

Ad Hoc Expert Meeting on

**Climate Change Impacts and
Adaptation: A Challenge for Global
Ports**

29 – 30 September 2011

**Adaptation to Climate Change in Mauritius
with Focus on Port Areas and Related
Sectors**

Presentation by

Ms. Sin Lan Ng Yun Wing

Director of Environment

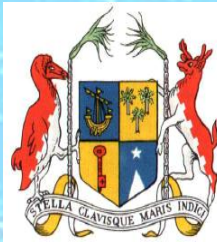
Ministry of Environment and Sustainable Development,
Republic of Mauritius

Adaptation to Climate Change in Mauritius with focus on Port areas and related sectors

Mauritius

Mrs. S. L. NG YUN WING
Director of Environment
Ministry of Environment and Sustainable Development
Republic of Mauritius

30 September 2011



Outline

- ▶ Port Louis Harbour
 - ▶ Highlight on the Port trade activities
 - ▶ Future targets (Port Master Plan)
 - ▶ Observed Climate Change
 - ▶ Climate change impacts and adaptation measures
 - ▶ Proposed climate proofed activities
 - ▶ Related sector – Inland Transport
 - ▶ Other Adaptation Initiatives
 - ▶ Forthcoming climate change related projects
 - ▶ Conclusion
- 

Port Louis Harbour

- ▶ Agency responsible: Mauritius Ports Authority (MPA) .
- ▶ Sole gateway of the country.
- ▶ Strategic location: crossroads of maritime routes b/w Europe & Australia and Africa & Asia.
- ▶ Vital role in the national economy. Contributes 2% to the country's GDP (2010).
- ▶ Handles about 99% of the total volume of the country's external trade.
- ▶ Actively promoting new business segments: Container Transshipment, Seafood, Cruise, Bunkering, Waterfront Development.
- ▶ Over the past two decades: transformed into an economic nerve centre, with modern port facilities, a dynamic Freeport, port-based facilities together with impressive waterfront development.



