Senate Standing Committee on Environment and Communications
Legislation Committee
Answers to questions on notice
Environment portfolio

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Programme: Adaptation and Science Division

Topic: Adaptation

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Senator Pratt asked:

Senator PRATT: In relation to adaptation, I wanted to ask a series of questions about the impact of more extreme climate change on the Australian community and our environment. So could I begin by asking what adaptation strategies and evidence there is of what the impact of an increase of more than two degrees would mean in agriculture, for example, in the Murray-Darling Basin?
Ms Jensen: The information I have before me is more about the general projections rather than the specifics in the Murray-Darling Basin. Perhaps we could take that on notice?
Senator PRATT: I am happy to take that as a general question then, because I had questions about the Great Barrier Reef and Northern Australia. Perhaps, given the limited time, you might answer that from the point of view of what will be the impact, in broad terms, on Australia of a more than two-degree warming.
Dr Vertessy: I am not aware of any definitive document at the moment that actually summarises the anticipated impacts for Australia, but I could suggest that they would fall into the broad areas of impacts on growing seasons for agriculture. In all likelihood, it would impact on water security in some areas and flooding in others, and probably also heat stress for communities. I am not quite sure what the ramifications for the ocean would be with two degrees, but there would probably be some impact on ecosystems shifting. On that point, I am not too sure about coral reefs, but there could be some impacts on them in the form of acidification.

Answer:

The Working Group II contribution to the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC), 'Climate Change 2007: Impacts, Adaptation and Vulnerability' identifies a range of adaptation strategies for managing the impacts of climate change on agriculture, including improvements in crop varieties, rotations, farm technology, farm practices and land-use mix.

The potential future impacts in Australia of an increase in global average temperature of 2°C or more above pre-industrial levels are also described in the AR4 Working Group II report (Chapter 11 – Australia and New Zealand, section 11.7). The report assessed aggregate vulnerability in key sectors, concluding that, even if adaptive capacity is realised, vulnerability of water security becomes significant for 2°C of global warming, and vulnerability of the agriculture sector becomes significant for 3°C of global warming. Since most impact assessments in the literature synthesised by the IPCC do not allow for adaptation, these conclusions are indicative only.