

Towards a CMS Programme of Work on CLIMATE CHANGE Workshop

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Republic of Mauritius

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OVERVIEW

- I. Mauritius as a Small Island Developing State (SIDS) AND Climate Change Challenges
- II. Adaptation and Mitigation Framework to Cater for Improved Resilience to Impacts of Climate Change
- III. Migratory Birds Vulnerability to Climate Change in Mauritius

Mauritius as a Small Island Developing State (SIDS) AND Climate Change Challenges



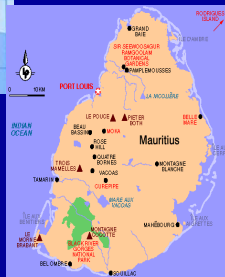
Mauritius as a Small Island Developing State (SIDS)



Main Island: Area (1,864 km²)

Several outer islands (Rodrigues, St Brandon, Agalega, Tromelin and Chagos Archipelago)

Location: South West Indian Ocean; about 855 km east of Madagascar

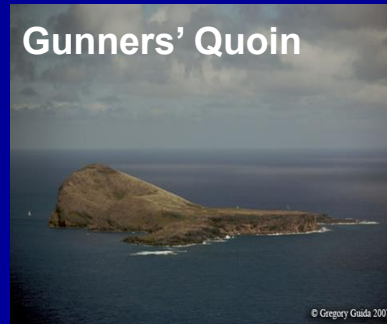


Offshore Islets

Round Island



Gunners' Quoin

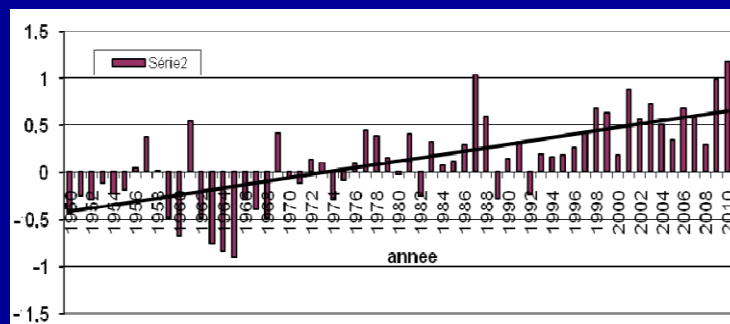


CLIMATE CHANGE CHALLENGES

- ❑ As SIDS, Mauritius is **highly vulnerable** to the adverse effects of climate change
- ❑ The impacts of climate change are **expected to worsen in the decades to come** (PCCAM Baseline report Sept 2013)
- ❑ Climate change presents a **serious threat to continued prosperity** of the Island

Extreme Weather Events

Temperature variation in Mauritius (1950–2010)



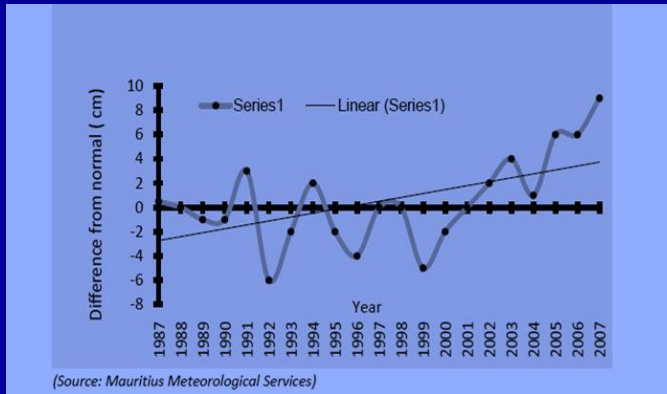
(Source: ACCLIMATE project, 2012)

Analysis of temperature data (1950-2007) shows that mean temperature is **Rising** by about **0.16 ° C per decade**.

On the average, temperatures have **Increased** over the region by **0.74 °C to 1.2 °C** since 1950.

The average temperature is expected to **increase up to 2° C by 2061-2070** compared to 1996 -2005 (DRR Report 2012).

Mean Sea Level Rise



Sea Level rise monitored at Port Louis

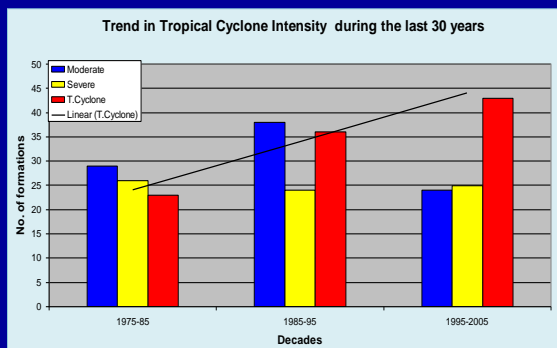
Overall MSL rise of around 1.2mm during past decade

- 1998-2007 MSL rise 2.1mm/yr
- 2007-2012 MSL 3.8 mm/yr

□ By 2100, sea level is expected to rise up to 49 cm (DRR, 2012) leading to saline intrusion and inundation of certain low-lying coastal areas affecting **livelihoods, coastal wetlands and mangroves** (May 2007 Rivière des Galets coastal village houses flooded by a storm surge).

