

Environmental impacts of UPF consumption

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The Soil Association is a charity promoting healthy and sustainable food and farming.

The charity receives funding from philanthropic, commercial, government, and public sources; its policy and advocacy work (of which R.P. is employed) is primarily funded by trusts and foundations.



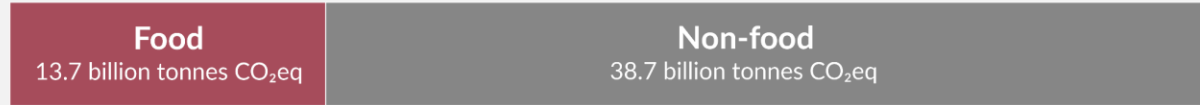


The environmental impacts of food and agriculture

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Greenhouse gas emissions

26% of greenhouse gas emissions come from food



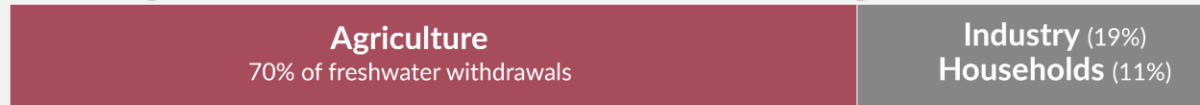
Land use

50% of the world's habitable land is used for agriculture



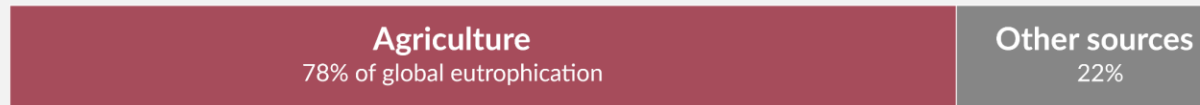
Freshwater withdrawals

70% of global freshwater withdrawals are used for agriculture



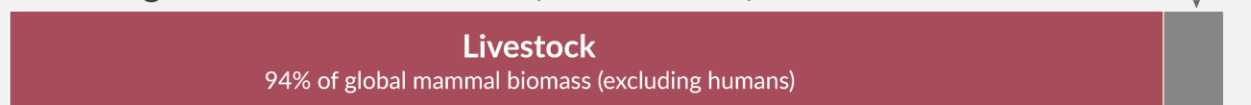
Eutrophication

78% of global ocean and freshwater pollution



Mammal biodiversity

94% of global mammal biomass (excl. humans) is livestock



Bird biodiversity

71% of global bird biomass is poultry livestock





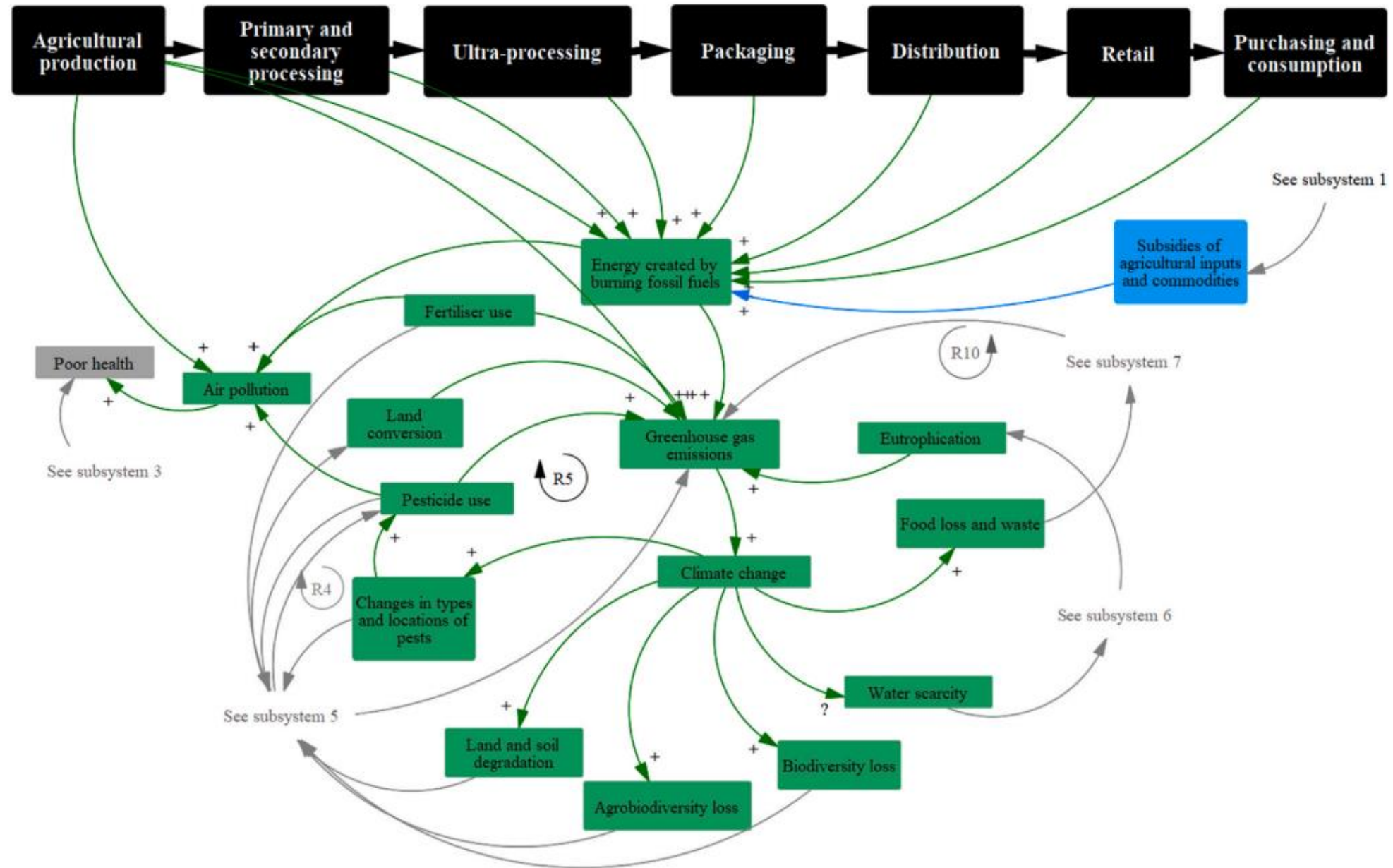


Fig. 5. Causal loop diagram of Subsystem 4: Climate change and air pollution relevant to UPF systems

