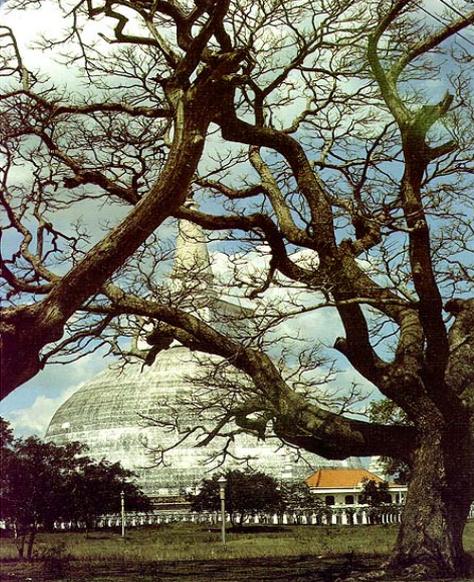




Overview



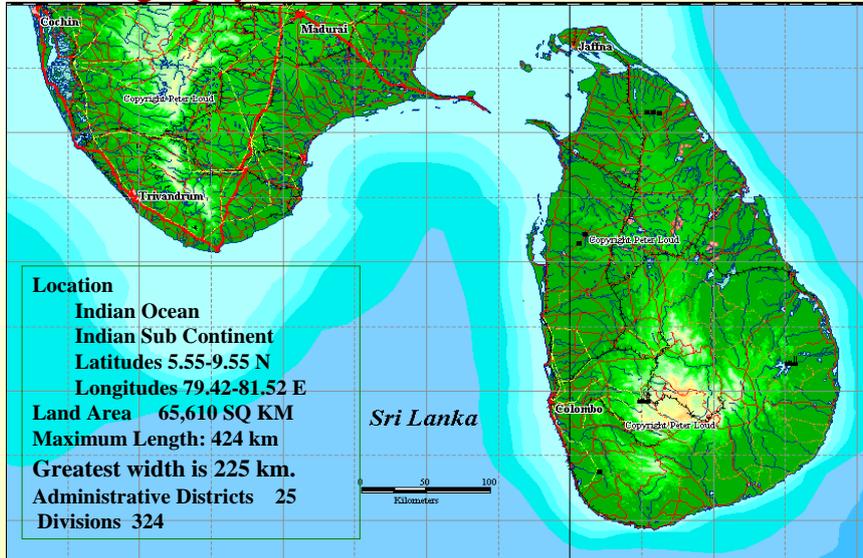
- **About Sri Lanka.**
- **Natural Disasters in Sri Lanka.**
- **Recent Natural Disasters in Sri Lanka**
- **Disaster risk management in Sri Lanka.**
- **Counter measures & International Commitment.**
- **Objectives of Visiting Research and expected Outputs**



Democratic Socialist republic of Sri Lanka



Geography



Back ground Information



| | |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Head of State | : His Excellency the President Hon. Mahinda Rajapaksha |
| Head of Parliament | : Prime Minister Ratnasiri Wickramanayaka |
| Capital | : Colombo |
| Population | : 19.9 Millions(2005) |
| Language | : Sinhalese, Tamil |
| Religion | : Buddhism |
| Member of | : ADB, C, CCC, CP, ESCAP, FAO, G-24, G-77, IAEA, IBRD, ICAO, ICC, ICFTU, ICRM, IDA, IFAD, IFC, IFRCS, IHO, ILO, IMF, IMO, Inmarsat, Intelsat, Interpol, IOC, IOM, ISO, ITU, NAM, OAS (observer), OPCW, PCA, SAARC, UN, UNCTAD, UNESCO, UNIDO, UNTAET, UNU, UPU, WCL, WFTU, WHO, WIPO, WMO, WTrO |
| Currency | : Rupees (Rs.100 = 1.00 US\$) |
| GNP | : Rs.1,737bn US\$ 18 bn(2004) at current market prices |
| Major Industries | : Textiles and Garments ,Gem Cutting, Food Processing, Handy craft. |



Village Life of Sri Lanka

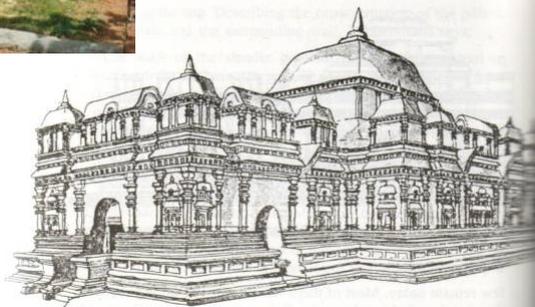


Ancient Heritage of Sri Lanka



Ruins of Vatadha Geya - Polonnaruwa

2000 Years Ago- Sketch of Vatadha Geya





Demographics



- Population of 19.8 million,
- 75% are Sinhalese,
- Female 51.8%, Male 48.2% Rural Population – 78.9%
- Average annual population growth rate of 1.3%
- Life Expectancy- 72.8
- Labour Force Participation Rate (percent) -48.6%
- Un Employment – 8.6%

Department of Statistics and Census



Climate of Country



- Tropical monsoonal climate.
- South west monsoon and North east monsoon
- Average annual rainfall is 1836 mm.
- Clearly Demarcated Three Zones.
 - Wet Zone: >2200 mm
 - Intermediate Zone: 2000 > 2200 mm
 - Dry Zone: <2000 mm
- average temperature 25-28 Degrees C.

