



## OXFAM MEDIA BRIEFING

### Updated November 2015

# Entering Uncharted Waters

## *El Niño and the threat to food security*

### Summary

*Millions of poor people face hunger and poverty this year and next because of droughts and erratic rains as global temperatures reach new records, and because of the onset of a powerful El Niño<sup>1</sup> – the climate phenomenon that develops in the tropical Pacific and brings extreme weather to several regions of the world.*

*Despite record global temperatures in 2014, an El Niño did not appear; nevertheless, in an unusual development, the climate in many parts of the world behaved as if one was occurring and growing seasons were seriously disrupted, mainly by drought. Temperatures have continued to soar this year and now an El Niño has indeed developed. It could be the most powerful since 1997–98,<sup>2</sup> which caused climate chaos and humanitarian disasters in many countries. With the boost of El Niño, unprecedentedly high temperatures are likely to continue into 2016.*

*Already, Ethiopia is facing a major and rapidly escalating emergency: 8.2 million people are in need of relief assistance because of successive poor rains this year, and the next rains are five months away. Floods, followed by drought, have cut Malawi's maize production by more than a quarter; between two and three million people may face a food security crisis<sup>3</sup> by February next year, at the peak of the lean season. In Zimbabwe, drought has reduced the maize harvest by 35 percent, and it is estimated that 1.5 million people will need assistance in early 2016. Farmers across the 'dry corridor' of Central America have been hit by drought for two years running, with huge harvest losses. Disruption to maize production in both Southern Africa and Central America is driving a surge in the price of maize on local markets, making it increasingly hard for people living in poverty to afford sufficient food.*

*Over the next few months the El Niño will attain maximum strength. This will coincide with the rains in Southern Africa, due from November onwards. Meteorologists predict a high probability of below-average rains again as a result. A second successive poor rainy season across Southern Africa will bring serious food security problems next year. The next rains in northern Ethiopia from March may also be affected.*

*El Niño has also already reduced the Asian monsoon over India, and is raising the odds of a prolonged drought in East Asia, coinciding with the planting and early development of the main rice crop in Indonesia; if world prices for rice increase there could be knock-on effects on poor urban consumers in import-dependent West African countries. In Papua New Guinea, 2.4 million people have been affected by drought already and El Niño will make this worse.*

*Yet meteorologists and international agencies such as the World Food Programme have provided ample warning of El Niño; the regions likely to be affected and the potential effects are understood. Agencies such as Oxfam have been monitoring conditions on the ground, helping communities cope with the current food crises and, increasingly, sounding the alarm that more must be done. Disasters are not inevitable at this point. If governments and agencies take immediate action, as some are doing, then major humanitarian emergencies next year can be averted. Prevention is better than cure.*

*Unfortunately, the initial signs are not good that donor governments have learned lessons about the importance of funding early response.*

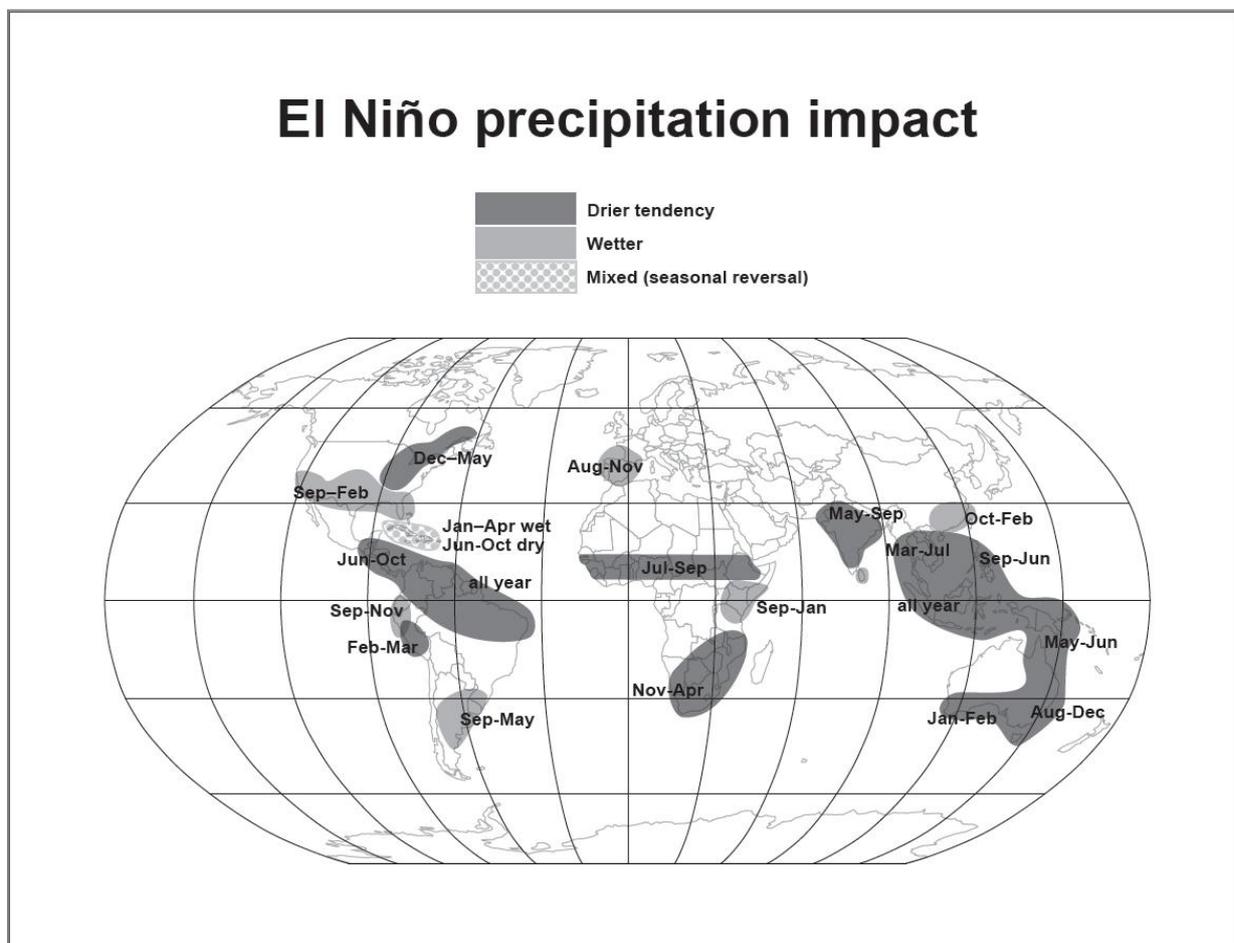
*In the immediate future, increasing climatic disruption, driven by rising temperatures, threatens to increase pressures on the humanitarian system at a time when resources and capacity are under enormous strain. Furthermore, scientists are warning that recent events could signify that big changes may be underway in the Earth's climate system,<sup>4</sup> driven by rising surface temperatures and changes in major atmospheric and oceanic circulation systems such as those which give rise to El Niño.*

