

Diet and Food Systems for Health, Climate and Planet

The climate crisis is an acute and protracted health emergency with far-reaching effects on both human health and the environments that sustain our health. Quite simply, the climate crisis and significant health risks are interlinked, having many of the same drivers and solutions.

The pursuit of zero carbon and resilient food systems can deliver healthy diets that significantly reduce premature deaths worldwide. National governments can tackle multiple climatic, social, economic, and health challenges by encouraging a major shift towards healthy and sustainable diets.

This paper puts forward climate and health solutions that focus on changing food systems, governmental initiatives, and financial incentives to deliver a 'farm to mouth' ecosystem that supports both human health and reduces damaging environmental impacts. Efforts to keep global heating below 1.5°C must go together with securing fundamental health benefits.

Recommendations

1. Promote access to sustainable, affordable and healthy diets options for all.
2. Remove both financial and non-financial incentives that support and promote high-emission, unhealthy food options and agricultural practices.
3. Rapidly transition away from unsuitable farming and food processing practices that damage the environment and risk human health.
4. Prioritise ecologically sustainable food systems to strengthen resilience, increase food and nutrition security, and lower emissions.
5. Ensure that the transition to a more sustainable and ecologically friendly food system is done in a fair and just way.

How are climate, health and diet connected?

Current food systems, and particularly industrial production methods, are driving global trends towards poor diet and related diseases, climate-damaging environmental impacts, and reduced health and economic outputs.

- **Food systems produce between 20–35% of global emissions¹.** Food systems comprise a complex web of activities, including the production, processing, transport, marketing, and consumption of food. Modern industrial agriculture approaches drive deforestation and are dependent on high fossil fuel inputs, putting at risk international efforts to achieve the Paris Climate Agreement target to keep global temperature rise below 1.5°C.
- Overall, **animal-based products have a higher ecological footprint** (including land demand for rearing animals and growing fodder) than most plant-based foods and are responsible for more than half of food-related greenhouse emissions².
- **Poor diet is having health impacts across all countries and is now the leading driver of non-communicable diseases worldwide.** Over 820 million people are undernourished around the world³, with around 2 billion people facing moderate or severe food insecurity⁴. Hunger is on the rise across Latin America, Western Asia, and virtually all subregions of Africa, but also impacts 8% of people in Europe and North America⁵. A further 2 billion worldwide suffer from hidden deficiencies of micronutrients such as vitamin A, zinc, and iron⁶.
- Around **2 billion adults and 380 million children⁷ are obese or overweight⁸**, with the prevalence of obesity rising in every region across the world. Globally, excess weight and obesity contribute to approximately 4 million deaths annually,⁹ including from cardiovascular disease, Type 2 diabetes, and cancer¹⁰.
- **Western-style diets are particularly emissions-intensive and unhealthy.** They are becoming more prevalent in many low- and middle-income countries (LMICs) with growing middle classes¹¹. This diet is rich in refined carbohydrates, highly processed foods or ultra-processed foods¹², partially hydrogenated or saturated fats, including palm oil, sugars, and animal protein¹³. A growing global population will result in a need for around 50% more food by 2050¹⁴. Based on current trends, demand for animal-based foods is projected to grow by 68% over the next three decades¹⁵.
- **Malnutrition has an economic impact.** It is estimated that the burden of disease caused by malnutrition (including undernutrition, nutritional deficiencies, and obesity) costs Asian and African economies 11% of GDP annually¹⁶, and globally, malnutrition in all its forms could cost society up to US\$3.5 trillion per year. Obesity costs around US\$2 trillion, 2.8% of global GDP, each year – a figure that is only set to grow¹⁷.
- **The Covid-19 pandemic has demonstrated how a crisis can have a devastating impact on access to nutrition**, particularly in LMICs and especially for young children¹⁸. Physical distancing, trade restrictions, and country lockdowns have all disrupted food production, transportation, and sale of nutritious, fresh and affordable foods. Strained health systems and interruptions in humanitarian response are eroding access to essential and often life-saving nutrition services.
- **The results of climate change are directly affecting global food production.** While impacts vary across countries and regions, changing weather patterns and the increase of extreme weather – like flood and drought – often compound underlying ecological vulnerability. Reducing crop yields and crop nutritional quality will increase malnutrition and chronic hunger. The results of climate change also tend to widen social inequalities and hit those least able to adapt the hardest¹⁹.

