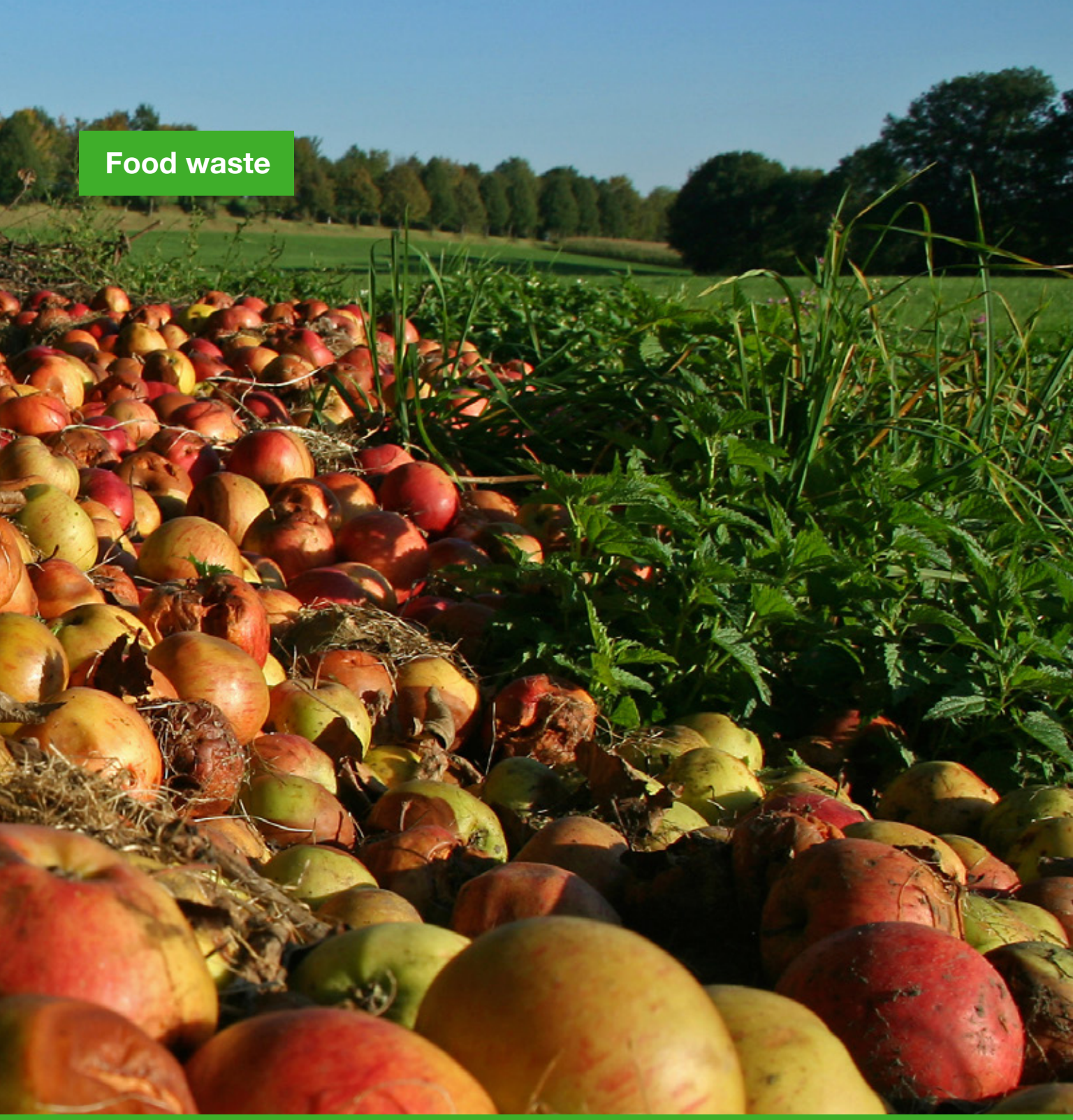
Food waste



2 billion tonnes – amount of food wasted each year

50% – target reduction in US food waste by 2030

Food waste

30-50% of our food is wasted either in the supply chain or in consumption and could feed another 3 billion. Optimising distribution and storage in developing countries and enabling better consumer information in others could solve this.

