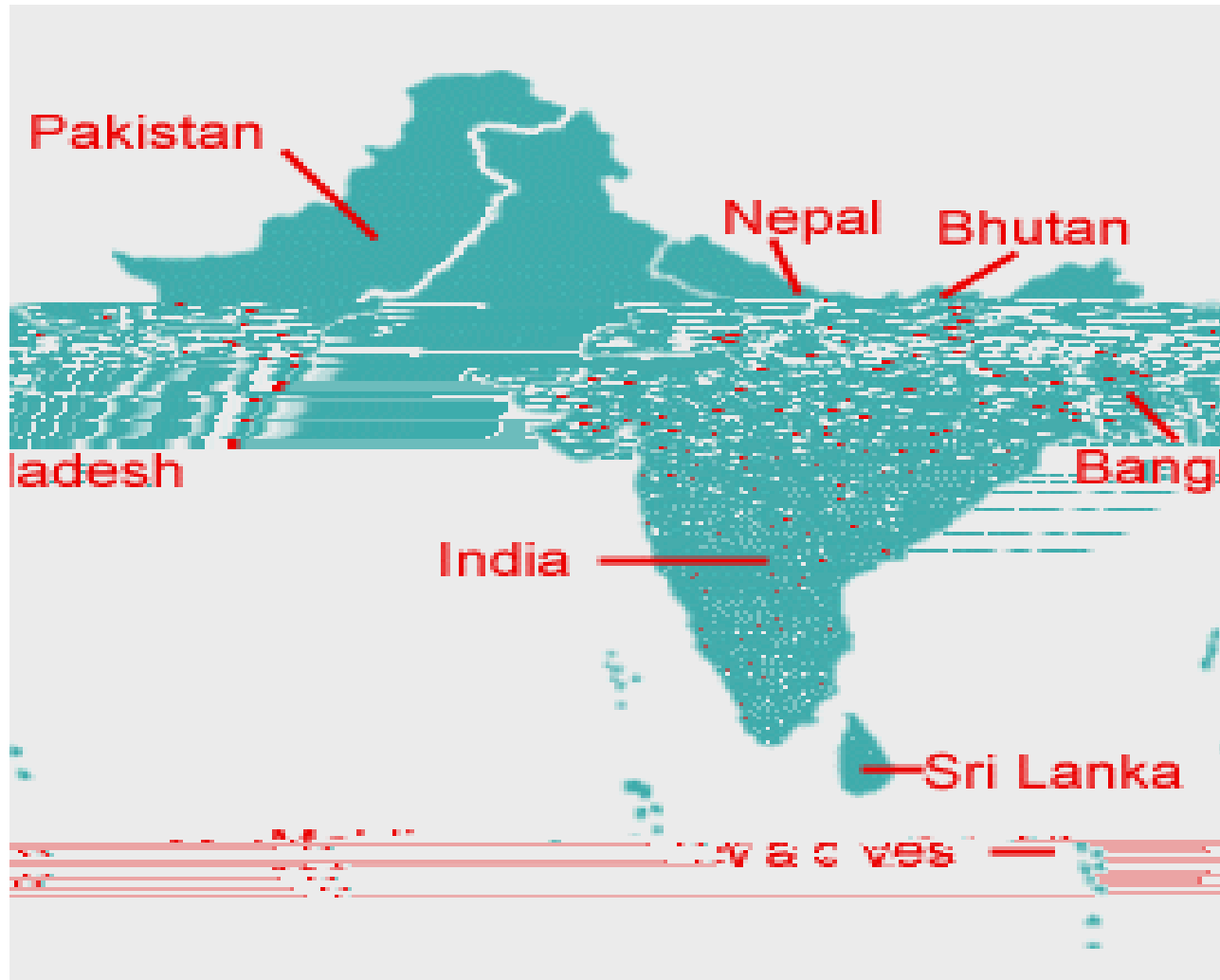


Climate change: Challenges and Opportunities in Sri Lanka

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Country Description





- **Size**
 - 65,610 km
 - 435 km - maximum length
 - 240 km – maximum width
- **Population**
 - About 20 millions
 - Density
 - 344 persons/km²
- **Economics & industrial development characteristics (2006)**
 - % contribution to the GDP
 - Agriculture 12.3 %