*Warming seas could double the frequency of the most powerful El Niños, and as global warming creates more and more sea-surface temperature 'hot spots' in the world's oceans, and wind systems change as a result, extreme weather and greater climate disruption may be what a 'normal' future looks like if greenhouse gas emissions are not urgently and drastically reduced.*

*The combination of record warmth one year followed by an El Niño the next is unique and the climatic implications are uncertain. If 2016 follows a similar pattern we are entering uncharted waters.*

*Just one week after leaders adopted an historic new goal of eradicating hunger by 2030, as part of the package of Sustainable Development Goals, this unfolding crisis shows the scale of threat that climate change poses to its realization. For those leaders, the first test of their commitment will be to strike an agreement at the UN climate talks in Paris this December that delivers for the women, men and children on the frontlines of climate change.*

# El Niño increases the odds of extreme weather



**Figure 1: El Niño precipitation impact. Adapted from UK Met Office, schematic map of the typical precipitation effects over land favoured during El Niño events. Impacts are calculated according to the rate of occurrence in historical analyses.<sup>5</sup>**

El Niño is the name given to a periodic heating-up of the surface of the tropical Pacific Ocean, which happens as trade winds weaken and warm water that is usually confined to the western Pacific flows eastwards, away from Indonesia and towards Peru. This creates a huge release of heat into the atmosphere that influences global weather patterns. It is a natural phenomenon and an El Niño happens approximately every seven or eight years. These events are usually weak or moderate, but occasionally an extra-strong or 'super' El Niño happens. There were super El Niños in 1972–73 and again in 1982–83, when Oxfam issued a 'Weather Alert'<sup>6</sup> warning of unprecedented climatic extremes and pressures on the humanitarian system. The strongest El Niño in recent times occurred in 1997–1998. This brought record global temperatures and droughts, floods and massive forest fires. It caused 2000 deaths and at least \$33bn in property damage. Scientists say that this year's event is likely to be at least on a par with these and possibly stronger than in 1997–1998.

Even when an El Niño occurs there are many other influences on the world's weather, and every El Niño is different in its effects, so it is not possible to say exactly what will happen in 2015–2016 or blame El Niño for every extreme event. The impacts on agriculture will also vary. According to the UN Food and Agricultural Organization (FAO), the impact of an El Niño on crops 'depends on timing and duration, as well as climatic modifications produced by El Niño together with the sensitivity of the...crops during the peak period of influence of the event'.

However, strong El Niños reinforce the likelihood of certain climatic events – and the chances of severe droughts in particular - happening in specific parts of the tropics (covering about 20–30 percent of land areas).

**Box: 'We have no precedent'**

'The last big El Niño was 1997–1998. The planet has changed a lot in 15 years. We have had years of record Arctic sea ice minimum. We have lost a massive area of northern hemisphere snow cover, probably by more than 1 million square km in the past 15 years. We are working on a different planet and we fully do not understand the new patterns emerging. This is a new planet. Will the two patterns reinforce each other or cancel each other? We have no precedent. Climate change is increasingly going to put us in this situation. We don't have a previous event like this' - David Carlson, Director of the WMO co-sponsored World Climate Research Programme, speaking recently.<sup>7</sup>

## 2014 and 2015: the hottest years on record (so far)

2014 was a very unusual year. It was the hottest yet, despite the fact that there was no El Niño to boost temperatures. The Pacific Ocean warmed up to an unprecedented degree with sea surface temperatures exceeding those reached in 1997–1998<sup>8</sup>. This seemed likely to lead to an El Niño developing, but it fizzled out. Nevertheless, the climate in certain parts of the world behaved as if one was occurring: significantly, and peculiarly, 'the performance of the 2014 growing season in many places around the globe was similar to that of under a typical El Niño'.<sup>9</sup>

The heat of 2014 continued into 2015. Now, to the surprise of some observers, an El Niño which has been building up since March has indeed developed – potentially one of the most powerful on record, and likely to boost global warming to make 2015 even hotter than 2014. 'Mature and strong' according to the World Meteorological Organization, it is expected to reach maximum strength between approximately October and January, then subside over about four months. As one scientist has said: 'The fact we have this strong El Niño...following earlier tropical warmth is unique'.<sup>10</sup>

## El Niño, La Niña and climate change: a mutually reinforcing phenomenon?

Possible connections between El Niño events and climate change are the subject of intense scientific research and debate.<sup>11</sup> A strong El Niño event such as the one in 1997–1998 causes a temperature spike as oceanic heat is released into the atmosphere. The El Niño temperature spike is temporary, but as temperatures peak three months or so after an El Niño ends, 2016 too may be unusually hot.<sup>12</sup>

El Niño can strengthen climatic trends that are already apparent because of a long-term rise in temperatures, such as increasing aridity and risk of drought. In turn, a temperature rise reinforces the impact of an El Niño; when El Niños produce droughts, those droughts are amplified by warmer air temperatures, which cause more evaporation and further dry out the soil.

