

ANNUAL REPORT 2012

Strategic Support to Operationalize the Road Map Towards
A Safer Sri Lanka



Empowered lives.
Resilient nations.

INTRODUCTION

“Road Map for Disaster Risk Management - Towards a Safer Sri Lanka” was formulated in the year 2005 as the vision document for the Sri Lankan disaster management sector. The Disaster Management Centre (DMC) was entrusted with the responsibility to operationalize the Road Map.

In 2008 this project was undertaken to assist the DMC and other relevant stakeholders to implement the Road Map proposals through building their capacity and creating an enabling environment. The key deliverables of the project have been achieved successfully and include the development of partnerships among key stakeholders, the identification of opportunities for mainstreaming risk reduction approaches into the socio economic development process of the country, the formulation of risk profiles to promote adaptive mechanisms for the adverse impacts of climate change, to promote research and education in relation to disaster management as a strategy to ensure preparedness and inform local early warning systems.

THE PROJECT

The project commenced in January 2009 with a total fund allocation for the project period (2009 – 2012) of USD 2,000,000.

The main activities carried out under this project are:

1. Hazard profile for Sri Lanka developed
2. Sustainable Disaster Risk Reduction approaches mainstreamed into Development Planning
 - a. Integrated Strategic Environmental Assessment for Sri Lanka
 - b. Development of Building Guidelines
 - c. Integrate DRR aspects in building approval process in local authorizes
3. Climate risk management at the community level promoted
4. DRR promoted as a subject of study in research institutions and schools

The activities intended for completion in 2012 included:

- Completion of the Hazard Profile Development
- Completion of the Drought Adaptation Programme
- Consolidating the progress of ISEA in the North to other provinces
- Completion of Building Guidelines
- Promoting Disaster Risk Reduction through research institutions and schools
- Finalization of the National Emergency Operations Plan
- Publishing of Supplementary Reading Materials

HIGHLIGHTS

- The hazard profiles developed are being used by the relevant agencies. The profiles will be used for purposes of zoning to identify areas that are safe for infrastructural development and those which are prone to hazards.
- Infrastructural developments will adhere to the Building Codes Guidelines that have been developed. These codes will act as an approval mechanism for construction purposes in hazard prone areas.
- The Kindiliya rain water preservation project has completed successfully and is being used as a model to replicate in other areas. Projects have commenced in three locations in the Kurunegala District with the technical assistance of the Department of Agrarian Development.
- The success of the ISEA process in the Northern Province has been continued to the Uva Province and Gampaha Districts which are nearing their completion this year. Future development projects in these areas will use ISEA to carry out their initial assessments whilst also providing strategic interaction amongst agencies.
- The recommendations put forward from the Annual Disaster Risk Reduction Symposium are being integrated into the annual programmes.
- The Standard Operating Procedures (SOP's) have been completed for the National Emergency Operations Plan (NEOP). The final phase of the programme will be completed in 2013.
- Launch of the Hazard Profile and ISEA websites by the Hon. Speaker of Parliament at the National Safety Day 2012.

ACTIVITIES

Development of Hazard Profiles for Sri Lanka

Sri Lanka has experienced multiple natural disasters with severe impacts over the past years affecting human lives, disturbing human settlements and damaging properties. Therefore the development of a hazard profile for the country becomes an urgent and timely need to minimize the impacts on development and ensuring the sustainability of investments. In order to fulfill this requirement, in 2009, DMC & UNDP initiated a hazard profile development process in collaboration with the relevant technical agencies responsible for disaster mitigation activities of the country. This hazards profile could be used for regional level planning for disaster reduction in Sri Lanka.

Hazard profiles are prepared to cover nine hazards that Sri Lanka has experienced namely;

- Coastal Hazard Profile
 - Sea Level Rise
 - Storm Surge
 - Tsunami
 - Coastal Erosion
- Drought
- Flood
- Landslides
- Lightning
- Tropical Cyclone