Aerial View

Terminal I – Fishing Port
and quays A, D and E

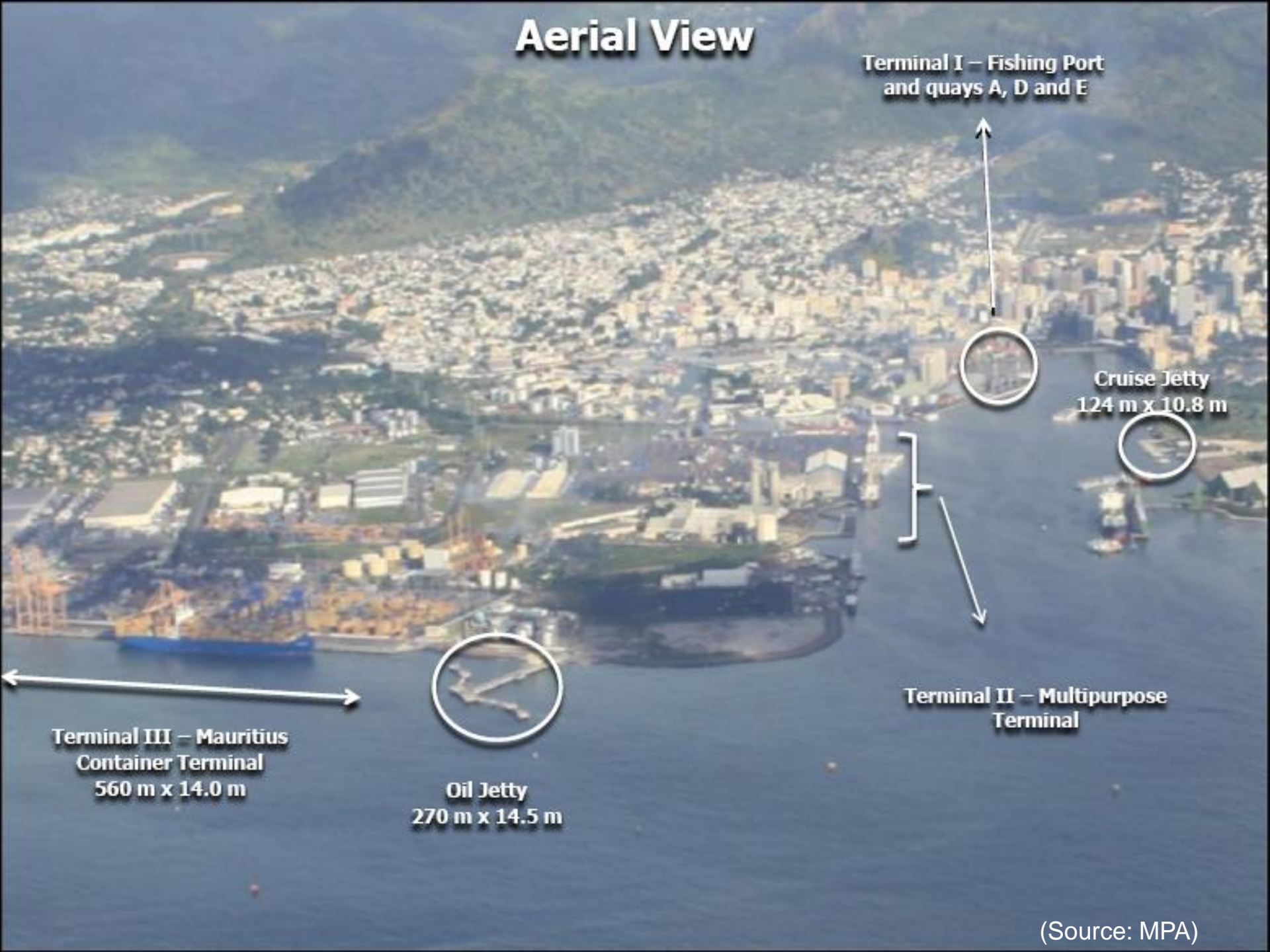
Cruise Jetty
124 m x 10.8 m

Terminal II – Multipurpose
Terminal

Terminal III – Mauritius
Container Terminal
560 m x 14.0 m

Oil Jetty
270 m x 14.5 m

(Source: MPA)

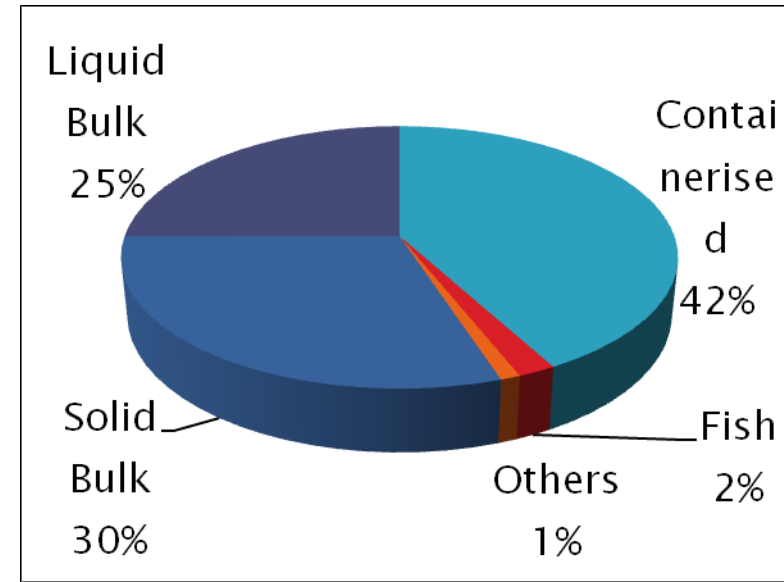


Port trade (2009)

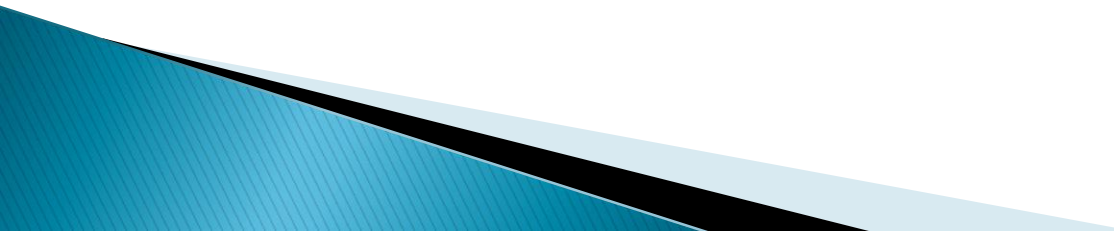
Total Traffic:	5.9 MT
Dry Bulk Traffic (cement, coal, wheat, sugar, ...)	1.8 MT
Liquid Bulk Traffic (Petroleum Products, Molasses, ...)	1.5 MT
Total Container Throughput	408,086 TEUs
Captive Container	193,980 TEUs
Transshipment Container	214,106 TEUs
Total Fish Traffic	113,526 tonnes
Vessel Calls	2,079
Container vessels: 534	
Fishing vessels: 634	

Future targets:

To develop Port Louis into a regional maritime logistics and business hub.



