

Commentary

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Copenhagen number crunch

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The Copenhagen Accord leaves a gap between climate impacts that can be dealt with through adaptation and those that will be avoided through mitigation. But how big is the gap?

The Copenhagen Accord agreed at last month's UN climate talks calls for developed countries to commit to emissions reductions to avoid a global temperature rise of more than 2 °C, and aims to mobilize US\$100 billion annually by 2020 for developing countries to fund mitigation and adaptation¹. National pledges to reduce emissions are to be submitted to the United Nations Framework Convention on Climate Change (UNFCCC), the international body that oversees the negotiations, by 31 January 2010. Though pledges from individual nations are not yet fully clear, those put forward up to and at the Copenhagen conference are insufficient to prevent warming of 3 °C or more. At the same time, the funding for adaptation agreed to in the accord is much less than what will ultimately be needed; it would only cover the impacts resulting from 1.5 °C of warming. As such, there is a gap of 1.5 °C between adaptation and mitigation, which is likely to result in substantial unavoided impacts. ([Fig. 1](#)).

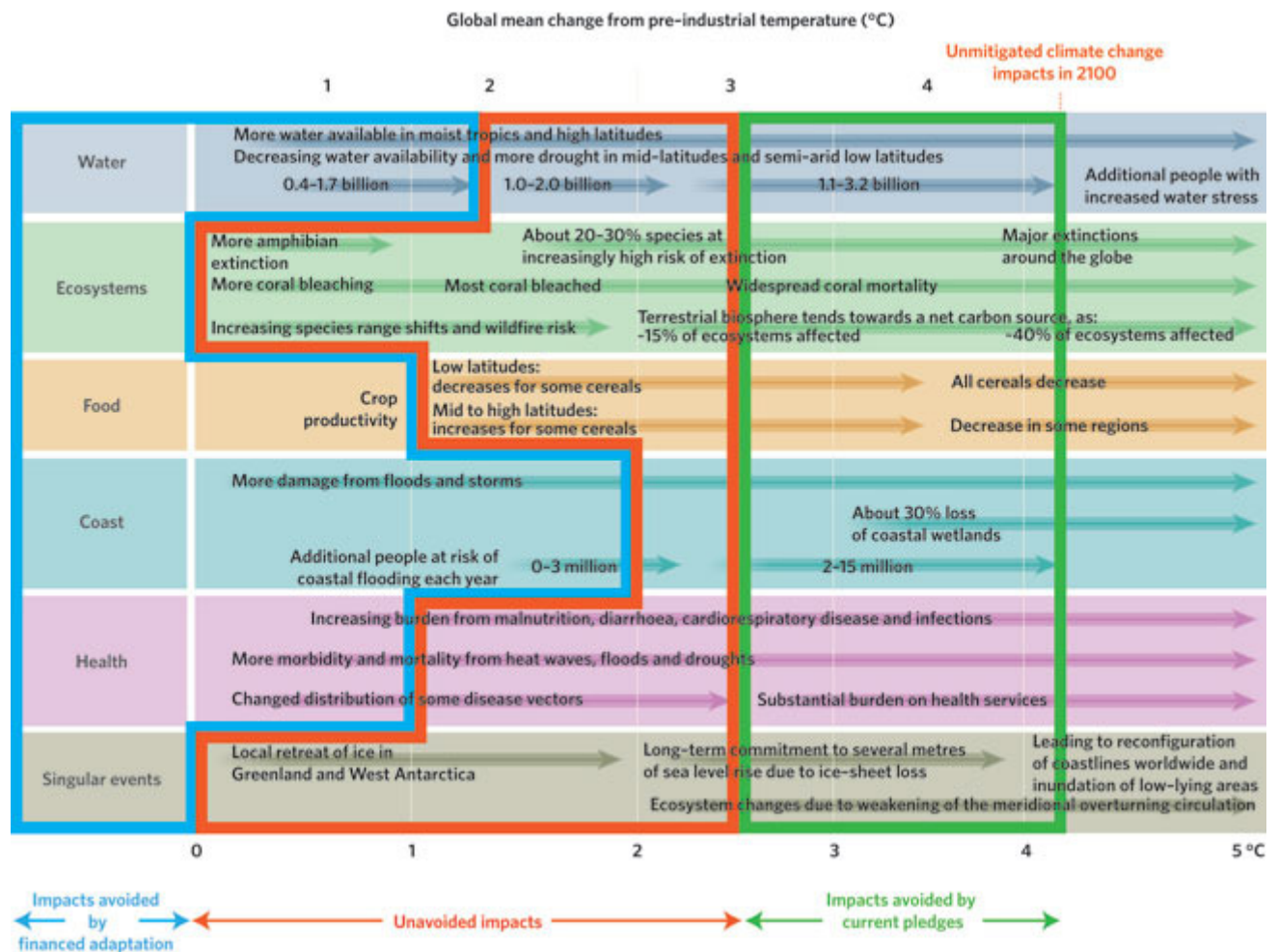


Figure 1: Unavoided impacts.

Schematic shows the 1.5 °C gap of unavoidable impacts likely to result from current international commitments to adaptation funding and mitigation, as laid out in the Copenhagen Accord. The global climate impacts are taken from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change².

The pledges put forward by nations so far have, for the most part, been accepted domestically — with one notable exception. The US promise to cut emissions 14 to 17 per cent below 2005 levels by 2020 has yet to be approved by the US Senate and for now remains unconfirmed. The outcome of the current pledges, both those officially announced and those under consideration, has been estimated in an internal analysis by the UNFCCC², which was widely reported at the time of the Copenhagen conference³, and subsequently in an independent analysis⁴. These two assessments indicate that greenhouse gas concentrations will reach 550 parts per million, with a related global temperature rise of about 3 °C by 2100. In other words, current plans under the Copenhagen Accord would fail to meet the core objective of limiting warming to 2 °C above the average pre-industrial temperature.

