



## Part 2: Additional Information

# Why our current food system is bad for our health and the planet

As the world grapples with the consequences of climate and ecological crises, the food system provides a unique opportunity to provide effective solutions.

## Climate Crisis and Food

**The two major drivers of anthropogenic climate change are fossil fuels and food systems.**

Of the total global fossil fuel usage per year, about 15% is linked to food production.<sup>[1]</sup> Globally, food systems contribute to 30% of the total greenhouse gas emissions (GHG). Of these emissions, about 57% are associated with red meat and dairy (red meat refers to any mammalian meat for human consumption).<sup>[2]</sup> In the UK, the agriculture sector was responsible for 11% of the total greenhouse gas emissions in 2020, of which red meat and dairy accounted for more than 70% of food consumption and production-related emissions.<sup>[3]</sup> To comply with the Paris Agreement target of limiting global heating to 1.5°C it is critical to cut down emissions from the agricultural sector along with transitioning away from fossil fuels to cleaner sources of energy.<sup>[4,5]</sup>

Despite producing enough food to feed 1.5 times the world population, around 1.3 billion tonnes of food is wasted every year, from harvest stages to consumer levels.<sup>[6]</sup> Food waste accounts for 50% of the total food-related GHG emissions.<sup>[7]</sup> **The UN's Sustainable Development Goal is to reduce global food waste and losses in production and supply by 50% by 2030 which would remove 25% of total food-related greenhouse gas emissions.**<sup>[7]</sup> Fruits and vegetables account for only 2.4% of supply-related food waste emissions while meat and dairy products account for 73.4%. In the UK, about 33% of the food waste is at the farm level and of the remaining about 70% of food waste is at the household level.<sup>[8]</sup>

Climate-related extreme weather events such as flooding, wildfires, droughts, and storms increase the risk of food insecurity due to food crops being destroyed leading to reduced supply and higher costs. This would aggravate the burden on the lower socioeconomic groups who are already struggling with the cost of living crises and widen preexisting health inequalities.

There is a significant opportunity in the agriculture sector to swiftly reduce non-CO<sub>2</sub> GHG emissions (such as methane and nitrous oxide) which would provide a buffer period for the world to equitably transition away from fossil fuels towards renewable energy.<sup>[9]</sup> This is because methane and nitrous oxide decompose relatively rapidly as they have half-lives of 9–12 and 115 years respectively (while carbon released into the atmosphere can stay virtually forever).<sup>[8,10]</sup>

The digestive process in ruminant animals like cattle, sheep and goats and their manure is responsible for 32% of all agriculture-related methane emissions.<sup>[11]</sup> The decomposition of food waste in landfills also produces significant methane. Methane is responsible for 30% of the total temperature rise we are facing now and with a 42% contribution, the agriculture sector is the largest source of man-made methane.<sup>[9]</sup> In addition to being a potent trapper of heat, methane is responsible for the formation of ground-level ozone (a toxic air pollutant that causes over a million premature deaths annually, reduces crop productivity and harms ecosystems).<sup>[11]</sup>

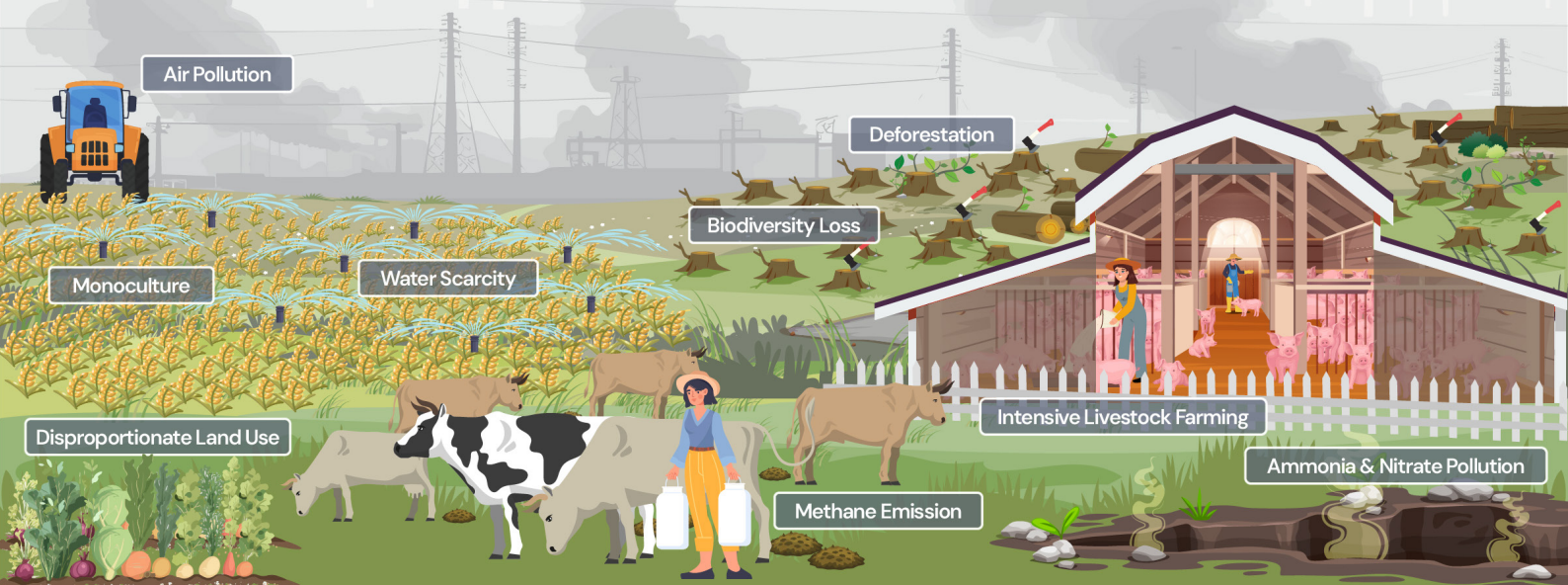
**If both meat consumption and food waste are decreased by 50%, global food waste-related emissions can be reduced by 43%.<sup>[7]</sup>**