Observed Climate Change in Mauritius

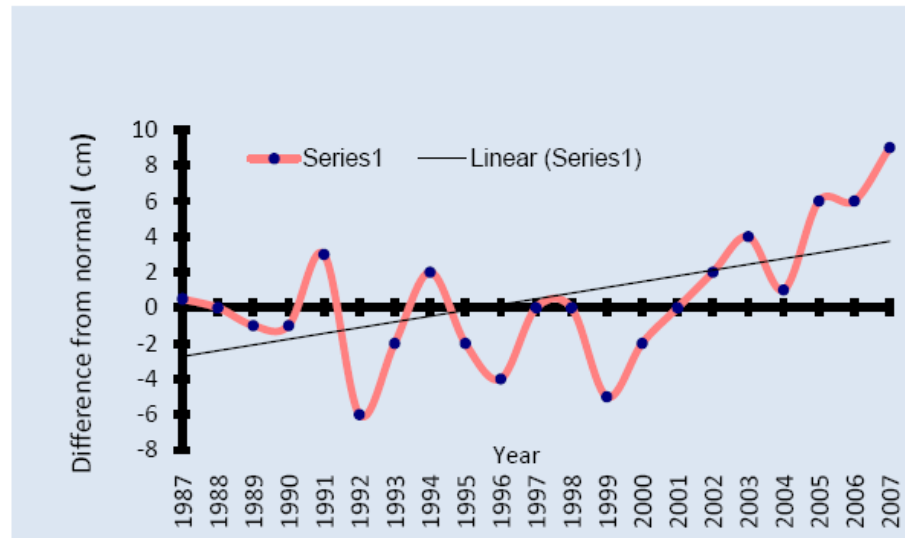
- Increase in average temperature by 0.74 to 1.2 °C, when compared to the 1961 - 1990 long term mean.
 - Decreased trend of 8% in annual rainfall recorded between 1905 and 2007.
 - Increase in frequency of heavy rainfall events accompanied by flash floods.
 - Since 1975 to date, increased trend in the number of intense cyclone (winds above 165 km/hr) noted, although Mauritius has not been directly affected by these gusts.
- 

Observed Climate Change in Mauritius

Sea Level Rise (SLR)

- ▶ Average of 1.2 mm/year of SLR observed between 70's & 90's.
- ▶ Average of 2.1 mm/year of SLR observed between 1998 & 2007.
- ▶ Average of 3.5 mm/year of SLR observed for last 5 years.

SLR monitoring in Port Area
(Source: Mauritius Meteorological Services)

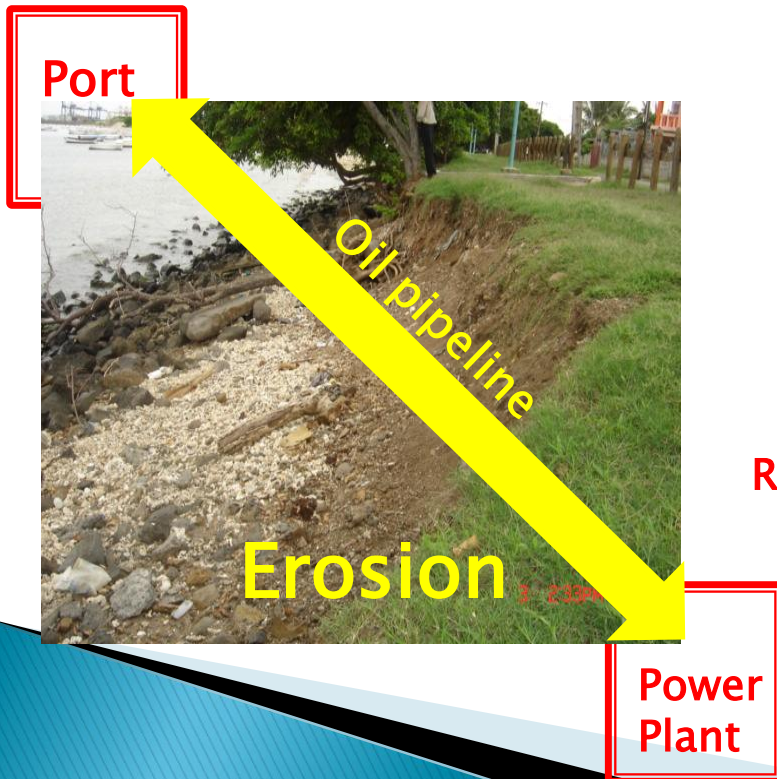


Impacts on Port Activities and adaptation measures

- ▶ Flooding of part of the ports infrastructure during adverse weather and sea conditions.
- ▶ Days where operations could not be carried out has increased:
 - 1999: 3 days
 - 2004: 11 days
 - 2010: 15 days (direct loss of about Rs 39 millions for 15 days (i.e ., USD 1.3 millions+ indirect loss to other sectors (industrial, import, export)).
- ▶ Construction of concrete floodwall.

