Secondary Education Sector

AFRICA ADAPTATION PROGRAMME FOR CLIMATE CHANGE
REPUBLIC OF MAURITIUS

Factsheet

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Secondary Education Sector

OUR Climate | Choice | Future

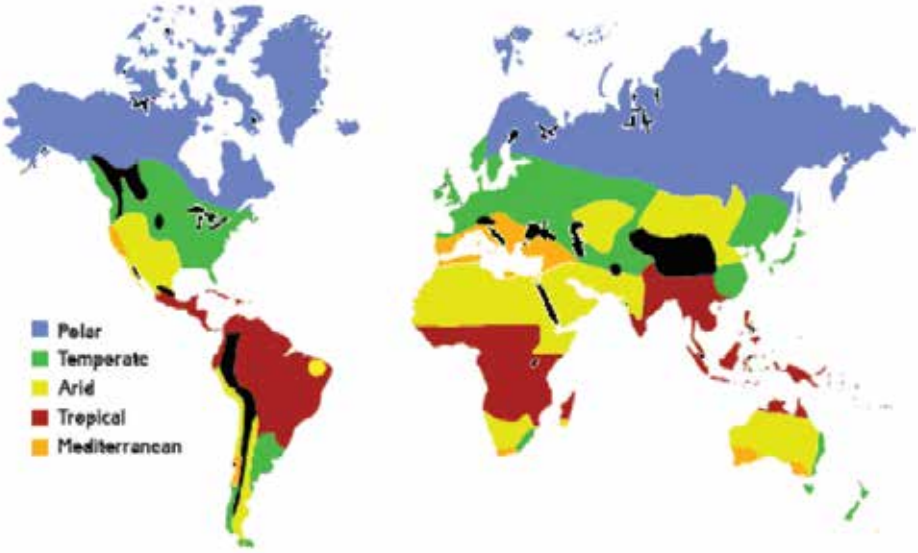
Africa Adaptation Programme for Climate change: Republic of Mauritius

Weather

Weather is a mix of events that happens every day in our atmosphere. This includes rainfall, humidity and temperature. Weather varies daily.

Climate

Climate is the average of the weather pattern in a place over many years. The average climate over the world is called the global climate.



Climate Change

The Intergovernmental Panel on Climate Change (IPCC) Report in 2007 has noted and predicted changes in the global climate. According to the UNFCC, this change in climate is caused directly or indirectly by human activities and it alters the composition of the atmosphere. This change takes place in addition to natural climate variability and it can be observed over a long period of time.

Natural Climate Variability

This corresponds to changes in climate due to natural phenomena such as variability in solar intensity, randomness of volcanic eruptions and the chaotic nature of the climate system.

Facts from the IPCC report

- The increase in CO2 concentration in the atmosphere is the most important factor behind the increase in global temperatures.
- There is 'a very high confidence' that human activities since 1750 have contributed to global warming.
- If tomorrow, CO2 emissions were to stop, the amount of CO2 already present will cause the sea level to rise by about 1.4m.

Impact

Sea Level Rise

Over the last 5 years, the tide gauge record at Trou Fanfaron (Port Louis) has been recording a rise of about 3.5 mm/year in the sea level.
Source: Mauritius Meteorological Services

Tidal surges with waves to the order of 6-10M have affected the southern part of the island (from Grand Port, Gris-Gris to Flic-en- Flac). This has been linked to the rise in sea level. One person died during this incident and 10 fishing boats were damaged, while 15 houses were inundated by sea water.
Source: Mauritius Environment Outlook Report

Over the last few years, Wolmar has seen a 15 m retreat over approximately 500m of shoreline and 4 m height (from the beach toe to the beach crest) which amounts to approximately 7,500 m2 of coastal land and 30,000 m3 of sand being lost.
Source: Ministry of Environment and NDU, 2003 (Baird's Report]

Temperature

Average temperature in Mauritius is rising at the rate of 0.15 ˚C per decade and has already risen by 0.74 – 1.2 ˚C when compared to the 1961-90 long term mean.
Source: Mauritius Meteorological Services

In 2009, MOI reported severe coral bleaching with more than 50% of corals dead or bleached in some regions. This has been associated with a rise in sea surface temperature.
Source: MOI Annual Report 2008/2009

Agriculture

Severe drought recorded in 1999, resulted in a 40.6% drop in sugar production that is, from 628,588 tonnes in 1998 to 373,294 tonnes in 1999
Source: Digest of Agricultural Statistics, 2001

