HISTORICAL DISASTER INFORMATION SYSTEM IN SRI LANKA

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PRELIMINARY ANALYSIS

June 2007

Disaster Management Centre
Ministry of Disaster Management and Human Rights

Historical Disaster Information System in Sri Lanka

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Preliminary Analysis

Released on the Occasion of the Launch of the Historical Disaster Information System

June 2007

Disaster Management Centre
Ministry of Disaster Management and Human Rights

In Partnership with

United Nations Development Programme, Sri Lanka
United Nations Development Programme, Regional Centre, Bangkok

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Introductory Note

The Disaster Management Centre (DMC) within the Ministry of Disaster Management and Human Rights (M/DM&HR) with technical and financial support from the Disaster Risk Management (DRM) Program of the United Nations Development Program (UNDP) and the UNDP Regional Centre in Bangkok has initiated the development of a historical disaster inventory system for Sri Lanka.

In establishing the system, information of past disaster events has been collected for the period 1974 – 2007. The two sources of data include the media and Government reports. Data was collected from two newspapers, the Daily News and Dinamina in the initial stage and the first round of data collection from media sources was completed in September 2005. The information was collected on disaster impacts at the Divisional level.

The first stakeholder consultation and software training workshop was held in October 2006. The workshop was held to enable the sharing of progress on the development of the database, findings of the preliminary analysis on disaster trends and impacts, and finally to agree on the strategy for institutionalization of the system in the Island.

The feedback received from the participants at the stakeholder workshop resulted in the second phase of data collection and validation, which began in December 2006 at national level and at sub national levels. Given the limitations of relying solely on media sources for the collection of historical data, it was felt that the existing data (collected from media sources) had to be cross checked and validated with reports from Government sources. The following agencies were involved in the national level data validation and additional data collection process which was completed in April 2007:

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

In the mean time, validation of existing data and collection of additional data commenced in nine Districts (Colombo, Gampaha, Kalutara, Puttalam, Rathnapura, Matara, Galle, Hambantota and Kandy) with the assistance of District and Divisional officials. The process was completed in May 2007.

This report represents the overall country wide preliminary analysis of the historical disaster impact data collected. The results may show some inconsistencies owing to the limitations outlined in Section 3 of the report, and hence the conclusions and findings should be viewed as purely preliminary and a representation of the nature of the analyses that can be carried out using the disaster inventory system.

The district specific data analyses with respect to the above nine districts where the data validation process has been completed is being carried out at present and will be presented in due course. Analytical reports for the other Districts in the country will be produced in a phased manner as and when data validation in each district is complete. The country wide and district analytical reports will be updated periodically in the future, in order to ensure that the reports remain current and relevant and to enrich the quality of the analyses.

The web based database can now be accessed at: **www.desinventar.lk**. There is also a link to the database on the DMC website: **www.dmc.gov.lk**.

Acknowledgements

The Sri Lanka Historical Disaster Information System has been initiated based on the DesInventar system developed by the Network for Social Studies on Disaster Prevention in Latin America (LA RED). LA RED is acknowledged with gratitude for the opportunity of adopting DesInventar in Sri Lanka.

The DMC and UNDP Sri Lanka extend their gratitude to the UNDP Regional Centre in Bangkok for providing training to the staff of UNDP and the DMC on the use of DesInventar and for providing the guidance and financial support required to implement the system in Sri Lanka. The support extended by Sanny Jegillos and Rajesh Sharma from the UNDP Regional Centre in Bangkok; and Julio Serge from LA RED is gratefully appreciated.

Focal points from the following Line Departments are acknowledged for their assistance and fullest cooperation throughout the data collection exercise and for participating in the data validation process:

- Epidemiological Unit of the Ministry of Health
- Department of Social Services
- Department of Irrigation
- Department of Wildlife Conservation
- Department of Fire Services of the Colombo Municipal Council
- National Building Research Organization
- Department of Meteorology
- District Secretaries, Divisional Secretaries and Grama Niladharis from Colombo, Puttalam, Gampaha, Kalutara, Galle, Matara, Hambantota, Ratnapura, Baticaloa, Ampara and Trincomalee
- District Disaster Management Coordinators and UN Volunteers of the above Districts.

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1. Background

During the morning of 26th December 2004, a massive earthquake of a magnitude of nine on the Richter scale, hit the west coast of Northern Sumatra, Indonesia triggering tsunami waves that reached several countries of South East Asia, including Bangladesh, India, Indonesia, Maldives, Malaysia, Myanmar, Sri Lanka and Thailand. Deaths were also reported in the coastal areas of Somalia.

Over the past few decades, disaster losses worldwide have grown exponentially. In parallel with this there has been a growing awareness within the disaster management community for greater impetus on comprehensive disaster risk management rather than just post-disaster relief or better response preparedness.

However, this growing awareness has yet to be adequately translated into tangible action that is focused on systematic risk management across all sectors and across all geographic levels. On the ground, in actual implementation post-disaster relief and response (and at the most better response preparedness) for big disasters (rather than small and medium disasters) remains the dominant paradigm.

Creating political and bureaucratic commitment to manage disaster risk before disasters occur continues to be a great challenge. At the same time, when resources have been made available for disaster risk reduction, there have been few tools available at the disposal of decision-makers to prioritise action in an objective manner.

In the disaster management parlance, disaster risk is a product of hazard, vulnerability and capacity. In some countries, particularly in the developed world, inductive approaches have been used to determine disaster risk using an overlay of detailed multi-hazard zonation maps, and vulnerable elements at risk such as population, physical infrastructure and the environment exposed to a certain hazard.

These approaches are very useful and rigorous. However, in most situations, this can be very expensive and time consuming. While an inductive approach, can be extremely valuable, experience shows that it takes several years to yield results that can be used for risk reduction planning on a large scale.[1]

In such a context, analysis of a systematic geo-referenced inventory of small, medium and large-scale disasters could help provide surrogate indicators for disaster risk. Systematic tracking of occurrence of small and medium disasters (which do not hit the headlines of international or even national media) along with detailed data about large scale disasters will provide the necessary disaster intelligence to keep a tab on emerging patterns of disaster risk and then look at the underlying causes.[2]

1 Sri Lanka has commenced the process of developing its National Risk Profile. During the first phase, expected to last 6 months, hazard, vulnerability and capacity assessments will be carried out in seven Districts, focusing on five key hazards namely, Tsunamis, floods, droughts, cyclones and landslide.

2 The existing climate databases of extreme events (excessive or too less precipitation, cyclone landfalls etc.) or geophysical databases that are already maintained quite rigorously by technical institutions could be linked with the disaster databases to bring in the hazard element and get an even better *intelligence* on what makes communities more vulnerable.

Such a deductive approach could corroborate the inductive approaches outlined in the previous paragraph.

At present, some countries in Asia maintain highly aggregated databases of disaster events.[3] In most cases data on disaster occurrence and loss is collected and aggregated at the provincial or national level in the immediate aftermath of individual disaster events for the primary purpose of making short term financial allocations for relief and rehabilitation.

Such an approach, while useful in the very short term during the immediate relief phase, does not provide a long term vision suitable for reconstruction purposes and even less for long term regional development and disaster risk reduction purposes. As a result these data sets do not lend themselves to analysis that can help discern trends at the local level. Impact analyses of disasters, cost-benefit analyses and rationalization of mitigation programs are also severely compromised by unavailability and inaccuracy of information. As a consequence, policy and decision makers in both national and international disaster management agencies as well as in the private sector are forced to define their priorities in an information and knowledge vacuum, a situation hardly conducive to the effectiveness of their actions.

Another practical benefit of the deductive approach is that an analysis of trends in disaster occurrence (which is disaster risk that has manifested itself into actual disaster occurrence) is a much more powerful tool as a negotiation and policy advocacy support tool than a risk indicator derived from an inductive approach.

The Latin American experience has shown that the occurrence of small and medium scale disasters can be a precursor to big disasters. The analysis also shows that the cumulative impact of small and medium disasters may equal or even exceed that of big disasters.

In conclusion therefore, for setting up a system to track the emerging patterns of risk in a particular country it is a useful first step to set up a system of building systematic geo-referenced databases of disasters at a high resolution.

[3] At the global level CRED and Munich Re databases have been in operation for some time. The results from CRED database are available in the public domain. Although the analysis of theses databases has been very useful in determining global trends, this kind of analysis has been useful mainly for citation in global and regional reports. It is not possible to base local (or even national) level action on the basis of analysis of these databases.

2. Historical Disaster Information System (Disaster Inventory Database – DesInventar)

One of the very few existing methodologies and tools for building disaster databases is the DesInventar system developed by the Network for Social Studies on Disaster Prevention in Latin America (LA RED). Based on a relational database structure and a disciplined expert assisted structure for data collection and classification, DesInventar permits the homogeneous capture, analysis and graphic representation of geo referenced information on disaster occurrence and loss.

This database can be analyzed to produce spatial and temporal referenced information on disaster occurrence and loss in tabular format, as graphs and as thematic maps, through a user friendly interface and expert assistance, which does not require specialized computer skills.

The methodology is strongly based on a set of definitions and classifications, and the concept of a space subdivided into multiple levels, but above all it proposes the following:

- Disaggregating and geo-referencing of data that will later permit the analysis of the data at the minimum level of geographic resolution.
- The collection and use of data about small and medium disasters.

The core of the methodology is contained in the definitions of "Event" and "Disaster". These are not established to contradict or redefine much widespread definitions but to serve as the basis for the systematic work of collecting and storing the information about disasters in an orderly fashion.

These most important definitions must be kept in mind when looking at and interpreting the results presented here.

"Event" is defined as any social-natural phenomena that can be considered as a threat to life, properties and infrastructure.

"Disaster" is defined as the set of adverse effects caused by social-natural and natural phenomena (an "Event") on human life, properties and infrastructure within a specific geographic unit during a given period of time.

Note the following as a consequence of these definitions:

- Not all "events" are captured in the database: the methodology requires that only events that inflict losses are captured. This means that many events for which no losses are detected are not recorded in the database. Examples of this are landslides, many of which occur in areas with no population or infrastructure affected, so they are not recorded.
- Medium and large scale events are registered as multiple disaster records (also denominated reports), and each record corresponding to the damage and losses that have occurred in one geographic unit. This is termed "Disaggregation." This disaggregated data has to carefully be taken into account when analyzing and understanding the results of the analysis.

3. Preliminary Analysis Methodology

Three types of analysis, namely, composition, temporal and spatial analysis have been carried out in this report, to demonstrate how this Historical Disaster Information System can be used to support planning and decision making for disaster risk management.

Although the system contains 25 hazards, for the purposes of this analytical report, 12 hazards, which have been reported most frequently, have been listed in the composition analysis. Of these the top seven have been used for the composition analysis. All 25 hazards have been used in the temporal analysis and ten Districts that have been affected most by the loss of human life, damage and destruction to housing, and crop losses have been used for the purposes of the spatial analysis. Finally the hazard specific analysis has been applied to the seven most frequently occurring hazards.

Definitions of hazards included in the database can be found in the Annex 18. Summary tables showing the following can be found in the annexes 1 to 17:

- Damage and losses resulting from various hazards for the period 1974-2007;
- Damage and losses incurred for each year for the period, 1974-2007;
- Damage and losses incurred by various Districts for the period, 1974-2007; and
- Damage and losses associated with various hazards for the period 1974-2007.

There are several limitations of the Disaster Inventory System and the preliminary analysis that have to be taken into consideration and are listed below.

- There can be confusion over the interpretation of the variable “number of reports / records / data cards”. A report corresponds to the damage and losses that have occurred in a DS Division as a result of medium or large scale disaster event.
- There are 25 Districts in Sri Lanka and data collected from media sources has been validated for nine Districts to date, through Government sources.
- Data from various Government sources regarding the same event can be conflicting.
- Data collected and validated from sub-national levels is only available for the last five years, prior to that records are only available from media sources and Line Departments at the national level.
- Media reports contain very little detailed information on impacts on infrastructure, agriculture, river flood protection systems, water supply, power and energy, communication, education, health and industry.
- Often newspaper reports capture information about the impacts of a disaster at the District level and therefore it is difficult to disaggregate the information and discern which specific Divisions would have been affected and how.

- Media reports are often not detailed enough to describe impacts at Divisional level.
- For epidemics weekly reports related to epidemic events in the country from 1974 to 2006, were collected. There are more than 40,000 data cards available of which 10,899 were entered.
- For certain hazards there is a great deal of data available such as epidemics and hence their impacts feature more prominently as compared with other hazards for which fewer records are available such as fires. Furthermore for certain hazards, reports are only available for certain time periods, which skews the trend analysis (Please refer to footnote umber four in section five).

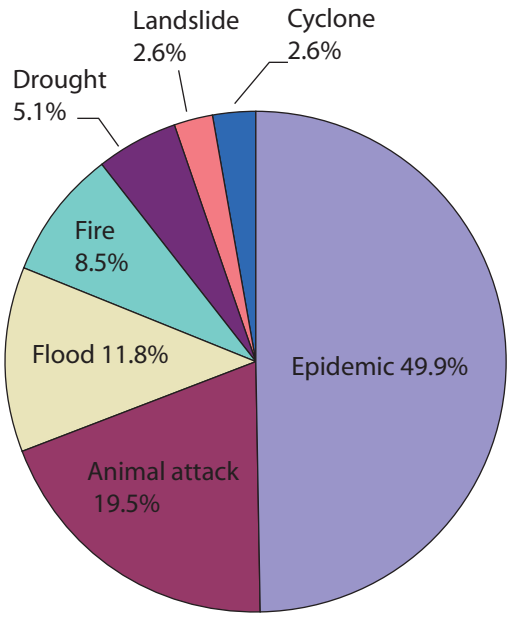
From the information available it is not possible to determine economic losses, but only the cost of relief distributed.

4. Composition Analysis

The composition analysis shows how the number of reports and effects variables is composed of different events. It is usually constructed, by preparing charts comparing the value of a variable for each type of event.

4.1 Disaster Typology (1974-2007)

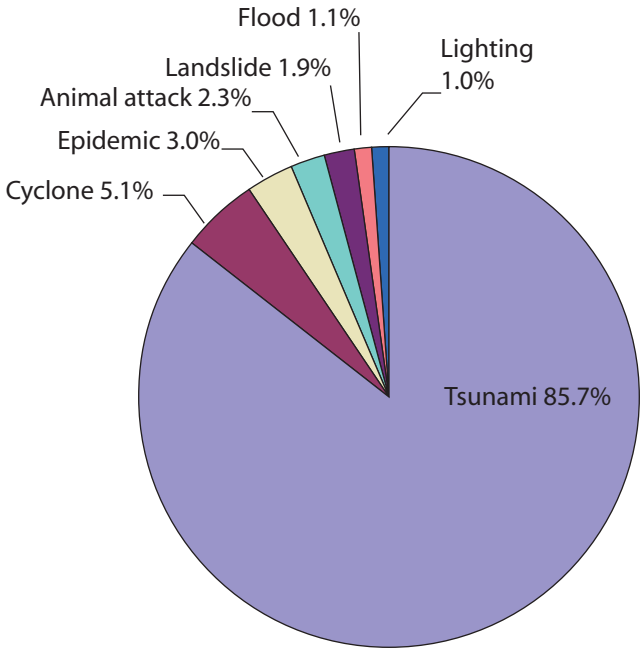
Event	Data Cards
Epidemic	12,129
Animal attack	4,747
Flood	2,861
Fire	2,057
Drought	1,249
Landslide	643
Cyclone	627
Lightning	394
Gale	348
Coastline	180
Storm	133
Urban flood	125



The table above describes the number of data cards (reports) that have been entered for each hazard type from 1974-2007. The seven most frequently reported disaster events represented in the pie chart above include: epidemics, animal attacks, floods, fire, droughts, landslides and cyclones. The hazard that has been reported to occur most frequently in the country is epidemic, with a total of 12,129 data cards reported between 1974-2007; followed by animal attack with 4,747 data cards reported; flood with 2,861 data cards; fire with 2,057 data cards; drought with 1,249 data cards; landslides with 643 data cards; and finally cyclone with a total number of 627 data cards reported.

4.2 Impact of Incidents on Human Life (1974-2007)

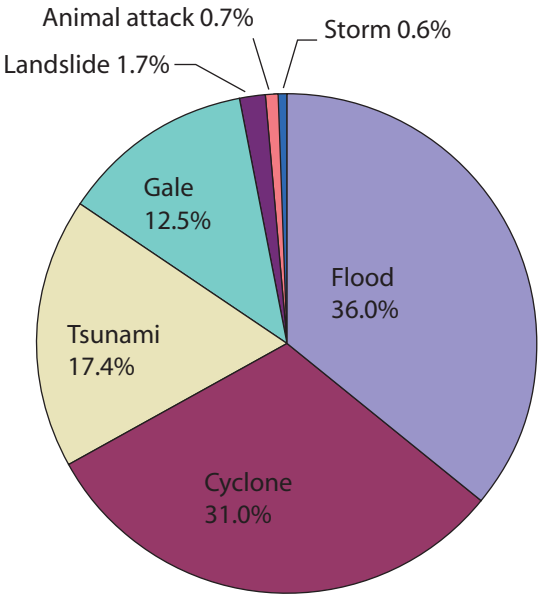
Event	Deaths
Tsunami	39,331
Cyclone	2,344
Epidemic	1,384
Animal attack	1,055
Landslide	870
Flood	498
Lighting	437
Storm	60
Gale	41
Snake bite	32
Tornado	28
Structure	16



The table above depicts the total number of deaths that have resulted from the occurrence of the 12 most frequently occurring hazards from 1974-2007. Looking at the pie chart below, while epidemics have occurred most frequently, it was the tsunami that claimed the largest number of lives totaling 39,331 deaths, followed by cyclones (2,344 lives), epidemics (1,384 lives), animal attacks (1,055 lives), landslide (870 lives), floods (498 lives) and lightning (437 lives).

4.3 Impact on Housing: Damaged and Destroyed Housing (1974-2007)

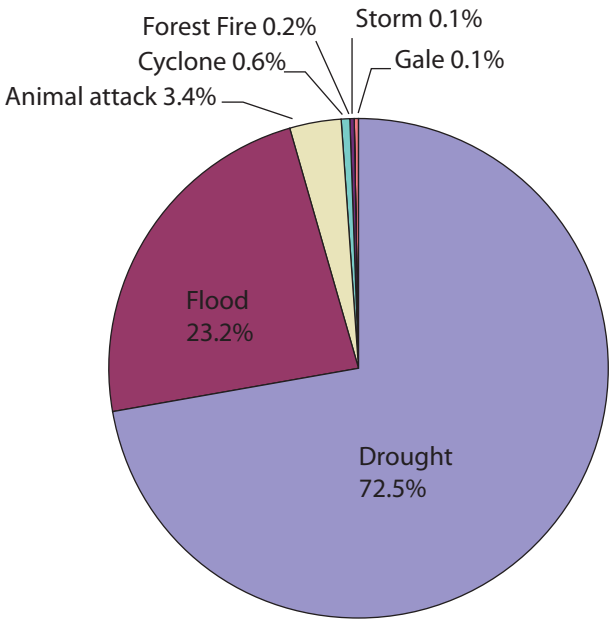
Event	Houses Destroyed	Houses Damaged	No. of Damaged and Destroyed Housing Units
Flood	49,891	144,916	194,807
Cyclone	65,756	101,816	167,572
Tsunami	44,250	49,914	94,164
Gale	58,210	9,611	67,821
Landslide	2,029	6,899	8,928
Animal attack	1,283	2,734	4,017
Storm	332	2,967	3,299
Coastline	1,301	998	2,299
Tornado	47	1,240	1,287
Fire	336	146	482
Tidal wave	NA	350	350
Urban Flood	4	75	79
Total	**223,439**	**321,666**	**545,105**



The table above depicts the damage and destruction caused to housing from the occurrence of the 12 most frequently occurring hazards from 1974-2006. The pie chart shows that floods have caused the greatest damage and destruction to housing, followed by cyclones, tsunami, gale, landslides, animal attacks and storms. Between 1974-2007 floods have destroyed a total of 49,891 houses, cyclones 65,756 houses, tsunami 44,250 houses, gale 58,210 houses, landslides 2,029 houses, animal attacks 1,283 houses and storms 332 houses.

4.4 Impact on Crops and Paddy (1974-2007)

Event	Damage to Crops (Ha)	Damage to Paddy (Ha)	Damage to Paddy and Crop (Ha)
Drought	530,685	303,957	834,642
Flood	170,159	274,057	444,216
Animal attack	24,590	15,335	39,925
Cyclone	4,409	1,747	6,156
Forest fire	1,128	NA	1,128
Storm	1,000	NA	1,000
Gale	440	103	544
Landslide	115	480	594
Plague	NA	1,935	1,935
Frost	NA	202	202
Tsunami	NA	91	91
Total	**732,526**	**597,907**	**1,330,433**



The table above depicts the damage destruction caused to crops and paddy from the occurrence of the 12 most frequently occurring hazards from 1974-2007. The pie chart shows that droughts account for the largest proportion of crop losses amounting to 530,685 hectares followed by floods, amounting to 170,159 hectares, animal attacks amounting to 24,590 hectares, cyclones amounting to 4,409, forest fires amounting to 1,128 hectares, storms amounting to 1,000 hectares and finally gale amounting to 440 hectares.

4.5 Relief Distribution (1974-2007)

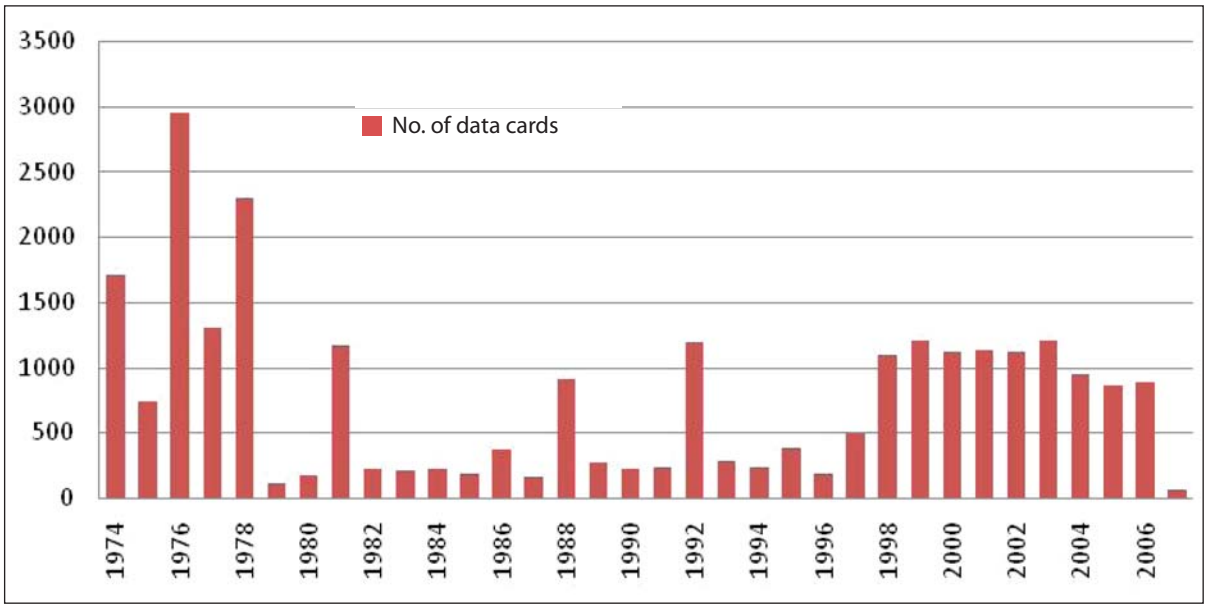
Event	Emergency Supplies	Fully Damaged Houses	Partially Damaged Houses	Loss of life	Injuries	Livelihood Options
Drought	1,110,434,179	NA	NA	NA	NA	NA
Flood	636,614,913	74,510,000	2,636,187	30,000	NA	5,661
Cyclone	223,520,392	446,750	303,330	NA	NA	753,850
Tsunami	31,180,200	1,250,000	7,200,000	110,500,000	NA	3,330,000
Epidemic	24,647,000	NA	NA	NA	NA	NA
Coastal Erosion	18,620,429	NA	NA	NA	NA	NA
Landslide	15,350,969	NA	NA	10,000	NA	NA
Animal attack	2,000	41,000	83,030	200,000	4,650	NA
Earthquake	NA	NA	NA	NA	NA	NA
Fire	NA	NA	NA	NA	NA	NA
Forest fire	NA	NA	NA	NA	NA	NA
Frost	NA	NA	NA	NA	NA	NA
Leak	NA	NA	NA	NA	NA	NA
Lighting	NA	NA	NA	NA	NA	NA
Total	**2,060,370,082**	**76,247,750**	**10,222,547**	**110,740,000**	**4,650**	**4,089,511**

For the period 1974-2007, the largest proportion of emergency assistance has been spent on droughts, followed by floods, cyclones, the tsunami, epidemics, coastal erosion and landslides. Emergency supplies worth Rs. 1,110,434,179 have been spent on droughts, Rs. 636,614,913 on floods, Rs. 223,520,392 on cyclones, Rs. 31,180,200 on the tsunami, Rs. 24,647,000 on epidemics, Rs. 18,620,429 on coastal erosion and finally Rs. 15,350,969 on landslides.