- **It is predicted that average yields of staple crops such as wheat and maize are to fall by 1–2% per decade.** In some low-income countries it is expected productivity growth will decline by roughly one-third. Rising temperatures are expected to reduce the nutrient content and yields of fruits, vegetables and legumes. For example, a recent study estimated that in warm countries with average temperatures above 20°C, mean yields of vegetables and legumes are expected to decline by 30% if temperatures rise by 4°C²⁰. Therefore, both food security and nutrition security will be impacted.
- **Current farming and food practices are increasing the risk of zoonotic diseases** which pass from animals to humans, such as bird flu and Covid-19. Approximately 60% of emerging infectious diseases are of zoonotic origin. In addition, 70% of those diseases primarily originate from the livestock sector²¹. The number of zoonotic diseases is forecast to rise with increased global demand for meat. By addressing environmentally damaging agricultural and food practices, we can also reduce the risk to human health from zoonotic diseases.
- **Current methods of intensive livestock farming are increasing the risk of drug-resistant infections.** Antibiotics that are critical for medical use in humans are used routinely to prevent infections and promote growth in livestock. For example, of the antibiotics defined as medically important for humans by the US Food and Drug Administration, over 70% (by weight) are sold for use in animals²². This is linked to the emergence of drug-resistant microbes. Globally, 700,000 people die each year of drug resistance in illness and this is predicted to rise to 10 million by 2050²³.

Healthier diets, accessible for all people, are better for the climate, the environment and human health. By changing what we eat and how we grow, harvest and transport our food, we can distribute it more equitably, protect and improve human health, increase economic output and productivity, and significantly reduce our carbon footprint.

Actions for delivering a fair, healthy and sustainable food system that protects climate and improves human health

To deliver healthy and sustainable diets for all people and a thriving planet, national governments are recommended to take the following actions:

1) Promote access to sustainable, affordable, and healthy diets options for all.

Access to a healthy and sustainable diet is a right, not a privilege. Modelling estimates that a wide-scale shift to healthy, predominantly plant-based diets could prevent approximately 11 million deaths per year globally, or between 19% to 24% of total adult deaths²⁴.

Healthy, sustainable diets are currently unaffordable or inaccessible for many of the world's poorest populations²⁵. Therefore, action to promote healthy and sustainable diets is inseparable from action to tackle poverty and improve accessibility of affordable food for all.

Dietary change is a complex challenge, particularly given the cultural and economic factors involved. Governments must use all tools at their disposal to encourage the sustainable and equitable consumption of healthier and more ecologically friendly foods. The value of indigenous diets, practices and knowledge should be recognised and elevated in this process.

Promoting the accessibility and affordability of healthy sustainable diets will have health, environmental, and economic benefits – both nationally and globally.

Policy recommendations:

- Use public food provisioning (such as in schools, hospitals and prisons), including public food procurement, to prioritise and promote sustainable and nutritious food options for all.
- Promote information campaigns to reduce demand for the most resource-intensive foods, like carbon-intensive meat and heavily processed foods. Promote consumption of minimally processed whole foods such as vegetables, fruits, beans, and pulses.
- Tackle the attractiveness and ubiquity of ultra-processed junk food promotion – e.g., by banning or limiting marketing targeting children, by regulating health claims and mandating evidence-based nutrition labelling/warning labels.
- Ensure policy frameworks protect, support and promote breastfeeding, recognising lifelong health benefits for mother and child, and enforce the International Code of Marketing of Breast-milk Substitutes.
- Adjust national dietary guidelines to support positive environmental and health outcomes and use these to guide sustainable food system policies.
- Adopt measures to reduce food loss and waste across the supply chain in order to increase availability and reduce food prices, particularly for perishable foods.

2) Remove both financial and non-financial incentives that support and promote high-emission, unhealthy food options and agricultural practices.

Government subsidies and other financial mechanisms often support the production and consumption of commoditised unhealthy and unsustainable food options such as intensive meat production, palm oil, and sugar²⁶. Globally, governments provide nearly US\$600 billion in agricultural subsidies every year. This frequently supports foods and farming practices that are a large source of greenhouse gases²⁷. Government subsidies distort the true cost of unhealthy and unsustainable products compared to alternatives that are better for both human health and the environment²⁸.

The private sector plays an important role in providing the food needed globally. However, it is incentivised by profit to promote unhealthy diets, ultra-processed and packaged foods, and the over-exploitation of natural resources²⁹. It often falls on the public sector to cover the long-term health, economic and social costs resulting from the current food system. Government action is needed to ensure the private sector is aligned with, and incentivised to contribute towards, a healthy and sustainable food system.