□ It is also expected that **coastal erosion will become more serious** with sea level rise.

Tropical Cyclones Intensity



Number of rainy days + Amount of precipitation



Frequency of Intense Tropical Cyclones (wind gusts 234 - 299 km/h)

Heavy Rainfall ⇒ Flash Floods (11 Deaths in Port Louis 30 Mar 2013 ;152mm RF in < 1 Hour)



Summary of observed and projected impacts of climate change

Some observed impacts of CC	Projected impacts of CC
Sea level has been rising by around 3.8 mm/year on average at Port Louis over the last 5 years and between 1998 & 2007, local mean sea level rose by 2.1mm/year	Sea level is expected to rise by up to 49 cm by 2100
Average temperature has increased by 0.74°C – 1.1°C when compared to the 1961-1990 mean	The average temperature is expected to increase up to 2°C by 2061 -2070 compared to 1996 -2005.
An increase in annual number of hot days and warm nights	Projections and trend analysis confirm that more frequent heat waves in summer and milder winters
Decreasing trend in annual rainfall of around 8% over Mauritius since the 1950s	Utilizable water resources will decrease by up to 13% by 2050.
Mauritius experienced its worst drought in 1999 and 2011	Increase in duration of dry spell
More frequent torrential rains resulting in flash flood	Increase in heavy precipitation events with increased risk of flash flood
Increase in the frequency of extreme weather events, heavy rains and storms	Increase in the number of intense tropical cyclones and high energy waves (tidal surge)

Adaptation and Mitigation Framework to Cater for Improved Resilience to Impacts of Climate Change

Adaptive Mitigation Measures

- ❑ Setting up of the National Climate Committee in 1991
- ❑ National Climate Change Action Plan developed in 1998 recommending a number of mitigation and adaptation actions across various sectors
- ❑ Africa Adaptation Programme adopted for creating the enabling environment to develop, implement, manage, and monitor long-term and cost-effective adaptation policies and capacity building to meet the climate change challenge
 - And mainstreaming climate change adaptation considerations into core development policies, strategies and plans for disaster risk reduction, agriculture, environment, fisheries, tourism, water, education and finance.*

Adaptive Mitigation Measures Cont'

- ❑ A National Climate Change Adaptation Policy Framework prepared and a Climate Change Information Centre (CCIC) launched to promote climate change literacy and awareness
- ❑ A Second Technology Needs Assessment to identify climate change mitigation and adaptation technologies prepared
- ❑ The Maurice Ile Durable Policy, Strategy and Action Plan prepared for a greener environment
- ❑ An ESA Policy Guidelines with GIS Maps developed for sensitive areas including their Buffer zones

Adaptive Mitigation Measures Cont'

- ICZM Framework developed for Coastal Rehabilitation Programme for the coastal belt including EIA for developments in ESA**
- A robust Early Warning System for tropical cyclones and torrential rains developed**
- Maps showing risks and hazard-prone areas and Disaster Risk Reduction Strategy and Action Plan prepared to cater for inland flooding, coastal zone inundation and landslides based on the most probable developmental and climate change scenarios for the future**

International Conventions

- Mauritius is a contracting party to both CMS (year 2004), AEWa (year 2001) and Ramsar Convention (Yr 2001), CBD (1994) International Conventions.**

Migratory Birds Vulnerability to Climate Change in Mauritius

MIGRATORY BIRDS

Mainly from Northern Hemisphere (Europe, Scandinavia & Siberia)

About 14 spp known

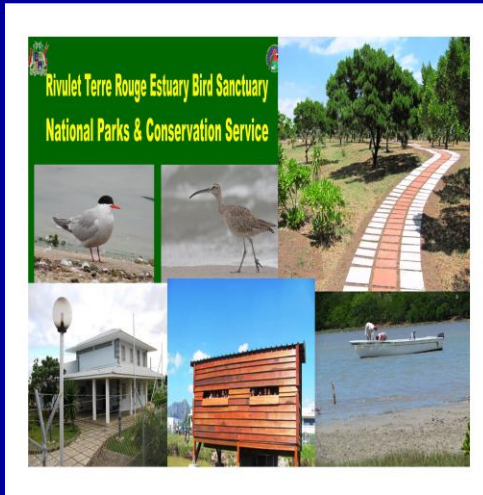
6 most common:

1. Curlew sandpiper
2. Grey plover
3. Common sandpiper
4. Whimbrel
5. Common Tern
6. Ruddy turnstone

Other vagrant spp: Black Winged Stilt, Godwit & Eurasian curlew



Rivulet Terre Rouge Estuary Bird Sanctuary (RTREBS) a Ramsar Site



A near natural Coastal Estuarine Wetland (26 ha) and Ramsar Site of International Importance (Sept 2001)

Most important Sanctuary for hundreds of Migratory Birds which visit Mauritius during the summer month (October – March).