5. Temporal Analysis

The temporal analysis shows the behavior over time of a variable (E.g., number of reports of a specific effect).

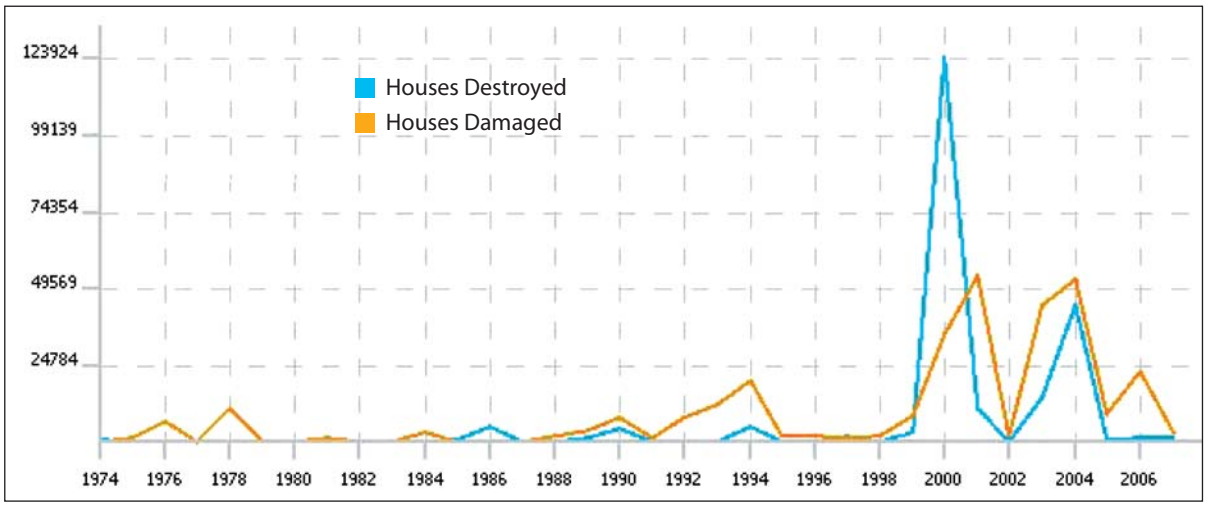
5.1 General Trend: Number of Reports (All hazard types, 1974-2007)



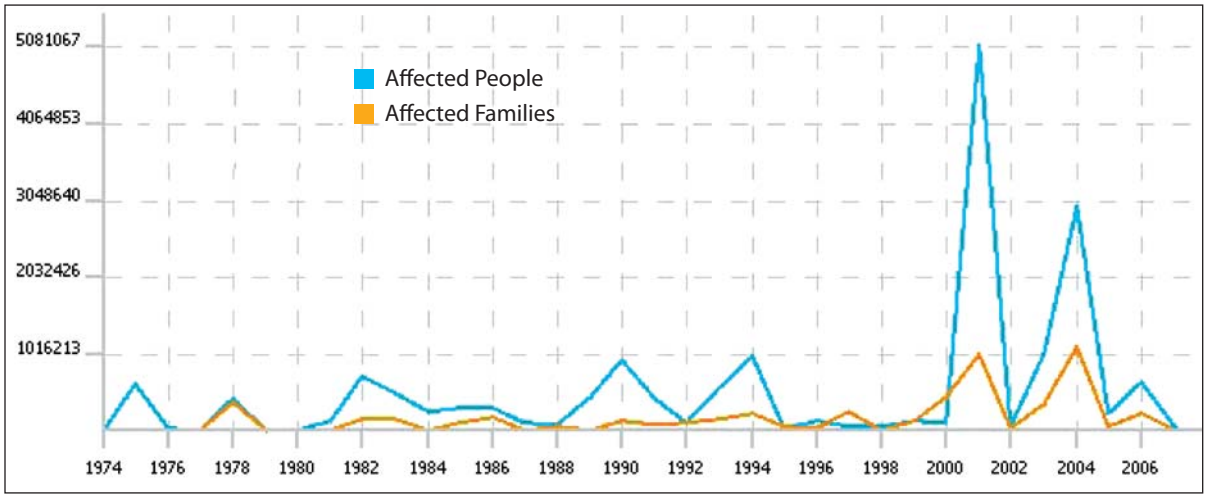
The bar graph above demonstrates the overall trend of hazard occurrence capturing all 25 hazard types included in the database. The greatest number of disaster records to have been captured in the system were in 1976 (2,945 data cards), 1978 (2,302 data cards), and 1974 (1,712 data cards)[4], with the lowest number captured in 1979 (110 data cards) and 2007 (57 data cards). The average number of disaster records in Sri Lanka from 1974-1984 was 1,107, between 1985 and 1995, was 441 and between 1996 and 2006 was 1,023.

[4] The highest number of disaster reports were captured in 1976, 1978, 1974, and 1977 because it was for those years that epidemic data was collected from the epidemiology unit and entered into the system, for the remaining years records are yet to be entered. Similarly the average for the decade 1996-2006 was higher then the decade 1985-1995 because data for fire events collected from the Fire Services Department was available only for the period 2002 to 2006. Similarly animal attack data which was collected from the Wild Life Conservation Department was only available for the period 1998 to 2005. Hence only once the validation process has been completed in all Districts of Sri Lanka, can a conclusion regarding the trend in frequency of occurrence of disaster events be made.

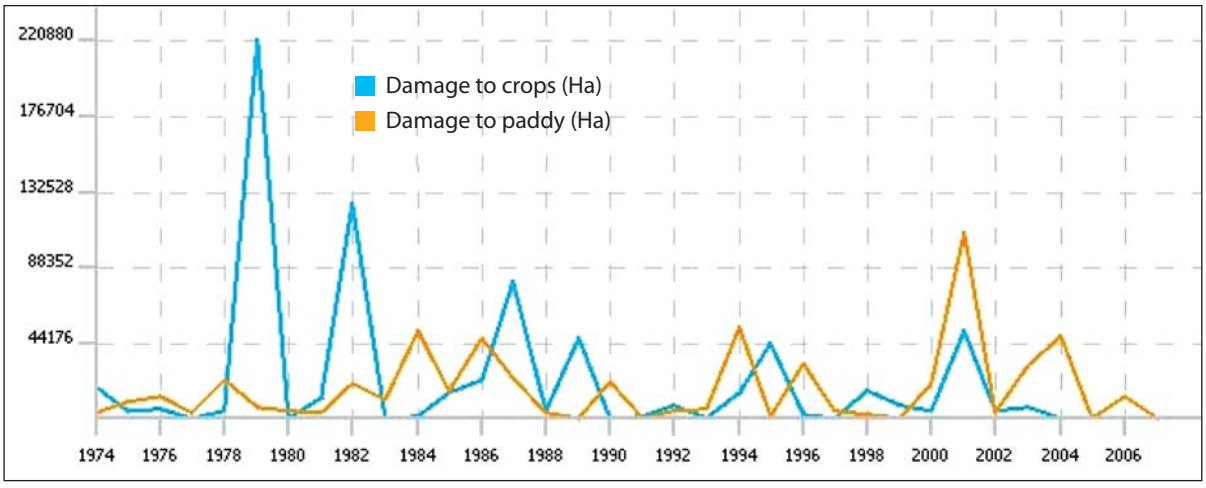
5.2 General Trend: Number of Destroyed and Damaged Houses (All Hazard Types, 1974-2007)



5.3 General Trend: Number of People and Families Affected (All Hazard Types, 1974-2007)



5.4 General Trend: Damage to Paddy and Crops (All Hazard Types, 1974-2007)



Summary: Damage and Loss Trends (All Hazard Types, 1974-2007)

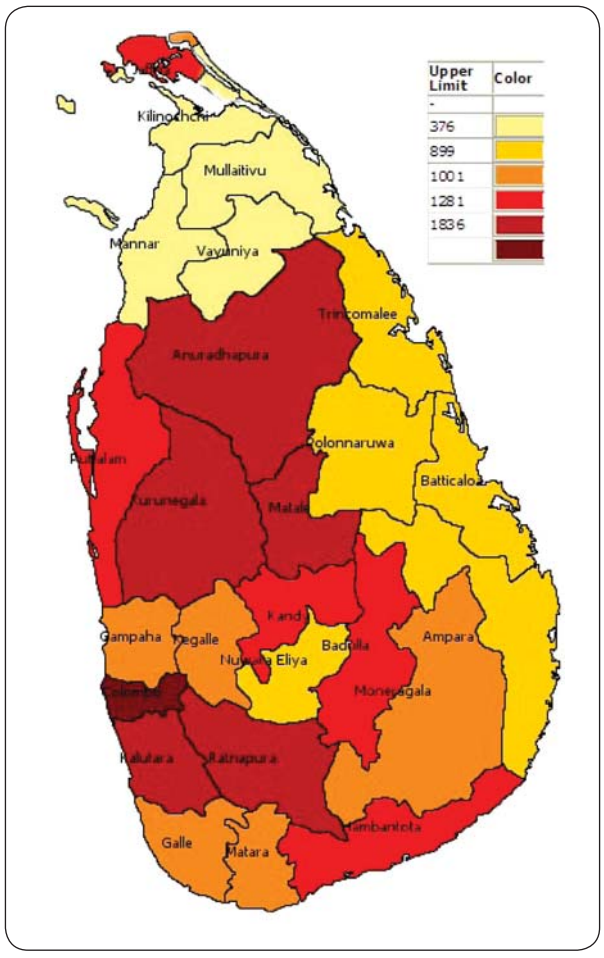
The greatest destruction to housing from various disasters occurred in 2000, 2004 and 2003, during which 123,924; 44,483 and 14,866 houses were decoyed respectively, attributed mainly to the cyclones that occurred in 2000 and 2001, the floods of 2000 and the tsunami of 2004. The largest number of families were affected by various disasters in 2001 and 2004, mainly as a result of major droughts and the tsunami. 5,081,067 people were affected in 2001 and 2,970,985in 2004. The greatest damage to crops occurred in 1979 (220,880 hectares), 1982 (126,280 hectares), and 1987 (80,417 hectares) and the greatest damage to paddy occurred in 2001 (108,448 hectares) resulting from the occurrence of drought and floods during those years.

6. Spatial Analysis

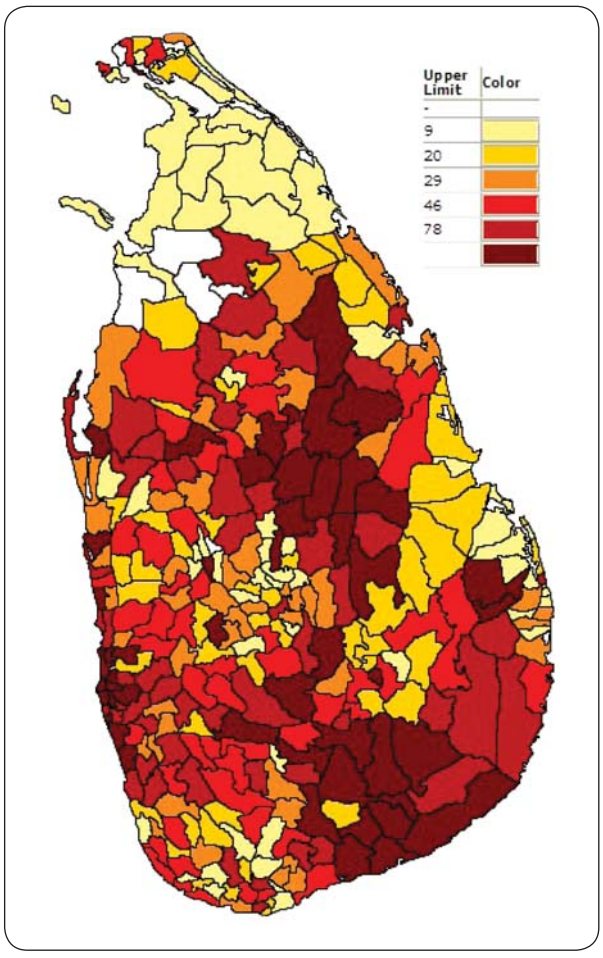
Figure 6.1 shows the distribution of hazards across Districts and Divisions, and figures 6.2, 6.4, 6.6, and 6.8, show the numbers of people affected, people killed, damage and destruction to housing and crop losses for multiple hazards in different Districts and Divisions.

6.1 Distribution of Reports (All Hazard Types, 1974-2007)

Districts



Divisions



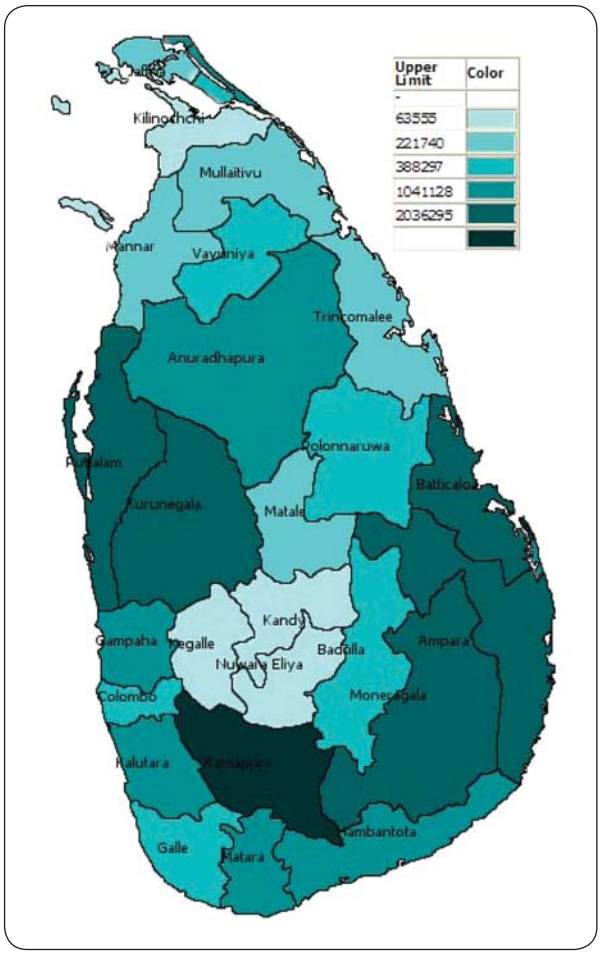
The maps above show that Colombo is the most multi-hazard prone District (as indicated by the largest number of data cards entered)[5], followed by Kurunegala, Anuradhapura, Kalutara, Ratnapura, Matale, Kandy, Badulla, Puttalam and Hambantota. The most disaster prone DS Divisions in Kurunegala include: Galgamuwa, Kurunegala, Polpithigama, Ambanpola and Ibbagamuwa. The most disaster prone DS Divisions in Anuradhapura include: Kekirawa, Horowpothana, Palagala, Palugaswewa and

5 The largest number of data cards entered for a District is 3,821. This could be because out of 3,821 records in total, 1,986 data cards related to fire events have been collected from the Colombo Municipal Council, Fire Service Department. Apart from Colombo and Galle there were no records available for fires in other Districts.

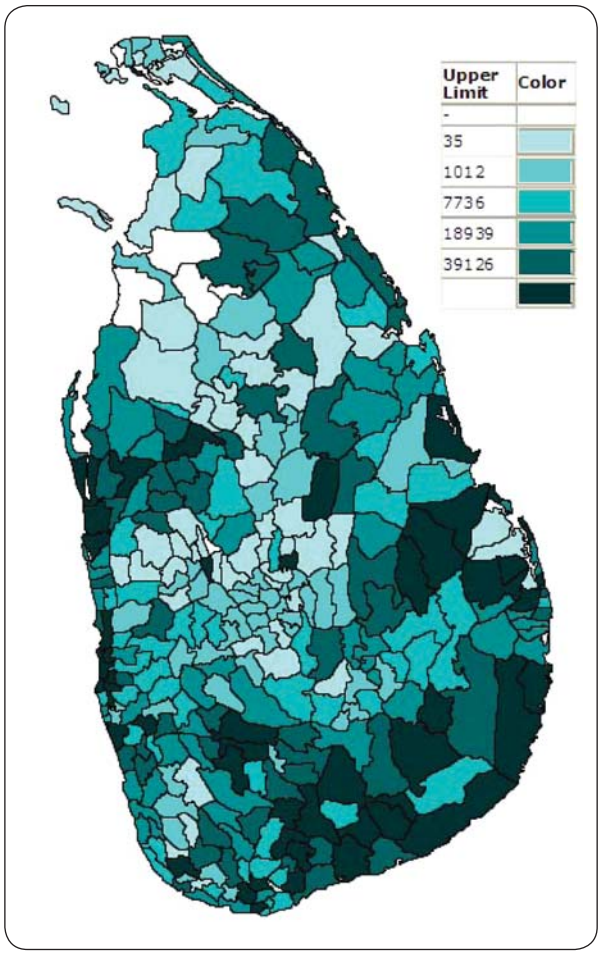
Medawachchiya. The most disaster prone DS Divisions in Kalutara include: Kalutara, Panadura, Mathugama. Bulathsinhala and Beruwala. The most affected DS Divisions in Ratnapura include: Ratnapura, Embilipitiya, Balangoda, Weligepola and Kahawatta. Finally the most disaster prone DS divisions in Matale include: Dambulla, Wilgamuwa, Matale, Naula, and Laggala-Pallegama.

6.2 Number of People Affected (All Hazard Types, 1974-2007)

Districts



Divisions



The largest number of people (3,329,806) has been affected by various hazard events in Ratnapura, followed by 2,036,295 people in Batticaloa, 1,638,509 in Monaragala, 1,625,443 people in Puttalam, 1,410,425 in Kurunegala, 1,072,272 in Ampara, 1,041,128 in Anuradhapura, 850,212 in Hambantota, 809,017 in Kalutara, and 635,674 in Matara.

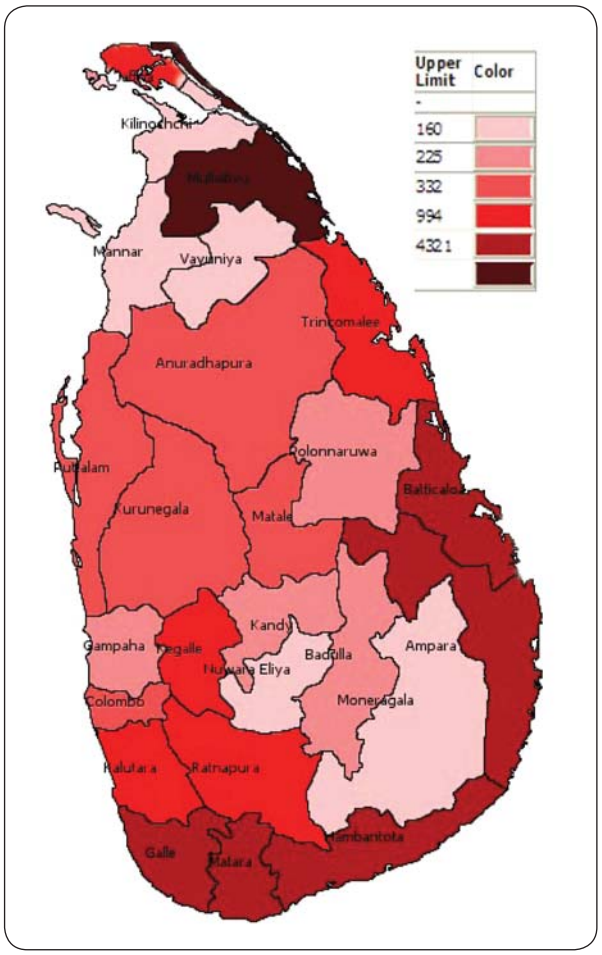
The table below shows the DS Divisions from five Districts mentioned above, in which the greatest numbers of people and families have been affected.

6.3 DS Divisions in Selected Districts where the Largest Number of People and Families have been Affected (All Hazard Types, 1974 - 2007)

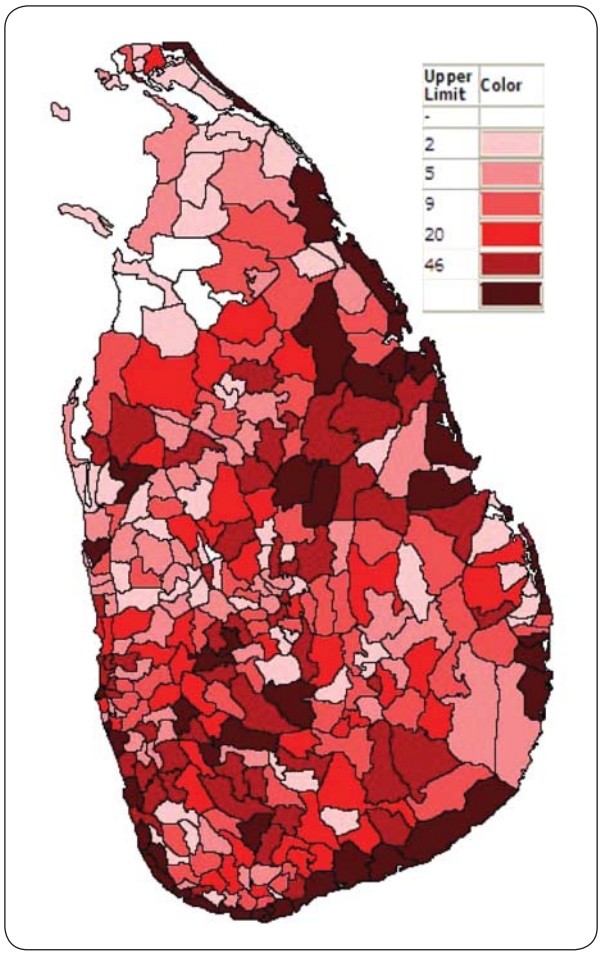
District	Division	No. of People Affected	No. of Families Affected
Batticaloa	Kattankudy	258,949	NA
	Manmunai Pattu (Araipattai)	191,259	NA
	Eravur Town	183,000	32
	Porativu Pattu (1)	183,000	NA
	Koralai Pattu North	140,419	1,500
Kurunegala	Galgamuwa	60,119	26,190
	Kurunegala	41,397	5,105
	Nikaweratiya	36,120	20,005
	Maho	33,333	30,405
	Kobeigane	27,550	12,484
Moneragala	Moneragala	170,980	8,513
	Thanamalvila	46,355	9,331
	Buttala	40,611	12,846
	Wellawaya	36,964	7,358
	Siyambalanduwa	22,593	11,579
Puttalam	Arachchikattuwa	185,073	54,635
	Chilaw	67,834	30,889
	Mundalama	59,742	15,232
	Puttalam	30,481	18,186
	Anamaduwa	308,803	68,434
Ratnapura	Ratnapura	117,703	117,369
	Embilipitiya	112,879	52,627
	Nivithigala	63,503	6,974
	Pelmadulla	44,860	9,442
	Kolonna	40,743	9,858
Total		**2,195,776**	**528,994**

6.4 Distribution of Human Life Losses (All Hazard Types, 1974-2007)

Districts



Divisions



The largest number of people (26,346) have been killed in Mullaitivu, followed by Ampara, (4,321), Batticaloa, (3,820) Hambantota, (2,638), Galle (1,639), Matara, (1,518), Trincomalee (994) Jaffna, (993), Ratnapura, (484), and Kegalle, (392).

