



**Submission to the Senate inquiry into
Recent trends in and preparedness for extreme weather events**

January 2013

1 Introduction

- 1.1 Oxfam Australia welcomes the opportunity to make this submission to the inquiry into *recent trends in and preparedness for extreme weather events* being undertaken by the Senate's Environment and Communications References Committee.
- 1.2 As a leading international humanitarian and development agency working with local communities across the Pacific, East and South Asia, and Africa, Oxfam Australia is seeing vulnerable communities hit hard by the increase in extreme weather events associated with climate change.
- 1.3 The human cost of extreme weather may be most severe in terms of its impact on food production. Heatwaves, floods and storms can all cause sudden losses of crops and livestock, leading to increased food price volatility.
- 1.4 Climate change and extreme weather impact us all but hit poor communities in developing countries the hardest. A hot world is a hungry world: When the majority of a person's income is spent on food, a sudden jump in prices may mean being unable to feed their family.
- 1.5 Oxfam Australia firmly believes that investments made now in reducing emissions and supporting poor communities to build resilience to a changing climate will reduce the likelihood of future catastrophes, support economic development, and protect hard-won development gains.
- 1.6 This submission addresses the following Terms of Reference for the inquiry:
 - a) Recent trends on the frequency of extreme weather events, including but not limited to drought, bushfires, heatwaves, floods and storm surges
 - b) ii) The costs of extreme weather events and impacts on natural ecosystems, social and economic infrastructure and human health

2 About Oxfam Australia

- 2.1 Oxfam Australia is an independent, not-for-profit, secular international development agency. We are a member of Oxfam International, a global confederation of 17 Oxfam affiliates that work together to fight poverty and injustice in almost 100 countries around the world.

2.2 Oxfam Australia has worked with local communities around the world to combat poverty and injustice for over 50 years. Our organisation undertakes long-term development projects, provides emergency response during disaster and conflict, and conducts campaigning and advocacy for policy and practice changes which promote human rights and justice. We support over 400 long-term development projects in 30 countries across Africa, Asia, the Pacific and Indigenous Australia.

3 Recent trends on the frequency of extreme weather events

Item (a) of Terms of Reference

3.1 A hotter and more hostile climate is no longer a prediction. It is our new normal. The Australian heatwave of late December 2012 and early January 2013 was unprecedented in its intensity, geographical extent and duration.¹ Oxfam notes that the Bureau of Meteorology² and Climate Commission³ were both unequivocal about climate change contributing to making the extreme heat conditions and bushfires worse.

3.2 Our Australian experience is consistent with events around the world:

3.2.1 2012 was the hottest year ever recorded in the contiguous US.⁴

3.2.2 From April to June 2012 the UK experienced its heaviest ever rainfall.⁵

3.2.3 For China, 2012 saw the heaviest ever rainfall to hit Beijing in 60 years and the heaviest ever over a 14hr period.⁶

3.2.4 Globally, November 2012 was the 333rd consecutive month of above average global temperatures.⁷

¹ *Off the charts: Extreme Australian summer heat*, The Climate Commission, January 2013: <http://climatecommission.gov.au/report/off-charts-extreme-january-heat-2013/>

² *Get used to record breaking heat: bureau*, The Age, 9 January 2013: <http://www.theage.com.au/environment/climate-change/get-used-to-record-breaking-heat-bureau-20130108-2cet5.html>

³ *Off the charts: Extreme Australian summer heat*, The Climate Commission, January 2013: <http://climatecommission.gov.au/report/off-charts-extreme-january-heat-2013/>

⁴ According to the National Oceanic and Atmospheric Data Center's 2012 *State of the climate* report, in 2012, the contiguous United States average annual temperature of 12.9°C was 1.7°C above the 20th century average, and was the warmest year in the 1895-2012 period of record for the nation, 0.5°C warmer than the than the previous record warm year of 1998:

<http://www.ncdc.noaa.gov/sotc/national/2012/13>

⁵ See: <http://www.bbc.co.uk/news/uk-18678659>

⁶ See: <http://www.chinapost.com.tw/china/national-news/2012/07/23/348511/Ten-die.htm>

