamini Hettiarachchi Director - Technology & Mitigation - Mr. U W L Chandradasa Director - Training & Awareness - Mr. Buddhi Weerasinghe Deputy Director - Emergency Operations - Mr. Ramya Siriwansa Asst. Director - Emergency Operations - Wing Commander Dhammika Wijeyasooriya
Department of Meteorology, Ministry of Disaster Management & Human Rights	Director General - Mr. GHP Dharmaratne Director - Mr. Jayasinghe Deputy Director - Mr. Lalith Chandrapala
Coastal Resources Management Project, (CRMP) Coast Conservation Department	CRMP – CERM Director - Mr. Indra Ranasinghe
Coast Conservation Department	Director - Dr. Samaranayake
Sri Lanka Red Cross Society (SLRCS)	Deputy Director General - Mr. Suren Peiris
International Federation of Red Cross and Red Crescent Societies (IFRC)	DM Coordinator - Mr. Adam Poulter
District Secretariat, Matara	District Secretary and Government Agent - Mr. Gamini Jeyasekara Asst. Director - Planning & NGO Coordinator - Mr. Sampath
Reconstruction and Development Authority (RADA)	Mrs. Rachel Perera, Director - Donor Coordination Mr. Denver De Zylva, Director - Risk Management
National Building Research Organisation (NBRO) Landslide Studies and Services Division	Director - Mr. RMS Bandara Senior Scientist - Mrs. Kumari Weerasinghe
Consortium of Humanitarian Agencies (CHA)	Executive Director - Mr. Jeevan Thiagarajah
Sri Lanka Police	Deputy Inspector General & Head of Field Force Headquarters, Mr. S.K. Shanker - DIG (Police) Chief Inspector - Matara- Mr. Chandrasiri
Ministry of Social Welfare and Social Services	Secretary - Mrs.Viji Jegarasasingam
Department of Irrigation	Director General - Mr.Samarasekera Director - Mrs. Badra Kamaladasa Director - Eng. Mrs. J. Amarakoon Deputy Director - Engineer - Mrs. PPG Dias
Urban Development Authority (UDA)	Mr. Prasanna de Silva, Addl. Director General
United Nations Development Programme (UNDP)	Ms.Anita Shah - Disaster Risk Management Specialist Mr.Saumik De - Regional Coordination Associate
National Disaster Management Centre (NDMC), Ministry of Disaster Relief Services	Director - Mr. N D Hettiarachchi
Oxfam GB	Policy & Campaigns Manager - Mr.Cherian Matthews

ANNEX D: SCHEMATIC OF GOVERNMENT STRUCTURE FOR DISASTER MANAGEMENT

RECOVERY
- DMC
- Reconstruction & Development Authority (RADA)
- District & Divisional Secretariats
- Local Authorities -All Municipal Councils, Urban Councils and Pradeshiya Sabhas
- NGOs & CBOs
- RDA/PRDA
- Telecom
- CEB
- NHDA
- National Water Supply & Drainage Board
- All other line departments
- SLIDA

RESPONSE
- District & Divisional Secretariats
- Local Authorities -All Municipal Councils, Urban Councils and Pradeshiya Sabhas
- DMC
- Police
- Forces
- NGOs & CBOs
- RDA/PRDA
- Telecom
- CEB
- National Water Supply & Drainage Board
- NDMC; Ministry of Disaster Relief Services;
- Department of Social Services
- All other line departments

PREDICTION & EARLY WARNING
- Disaster Management Centre
- Department of Meteorology
- Irrigation Department
- NBRO, NARA, GSMB
- Sri Lanka Land Reclamation and Development Corporation
- Department of Coast Conservation
- Police
- TV, Radio, Press



HAZARD ANALYSIS
- Disaster Management Centre*
- Department of Meteorology
- Irrigation Department, Agrarian Services, Provincial Irrigation
- Sri Lanka Land Reclamation and Development Corporation
- National Buildings Research Organisation (NBRO)
- Geological Survey & Mines Bureau
- Central Environmental Authority
- Dept. of Health Services
- Department of Coast Conservation
- Dept. of Agriculture
- Epidemiologic

