

GLOBAL WARMING AND CHANGING WEATHER PATTERN

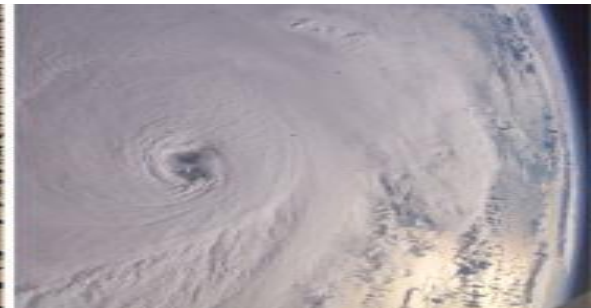
**Ministry of Environment, Sustainable
Development, and Disaster and Beach
Management**

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OUTLINE

- **Overview of Disaster Events**
- **Changing Weather Pattern**
- **The Reality of Climate Change**
- **Climate Change in the Context of Mauritius**
- **National Disaster Risk Reduction and Management (NDRRMC) Legal Framework**
- **Concerted Effort**



OVERVIEW OF DISASTER EVENTS

Year 2013

- *308 disasters (150 natural + 158 man-made)*
- *Death toll / missing: 26,000 people*



Nov 2013 - Typhoon Haiyan in Philippines – *largest humanitarian catastrophe*

- *7,500 people killed*
- *4 million homeless*



Jun 2013 - Flooding in Uttarakhand, India

- *6,000 dead*

CHANGING WEATHER PATTERN

- *Climate change is a major challenge*
- *Vulnerable countries: Least Developed Countries , African Countries and SIDS are most effected.*
- *GHG emission is the cause for Global warming and sea level rise*
- *Effects of global warming*
 - ✓ *Changes balance of the climate*
 - ✓ *Higher atmospheric humidity*
 - ✓ *Disruption of the weather system*
 - ✓ *Extreme weather events - shifts in the frequency, intensity and duration e.g. floods, heat waves and other natural disasters*
 - ✓ *environmental, social and economic impacts / costs*
 - ✓ *20% loss of global GDP by 2100*

THE REALITY OF CLIMATE CHANGE

- *Temperature rise by 0.85 ° C (1880 -2012)*
- *40 % rise in CO₂ concentration (compared to pre-industrial period)*
- *Rise in global mean temperature by 2- 4.5 ° C by 2100 (IPCC)*
- *Global ocean has absorbed > 90 % of energy stored in climate systems (since 1971)*
- *Rise in global mean sea level by 19 cm (1901 – 2010)*
 - *Additional 40 cm rise by 2100*
- *Changes in amount and intensity of precipitation*

CLIMATE CHANGE IN THE CONTEXT OF MAURITIUS

- *Area: 2,040 km²*
- *Climate: Tropical*
- *Summer: Nov – Apr (tropical storms and heavy rains)*
- *Winter: May – Oct*
- *Humid period: Jan – Apr*
- *Mauritius is highly vulnerable to the threat of climate change*
- *Impacts of climate change:*
 - ✓ *atmospheric temperature increase*
 - ✓ *sea level rise*
 - ✓ *change in rainfall pattern (intense rain precipitation, tropical storm, tidal surge and flooding)*

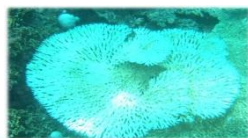
MAURITIUS ISLAND VULNERABILITY TO CLIMATE CHANGE

INDICATORS	OBSERVED IMPACTS OF CLIMATE CHANGE	PROJECTED IMPACTS OF CLIMATE CHANGE
TEMPERATURE	Average temperature has risen by 0.74°C – 1.1°C (1961-1990 mean). [Global Average: 0.85°C]	Projected further temperature rise up to <u>2°C by 2061 -2070.</u>
RAINFALL	Decreasing trend in annual rainfall of 8% over Mauritius since the 1950s.	Further reduction in amount of water by <u>13% by 2050.</u> Agriculture production may decline by as much as 20-30% in the longer term due to rainfall variability.
SEA LEVEL RISE	Acceleration in sea level rise for the past decade by around 5.6 mm/year. [Global Average: 3.20 mm/year]	Sea level rise projection is of order <u>1m by 2100.</u>
BEACH EROSION	17% of the beaches are suffering from long term erosion representing 11.6 km of beaches.	50% of beach will be loss by 2050 – USD 50 million loss in the tourism sector by 2050.



World Risk Report 2014

Mauritius: 14th highest disaster risk & 7th most exposed to natural hazards.



RAINFALL / TROPICAL STORM

➤ Rainfall

- ✓ *Decrease in Annual rainfall by 63 % (per decade)*
- ✓ *Flash floods – more than 100 mm rainfall over few hours*
- ✓ *Overflow of existing drain network*
- ✓ *Water accumulation and flooding*
- ✓ *Emergency operations to save lives of people in flooded areas*

➤ Tropical storms

- ✓ *51 cyclones with gusts exceeding 100 km/hr (1945 – 2003)*
- ✓ *High wind speed and huge tidal waves (15 m high) – inundation of coastal areas*

NATURE / FOREST COVER

➤ Nature/Forest cover

- ✓ *Forest cover: 25 % (approx. 47,103 ha) of Mauritius*
- ✓ *Carbon sink (sequestration)*
- ✓ *Afforestation Programme and Tree Planting Campaigns (ongoing)*

COASTAL ZONE PROTECTION

- *Study reveals that $\frac{3}{4}$ of world coastlines are retreating at 10 cm / yr*
- *Mauritius – 322 km of coastline – serious erosion observed*
- *Adaptation fund project – USD 9.1 M (Climate change Adaptation in the Coastal Zone of Mauritius)*

WEATHER FORECAST

- *Mauritius Meteorological Services gives weather forecasts*
- *Advance warning e.g. for cyclones, tsunamis etc*
- *Upgrading of weather forecasting system through assistance of international agencies*
- *A new radar equipment has been installed*

EARLY WARNING SYSTEM

- *Tropical storm – warning No 1,2,3 and 4 (storm distance and intensity)*
- *Assistance from the Adaptation Fund for the development of an Early Warning System against storm surge (6 hrs prior warning)*

REFUGE CENTRE

- *To protect the lives of vulnerable coastal communities (low-lying coastal regions) against tidal surges*

NATIONAL DISASTER RISK REDUCTION AND MANAGEMENT (NDRRMC) LEGAL FRAMEWORK

The main object of the legislation is to provide for :

- prevention and reduction of risk of disaster
- mitigation of the adverse impact of disaster
- disaster preparedness
- effective response to disaster
- management of post disaster, including recovery and rehabilitation

The legislation provides for:

- *a National Disaster Risk Reduction and Management Centre (NDRRMC) to coordinate implementation of disaster risk reduction*
- **A high level National Crisis Committee**
- *A dedicated Disaster Response Unit*
- **The Prime Minister to declare a “State of Disaster”**

CONCERTED EFFORT

- Climate change and risk of disaster represent a daunting challenge
- DRR phases: (a) Protection and prevention; (b) preparedness, (c) Response, and (d) Recovery
- **Collaboration and partnership** between the Public sector and other stakeholders (private sector, NGOs, voluntary organisations) to join forces in a national effort to face up to a natural calamity
- *Need to organise **training and capacity building** for NGOs, for voluntary associations in the community to cope with natural disaster*
- *Need to devise a **plan with clear responsibilities of different stakeholders**, for instance, the Police force, Rescue service, Emergency Health Service to treat patients injured in the course of a disaster for effective response*
- *Need for **post disaster rehabilitation and remedial***