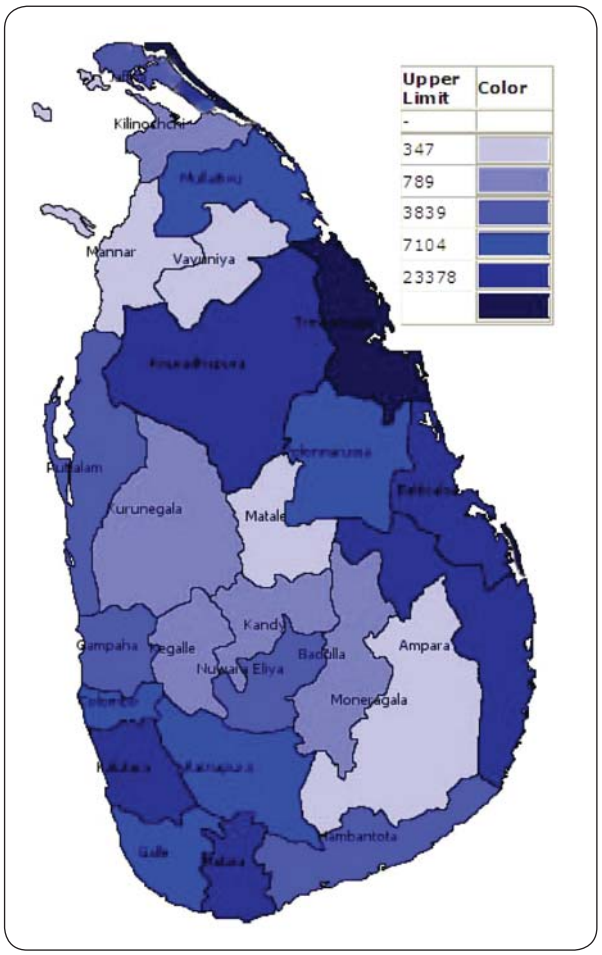
The table below shows the DS Divisions in Ampara, Batticaloa, Hambantota and Galle districts where largest number of deaths have occurred.

6.5 DS Divisions in Selected Districts where the Largest Number of Lives have been Lost (All Hazard Types, 1974-2007)

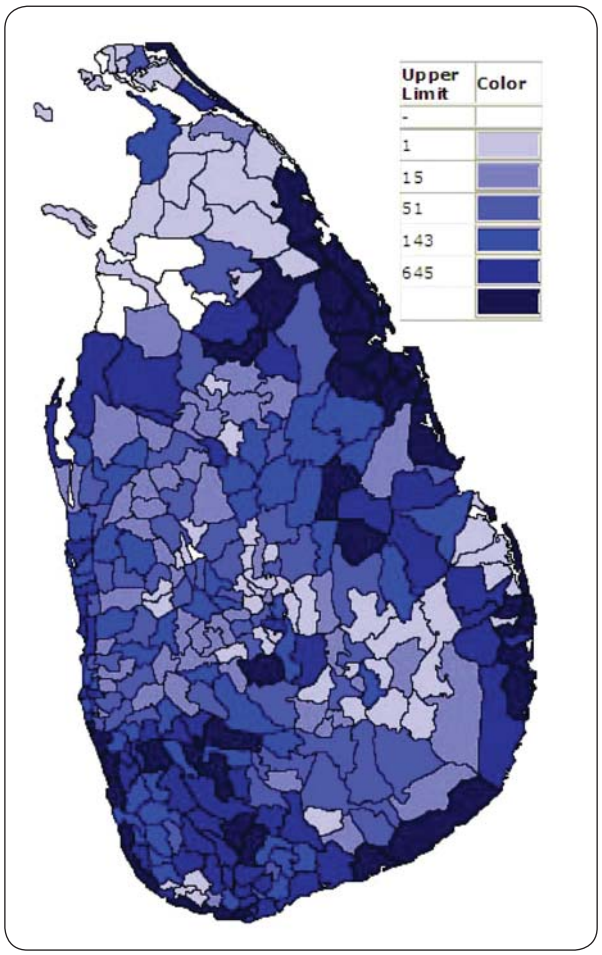
District	Division	Deaths
Ampara	Kalmunai	2,172
	Karativu	648
	Sainthamarathu	634
	Thirukkovil	373
	Pothuvil	179
Batticaloa	Manmunai North	912
	Koralai Pattu North	299
	Koralai Pattu (Valachchenai)	283
	Manmunai South & Eruvil Pattu	94
	Manmunai Pattu (Araipattai)	44
Galle	Galle Four Gravets	792
	Habaraduwa	381
	Balapitiya	153
	Hikkaduwa	110
	Ambalangoda	68
Hambantota	Hambantota	1,702
	Tangalle	614
	Ambalantota	87
	Thissamaharama	80
	Beliatta	36

6.6 Distribution of Destroyed Housing (All Hazard Types, 1974-2007)

Districts



Divisions



The greatest destruction to housing has occurred in Trincomalee with 106,672 houses destroyed, followed by Ampara (23,378), Batticaloa (22,516), Anuradhapura (12,788), Kalutara, (8,606), Matara (8,317), Galle (7,104), Polonnaruwa (6,251), Ratnapura (4,571) and finally Mullaitivu (4,565).

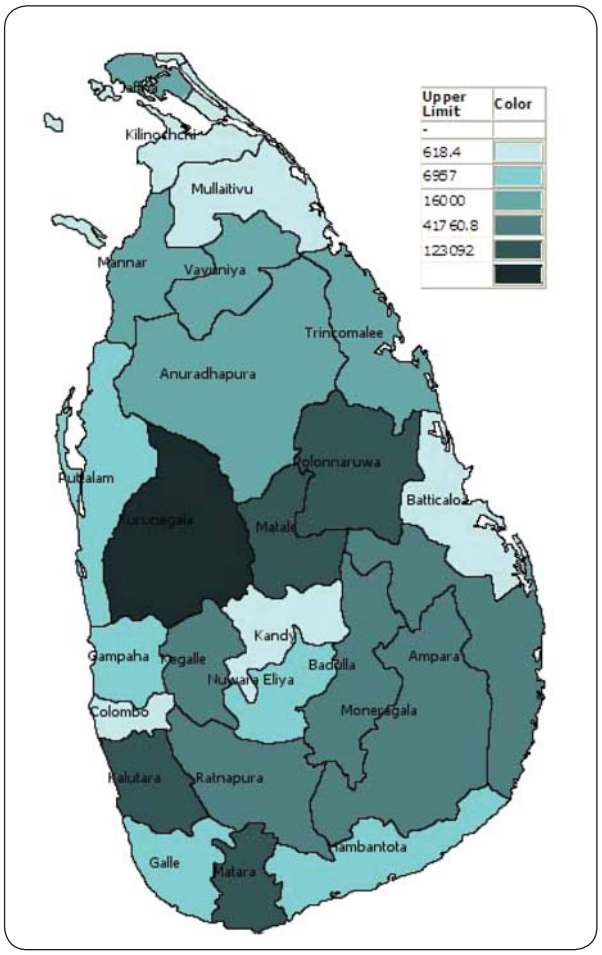
The table below shows the DS Divisions in Trincomalee, Anuradhapura, Ampara, Batticaloa and Matara in which the largest number houses have been damaged and destroyed

6.7 DS Divisions in Selected Districts where the Largest Number of Houses have been Damaged and Destroyed (All Hazard Types, 1974-2007)

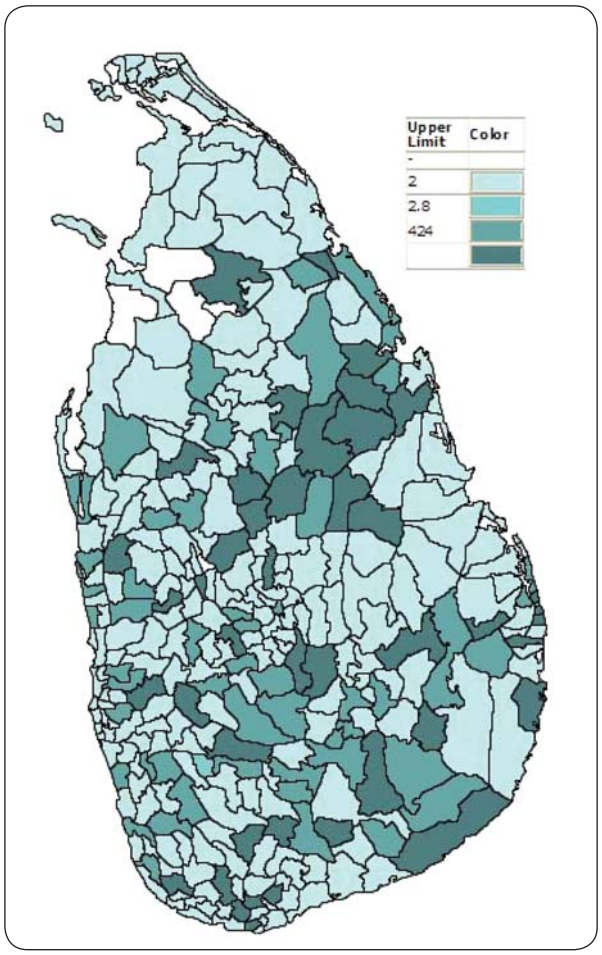
District	Division	Houses Destroyed	Houses Damaged
Ampara	Kalmunai	4,834	4,337
	Ampara	374	5,717
	Pothuvil	2,520	1,323
	Dehiattakandiya	3,068	41
	Thirukkovil	1,817	1,240
Anuradhapura	Medawachchiya	645	4,300
	Kebithigollewa	647	3,568
	Rambewa	3,417	4
	Thirappane	15	912
	Horowpothana	38	646
Batticaloa	Manmunai Pattu (Araipattai)	1,705	1,833
	Manmunai South & Eruvil Pattu	1,332	1,950
	Kattankudy	1,260	1,705
	Manmunai North	958	1,989
	Koralai Pattu North	1,307	442
Matara	Matara Four Gravets	1,260	7,124
	Akuressa	287	5,879
	Kotapola	1,401	2,695
	Weligama	1,818	2,055
	Athuraliya	398	2,672
Trincomalee	Trincomalee Town and Gravets	16,270	1,637
	Kinniya	10,058	1,767
	Muttur	9,054	614
	Kuchchaveli	4,932	4,272
	Seruvila	3,337	3,368
Total		**72,752**	**62,090**

6.8 Distribution of Crop and Paddy Losses (All Hazard Types, 1974-2007)

Districts



Divisions



Kurunegala has suffered the greatest crop losses (141,400 hectares of crops), followed by Matale (123,092 hectares of crops), Polonnaruwa (71,220 hectares of crops), Matara, (57,119 hectares of crops), Kalutara (57,052 hectares of crops), Moneragala (41,760 hectares of crops), Badulla (41,374 hectares of crops), Ampara (23,698 hectares of crops), Puttalam (6,957 hectares of crops), Anuradhapura (9,736 hectares of crops), Ratnapura (22,454 hectares of crops) and finally Kegalle (21,904 hectares of crops).

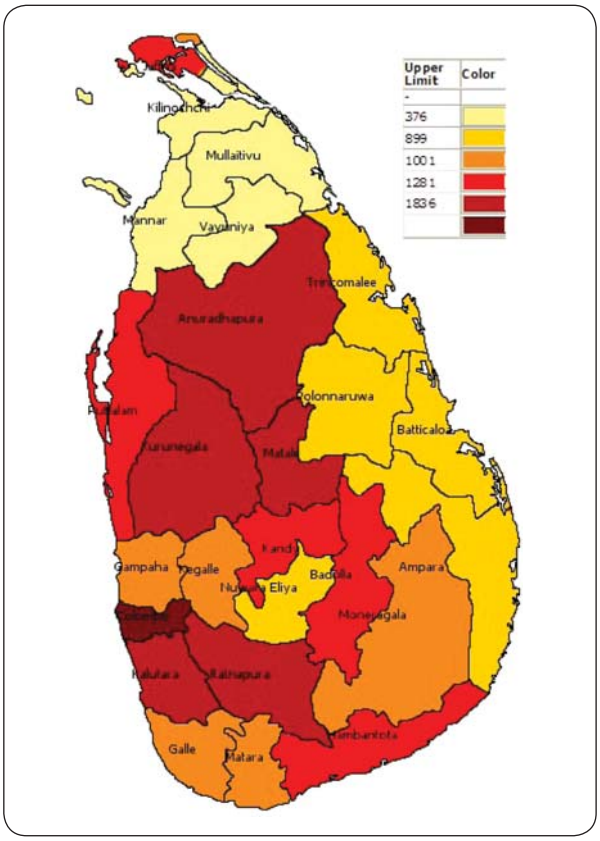
The table below shows that DS Divisions that have been most affected by paddy and crop losses in five Districts, that have been affected the most.

6.9 DS Divisions in Selected Districts which have Suffered the Largest Crop and Paddy Losses (All Hazard Types, 1974-2007)

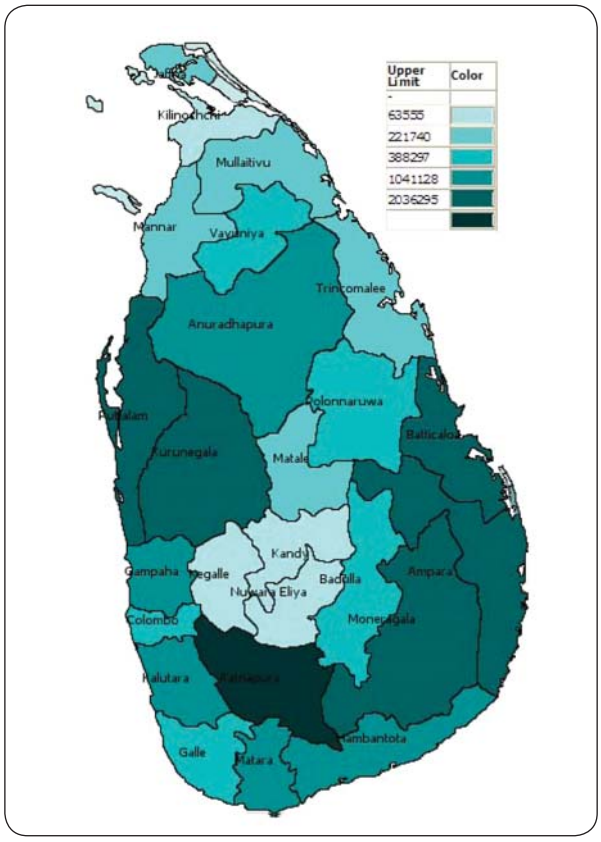
District	Division	Damage to Crops (Ha)	Paddy Losses (Ha)
Ampara	Ampara	8,000	39,258
	Pothuvil	5,436	1,382
	Dehiattakandiya	NA	4,060
	Karativu	4,000	NA
	Kalmunai	2,836	263
Kurunegala	Bingiriya	4,000	11750
	Galgamuwa	4,400	4,793
	Polpithigama	NA	8,377
	Panduwasnuwara	NA	7,921
	Ibbagamuwa	6,000	1,335
Matale	Matale	120,000	NA
	Dambulla	1,488	922
	Galewela	684	400
	Naula	NA	202
	Ambanganga Korale	NA	NA
Matara	Kamburupitiya	1,200	1,7971
	Malimbada	5,573	5,292
	Akuressa	1,133	5,865
	Matara Four Gravets	3,200	415
	Kotapola	2,733	306
Polonnaruwa	Medirigiriya	4,640	23,421
	Dimbulagala	7,000	5,348
	Lankapura	NA	5,395
	Hingurakgoda	740	627
	Thamankaduwa	800	107
Total		183,863	145,410

6.10 Spatial Analysis Showing the Most Vulnerable Districts (All hazard types, 1974-2007)

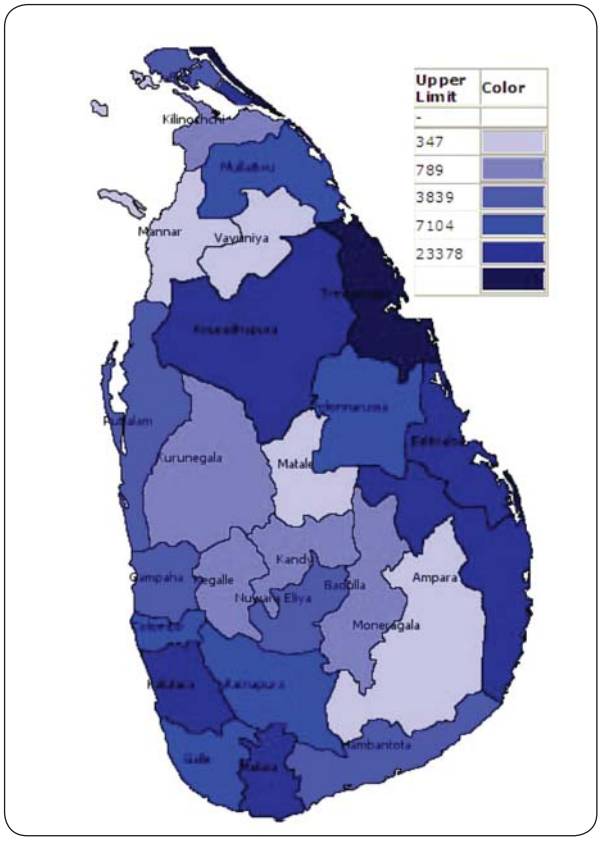
Data cards



People Affected



Houses Destroyed



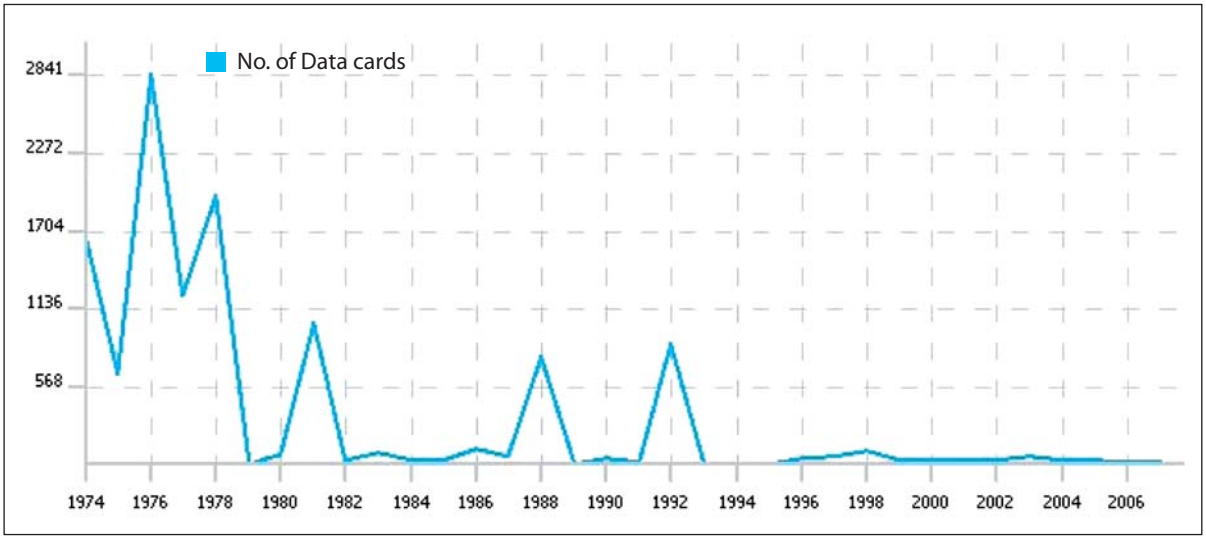
The most multi-hazard prone District (as indicated by the largest number of data cards entered), is Colombo followed by Kurunegala, Anuradhapura, Kalutara, and Ratnapura. However the largest number of people was affected in Ratnapura, Batticaloa, Monaragala, Puttalam, and Kurunegala, and the greatest destruction to housing occurred in Trincomalee, Ampara, Batticaloa, Anuradhapura, and Kalutara.

7. Hazard Specific Analysis

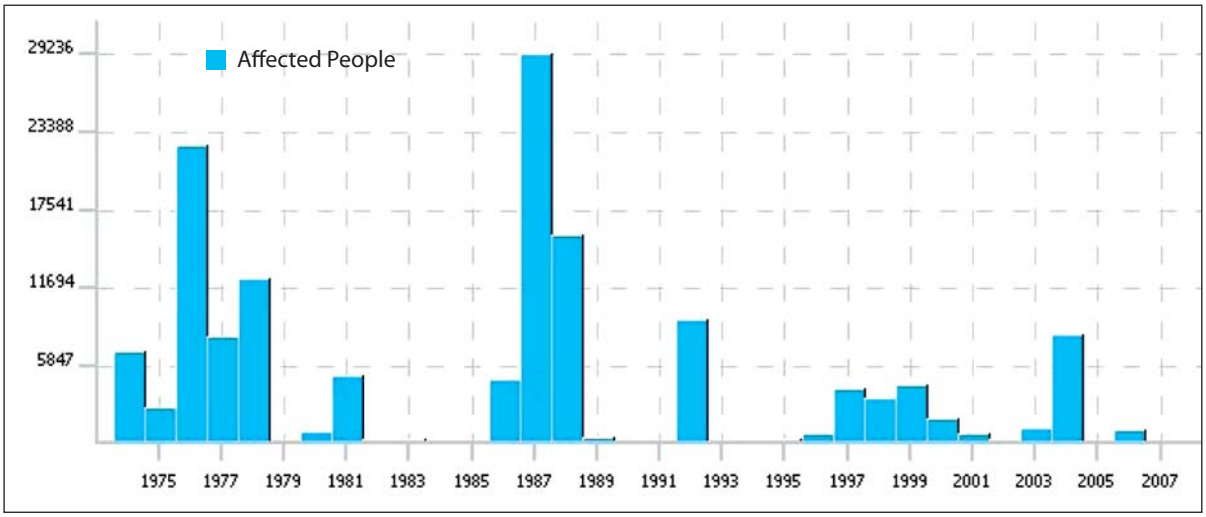
The hazard specific analysis focuses on the seven most frequently occurring hazards in the country, showing frequency and impact trends and the geographical distribution of each hazard.

