Backgrounder:

Regional impacts + the 1.5°C climate target -

Australia + Pacific

Australia

Australia's NDC is rated by Climate Action Tracker as "insufficient" to reach the 1.5°Ctemperature target contained in the Paris Agreement. Current Australian climate pledges are consistent with the world warming by up to 3°C.

- Australia has ratified the Paris Agreement, and pledged to reduce emissions 26–28% below 2005 levels by 2030, including emissions from land use (LULUCF). Australia's current policies would mean it misses this target, with emissions increasing by 0.4% a year.

- Australia's NDC target emissions by 2030: 413 MtCO2e
  Australian emissions in 2030 under current policies: 548 MtCO2e
  Australian emissions in 2018 under current policies: 529 MtCO2e

Projected impacts across Australia and the Pacific

With 1.5°C of warming:

- The amount of freshwater available in rivers and lakes could decrease by 10% in Australia.[1]

- The number of El Niño events in the Pacific is expected to double, potentially boosting temperatures during the years when the event occurs.

- 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%.

- 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.

[1] Differential climate impacts for policy-relevant limits to global warming: the case of 1.5C and 2C, (2015), Earth System Dynamics, Table S4.

With more than 1.5°Cof 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.[2] Fish species go locally extinct, with serious impacts on fisheries.[3]

- Under 2°C of temperature rise, annual runoff is expected to decrease by about 30% in the Murray Darling river basin.[4]

- 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.[5] They provide food, income and protection from storms for millions of people along coastal areas.

- With 3°C of warming, groundwater levels will fall, with the rate at which groundwater is replenished predicted to fall to perhaps half of 1990 levels by 2050 in some parts of Australia.[6]

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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Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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

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

[4] World Bank report: Turn down the heat: why a 4°C warmer world must Be avoided, p.xvi.

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

[6] IPCC, AR5, WGII, Chapter 3, Table 3-2.