- 3.3 In March 2012 a special report on extreme weather by the Intergovernmental Panel on Climate Change (IPCC) warned of ‘unprecedented extreme weather and climate events’ in the future.⁸
- 3.4 In 2011, drawing on the IPCC fourth assessment as well as more recent research, the CSIRO and Bureau of Meteorology completed a detailed outlook on climate change in the Pacific under the Pacific Climate Change Science Program.⁹ The study predicted a marked increase in extreme temperature and rainfall events for Pacific communities.
- 3.5 Anecdotal reports of Oxfam partners around the world are consistent with the predictions and observations of the IPCC, CSIRO, Bureau of Meteorology and other national and international agencies of an increase in extreme weather events.¹⁰

4 The cost of extreme weather events

Item (b ii) of Terms of Reference

- 4.1 Climate change and extreme weather impacts us all but hits poor communities in developing countries the hardest.¹¹ It is these same people and groups who bare the least historical responsibility for rising greenhouse emissions.¹²

⁷ See: <http://www.rtcc.org/333rd-consecutive-month-with-temperature-above-20th-century-average/>

⁸ *Managing the risks of extreme events and disasters to advance climate change adaptation*, The Intergovernmental Panel on Climate Change, 2012: <http://www.ipcc-wg2.gov/SREX/>

⁹ *Climate change in the Pacific: Scientific assessment and new research*, Australian Bureau of Meteorology and CSIRO, 2011.

¹⁰ Stories from Oxfam’s partners around the world can be viewed at Oxfam Australia’s website. For example:

<https://www.oxfam.org.au/explore/climate-change/impacts-of-climate-change/our-pacific-neighbours-on-the-frontline/>

<https://www.oxfam.org.au/explore/climate-change/what-oxfam-is-doing/sisters-on-the-planet/>

¹¹ See, for example: <http://www.businessweek.com/articles/2012-11-02/the-best-defense-against-extreme-weather-live-in-a-rich-country>

¹² According to French initiative *Solidarité Climatique*, industrialized countries are responsible for 78% of the greenhouse gas emissions accumulated in the atmosphere, though they represent only 15.5 % of the world population: <http://www.co2solidaire.org/en/-climate-solidarity/reducing-north-/historic-responsibility.html>

See also analysis of cumulative emissions from the World Resources Institute: http://pdf.wri.org/navigating_numbers_chapter6.pdf

- 4.2 This greater vulnerability stems from a variety of factors including fewer financial resources, inferior infrastructure, lack of disaster preparedness, and greater exposure to a variety of climate hazards (such as rising sea levels in the case of many Pacific island nations and more erratic rainfall in the case of communities across the Sahel (West Africa) and many other regions).¹³
- 4.3 While the focus of this submission is the effect of extreme weather on food production and food markets, it must be noted that this is one of number of challenges facing poor communities as the frequency and intensity of extreme weather increases. Additional hazards associated with extreme weather include loss and damage of homes, land and infrastructure, and the spread of communicable diseases.¹⁴
- 4.4 Weather extremes have caused significant spikes in the price of food staples in recent years, putting a strain on the global food system and aggravating political instability and social strife in low income countries.¹⁵ The increased frequency and intensity of extreme weather events associated with climate change heralds a future of greater food price volatility.¹⁶ In simple terms, with food production inextricably wedded to climate and weather, more erratic weather means more erratic food production and food prices.
- 4.5 Oxfam research and modeling suggests that short-term losses from extreme weather events including droughts, heatwaves, floods and severe storms may pose still greater challenges than slow-onset increases in average temperature and changes in rainfall patterns.¹⁷ Whereas these slow-onset changes produce relatively predictable long-term declines in yields and associated price rises,¹⁸ to which people have some chance of adjusting, extreme weather events can cause sudden widespread damage to crops and livestock, even wiping out entire harvests in a stroke. Extreme events in any one year could bring about price

¹³ See the comprehensive *Climate Vulnerability Monitor* produced by DARA: <http://daraint.org/climate-vulnerability-monitor/climate-vulnerability-monitor-2012/>

¹⁴ Ibid.