Climate change is already increasing the odds of hot extremes occurring over land.<sup>13</sup> One study says that a significant portion of the global total land area – 5.7 percent – has shifted towards warmer and drier climate types since 1950, and that this has been driven by man-made greenhouse gas emissions.<sup>14</sup>

There is also emerging evidence that climate change affects the El Niño Southern Oscillation (ENSO) cycle and increases the odds of a strong El Niño taking place. New research says that as the Earth warms, super El Niños may occur approximately twice as often as before – every 10 years instead of every 20 years – and the opposite phase of the ENSO cycle, the so-called La Niña, when the oceanic circulation goes into reverse, may also become correspondingly more frequent and more extreme.<sup>15</sup> The weather impacts of La Niña are more or less the opposite of El Niño,<sup>16</sup> including bringing drier conditions to the American Midwest. La Niña conditions raise sea levels in the Western Pacific, which increases the destruction caused by storm surges there. Some new research suggests that a 'new normal'

will come into being that corresponds more to La Niña, but punctuated periodically by more frequent, extremely hot El Niño events.<sup>17</sup>

If 2016 is very hot too, as seems likely, then there will have been three years of actual or borderline El Niño conditions. The implications are worrying. Research has indicated that when there are multi-year cycles dominated by El Niño, these are associated with more of the world's agricultural land being affected by drought.<sup>18</sup>

Thus the underlying changes to temperatures, rainfall and seasons associated with climate change are reinforced by the effects of El Niño, which brings extra-extreme weather and acts to strengthen those patterns. This is liable to create a deadly combination.

## 2014 and 2015: erratic rains bring severe human impacts

### Ethiopia

Ethiopia has been hit by a double blow, both from a change to the rainy seasons that have been linked to long-term climate change and now from El Niño. First the short, or *belg*, rains failed across the north of the country. These fall in February to April and have been declining in quantity for nearly two decades.<sup>19</sup> This has been linked by scientists to long-term climate change. According to this analysis, rising sea surface temperatures (SSTs) in oceanic hotspots in the Indian Ocean and Western Pacific mean that the rain-bearing winds from the ocean that create the *belg* are weakened and the rains fall over the ocean instead of reaching land.<sup>20</sup> In 2014 poor *belg* rains seem to have been associated with record warm West Pacific SSTs, and in 2015, with extremely warm Indian Ocean SSTs.

Even more seriously for Ethiopian farmers, the long *kiremt* rains, which arrive in June and normally last until September, were also erratic and significantly below average – something associated with El Niño years. Most Ethiopian farmers rely on these rains for the bulk of their crops.

As a result, Oxfam's Country Director in Ethiopia has reported: 'We are at the start of a major emergency, which is expected to be serious and long', lasting to June 2016, following the failure of the *belg* rains (which usually fall in February–April/May). Although the *belg* rains only contribute to 10–15 percent of the annual harvest nationally, they are much more important in certain areas and especially important for pastoralists and agro-pastoralists because of their contribution to pasture. The *belg* failure saw a crisis develop in several areas, particularly Afar and parts of the regions of Oromia, SNNPR (Southern Nations, Nationalities and Peoples) and the Somali, and Amhara Regions.

The Government of Ethiopia has been revising its Humanitarian Requirements Document upwards and now says that 8.2 million people need relief assistance, and the number may rise further in 2016.<sup>21</sup> The government has launched an urgent response and allocated \$193m for food and non-food items. Mr John Aylieff, Acting Humanitarian Coordinator and Country Director for the UN World Food Programme, said: 'The challenge we have before us is incredibly serious, and it will take the collective effort of the entire international community to support the Government in preventing the worst effects of El Niño now and well into next year'. However, little or no new funds have so far come into the country from donors in response to the revised Humanitarian Requirements Document.

Oxfam is responding in the following areas: in Siti in Somali region, where 76 percent of the inhabitants – 414,000 people – have been identified as being food insecure; in Oromia, where harvests are expected to be less than 50 percent of requirements; and in Afar, which has seen the deaths of hundreds of thousands of animals. Prices of livestock have plummeted as people desperately try to sell their animals while they are still relatively healthy, while grain prices have gone up.

The response includes provision of animal feed, livestock vaccination, cash-for-work, water provision through water trucking and rehabilitation of boreholes, and public health promotion. Government and international humanitarian prevention and preparedness work is already proving effective; acute food insecurity would be much worse in several regions were it not for such interventions.<sup>22</sup>

Oxfam is preparing for a significant scale-up of work, if funds can be found. Scale-up will include support for local government animal vaccination programmes and animal feed, as well as cash transfers and the expansion of water provision.

Poor rains have also affected some areas of South Sudan. Further south, El Niños are associated with more intense rainfall in Somalia and Kenya, and Oxfam and others have already issued warnings to people along the Juba and Shebelle rivers in Somalia to be prepared for possible floods.<sup>23</sup> More abundant rains will, however, be of some potential benefit for pastoralists by reviving pasture for animals.

## **Southern Africa**

The annual rains across Southern Africa are notoriously fickle and in addition, borderline El Niño conditions were prevalent by late last year. The rains that fell from October/November 2014 through to February 2015 were very erratic, starting a month or more late, and then from mid-December through January 2015, they were extraordinarily heavy and brought unusually extensive flooding to southern Malawi and northwest Mozambique. Zimbabwe suffered particularly poor rains.