- Climate
- Tropical monsoonal
 - Rainfall
 - 800 mm to over 5,000 mm
 - Temperature
 - on average 27 °C at lowlands
 - reduction of temperature at 5 – 6 °C/ km
 - mountainous regions
 - » average 15 °C
 - 3 climatic zones
 - Dry zone, Intermediate zone & Wet zone

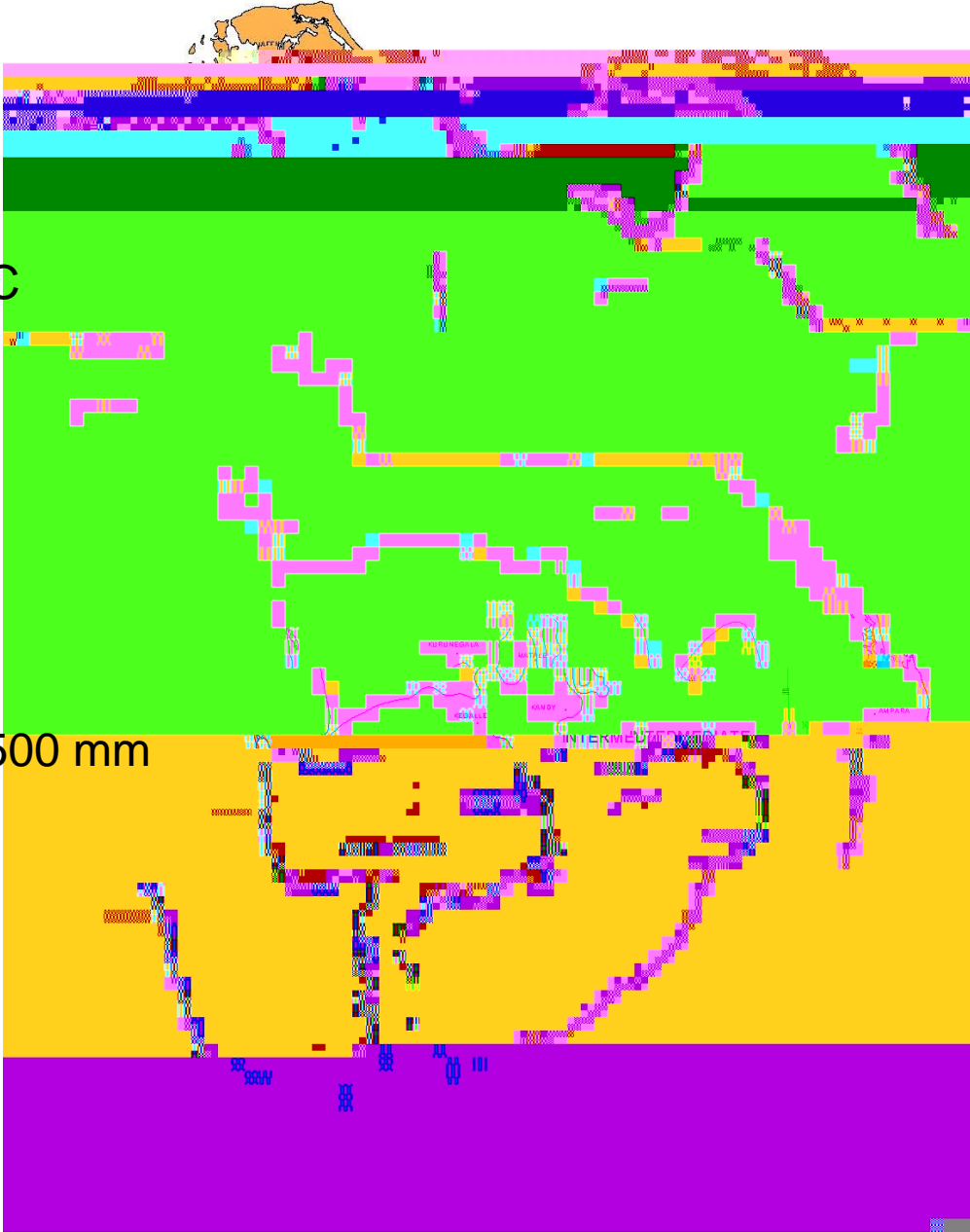
Climatic zones of Sri Lanka

Average temperature

- Dry zone 28 °C
- Intermediate zone 24 - 26 °C
- Wet zone 24 °C

Average Rainfall

- Dry zone < 1,750 mm