Urban areas



Country



In Coast



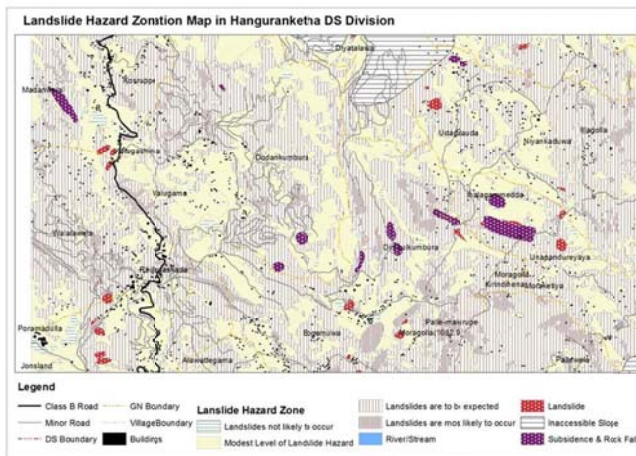
Drought areas



Coastal sea belt

Landslide Hazard Profile

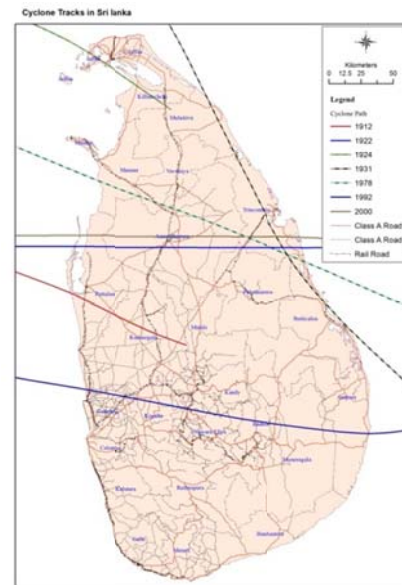
The National Building Research Organization (NBRO) initiated the development of the Landslide Hazard Profile that was prepared to cover entire land areas of seven mountainous districts of Sri Lanka namely; Matale, Kandy, Badulla, Nuwara Eliya, Kegalle, Ratnapura and Kalutara. These hazard profile maps were prepared in 1:50000 scale and are available on the NBRO website for the use of technical persons & other professionals. A detailed report on the above mapping has been completed and available for use.



Hazard Zonation Map for a selected DS Division

Tropical Cyclone Hazard Profile

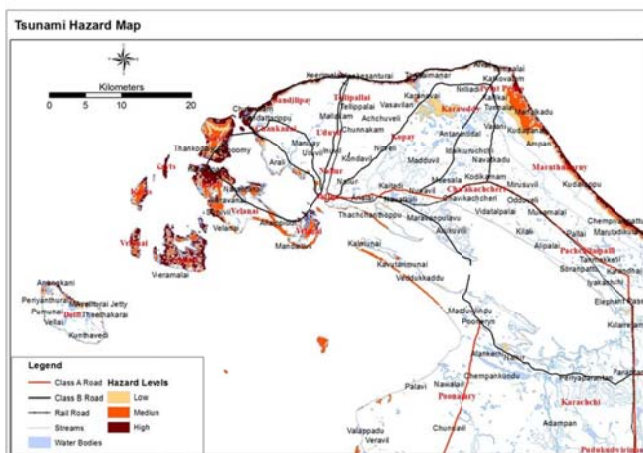
Department of Meteorology (DoM) initiated and completed the development of the Cyclone Hazard Profile successfully. With the relatively, easily available data and models were used for the development of the Cyclone Hazard Profile. UNDP provided data downloading facilities and other resources to expedite the work and the final report was also completed.



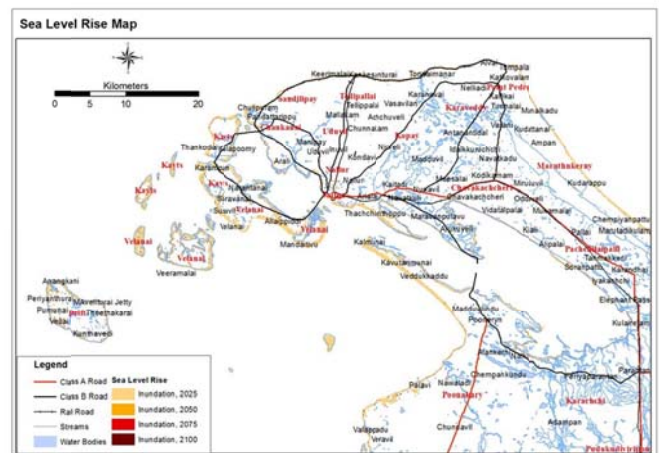
A map depicting the cyclone tracks in Sri Lanka