Evening

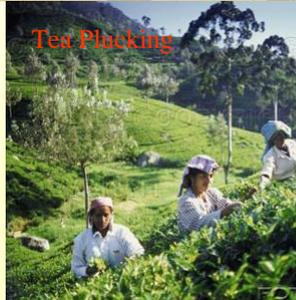




Sri Lanka Economy



- ✦ **Main Exports: Tea, Rubber, Coconut Garments, Gems & Minor Crops**
- ✦ **Major Imports: Transport Machinery, Foods, Electronic Items, etc.**
- ✦ **Tourism and foreign Employment Play major role in Economy**



Economic Targets of 2010



- ✦ **8% Growth in GDP by 2010**
- ✦ **An Increase of in domestic savings from 17.3 percentile to 32% of GDP by 2010.**
- ✦ **An Increase of investment from 28% of GDP to 35% by 2010.**
- ✦ **An increase of exports 39.1 % to 50.8 of GDP by 2010.**



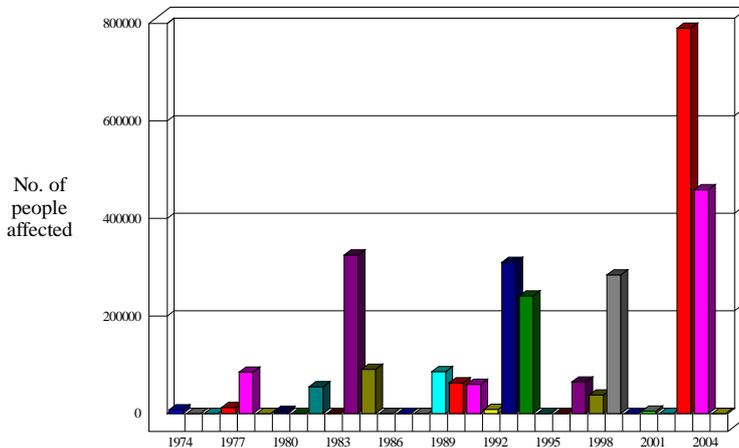
 *Main Natural Disasters* 

- ◆ Flood
- ◆ Land slides
- ◆ Cyclone
- ◆ Drought
- ◆ Sea erosion
- ◆ Tsunami (Rare)





No. of Peoples Affected Due To Floods from 1974-2004



Source: DisInventar-NDMC



Rivers vulnerable to floods



Sri Lanka has 103 Rivers but only 10 are vulnerable to floods.

Main rivers Vulnerable to flood are.

1. Kalu Ganga
2. Kelani Ganga
3. Nilwala Ganga
4. Gin Ganga
5. Mahaweli Ganga





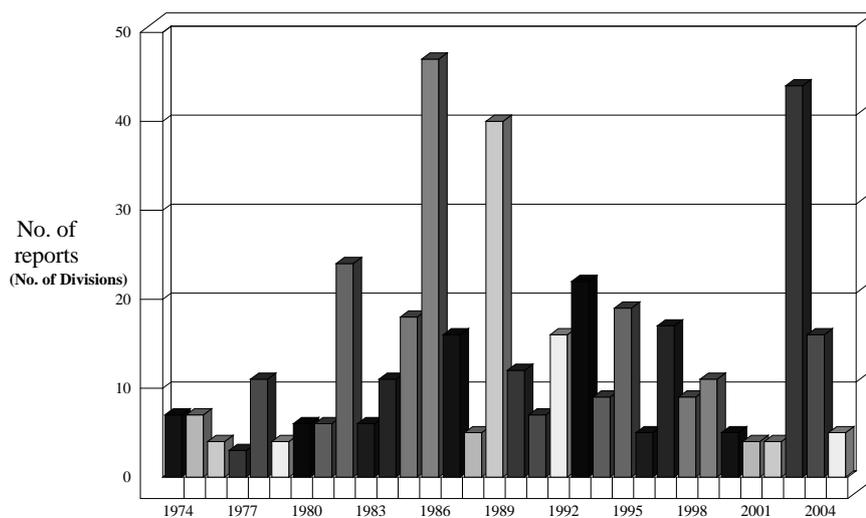
Landslides



- ✦ Heavy rains , geological changes and indiscriminate clearance of steep slopes increased the occurrences of landslides in **Central and South Western regions** of the Island.
- ✦ Out of 25 Districts of Sri Lanka 9 Districts are vulnerable to Land slides, (Specially Ratnapura, Kegalle, and Matara)
- ✦ The landslides of January 1986, May and June 1989 and May 2003 surpassed all previous landslides in recent memory,



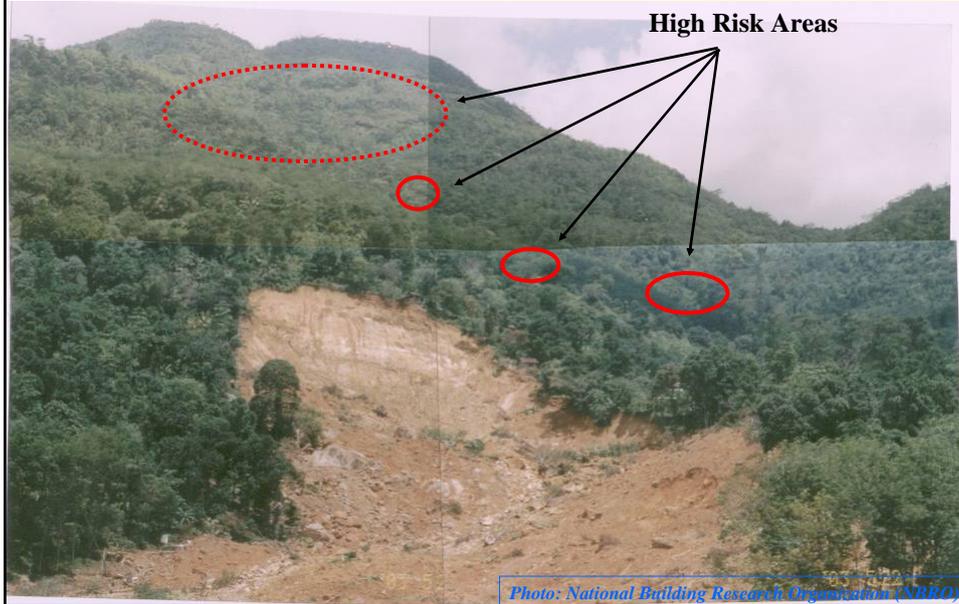
No. of Reported cases of Land slides from 1974-2004