7.1 Epidemics

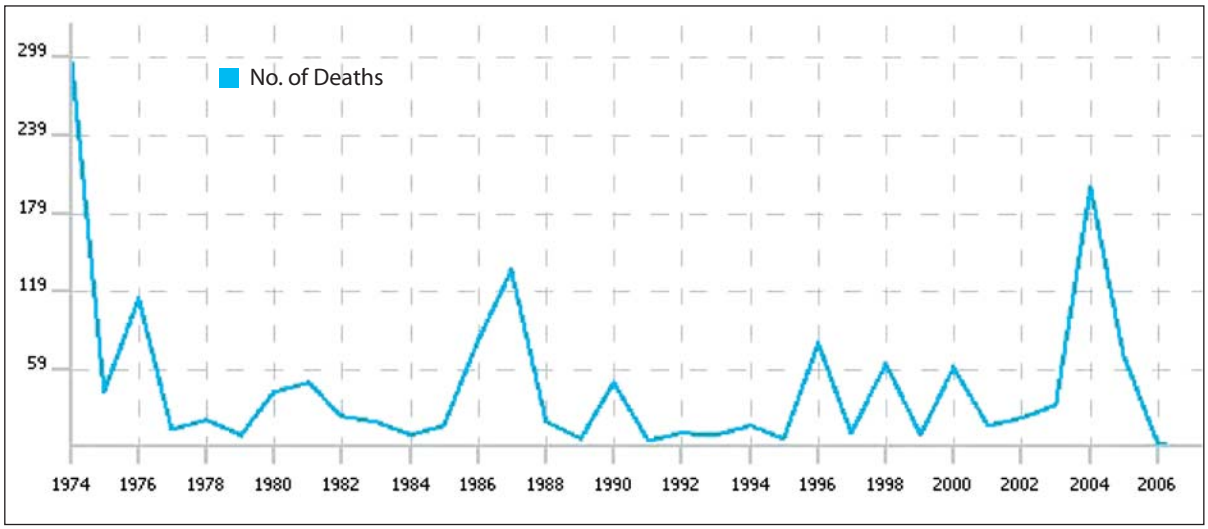
7.1.1 General Trend: Number of Data Cards (Epidemics, 1974-2007)



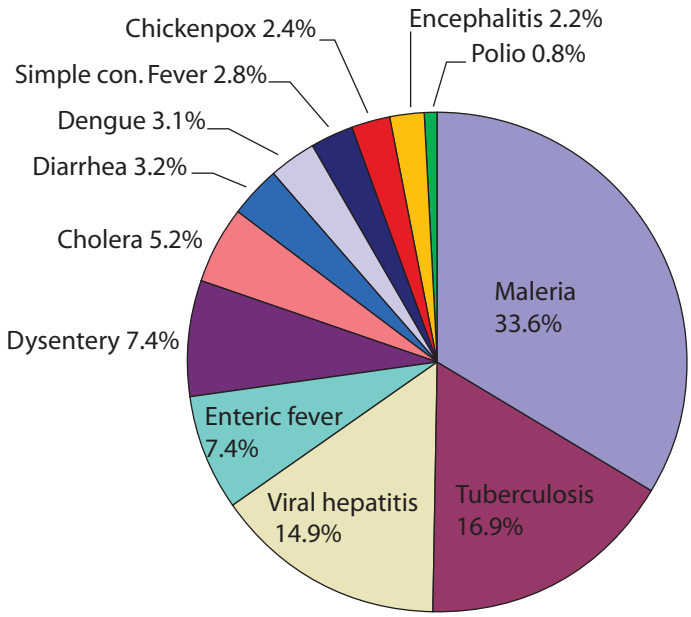
7.1.2 Trend: Number of People Affected (Epidemics, 1974-2007)



7.1.3 Trend: Number of Deaths (Epidemics, 1974-2007)

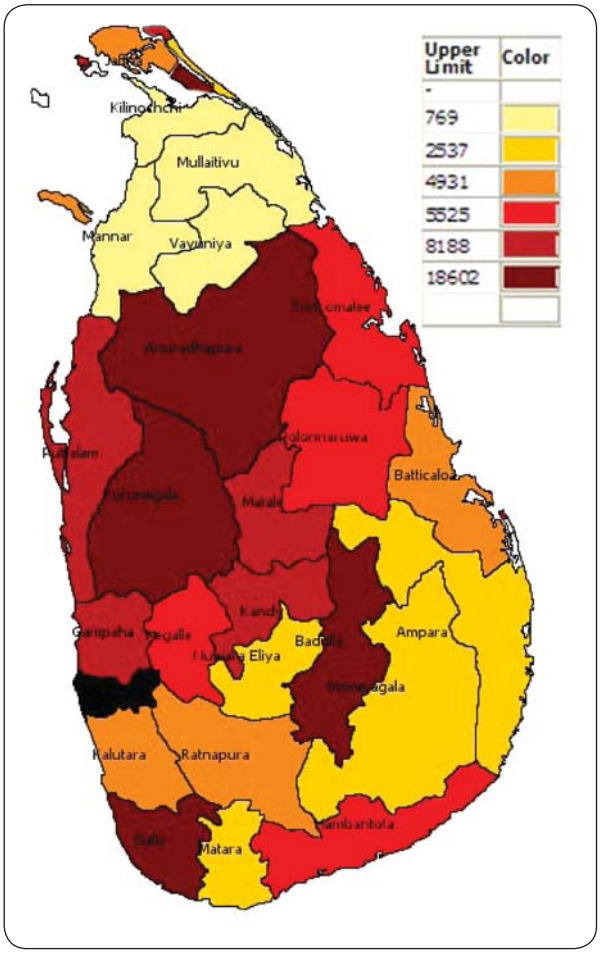


7.1.4 Percentage of People Affected by Various Epidemics (1974-2007)

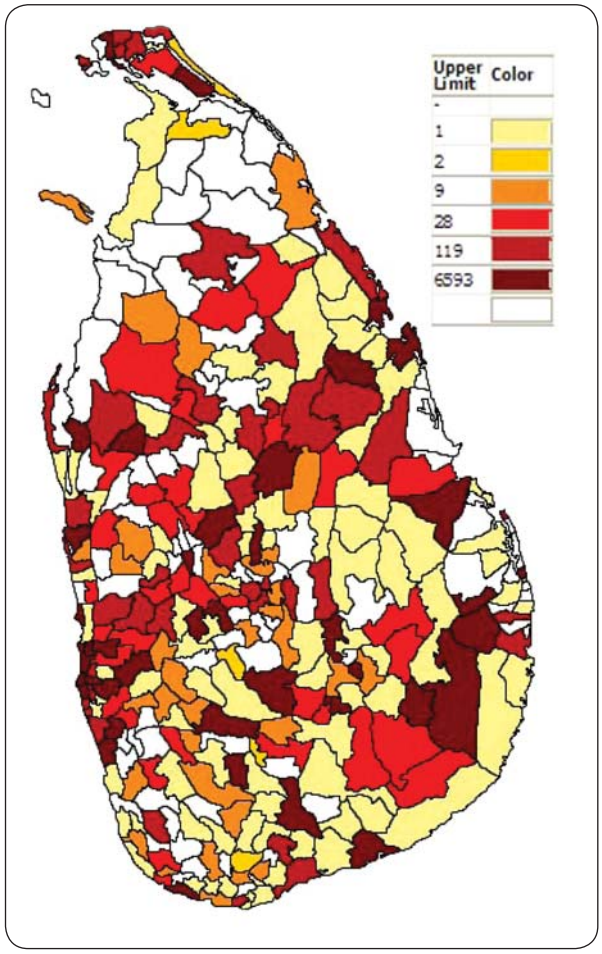


7.1.5 Spatial Analysis: Number of People Affected (Epidemics, 1974-2007)

Districts



Divisions



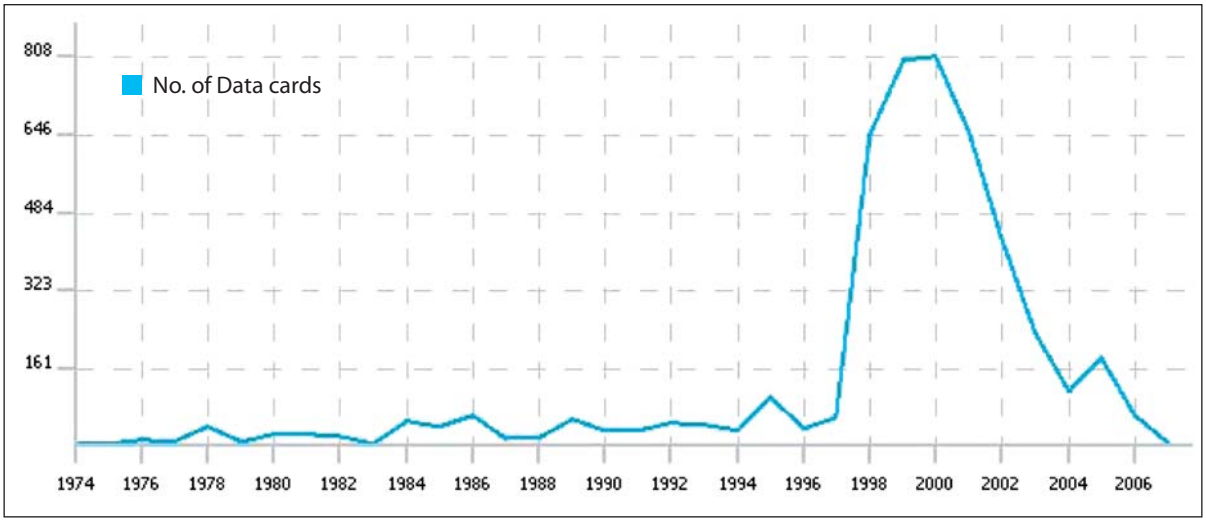
Epidemics Summary

The largest numbers of reports were recorded in 1976, totaling 2,841 followed by 1978, 1974, 1977, and 1981. Between 1993 –2006 the number of records remained steadily low averaging 38. The largest number of deaths occurred in 1974, (299), 1987(136), 1976(114) and 1986 (83).

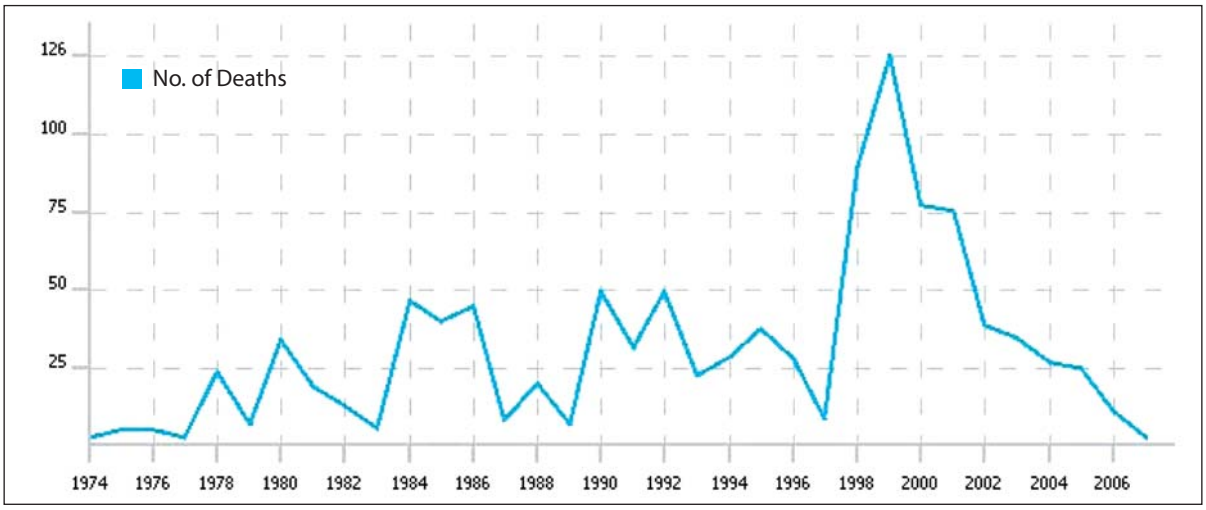
Malaria has affected the largest number of people, totaling 42,761, followed by tuberculosis affecting 21,537 people, viral hepatitis, 18,930 people, enteric fever, 9,466 people, dysentery, 9,463 people, cholera, 6,613 people, diarrhea, 4,071 people and finally dengue 3,935 people. The Districts in which the largest number of people has been affected by epidemics include Colombo, Kurunegala, Anuradhapura, Badulla, Gampaha, Puttalam, Kandy, Matale, Hambantota and Kegalle.

7.2 Animal Attacks

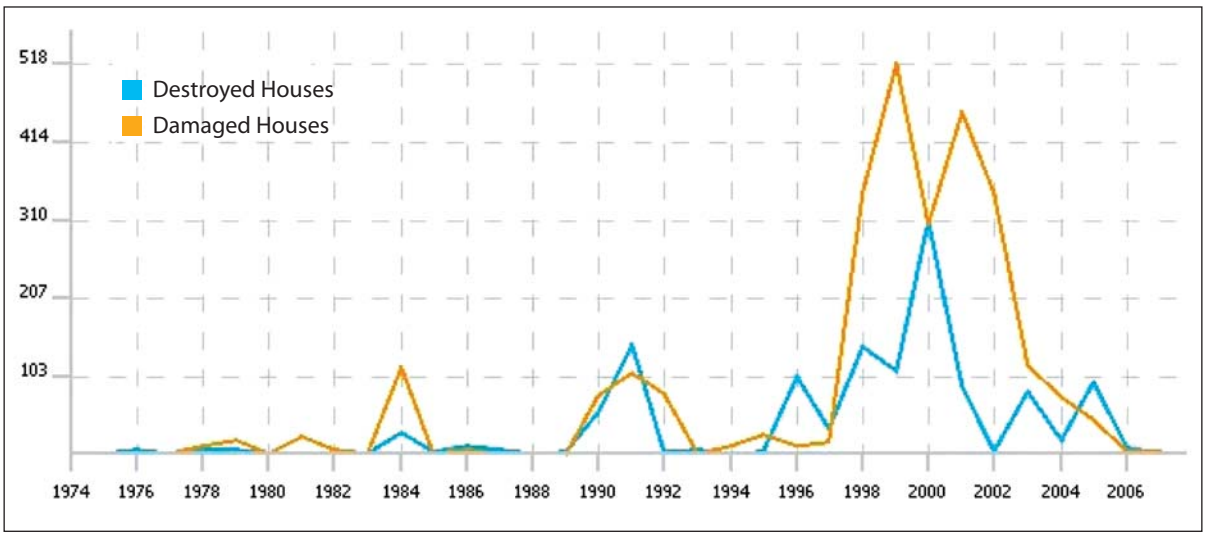
7.2.1 General Trend: Number of Data Cards Reported (Animal Attacks, 1974-2007)



7.2.2 Trend: Number of Deaths (Animal Attacks, 1974-2007)

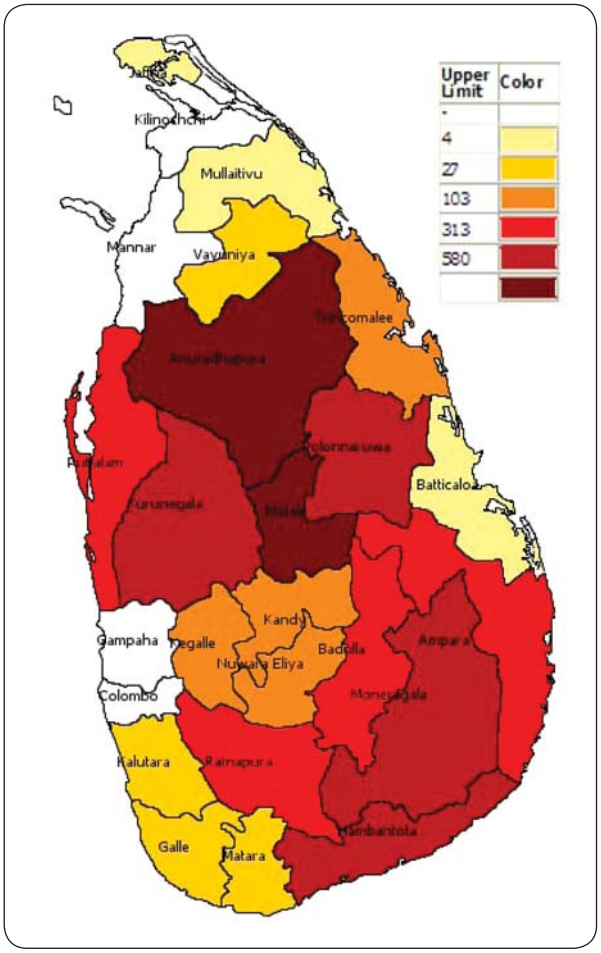


7.2.3 Trend: Damaged and Destroyed Houses (Animal Attacks, 1974-2007)

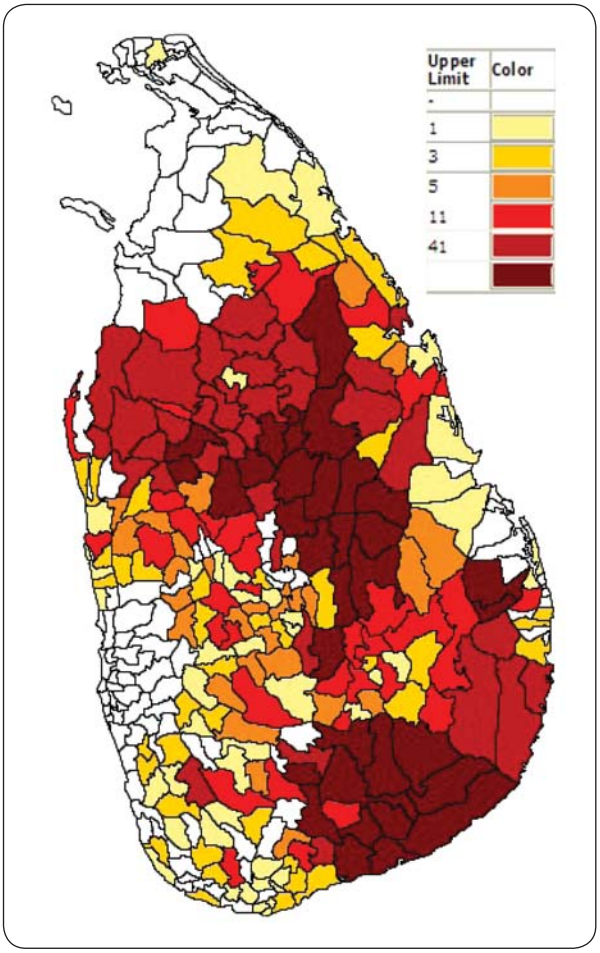


7.2.4 Spatial Analysis: Number of Reports (Animal Attacks, 1974-2007)

Districts



Divisions



7.2.5 DS Divisions Most Prone to Animal Attacks (1974-2007)

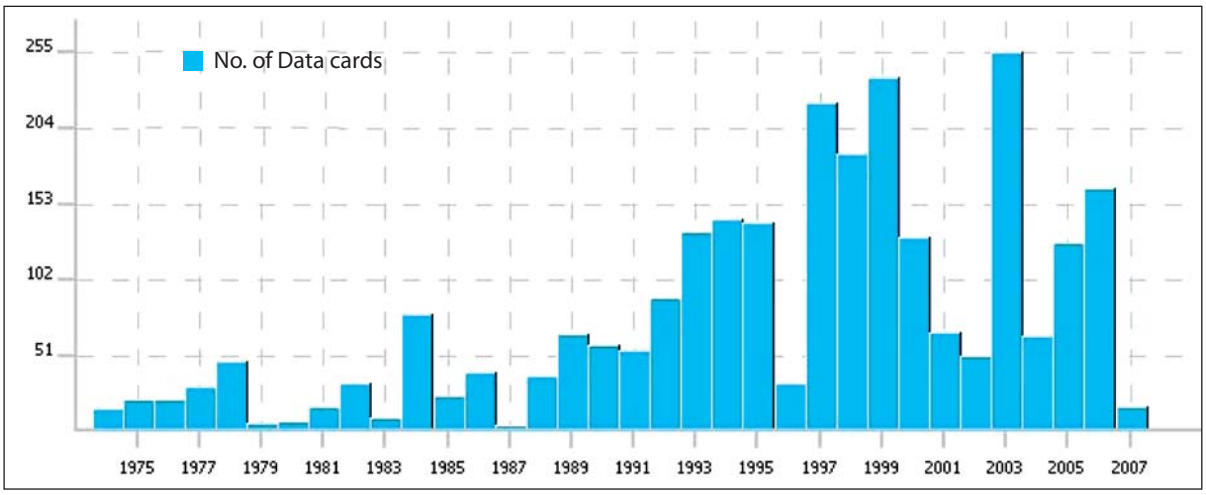
District	Division	Data Cards
Anuradhapura	Kekirawa	104
	Palagala	73
	Horowpothana	64
	Palugaswewa	64
	Nuwaragam Palatha Central	41
Hambantota	Hambantota	132
	Lunugamvehera	132
	Sooriyawewa	99
	Thissamaharama	91
	Ambalantota	46
Matale	Wilgamuwa	262
	Dambulla	202
	Naula	83
	Laggala-Pallegama	52
	Galewela	25
Moneragala	Wellawaya	150
	Buttala	147
	Thanamalvila	112
	Katharagama	53
	Siyambalanduwa	36
Polonnaruwa	Elahera	185
	Hingurakgoda	150
	Dimbulagala	134
	Thamankaduwa	54
	Medirigiriya	37
Total		**2,521**

Animal Attacks Summary

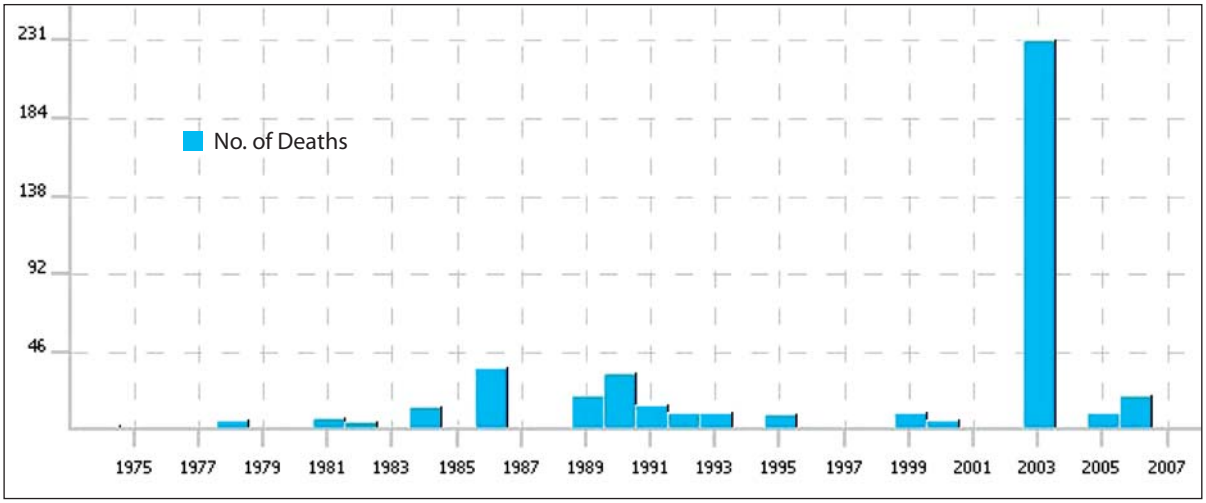
Between 1974 and 1997, the number of reports remained consistently low. The number of people killed as a result of animal attacks each year during that period averaged 22. The number of events reported peaked drastically in 1999 and 2000, resulting in 126 people being killed in 1999 and 78 in 2000. The number of recorded events then fell sharply again in 2004, to 116 and then to just 6 in 2007. The largest number of houses were damaged between 1998 and 2003, in 1998, 347 houses were damaged, 518 in 1999, 305 in 2000, 454 in 2001, 347 in 2002, and 118 in 2003. Between 1974 and 2007 a total number of 10,549 people were affected by animal attacks. The Districts most prone to animal attacks include: Anuradhapura, Matale, Polonnaruwa, Hambantota, Moneragala, Kurunegala, Ampara, Badulla, Ratnapura, and Puttalam.

7.3 Floods

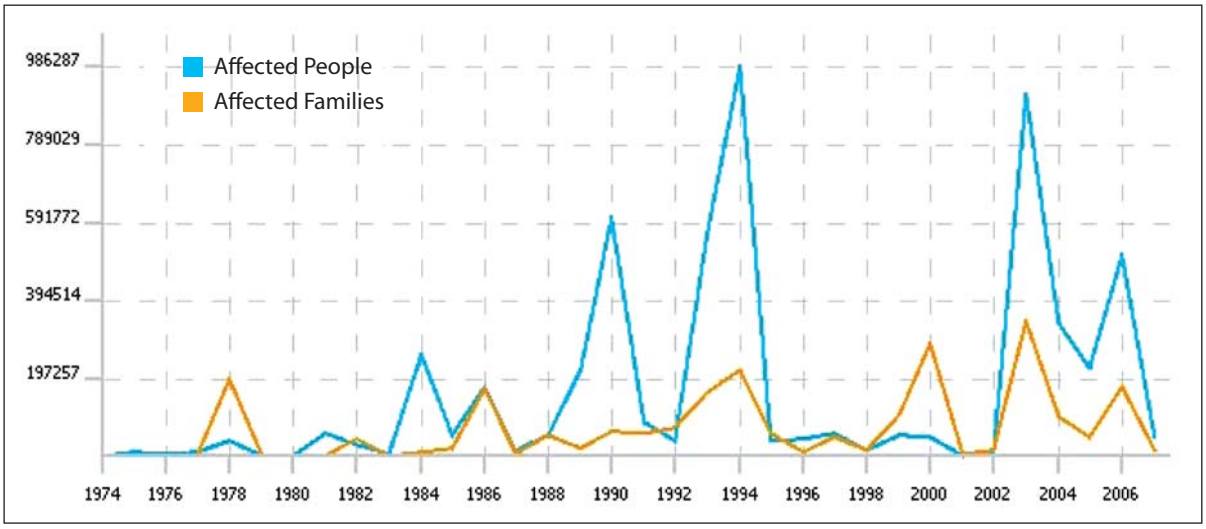
7.3.1 General Trend: Number of Data Cards (Floods 1974-2007)



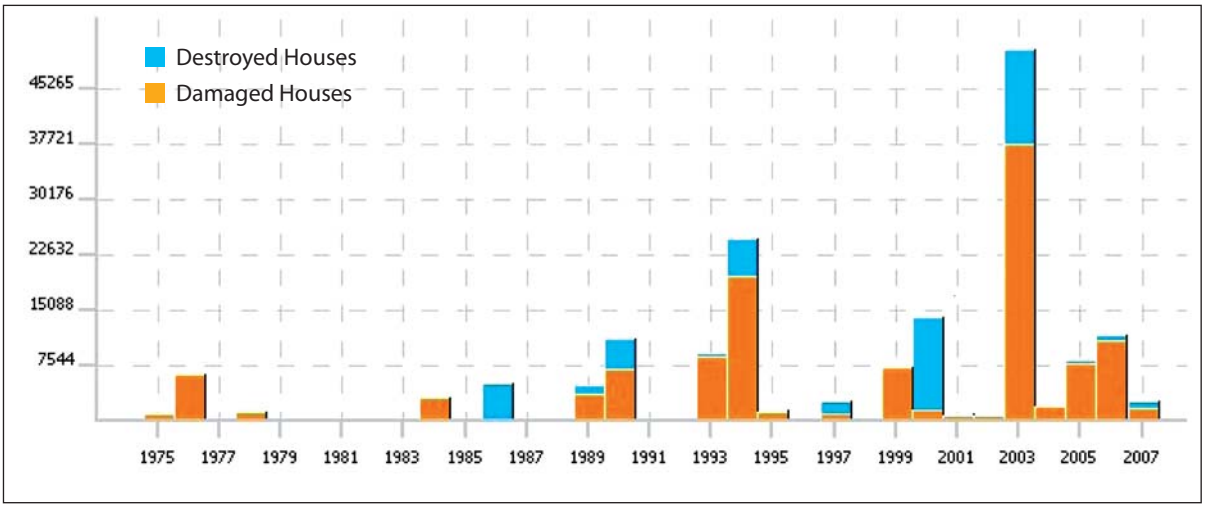
7.3.2 Trend: Number of Deaths (Floods 1974-2007)



