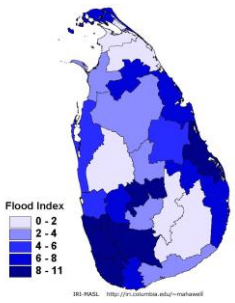
Natural Disaster Hotspots of Sri Lanka…

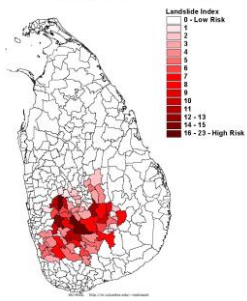
Apart from Tsunami's, the major natural disasters affecting Sri Lanka are floods, landslides, cyclones and drought, all of which are driven by weather and climate. Hazard Analysis can predict risk levels of floods, cyclones and landslides a few days in advance and the tendency to drought months in advance. The risk levels of these hazards can be predicted with a useful degree of confidence as to be useful for natural resource managers, policy and decision makers.

We estimated "hazardousness" based on environmental variables and from historical records. Risk maps were prepared at a resolution of 10km. Disaster incidence maps were prepared using the disaster data obtained from the social services department. Multi hazard hotspots for natural disasters were assessed using several methods which measure the weight of each disaster with different criterion. These criteria include the exposure and the vulnerability of the location to the disaster.



Flood Disaster Incidence

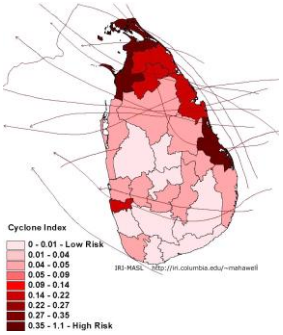
Flood hazard risk was estimated using historical rainfall data. The risk map draws out the spatial variability of flood risk. Darker shades indicate higher flood risk. Flood disaster incidence map, created using recorded flood incidents closely corresponds to the flood risk map.



Landslide Risk Map

Landslide risk was mapped using landslide incidence data. The map indicates the landslide risk for each District Secretariat administrative boundary. Although the risk is concentrated in the districts spanning the central massifs, there is a clear spatial variability within the region itself.

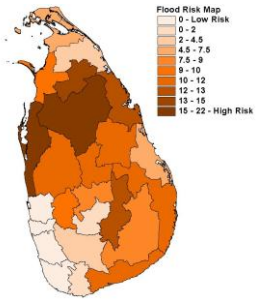
In terms of frequency of occurrence, there is a marked increase of landslide incidences in the recent years.



Cyclone Risk Map

Cyclone tracks for the past 100 years were used to create cyclone hazard risk map. Cyclone Risk was estimated by normalizing a districts frequency of cyclonic or storm landfall by the area of the district.

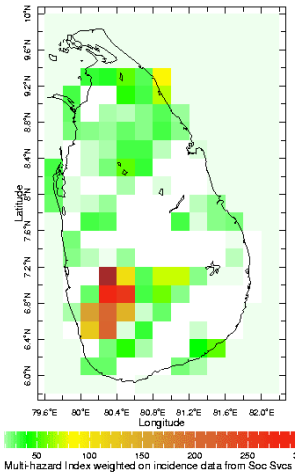
Apart from a single storm in 1967, all other storms and cyclones made landfall in the Eastern Coast.



Drought Incidence map
(based on relief expenditure)

Drought hazard risk was estimated based on Weighted Anomaly Standardized Precipitation (WASP) Index, using rainfall data from 1960 onwards. The darker colors signify higher risk of drought.

Drought risk was mapped separately for the climatologically homogeneous regions. This map shows drought risk rising in the last 3 decades in the Southern and Western regions.



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Exposure and Vulnerability

Vulnerability can be assessed for people, economic activities and infrastructure.

People

Sri Lanka has a population of 19.7 million (2003) which is distributed unevenly.

Food security measures a community's ability to withstand hazards as well as its resilience to the hazard. Food security calculated by WFP Sri Lanka office in 2002 is based on availability of food, access to food and utilization of food, based on generally accepted food insecurity models. Food insecurity vulnerability shows the distribution of population who are likely to be worse affected, and with longer term consequences, from the hazard.

Economic Activity

The provincial GDP share is high in the Western Province.

The main crop of Sri Lanka is Paddy, which is generally cultivated twice a year. The major cash crops are tea, rubber, coconut and spices. The agrarian economy is highly susceptible to floods and droughts.

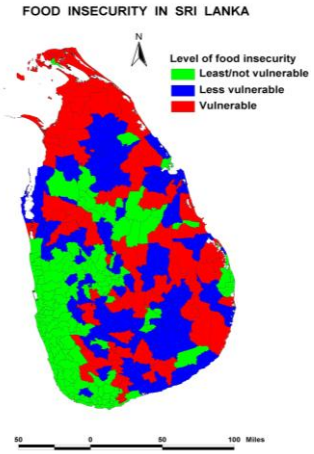
The major industries are textile & apparel, food & beverage processing, chemical & rubber and mining & minerals. Industry is heavy concentrated in the western province. Floods affect the industries in the west of Sri Lanka while drought in Central Highlands can affect industry drastically through deficits in hydro-power production.

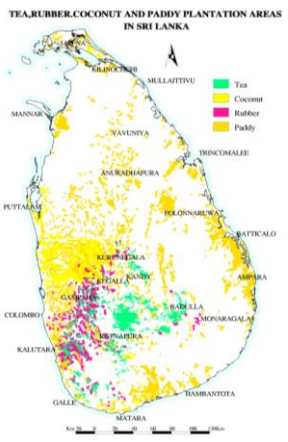
Facilities have been severely disrupted in the Northern Province due to the war, and there are no estimates of recent conditions. Thus interpretation of the infrastructure index for these areas needs to be tempered with caution.

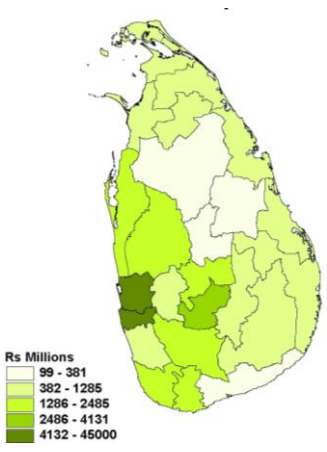
Infrastructure

Infrastructure development too reflects a pattern of heavy development in the Western Province with subsidiary development in the metropolitan districts of Kandy and Galle.

There is a high concentration of infrastructure facilities in the District of Colombo. This skewness is largely due to the heavy concentration of telecommunication facilities in Colombo.







An Institute for the Application of Science for Societal Welfare & Environmental Sustainability focusing on Sri Lanka and Maldives

Our officers have been working on projects on environment, climate and technologies. We started a Foundation in 2002 and registered it as a non-profit company in 2003. At present, we work in climate adaptation, information technology, communication and capacity building for sustainable development.

Our work is oriented towards developing useable scientific information that can be applied in diverse sectors. We build capacity through education, training, and collaborations.

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