Coastal Hazard Profile

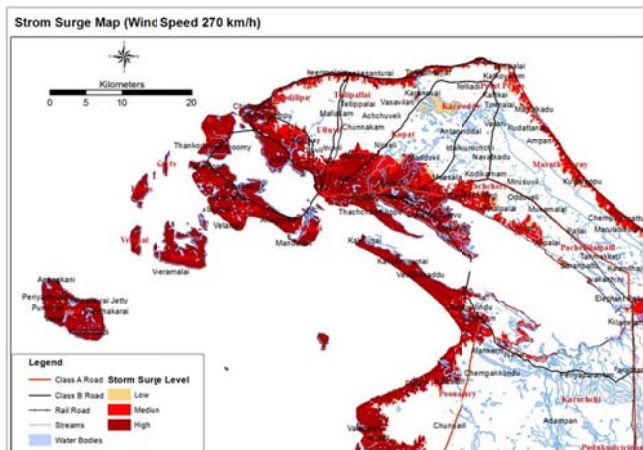
The Coast Conservation and Coastal Resource Management Department (CCCRMD) is mandated for the management of the entire coastal belt of the Coastal zone of Sri Lanka. Under the Coastal Hazard Profile development, four major disasters were identified namely; Tsunami Inundation, Storm Surge, Sea Level Rise and Coastal Erosion. The modeling has been completed for the entire coastal area. To develop the Coastal Hazard Profile, CCCRMD was linked with the Engineering Design Centre (EDC) of the University of Peradeniya to assist in modeling tsunami, storm surge and sea level rise hazard profiles. The coast line of the country has been covered in total with 52 nos. of 1:50k scale maps through this project. Individual reports on the four hazards (Tsunami Inundation, Storm Surge, Sea Level Rise and Coastal Erosion) have also been completed and are available for use.



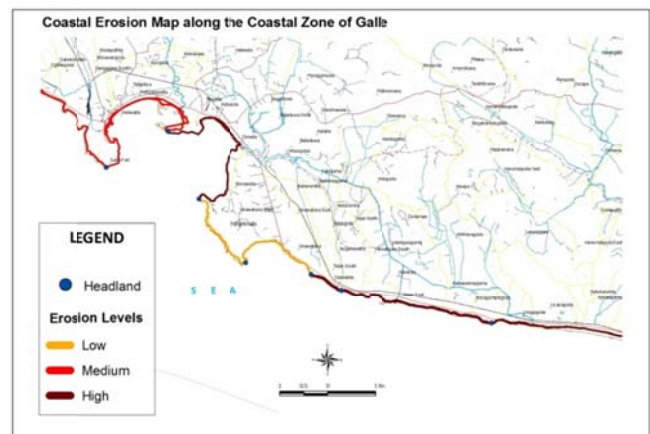
Tsunami Hazard Map



Sea Level Rise Map



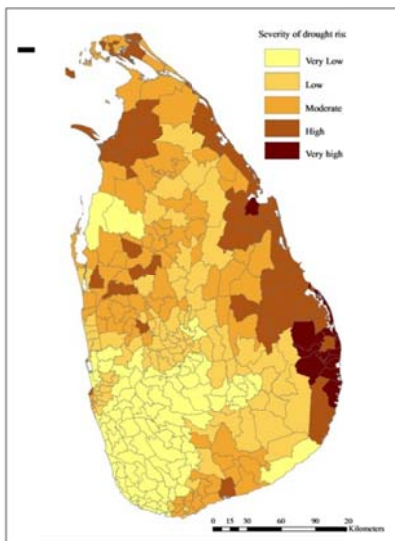
Storm Surge Map



Coastal Erosion Map

[Drought Hazard Profile](#)

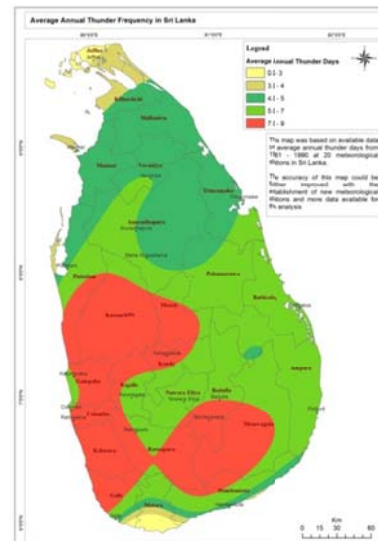
The responsibility of the preparation of the hazard profile on drought was taken up by the Natural Resource Management Centre (NRMC), Department of Agriculture and Faculty of Agriculture, University of Peradeniya. With the involvement of both parties, the Drought Hazard maps and the final report were prepared considering the drought broadly as a hydro-meteorological hazard using time series of rainfall and evapotranspiration data.