## **Zimbabwe**

As a result of drought, maize production in Zimbabwe in 2014–15 was 35 to 38 percent down on a five-year average. It was estimated that half a million hectares of crops were a write-off.<sup>24</sup> As a result the country is facing a huge national cereal deficit of 1.7 million tonnes.<sup>25</sup> Prices are high and increasing, and livelihood opportunities and opportunities to earn income are limited. The 2015 Zimbabwe Vulnerability Assessment Committee (ZIMVAC) rural livelihoods assessment estimates that approximately 462,000 people (5 percent of the rural population) are currently food insecure through September. This figure is expected to double to 924,000 people (10 percent of the rural population) between October and December, before peaking at 1.5 million people (16 percent of the rural population) at the peak of the lean season between January and March 2016.<sup>26</sup>

However, Oxfam staff note that most of these people are already hungry now. Many are only eating one meal a day, composed of maize flour and a vegetable. Southern and western provinces are particularly badly affected, with some households selling livestock earlier than normal to be able to purchase mainly maize meal. Vegetable production and sales are limited in most communities due to water shortages.<sup>27</sup>

An El Niño has the potential to make an already bad situation much worse. A delay to the coming rainy season means late planting, reduced hectarage, poor crop condition, deteriorating livestock conditions and prices, high cereal prices and worsening acute malnutrition in some areas. More people are expected to be driven to engage in dangerous occupations, such as gold panning and informal mining, to try to make money.<sup>28</sup>

The underlying causes of vulnerability in Zimbabwe – as in many countries – are complex, but climate change is making things worse. Food insecurity is chronic. Maize yields in Zimbabwe are the lowest in the region; many farmers switched to growing tobacco to earn cash but found the drought reduced the quality of their crop. The government's Grain Marketing Board has been late paying farmers, and 60,000 MT of maize were lost last year because of poor storage.

Oxfam has been heavily involved in analysis of the situation and response as a core member of the Zimbabwe Vulnerability Assessment Committee, which supports vulnerability and market assessments. Oxfam will be working with local partners, particularly to implement cash transfer programmes in food insecure areas, keep livestock healthy and raise awareness of the underlying causes of chronic food insecurity. A better understanding of these factors is important to build resilience in vulnerable communities. Oxfam is also partnering with Plan International, the Southern Alliance for Indigenous Resources (SAFIRE) and the University of Zimbabwe, supported by the UN Development Programme (UNDP) and the Global Environment Facility (GEF), to implement a climate change adaptation project in three vulnerable districts. It includes how to translate probabilistic seasonal forecasts into messages that smallholder farmers can understand and act upon. This will be used as the season develops. Oxfam argues that to overcome chronic food insecurity, it is crucial that governments take responsibility for providing support to vulnerable groups and allocate resources to agriculture and climate change adaptation.

For the consumption year, safety-net interventions by the government and partners are expected to be limited, and lean season humanitarian assistance is also expected to be lower than normal due to a challenging funding situation.<sup>29</sup>

## **Malawi**

In southern Malawi in 2014–2015, 40,000 hectares of farmland were flooded and 230,000 people displaced.<sup>30</sup> One million people in total were affected and over 600,000 flood victims required food assistance. However, it was the drought that did the most damage to staple food production. Maize production is 30 percent less than last year at 2.78 million MT. As the national consumption requirement is 3 million MT, this means a maize deficit of over 223,000 MT.

According to the national food security forecast for 2015–2016, 2.8 million people will require humanitarian assistance for three to eight months from October 2015 to March 2016. Of these, 886,000 are in areas hit by the floods and nearly 2 million in areas hit by dry spells. The majority of households in the south of the country will require assistance for some period. Prices will rise from October onwards, although the extent of the price rise depends on how far the government and private traders manage to bring in imports.<sup>31</sup>

A Famine Early Warning Systems Network (FEWS NET) report on 1 September 2015<sup>32</sup> noted, however, that ‘so far, no significant progress has been made in cereal purchases to fill the gap. The National Food Reserve Agency is still in the process of purchasing 50,000 MT of locally produced maize. Furthermore, the total planned Strategic Grain Reserve stocks will only be just enough to cover humanitarian assistance needs for the current consumption year, with no reserves for the next consumption year’. This warning was repeated in November. FEWS NET highlighted that ‘the start of humanitarian assistance is uncertain and high food prices prevail’, noting that the 2015/16 emergency response assistance programme remains underfunded.<sup>33</sup>

Not only is production down, but people’s opportunity to earn income to buy food is also badly affected. Prevailing El Niño conditions in neighbouring Mozambique and Zambia might result in a late start to the rainy season from October onwards, which could limit labour opportunities in agriculture and further reduce household income. Furthermore, the extra numbers of people seeking work are expected to drive down wage rates.

Oxfam is a member of a consortium that will implement a large scale cash transfer programme that covers the food insecure districts, with Oxfam targeting three of these. Links will be made to long-term development programmes such as support to savings groups, fuel-efficient cooking stoves and messaging about nutrition.

Now across Southern Africa governments and people are waiting to see what the impact of El Niño might be on the next rains that normally start in October/November and continue

through to March 2016. El Niño is historically associated with poor rains across the region and current forecasts are pessimistic, with a high probability (45–50 percent) of below average rains<sup>34</sup> and no improvement at any time during the season.<sup>35</sup> Early 2016 is the most critical stage for the development of the main maize crop and because people have already had one poor harvest, the lean season will start early next year, from January onwards.

## Latin America

Countries in Central America are facing a multi-dimensional and multinational emergency due to chronic drought and El Niño, alongside violence and forced migration.

In Central America, long-term climate change and El Niño have reinforced each other's impacts. While the total amount of rainfall has not altered much – and may actually have increased in total – the rains in the first rainy season, the *primera*, which used to fall from about April to July have changed their pattern in recent years, coming later, meaning that farmers must plant later. Their maize and beans are then at an early stage of growth and vulnerable when the regular mid-season dry spell – the *canícula* – occurs. Drought reduced the *primera* rains both in 2014<sup>36</sup> and then again in 2015. In some areas farmers have suffered drought now for four years running.

Now in line with characteristic El Niño impacts, the second rainy season, the *postera*, which finishes in November, is expected to have been much drier than usual as well. This is the main season for beans and with El Niño expected to continue into 2016, concern is rising that the bean harvest will be seriously affected. Drought has also affected Haiti, the Dominican Republic, Cuba and the Alta Guajira region of Colombia.