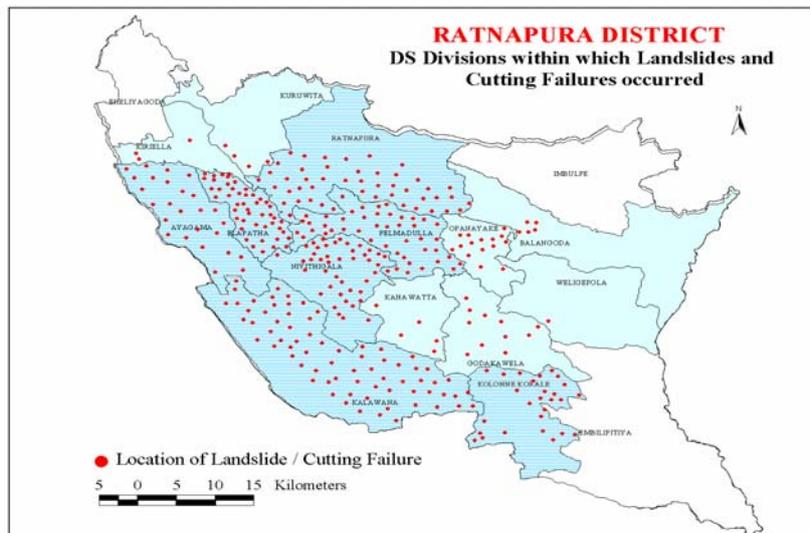
Source: DisInventar-NDMC



Recent Landslides At Ratnapura (Palawela)



Landslides con.d



Source: National Building Research Organization (NBRO)



Droughts of Sri Lanka

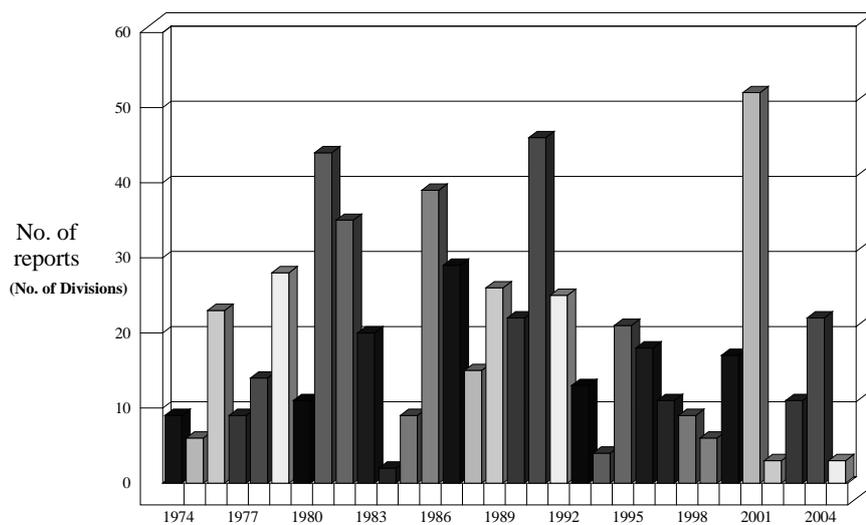


2/3 rd of the country is under the Dry Zone, so that vulnerable to Droughts as

- ✦ Local Significant Drought: Every Year
- ✦ Regional Significant Drought: Every 2 to 3 years.
- ✦ National level Drought: Every 10 to 15 years.



No. of Reported cases of Droughts from 1974-2004



Source: DisInventar-NDMC



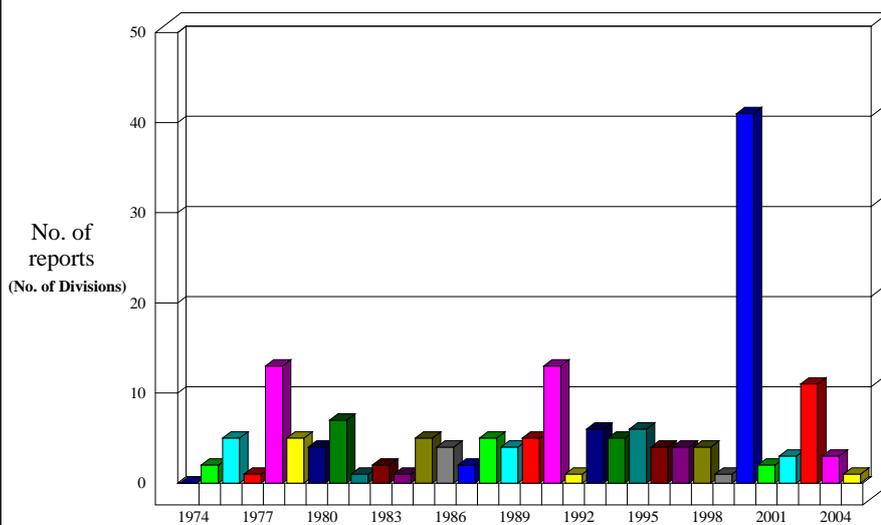
Cyclones



- ✦ A large number of cyclonic disturbances had either formed or passed close to Sri Lanka, only 35 cyclonic storms/cyclone had crossed the coasts during the period 1881 - 2001
- ✦ 26 cyclonic storms/cyclones had crossed the coast in November and December. Therefore in Sri Lanka November/December is recorded as the **cyclone season**.