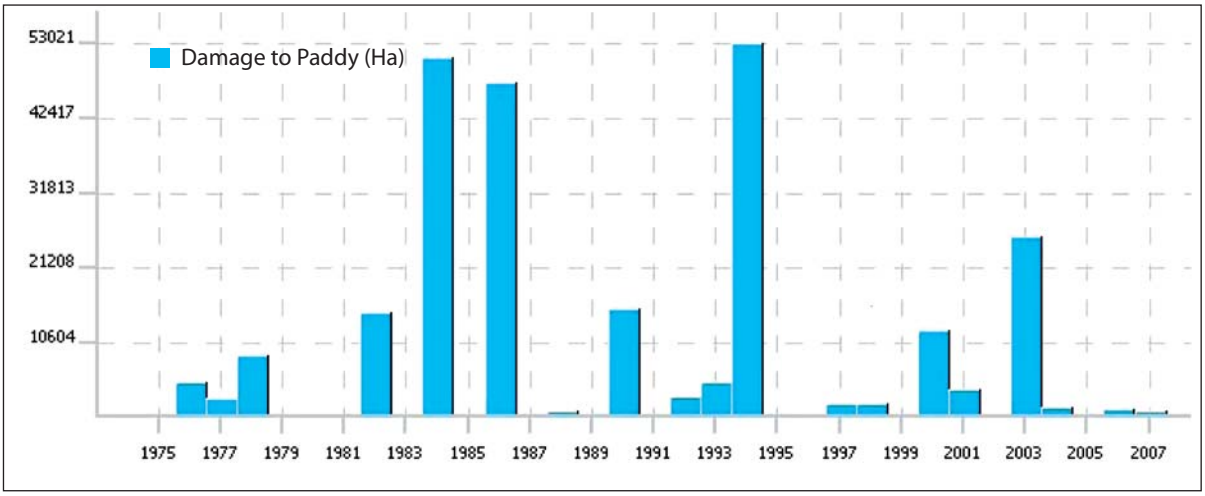
7.3.3 Trend: Number of Affected People and Families (Floods 1974-2007)



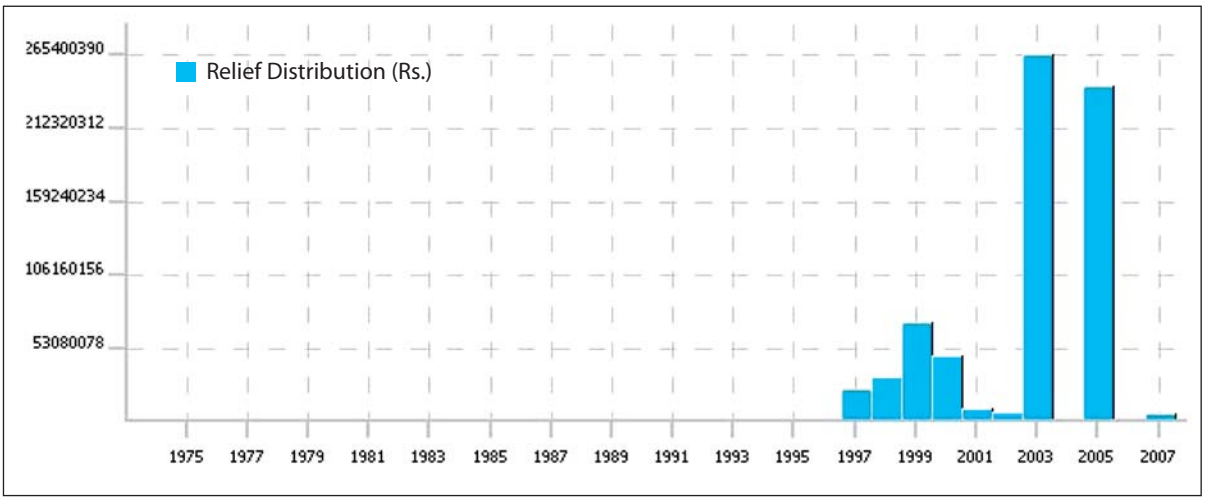
7.3.4 Trend: Damaged and Destroyed Houses (Floods 1974-2007)



7.3.5 Trend: Damage to Paddy Cultivation (Hectares) (Floods 1974-2007)

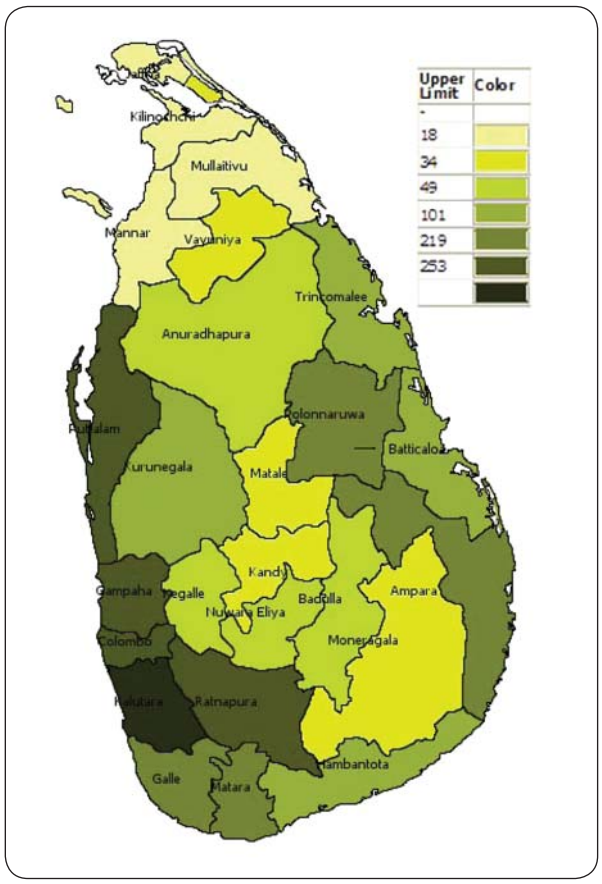


7.3.6 Trend: Relief Distribution (Floods 1974-2007)

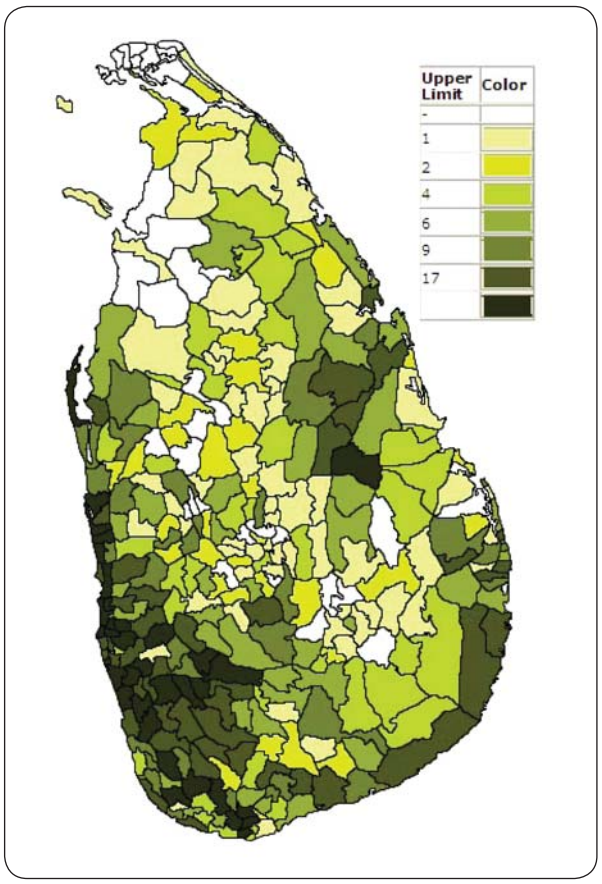


7.3.7 Spatial analysis: Number of Data Cards (Floods 1974-2007)

Districts



Divisions



7.3.8 DS Divisions Most Prone to Flooding (1974-2007)

District	Division	Data Cards
Colombo	Kaduwela	37
	Kolonnawa	29
	Colombo	21
	Moratuwa	17
	Kesbewa	15
	Ratmalana	15
Gampaha	Katana	29
	Ja-Ela	25
	Wattala	23
	Kelaniya	21
	Biyagama	19
Kalutara	Bulathsinhala	38
	Mathugama	31
	Kalutara	29
	Bandaragama	19
	Panadura	18

District	Division	Data Cards
Matara	Kamburupitiya	31
	Malimbada	30
	Thihagoda	28
	Akuressa	27
	Matara Four Gravets	27
Puttalam	Nattandiya	25
	Wennappuwa	25
	Chilaw	24
	Mahawewa	23
	Kalpitiya	18
Ratnapura	Ratnapura	50
	Elapatha	28
	Ayagama	26
	Kuruvita	25
	Kalawana	17
Total		790

Flood Summary

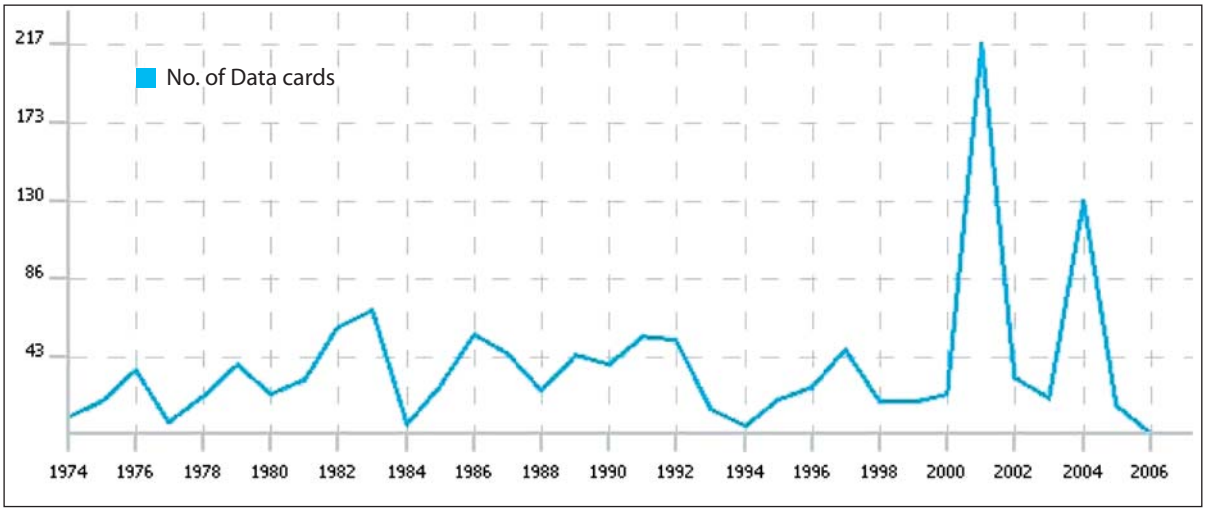
The highest number of flood events was reported in 2003 totaling 255, and the average for the period was 77. The greatest number of people was affected by floods in 1994, 2003, 1990, and 1993. The largest number of houses damaged during the floods in 2003 totaled to 37,721 and in 1994 totaled to 19,857. The greatest damage to paddy occurred in 1994 (53,021 hectares), 1984 (51,034 hectares) and 1986 (47,564 hectares). Relief distribution was highest in 2003 (Rs. 265,400,390) and in 2005 (Rs. 243,271,924).

While the largest number of disaster events recorded; the largest number of houses damaged or destroyed and the largest amount of resources spent on flood relief was in 2003, the largest number of people affected was in 1994, and the greatest damage to paddy occurred in 1994.

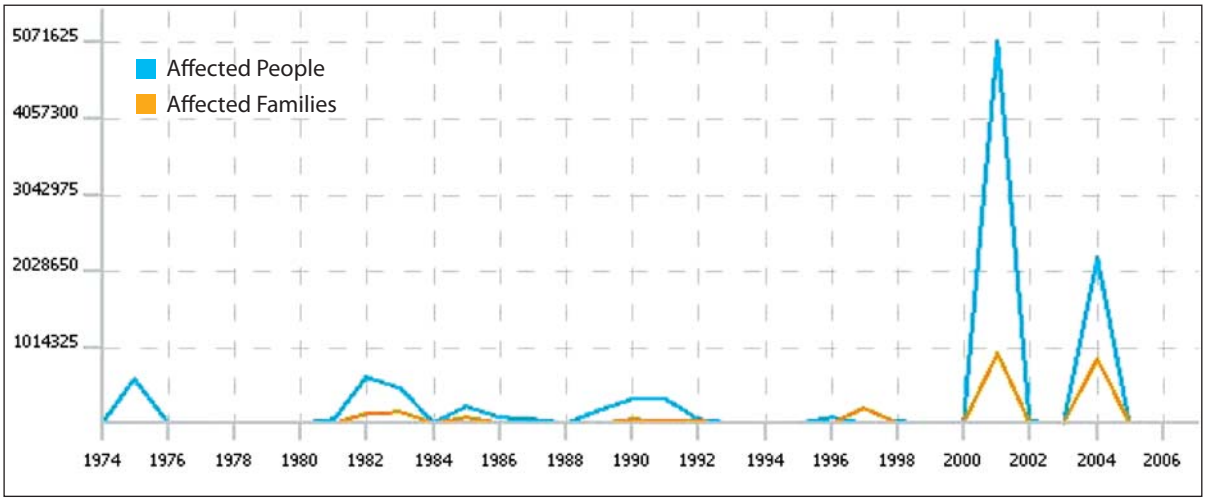
The Districts most prone to floods include: Kalutara, Ratnapura, Colombo, Gampaha, Puttalam, Matara, Galle, Ampara, Polonnaruwa and Hambantota.

7.4 Drought

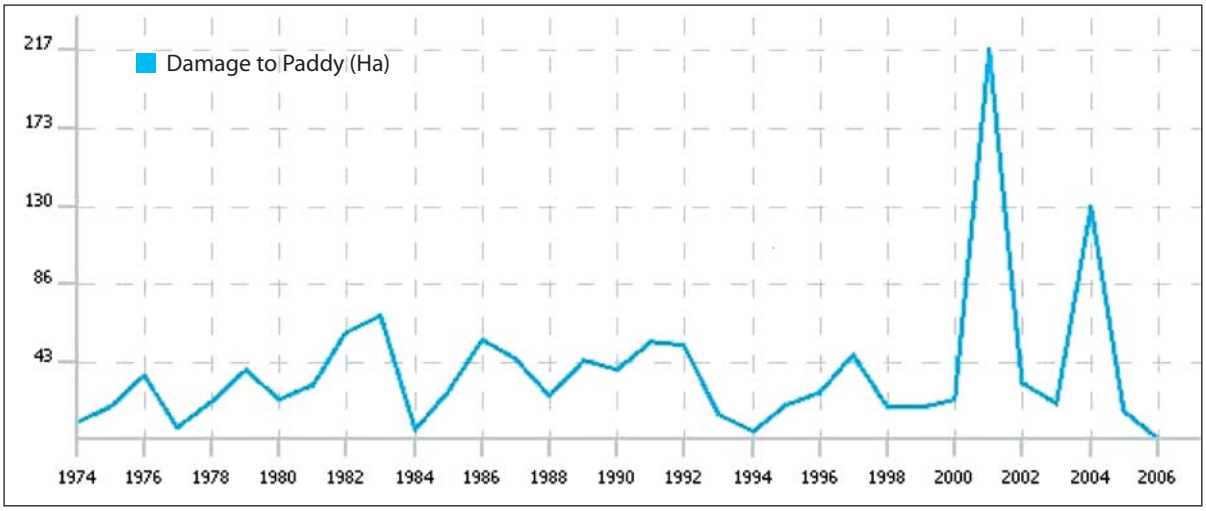
7.4.1 General Trend: Number of Reports (Drought, 1974-2007)



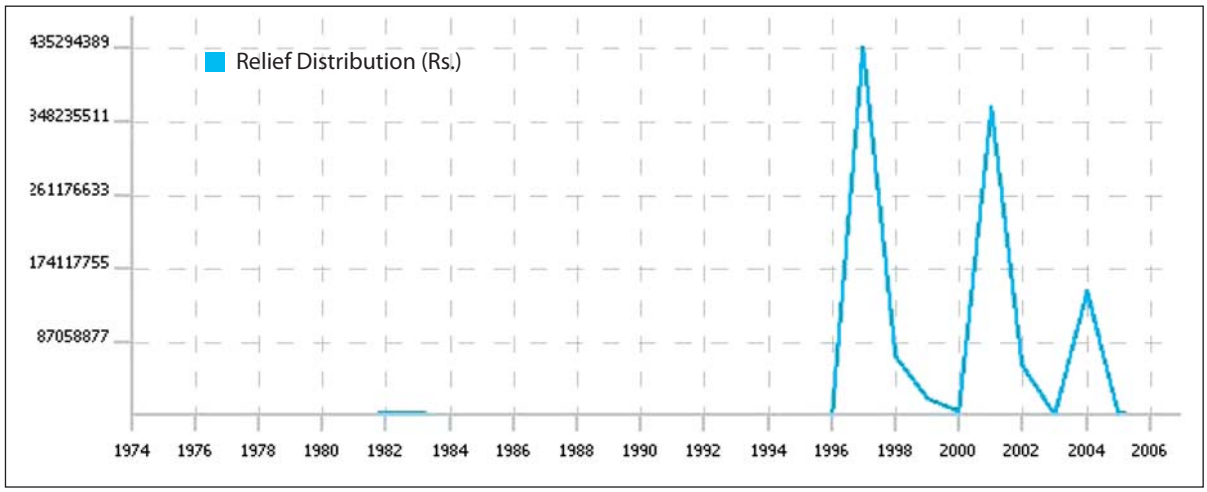
7.4.2 Trend: Number of People and Families Affected (Drought, 1974-2007)



7.4.3 Trend: Damage to Paddy Cultivation (Hectares) (Drought, 1974-2007)

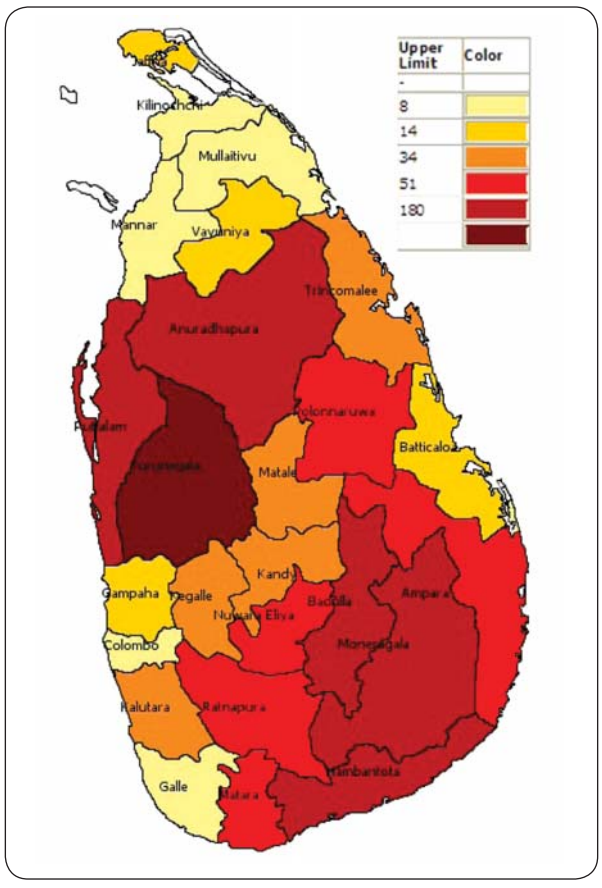


7.4.4 Trend: Relief Distribution (Drought, 1974-2007)



7.4.5 Spatial Analysis: Number of Reports (Drought, 1974-2007)

Districts

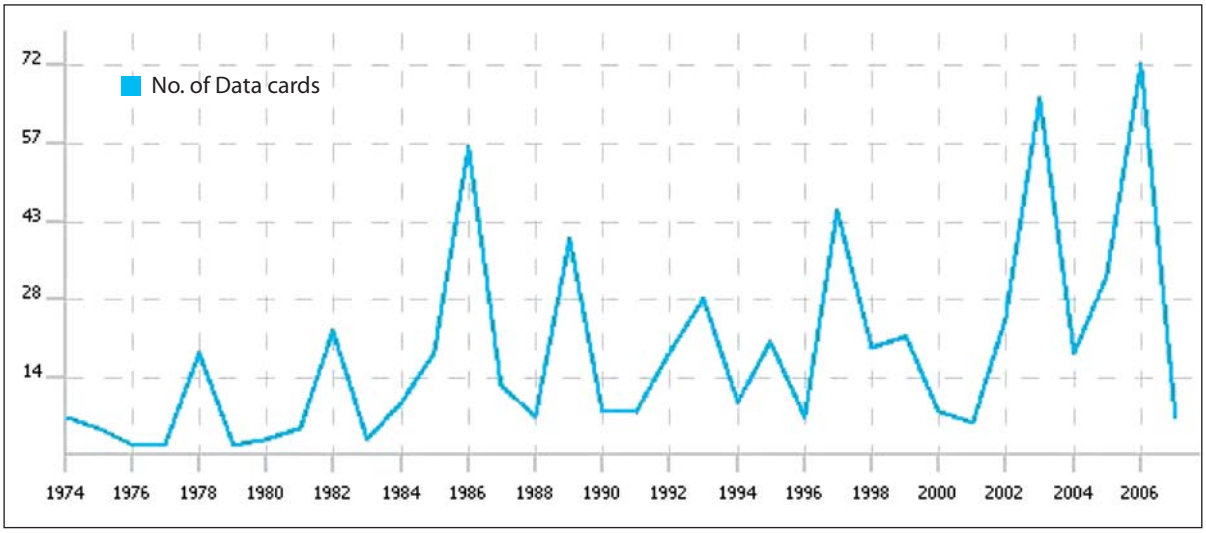


Drought Summary

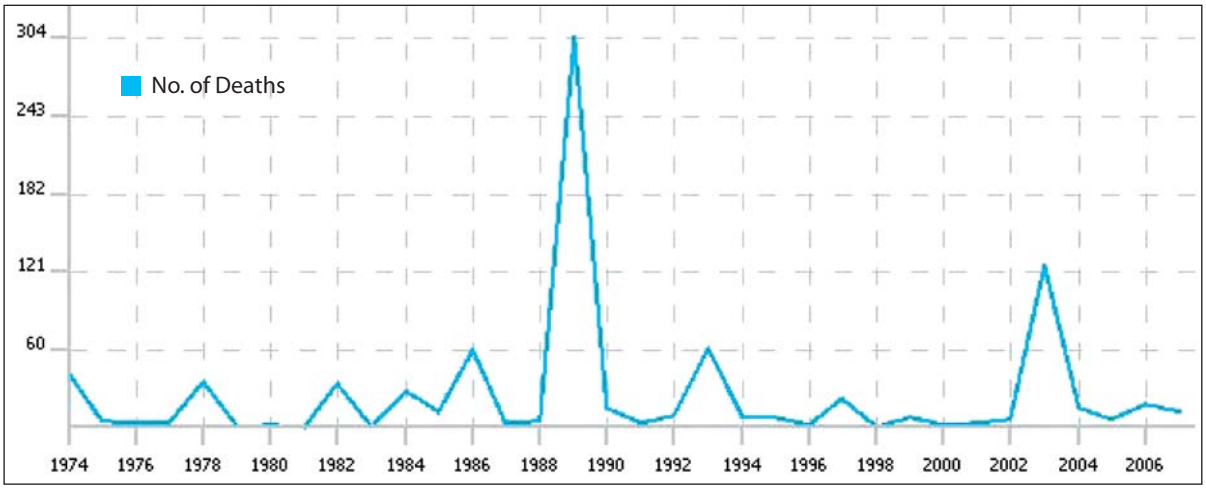
The worst drought in the history of Sri Lanka took place in 2001 with another severe drought occurring in 2004. In other years during the period 1974-2007 droughts demonstrated a cyclical trend peaking at three to four year intervals in 1976, 1979, 1983, 1986, 1989, 1991, 1997, 2001, and 2004. The greatest number of people was affected by droughts, and the greatest damage to paddy resulting from droughts occurred in 2001 and 2004. 5,071,625 people were affected by drought, in 2001 and 2,198,521 in 2004. 104,399 hectares of paddy was lost in 2001 and 47,105 hectares in 2004. The Districts most prone to droughts in Sri Lanka include: Kurunegala Hambantota, Moneragala, Puttalam, Anuradhapura Badulla, Ratnapura, Ampara, Matara and Nuwara Eliya.