In Central America, successive droughts and now El Niño have created a downward spiral of asset loss and poverty. Some two million people are moderately or severely food insecure in the 'dry corridor', a ribbon of drought-prone land that runs through parts of Guatemala, Honduras, Nicaragua and El Salvador. Oxfam has warned previously how the cumulative effects of years of drought, coupled with poverty and loss of employment due to the coffee rust outbreak, are progressively wearing down communities.<sup>37</sup> Poor subsistence farmers and smallholders can rarely afford irrigation and must farm on the poorest and most degraded soils, which cannot retain what moisture there is. The soil's ability to retain moisture is crucial. Maize losses can be over 30 percent more on poor soils than on good soils. In Central America it is estimated that over 75 percent of soils are degraded, and this proportion is increasing.<sup>38</sup> Oxfam staff report that many households have exhausted their food reserves.

In Honduras and Guatemala recent harvest losses have been catastrophic. In Guatemala, monitoring reveals expected losses of maize and beans of at least 50 percent and often 100 percent. A government food distribution to 110,000 families is going ahead, using rice and beans donated by Brazil. In El Salvador, *primera* harvest losses were between 75 percent and 100 percent. Most vulnerable communities have been forced to sell some food in order to buy drinking water. Oxfam assessments in Honduras show crop losses of up to 98 percent; food prices have increased in many places by over 100 percent. Some 220,000 families there are severely food insecure.

Coping strategies that people are employing include selling their livestock; cutting out meals, and even going full days without eating; eating cheaper and less pleasant food; taking out loans and buying food on credit; and migrating to try to find work. Normally the opportunities to earn money from coffee harvesting begin in October, but this year labour opportunities have been badly hit by an outbreak of coffee rust (*la roya*), which has been linked to rising temperatures as well as to long-term neglect of coffee plantations.<sup>39</sup>

Honduras, El Salvador and Guatemala have declared national emergencies due to drought and food insecurity. Oxfam is calling for governments in Central America to declare a regional emergency in light of drought and El Niño and to coordinate together to manage the

trans-boundary crisis along the dry corridor. The cyclical and worsening droughts in the dry corridor, accelerated by El Niño, call for a major trans-national response to strengthen people's resilience and implement climate change adaptation and disaster risk reduction.

Oxfam is aiming to implement assistance to some 10,000 households, if funding allows. This will range from food and cash transfers to soil and water conservation, assistance to farmers to diversify and hygiene promotion to reduce risks of malnutrition.

In the Caribbean, half a million people are facing the effects of drought and El Niño and require immediate food assistance. For the first time, Cuba has been forced to declare a state of emergency in two provinces due to food insecurity. Haiti and the Dominican Republic have also declared national emergencies. In South America, national emergencies have been declared in Colombia, Ecuador, Paraguay (because of floods) and Peru – in Peru, specifically because of El Niño.

Oxfam is assessing the situation, responding and planning to scale up throughout the region. Staff report, however, that all agencies are extremely short of funds; donors are over-stretched and have other global priorities and slow-onset drought disasters do not command media attention.

### **South-East Asia and the Pacific**

Historically, this region is very sensitive to El Niños,<sup>40</sup> which reduce the Asian monsoon and are strongly associated with less rainfall. In India, the monsoon is likely to shut down earlier than usual<sup>41</sup> and be 14 percent below normal<sup>42</sup> – officially a drought. The previous year's monsoon was also 12 percent below average.

India is still expected to achieve good harvests on the national scale, but this may hide more localized impacts. As one press report noted: 'For India's nearly 200 million marginal farmers [who lack irrigation and depend on rain-fed agriculture], many of whom borrow heavily to cultivate plots smaller than two acres, the fate of one crop can make the difference between life and death. Reports of farmer suicides are rising, especially from the drought-hit Maharashtrian district of Marathwada, where nearly 600 have killed themselves so far this year, according to local reports. Rains in Marathwada were less than half normal levels'.<sup>43</sup> Drought in Mongolia has wiped out 80 percent of its wheat crop.<sup>44</sup> Thailand too has suffered a serious drought, although monsoon rains have now relieved this.

The biggest impacts of El Niño are currently (and likely to be) further east, and especially in Indonesia. In July, Indonesia's national disaster management agency declared that the majority of the country's 34 provinces are experiencing drought caused by El Niño. The drought has been causing losses in the main coffee and cocoa growing regions and damaged 110,000 hectares of rice between January and July.<sup>45</sup>

Indonesian meteorologists are warning that it is likely the start of the rainy season will be delayed until November.<sup>46</sup> The prolonged dryness is contributing to more forest fires, with fires burning across Jambi and Riau provinces in Sumatra. In 1997–1998 fires burned five million hectares, creating a vast plume of smoke and haze across East Asia and massive air pollution problems. Now once again bush fires are spreading a haze across Sumatra and parts of Malaysia, with grave threats to human health.<sup>47</sup> Australia too has just warned that El Niño is likely to increase the number and spread of bush fires there during the Southern Hemisphere summer. There have been 26 El Niños since 1900, and 17 have brought widespread drought to Australia.<sup>48</sup>

Oxfam is monitoring the situation, but it appears that the Indonesian government has anticipated El Niño impacts: it has set aside \$65m and is building 1,000 reservoirs. Less rice has been lost this year than last, due to programmes to repair irrigation facilities and distribute water pumps to farmers.<sup>49</sup>

In the Pacific as many as 4.6 million people have been affected by worsening droughts, erratic rains and frosts this year. The 1997–1998 El Niño caused severe drought, major crop losses and severe hardship in Micronesia, Fiji, the Marshall Islands, Samoa, Tonga and elsewhere, and governments and agencies in the western Pacific nations are now preparing for similar events.