- Intermediate zone 1,750-2,500 mm
- Wet zone > 2,500 mm



Climate change

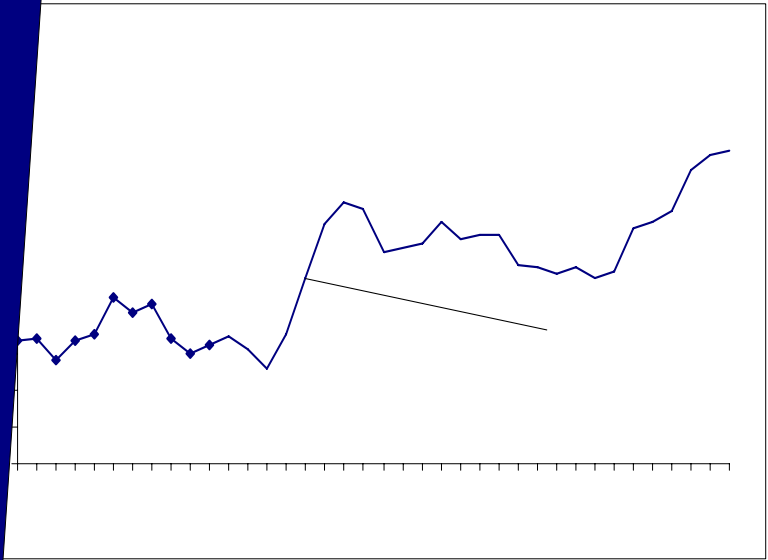
- Slow & continuous rise of ambient temperature
- Increased frequency of extreme weather events
 - High variability of rainfall
 - More Floods
 - More Droughts
 - Tornado-type winds, lightening, Cyclones
 - Etc.
- Sea level rise

Climate change in Sri Lanka

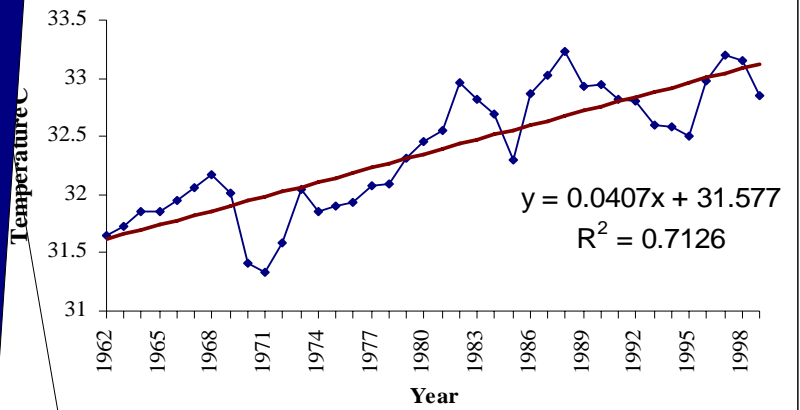
Trends of air temperature (1961-1990)