Map showing the severity of Drought in Sri Lanka

[Lightening Hazard Profile](#)

The Lightning Hazard Profile was prepared by the Department of Meteorology (DOM). The hazard profile developed under this study will provide information on the regions where lightning occurs frequently. Both monthly and annual lightning hazard maps show the behaviour of lightning activities in Sri Lanka. These maps offer more comprehensive information on lightning activities in an area or as district wise.



Map showing the Average Annual Thunder Frequency in Sri Lanka

[Development of the Vulnerability Profile](#)

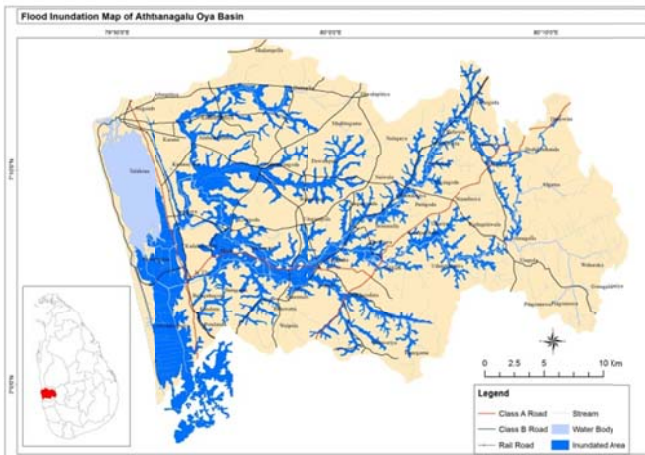
A draft methodology for vulnerability analysis was developed. It was shared with the experts of the Risk Profile working group for their comments. Several comments have been received to improve the methodology. DMC is presently working on finalizing the method with support from several experts.

[Watershed/Water Resource Health Assessment Manual for Upper Watershed of Kelani River](#)

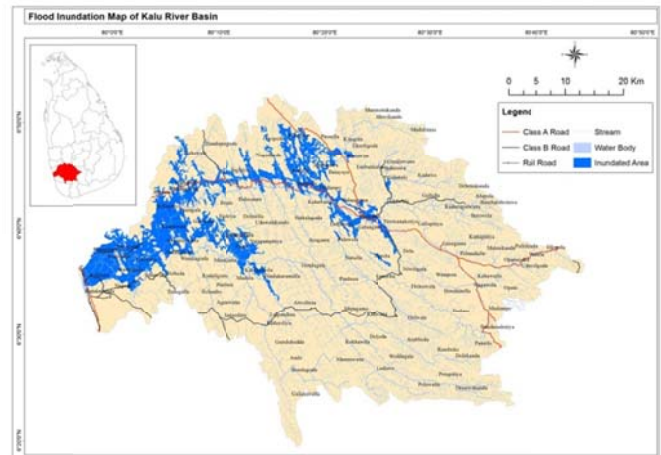
The National Building Research Organization (NBRO) developed the Water Quality Assessment Framework for the upper watershed of the Kelani River with the support of UNDP. This assessment was linked with development planning. Data on the watershed will be collected to learn about the relationships between watershed processes (anthropogenic and natural) and the water resource health (quality, and hydrology). This information could be used to derive planning measures to assure that the water resource health norms are met under all conditions.

