Watch your waste:
Lose less, consume sustainably, feed more

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Abstract

The world already produces enough food to feed the world, yet over 800 million people are hungry. Further to this paradox, increasingly we are aware of the potential negative impacts that expanding agriculture can have. Valuable ecosystems and carbon sinks may be lost or threatened, while vulnerable people – particularly women, children and Indigenous peoples – can be forced off their land as we see increasing levels of competition for arable land. Curbing waste in the food system is critical to more sustainable natural resource use and reducing agriculture's contribution to climate change. Addressing food waste can also bring social benefits at the family level, supporting smallholder farmers to retain more of their crop, and household consumers to spend less on food purchases. The dynamics of food waste also differ between communities. In smallholder agriculture, up to 40% of food produced can spoil, rot or be diseased before it reaches the plate. Reasons for such losses can include a lack of post-harvest storage facilities or locally appropriate options for pest management. This can have dire impacts for communities with limited access to water or land, and for those facing the stress of adapting to a rapidly changing climate. Yet in long-chain agriculture, food is similarly wasted – up to 20% of Australian household food purchases may be being discarded – contributing heavily to Australia's already weighty carbon footprint. This paper explores some of the ways in which Oxfam Australia approaches curbing waste in the food system, drawing on our analysis of trends in global agriculture, as well as our work on the ground in smallholder agriculture and public education.

Today we grow enough food to feed the world, yet over 800 million people face hunger. Tackling food waste is key to building a more sustainable food system.

Children who face hunger, even for a short period of time, can suffer lifelong effects on their mental and physical development, negatively affecting their future livelihoods and their quality of life. Hunger can force families into heartbreaking situations and decisions, and women and girls are particularly vulnerable – as mentioned, for example, in the paper by Omot & Komolong (2014). From my perspective as a parent I cannot imagine what it must be like to be unable to feed my children. This is ultimately what is at stake when we talk about the food system.

As we contemplate the future of our current food systems we also know that world agriculture is rapidly changing. For many farmers, it may seem that

agriculture is constantly under attack. Every day, precious fertile soils are lost to urban development, to erosion and pollution, to coal and gas extraction, to roads, to light industry, to tourism, to mining and even landfill.

Yet agriculture itself is part of a new wave of intensive resource competition. The boom in agricultural commodity prices over the past decade has fuelled rapid domestic and international demand for agricultural land, and this can also create a cruel paradox where agricultural expansion actually threatens the right to food. Increased competition for land now frequently leads to human rights violations, as we see reported in the growing literature about illegal or unethical land acquisitions. Like many other global voices, Oxfam and its partners see communities displaced and denied access to their sacred sites and food crops when land is turned over to agriculture in which community considerations play little part. Hunger disproportionately impacts the landless and communities that rely on agriculture for their income or subsistence (WFP 2014). This is a cruel irony that should not be lost on us.

Agriculture is also a key contributor to global carbon emissions, and it drives 80% of global deforestation (UNEP 2014). Forests are the heartbeat of our climate systems, holding 289 gigatonnes of carbon in biomass alone (FAO 2010 p. 4). By the year 2050 an additional 20–25 million children under 5 could face malnutrition as a result of changing climate (Nelson *et al.* 2009).

Also today, we see that limits to agricultural consumption have been burst open in a globalised industrialised food system. Over the past four decades the livestock revolution has dramatically transformed grain use, with around 670 million tonnes of cereal now fed to livestock, using a cropped area of 211 million hectares (FAO 2006 p. 38; Weis 2013). Activities related to livestock production contribute to an estimated 37% of global methane emissions and 9% of all carbon emissions (FAO 2006). In the 21st century biofuel production has increased 500% so that consumption is no longer constrained by the size of our stomachs because crops like sugar, palm oil, soy and corn are increasingly used for non-food purposes (Naylor 2012 p. 2).

Facing a seemingly limitless appetite for agriculture, yet increasingly aware of the natural constraints of our local ecologies and our shared planet, turning to a more efficient and ethical approach to agriculture is actually key to managing and reducing waste. It is estimated, for example, that at least one-third of food produced is lost in the food system. In a world where over 800 million people face hunger, this statistic is truly alarming.

In many places throughout the developing world, waste occurs because farmers lack access to resources or appropriate information to enable them to store or transport food better. This challenge will increase, as climate change requires farmers to adapt their production and storage practices.

In contrast, in high income countries, most food waste arises not from spoilage but from perfectly good food not being eaten. Food is rejected by retailers for purely aesthetic reasons, or wasted because people buy more than they need.

Our work in Oxfam looking at food waste focuses on the household, the individual and community and ways to improve food security and economic benefits for families. For example, we support work in Timor Leste, north of Australia. This half-island nation achieved independence at the turn of this century, but still faces profound challenges including high levels of illiteracy, the impacts of climate change, and heartbreaking rates of child malnutrition (WHO 2014). Food security is a major national issue which has impacts on people's quality of life.

Oxfam supports local partner organisations that share information and provide training to rural women and men about low cost and low risk agricultural practices appropriate for remote places. This includes efforts to reduce losses that occur shortly before or shortly after harvest. For example, farmers may build new facilities for seed storage, or use affordable plastic drums so that seeds will not be eaten by pests or spoilt (Figure 1), and we experiment with simple food processing to turn excess crops into additional income. For instance, turning bananas into banana chips not only means the fruit is not wasted but also preserves it for longer use and for sale.