Biodiversity

In January 2009, cases of fish mortality were reported at Poudre d'Or. Surveys indicated that a sudden rise in the sea surface temperature (up to 31.5 °C) resulted in a micro algal bloom, which could have been the main cause of fish mortality.
Source: Fourth National Report on the Convention on Biological Diversity1

7 endemic species of native reptiles are restricted to remnant population on the northern offset islets. A rise in sea level will completely submerge those islets.
Source: Fourth National Report on the Convention on Biological Diversity

Extreme Weather Conditions

The 36% rise in mean monthly rainfall, the 0.2 °C rise in maximum temperatures and higher humidity rates from December 2005 to March 2006 were accompanied by anoutbreak in Chikungunya (Ramchurn et al., 2008) a disease transmitted by mosquitoes. Between the first case of Chikungunya in 2005 and till August 2006, some 14,500 cases of the disease were reported.
Source: Mauritius Environment Outlook Report

Between 1905 and 2007, a decrease of 8% in rainfall, along with more frequent and severe droughts has been noted.
Source: Mauritius Meteorological Services

Health

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Source: Mauritius Environment Outlook Report

Water vapour (36%-72% contribution to GHE)
Carbon dioxide (9%-26% contribution to
GHE)
Methane (4%- 9% contribution to GHE)
Nitrous Oxide
Ozone (3%-7% contribution to GHE)
Chlorofluorocarbons (CFCs) – emitted
exclusively by human activities

CO2 - burning of solid waste, wood and wood
products, and fossil fuels (oil, natural gas, and coal)

Methane – decomposition of organic waste (landfill), livestock farming

Nitrous Oxide – agricultural and industrial processes, burning
of solid waste/fossil fuels

DID YOU KNOW?

Burning 1 LT of gasoline ≈ 4755 cm3 of CO2

Using fluorescent light bulb= saving approx.150 kg of CO2/year

1 tree absorb 1 tone of CO2 over its lifetime

The current pace of global average temperature rise puts approximately 20 to 30 percent of plant and animal species at
increased risk of extinction
Source: http://www.nwf.org/Global-Warming/School-Solutions/Eco-Schools-USA/Become-an-Eco-School/Pathways/Climate-Change/Facts.aspx

The United States releases more carbon dioxide than any other country, though it is home to just five percent of the world's population. If everyone in the world lived the way people do in the U.S., it would take five Earths to provide enough resources for everyone!
Source: http://www.nwf.org/Global-Warming/School- Solutions/Eco-Schools-USA/Become-an-Eco- School/Pathways/Climate-Change/Facts.aspx

Major known and probable health risks from climate change

Climate Change Effects on:	Adverse Climate-Health Effects:
Floods, storms	Deaths; injuries; infectious disease outbreaks; mental health impacts on affected communities
Heat waves	Deaths; hospitalizations; emergency department visits; heat-related illnesses
Air pollution	Increased concentrations of ground-level ozone smog and fine particulate matter; increasing premature mortality and hospitalizations
Airborne allergen production	Increased allergic illnesses (hay fever, asthma) due to longer pollen season and increases in the amount of pollen produced
Vector-borne infections	Insect-borne infections and spread of other diseases into new areas
Water-borne infections	Extreme rainfall events are associated with increased risks of cryptosporidium outbreaks; risk of cholera could increase as coastal/estuarine waters warm
Water and food supplies	More frequent drought; reduced drinking water supplies and crop yields; increased world food insecurity; fishery declines contributing to food shortages; increased risks of food borne illnesses
Sea-level rise, storm surge, flooding	Contamination of coastal soils and drinking water supplies; increased storm surges and floods; large numbers of displaced people

Table adapted from McMichael et al. (2006)

http://www.nrdc.org/health/files/climate-healthfacts.pdf

Deaths from asthma, which is the most common chronic disease among children, are expected to increase by nearly 20% by 2016 unless urgent action is taken.
Source: UNICEF UK Climate Change Report 2008