No. of Reported cases of Strong Wind from 1974-2004



Source: DisInventar-NDMC



Tracks of Cyclones and Storms (1901-2000)



Sea Erosion of Sri Lanka



- ✿ Length – 1620 km including shoreline bays
- ✿ Coastal erosion – along 340 km of Coastline The most critically affected areas are those between Kalpitiya in the Northwest and Matara in the South.
- ✿ Coastal zone supports
 - 34% of Population and 24% of land area of the country
- ✿ 3 Major commercial ports located
 - Colombo
 - Galle
 - Trincomalee



VARIATION OF SEA LEVEL



Source:WMO-IPCC

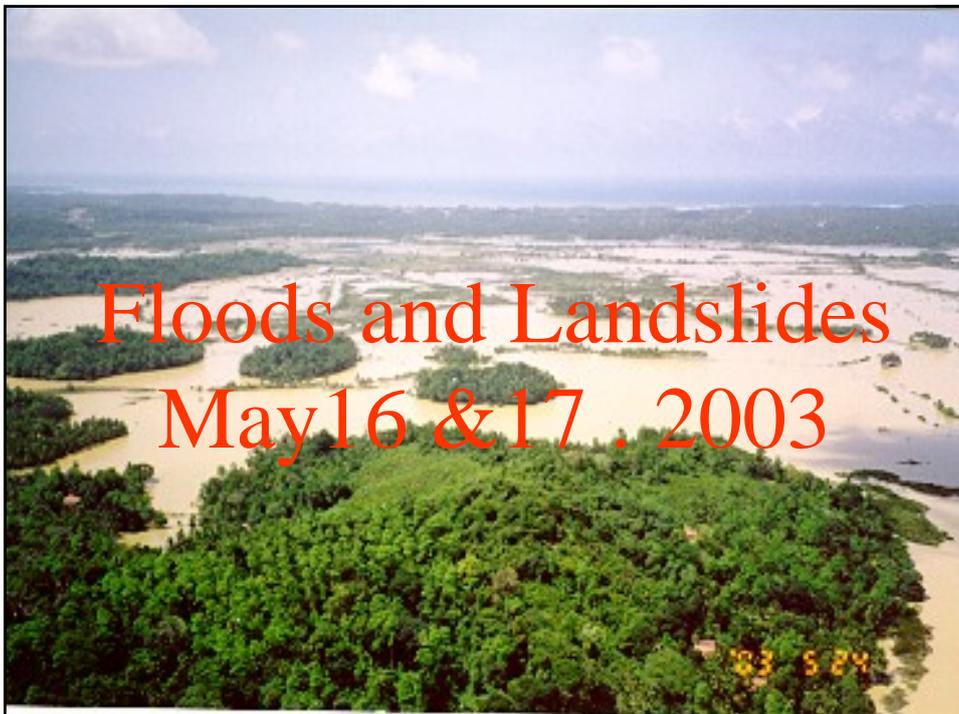


Tsunami

- ✦ Tsunami is a very rare disaster of Sri Lanka but
- ✦ 2000 years ago Sri Lanka had one documented evidence of Tsunami disaster hit to the western coast of Sri Lanka. It was the Era of king Kelanithissa. At that time the sea eroded the land of 12 km from coast to inland (Mahawansa)
- ✦ Again historic and a well documented tsunami incident that hit Sri Lanka on 27th August 1883 was not widely known.
- ✦ The 26 December 2004 Tsunami tragedy.



Recent Natural Disasters of Sri Lanka





Flood 2003 Districts at a glance



As at 06th October, 2003

| District | Affected Families | Deaths | Missing | Damaged Houses | |
|--------------------|-------------------|------------|-----------|----------------|--------------|
| | | | | Fully | Partly |
| Hambantota | 2241 | 21 | | 585 | 649 |
| Kalutara | 24555 | 11 | | 944 | 2330 |
| Galle | 28173 | 16 | | 1533 | 4037 |
| Matara | 47642 | 64 | 17 | 2145 | 7201 |
| Ratnapura | 34478 | 122 | | 3668 | 9531 |
| Nuwara Eliya | 132 | 1 | | 360 | 255 |
| | | | | | |
| Grand Total | 137221 | 235 | 17 | 9235 | 24003 |

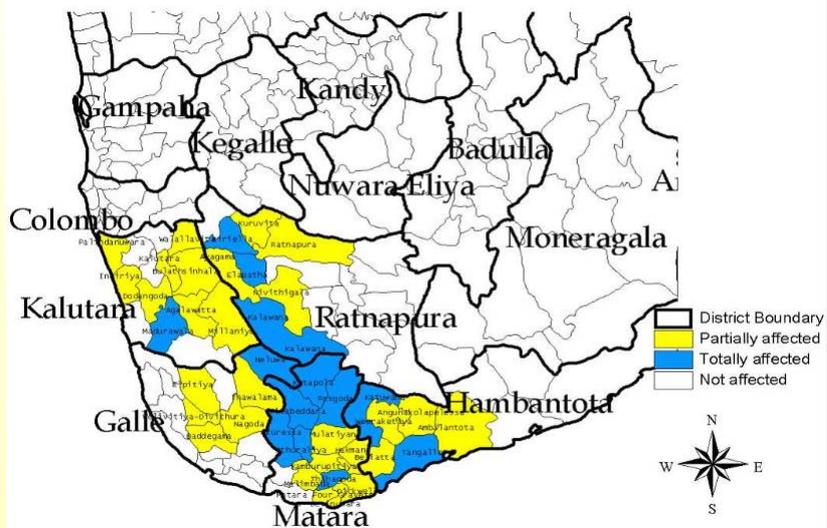
National Disaster Management centre. (NDMC)