7.5 Landslides

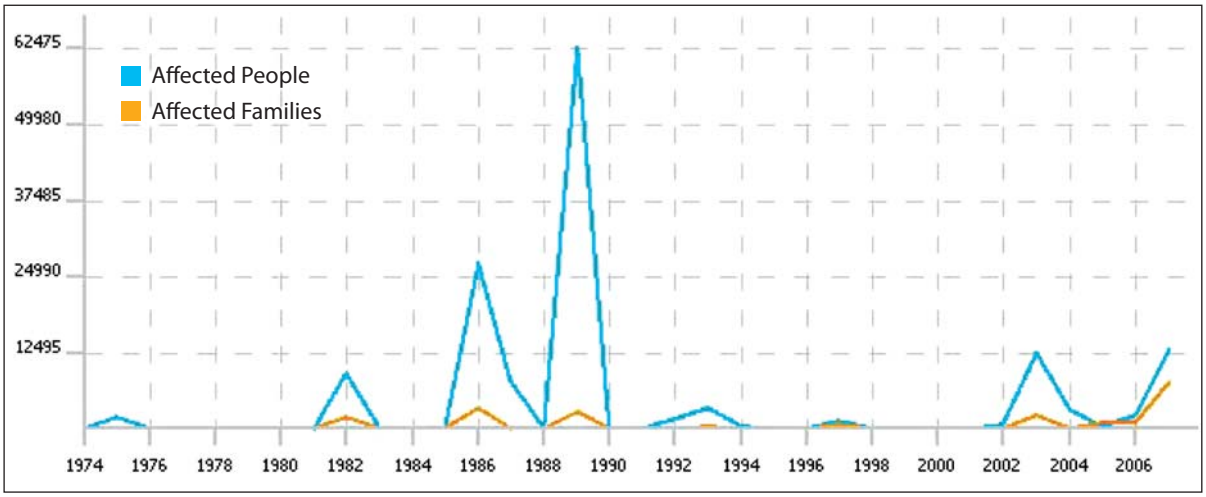
7.5.1 General Trend: Number of Data Cards (Landslides, 1974-2007)



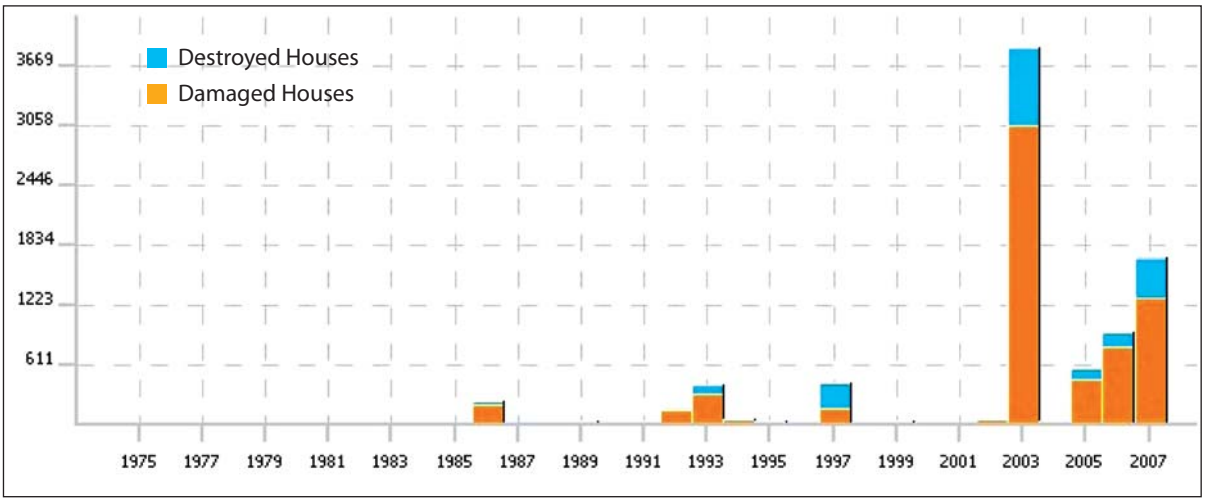
7.5.2 Trend: Number of Deaths (Landslides, 1974-2007)



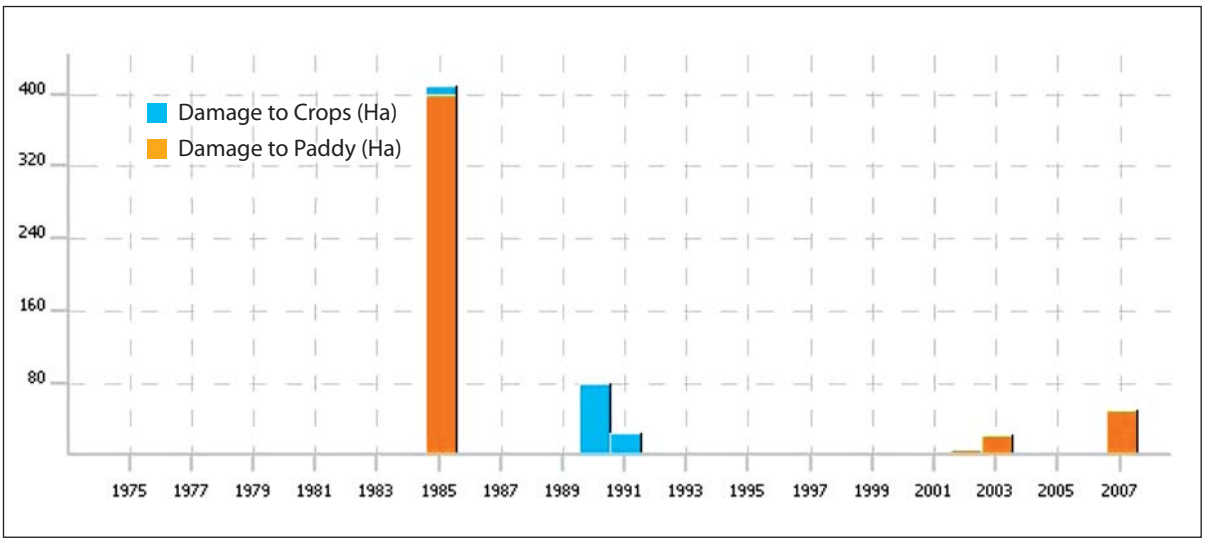
7.5.3 Trend: Number of People and Families Affected (Landslides, 1974-2007)



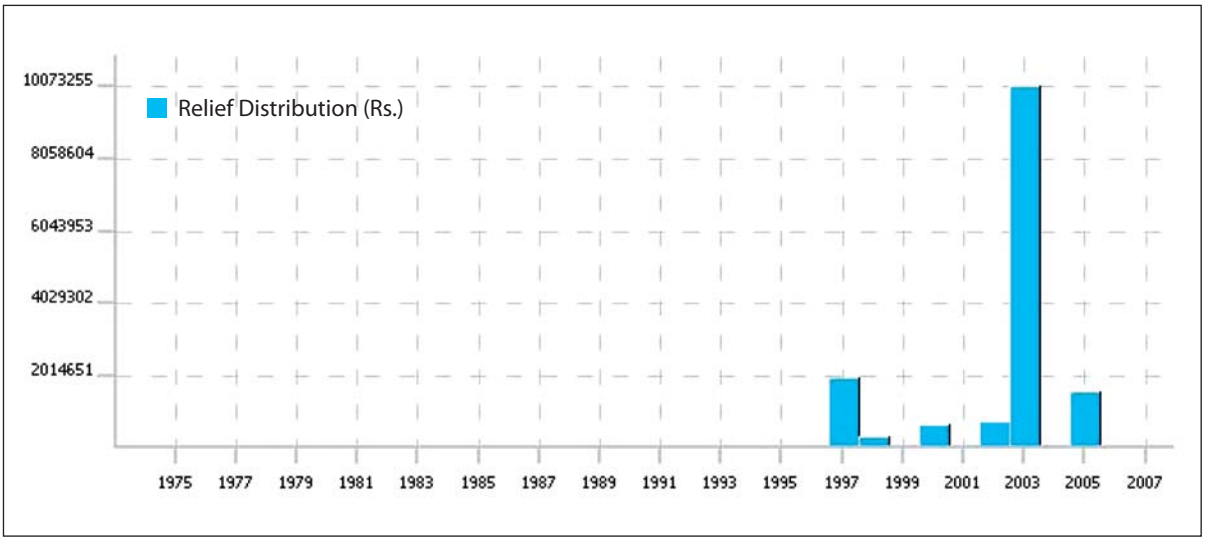
7.5.4 Trend: Number of Destroyed and Damaged Houses (Landslides, 1974-2007)



7.5.5 Trend: Damage to Paddy and Other Crop Cultivation (Hectares) (Landslides, 1974 - 2007)

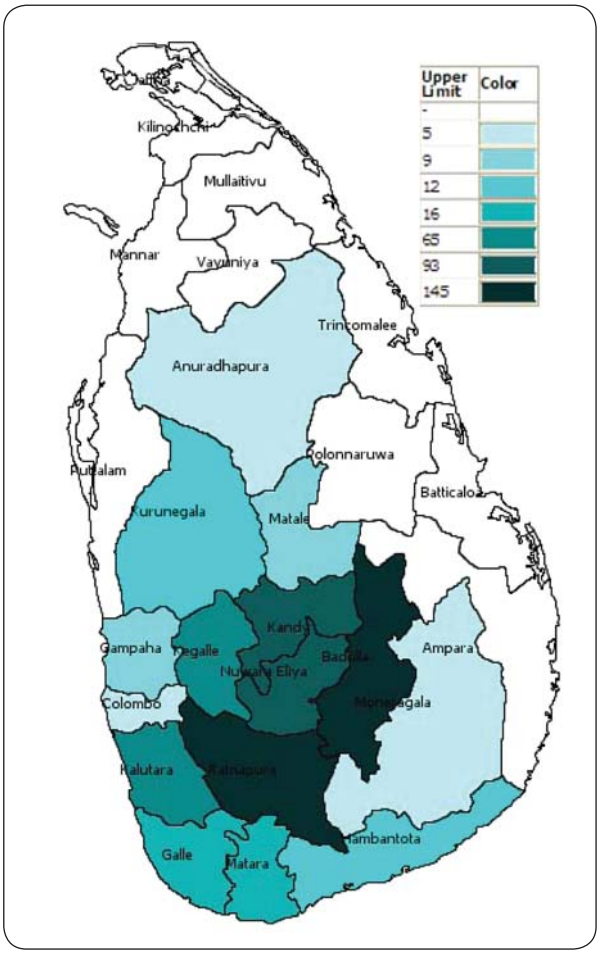


7.5.6 Trend: Relief Distribution (Landslides, 1974-2007)

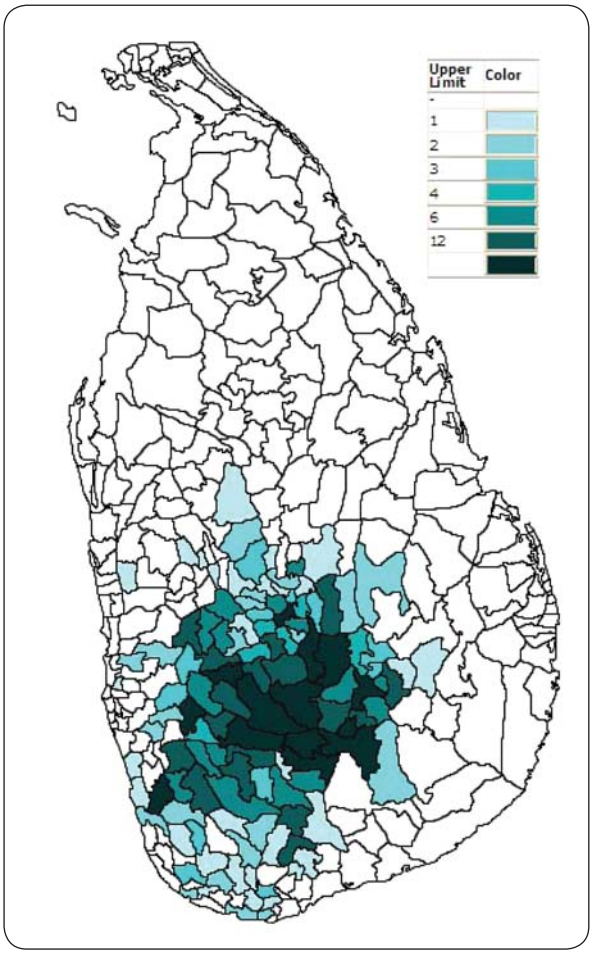


7.5.7 Spatial Analysis: Number of Reports (Landslides, 1974-2007)

Districts



Divisions



7.5.8 DS Divisions Most Prone to Landslides (1974-2007)

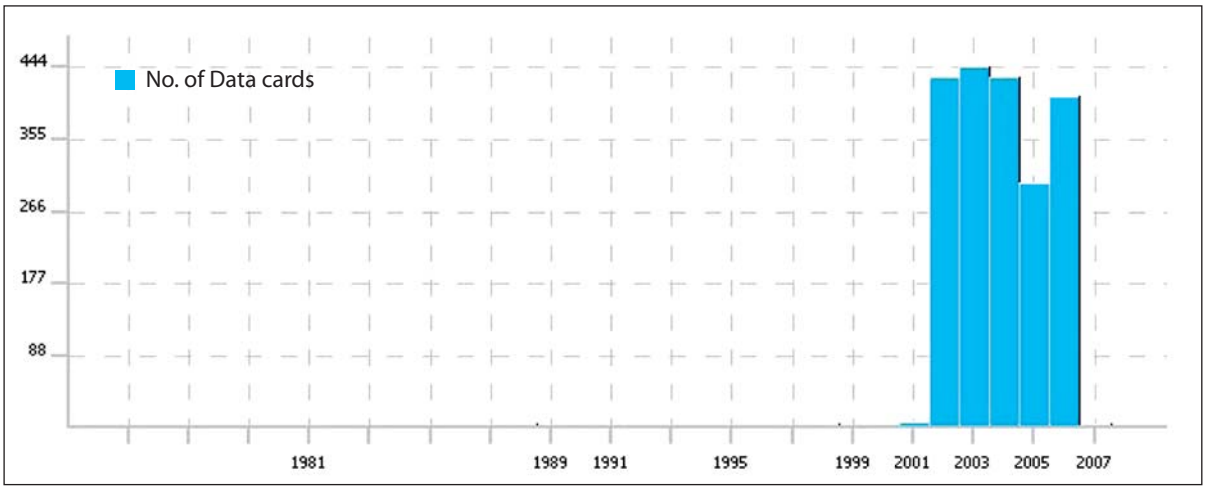
District	Divisions	Data Cards
Badulla	Haldummulla	37
	Haputale	21
	Hali-Ela	13
	Passara	10
	Welimada	10
Kandy	Kandy Four Gravets & Gangawata	14
	Udadumbara	12
	Pasbage Korale	8
	Udapalatha	8
	Harispattuwa	6
Kegalle	Yatiyanthota	15
	Bulathkohupitiya	7
	Deraniyagala	7
	Warakapola	7
	Dehiovita	6
Nuwara Eliya	Ambagamuwa	31
	Nuwara Eliya	23
	Walapane	16
	Hanguranketha	14
	Kothmale	8
Ratnapura	Imbulpe	21
	Ratnapura	18
	Eheliyagoda	14
	Balangoda	13
	Pelmadulla	12
Total		**351**

Landslides Summary

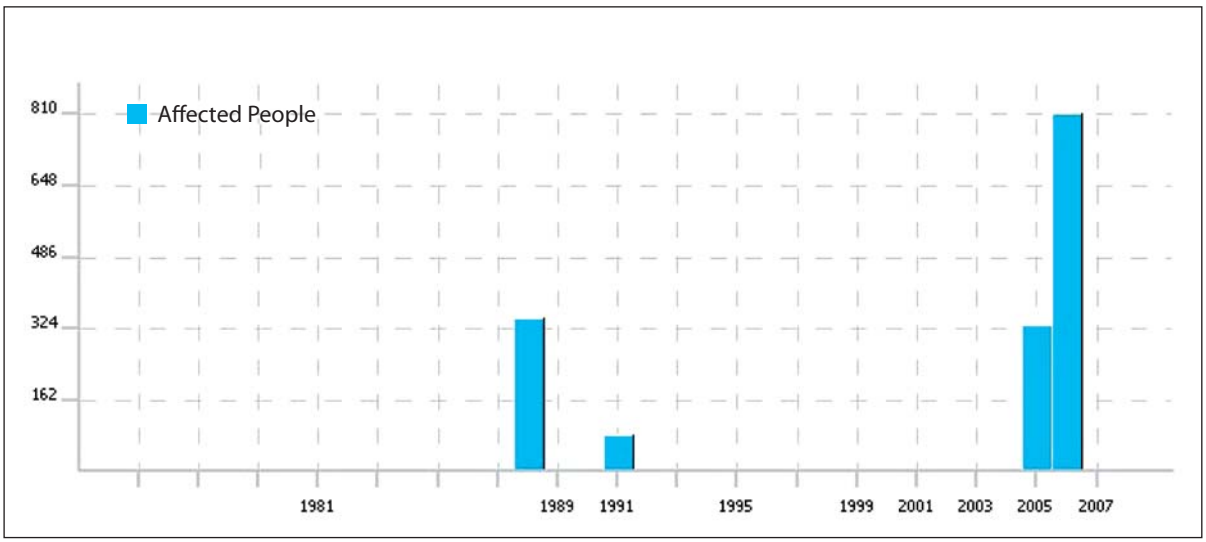
As is the case with droughts, landslides have also demonstrated a cyclical trend, peaking in 1978, 1982, 1986, 1989, 1993, 1995, 1997, 1999, 2003 and 2006. The largest number of landslide was recorded in 2006 totaling to 72. However the largest number of people were affected and killed as a result of the landslides in 1989 (62,475 affected and 304 killed), followed by the landslides in 1986 (27,262 affected and 60 killed). The greatest damage to housing occurred in 2003 (3,058 houses were damaged) and the largest amount of relief (Rs. 10,073,255) also was distributed in 2003. The Districts most prone to landslides include Ratnapura, Badulla, Nuwara Eliya, Kandy, Kegalle, Kalutara, Galle, Matara, Hambantota and Kurunegala.

7.6 Fire

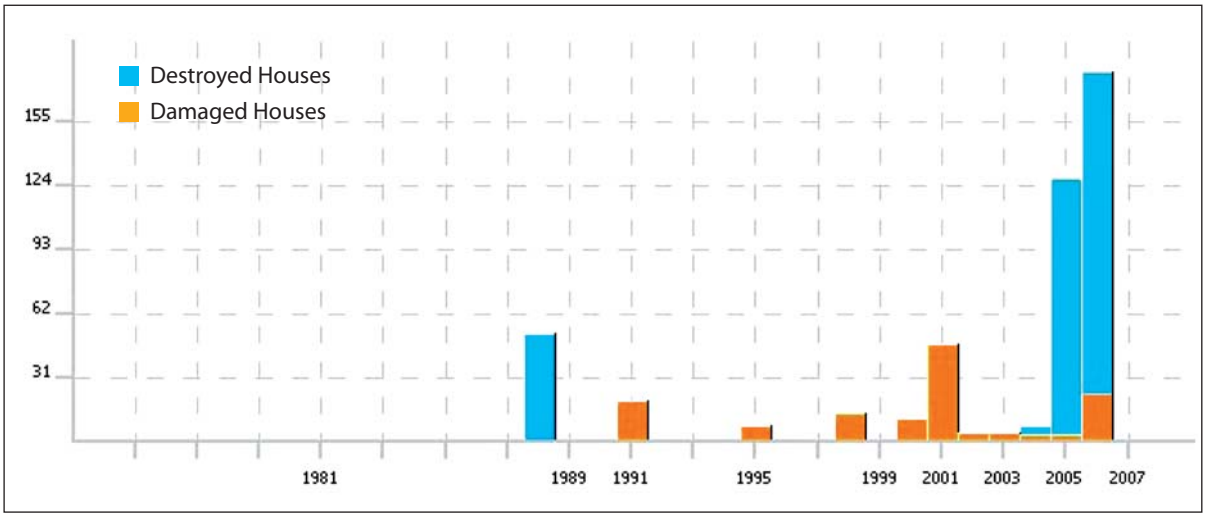
7.6.1 General Trend: Number of Data Cards (Fire, 1974-2007)



7.6.2 Trend: Number of People Affected (Fire, 1974-2007)

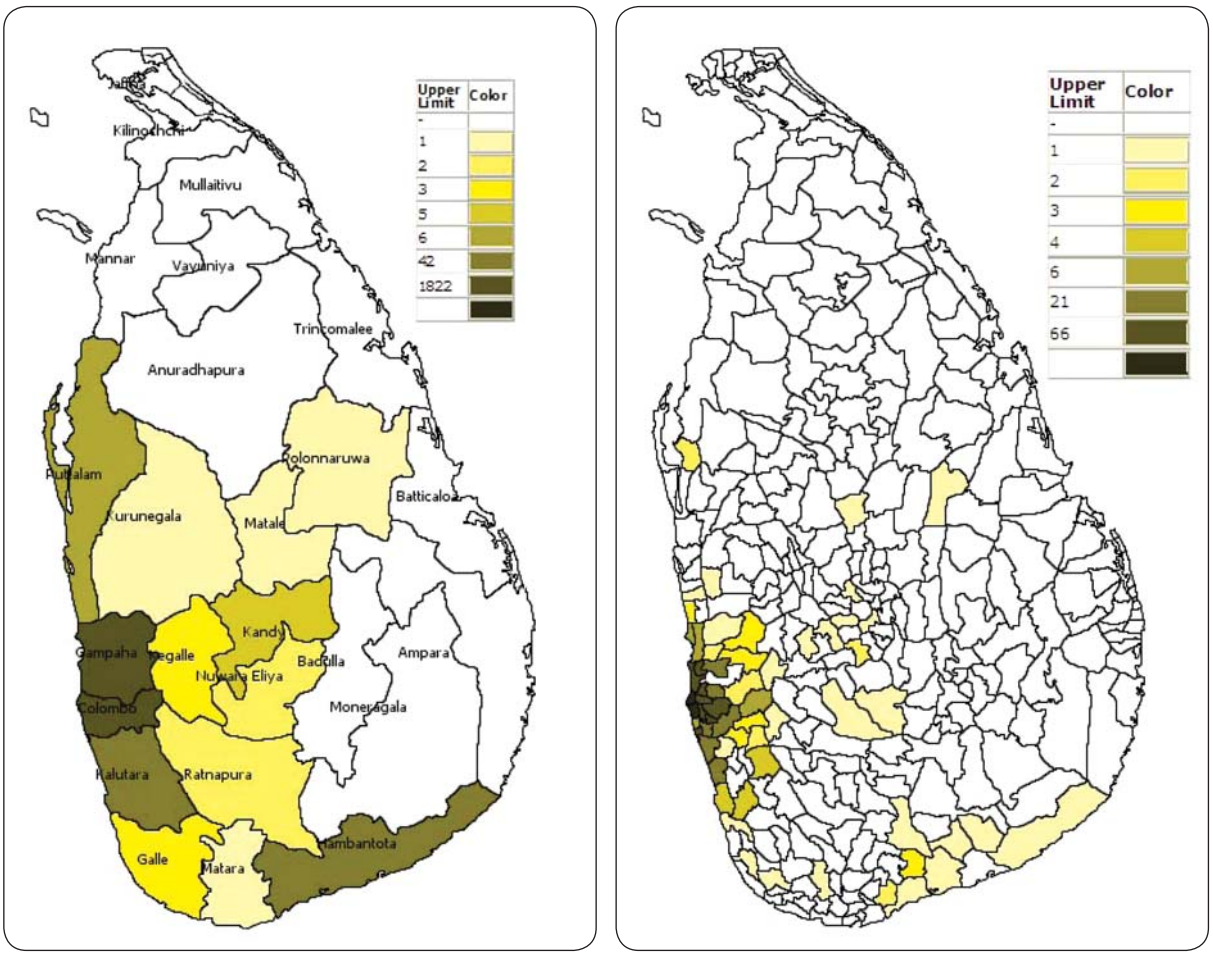


7.6.3 Trend: Damaged and Destroyed Houses (Fire, 1974-2007)



7.6.4 Spatial Analysis: Number of Reports (Fire, 1974-2007)

District **Divisions**



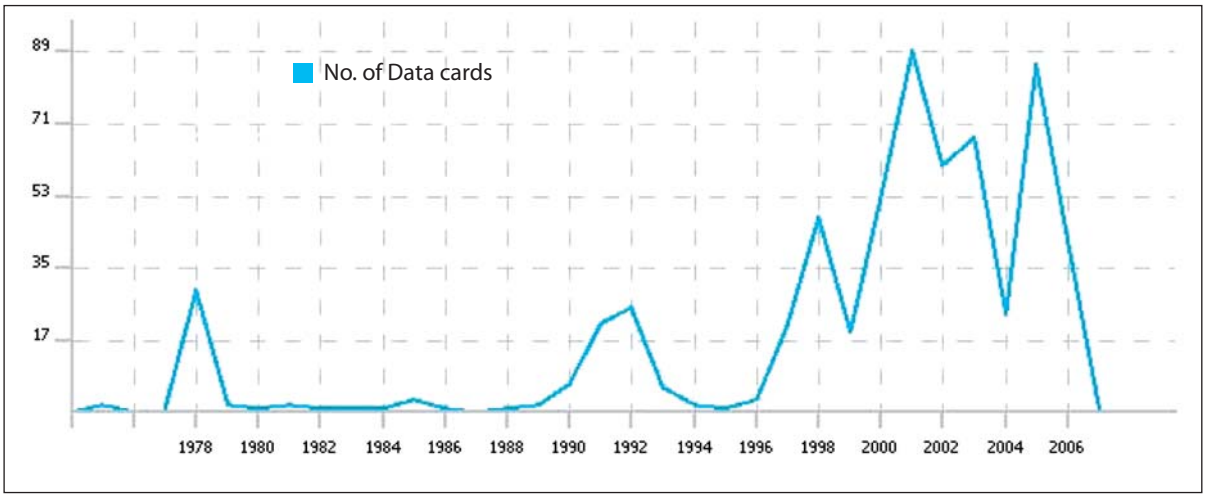
Fire Summary

Fire records were high from 2002 – 2006, showing 433 records in 2002, 444 records in 2003, 432 records in 2004, 301 records in 2005, and 408 records in 2006. Similarly 333 people and 810 people were affected by fires in 2005 and 2006 respectively; and 124 and 155 houses were destroyed in 2005 and 2006 respectively;[6] whereas for most other years damage and loss to life and property remained low or not occur. The District most prone to fires include: Colombo, Gampaha, Kalutara, Hambantota, Puttalam, Kandy, Kegalle and Galle.