Governments must implement policies that promote sustainable farming practices, while reducing support for resource-intensive agriculture. Subsidies should be diverted to encourage shifts in both agricultural production and public consumption towards healthy and sustainable options. Small- and medium-sized enterprises (SMEs) in the food sector in LMICs are particularly vulnerable to disruptions in markets and spending and need to be supported as part of a sustainable, local food chain.

National governments must remove the undue influence of those promoting unhealthy and unsustainable food options and farming practices, and ensure both financial and non-financial policies and regulation are fully aligned to support healthy, sustainable diets.

Policy recommendations:

- Remove subsidies for unhealthy food products and commodities (ultra-processed and/or high in fat, sugar, salt) and those with a high environmental impact. Introduce 'positive' subsidies that support and promote healthy, sustainable products and practices (minimally processed, high in nutrients, e.g. vegetables, legumes, fruit, whole grains, etc.), and build the capacity of small- and medium-sized enterprises (SMEs) to deliver local sustainable food security.
- Ensure that pandemic recovery supports and builds the resilience of food systems which protect access to nutritious diets.
- Create accountability mechanisms within the food system, with robust policies on conflicts of interest, to provide scrutiny and transparency. These mechanisms should reward good and penalise bad corporate behaviour.
- Use the tax system, product labelling and marketing restrictions, to incentivise healthy, sustainable food options and deter the production and consumption of climate-damaging products.

3) Rapidly transition away from unsuitable farming and food processing practices that damage the environment and risk human health.

The current food system relies on unsuitable practices that risk causing irreversible environmental and health damage³⁰. If global emissions are to be reduced, biodiversity to thrive and human health protected, governments must move away from these practices and embrace sustainable and healthy alternatives.

Changes in land use – from its original state to agricultural use – contributes one-third of total food system emissions, mainly due to carbon losses from deforestation and from soil degradation³¹. Global food systems are the world's biggest driver of nature and biodiversity loss³². The pressure placed on natural resources by the current food system has left 25% of the globe's cultivated land area degraded – meaning it is underutilised and less productive than it could otherwise be.

Changes in land use are also increasing the risk of zoonotic diseases. The increasing global demand for meat is forecast to increase the likelihood of zoonotic diseases as the destruction of natural habitats for farmland brings wild animals into closer contact with domestic animals and people. Additionally, current methods of intensive livestock farming are also reliant on the widespread use of antibiotics, increasing the risk of drug-resistant infections.

Policy recommendations:

- Strengthen and uphold national and international regulation to rapidly reduce deforestation and ban all products produced in illegally deforested areas.
- Adopt the 'One Health' approach to addressing health threats in the animal, human and environment interface; with multiple sectors working together to achieve better public health outcomes.
- Adopt agriculture livestock policies and subsidies which encourage a shift away from unsustainable, health damaging practice – such as intensive farming which relies on excessive use of antibiotics – towards more sustainable practices which are aligned with the One Health approach.

4) Prioritise ecologically sustainable food systems to strengthen resilience, increase food and nutrition security, and lower emissions.

A common challenge underpinning the global burden of malnutrition is lack of dietary diversity. Of some 6,000 edible plant species, fewer than 200 contribute substantially to global food output. Currently, only nine species account for 66% of global total crop production³³. This is often linked to widespread monocropping, excessive use of artificial fertilisers and pesticides, and associated pollution and biodiversity loss. It also makes crops more susceptible to rising temperatures, flooding and the spread of diseases³⁴.

Promoting food and crop diversity will help to strengthen resilience in the food system, reducing its vulnerability to climatic shocks that affect nutrient content, yields, and prices³⁵. Increasing crop diversity – especially vegetables, pulses, nuts, and fruits – will also increase dietary diversity, which has been shown to significantly improve human health³⁶.

Supporting local food production will also increase food security and lower emissions – both of which have a positive impact on human health.

Small-scale farmers play a critical role in food production worldwide. Small producers make up between 40 and 85% of all food producers in Asia, Africa and Latin America³⁷. Local food production has also been shown to foster greater biodiversity, be more resilient to changes in climate, and more likely to have a lower environmental impact. However, small farmers routinely face difficulties accessing land and other productive resources, along with information, financial services and markets.

Increasing local, ecologically sustainable food production will help support local farmers and food producers, in particular women and more marginalised communities. Local food is also more likely to support better and healthier diets.