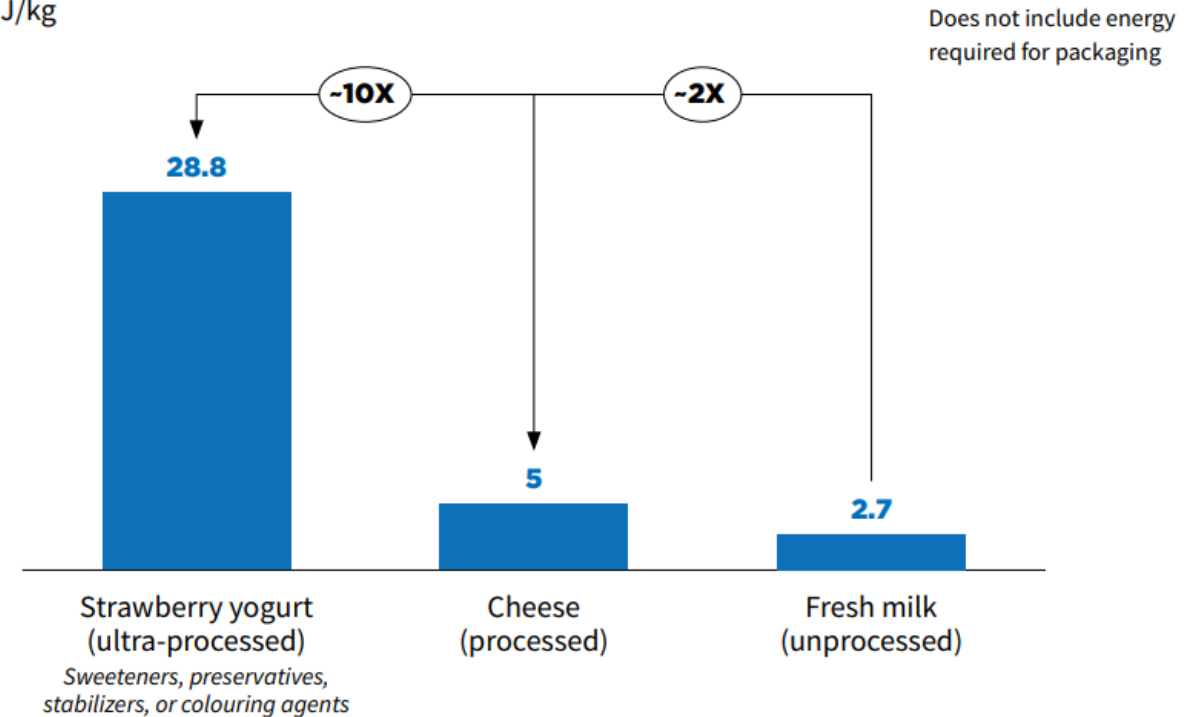
Key issue #1: fossil fuels

A high proportion of the energy requirement for ultra-processed foods is supplied by fossil fuels.

Production of ultra-processed food is 2 to 10 times more energy intensive than whole foods, and increased demand implies increased fossil fuel use over time.

FIGURE 2: EXAMPLE: ULTRA-PROCESSED DAIRY IS 10 TIMES MORE ENERGY INTENSIVE THAN FRESH MILK*

Energy used (in MJ) to produce 1 kilogram
Unit of measurement: MJ/kg



Global Alliance for the Future of Food. Power Shi: Why We Need to Wean Industrial Food Systems Off Fossil Fuels. n.p.: Global Alliance for the Future of Food, 2023.

Key issue #2: plastics

Manufactured almost exclusively of fossil fuels, plastics generate pollution across their lifecycles, compounding the harmful effects of the UPFs that they facilitate.

UPFs heavily rely on plastics for production and packaging. Major UPF producers are also major contributors to plastic pollution.

Approximately 83% of flexible food packaging and 45% of all rigid food packaging is made from plastics, with UPFs commonly encased in these materials.



GBD 2017 Diet Collaborators. Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2019;393:1958–72.

Key issue #3: empty calories

Many ultra-processed foods are discretionary, meaning they're not needed in the diet, and might provide little or no nutrition.

Yet production of these foods consumes resources and energy.

If dietary trends continue, per-capita greenhouse-gas emissions from empty calories are estimated to nearly double by 2050



The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report, Swinburn, Boyd A et al. The Lancet, Volume 393, Issue 10173, 791 - 846

However – it's not ONLY processing that matters...