Provides important Climate Change Mitigation Functions such as flood control, sediment trapping and shoreline stabilization.

RTREBS



WHY DO MIGRATORY BIRDS VISIT WETLANDS?



Whimbrel (*Numenius phaeopus*)
Family: Scolopacidae

- Bird migration: a regular seasonal activity to complete biological life cycle.
- Feeding on crustaceans, molluscs, worms and small crabs which occur in large numbers on the mudflat of the wetland.

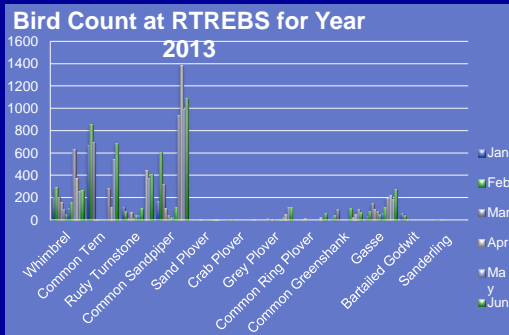
WHY DO MIGRATORY BIRDS VISIT WETLANDS?



Common Tern (*Sterna hirundo*)
Family: Sternidae

- Resting: A conducive warm habitat to escape the harsh winter conditions in the Northern Hemisphere i.e native breeding sites
- Moulting: Change Plumage

Monitoring of Migratory Birds at RTREBS



- As expected a higher number of migratory birds is recorded during the migratory season from October to March with a peak in January as compared to the non migratory season (April to September).
- Common sandpiper, tern and whimbrel are the most common migratory birds observed at RTREBS.



Coastal Wetlands vulnerable to Climate Change impacts



Crab Plover (*Dromas ardeola*)
Family: Dromadidae

- Coastal Wetlands provide important habitats for Migratory Birds to complete their migration cycle
- Warmer Temperatures, High Energy Waves & Storm Surges, More Intense Tropical Cyclones will impacts coastal habitats and their ecologically dependent migratory birds

Coastal Conservation Works



Rhizophora mucronata at Pointe D'esny

Threats to Wetlands

- ✓Habitat degradation and /or reduction due to: Land Use Conversion Activities (development pressures in coastal areas), pollution (dumping of solid waste into wetlands) and illegal backfilling
- ✓Climatic Changes (Extreme Weather Events) resulting in flooding of low lying coastal areas

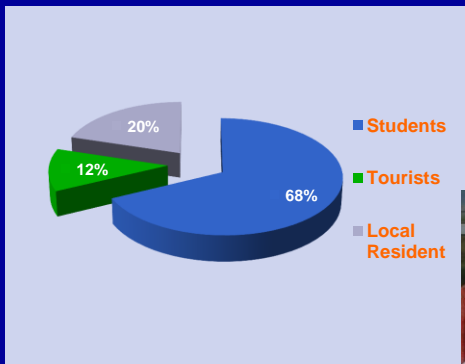


Illegal Dumping of construction debris in coastal wetlands



Bassin Blanc (Inland wetlands)

CEPA Programme



Percentage number of visitors at RTREBS Year 2013

NPCS NFP to Ramsar Convention

- Guided tours
- Bird watching using telescope
- Projection of film “Couleur Marine” on wetland conservation
- Display of Posters on migratory birds
- Talks on wetland conservation and Migratory Birds



Way Forward

- ❑ Preparation of Management Plan for RTREBS, MAJOR Habitat for Migratory birds addressing Climate Change issues
- ❑ Gap Analysis in Scientific Research and capacity building (monitoring species population and their habitat, species abundance mapping and assessing the Vulnerability of Migratory Birds to Climate change impacts in Mauritius
- ❑ Fostering Community Participation for monitoring of Migratory Birds and safeguarding their habitat
- ❑ conservation of quality habitats that can maintain healthy ecosystems and reduce the disastrous impacts of climate change (flash floods, storms and others)

References

- Programme on Climate Change Adaptation and Mitigation in COMESA- EAC-SADC Region Baseline report Mauritius, Sept 2013)
- Disaster Risk Reduction (DRR) Strategic Framework and Action Plan – Synthesis Report 2012; Ministry of Environment and SD
- Mauritius Meteorological Services. Climate Change Impacts on Mauritius (2009)
- NPCS Annual report 2013.