Areas Affected



D.S. Divisions Affected by Floods : May 2003





Plan of Action



| Activity | By | Between |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1 Identification of affected families | District Secretary | 01 - 10 July |
| 2 Identification of Lands | District Secretary | 01 - 10 July |
| 3 Recommendation of NBRO/Irrigation | NBRO / Irrigation | 03 - 19 July |
| 4 Awareness Creation Programme | National Disaster Mng. Centre, of the Ministry of Social Welfare University of Moratuwa Sri Lanka Ins. Of Architecture | 10 - 20 July |
| 5 Finalization of plans types & cost of Houses | Sri Lanka Ins. Of Architecture Sri Lanka Ins. Of Town Planning NHDA | 19 - 24 July |
| 6 Construction of Houses | Dept. of Social Services of the Ministry of Social Welfare District Secretary NHDA | 20 July to 15 October |



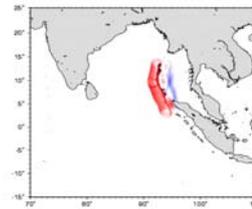


Tsunami 26th December 2004



December 26, 2004 Massive earthquakes of magnitudes ranging from 8.6 to 9 that have occurred in Sumatra (Indonesia) and Nicobar region (India) have caused tsunamis (tidal waves).

- These waves hit the Eastern, Northern, Southern and Western coast of Sri Lanka on 26th December 2004.
- This has caused extensive damage to life and property in those areas.



National Disaster Management Center



Situation Report



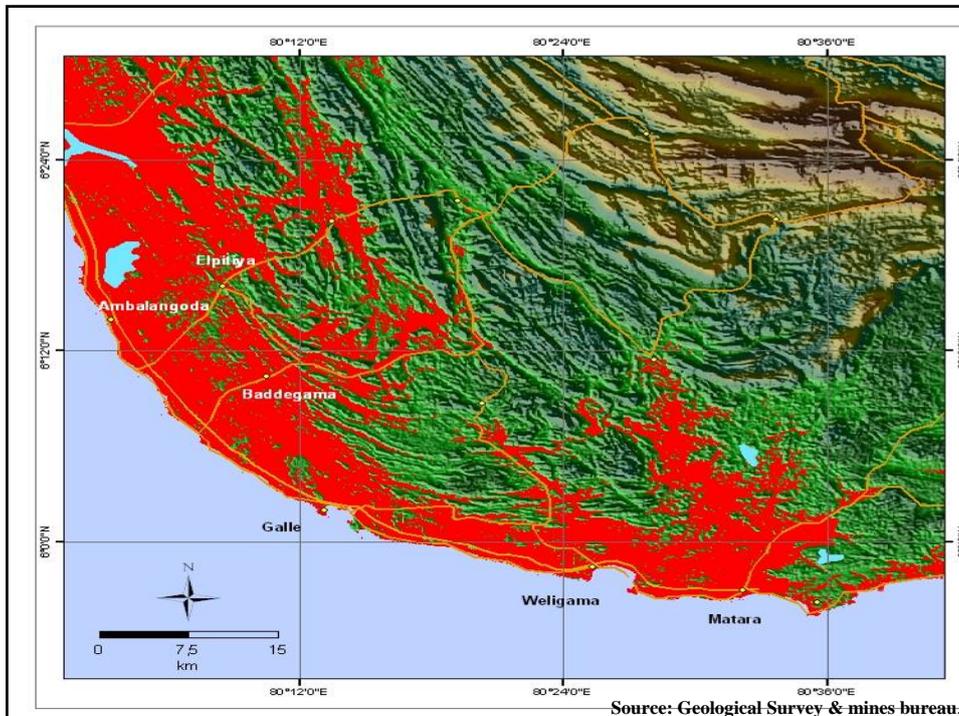
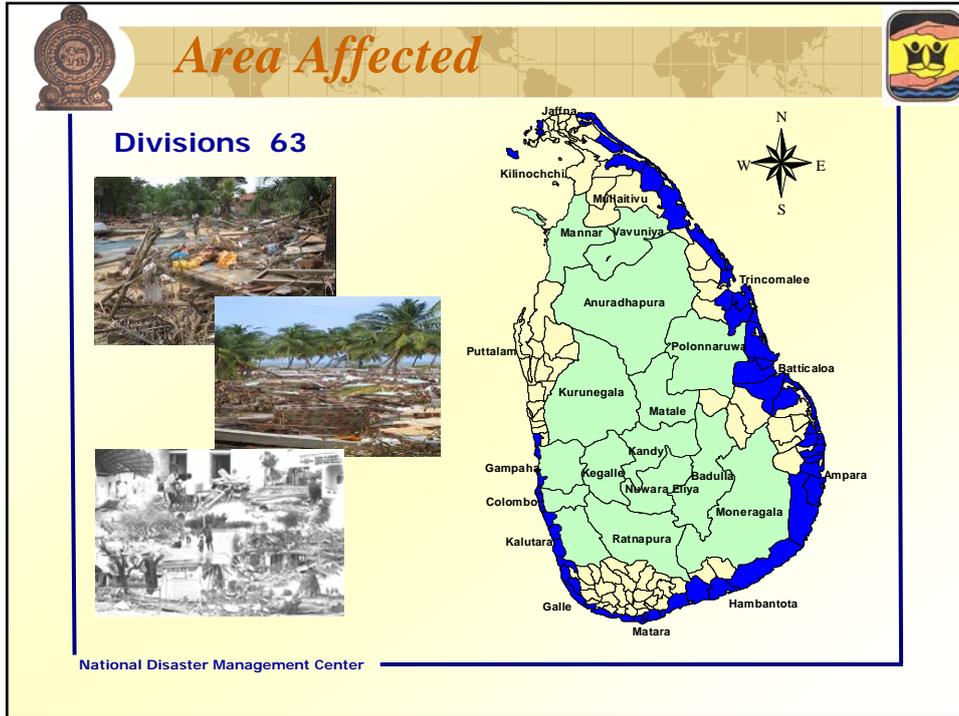
Comparison of Situation between Districts, Tsunami Disaster, Sri Lanka Update: 18/02/05 15.00 hrs