We live in a world where 1 in 4 of the calories we create are never eaten. Every day, consumers in the West throw away as much food as is produced in the whole of Sub Saharan Africa, while, globally, the 2bn tonnes of food wasted each year are equivalent to around $1 trillion of financial loss each year. Going forward, if we are to support another billion or so people on the planet this century, with limited land and water resources, reducing this massive wastage is perhaps the most significant shift possible to help us to feed the global population.

Depending which region you are in, the nature of food waste shifts from production and storage to distribution and consumption; in developing counties, 40% of the loss occurs post harvest, storage and in processing, while in developed nations 40% of the losses are in retail and with the consumer. In China, losses of rice are at 45% of total production - in Vietnam it is 80%. In India, Delhi has Asia's largest food produce market but no cool storage facility; so in soaring temperatures how can fruit and vegetables stay fresh? In South Africa, 50% of mangoes are damaged in the first mile of transportation, while in India 20m tonnes of wheat, equivalent to the entire production of Australia, are lost every year due to poor storage. Improving storage with simple, low cost methods such as using crates rather than bags and sacks can drastically cut food loss. The UN FAO has already built well over 50,000 small grain storage silos across 20 or so countries that are significantly cutting food loss. Refrigerated transport is clearly an ideal, but in the absence of that cool storage depots can have significant impact.

Productivity around the world varies; India overall is half as productive as global averages – whereas US farmers produced 11 tonnes of food per acre, in India the figure is 3 tonnes. The problem is not about lack of land but inefficiencies of production; 90% of Indian farmers don't use animal feed and therefore miss out on easy ways to improve yields. Given that we have pretty much used all the arable land we have available and urbanization and climate change are fast shifting the balance, higher productivity per hectare is a major theme.

One option is clearly to adopt more GMO approaches. However, while in some regions these are embraced, in others they are demonized. The GMO actions that gain greatest support are for the introduction of drought tolerant and salt-resistant crops but many would argue that the problem can be solved without taking too many steps towards more GM food produce. Given US and Chinese support for GMO and the significant interests of companies such as Monsanto, ADM and Cargill, we are likely to see a combination of new varieties and the better adoption of today's leading farming practices. Other actions called for include land reform in Africa and greater investment in funding famer education programmes to reduce post-harvest loss.

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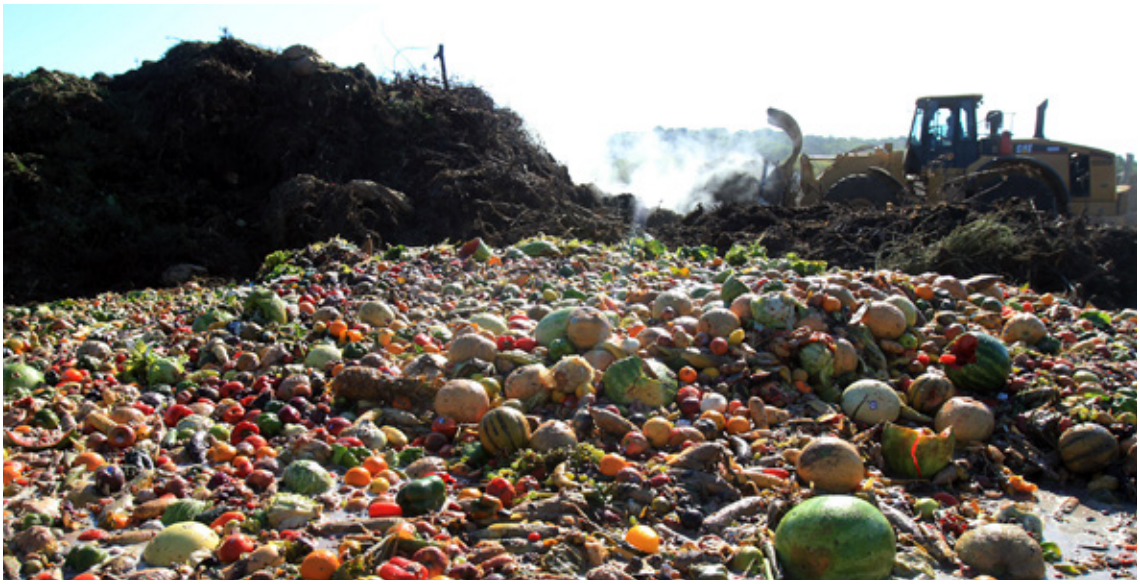
Interconnected systems