* Disaster Management Centre and other agencies may be involved in all phases of disaster management cycle

VULNERABILITY ANALYSIS
- Disaster Management Centre
- Department of Social Services; Ministry of Relief Services
- National Physical Planning Department
- National Buildings Research Organisation (NBRO)
- Department of Health Services, Teaching hospitals
- Survey Department
- Urban Development Authority

MITIGATION
- Disaster Management Centre
- National Physical Planning Department
- National Buildings Research Organisation (NBRO)
- Institution of Engineers, Sri Lanka
- Dept. of Agriculture, Agricultural Research Stations
- Irrigation Department, Agrarian Services
- District & Divisional Secretariats; Local Authorities
- Coast Conservation Dept
- All Line departments
- NGOs & CBOs

PREPAREDNESS
- DMC, All line departments
- Local Authorities
- District & Divisional Secretariats;
- NGOs & CBOs

TRAINING & AWARENESS
- DMC, National Disaster Management Centre (NDMC)
- Centre for Housing, Planning and Buildings (CHPB)
- Department of Education, Universities; NGOs & CBOs
- SLIDA

ANNEX E: INFORMATION SOURCES

Assessments	
1. Assessment of Capacity Building Requirements for an Effective and Durable Tsunami Warning and Mitigation System in the Indian Ocean. http://ioc3.unesco.org/indotsunami/nationalassessments.htm	Contains a summary of presentations made by the IOC Assessment Mission members and national experts; proposals submitted to IOC; recommendations; amd general observations and conclusions related to EWS in Sri Lanka. The IOC questionnaire has also been filled in.
2. Assessment of Early Warning Systems in Sri Lanka	Undertaken by UNDP, through ADPC as consultants. Provides an overview of existing EWS for various hazards and identifies the key improvements possible in a phased manner.
3. Assessment on Emergency Telecommunication System for Disaster Management	An assessment on emergency communication system in Sri Lanka after the tsunami, undertaken by the International Telecommunication Union (ITU) together with ADPC. The report contains recommendations to improve the emergency communication system.
Studies and Relevant Background	
4. Towards a Safer Sri Lanka - Road Map for Disaster Management (Volumes 1 and 2) http://www.us-iotws.gov/ev_en.php?ID=1420_201&ID2=DO_TOPIC http://www.dmc.gov.lk/Road_map_projects.html	Prepared by the DMC with support from UNDP. Volume 1 contains the overview of the Road Map for the next decade; abstracts of various priorities listed under short-, medium-, and long-term with budgets. The projects have been detailed in Volume 2, and new projects introduced.
5. Sri Lanka National Report for Kobe World Conference on Disaster Reduction, 2005	Prepared in November/December 2004 by the NDMC (then focal point for DM), supported by UNDP. Status paper of DRM in Sri Lanka for the World Conference on Disaster Reduction (Kobe)
6. Stock-taking of Disaster Management in Sri Lanka	Undertaken by UNDP in 2004. Lists past efforts in DM in Sri Lanka.
7. Sri Lanka Parliament Select Committee Report on Natural Disasters	Committee set up between February and June 2005; Proposes the next steps for Sri Lanka. Has blue prints for DMC and other agencies in Sri Lanka. Prepared under the chairmanship of the current Minister of DM, and is guiding ongoing activities.

8. Improved Disaster Warning through Integrated Capacity Development for Sri Lanka's Department of Meteorology and Strategic Advisory and ICT Systems for Disaster Management Center (DMC)	Conducted by the USTDA for improving disaster warning system, operation process, and technical solutions for the emergency operation center.
Data Sources on Disasters, Demography, and Others	
9. Disaster Information System: DesInventar (NDMC) http://www.ndmc.gov.lk/ddd.pdf	Basic analysis of disaster data for 1973-2004 in Sri Lanka.
10. DesInventar (DMC)	Being updated and information verified. Not yet available for the public. Will be made available on www.dmc.gov.lk
11. Department of Census and Statistics www.statistics.gov.lk	Various reports and abstracts