Flood Hazard Profile

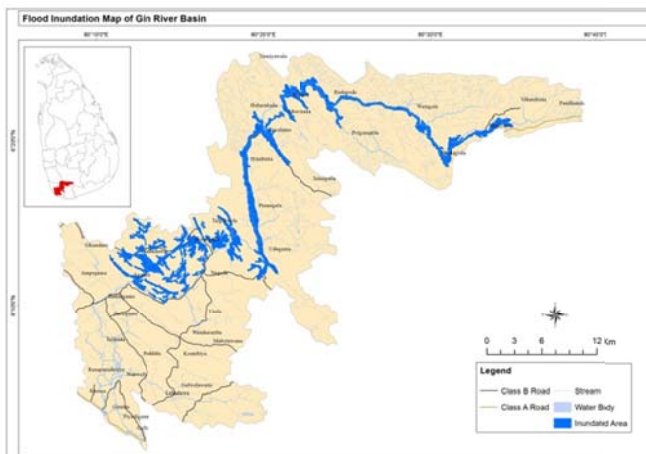
The Irrigation Department (ID) is mandated through the flood ordinance of the country to manage riverine floods in Sri Lanka, as a result the development of the hazard profile for flood was entrusted to ID. The methodology used in the study was the mapping of areas inundated by actual floods. The simulation of the inundation areas due to flooding using models were not performed. Hazard profile of floods includes hazard maps for selected river basins namely; Kelani, Kalu Ganga, Attanagalu Oya and Gin Ganga. The final report was developed based on the available database on the above basins and the historical data made available on www.desinventar.lk.



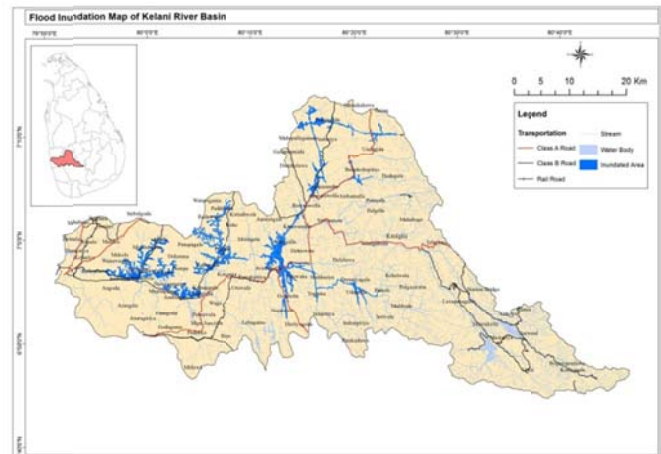
Map showing the Flood Inundation Map for the Attanagalu Oya River Basin



Map showing the Flood Inundation Map for the Kalu Ganga River Basin



Map showing the Flood Inundation Map for the Gin River Basin



Map showing the Flood Inundation Map for the Kelani River Basin

National Emergency Operation Plan

The National Emergency Operations Plan (NEOP) of Sri Lanka will be the next level of disaster response enhancement, supported by UNDP that clearly identifies roles and responsibilities of different agencies involved in the emergency operations. NEOP also includes communication mechanisms at national, sub national levels and among relevant organizations.

Having written the Standard Operating Procedures (SOP) though out a period of nearly one year on 23 hazards response agencies came together to conduct a live rehearsal, on November 5 and 6, 2012. The purpose of the rehearsal was to test the drafted system and identify the gaps & potential improvements. Agencies simulated their actions for disasters such as tsunami, floods, cyclone and landslides. In the process of development of the NEOP disaster management actors use as innovative web interfaces to upload, edit & share information (www.neop.gsa.lk) where most of the technical information is stored.



Rehearsal on the Standard Operating Procedures (SOPs) related to NEOP held on 5th & 6th November

As the next step the NEOP will be submitted to National Council of Disaster Management through the Ministry of Disaster Management. NEOP will be made operational, with adequate training though out the island as an integral part of the next phase of Disaster Management Programme that is being developed to cover the period 2013 to 2017.

Disasters covered under the NEOP

1. Aircraft crash
2. Air raids
3. Chemical accidents
4. Civil or internal strife
5. Coastal erosion
6. Cyclones
7. Dam breach
8. Droughts
9. Earthquakes
10. Epidemics
11. Explosions
12. Fire
13. Floods
14. Forest fire
15. Industrial disasters
16. Landslides
17. Lightning & Thunderstorms
18. Manmade disasters
19. Maritime hazards
20. Nuclear disasters
21. Oil spills
22. Radiological emergencies
23. Tsunami

Integrated Strategic Environment Assessment

Post conflict rapid development may induce pressure on natural resources and has the potential to make the development process unsustainable. Mainstreaming environmental sustainability and resilience requires a multi sector multi stakeholder approach to determine land use priorities and target investments.

ISEA, an advanced version of the Strategic Environmental Assessment (SEA) process has brought positive results in terms of awareness, synergy, partnerships among stakeholders resulting in joint analysis of data and agreements on plans.