¹⁵ Statistical analysis by the IMF found increases in international food prices lead to increasing risk of riots and civil conflict in low income countries: <http://www.imf.org/external/pubs/ft/wp/2011/wp1162.pdf>

Analysis of international food prices and political instability indicates a food price threshold above which protests become more likely: <http://arxiv.org/abs/1108.2455>

¹⁶ *Extreme weather, extreme prices*, Oxfam International, September 2012: <http://www.oxfam.org/en/grow/policy/extreme-weather-extreme-prices>

¹⁷ Ibid.

¹⁸ Oxfam commissioned research suggests that increases in average temperatures and changes in rainfall patterns will contribute to a doubling of the price of key staple foods such as maize in the next 20 years. - *Exploring food price scenarios towards 2030 with a global multi-regional model*, Willenbockel, D., 2011 (Oxfam research report)

spikes of comparable magnitude to two decades of long-run price increases,¹⁹ for example:

- 4.5.1 Predicted drought and flooding in southern Africa could increase the consumer price of maize and other grains by 120% in 2030. Price spikes of this magnitude today would mean the cost of a 25kg bag of corn meal - a staple that feeds poor families across Africa for about two weeks - would rise from around \$18 to \$40.²⁰
- 4.5.2 A drought in North America on a similar scale to the historical drought of 1988 could increase world market export prices for maize by 140% and world market prices for wheat by 33%.²¹
- 4.6 With poor communities often spending 75% or more of their income on food,²² price spikes of this magnitude can leave families unable to feed themselves. Furthermore, Oxfam Australia has observed that communities are often unable to recover from one shock to the next. The cumulative impact of successive price spikes can mean a downward spiral of worsening food security and worsening poverty. The UN Food and Agriculture Organization estimates that the 2007/2008 spike in global food prices contributed to an 8% rise in the number of undernourished people in Africa. Price rises in the second half of 2010 caused further turmoil, contributing to an increase in the estimated number of hungry people globally to 925 million.²³
- 4.7 Research by Oxfam on the effects of the 2011 food price crisis²⁴ documents coping strategies including withdrawing children from school, selling productive assets, changing diets, marrying early and migrating in search of food. The impacts of these choices will be felt across generations.

¹⁹ *Extreme weather, extreme prices*, Oxfam International, September 2012:

<http://www.oxfam.org/en/grow/policy/extreme-weather-extreme-prices>

²⁰ Ibid.

²¹ Ibid.

²² Ibid.

²³ *World Hunger Report 2011*, UN Food and Agriculture Organisation:

<http://www.fao.org/news/story/en/item/92495/icode/>

²⁴ *Impact of the global food crisis on the poor: what is the evidence?* Comton et al, Overseas Development Institute, 2010

5 Conclusions and Recommendations

- 5.1 Climate change, including the increasing frequency and severity of extreme weather events, poses immense threats to the hard-won development gains of the last half-century.
- 5.2 Australia's near neighbors in the Pacific, along with rural and coastal communities in south and east Asia and in Africa, remain acutely vulnerable owing to their exposure to climate and weather hazards (see paragraph 4.2) and lack of resilience to extreme weather events.
- 5.3 Left unmanaged, these vulnerabilities promise a future of greater costs for Australia in terms of emergency humanitarian assistance and potential compensation for loss and damage attributable to climate change.²⁵ By contrast, investing in resilience building and climate change adaptation in poor communities serves both to protect existing development gains and acts as an enabler of economic development. According to the UN Development Programme and the UN Office for the Coordination of Humanitarian Affairs, each dollar invested in disaster preparedness saves seven dollars in recovery.²⁶
- 5.4 Recognising the threats posed by extreme weather and other climate hazards upon poor communities, along with our responsibilities under the UN Framework Convention on Climate Change, the Australian Government made a solid contribution to international climate finance during the *Fast Start Finance* period (2010-2012). Australia's contribution was notable in the proportion allocated to adaptation initiatives (52%), the priority accorded to the most vulnerable nations, local participation in planning processes, and transparency of reporting. These investments are producing real results in terms of communities' ability to cope with the stresses of climate change, including extreme weather.²⁷
- 5.5 However, almost all industrialised countries,²⁸ Australia included, have announced no new climate finance beyond the 2012-2013 financial year, leaving

²⁵ The 2012 UN Climate Conference (COP18, Doha), put the principle of loss and damage firmly on the agenda, and committed Parties to establishing institutional arrangements to address loss and damage suffered by developing countries as a result of climate change.