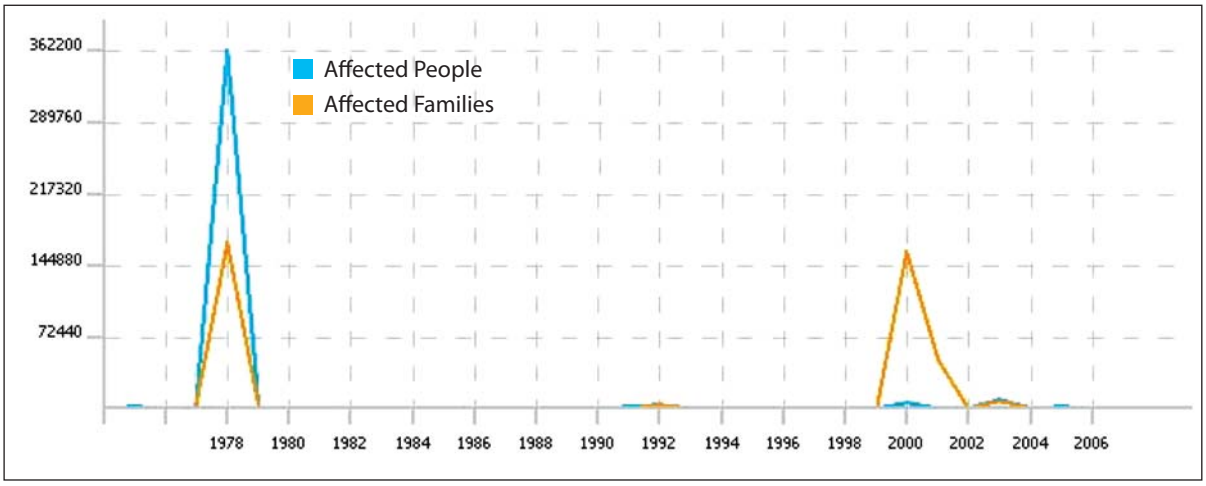
6 The reason why records are higher for the period 2002-2006 as compared to any other years is because data was available only from the Colombo Municipal Council, Fire Services Department for that period. Records from other Districts are scarce.

7.7 Cyclone

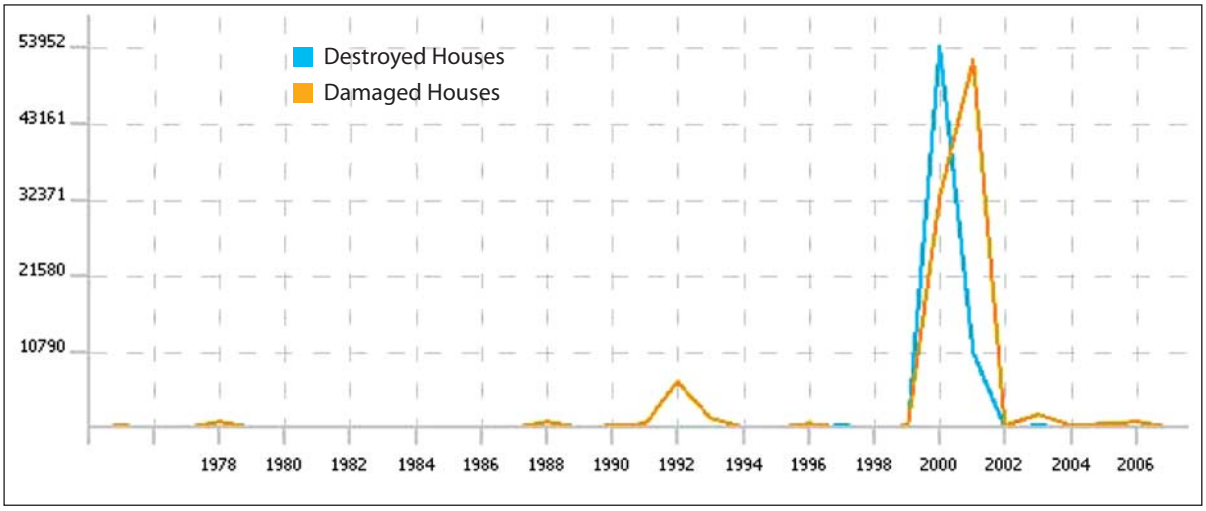
7.7.1 General Trend: Number of Reports (Cyclone, 1974-2007)



7.7.2 Trend: Number of People and Families Affected (Cyclone, 1974-2007)

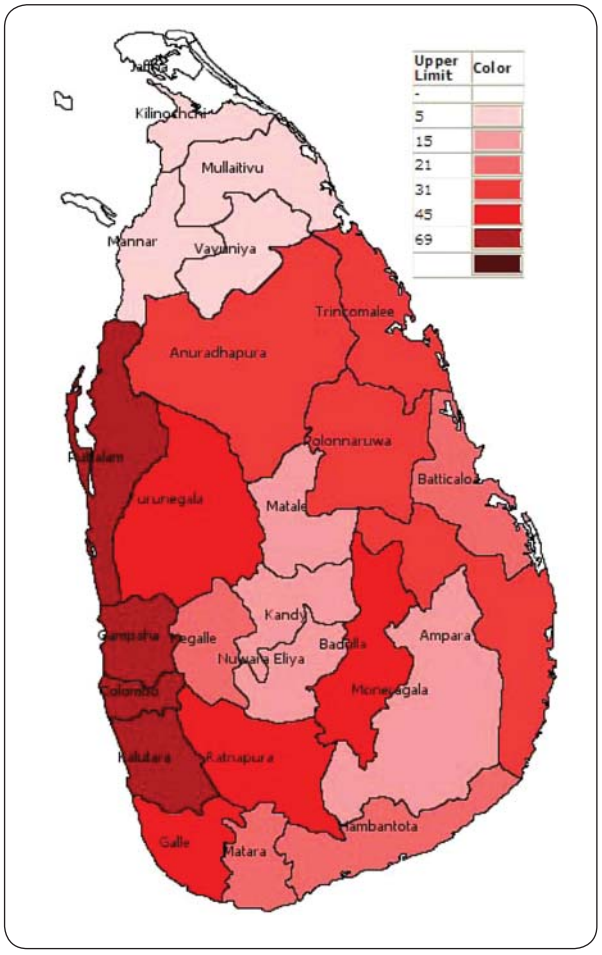


7.7.3 Trend: Number of Houses Damaged and Destroyed (Cyclone, 1974-2007)

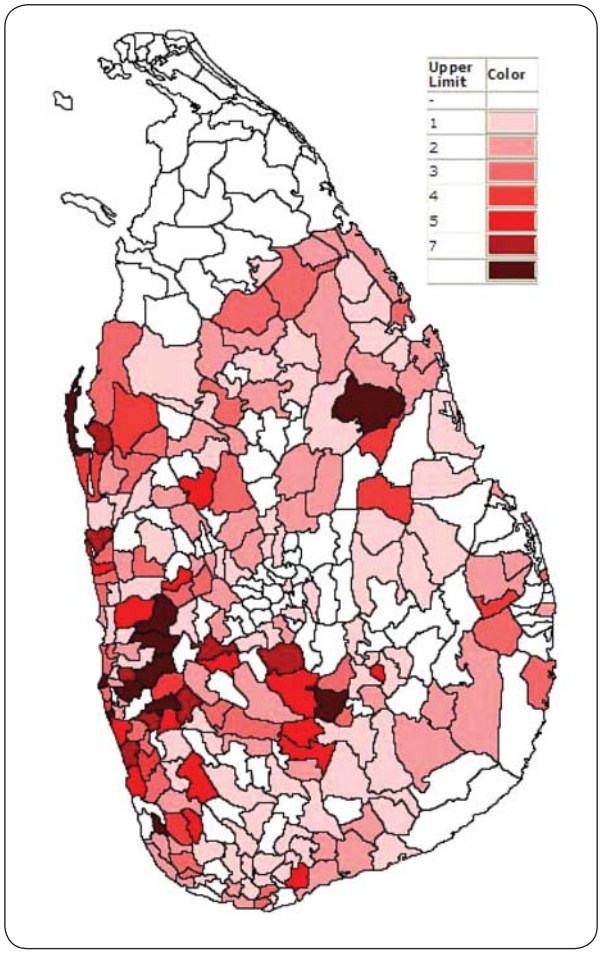


7.7.4 Spatial Analysis: Number of Reports (Cyclone, 1974-2007)

Districts



DS Divisions



Cyclone Summary

A large number of reports were captured in 1978 (30 records), 1998 (48 records), and from 2000-2006: 2000 (53 records), 2001 (89 records), 2002 (61 records), 2003 (68 records), 2004 (24 records), 2005 (86 records) and 2006 (42 records). 362,200 people were affected as a result of the cyclone that occurred in 1978 and 10,025 people were affected in 2003. However it was in 2000, that the largest number of houses were destroyed totaling to 53,952; and in 2001 totaling 10,736. Rs. 112,378,095 was spent on relief in 2001 out of a total of Rs. 225,024,072 that was spent on cyclone relief from 1974-2007. The most cyclone and gale prone districts include: Colombo, Puttalam, Gampaha, Kalutara, Kurunegala, Galle, Ratnapura, Badulla, Anuradhapura and Ampara.

8. Conclusions

A summary of the key findings from the preliminary analysis are presented below.

- Sri Lanka is a country that suffers from recurrent small and medium scale hazard occurrences.
- The seven most frequently occurring disasters in Sri Lanka include: epidemics, animal attacks, floods, fire, droughts, landslides and cyclones.
- While epidemics have occurred most frequently, it was the tsunami that claimed the largest number of lives, totaling 39,143 lives, followed by cyclones, epidemics, animal attack, landslides, and floods. Droughts have had the greatest impact on crop (530,685 hectares) and paddy losses (303,957 hectares); and floods on damage and destruction to housing, damaging and destroying 194,807 houses between 1974 and 2007.
- The hazard maps above show that Colombo is the most multi-hazard prone district (as indicated by the largest number of data cards entered), followed by Kurunegala, Anuradhapura, Kalutara, Ratnapura, Matale, Kandy, Badulla, Puttalam and Hambantota.
- The Districts that are most prone to epidemics are Colombo, Jaffna, Kandy, Kurunegala, Kalutara, Kegalle, Ratnapura, Badulla, Anuradhapura and Matale.
- The Districts most prone to animal attacks are Anuradhapura, Matale, Polonnaruwa, Hambantota, Moneragala, Kurunegala, Ampara, Badulla, Ratnapura and Puttalam.
- The Districts most vulnerable to floods are: Kalutara, Ratnapura, Colombo, Puttalam, Matara, Galle, Ampara, Polonnaruwa and Hambantota.
- The Districts most vulnerable to droughts are Kurunegala Hambantota, Moneragala, Puttalam, Anuradhapura, Badulla, Ratnapura, Ampara, Matara and Nuwara Eliya.
- The Districts most vulnerable to landslides are Ratnapura, Badulla, Nuwara Eliya, Kandy, Kegalle, Kalutara, Matara, Galle, Hambantota and Kurunegala.
- The Districts most prone to cyclones are Colombo, Puttalam, Gampaha, Kalutara, Kurunegala, Galle, Ratnapura, Badulla, Anuradhapura and Ampara.
- The total number of people that have been killed as a result of the occurrence of cyclones, epidemics, animal attacks, landslides, floods, lightening, storms, gale, snake bites, tornados and structural failure, between 1974-2007, is 6,765. The cumulative impact on human life of these eleven hazard events (1974-2007) is less than the impact of one very low frequency but extremely high hazard impact, tsunami. The tsunami killed a total of 35,322 people in a matter of hours.
- The total amount of relief distributed between 1974 and 2007 amounts to Rs. 2,261,674,290.18. The impact on the loss of livelihoods has been valued at Rs. 4,089,511 for all the hazards recorded in the database including drought, flood, cyclone, tsunami, epidemic, coastal erosion, landslide, animal attack, earthquake, fire, forest fire, frost, gale, hailstorm, gas/chemical leak, lightning, plague, pollution, heavy rains, sedimentation, snake bite, soil erosion, storm, structural failures, sea surge, tidal wave, tornado and urban flood.

9. Next Steps

A number of activities are yet to be carried out over the next 18 months in order to ensure that the Historical Disaster Information System is fully validated, and that the system is institutionalized island wide and used both for dynamic incident reporting; and planning and targeting investments. Some of the key suggestions are listed below:

- Collect additional information from Line Departments on the impacts of specific hazards in order to enrich the analysis from the remaining districts and produce a final comprehensive analytical report for the national level and district specific reports, which should all be updated periodically.
- Train district and divisional levels officials in incident reporting, data collection and data entry.
- Share the database with technical departments to enable them to analyse disaster impact on their various sectors and to help provide explanations for the trends described in the trend analysis section of the report.
- Design hazard specific prevention and mitigation measures that will target the districts most prone to specific hazards as depicted in the spatial analysis.

ANNEXES

Annex 1 - Summary Table: Disaster Impacts by All Hazards from 1974-2007

Event	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses	Damage to paddy (Ha)	Damage to crops (Ha)	Relief distribution (Rs)
Epidemic	12,129	1,384	139,698	3,038	NA	NA	NA	NA	2,4647,000
Animal Attack	4,747	1,055	10,549	3,216	1,283	2,734	15,334	24,590	330,680
Flood	2,861	498	5,831,413	2,405,364	49,891	144,916	274,056	170,159	713,796,761
Fire	2,057	2	1,583	407	336	146	NA	NA	NA
Drought	1,249	NA	10,578,284	2,621,668	NA	NA	303,956	530,685	1,110,434,179
Landslide	643	870	148,970	22,753	2,029	6,899	479	114	15,360,969
Cyclone	627	2,344	396,485	392,388	65,756	101,816	1,747	4,409	225,024,322
Lighting	394	437	115	134	5	66	NA	NA	NA
Gale	348	41	86,977	4,790	58,210	9,611	103	440	NA
Coastal Erosion	180	9	11,045	2,168	1,301	998	NA	NA	18,620,429
Storm	133	60	5,027	310	332	2,967	NA	1,000	NA
Urban Flood	125	NA	2,016	4,491	4	75	NA	NA	NA
Tsunami	71	39,331	426,622	150,651	44,250	49,914	90	NA	153,460,200
Plague	45	NA	NA	NA	NA	NA	1,935	NA	NA
Forest fire	37	3	1,175	NA	15	NA	NA	1,128	NA
Snake bite	33	32	NA	NA	NA	NA	NA	NA	NA
Tornado	33	28	775	284	47	1,240	NA	NA	NA
Rains	22	NA	NA	NA	NA	2	NA	NA	NA
Surge	21	3	502	NA	2	15	NA	NA	NA
Structure	15	16	NA	NA	NA	2	NA	NA	NA
Hailstorm	14	NA	NA	NA	NA	70	NA	NA	NA
Sedimentation	7	NA	NA	NA	NA	NA	NA	NA	NA
Earthquake	3	NA	NA	NA	NA	NA	NA	NA	NA
Tidal Wave	3	NA	1,750	NA	NA	350	NA	NA	NA
Frost	2	NA	NA	NA	NA	NA	202	NA	NA
Leak	2	NA	325	NA	NA	NA	NA	NA	NA
Soil Erosion	2	NA	NA	NA	NA	NA	NA	NA	NA
Pollution	1	NA	NA	NA	NA	NA	NA	NA	NA

Annex 2 - Summary Table: Disaster Impacts by Year from 1974-2007 for All Hazards

Year	Data cards	Deaths	No. of destroyed houses	No. of damaged houses	No. of affected people	No. of families affected	Damage to paddy (Ha)	Damage to crops (Ha)	Relief distribution (Rs)
1974	1,712	350	900	450	17,920	370	3,500	18,800	NA
1975	731	58	NA	1,530	616,702	NA	9,906	4,507	NA
1976	2,945	139	12	6,642	39,159	400	13,208	5,470	NA
1977	1,303	26	10	67	18,123	100	3,220	450	121,000
1978	2,302	2,496	92	11,277	431,513	369,091	23,046	4,600	120,000
1979	110	36	25	294	4,163	20	7,124	220,880	NA
1980	166	104	8	50	17,683	5,825	4,979	782	200,000
1981	1,163	88	48	1,455	122,475	17,825	3,273	11,788	84,000
1982	218	96	78	25	721,935	167,506	20,744	126,280	4,012,134
1983	203	33	62	NA	497,683	164,170	10,832	800	26,372,000
1984	219	113	126	3,419	259,573	14,149	51,438	1,481	100,000
1985	182	91	1,078	244	293,401	105,196	16,428	15,928	NA
1986	363	243	5,258	415	299,086	185,146	47,644	23,138	1,655,000
1987	159	152	58	541	105,249	21,116	24,119	80,417	NA
1988	909	59	57	2,128	90,587	58,636	3,343	4,930	NA
1989	265	344	1,277	4,107	462,366	23,945	318	47,084	158,000
1990	219	152	4,175	7,779	937,058	127,421	21,352	996	305,000
1991	232	66	207	1,199	426,364	86,858	151	1,624	NA
1992	1,189	118	72	8,182	118,757	117,624	4,547	7,800	1,050,000
1993	279	128	568	12,098	570,175	170,370	6,260	564	750,000
1994	232	63	5,009	20,175	987,258	220,666	53,114	15,388	35,000
1995	385	129	228	1,956	45,309	59,511	1,525	43,760	NA
1996	179	125	109	1,906	125,372	34,067	32,432	2,800	NA
1997	496	73	2,245	1,725	72,534	265,281	5,109	440	463,340,505
1998	1,096	175	240	2,156	67,351	23,838	2,337	16,788	107,785,596
1999	1,200	180	3,331	8,806	132,559	132,048	404	8,295	128,379,265
2000	1,118	160	123,924	35,087	104,866	451,964	20,888	4,449	82,853,792
2001	1,133	127	11,128	53,760	5,081,067	1,006,705	108,448	51,026	488,880,696
2002	1,123	87	114	1,829	52,859	26,710	3,239	4,442	86,489,875
2003	1,206	458	14,866	44,154	1,007,164	353,405	31,307	6,375	279,363,945
2004	946	39,415	44,483	52,713	2,970,985	1,107,001	48,615	440	302,210,030
2005	854	132	930	9,341	226,952	50,601	309	NA	281,667,451
2006	883	71	1,313	22,642	656,063	220,073	13,376	2	NA
2007	57	16	1,195	3,222	61,232	23,628	1,058	NA	57,41,000

Annex 3 - Summary Table: Disaster Impacts by District (1974-2007) for All Hazards

District	Data cards	Deaths	No. of destroyed houses	No. of damaged houses	No. of people affected	No. of families affected	Damage to crops (Ha)	Damage to paddy(Ha)	Relief distribution (Rs)
Kurunegala	1,836	227	789	2669	1,410,425	568,667	141,400	84,635	141,497,732
Matale	1,330	236	347	513	192,891	85,487	123,092	1,525	21,567,121
Polonnaruwa	899	225	6,251	17,755	341,219	109,236	71,220	65,221	85,614,350
Matara	916	1,518	8,317	27,693	635,674	206,404	57,119	42,550	221,070,571
Kalutara	1,490	388	8,606	24,252	809,017	310,741	57,052	1,875	38,751,784
Moneragala	922	160	92	2,886	1,638,509	255,608	41,760	14,014	122,573,812
Badulla	1,244	173	489	3,100	374,670	99,280	41,374	2,104	92,117,023
Ampara	750	4,321	23,378	39,337	1,072,272	503,372	23,698	127,267	80,817,466
Ratnapura	1,456	484	4,571	17,214	3,329,806	883,581	22,454	20,539	150,446,346
Kegalle	1,001	392	355	2,212	58,667	1,617	21,904	1,044	4,488,007
Jaffna	1,042	993	3,839	2,421	173,165	10,782	16,000	8,438	10,706,200
Mannar	68	47	NA	NA	67,925	13,856	14,000	NA	3,266,870
Trincomalee	418	994	106,672	19,392	221,740	140,718	11,841	28,306	91,849,104
Anuradhapura	1,515	332	12,788	61,488	1,041,128	237,347	9,736	80,527	379,573,961
Vavuniya	376	30	21	NA	237,288	37,137	8,507	2	21,582,433
Puttalam	1,241	262	2,268	10,729	1,625,443	507,660	6,957	36,640	94,214,153
Nuwara Eliya	463	160	1,256	3,134	63,555	13,111	6,056	30,35	6,298,557
Hambantota	1,065	2,638	3,222	4,771	850,212	346,386	5,600	72,636	398,612,087
Galle	945	1,639	7,104	19,849	309,037	117,782	2,532	4,153	204,759,720
Gampaha	925	212	903	9,180	576,083	263,487	1,042	1,445	17,521,140
Kandy	1,281	167	557	1,502	44,610	4,443	618	578	3,604,014
Batticaloa	639	3,820	22,516	21,743	2,036,295	707,679	402	1,011	35,217,449
Colombo	3,821	331	4,035	28,550	388,297	132,332	400	44	16,490,019
Mullaitivu	66	26,346	4,564	1,156	99,602	30,162	NA	283	5,969,585
Kilinochchi	59	16	521	275	45,340	24,727	NA	24	13,065,035

Annex 4 - Summary Table: Disaster Impacts by Year Resulting from Epidemic (1974-2007)

Year	Data cards	Deaths	No. of people affected
1974	1,651	299	6,920
1975	660	43	2,792
1976	2,841	114	22,456
1977	1,230	13	8,101
1978	1,962	21	12,472
1979	10	10	32
1980	70	43	929
1981	1,027	49	5,164
1982	29	23	383
1983	93	20	388
1984	30	9	162
1985	32	16	76
1986	111	83	4,882
1987	67	136	29,236
1988	787	20	15,706
1989	10	6	480
1990	47	49	280
1991	25	5	149
1992	878	11	9,404
1993	11	10	32
1994	9	16	60
1995	6	6	317
1996	42	80	759
1997	57	11	4,205
1998	105	64	3,467
1999	40	10	4,403
2000	40	61	1,852
2001	36	16	832
2002	36	22	356
2003	67	32	1,199
2004	31	11	759
2005	28	71	224
2006	25	2	1,038
2007	21	NA	88

Annex 5 - Summary Table: Disaster Impacts by District Resulting from Epidemic (1974-2007)

District	Data cards	Deaths	No. of people affected
Colombo	1,462	84	19,724
Kurunegala	942	74	18,602
Anuradhapura	634	97	12,805
Badulla	657	67	10,415
Gampaha	319	87	8,188
Puttalam	565	148	8,018
Kandy	955	65	7,694
Matale	580	55	5,961
Hambantota	156	43	5,525
Kegalle	711	17	5,211
Trincomalee	132	104	5,172
Polonnaruwa	94	43	5,010
Jaffna	1,007	79	4,931
Batticaloa	517	54	4,820
Kalutara	770	19	4,265
Ratnapura	688	84	3,696
Matara	531	84	2,537
Galle	548	20	2,373
Ampara	126	24	1,418
Moneragala	144	42	1,250
Nuwara Eliya	152	17	801
Vavuniya	315	16	756
Mannar	46	45	300
Mullaitivu	36	6	76
Kilinochchi	27	10	49