Policy recommendations:

- Reform land ownership to promote local, small-scale farmers, including promoting land ownership opportunities for women.
- Provide long-term markets for locally produced food to encourage investment and provide financial security to small farmers.
- Support biodiversity and resilience by investing in traditional methods and crop varieties³⁸.
- Implement sustainable agroecological strategies which promote food system resilience and increase productivity, such as water conservation, crop rotation and soil management.
- Use environmental indicators on food labelling, like water use and food miles, to increase transparency and help aid consumer choice.
- Put in place and enforce existing legal, policy and institutional frameworks for the sustainable use and conservation of biodiversity.

5) Ensure that the transition to a more sustainable and ecologically friendly food system is done in a fair and just way.

The climate crisis may be a global crisis, but not every state is equally responsible, equally affected or equally resourced to address the crisis. Marginalised communities, largely in low-income countries, are the least responsible for climate change yet those most vulnerable to its impacts³⁹.

High-income countries must take the lion's share of responsibility for mitigation of climate change while supporting low-income countries to adapt to more suitable processes and outputs. With many LMIC countries dependent on agricultural commodities⁴⁰ as a major part of their economy, such as beef production in Brazil or palm oil in Indonesia, measures must be taken to support economic and agricultural transition as global diets change.

At a national level, farmers and those working in the agricultural sector will require government help and support to ease the transition to more sustainable agriculture and food systems, and to enhance local traditional and agroecological approaches to food production.

Policy recommendations:

- Provide farmers with guaranteed markets for suitable and healthy products.
- Offer finance, training and other support, to assist and facilitate farmers to transition to climate resilient and sustainable agricultural practices.
- Rich countries support lower- and middle-income countries with climate finance and technology transfers to support sustainable and resilient local food production.

