



Climate Change and Small Island States with reference to Malta

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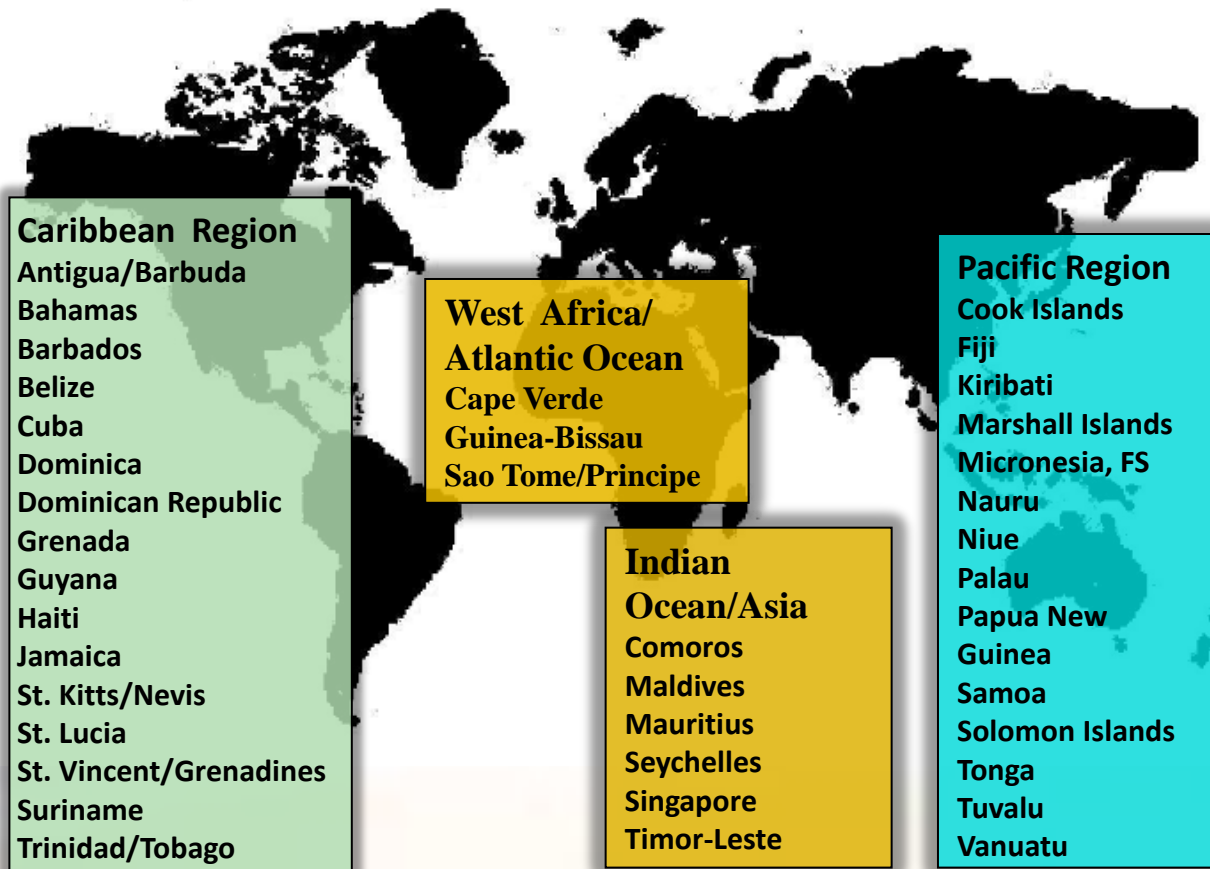
SIDS AND GLOBAL WARMING

About one fifth of all politically independent countries are Small Island States (SIS). These are to be found in all regions of the world, but most of them are located in the South Pacific Ocean, the Indian Ocean and the Caribbean Sea.

One of the greatest challenges to the sustainable development faced by these states relates to climate change. A matter of great concern for these states is that although they contribute very little to global warming, they are the ones that will be harmed most by the effects of climate change.

Location of most SIDS

Most small island **developing** states are located in (a) the Caribbean Sea, (b) the South Pacific Ocean and (c) the Indian Ocean/East Atlantic Ocean



Most SIDS are located in the Pacific Ocean, Indian Ocean and the Caribbean Sea. They have an important voice in the international arena through the Alliance of Small Island States (AOSIS). AOSIS had a leading role in the Barbados conference on the sustainable development of SIDS (1994) and in the Mauritius conference on the ten-year review of the BPoA. The Alliance is also very visible in climate change negotiations, including the Conference of the Parties where signatories of the United Nations Framework Convention on Climate Change (UNFCCC) assess progress in dealing with climate change in order to establish obligations for countries to reduce their greenhouse gas emissions.