Marine Ecosystem Degradation

· Loss of about 75% of marlins, 98% of sharks from Albion to Le Morne
· In January 2009, cases of fish mortality were recorded in the region of Poudre d'Or. Surveys indicated that a sudden rise in sea water temperature (up to 31.5°C) resulted in a micro-algal bloom, which could have been the main cause of fish mortality.
· Between 1993 and 2009, total fish catch has decreased from 19,690 tonnes to 6,978 tonnes
· Coral bleaching was also observed in the Balaclava and Blue Bay Marine Parks.
Coastal Land Erosion
· Erosion problem, degradation of beaches: due to lack of financial resources, authorities are unable to bring remedial actions
· The natural movement of sand by trapping sand on one side and accelerating erosion on the other side. Moreover, the policy of using gabion baskets to prevent erosion was initiated in 1996, at various sites throughout Mauritius, namely: Flic en Flac, Rivière des Galets, Cap Malheureux, Grand Bay, Riambel and La Prairie. However, this policy has been found to be ineffective as the integrity of the basket is short lived (4-5 years), especially due to intense pressure from waves and human interference. With the collapse of the baskets, much of gabions functions were lost and the rusting wires represented eyesores and health hazards (ICZM Strategy Report, 2010).
· coastal areas are already affected by sea-level rise and extreme weather events. Besides inundation and erosion of the shoreline, coastal ecosystems such as: coral reefs and mangroves are also being negatively affected.
· The Flic en Flac – Wolmar sandy shoreline has been the focus of several coastal erosion studies. GIS analysis of aerial photographs (1967 & 1997) has enabled the comparison of both water and vegetation lines. A 15 m of retreat of the vegetation line between 1967 and 1997 has been observed with most of it occurring between 1979 and 1995.
· The 15 m retreat over approximately 500 m of shoreline and 4 m height (from the beach toe to the beach crest) amounts to approximately 7,500 m2 of coastal land and 30,000 m3 of sand being lost from the beach at Wolmar.
· January 2009, whereby more than 50% of corals bleached and died in some lagoons, the culture of bleaching
· Some of the low-lying islets, such as Flammants, Ile aux Oiseaux, Bénitiers and the Mariannes group, are susceptible to sea level rise. These are already affected by cyclones, storm surges and beach erosion.

Areas prone to Floodings

· On the other hand, at Flic-en-Flac and Grand-Baie, unsustainable patterns of development such as development on wetlands and the absence of drains, have been noted mainly due to lack of proper planning, non-compliance of promoters and poor enforcement mechanisms. These areas are prone to floods during heavy rains and cyclones.

· For instance, in May 2007, the southern part of the island (from Grand Port, Gris-Gris to Flic-en-Flac) was affected by tidal surges140 with waves to the order of 6 –10 metres (Mauritius Meteorological Services, 2007). One person died during this incident and 10 fishing boats were damaged, while 15 houses were inundated by sea water. Similarly, in March 2008, torrential rainfall resulted in flash floods in the northern and eastern part of Mauritius. Four persons died during this event, 22 vehicles were recovered from floods, while the Fire Services recorded more than 2,000 requests for assistance and intervention in about 50 areas. Because of the intensity of the flooding event, some 280 heads of households received as flooding allowance the day following the floods amounting to Rs. 305,500 (Cabinet Decision, 28 March 2008).

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Areas prone to damage by cyclonic conditions

· It is expected that sea level rise will lead to saline intrusion and inundation of certain low-lying coastal areas, thereby affecting livelihoods, coastal wetlands and mangroves. In May 2007, inhabitants of Rivière des Galets village were affected by a storm surge, which flooded their houses.

· Some of the low-lying islets, such as Flammants, Ile aux Oiseaux, Bénitiers and the Mariannes group, are susceptible to sea level rise. These are already affected by cyclones, storm surges and beach erosion.

· Black River Gorge - cyclonic gusts of up to 285 km/h and accompanying torrential rainfall damage native forests and habitats.

Terrestrial Ecosystem Affected

· Black River Gorge - cyclonic gusts of up to 285 km/h and accompanying torrential rainfall damage native forests and habitats.
· offshore islets like Round Island and Ile aux Aigrettes have remnants of mainland and coastal biodiversity, Between 2006 and 2009, 250 Telfair skinks were translocated to Ile aux Aigrettes and Gunners Quoin. Bojers skinks from Ilot Vacoas were reintroduced on Ile aux Fouquets and orange-tailed skinks from Flat Island were introduced on Gunners Quoin. The project is ongoing (2009-2011) and aims at translocating Gunther's geckos onto Ile aux Aigrettes, Bojer's skinks on Ile aux Fouquets and Ile de la Passe, Nactus from Ilot Vacoas and Round Island onto Ile aux Mariannes and captive breeding of Nactus geckos.

Vallée de Ferney

· Vallée D'Osterlog Endemic Garden in 2007, which covers 275 ha and is located on the Grand Port Mountain Range at Le Val, Saint Hubert. The objectives are to conserve, preserve and protect the environment, flora and fauna of the garden.

Others

Mare Chicose Sanitary Landfill.

Mauritius 'Hot spots' Map