Northern Province

The ISEA-North process provided necessary environment for agencies with different viewpoints and priorities to work together negotiate and resolve conflicts. During the process, numbers of strategic approaches were taken to improve the agency capacity. Capacities were built at district level as the planning officers were trained on Geographic Information System (GIS), to be able to use the developed product in their day to day planning work.

- A number of selected outputs of the ISEA - North was launched with the participation of the Hon. Minister for Economic Development and Chief Advisor to the H.E. the President on Northern Province Rehabilitation.
- The ISEA processed allowed more than 30 agencies to come together, share information and take part in land use prioritization. As a result priority areas for wildlife, ecotourism, forestry, mineral extraction etc. have been identified. A number of road traces and cities have been changed based on ISEA data.
- A number of sector reports and maps are available for the general public through the web site (www.isea.lk).
- ISEA resulted in a UN partnership between UNEP and UNDP too.
- H.E. the President of Sri Lanka endorsed the ISEA



process and requested similar work to be carried out in the remaining 8 provinces.

- The ISEA process not only brought the key development and conservation actors to be part of the work and also provided the enabling environment for training of national and sub-national level stakeholders of the use of data.

[Uva Province](#)

- Following up on the discussions held with the Chief Minister of Uva Province in 2011, ISEA has successfully been implemented in the Province.
- An Economic Promotional Department under the Uva Provincial Council has been established in the Badulla district to coordinate the ISEA process and assist the implementation of the recommendations.
- Stakeholder consultations have been conducted and data collection is in the final stages. Most of the studies undertaken have been completed.
- Satellite images were purchased and used to prepare the land use of the province required for the ISEA process.
- The reports and other information related to this ISEA are available at www.isea.lk web site.



Hazard Profile & ISEA Website Launch at the National Safety Day 2012

[Gampaha District](#)

Data collection process is at the final stages in the Gampaha district ISEA. Stakeholder meetings were conducted and most of the stakeholders have responded positively to the process. Most of the studies undertaken have been completed. The reports and other information related to this ISEA are available at www.isea.lk web site.

Ensuring Disaster Resistant Housing and Other Critical Infrastructure

The Technical Advisory Committee was formed under the Ministry of Disaster Management and Disaster Management Centre to develop building guidelines for disaster resilient constructions in hazard prone areas. Chaired by Prof. Priyan Dias from University of Peradeniya, eminent professionals in the construction sector were invited and met regularly to discuss and develop the guidelines. Several training programmes were carried out in the hazard prone areas in the Northern and Eastern Provinces



A house destroyed by a cyclone

The publication of “How to make your house safe for natural disasters” is a significant achievement of the committee in the year 2012. The guidebook is available in all three languages and shared among the technical officers training sessions that are organized by DMC to raise awareness on disaster resilient construction techniques.

The scope of work of the TAC was expanded since 2011 and also in 2012. Two subcommittees were formed under TAC:

- Subcommittee to develop building guidelines for Earthquake
- Subcommittee to develop construction guidelines for disaster resilient roads



Housing construction taking place with integration of building guidelines



The Publication – How to Make Your House Safe from Natural Disasters

Mitigating the Impact of Agricultural Drought in a Changing Climate in Sri Lanka

The drought adaptation model which has been implemented by Department of Agrarian Development together with DMC was successfully completed. The main activity of the project was to complete rehabilitation of Kindilliya tank which was abandoned. The distribution of lands for farmers was carried out and the rehabilitation of adjacent tank to Kindilliya called Idikolayaya is being implemented by Department of Agrarian Development using the government allocation for tank rehabilitation. This will be a value addition for the project implemented to rehabilitate the Kindilliya tank.



The Kindilliya Tank



Farmers and community leaders meeting UNDP and DMC staff in the vicinity of the tank.

Supplementary Reading Materials

The DMC in collaboration with the National Institute of Education supported by UNDP and in consultation with the relevant technical organizations namely; Department of Meteorology, Irrigation Department, Geological Survey and Mines Bureau, Health Education Bureau (Colombo National Hospital), National Building Research Organizations and the Natural Resources Management Centre of the Department of Agriculture completed the development of supplementary reading materials for schools.