For adaptation, the amount of funding promised by the accord is US\$ 100 billion annually by 2020, intended also to cover the costs of technology development and transfer. If half of this

sum were made available for adapting to climate impacts, the allocation would broadly be in line with the UNFCCC's estimate of US\$27–66 billion needed annually by 2030 to cover impacts of warming up to 1.5 °C (ref. [5](#)).

Closing the gap

But the UNFCCC figures for adaptation costs are considered to be substantial underestimates. The financial assistance needed by developing nations may be two to three times higher overall and many more times higher for certain sectors⁶. The UNFCCC estimates do not, for example, include any costs for ecosystem adaptation, which alone have been valued at US\$65–80 billion annually by 2030 for protected areas and almost US\$300 billion annually for non-protected areas. The latter covers mainly protection of forests and biodiversity in farmed areas and does not include the ecosystem damage in unmanaged areas that is simply unavoidable, such as the loss of warm-water coral reefs. There are obvious problems here. First, we are now preparing to fund adaptation to 1.5 °C of warming but can expect 3 °C or more. Moreover, we know that many impacts and the costs of adapting to them do not increase linearly, but abruptly, with temperature. The funding for adaptation will therefore need to grow substantially.

If we make the generous assumption that the UNFCCC has accurately estimated the cost of adapting to climate change, many impacts⁷ would be avoided by the financial assistance offered in the Copenhagen Accord. The food and health sectors, for example, might be able to adapt and thus avoid impacts of up to a 1.5 °C rise by 2030, the water sector up to a 2°C rise by 2050 and coasts up to a 2.5 °C rise by 2080 (ref. [5](#)). But for ecosystems and some singular events, such as Greenland ice melt, most impacts simply cannot be avoided whatever the scale of funding available. For example, climate impacts on ecosystems have already been identified worldwide and for every biome⁷.

There is a flaw in our attempt so far to bridge the gap between adapting to and mitigating climate change. At present this looks likely to result in an overall temperature rise of about 3°C or more, the latter half of which we will be unable to adapt to. Closing this 1.5 °C gap in the post-Copenhagen period will require pledges of much deeper cuts in emissions and scaled-up funding for adaptation well beyond that currently on offer.

References

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