RECOGNITION OF SIDS VULNERABILITY

The sustainable development of small island developing states was considered to be a major area of concern in three United Nations international conferences, in Barbados in 1994, in Mauritius in 2005 and in Samoa in 2014.

Sea-level rise is a major concern for SIDS, especially low-lying ones, due mostly to the fact that in such states human settlements and economic activities tend to be concentrated on the coastal zone. Basing on available scientific studies, during the last century there was an overall tendency for sea-level rise in the Pacific, Caribbean and Indian Ocean regions, where most SIDS are located.

SEA-LEVEL RISE IN SMALL-ISLAND REGIONS

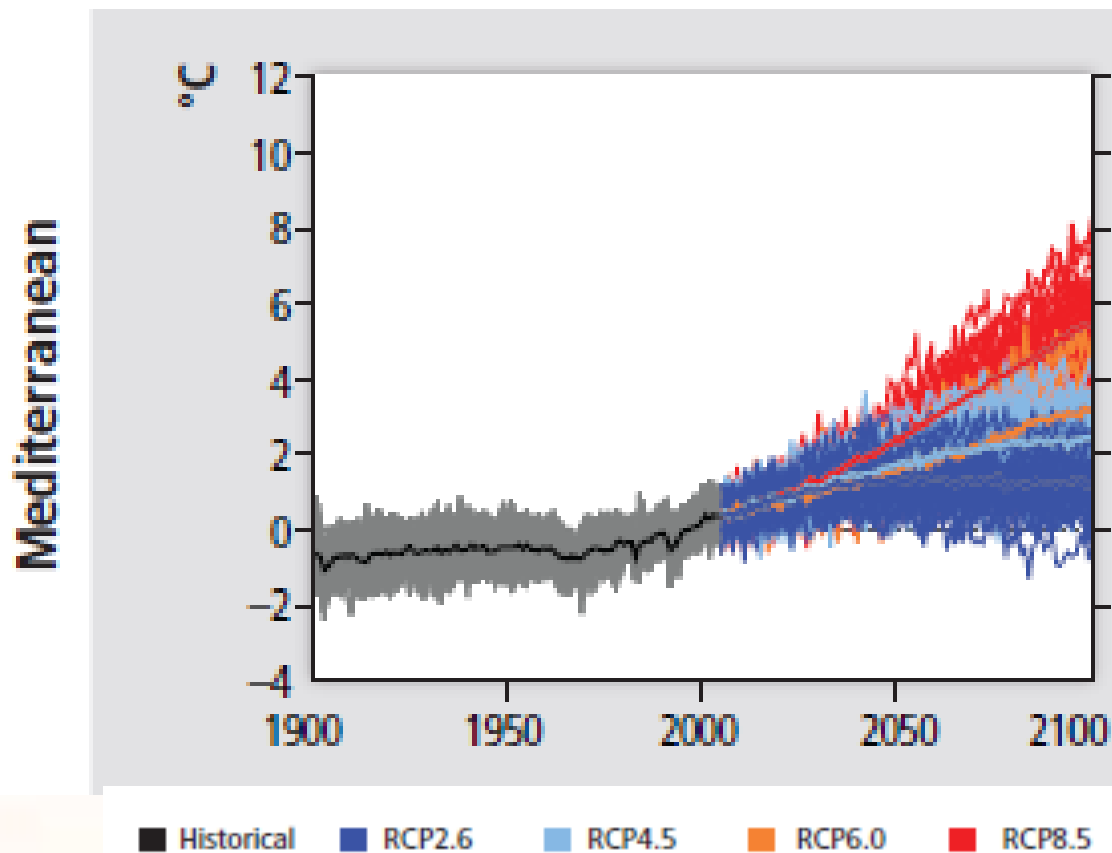
RCP4.5 annual projected change for 2081–2100 compared to 1986–2005

Small Island Region	Temperature °C	Precipitation (%)	Sea level (m)
	Median	Median	Range
Caribbean	1.4	-5	0.5 – 0.6
Mediterranean	2.3	-6	0.4 – 0.5
Northern Tropical Pacific	1.4	1	0.5 – 0.6
Southern Pacific	1.2	2	0.5 – 0.6
North Indian Ocean	1.5	9	0.4 – 0.5
West Indian Ocean	1.4	2	0.5 – 0.6

RCP4.5 is one of the **Representative Concentration Pathways** (RCPs) of the four greenhouse gas concentration trajectories adopted by the IPCC for its fifth Assessment Report (AR5) in 2014.