## Impacts of the food system on the environment

Current food system practices are the primary driver of biodiversity loss due to large-scale deforestation and land use changes leading to habitat destruction. The existence of wildlife is further threatened by climate change-related extreme weather events such as floods, heatwaves, wildfires and droughts. Agricultural use of chemical fertilisers, pesticides, excessive water and manure management is leading to pollution and depletion of water bodies. **The UK is one of the most nature-depleted countries in the world and has the most polluted water bodies in Europe.**<sup>[8,12]</sup>

Human life is dependent on nature for everything. Even modern medicine is heavily reliant on nature as it has been a source of essential medications for centuries. A decline in wildlife threatens the procurement and discovery of new drugs.<sup>[8]</sup> **In the UK over 14% of native species are facing extinction and over 40% are in decline.**<sup>[12]</sup>

Food production contributes to air pollution, with agriculture being the largest producer of ammonia and other nitrogen pollutants, and contributes to ground-level ozone.<sup>[13]</sup> Up to 30% of air pollution in UK cities comes from farming, the vast majority from animal agriculture.<sup>[14]</sup> Air pollution is linked to multiple health conditions such as respiratory diseases, cardiovascular diseases, dementia, mental health issues, and poor pregnancy outcomes. **In the UK, about 29,000 to 43,000 early deaths are associated with air pollution.**<sup>[15]</sup>



## Consequences of unhealthy food and unsustainable practices

Today's sedentary lifestyle and unhealthy food intake are leading to a rapid rise in obesity and related diseases around the world. Every 1 in 4 adults and 1 in 5 children in the UK are clinically obese.<sup>[16]</sup> The accessibility and affordability of non-nutritious food, often high in trans fats, saturated fat, sugar and salt, is adding to the disease burden. For example, **healthy nutritious foods on average cost £10 for 1,000 calories compared to just £4.45 for 1,000 calories of unhealthy, obesogenic foods.**<sup>[17]</sup> This trend is leading to the widening of health inequality as individuals from poor households in deprived socioeconomic areas are twice as likely to be obese and eat 42% less fruits and vegetables than the recommended 5 portions of fruits and vegetables a day.<sup>[18]</sup> In the UK in 2020, approximately 70,000 deaths were linked to inadequate consumption of nutritious plant-based foods and nearly 42,000 deaths were associated with overconsumption of dairy, red meat, and processed meat (meat that has undergone processes to enhance either flavour or shelf life).<sup>[3]</sup>

Excessive consumption of diets rich in red meat, especially processed, is associated with an increased risk of type 2 diabetes, cardiovascular diseases, dementia and several cancers.<sup>[19–21]</sup> The World Health Organization has classified both processed meat (group 1, which is in the same category as tobacco and asbestos) and red meat (group 2A) as carcinogens.<sup>[22]</sup> For reference, **the Eatwell Guide recommends limiting to 70 grams of red or processed meat a day which is roughly equivalent to ½ a patty of a burger or 1½ pork sausages.**<sup>[23]</sup>

Plant-based foods are low in saturated fat, do not contain cholesterol and are the only source of fibre, which is essential to reduce the risks of heart disease, stroke, type 2 diabetes and bowel cancer. Adults require 30 grams of fibre per day but on average only 20 grams of fibre per day is consumed in the UK. NHS England recommends promoting initiatives to increase dietary fibre.<sup>[24]</sup>

There is growing evidence of the health benefits of plant-based meat alternatives as compared to the consumption of red meat and they are also becoming increasingly popular despite concerns about them being ultraprocessed. Studies have found several beneficial effects on cardiovascular health and no adverse effects from replacing plant-based meats with red meat in diets.<sup>[25,26]</sup> There are also concerns about obtaining the required amounts of essential nutrients such as protein, calcium, iron, iodine and vitamin B12 when consuming plant-based food. However, the daily requirement for all of these can be achieved by incorporating a variety of nuts, legumes, whole grains, fruits and vegetables in the diet along with regular supplementation of vitamin B12 and ensuring consumption of fortified foods.

The overuse of antibiotics to control diseases in farm animals has resulted in growing antimicrobial resistance, which contributed to 4.95 million deaths globally in 2019.<sup>[27]</sup> Antimicrobial resistance is a dangerous condition in which microbes stop responding to drugs making it difficult to treat infectious diseases and making surgical procedures riskier. The leakage of antimicrobials into the environment due to agricultural use is not only polluting but also

multiplies the chance of developing resistance. Without effective reduction and sustained stewardship of antibiotics, vulnerable countries around the globe will bear the brunt of AMR, with an estimated 10 million annual deaths by 2050.<sup>[28]</sup>

**The hidden costs of the current food systems associated with health, environment and society are at least \$10 trillion a year.**<sup>[29]</sup> The highest proportion of costs (70%) are due to unhealthy diets leading to obesity and related diseases and about 20% are associated with environmental changes.

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