

GROWING DISRUPTION:

Climate change, food, and the fight against hunger



Pregnant mother Salma faces food shortages due to flooding in her village, Char Atra, in Bangladesh.
Photo: Dan Chung

This briefing paper explores how the failure to tackle climate change threatens all aspects of food security – availability, access, utilisation, and stability. The changing climate is already jeopardising gains in the fight against hunger, and it looks set to worsen. It threatens the production and distribution of food. It threatens people’s ability to access food by undermining livelihoods and destabilising prices, and it damages diets by harming human health and putting at risk the quality of food produced. Finally, the paper sets out how these impacts can be averted, through urgent action to avoid dangerous climate change, address our broken food system, and strengthen its resilience.

1. OVERVIEW: A HOT WORLD IS A HUNGRY WORLD

Food security at risk

The world faces a real and imminent risk of major setbacks in efforts to combat hunger because of climate change. That risk is *not* a remote future threat. It is emerging today and will intensify over the coming decades.

Using the accepted four pillars of food security – availability, access, utilisation, and stability – this issue brief draws on research and on Oxfam’s programme experience around the world to assess how climate change is likely to disrupt each of these four elements.¹ The paper sets out how climatic instability in the form of more extreme and volatile weather is already undermining food security. It also shows how in the absence of urgent action, it will load far more significant challenges onto already stressed food systems.

Box 1: Climate change and the four pillars of food security

Food security is achieved ‘when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life’.²

Availability: Both more extreme weather and slow-onset changes in the climate (increasing temperatures and changing rainfall) will hit food production and food distribution systems, reducing the amount, type, and quality of food available for consumption.

Access: By increasing food prices and at the same time undermining people’s means of making a living, climate change threatens people’s access to the required type, quality, and quantity of food.

Utilisation: By affecting human health and jeopardising the quality, variety, and even safety of food produced, climate change affects people’s ability to benefit nutritionally from consumed food.

Stability: By increasing shocks, stresses, and uncertainty around access to, availability, and utilisation of food (as stated above), climate change threatens people’s ability to have access to adequate food at all times.

‘Climate change is not just an environmental issue. It is an all encompassing threat to health and security, stability and prosperity, and our global food supply system. No nation, rich or poor, will escape its impact. And, as is increasingly clear, this impact is already being felt... Rising temperatures and changes to rainfall patterns are reducing harvests and increasing food and nutrition insecurity. As always, this is felt most by the world’s poorest and most vulnerable people.’

Kofi Annan, Oslo, November 2012

The climate is changing

Greenhouse gas emissions are changing the world’s climate by trapping heat, warming the oceans and the atmosphere, altering regional climates, and creating increasingly extreme and unpredictable weather. The probability of extreme weather events is increasing. The odds of an extremely hot northern hemisphere summer were about one in 300 during the period 1951 to 1980, but increased to nearly one in ten by 1981 to 2010.³ If the remainder of the 21st century unfolds like its first decade, we will soon experience climate extremes well outside the boundaries of human experience, ever since agriculture was first developed.

Despite global recognition that warming must be kept below the critical 2°C threshold, emissions are rising rapidly, and much higher levels of warming are likely. The earth's atmosphere has just reached a carbon dioxide (CO₂) concentration of 400 parts per million for the first time in about three million years. The last time levels were so high, global temperatures were 2–3°C warmer than they are today, and sea levels were up to 25 metres higher.⁴

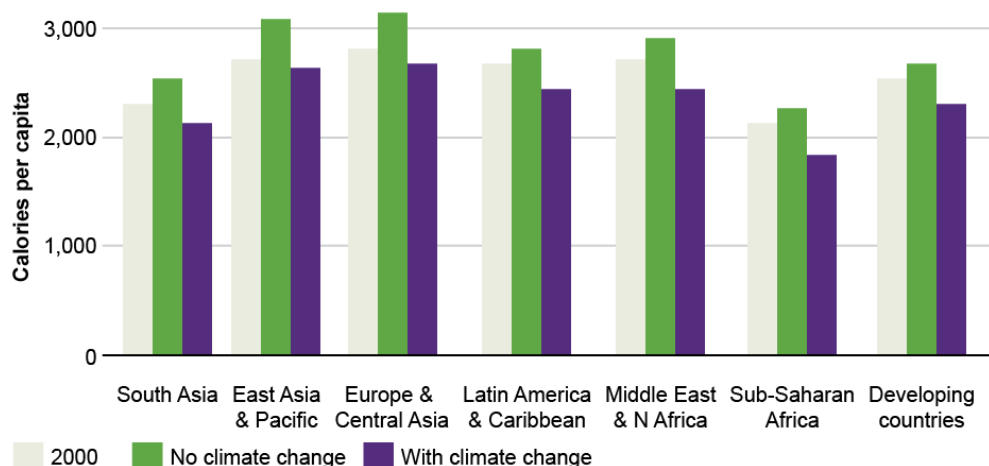
Poor people are most exposed

Climate change affects everyone, but developing countries will be hit harder than developed countries and the world's most food-insecure regions will be hit hardest of all.⁵ Although low-income countries in tropical and sub-tropical regions contribute least to climate change, in future they are likely to endure sharp changes in annual rainfall and climatic conditions that will put them at risk of greater food insecurity, especially in Africa and South Asia.⁶

Already, food production and prices are being hit globally by extreme climate events. Other climate impacts and climate change have also been shown to be a key factor in disasters, such as the 2011 Horn of Africa drought.⁷ According to one estimate, climate change and its impacts on hunger and communicable diseases are currently responsible for 400,000 deaths a year in the world's poorest countries.⁸ The poorest people are bearing the brunt as climate change exacerbates pre-existing conditions that make them more exposed to the risk of food insecurity.