SEA-LEVEL RISE IN THE MEDITERRANEAN

Time series of scenarios annual projected temperature change relative to 1986–2005 four RCP scenarios



DAMAGE OF SEA-LEVEL RISE ON MALTA

Malta is a small island state, member of the EU, and therefore is not considered a developing country, so it is not a SIDS, but a SIS. The country has a very high population density (about 1300 persons per Km²). The economy of Malta depends heavily on tourism and sea-level rise is likely to harm tourism facilities and infrastructure.

However, other industries, including fishing, agriculture and manufacturing as well as infrastructure such as ports, airports and coastal reservoirs will also be negatively impacted. The coastal areas of Malta are also associated with socio-cultural assets and sea-level rise will therefore also have a negative impact on these assets.

MITIGATION AND ADAPTATION STRATEGIES

Malta, being a member of the EU, is obliged to take on board mitigation and adaptation measures, and has adopted strategies in this regard.

Many initiatives have been taken in Malta to foster an understanding of climate change and its repercussions and to promote mitigation and adaptation measures (see Government of Malta in the references section).

HIGH IMPACTS ON MALTA

Briguglio and Cordina (2007) have shown that climate change impacts on the economic development of Malta are likely to affect all sectors of the economy, but particularly tourism, fishing, agriculture and public utilities.

Formosa and Bartolo (2008), and Galdies (2015) discuss the impacts that climate change is likely to have on the tourist industry.

AN ETHICAL ISSUE - WHO IS RESPONSIBLE

Sea-level rise will therefore lead to heavy material and cultural losses for Malta and will affect practically all aspects of life in the country.

This reality is particularly harsh for Malta and other small island states because greenhouse gas emissions produced by these states are negligible when compared to those emitted by larger developed and developing countries, and yet most studies show that small islands states will be those countries that will be harmed most by climate change.

MITIGATION POLICY IN MALTA

Energy policies in Malta mainly address the reduction of energy dependence including the promotion of renewable energies, grants for insulation in buildings and the construction of an electricity grid interconnection with Sicily.

The interconnector, which is in operation, reduced dependence on fossil fuels and as a result greenhouse gasses, and at the same time improved grid stability.

A gas-powered power station is in the pipeline, and this should further reduce emission of greenhouse gasses.

PROBLEMS OF MITIGATION IN MALTA

The highest emitters of gas in Malta is the existing power station and transport vehicles. Personal car usage in Malta is very high per capita and a large proportion of vehicle fleet in Malta are imported second-hand, with a relatively old age.

The use of domestic renewable energy sources is very limited (about 4% of total energy usage) but it is increasing. The most common renewable energy method is solar heating and solar panels are subsidized by the government. There is potential for wind energy, but the construction of offshore wind farms has not found political support.

Renewable energy usage is still however markedly below the EU approved national renewable energy target of 10% of the gross final consumption of energy, by 2020.

ADAPTATION STRATEGY IN MALTA

Malta's National Adaptation Strategy seeks to address recommendations in various sectors which are vulnerable to climate change, including water, agriculture, human health and tourism. The strategy also addresses the financial impacts as well as any sustainability issues. There is an emphasis on the need for mainstreaming adaptation policy into national strategies within a legal framework.

The Strategy clearly outlines the policy which should be adopted and indicates which Authority or Government entity should be responsible for implementation of policy. Time-frames within which such policy actions should be implemented are also included.

HIGH COSTS OF ADAPTATION IN MALTA

Unfortunately, the limited resource base of a small island state like Malta constrains its adaptation and coping ability, especially when large overhead costs are involved.

As is well known, certain costs are not divisible in proportion to the population, and infrastructural development is often very costly for small territories with a small population.

This problem is also applicable for Malta. The cost of adaptation per capita in Malta will be higher than those of larger countries.

CONCLUSION

All countries will be affected by climate change. But small island states will be especially hard-hit due mostly to their relatively high ratio of coastal zone to the land-mass.

Many small island states in the Caribbean, Pacific Ocean and Indian Ocean are already suffering from sea-level rise and increasing intensity of extreme events (such as cyclones).

Malta is not so exposed to extreme events of this type, but the Maltese Islands will still be highly affected by sea-level rise, particularly because a high proportion of economic activities, including tourism, occur on the coastal zone. Tourism will be particularly affected.

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