Farmers learn how to protect their crops from losses, for example by raising garden beds so that food plants are not destroyed by flooding or by heavy rains just as they are ready to be harvested. People learn more about the benefits of living fences that protect food gardens from farm animals, and they discuss planting several species together to reduce risk of crop losses to pests that attack a single species – a practice which is commonly part of traditional agriculture in many places across the island. Diversity in planting also helps to spread risk from post-harvest losses, which are highest in maize and rice and lower for other staples such as cassava and sweet potato (WFP 2006).

By experimenting with these techniques farmers see what works well, and the benefits or disadvantages that they may bring. These easy to implement, low-cost techniques can then be easily transferred to family and friends, contributing to a long-term change to the food system. Farmers provide feedback, and it is understood that the community is pivotal in creating and adapting locally

Figure 1. Farmers in Timor Leste are beginning to store seed in plastic drums to prevent pest attack and spoilage.

appropriate techniques. These are techniques that are 'owned' by that community, not imposed on them.

Oxfam Australia's work relies on the generosity of Australian people, and I say this to illustrate that the notion of ethics at the heart of today's conference is a powerful one. It reminds us of the choices that we make in our everyday life to decrease the burdens that others face across the world (see for example Chandler 2014 postscript).

This ability to affect the lives of others by our choices takes on new dimensions as Australians learn more about our role in the global food system.

Each year Australian households waste $8 billion worth of food (Foodwise 2014). We waste 4 million tonnes of food, and much of that goes to landfill; 20–40% of fresh fruit and vegetables are wasted before they reach the shops because they do not meet supermarket or consumer aesthetic requirements (Foodwise 2014). That squanders the precious water and soil nutrients used to actually grow the food.

Once this waste enters landfill it emits methane and carbon dioxide. To grow, transport and market this excess food which goes to landfill, we first use non-renewable fossil fuels, adding to the global climate burden, and contributing to the land competition mentioned above. The average household in Australia wastes at least $1000-worth of food per year, enough to feed a household for over a month, and up to 40% of the average household bin can often be food waste (Foodwise 2014).

Oxfam has a long tradition of public information campaigns for consumers. We were pioneers of the fair trade movement, and to build this movement we needed to make situations visible that have often been invisible in the production chain. We showed that many people in developing countries who produce much of the food that we eat and drink do not get a fair share of the wealth created by trade, because the rules of international trade favour rich countries over the poor ones.

Through our global food justice campaign called GROW, launched four years ago, we are supporting people in Australia to think about how to take action on this issue of food waste. We build awareness of waste in the food system via social media campaigns (e.g. Figure 2) and face to face community campaigns.

The extent of waste in our food system can be shocking; it was for me. Many Australians want to support farmers at home and overseas by reducing the carbon footprint of our own food consumption.

Our GROW campaign urges people to take simple steps to address food waste, such as: use yesterday's leftovers; check the fridge before going shopping so you do not buy more than you need; choose perishable food that is in season because it is likely to use fewer resources; eat a bit less meat and dairy; compost food scraps. These are small changes, simple ones. But it is because they are small that they are powerful.

Figure 2. Oxfam runs campaigns in Australia and across the world to raise awareness of waste and how people can take action to avoid it.

We also know that these messages succeed. In August 2013 we urged Oxfam supporters taking part in our six-month GROW challenge to 'Watch your Waste' for one month (Figure 2). The GROW challenge inspired people to take action to help create a more sustainable food system by completing a monthly challenge. Of the participants we surveyed at the end of 2013, 76% reported that they had cut down their food waste. Our Food Justice Community Engagement Co-ordinator told me:

> The issue of food waste has really resonated with Oxfam Australian supporters, and particularly young people. Reducing food waste is one tangible way to engage with the complex issues of food justice. Disparity and injustice cannot be better demonstrated than with the case of one-third of the world's food going to waste, while one in eight people go hungry.

Of those one in eight people who go hungry, 80% of them are involved in food production of one sort or another. Creating an efficient and ethical food system is central to meeting the challenges that we face, and by reducing the agricultural burden of waste we can reduce pressure on our natural resources and slow agriculture's contribution to climate change.

This is an important step in addressing the inequalities that exist in our global food system, and these are inequalities that contribute to existing hunger and that will exacerbate problems into the future. Reducing food waste can bring direct benefits to farmers by increasing their household food security through lowering the risk of crop losses before they reach the plate. We can also bring economic benefit for consumers in industrial countries by helping them to become more mindful of managing waste, and reduce their disproportionate

contribution to greenhouse gas emissions and the squandering of our natural resources.

Looking towards the future of agriculture it is easy to be overwhelmed by the challenges we face in building a more sustainable food system. Yet I am reminded, in looking at our own work in Australia and in Timor Leste, about the power of little decisions: of a farmer building a fence, of someone taking leftovers for lunch. Just as we built the fair trade movement one cup of coffee at a time, little decisions are key to transforming an inequitable and wasteful food system into a more ethical and efficient one where we lose less, consume sustainably, and help relieve more people of the heartbreaking burden and indignity of hunger.

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Dr Helen Szoke commenced as Chief Executive of Oxfam Australia in January 2013. Prior to this appointment Helen served as Australia's Federal Race Discrimination Commissioner, following seven years as

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