| Province | District | Affected Families | Displaced Families | Displaced Persons | | | Deaths | Injured | Missing | Damaged Houses | | No. of Camps |
|---------------|--------------|-------------------|--------------------|--------------------|----------------------------|---------------|---------------|---------------|--------------|----------------|---------------|--------------|
| | | | | In Welfare Centers | With Relatives and Friends | Total | | | | Completely | Partial | |
| Northern | Jaffna | 14767 | 10,827 | 7,625 | 33,381 | 40,006 | 2,640 | 1,647 | 540 | 6,084 | 1,114 | 12 |
| | Killinochchi | 2,297 | 407 | 0 | 1,603 | 1,603 | 560 | 670 | 0 | 246 | - | 0 |
| | Mullaitivu | 6745 | 6,007 | 11,993 | 10,564 | 22,557 | 3,000 | 2,590 | 421 | 5,033 | 424 | 23 |
| Eastern | Trincomalee | 30,545 | 30,545 | 14,853 | 69,208 | 84,061 | 1,078 | 1,328 | 45 | 4,830 | 3,835 | 34 |
| | Batticaloa | 63,717 | 12,494 | 22,002 | 35,047 | 57,049 | 2,975 | 2,375 | 346 | 13,630 | 5,839 | 36 |
| | Ampara | 58,729 | 38,866 | 24,179 | 81,648 | 105,827 | 10,436 | 8,581 | 161 | 18,886 | 8,851 | 55 |
| Southern | Hambantota | 14,069 | 3,334 | 1,803 | 45,195 | 46,998 | 4,500 | 434 | 1,341 | 2,303 | 1,744 | 11 |
| | Matara | 19,398 | 2,235 | 2,613 | 6,405 | 9,018 | 1,342 | 8,652 | 612 | 2,362 | 5,659 | 22 |
| | Galle | 24,563 | 23,278 | 2,761 | 119,427 | 122,188 | 4,246 | 313 | 527 | 7032 | 7,880 | 26 |
| Western | Kalutara | 9,433 | 7,059 | 2,438 | 32,509 | 34,947 | 279 | 401 | 69 | 2,683 | 3,835 | 12 |
| | Colombo | 9,647 | 8,140 | 5,555 | 29,160 | 34,715 | 79 | 64 | 12 | 3,338 | 2,210 | 28 |
| | Gampaha | 6,827 | 308 | 876 | 573 | 1,449 | 6 | 3 | 5 | 278 | 414 | 2 |
| North Western | Puttalam | 232 | 18 | 66 | - | 66 | 4 | 1 | 3 | 23 | 72 | 2 |
| Total | | 260,991 | 143,518 | 96,764 | 484,720 | 561484 | 31,147 | 23,059 | 4,082 | 66,678 | 41,477 | 263 |

Source: Ministry of Social Welfare 18-02-2005

www.cnosrilanka.org
 UNITED NATIONS OFFICE
 OF THE HIGH COMMISSIONER
 FOR HUMAN RIGHTS
 CNDR





Estimated losses.



- ✿ **Education Sector:**
Rs.1131.25 million
- ✿ **Fisheries Sector:**
Rs. 19600 million
- ✿ **Tourism:**
Rs.1960 million
- ✿ **Health Sector:**
Rs.6757 million
- ✿ **Railways:**
Rs.7620 million



A express train from Colombo was hit by the tsunami wave at 9.35a.m. at Telwatta in Southern Sri Lanka. With 1500 people on board, only 200 survived. Villagers who were trying to escape were blocked by the train. More than 500 bodies found.

Government Response to the Disaster

Government of Sri Lanka established three main task forces On the 28th December 2004;

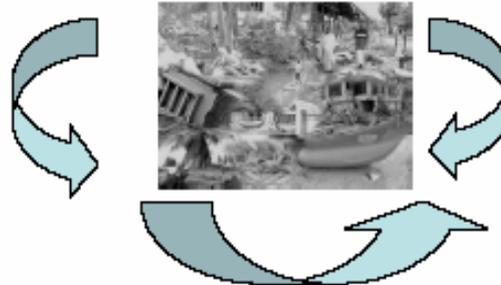
- | | |
|------------------------------------------|--------|
| 1. Task Force for Rescue and Relief | TAFRER |
| 2. Task force for Rebuild the Nation | TAFREN |
| 3. Task force for Logistic Law and Order | TAFLOL |

Operational Structure

TAFRER – Emergency Rescue and Relief



**TAFREN
Rebuild the
Nation**



**TAFLOL
Logistics,
Law and
Order**

Strategy - Phases of Development



Phase 1 Humanitarian- Rescue & Relief (TAFRER) - CNO

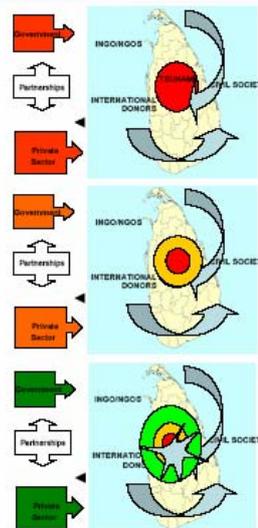
To coordinate and facilitate relief measures to mitigate after effects of the crisis. All vulnerable groups and key sectors were addressed in cooperation with the government, private, international and civil society.