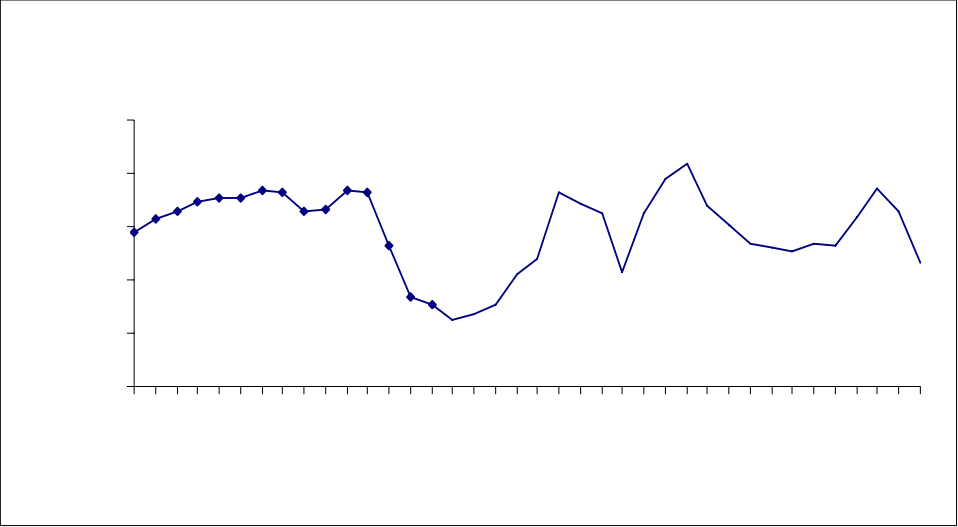
LOCATION	SLOPE – °C/year	r²
Ratnapura	0.0175	0.88
Badulla	0.0217	0.85
Kandy	0.0185	0.72
Nuwara Eliya	0.0146	0.56
Colombo	0.0164	0.67
Hambantota	0.0104	0.81
Anuradhapura	0.0364	0.79
Kurunegala	0.0173	0.42
Jaffna	0.0180	0.61

Chandrapala & Fernando, 1995



Annual average maximum (Anuradhapura)





Challenges of Climate Change

- Power sector

- rate of evaporation from hydro-power reservoirs
 - 39% of the National power demand
 - Conflicting demand issues in dual-purpose reservoirs;

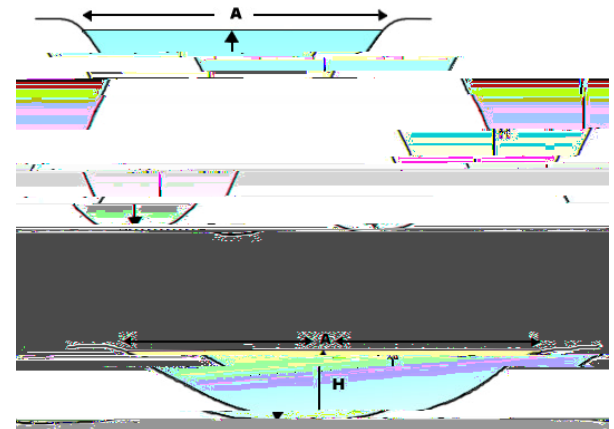


- Increasing demand for air conditioning and ventilation
 - More & more GHG emissions
- Reduced efficiencies in thermal plants, industrial installation and engines
 - More & more GHG emissions

Contd... Challenges of Climate Change

- **Agriculture sector**

- Increased frequency of soil moisture stress in upland crops
- More droughts
- More floods
- Reduced water availability for irrigation
 - Surface
 - 103 river basins (7 rivers carry 50% of annual runoff)
 - 80 major tanks (fed by both Summer & Winter monsoons + IMs)
 - > 11,250 minor tanks (fed by Winter monsoon + IMs)
 - 12,353 anicuts (Summer monsoon + IMs)
 - Ground water
 - Only 10% of annual rainfall
 - Salt water intrusion in coastal belt