The supplementary reading materials were written on the topics related to disaster management such as earthquakes, cyclones, floods, lightning, first aid, landslides and tsunami. Books were written in the Sinhala language and translated to Tamil and English languages respectively. The books have been approved by the Academic Affairs Board and were launched at the National Safety Day on 26 December 2010. The books were presented to HE Mahinda Rajapaksa, the President, Prime Minister and the Ministers who were highly appreciative of the effort.

Following up on the discussion between the two Secretaries to the Ministry of Education and the Ministry of Disaster Management it was proposed to produce supplementary books for school children targeting: Grade 6 to 11. NIE agreed to lead the process of developing supplementary reading materials in consultation with the Disaster Management Centre, UNDP and with the inputs from relevant technical organizations mentioned above. The English translations of the supplementary reading materials are in progress and will be shared with the SAARC countries for wider usage.



Supplementary reading materials on Disaster Risk Management

Symposium on Disaster Risk Reduction

The fourth National Symposium on Disaster Risk Reduction (DRR) organized by the Disaster Management Centre (DMC) of the Ministry of Disaster Management in collaboration with the United Nations Development Programme (UNDP) was held on the 15th & 16th, November 2012 at the Auditorium of the Ministry of Disaster Management.

During the past few years the DMC has initiated a number of DRR interventions that could be incorporated into the rapid development of Sri Lanka. These interventions include Development of National Hazard Profiles, Integrated Strategic Environmental Assessment, and Development of Guidelines for Planning and Construction of Disaster Resilient Buildings etc. These tools have paved the path for mainstreaming DRR into on-going development interventions in the country.

This year's symposium was significant as it involved promoting and strengthening the partnership with the Ministry of Education focusing on promoting research and integrating DRR into the national curriculum, on how to make cities safe, the disasters that could take place in Sri Lanka, the risk insurance policy system, disasters taking place in schools and informing schools on safety measures to be adopted during a disaster.



An entertainment item displayed by kids from a school in Vavuniya on Disaster management

The Panel of experts presented the current situation, future trends and best practices under each theme with discussions taking place on Risk Transfer Mechanisms, Emerging Disasters in Sri Lanka and how to make safer cities.

Recommendations included the expansion of the hazard vulnerability and risk mapping from an urban level to village level, encouraging partnerships with the insurance sector to develop risk insurance for infrastructural establishments and reducing the vulnerability of schools and raising awareness amongst school children on disaster risk reduction.

Strengthening the implementation of the building codes into development planning and the undertaking of development projects to be based on risk assessments was recommended among the practitioners.



Head Table at the Symposium comprising the Hon. Minister and other dignitaries

Project: “Strategic Support to Operationalize the Road Map Towards A Safer Sri Lanka”

Funded By: United Nations Bureau for Crisis Prevention and Recovery (UNBCPR)

Key Activity	Physical Progress	Remarks
1. Development of Hazard Profiles for Sri Lanka	Development of the National Hazard Profile has been Completed.	The final report launch is pending and planned to be completed in 2013.
2. National Emergency Operations Plan (NEOP)	The National Emergency Operations Plan (NEOP) has been finalized. As the next step the NEOP will be submitted to the National Council of Disaster Management through the Ministry of Disaster Management.	Balance payment to the consultant to be done in Year 2013.
3 a. Integrated Strategic Environmental Assessment	01. Northern Province: Study completed 02. Uva Province: Majority of the Studies Completed 03. Gampaha District : All studies completed	01. Printing of final report is pending. 02. Study on ground water availability to be completed and final report planned to be completed by mid-2013. 03. Study on floods is to be completed by mid-2013. Final report is pending.
3 b. Review of development controls, building codes and building guidelines	01. Earthquake Study: Development of building guidelines for Earthquake resistant buildings is in progress. 02. Disaster Resilient Road construction Study: Agency consultations completed	01. Three studies undertaken by Colombo and Peradeniya Universities and the National Building Research Organization scheduled to be completed by mid-2013. 02. Final Report scheduled to be completed by mid-2013. Note: Printing of above guidelines to be completed in 2013.
4. Climate Risk Management at the community level	Community based drought adaptation model in Kindiliya was undertaken	Activity completed fully in 2012.
5. Promotion of Disaster Risk Reduction as a subject of study in research institutions and schools	01. Development and printing of Supplementary Reading Materials for schools children is completed 02. 04 th National Symposium on Disaster Risk Reduction was held in 2012.	All activities completed in 2012.