Also significant in the list of areas for improvement is water supply and irrigation: as agriculture consumes 70% of our fresh water, reducing food waste frees up more water. In the US, where 30% of purchased food is thrown away, this means that half of the water used to produce food is wasted. Globally, shifting from flooding and spray irrigation to drip-and-trickle feed of water can improve productivity by over a third.

In the Western world of retail, quality standards and obsessions with food appearance are the major issues driving food waste. One easy answer is to modify food labelling, as consumer confusion between 'use-by', 'sell-by' and 'best before' dates is a major driver of waste. In the UK, 20% of food thrown away by consumers is incorrectly perceived as being out of date, leading to calls for the wider use of just the use by date – now being piloted by Tesco across Europe.

Reducing food waste frees up more water.

Another simple option is to redistribute food that is not sold. While unfortunately in many countries food safety regulations forbid the reuse of food, firms like Pret a Manger have made a point of giving unsold sandwiches and salads to the homeless while apps such as the US's Leftoverswap have taken off in linking people with left over food, and in Australia Secondbite has redirected unwanted food to community food banks. A partnership of grocers, food brands and government should focus consumer awareness through education campaigns. Networked smart fridges and storage cabinets that interact with food packing to track supplies, use-by dates and link to on-line delivery firms are a direction of travel in some countries, for many simple attitudinal shifts of the consumer may be just as effective. Similarly, our expectation of perfect looking food 24/7 in every supermarket has to change; in many developed markets 50% of some vegetables harvested do not make it onto the shelves because they don't look right.

Considerable waste takes place worldwide also in hotels and catering where 80% of food waste is attributed to events. Because they are cheaper to provide than plated service at tables, hotels typically favour buffets to feed lots of people. Although cost effective in terms of labour, buffets are incredibly inefficient in terms of the ratio of food consumed to that prepared, especially so with banquets.

In some countries, more aware of the financial impact of the waste in food, many restaurants are seeking to improve efficiency. In many US cities, food can no longer be sent to landfill and instead it is either being redistributed or turned into energy – anaerobic digesters are popping up all over the place to turn food scraps into gas. In Europe, France has announced measures to reduce food waste and passed a law banning supermarkets from destroying unsold food, while, in the UK, Waitrose is just one of the supermarkets that has already diverted all its shop generated waste from landfill to anaerobic digestion.

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If we could reduce current food waste by just a quarter, that would be enough to feed all of the world's hungry. If we can reduce it by half then we will free up enough to cope with an extra billion or so people on the planet. By 2050 the world will need 60 per cent more calories every day to feed 9 billion people. Cutting current food loss and waste levels in half will shrink the gap by 22 percent.

As a step to this, in 2015 the US Department of Agriculture announced an initiative to reduce national food waste by 50 per cent by 2030. Driven both by the need for greater food security as well as resource conservation, many see that this may soon become a target elsewhere as well: the EU has the same target by 2050.

Today, across the world, we have no meaningful food waste data. If, as we move forward, robust and consistent data collection occurs and is used to both improve famer education, highlight process efficiency opportunities and support clearer guidelines for consumers, then we should be able to make significant progress.

Related insights

Full cost

Increasing transparency of society's reliance on nature, intensify requirements for business to pay the true cost of the resources provided by 'natural capital' and so compensate for their negative impact on society.

Nature's capital

In the Anthropocene, humankind is presiding over the Earth's sixth major extinction. But as biodiversity declines, nature becomes increasingly valued and valuable.

Plastic oceans

There are increasing high levels of man-made pollution in many of the world's seas and little actually disappears. By 2050 there will be more plastic than fish in the oceans.

Key resource constraints

Economic, physical and political shortages of key resources increase and drive increasing tension between and within countries. As we exceed the Earth's natural thresholds, food and water receive as much focus as oil and gas.