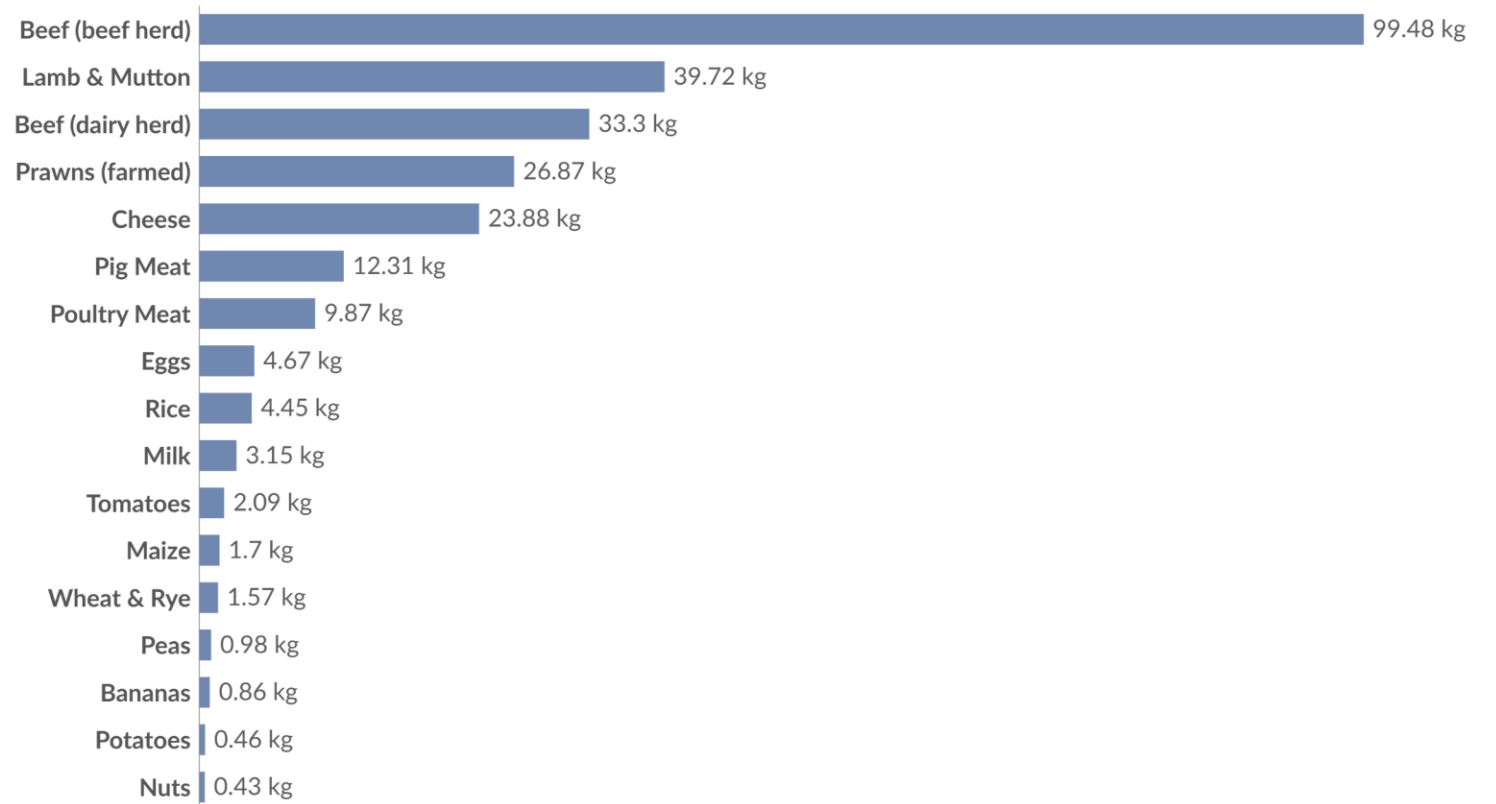
Animal foods are generally more environmentally impactful than plant foods – regardless of the degree of processing.

Some ultra-processed meat and dairy alternatives might have lower environmental impacts than animal products.

Greenhouse gas emissions per kilogram of food product

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Greenhouse gas emissions¹ are measured in kilograms of carbon dioxide-equivalents². This means non-CO₂ gases are weighted by the amount of warming they cause over a 100-year timescale.



Data source: Poore and Nemecek (2018)

OurWorldinData.org/environmental-impacts-of-food | CC BY

1. **Greenhouse gas emissions:** A greenhouse gas (GHG) is a gas that causes the atmosphere to warm by absorbing and emitting radiant energy. Greenhouse gases absorb radiation that is radiated by Earth, preventing this heat from escaping to space. Carbon dioxide (CO₂) is the most well-known greenhouse gas, but there are others including methane, nitrous oxide, and in fact, water vapor. Human-made emissions of greenhouse gases from fossil fuels, industry, and agriculture are the leading cause of global climate change. Greenhouse gas emissions measure the total amount of all greenhouse gases that are emitted. These are often quantified in carbon dioxide equivalents (CO₂eq) which take account of the amount of warming that each molecule of different gases creates.

2. **Carbon dioxide equivalents (CO₂eq):** Carbon dioxide is the most important greenhouse gas, but not the only one. To capture all greenhouse gas emissions, researchers express them in "carbon dioxide equivalents" (CO₂eq). This takes all greenhouse gases into account, not just CO₂. To express all greenhouse gases in carbon dioxide equivalents (CO₂eq), each one is weighted by its global warming potential (GWP) value. GWP



Food and Agriculture
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SUSTAINABLE HEALTHY DIETS...

1

...start early in life with early initiation of breastfeeding, exclusive breastfeeding until six months of age, and continued breastfeeding until two years and beyond, combined with appropriate complementary feeding.

2

... are based on a great variety of unprocessed or minimally processed foods, balanced across food groups, while restricting highly processed food and drink products.¹⁰

3

... include wholegrains, legumes, nuts and an abundance and variety of fruits and vegetables.¹¹

4

... can include moderate amounts of eggs, dairy, poultry and fish; and small amounts of red meat.