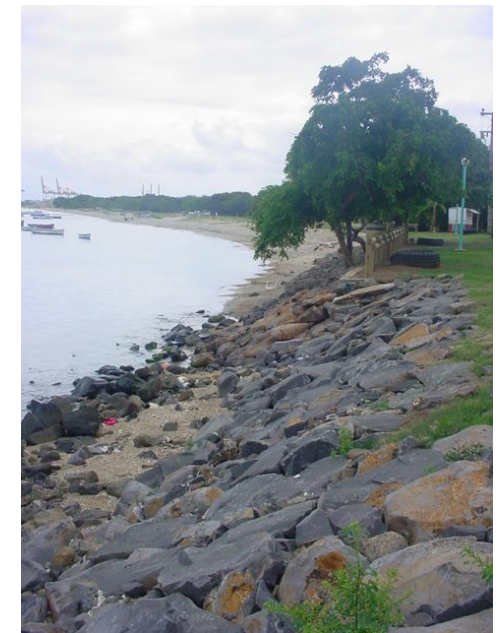
Impacts just outside Port boundary area

Erosion at Bains des Dames (2007), affecting oil distribution to CEB power station



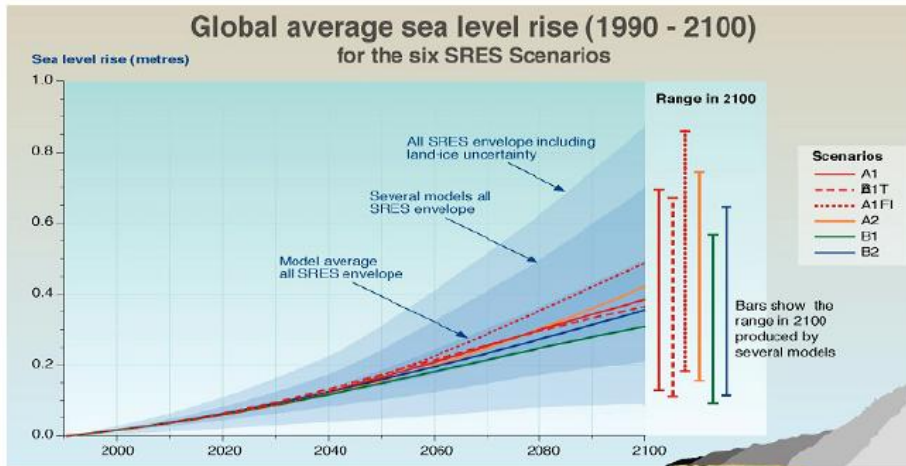
Adaptation:

Rock revetment



Projected climate change and direct impacts

- Sea level rise by about 59 cm by 2100 (Source: IPCC Report).



Global average sea level rise (1990 - 2100) for the six SRES scenarios [Source: IPCC, 2001]



Proposed climate proofed activities

- ▶ Creation of a tranquil basin: construction of breakwater to arrest the wave impact. However this solution would be capital intensive and prohibitively excessive.
- ▶ Feasibility study being envisaged by MPA for construction of breakwater.



Port Louis Harbour – Long Term



Related Sectors – Inland Transport

- ▶ Increase of cargo traffic by 4% annually
- ▶ Deterioration of traffic situation.
- ▶ Transport sector contributed 24.8% of energy-related CO₂ emissions in the year 2010 and is the activity area with the fastest growing GHG emissions.
- ▶ Activities being considered which will bring co-benefits:
 - Improvement of road infrastructures. (USD 8.3 billion over the next 10 years)
 - Alternative mode of transport (e.g. light rail system)



Other Adaptation Initiatives

- ▶ **Africa Adaptation Programme** (Funding by Government of Japan – USD 3 million)
- ▶ Steering Committee and sub-committees set up for implementation of AAP.
- ▶ Comprise some 25 activities. Key relevant activities are:
 - Disaster Risk Reduction & Management (DRR): Mapping of vulnerable areas in GIS.
 - Assessment of infrastructure capacity of roads, drains, culverts and bridges in relation to the impacts of Climate Change.
 - Review & formulation of Climate Resilient Policies and Legislation
 - Review of Building Specifications in Relation to Climate Change

Forthcoming climate change related projects:

- ▶ 16 September 2011: Adaptation Fund Board (AFB) approved project proposal 'Climate Change Adaptation Programme in the Coastal Zone of Mauritius'

Project value: US\$ 9.12 million

- ▶ National Adaptation Framework and Programme Actions Plan
- ▶ National Mitigation Strategy and Actions Plan
- ▶ Climate change observatory (with funding from 'Agence Francaise de Developpement')

Conclusion:

- ▶ Climate change is real.
- ▶ Action is imperative and very costly.
- ▶ Mainstreaming of climate change in all sectors including port related plans highly important.



THANK YOU