Phase 2 Rehabilitation/Reconstruction

Task force to rebuild the nation (TAFREN) has initiated work on reconstruction plans. www.tafren.gov.lk

Phase 3 Sustainable Economic Development

With the successful completion of phase 1, and 2, the overall objective of the government was to ensure sustainable economic development with special focus on linkages between macro and micro sectors. The corporate sector, donors and civil society - and all partners contributed to rebuilding Sri Lanka based on their comparative and competitive advantages.





Current Disaster Management Situation of Sri Lanka



Current situation of DM in Sri Lanka



By The extra ordinary gazette notification on 8th Dec. 2005 His Excellency the President Mahinda Rajapaksha formed Two Ministries to Disaster Management.

- Ministry Of Disaster Management.
- Ministry Of Disaster Relief Services.



Agencies and Functions allocated to Ministry of Disaster Management



Agency: National Disaster Management Council.

Functions:

- Coordinating and management of relief activities pertaining to natural and man made disasters.
- Coordinating awareness programmes on natural disasters.
- Early warning systems.
- Administration of Sri Lanka Disaster Management act No. 13 of 2005.



Agencies and Functions allocated to Ministry of Disaster Relief services.



Agencies:

- National Disaster Management Centre.
- Emergency Relief unit.

Functions:

- Formulation and Implementation of projects and programmes to provide emergency relief to the affected parties in disaster situations.
- Implementation of rescue operations under natural and man made Disasters.
- Coordination with relevant authorities to provide relief facilities to the affected parties.
- Formulation and Implementation of programmes to restore normal life and livelihood of people affected by natural and man made disasters.



Early warning Systems of Sri Lanka



Responsible organizations



- ✦ Meteorological Department has a responsibility of early warning for Tsunami, Flood , Cyclones and other geologically induced Disasters with collaboration of Irrigation Department, Geological survey Department ,NDMC and other relevant Organizations.
- ✦ Around Clock Warning centre functioning at Meteorological Department.
- ✦ Yet we have not properly organized and developed early warning systems for all natural Disasters.



Proposed Disaster Management System For Sri Lanka



Legal System:

- ✦ **Sri Lanka Disaster management act No. 13. (Already Passed by parliament on 13th may 2005)**
- ✦ **According to act formed,**
 - National council for Disaster Management.
(NCDM)
 - Disaster Management Centre (DMC)
 - Technical Advisory committees.



Members Of National Council for DM



**His Excellency The President:
Chairmen**

**Hon. Prime minister: Vice chairmen
Leader of The Opposition.**

**The ministers in charge of the
following subjects:**

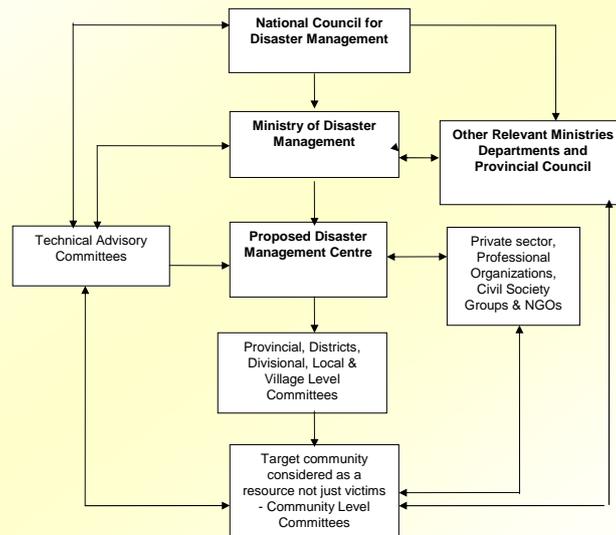
- (i) Social Welfare
- (ii) Rehabilitation and Reconstruction
- (iii) Environment,
- (iv) Home affairs,
- (v) Health
- (vi) Science and Technology
- (vii) Housing
- (viii) Coast Conservation
- (ix) Irrigation
- (x) Power
- (xi) Defense
- (xii) Police