Annex 6 - Summary Table: Disaster Impacts by Year Resulting from Animal attack (1974-2007)

Year	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses	Damage to paddy (Ha)	Damage to crops (Ha)
1974	4	3	NA	NA	NA	NA	NA	NA
1975	4	5	NA	NA	NA	NA	NA	NA
1976	12	5	101	NA	5	NA	NA	NA
1977	9	3	NA	NA	NA	1	404	410
1978	40	24	NA	NA	5	10	NA	NA
1979	11	7	120	NA	5	19	404	400
1980	24	34	3	NA	NA	2	NA	NA
1981	25	19	5	NA	NA	23	NA	NA
1982	23	13	225	NA	NA	6	NA	NA
1983	7	6	NA	NA	NA	NA	NA	400
1984	53	47	190	125	29	115	404	120
1985	42	40	NA	NA	3	NA	105	4,800
1986	64	45	500	NA	10	7	40	332
1987	16	8	353	70	6	NA	NA	2,800
1988	18	20	1	NA	1	NA	NA	10
1989	58	7	NA	NA	4	2	NA	3,804
1990	33	50	553	NA	57	78	32	276
1991	33	32	500	2,530	145	109	NA	360
1992	50	50	NA	NA	3	81	NA	NA
1993	44	23	100	NA	5	NA	NA	204
1994	34	29	103	3	NA	10	12	7,000
1995	101	38	2	NA	4	25	18	160
1996	36	28	NA	NA	104	10	16	NA
1997	61	9	1	1	33	17	NA	NA
1998	645	90	2,501	7	142	347	28	4
1999	803	126	42	13	110	518	NA	3,000
2000	808	78	40	12	311	305	NA	NA
2001	651	76	5,004	1	92	454	2	506
2002	433	39	29	13	3	347	14	NA
2003	236	35	19	4	83	118	1,620	3
2004	116	27	27	8	18	77	NA	NA
2005	183	25	94	20	97	45	9	NA
2006	64	11	36	9	8	4	12,140	NA
2007	6	3	NA	400	NA	4	80	NA

Annex 7 - Summary Table: Disaster Impacts by District Resulting from Animal attack (1974-2007)

District	Data cards	Deaths	No. of destroyed houses	No. of damaged houses	No. of people affected	Damage to crops (Ha)	Damage in paddy land(Ha)
Anuradhapura	658	209	322	369	1756	7,007	12,967
Matale	647	109	309	360	50	312	32
Polonnaruwa	580	140	184	443	604	7,000	105
Hambantota	550	73	115	282	440	NA	1,755
Moneragala	549	80	73	378	5771	7,200	404
Kurunegala	501	101	98	258	NA	NA	NA
Ampara	313	43	7	213	NA	130	16
Badulla	243	26	51	85	102	1,240	NA
Ratnapura	171	29	55	71	335	424	9
Puttalam	143	63	28	47	1258	400	40
Kandy	103	19	8	57	3	404	NA
Trincomalee	86	72	12	105	226	NA	NA
Nuwara Eliya	70	5	NA	36	NA	10	NA
Kegalle	47	34	NA	NA	NA	NA	NA
Kalutara	27	1	NA	NA	NA	8	NA
Matara	22	15	NA	9	NA	NA	NA
Galle	15	9	NA	1	NA	292	NA
Vavuniya	11	11	1	NA	NA	2	2
Batticaloa	4	5	NA	NA	4	NA	NA
Mullaitivu	2	5	NA	20	NA	NA	NA
Jaffna	1	5	20	NA	NA	NA	NA

Annex 8 - Summary Table: Disaster Impacts by Year Resulting from Flood (1974-2007)

Year	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses	Damage to crops (Ha)	Damage to paddy land (Ha)	Relief distribution (Rs)
1974	15	3	3,500	370	400	NA	NA	NA	NA
1975	21	NA	10,000	NA	NA	1,125	666	323	50,000
1976	21	2	7,500	400	NA	6,400	1,200	4,851	200,000
1977	30	1	10,022	NA	10	36	40	2,775	267,800
1978	47	6	39,526	195,991	15	1,417	NA	8,800	133,000
1979	5	NA	2,650	NA	NA	5	40	NA	NA
1980	7	NA	4,725	825	NA	NA	80	485	NA
1981	16	7	60,500	425	5	NA	NA	308	NA
1982	32	5	32,350	42,700	75	NA	120,000	14,852	950,000
1983	9	NA	8,525	305	NA	NA	NA	NA	NA
1984	79	14	259,205	14,021	97	3,194	161	51,034	100,000
1985	24	3	56,020	22,000	NA	30	40	440	NA
1986	40	37	176,252	171,371	5,200	NA	6	47,564	1,655,000
1987	4	NA	15,050	6,000	10	5	40	NA	NA
1988	38	2	53,600	54,070	NA	1	120	840	NA
1989	66	20	219,176	20,758	1,204	3,865	NA	205	158,000
1990	58	34	602,681	65,980	4,113	7,050	240	15,538	305,000
1991	55	15	88,300	57,288	10	98	NA	NA	NA
1992	90	11	40,530	72,528	7	500	NA	2,814	1,050,000
1993	134	10	565,443	163,399	412	8,960	NA	4,856	750,000
1994	143	NA	986,287	220,282	5,006	19,857	8,348	53,021	35,000
1995	140	9	41,523	58,866	129	1,394	NA	292	NA
1996	33	NA	47,252	13,063	1	24	1,000	NA	11,000,000
1997	221	1	61,396	49,375	1,522	1,203	NA	1,872	23,760,709
1998	187	1	18,515	18,694	47	327	NA	2,015	32,977,741
1999	239	11	52,254	106,407	178	7,443	NA	NA	71,503,923
2000	130	6	50,840	287,634	12,522	1,555	4,000	12,302	47,833,938
2001	67	1	2,175	9,352	283	786	40	4,046	10,132,125
2002	51	1	5,142	16,301	2	835	NA	NA	6,581,011
2003	255	231	918,649	342,950	12,747	37,721	1,400	25,529	26,5400,390
2004	64	2	341,201	100,802	116	2,174	NA	1,410	2,000,000
2005	127	10	223,437	48,615	485	7,894	NA	276	243,271,924
2006	164	21	509,237	179,473	704	11,147	2	1,214	NA
2007	16	1	47,948	15,560	772	1,924	NA	927	5,700,000

Annex 9 - Summary Table: Disaster Impacts by District Resulting from Flood (1974-2007)

District	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses	Damage to crops (Ha)	Damage to paddy (Ha)	Relief distribution (Rs)
Kalutara	324	70	711,597	302,390	5,556	13,663	40	1,794	34,873,174
Ratnapura	253	59	320,160	222,072	2,788	11,225	6	8,990	59,879,216
Colombo	249	16	288,477	109,184	295	10,092	NA	2	12,954,971
Gampaha	224	20	455,716	140,143	413	6,988	2	1,380	14,343,170
Puttalam	221	22	198,873	101,811	979	6,802	80	1,650	8,656,648
Matara	219	137	326,412	184,056	5,304	17,174	3106	30,832	218,888,246
Galle	201	40	229,309	97,749	1,998	8,049	NA	879	180,515,118
Ampara	175	NA	803,500	358,729	9,735	22,134	11,708	118,543	26,603,517
Polonnaruwa	106	2	100,800	40,144	5,184	11,202	640	61,248	26,877,278
Hambantota	101	20	37,154	127,868	1,718	2,988	NA	1,856	36,079,737
Kurunegala	92	5	18,116	5,331	492	1,880	80	4,371	6,291,206
Trincomalee	71	50	60,120	52,537	601	42	201	13,200	7,111,654
Batticaloa	61	1	1,559,143	522,299	10,220	12,800	NA	NA	26,855,449
Kegalle	49	2	42,135	1,103	114	32	40	640	2,302,364
Anuradhapura	46	NA	53,900	8,748	250	266	NA	1,879	1,306,107
Badulla	39	2	6,765	1,471	160	611	NA	80	2,080,876
Nuwara Eliya	35	10	16,636	1,497	397	844	NA	NA	4,748,750
Moneragala	34	3	301	11,912	15	72	200	2,195	14,341,948
Kandy	34	NA	345	658	32	182	120	120	2,997,724
Matale	24	7	NA	9,511	15	61	121,200	485	2,790,223
Vavuniya	19	NA	101,000	14,313	NA	NA	NA	NA	3,891,695
Mullaitivu	18	NA	46,695	24,062	NA	NA	NA	283	3,269,585
Jaffna	16	7	147,500	10,682	NA	30	NA	8,438	10,706,200
Kilinochchi	16	NA	22,380	5,926	40	275	NA	24	2,054,035
Mannar	11	NA	16,050	2,005	NA	NA	NA	NA	2,866,870

Annex 10 - Summary Table: Disaster Impacts by Year Resulting from Drought (1974-2007)

Year	Data cards	No. of people affected	No. of families affected	Damage to crops (Ha)	Damage to paddy (Ha)	Relief distribution(Rs)
2001	217	5,071,625	946,545	50,440	104,399	364,176,000
2004	130	2,198,521	854,635	400	47,105	147,000,00
1996	27	77,255	19,405	1,800	32,416	NA
1987	45	50,000	15,000	77,537	24,119	NA
1985	27	235,000	83,000	10,400	15,483	NA
1983	69	485,000	162,036	400	10,832	3,750,000
1975	18	600,000	NA	NA	8,975	NA
2000	22	20,000	4,008	40	8,536	4,329,900
1976	36	8,000	NA	2,660	8,356	NA
1979	39	NA	NA	216,040	6,720	NA
1990	39	330,364	61,350	400	5,780	NA
1978	21	16,000	NA	NA	4,856	NA
2003	20	20,000	NA	4,940	4,086	2,880
1997	47	5,000	213,562	440	3,237	435,294,389
2002	32	45,476	8,384	442	3,196	59,128,260
1982	60	629,915	122,969	6,160	3,035	2,551,134
1981	31	55,542	17,400	3,744	2,924	84,000
1980	22	12,000	5,000	238	2,471	200,000
1974	10	NA	NA	18,800	2,428	NA
1993	14	NA	5,000	120	1,404	NA
1988	24	20,830	4,546	800	1,216	NA
1995	19	NA	NA	43,600	1,214	NA
1999	18	910	20,340	400	404	20,284,524
1998	18	40,360	95	16,764	293	70,500,000
1991	55	334,000	26,800	840	151	NA
1992	53	57,010	41,030	7,240	113	NA
1994	5	460	160	40	80	NA
1989	44	175,000	NA	43,200	72	NA
1986	56	90,000	10,400	22,800	40	NA
1984	6	16	3	NA	NA	NA
1977	7	NA	NA	NA	NA	NA
2005	16	NA	NA	NA	NA	3,133,091
2006	1	NA	NA	NA	NA	NA
2007	1	NA	NA	NA	NA	NA

Annex 11 - Summary Table: Disaster Impacts by District Resulting from Drought (1974-2007)

District	Data cards	No. of people affected	Damage to crops (Ha)	No. of families affected	Damage to paddy (Ha)	Relief distribution (Rs)
Kurunegala	183	1,364,918	141,320	561,824	78,976	130,146,200
Hambantota	180	770,041	5,600	209,297	66,162	199,183,390
Moneragala	145	1,629,757	30,160	243,626	11,414	107,383,614
Puttalam	124	1,359,058	6,477	383,023	34,851	75,161,868
Anuradhapura	98	965,987	1,920	192,202	65,680	356,426,811
Badulla	92	340,256	40,000	94,042	2,024	82,659,330
Ratnapura	51	2,930,096	21,522	650,883	11,497	56,186,200
Ampara	40	170,826	2,260	51,323	7,089	31,829,703
Matara	37	260,510	47,280	12,000	3,103	NA
Nuwara Eliya	37	NA	4,968	NA	2,832	NA
Polonnaruwa	35	190,000	58,740	62,650	3,864	37,333,126
Matale	34	186,395	1,544	68,276	1,007	17,546,548
Kandy	34	35,000	80	2,406	NA	NA
Trincomalee	33	117,785	8,800	23,567	15,046	NA
Kegalle	23	NA	21,720	NA	NA	NA
Kalutara	18	NA	56,764	NA	NA	NA
Vavuniya	14	114,030	3,530	22,824	NA	14,327,388
Batticaloa	10	43,045	400	8,609	404	250,000
Gampaha	10	NA	NA	NA	NA	NA
Jaffna	9	NA	16,000	NA	NA	NA
Mannar	8	51,575	14,000	10,315	NA	NA
Galle	7	NA	NA	NA	NA	NA
Kilinochchi	6	19,005	NA	18,801	NA	NA
Mullaitivu	5	30,000	NA	6,000	NA	2,000,000
Colombo	3	NA	NA	NA	NA	NA

Annex 12 - Summary Table: Disaster Impacts by Year Resulting from Landslide (1974-2007)

Year	Data cards	Deaths	No. of destroyed houses	No. of damaged houses	No. of people affected	Damage to crops (Ha)	No. of families affected	Relief distribution (Rs)
2003	66	127	786	3,058	12,527	NA	2,208	10,073,255
2007	7	12	423	1,294	13,196	NA	7,668	NA
2006	72	18	148	812	2,192	NA	1,079	NA
2005	33	6	105	474	512	NA	1,142	1,559,332
1993	29	62	81	326	3,545	NA	571	NA
1986	57	60	48	207	27,262	NA	3,375	NA
1997	45	22	263	176	1,375	NA	772	1,973,922
1992	19	10	5	150	1,753	NA	73	NA
1994	10	8	1	68	340	NA	219	NA
2002	25	7	20	62	680	NA	273	740,393
1995	21	8	NA	53	140	NA	115	NA
2004	19	15	10	46	3,170	NA	112	NA
1991	8	3	11	42	248	24	15	NA
1987	13	3	1	26	7,860	NA	46	NA
1999	22	8	17	22	104	NA	31	34,081
1985	19	12	5	17	30	8	71	NA
1978	19	36	12	15	200	NA	NA	NA
1982	23	35	3	12	9,060	NA	1,837	NA
1984	10	28	NA	10	NA	NA	NA	NA
1988	7	5	1	7	NA	NA	NA	NA
1990	8	16	1	6	200	80	31	NA
1980	3	2	NA	5	25	2	NA	NA
1989	40	304	49	4	62,475	NA	2,980	NA
2000	8	2	15	3	NA	NA	111	648,469
1998	20	1	NA	3	53	NA	3	323,107
2001	6	3	NA	1	5	NA	1	8,410
1974	7	42	NA	NA	NA	NA	NA	NA
1975	5	5	NA	NA	1,900	NA	NA	NA
1977	2	4	NA	NA	NA	NA	NA	NA
1976	2	3	1	NA	NA	NA	NA	NA
1996	7	2	3	NA	18	NA	NA	NA
1983	3	1	20	NA	100	NA	NA	NA
1981	5	NA	NA	NA	NA	NA	NA	NA
1979	2	NA	NA	NA	NA	NA	20	NA

Annex 13 - Summary Table: Disaster Impacts by District Resulting from Landslid (1974-2007)

District	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses	Damage to crops (Ha)	Relief distribution (Rs)
Ratnapura	145	242	28,680	6,580	862	2,959	2	6,930,800
Badulla	132	56	16,979	2,696	277	806	80	3,463,785
Nuwara Eliya	93	111	42,630	11,132	470	1,564	NA	353,922
Kandy	90	43	1,157	958	158	693	8	202,540
Kegalle	65	288	1,236	401	121	121	24	630,805
Kalutara	40	49	50,127	210	82	298	NA	272,852
Matara	16	10	6,886	360	13	310	NA	310,000
Galle	16	7	270	121	9	78	NA	NA
Hambantota	12	18	137	92	NA	38	NA	3,190,000
Kurunegala	11	13	200	50	12	14	NA	6,265
Matale	9	27	475	142	21	7	NA	NA
Gampaha	6	3	13	11	NA	11	NA	NA
Colombo	5	3	NA	NA	NA	NA	NA	NA
Moneragala	3	NA	180	NA	4	NA	NA	NA

Annex 14 - Summary Table: Disaster Impacts by Year Resulting from Fire (1974-2007)

Year	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses
1976	3	2	NA	NA	NA	1
1981	1	NA	NA	NA	NA	NA
1988	5	NA	350	NA	53	NA
1989	1	NA	NA	NA	NA	1
1991	2	NA	82	NA	NA	20
1992	1	NA	NA	NA	NA	NA
1995	4	NA	NA	NA	NA	8
1998	6	NA	NA	13	NA	14
1999	1	NA	NA	NA	NA	NA
2000	2	NA	NA	80	NA	12
2001	7	NA	NA	1	NA	48
2002	433	NA	4	1	NA	5
2003	444	NA	2	1	NA	5
2004	432	NA	2	6	4	4
2005	301	NA	333	131	124	4
2006	408	NA	810	174	155	24
2007	6	NA	NA	NA	NA	NA

Annex 15 - Summary Table: Disaster Impacts by District Resulting from Fire (1974-2007)

District	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses
Colombo	1,822	NA	1,424	274	309	53
Galle	3	NA	4	1	NA	1
Gampaha	157	2	NA	NA	NA	14
Hambantota	10	NA	67	13	3	20
Kalutara	42	NA	6	2	4	2
Kandy	5	NA	82	24	20	20
Kegalle	3	NA	NA	NA	NA	3
Kurunegala	1	NA	NA	NA	NA	NA
Matale	1	NA	NA	NA	NA	NA
Matara	1	NA	NA	NA	NA	NA
Nuwara Eliya	2	NA	NA	80	NA	12
Polonnaruwa	1	NA	NA	NA	NA	NA
Puttalam	6	NA	NA	13	NA	21
Ratnapura	2	NA	NA	NA	NA	NA

Annex 16 - Summary Table: Disaster Impacts by Year Resulting from Cyclone (1974-2007)

Year	Data cards	Deaths	No. of people affected	No. of families affected	No. of destroyed houses	No. of damaged houses	Relief distribution (Rs)
2001	89	10	110	50,472	10,736	52,206	112,378,095
1999	20	NA	1,640	818	NA	517	35,036,737
2000	53	1	5,818	158,939	53,952	32,758	29,719,609
2002	61	NA	663	1,480	20	327	19,904,482
2005	86	NA	1,960	462	38	718	17,556,716
1998	48	NA	NA	49	NA	49	3,705,548
2003	68	1	10,025	7,264	449	1,817	3,663,420
1997	21	NA	5	588	374	74	2,189,635
2004	24	18	556	238	30	338	749,830
1978	30	2,302	362,200	167,300	1	805	120,000
1992	26	6	4,000	3,797	NA	6,518	NA
1991	22	2	2,700	25	NA	575	NA
1981	2	1	885	NA	7	170	NA
1984	1	1	NA	NA	NA	100	NA
1986	1	1	150	NA	NA	21	NA
1994	2	1	NA	NA	NA	20	NA
1975	2	NA	2,000	NA	NA	405	NA
1979	2	NA	1,250	NA	NA	250	NA
1980	1	NA	NA	NA	NA	6	NA
1982	1	NA	NA	NA	NA	NA	NA
1983	1	NA	160	NA	40	NA	NA
1985	3	NA	300	35	NA	35	NA
1988	1	NA	NA	NA	NA	1,000	NA
1989	2	NA	NA	NA	NA	NA	NA
1990	7	NA	409	60	NA	270	NA
1993	6	NA	NA	NA	NA	1,314	NA
1995	1	NA	NA	NA	NA	13	NA
1996	3	NA	NA	NA	NA	525	NA
2006	42	NA	1,654	861	108	980	NA

Annex 17 - Summary Table: Disaster Impacts by District Resulting from Cyclone (1974-2007)

District	Data cards	Deaths	No. of destroyed houses	No. of damaged houses	No. of people affected	No. of families affected	Relief distribution (Rs)
Colombo	69	2	75	4,006	6,542	998	3,184,395
Puttalam	62	1	1,005	2,344	1,230	10,701	7,840,613
Gampaha	59	NA	153	1,041	9,760	1,075	3,177,970
Kalutara	54	19	323	1,101	1,482	1,314	3,605,758
Kurunegala	45	7	185	330	8,362	657	3,029,061
Galle	35	1	67	760	2,827	708	1,562,000
Ratnapura	34	1	70	630	711	603	27,450,130
Badulla	32	4	NA	1,317	150	1,071	3,913,032
Anuradhapura	31	5	12,153	60,567	5,750	36,113	21,841,043
Ampara	28	156	963	4,927	NA	89,220	7,384,246
Trincomalee	26	NA	44,302	13,969	NA	64,014	84,699,700
Polonnaruwa	25	1	883	5,880	44,050	6,442	21,403,946
Kegalle	21	1	38	440	2,050	113	1,554,838
Matara	19	NA	NA	8	48	8	1,765,925
Batticaloa	18	2,115	4,982	2,394	309,001	176,771	8,112,000
Hambantota	18	NA	12	141	572	235	6,367,830
Nuwara Eliya	15	NA	344	500	2,260	402	1,195,885
Moneragala	9	30	NA	1,390	1,250	NA	488,250
Kandy	8	NA	200	66	100	289	403,750
Matale	7	NA	NA	NA	NA	58	1,080,350
Vavuniya	5	NA	NA	NA	NA	NA	3,363,350
Kilinochchi	2	NA	NA	NA	NA	NA	10,500,000
Mullaitivu	1	NA	NA	NA	NA	NA	700,000
Mannar	1	NA	NA	NA	NA	1,536	400,000

Annex 18: Definitions of Key Terms Used in DesInventar

Events

Event is defined by DesInventar as a phenomenon, whether natural or not, which, once triggered, produces adverse effects on human lives, health and/or social and economic infrastructures.

Definition of "Disaster"

Disaster is defined as the set of effects caused by an event (whether natural or not) on human lives and economic infrastructure on a geographical unit of minimum resolution.

Events - Predetermined

The following is the list of events predetermined in the System:

Flood

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

Urban Flood

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

Flash-flood

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

Surge

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

Sea surge - Sea tides breaking on the shore and flooding the coastal areas. Can result in erosion of beaches and sand banks.

Alluvium

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

Landslide

All mass movements other than surface erosion of a hillside. This event includes terms such as precipitation of earth, settling, horizontal land thrust, mass movement, displacement, subsidence, collapse of caves or mines, rock falls (slow or quick), detachment of soil masses or rocks on watersheds or hillsides.

Drought

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

Epidemic

Disease attacking many individuals in a community during short terms (days, weeks, months maximum), such as cholera, typhoid, bubonic plague etc.

Earthquake

All movements in the earth's crust causing any type of damage or negative effect on communities or properties. The event includes terms such as earth tremor, earthquake and vibration.

Storm / Gale

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

Lightning (Thunderstorm)

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

Tornado

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

Cyclones

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

Forest fire

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

Fire

Urban or industrial, but not including forest fires. Due to natural phenomena such as lightning, earthquakes, or due to accidents, technology failure etc.

Rain

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

Sedimentation

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

Soil Erosion

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

Coastal erosion

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

Hailstorm

Frozen raindrops that fall violently in the form of hard pellets. Hailstones. Precipitation of hail.

Frost

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

Heat Wave

Rise of atmospheric average temperature well above the averages of a region, with effects on human populations, crops, properties and services.

Cold Wave

Lowering of atmospheric average temperature well below the averages of a region, with effects on human populations, crops, properties and services

Tidal Wave

Great sea waves breaking on the shore. Includes waves caused by hurricanes, gales or storms (other than tsunami or seaquake), by rise of average sea level during the phenomenon “El Niño”.

Tsunami

The term is applied only to waves generated by under-sea movements (caused by earthquakes, volcanic eruptions or under-sea landslides), breaking on the shore

Animal attack

Attacks by elephants or other wild animals, including snake bites

Plague

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

Biological Event

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

Pollution

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

Boat Capsize

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

Leak, Oil Spill

Leak of harmful liquid, solid or gas substances, toxic/lethal chemicals, explosives and other hazardous materials, whether radioactive or not, generated by technological accidents, human fault or transportation accidents. Oil spills in sea from vessels / crafts.

Structural Collapse

Damages or collapse of any type of structure for reasons such as excess weight in public places, bridges, etc. This event includes damage that, although not taking the structures to the point of collapse, does make them unusable. Damages in structures caused by natural phenomena are reported as an effect of these phenomena.

Explosion

Explosions of any type

Panic

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

Accident

Automobile, rail, aircraft or navigation accidents. Includes transportation accidents generating spills or leaks of harmful substances, regardless of the cause.

Snowfall

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

Eruption - Volcanic

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