²⁶ See, for example: <http://www.undp.org/content/undp/en/home/presscenter/articles/2012/07/02/act-now-save-later-new-un-social-media-campaign-launched/>

²⁷ See the Australian Government's August 2012 *Fast Start Finance Update Report*: <http://www.climatechange.gov.au/en/government/initiatives/unfccc/submissions/~//media/government/initiatives/unfccc/submissions/Australia-FastStart-Report-2012-PDF.pdf>

²⁸ Only Germany, UK, France, Denmark, Sweden and European Commission have made concrete climate finance pledges beyond the *Fast Start Finance* period.

poor countries with no assurance that financing for adaptation, including building resilience to extreme weather, will continue.²⁹

- 5.6 Australia has repeatedly affirmed its commitment to work with industrialised countries in jointly mobilising \$100bn of climate finance a year by 2020.³⁰ However, along with the international community, Australia has made little progress on crucial questions, including what proportion of climate finance will come from national budget contributions versus innovative sources of public finance (such as revenue from financial transaction taxes and/or a price on international transport emissions) and leveraged private finance.
- 5.7 Climate change adaptation, including building resilience to extreme weather events, provides different funding challenges to climate change mitigation (reducing emissions). Whereas investing in clean energy generation, for example, can provide sizeable returns to private investors, vital activities such as assessing climate risk at the local level and helping communities develop the capacity to manage ongoing change are unlikely to do so. Similarly, whereas initiatives such as planting mangroves to protect communities from storms are unlikely to be attractive to private investors, they may be vital to protecting development gains and the conditions for further economic development.³¹ Public finance is therefore essential to meet the adaptation needs of vulnerable communities and must continue to provide the foundations for Australia's climate finance contributions.
- 5.8 Ongoing, predictable and adequate flows of climate finance will be essential to ensure poorer countries develop the resilience to cope with a future of more frequent and intense extreme weather events.
- 5.9 Oxfam recognises that Australia's contributions towards climate finance and towards supporting adaptation efforts in developing countries, including preparedness for extreme weather events, have given us broader credibility in international climate negotiations. Continuing these contributions will help enable Australia to play a constructive and influential role in the negotiations for a

²⁹ *The climate 'fiscal cliff': An evaluation of Fast Start Finance and lessons for the future*, Oxfam International, November 2012: <http://www.oxfam.org/sites/www.oxfam.org/files/oxfam-media-advisory-climate-fiscal-cliff-doha-25nov2012.pdf>

³⁰ The commitment was, for example, reiterated in chapter 8 of the Australian Government's *Australia in the Asian Century* White Paper, 2012

³¹ *The UNFCCC work programme on long term finance*, Oxfam technical briefing, August 2012: http://unfccc.int/files/cooperation_support/financial_mechanism/long-term_finance/application/pdf/oxfam14aug12.pdf

comprehensive global climate treaty in 2015. A treaty that meets the needs of poor communities and advanced economies alike.

5.10 Australia should:

5.10.1 Work pro-actively towards finalising a fair, ambitious and binding global climate agreement in 2015 that includes:

- adequate financial support to developing communities to adapt to climate change, in particular more frequent and intense extreme weather events;
- an appropriate mechanism for addressing loss and damage attributable to climate change and suffered by vulnerable communities;
- emissions reductions sufficient to keep the global average temperature rise to below 1.5C.

5.10.2 Continue its solid contribution to climate finance during the *Fast Start Finance* period beyond the 2012-2013 financial year, by:

- Continuing to prioritise adaptation initiatives and the most vulnerable countries.
- Setting a bipartisan target for Australia's climate finance contributions for 2013-2015. This will help provide vulnerable communities with greater confidence of continued and adequate finance.
- Developing a long-term plan for fulfilling Australia's commitment to global climate finance goals.

5.10.3 Work with other industrialised countries through the UN process to rapidly mobilise new and innovative sources of public climate finance.

5.10.4 Through its role as chair of the Green Climate Fund, continue to proactively help shape a fair and effective system of international climate finance that provides a strong voice to affected communities and prioritises the needs of the most vulnerable communities.