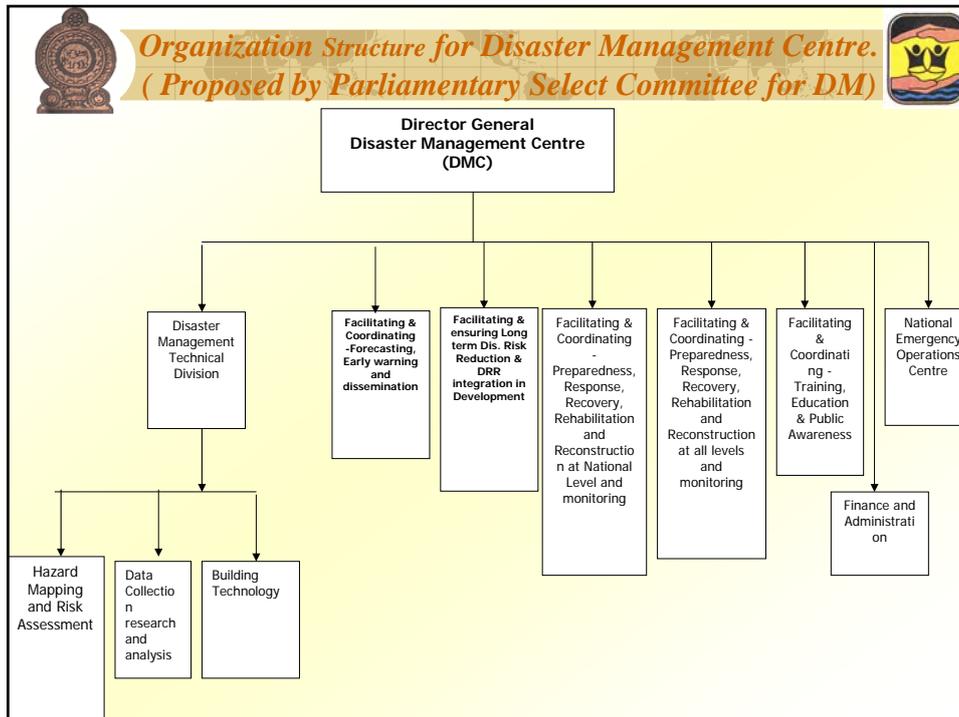
- (xiii) Finance
- (xiv) Land
- (xv) Fisheries and aquatic resources
- (xvi) Foreign affairs
- (xvii) Water supply
- (xviii) Highways
- (xix) Urban Development
- (xx) Education

**The chief ministers of every
provincial council
Secretary To the Council.
Five members of opposition.**



Institutional Framework for National Disaster Management (Proposed by Parliamentary Select Committee for DM)





- Main Functions of the National Council for Disaster management (NCDM)**
- Formulate: A National Policy
 - Prepare, formulate, Monitor and implement:
 - National Disaster Management Plan
 - Emergency Operation Plan
 - Facilitate:
 - Emergency response, recovery, relief, Rehabilitation and reconstruction
 - Direct, coordinate and monitor :
 - The Disaster Management Centre
 - Specify Guidelines:
 - To prepare of Disaster Management Plan by every ministry, government department and public corporations.
 - Promote: public awareness campaigns
 - Assign :Functions and responsibilities to the DMC



Main Functions of DMC



- ✦ **Assisting to Council to Prepare & Implement:**
National Disaster Management Plan (NDMP)
Emergency Operation Plan
- ✦ **Ensure :**
Preparation of Disaster Management
Plans by ministries, departments and
public corporations
- ✦ **Facilitate and support:**
local and community self reliance
- ✦ **prepare and implement programmes:**
For preparedness, mitigation, prevention, relief,
rehabilitation and reconstruction



Counter measures and International commitment for Disaster Reduction In Sri Lanka





Coordination with International Organizations (IO) on Capability and Capacity Building



**Asian Disaster Reduction Center
(ADRC)**

**Asian Disaster Preparedness Center
(ADPC)**



Coordination with UN Agencies and IO s on capacity and Capability Building Activity



- ✦ **WFP, UNDP, UNICEF, WHO, WMO and FAO**
- ✦ **European Commission Humanitarian Office (ECHO)**
- ✦ **Office for the Coordination of Humanitarian Affairs (OCHA)**
- ✦ **International Federation of Red Cross and Red Crescent Societies (IFRC)**



Counter Measures-Flood Mitigation



- ✦ Flood protection Bunds for Kelani Ganga. 1935-1945
- ✦ Gin Ganga Flood Protection Scheme-1975 (Funded by China)
- ✦ Nilwala Flood Protection scheme-1993
- ✦ Kelani Ganga Flood protection Study & Flood forecasting System -2000(DANIDA Project)



- ✦ Land slide Hazard Mapping (LHMP) Project – GOSL/NBRO/UNCHS
- ✦ Transition Recovery Support to Flood and Landslides Disasters in Sri Lanka 2003 . (NDMC & UNDP)
- ✦ Drought Mitigation: Rain Water Harvesting Project in Monaragala and Hambantota Districts (NDMC & ITDG).
- ✦ Disaster Risk Information Management – DisInventar system (NDMC & UNDP).
- ✦ Sri Lanka Urban Multi-hazard Disaster Mitigation Project (SLUMDMP)- CHPB & Asian Urban Disaster Mitigation Programme (AUDMP).





Current needs



Disaster Management and Preparedness

- ◆ Establishment of multidisciplinary national disaster operation center. Including training of core staff, equipment to improve communication and information management.
- ◆ Geographic Information System to determine priority areas for disaster mitigation and preparedness and create hazard maps upgrading disaster preparedness at village, divisional, district and national levels.

National Disaster Management Center



- ◆ Development of Disaster Information Management System.
- ◆ Stock filing and providing equipments
- ◆ Establishment of a National Emergency Response capacity.
- ◆ Enhancement of Training and educating.
- ◆ Strengthening international and regional cooperation.
- ◆ Establishment of an Early Warning System.

National Disaster Management Center



Objective of the Visiting Research and Expected Outputs



- Research on the facts leading to Natural disasters with special reference to Tsunami, earthquakes, floods, droughts, landslides etc. and studying the counter measures taken in Japan and studying how it could be applied to Sri Lanka.
- The awareness programmes on Disaster preparedness, emergency drills etc. to general public, school children, Community leaders and develop systems to improve the local system in comparison with Japan.
- The systems to be adapted for prevention, preparedness arresting emergency hazards giving with special attention to early warning systems for Natural disasters. and study planning of education, and training on Disaster reduction.
- Studying how the International Cooperation works disaster prevention, mitigation, and preparedness at central and local administrative levels.

Thank you for listening

G M J K Gunawardana.
Asst. Director
(Visiting Researcher ADRC 2006)
National Disaster Management Centre.
Ministry Of Disaster Relief Services
Sri Lanka

National Disaster Management Center