Today one person in eight goes to bed hungry. Analysis suggests that the number of people at risk of hunger is projected to increase by 10–20 per cent by 2050 as a result of climate change (Figure 1).⁹ It is estimated that this could increase child malnutrition by 20 per cent relative to a world with no climate change, eliminating the improvements that may otherwise have occurred.¹⁰

Figure 1: Projected daily per capita calorie availability in 2050, with and without climate change



Source: G. Nelson et al. (2009). 'With climate change' is an average of National Center for Atmospheric Research (NCAR) and Commonwealth Scientific and Industrial Research Organisation (CSIRO) forecasts.

Climate change is transforming the hunger challenge

Those attending the World Food Summit in 1996, which came after nearly 30 years of progress in the fight against hunger, believed that food security was attainable.¹¹ For Oxfam and others, eradicating hunger is an achievable goal, and one that must be underpinned by an assessment that hunger occurs not because of the scarcity of food but because of inequalities and injustices in the way that food is distributed.

However, climate change is transforming the nature of the hunger challenge and, potentially, our ability to deal with it – and, alarmingly, it is happening at the same time as global demand for food is increasing.

Without urgent action to reduce emissions and build resilience, climate change will challenge the safety and security of the global food system and with it the prospect of ensuring that everyone's basic human right to food can be met. Our food system cannot cope with unmitigated climate change, which could lead to a permanent increase in yield variability, excessive food price volatility, and perpetual disruption to livelihoods that could leave many poor countries and communities with potentially insuperable food security challenges.

REFERENCES

- ¹ FAO (2006) Food Security Policy Brief. ftp://ftp.fao.org/es/ESA/policybriefs/pb_02.pdf
- ² World Food Summit, Rome Declaration on World Food Security (1996).
<http://www.fao.org/docrep/003/w3613e/w3613e00.HTM>
- ³ J. Hansen, M. Sato, and R. Ruedy (2012) 'The New Climate Dice: Public Perceptions of Climate Change', NASA, Goddard Institute of Space Studies.
http://www.giss.nasa.gov/research/briefs/hansen_17/
- ⁴ IPCC (2007) 'Climate Change 2007: Working Group I: The Physical Science Basis', chapter 6.3.2 'What does the record of the mid-Pliocene show?'
http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch6s6-3-2.html
- ⁵ M. Parry et al. (2009) 'Climate Change and Hunger: Responding to the Challenge', World Food Programme.
- ⁶ G. Nelson et al. (2009) 'Climate Change: Impact on Agriculture and Costs of Adaptation', International Food Policy Research Institute (IFPRI); and IFPRI (2009) 'Building Climate Resilience in the Agriculture Sector of Asia and the Pacific', Asian Development Bank.
- ⁷ F.C. Lott, N. Christidis, and P.A. Stott (2013) 'Can the 2011 East African drought be attributed to human-induced climate change?', *Geophysical Research Letters* 40, 1177–1181.
- ⁸ DARA (2012) Climate Vulnerability Monitor 2012, 'Findings and Observations', p.241.
- ⁹ G. Nelson et al. (2009) op. cit.
- ¹⁰ Ibid.
- ¹¹ <http://www.fao.org/docrep/003/w3613e/w3613e00.HTM>

© Oxfam International September 2013

This paper was written by Tracy Carty and John Magrath. Oxfam acknowledges the assistance of many people in its production with particular thanks to Ricardo Fuentes-Nieva, Tim Gore, Antonio Hill, Duncan Green, Richard King, Martin Walsh, Eric Hazard, Heather Coleman and Chris Funk (Research Geographer, U.S. Geological Survey) in its production. It is part of a series of papers written to inform public debate on development and humanitarian policy issues.

For further information on the issues raised in this paper please e-mail advocacy@oxfaminternational.org

This publication is copyright but the text may be used free of charge for the purposes of advocacy, campaigning, education, and research, provided that the source is acknowledged in full. The copyright holder requests that all such use be registered with them for impact assessment purposes. For copying in any other circumstances, or for re-use in other publications, or for translation or adaptation, permission must be secured and a fee may be charged. E-mail policyandpractice@oxfam.org.uk.

The information in this publication is correct at the time of going to press.

Published by Oxfam GB for Oxfam International under ISBN 978-1-78077-461-9 in September 2013.

Oxfam GB, Oxfam House, John Smith Drive, Cowley, Oxford, OX4 2JY, UK.

OXFAM

Oxfam is an international confederation of 17 organizations networked together in 94 countries, as part of a global movement for change, to build a future free from the injustice of poverty. Please write to any of the agencies for further information, or visit www.oxfam.org.