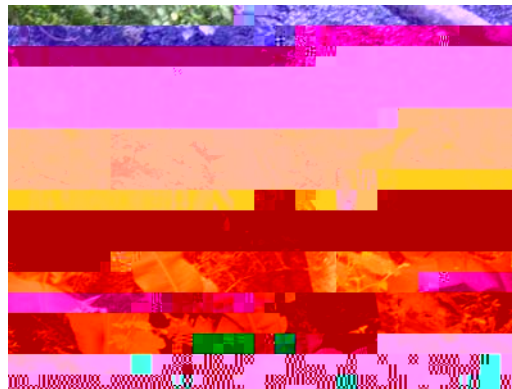


Contd... Agriculture sector

- Pollen desiccation
 - High spikelet sterility in rice
- Reduced productivity of high-value crops
 - Vegetables & Potato
- Increased Pest & Disease outbreaks and their range
- More land degradation
 - Soil erosion & Salinization
 - Reduces per capita land availability
- Yield Reduction
 - Quantity
 - Quality

Contd... Agriculture sector

- Recent study on Crop Wild Relatives of Sri Lanka with GEF funds



Current Temperature regime of CWRs and projected situation in different climatic zones of Sri Lanka

Species	Optimum T range	33-36 °C	32-33 °C	29-31 °C	2100 Projection by
		DZ	IZ	WZ	
Oryza spp.	30-33 °C	30-34 °C	31-33 °C	28-30 °C	Operational T
Cinn. spp.	25-30 °C	N/A	N/A	24-26 °C	Operational T
Piper spp.	25-30 °C	26-31 °C	30-32 °C	24-27 °C	Operational T
Vigna spp.	30-35 °C	30-35 °C	30-32 °C	24-28 °C	Operational T
Musa spp.	25-30 °C	N/A	24-28 °C	24-26 °C	Operational T

Contd... Challenges of Climate Change

• Health sector

- Additional strain from thermal stress in work places
 - Poorly designed work places
 - Garment industry
 - Reduced efficiency and overall productivity
- More vector and water borne diseases
 - Malaria, Dengue, Diarrhea, Lepto Spirosis
- Increased rate of respiratory disorders
 - Dust & Cold waves
- More communicable diseases
 - Skin diseases, Typhoid fever, Hepatitis A / E
- More accidents under extreme weather conditions
 - Traffic, Lightning, Tornado, Landslides, Floods, Cyclones etc.
- Malnutrition
 - Increased poverty level & reduced food production
- Psychological problems
 - Poverty, Loss of close relatives, Increased temperature

- **Transport sector**

- Inundation of roads and rail lines due to
 - Floods, Inadequate road side drainage, Land slides, Rock slides etc.
- Erosion of road sides and rail tracks, and earth and gravel roads
- Cracking on road surfaces and pavements;
- Destruction of turf on road embankments;
- Increased cost of maintenance.

Contd... Challenges of Climate Change

- **Human settlement / Vulnerable population**
 - Dry zone
 - Agricultural based community
 - Vulnerable to droughts & increased temperature
 - Coastal community (1,585 km coastline)
 - Sea level rise & Cyclones
 - Urban poor community
 - Increased food prices
 - Increased disease incidences
 - Flood plains
 - More & intense floods
 - Landslide prone areas



Opportunities !! ??

- CO
- CDM projects
- Response strategies
 - Being Non-Annex I country, no need to worry too much

- In general

- There should be policy changes in every sector taking the challenge of climate change into account;
- Enactment of relevant acts and ordinances;
- Technological advancement and provision of adequate financial assistance for research;
 - Especially, to increase the food production for growing population under a changing climate
- Protect the arable soil;
- Use the arable land resource rationally and productively;
- Efficient use of water
- Maintenance of food buffer stocks;
 - Local and regional
- Reduce the dependency on fossil fuel