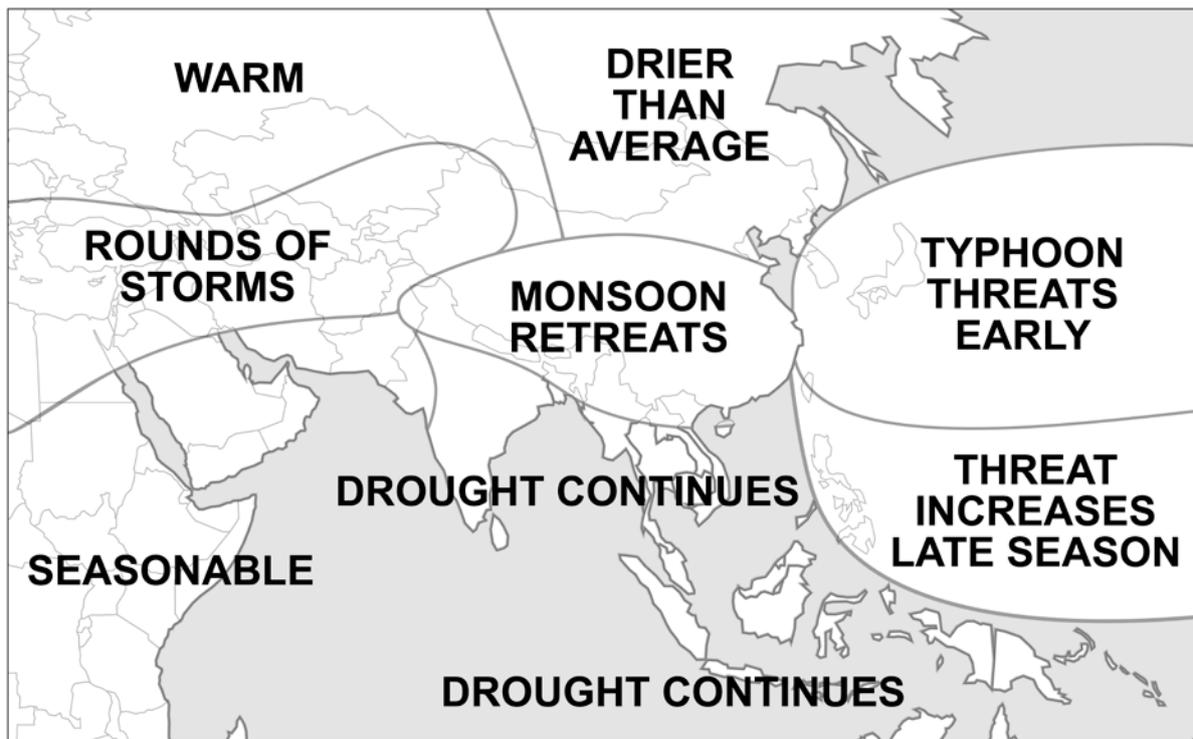
Papua New Guinea has been particularly badly affected. The country was hit by torrential rains that caused landslides early in the year, followed by drought<sup>50</sup> and severe heat that have withered crops.<sup>51</sup> In the highlands there have been acute frosts, which occur in the highlands because of reduced humidity and lack of cloud cover at night. Prime Minister Peter O'Neill has said that 'this drought has the potential to be worse than 1997 and 1998' as El Niño gathers strength. A state of emergency has already been declared in two highland provinces which grow coffee, a crucial export crop.<sup>52</sup> Widespread damage to food crops and food shortages are being reported, and these could intensify until the middle of next year. The area could warm to at least 2.8 degrees Celsius above average by November.<sup>53</sup> According to the PNG National Disaster Centre, 2.4 million people are affected.<sup>54</sup> Residents rely almost entirely on subsistence sweet potato production, which has been severely affected by frost and drought (altitudes above 1700m are particularly at risk of crop destruction from frost). The worst-hit areas are in the Highlands regions with some 1.3 million people affected. Creeks and streams have dried up, forcing villagers to find alternative sources of water with attendant risks of diarrhoea, dysentery and typhoid. As most food consumed is produced in the country, any disruption to local food production has an immediate effect on food security.<sup>55</sup>

More intense rain is likely in the equatorial Pacific, increasing the risk of flooding and higher sea levels in countries such as Kiribati and Tuvalu.

El Niños also increase the probability of a longer cyclone season (from November 2015 to the end of April 2016) and a greater proportion of severe cyclones (category 3 or higher), particularly for countries in the eastern Pacific such as the Cook Islands and Samoa. Their impact of course depends on whether and where such typhoons make landfall.

The onset of a powerful El Niño is compounding the pressures that many Pacific communities already face from climate change, including shifting rainfall patterns and more extreme weather, exacerbated by rising sea levels.

In Papua New Guinea and the Pacific, and in Timor-Leste, Oxfam is preparing in anticipation of El Niño impacts, including drought and stronger tropical cyclones. Activities include assessing current conditions in drought affected areas, drawing up vulnerability and needs analyses and working with partner agencies on preparedness and contingency planning.



**Figure 2: Effects of El Niño in South-East Asia. Adapted from AccuWeather.com, Asia Fall Forecast 2015: El Niño to Boost West Pacific Typhoons, Intensify Drought From India to Indonesia.**<sup>56</sup>

