Backgrounder:

Regional impacts + the 1.5°C climate target

Small Island Developing States

Projected impacts across SIDS

- Small islands are extremely vulnerable to the impacts of climate change. People living on small islands are very exposed to the weather, often live on the coast, are dependent on fisheries based on corals, and only have limited resources and options for employment available. One extreme weather event can have a significant effect. More than 4,600 people died on the island of Puerto Rico for example as a result of a hurricane in November 2017, which has also triggered a healthcare and humanitarian crisis.

- As sea levels rise, large waves are also likely to inundate the low lying islands more and more often, contaminating groundwater supplies of drinking water with salt. In a high emissions scenario where temperatures rise by more than 4°C by the end of the century, this could make these islands uninhabitable by around 2030-40, according to one study. In a scenario where temperature rise is limited to 3°C, they could be uninhabitable by 2055-65. Previous studies are more optimistic, suggesting they could be uninhabitable by the end of the century.

- The difference between a 1.5°C - 2°C temperature rise are important for small island states. For several SIDS, particularly across the Caribbean, about a quarter of the overall freshwater stress projected under a 2°C temperature rise can be avoided if temperatures only rise by 1.5°C.

Projected impacts across SIDS/Caribbean

With 1.5°C of global warming:

- By the end of the century, nine out of ten of coral reefs are at risk from severe degradation from 2050 onwards. This declines to 70% by 2100 - meaning that some coral reefs have a chance of survival. At the moment, coral reefs provide about US$30 billion annually to the world economy, in coastal protection, building materials, fisheries and tourism.

- Coral reefs in Small Island Developing States (SIDS) could decline by about 80%.

- Half the annual year is projected to be very warm in the Caribbean.

- Rising temperatures, drought, and unstable weather patterns have serious implications for global food production. Every degree of global temperature rise reduces global yields of wheat by 6.0%, rice by 3.2%, maize by 7.4%, and soybean by 3.1%.

With more than 1.5°C of global warming:

- Globally, agricultural yields fall rapidly between one and 3°C of warming. Once local temperatures reach 3°C above pre-industrial levels, all crops are negatively affected, wherever they are in the world - including in temperate regions.[1] Fish species go locally extinct, with serious impacts on fisheries.[2]

- By 2150, about 40,000 more people could experience flooding from sea level rise under2°Cof warming compared to warming at 1.5°C.

- If temperatures rise to 2°C, virtually all the world's tropical coral reefs are at risk of severe degradation and collapse. Coral reefs account for 10 to 12% of the fish caught in tropical countries, and 20% to 25% of the fish caught by developing nations.[3] They provide food, income and protection from storms for millions of people along coastal areas.

- Under 4°C of warming, one metre sea level rise could cost the Caribbean over US$68 billion from its cumulative GDP.[4]

Benefits of limiting temperatures to 1.5°C:

- 2°C of warming will create substantially more water stress in SIDS in the Caribbean region. About 25% of the freshwater stress projected under 2°C at 2030 in several Caribbean SIDS can be avoided by limiting global warming to 1.5°C.

This paper was prepared by GSCC to support understanding of issues arising from the IPCC's Special Report on 1.5°C warming.

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[1] IPCC, AR5, WGII, Chapter 7, p.497.

[2] IPCC, AR5, WGII, Chapter 7, p.508.

[3] IPCC, AR5, WGII, CC Boxes, p.99.

[4] Turn down the heat: why a 4°C warmer world must Be avoided (2012), The World Bank, p.34.