## Impacts on food trade and prices

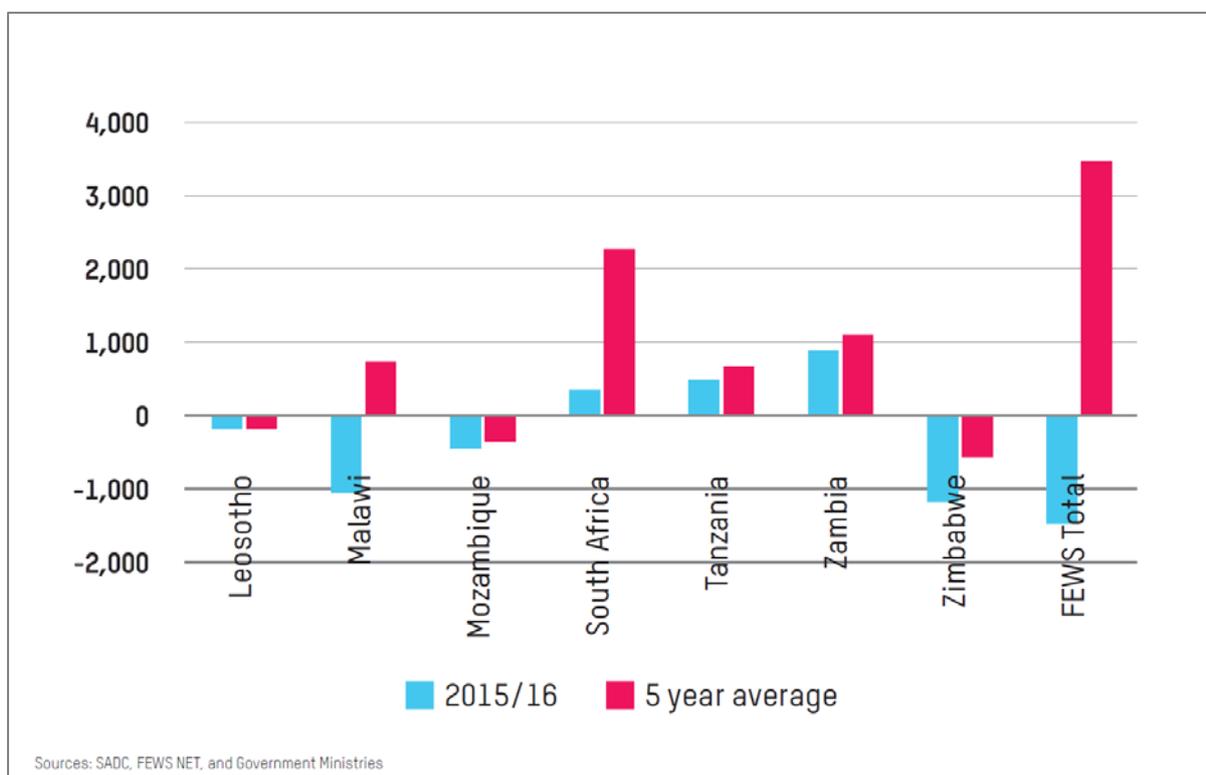
El Niño impacts on extreme weather and potential knock-on impacts on food security are mainly region-specific and in the tropics. In El Niño years, global yields of maize, rice and wheat are generally only slightly reduced. World cereal production in 2015 should not be much down on the record levels reached in 2014, and may even be better, with global rice, maize and wheat production set to draw level with or even exceed 2014 levels. Stock levels will be high. Indeed, some regions tend to benefit from better weather associated with El Niño years, so in theory, production shortfalls in some regions such as Southern Africa, East Asia or Central America could be balanced by increased production elsewhere, notably Argentina and Uruguay.

Nevertheless, global production levels are little consolation to a number of lower income countries experiencing major disruption – and even less consolation to poor farmers in rural areas, where markets are least likely to function in an efficient and fair manner.

The current situation is particularly worrying for countries where maize is the staple food crop, although there are also concerns about rice.

### Maize

Globally, seasonal maize prices are still below what they were in early 2013, but regionally, disruption to production is causing a surge in prices in Southern Africa and Central America. The drought in South Africa, which produces almost as much maize as the whole of the rest of the Southern Africa region put together (40 percent), saw maize production in 2015 decline by 17 percent on a five-year average. South Africa, along with Tanzania and Zambia, produced 3.4 million MT less maize than average. Thus, its exportable surplus is much smaller than usual, and export prices are significantly above what they were in 2014.



**Figure 3: Estimated maize surplus/deficit in Southern Africa (000s MT) for 2015/2016 compared to a five year average, as of 28 August 2015. From FEWS NET Price Watch, 31 August 2015.<sup>57</sup>**

In Malawi in particular, maize prices in August are some 40–50 percent higher than the previous year due to harvest losses of 30 percent. WFP has warned: ‘Given that the previous season was already influenced by an El Niño event and registered significant production losses, there are now low regional stocks to cope with another possible regional scale shortfall in cropping production’.

These increases in maize prices could have serious implications for poorer and more vulnerable groups due to the importance of maize as a staple crop and the high proportion of income spent on food within many Southern African countries. As in Malawi, governments must use strategic reserves and their power to intervene in markets where necessary in order to maintain affordable prices and ensure that poor and vulnerable consumers are not exploited.

In Central America, the trend in maize prices is also worrying. In Honduras, wholesale white maize prices are 20 percent above year-earlier levels according to the FAO, driven by deteriorating prospects for the main crop due to dry weather associated with El Niño. In Nicaragua, wholesale prices are 40 percent higher. Retail prices at local levels are much higher still.

## Rice

Rice prices might be affected by the Asian monsoon, but decreases in production in some countries such as India are likely to be compensated for by increases in other countries, and the global supply of rice is unlikely to change much. There are also still large stocks in major producing countries, and international prices have decreased by nearly 30 percent compared to last year.

However, there are concerns about the effects on poor consumers in West Africa. West African countries imported 7.73 million tonnes of rice in 2014, with rice the favoured food of poor people in towns and cities, due to its ease of preparation and storage. West African countries as a whole import over one-third of their rice from India, although the

proportions vary between countries. Niger imports 13 percent from India; Gambia and Ivory Coast 20 percent; and Nigeria 23 percent. However, Senegal imports 72 percent of its rice from India, and in Liberia, a colossal 97 percent of rice imports come from India. Other quantities come from Pakistan and China. Despite the growing world trade in rice, the amounts traded internationally are still quite small in relation to total production – about 10 percent or less – and Africa imports about one third of what is available on the world market. The rest of the rice produced is consumed or traded close to where it is grown, mainly in Asia. The world market is therefore quite ‘thin’ and could be vulnerable to disruption.

Oxfam in West Africa is urging all actors to monitor El Niño and assess its impacts on food security, be prepared to act swiftly, co-operate regionally and for the Economic Community of West African States (ECOWAS) to accelerate the process of establishing a regional food reserve. So far in West Africa, market availability has been adequate from the 2014/15 harvests, and from international rice and wheat imports, and international rice prices were stable in July and below 2014 levels. But going into 2016, it will be crucial to monitor forthcoming harvests and also stock levels of rice in the major exporting countries, especially India but also Vietnam, Thailand, Pakistan and the USA.

Rice production in South-East Asia is also vulnerable to typhoon damage. In late 2011, a string of typhoons tore across the region, causing floods that destroyed around 12.5 percent of Thailand’s rice farmland, along with 12 percent in Cambodia, six percent in the Philippines and 7.5 percent in Lao PDR. By year’s end, the floods had pared Thailand’s rough-rice production by around six million tonnes, while the Philippines lost some 600,000 tonnes of milled rice to the floods and strong winds brought on by the typhoons.

## Conclusion

As temperatures rise and climatic disruption increases, the humanitarian system, already under great strain, will be severely tested as never before. Climate change increases the instability of the seasons, makes rainfall even more erratic, increases heat extremes and brings more intense storms and droughts. A new normal of more extreme weather threatens the chances of achieving the new goal adopted by world leaders this month of eradicating hunger by 2030.

In the immediate future though, meteorologists have given ample warning of the emergence of El Niño: the regions at most risk have been identified, the baseline vulnerabilities of communities impacted by the borderline El Niño conditions of last year are understood, and the potential impacts into 2016 can be envisaged, depending on what actions are taken in the next few months.

National governments, international agencies such as the WFP, and local, national and international NGOs, including Oxfam, have been monitoring conditions on the ground, and increasingly, sounding the alarm. If governments and agencies scale up their response now, the danger of major humanitarian emergencies occurring next year can be averted. Extreme weather events do not necessarily cause humanitarian ‘disasters’ to happen. They may act as a trigger, but disasters – in the form of loss of life and assets – happen when populations are vulnerable and when governments and other actors fail to prevent, prepare and respond adequately.

Political leadership, effective coordination and cooperation and the allocation of resources – money especially – need to be strengthened to support vulnerable populations both right now and to prepare for possibly greater impacts over the next six to seven months. Those resources will come from national governments and international donors. Money invested in preparedness and prevention now will forestall the need to spend more money later in emergency responses; it is better to manage the risks than manage the crisis. Preparedness and ‘no regrets’ measures should build upon and reinforce measures already being taken to tackle the deep, underlying vulnerabilities that poor people face, which too often result in chronic food insecurity even in normal years. It is crucial to protect people’s

livelihoods now so that they do not become mired in a poverty trap, as well as upon ongoing work to boost local food production. Such measures include various forms of cash transfers and social protection, protection of assets such as livestock and provision of water in drought-affected regions. These measures are at the same time investments that can enable communities on the frontlines of climate change to become more resilient. Funding must not be reactive and stop-start, but be able to deliver long-term programmes.

It is worrying that so far, Oxfam staff report that donors are saying that they are over-stretched and have other global priorities. Furthermore, slow-onset drought disasters do not command media attention. The most immediate priority is for assistance to Ethiopia, where the government-led response has been impressive but was only 43 percent funded as of mid-October.

The international community must learn from repeated mistakes in the past. In 2011, warnings were issued months in advance that rains had failed in the Horn of Africa and that people were becoming more and more vulnerable.<sup>58</sup> Yet the response was slow and indecisive and as a result, millions of people suffered and lost their livelihoods, and more than 260,000 died.<sup>59</sup>

The same must not happen in 2016.

# Notes

All links last accessed in September 2015

<sup>1</sup> El Niño means 'the little boy' in Spanish, said to be so-called because of its impacts in Peru around Christmas time and hence an association with the birth of Jesus. The counterpoint to El Niño is La Niña, 'the little girl', which has almost opposite effects. The two phases together comprise ENSO – the El Niño Southern Oscillation.

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<sup>3</sup> The terms 'stress', 'crisis' and 'emergency' are defined in the Integrated Food Security (IPC) phase classification system used by the Famine Early Warning Systems Network (FEWS NET). See <http://www.ipcinfo.org/>

<sup>4</sup> See Met Office (2015) 'Big Changes Underway in the Climate System?' <http://www.metoffice.gov.uk/research/news/2015/changes-in-climate-system>

<sup>5</sup> Ibid.

<sup>6</sup> Oxfam (1982) 'Weather Alert! Evidence of a hidden crisis for the world's poor' <http://policy-practice.oxfam.org.uk/publications/weather-alert-evidence-of-a-hidden-crisis-for-the-worlds-poor-114058>

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<sup>11</sup> Met Office (2015), op. cit.

<sup>12</sup> Ibid.

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<sup>16</sup> For more on La Niña see National Geographic 'El Niño/La Niña: Nature's Vicious Cycle' <http://www.nationalgeographic.com/elNiño/mainpage.html>

<sup>17</sup> Funk, C. and Hoell, A. (2015) 'The leading mode of observed and CMIP5 ENSO-residual sea surface temperatures and associated changes in Indo-Pacific climate' <http://journals.ametsoc.org/doi/abs/10.1175/JCLI-D-14-00334.1>

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Acknowledgements: This media brief was written by John Magrath, Programme Researcher, Oxfam GB. Many Oxfam colleagues contributed to this media brief. The author acknowledges with gratitude Dr Chris Funk, Research Geographer, United States Geological Survey, University of California, Santa Barbara, and Rogerio Bonifacio, WFP remote sensing expert and VAM adviser for all their comments.

Published by Oxfam GB for Oxfam International under ISBN 978-1-78077-949-2 in October 2015 and updated in November 2015. Oxfam GB, Oxfam House, John Smith Drive, Cowley, Oxford, OX4 2JY, UK.

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

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