References

- ¹ FAO (Food and Agriculture Organization of the United Nations) & WHO (World Health Organization), 2019, Sustainable Healthy Diets: Guiding Principles. [who.int/publications/i/item/9789241516648](https://www.who.int/publications/i/item/9789241516648)
- ² Xiaoming Xu, et al, 2021 Global greenhouse gas emissions from animal-based foods are twice those of plant-based foods, Nature. HYPERLINK "https://www.nature.com/articles/s43016-021-00358-x" [nature.com/articles/s43016-021-00358-x](https://www.nature.com/articles/s43016-021-00358-x)
- ³ FAO (Food and Agriculture Organization of the United Nations), 2019, The State of Food Security and Nutrition in the World: safeguarding against economic slowdowns and downturns. [fao.org/3/ca5162en/ca5162en.pdf](https://www.fao.org/3/ca5162en/ca5162en.pdf)
- ⁴ Development Initiatives, 2020, Global Nutrition Report: Action on equity to end malnutrition. globalnutritionreport.org/reports/2020-global-nutrition-report/
- ⁵ Swinburn et al, 2019, The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report, The Lancet. [thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)32822-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32822-8/fulltext)
- ⁶ IFPRI (International Food Policy Research Institute), 2015, Two billion people suffering from hidden hunger according to 2014 Global Hunger Index. [ifpri.org/news-release/two-billion-people-suffering-hidden-hunger-according-2014-global-hunger-index-even](https://www.ifpri.org/news-release/two-billion-people-suffering-hidden-hunger-according-2014-global-hunger-index-even) and Gödecke et al, 2018, The global burden of chronic and hidden hunger: Trends and determinants, Science Direct. [sciencedirect.com/science/article/pii/S2211912417301578](https://www.sciencedirect.com/science/article/pii/S2211912417301578)
- ⁷ UNICEF, Prevention of Overweight and Obesity in Children and Adolescents. [unicef.org/documents/prevention-overweight-and-obesity-children-and-adolescents](https://www.unicef.org/documents/prevention-overweight-and-obesity-children-and-adolescents)
- ⁸ Swinburn, et al 2019, The global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report, The Lancet. [thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)32822-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32822-8/fulltext) And WRI (World Resources Institute), 2019, World Resources Report: Creating a Sustainable Food Future. [research.wri.org/wrr-food](https://www.research.wri.org/wrr-food)
- ⁹ FAO (Food and Agriculture Organization of the United Nations) & WHO (World Health Organization), 2019, Sustainable Healthy Diets – Guiding Principles. [who.int/publications/i/item/9789241516648](https://www.who.int/publications/i/item/9789241516648)
- ¹⁰ WRI (World Resources Institute), 2019, World Resources Report: Creating a Sustainable Food Future. [research.wri.org/wrr-food](https://www.research.wri.org/wrr-food)
- ¹¹ Harvard School of Public Health, Obesity Prevention Source: The Nutrition Transition Harvard School of Public Health. hsph.harvard.edu/obesity-prevention-source/nutrition-transition/
- ¹² Monteiro, 2019, Ultra-processed foods, diet quality, and health using the NOVA classification system, FAO. [fao.org/3/ca5644en/ca5644en.pdf](https://www.fao.org/3/ca5644en/ca5644en.pdf)
- ¹³ WRI (World Resources Institute), 2019. World Resources Report: Creating a Sustainable Food Future. [research.wri.org/wrr-food](https://www.research.wri.org/wrr-food)
- ¹⁴ Intergovernmental Panel on Climate Change (IPCC), 2019, Climate Change and Land: an IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. [ipcc.ch/srccl/](https://www.ipcc.ch/srccl/)
- ¹⁵ WRI (World Resources Institute), 2019, World Resources Report: Creating a Sustainable Food Future. [research.wri.org/wrr-food](https://www.research.wri.org/wrr-food)
- ¹⁶ IFPRI (International Food Policy Research Institute), The Global Nutrition Report 2016. [ifpri.org/publication/global-nutrition-report-2016-promise-impact-ending-malnutrition-2030](https://www.ifpri.org/publication/global-nutrition-report-2016-promise-impact-ending-malnutrition-2030)
- ¹⁷ Global Panel on Agriculture and Food Systems for Nutrition, 2020, Foresight 2.0, Future Food Systems: For people, our planet, and prosperity. [foresight.glopan.org/](https://www.foresight.glopan.org/)
- ¹⁸ Fore et al, 2020, Child malnutrition and Covid-19: the time to act is now, The Lancet, July 27, 2020. [thelancet.com/journals/lancet/article/PIIS0140-6736%2820%2931648-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2820%2931648-2/fulltext)
- ¹⁹ Global Panel on Agriculture and Food Systems for Nutrition, 2020, Foresight 2.0, Future Food Systems: For people, our planet, and prosperity. [foresight.glopan.org/](https://www.foresight.glopan.org/)
- ²⁰ National Library of Medicine (NIH), 2018, Effect of environmental changes on vegetable and legume yields and nutritional quality. pubmed.ncbi.nlm.nih.gov/29891659/, The impact of environmental changes on the yield and nutritional quality of fruits, nuts and seeds: a systematic review. pubmed.ncbi.nlm.nih.gov/32021645/
- ²¹ Frontiers in Sustainable Food Systems, 2020, Considering Plant-Based Meat Substitutes and Cell-Based Meats: A Public Health and Food Systems Perspective. [frontiersin.org/articles/10.3389/fsufs.2020.00134/full](https://www.frontiersin.org/articles/10.3389/fsufs.2020.00134/full)
- ²² O'Neill, 2016, Tackling drug-resistant infections globally: final report and recommendations, Review on Antimicrobial Resistance. [amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf](https://www.amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf)
- ²³ Interagency Coordination Group on Antimicrobial Resistance, 2019, No time to wait: securing the future from drug-resistant infection, Report to the Secretary-General of the United Nations. [who.int/antimicrobial-resistance/interagency-coordination-group/IACG_final_report_EN.pdf](https://www.who.int/antimicrobial-resistance/interagency-coordination-group/IACG_final_report_EN.pdf)
- ²⁴ Ashkan et al, 2019, Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017, The Lancet. [thelancet.com/article/S0140-6736\(19\)30041-8/fulltext](https://www.thelancet.com/article/S0140-6736(19)30041-8/fulltext)

- ²⁵ The Lancet Global Health, 2020, Affordability of the EAT–Lancet reference diet: a global analysis. [thelancet.com/journals/langlo/article/PIIS2214-109X\(19\)30447-4/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(19)30447-4/fulltext)
- ²⁶ World Bank Group, 2020, Revising Public Agricultural Support to Mitigate Climate Change. openknowledge.worldbank.org/bitstream/handle/10986/33677/K880502.pdf
- ²⁷ IFPRI (International Food Policy Research Institute), 2019, Reforming agricultural subsidies for improved environmental outcomes. foodandlandusecoalition.org/wp-content/uploads/2019/08/Reforming-Agricultural-Subsidies-for-Improved-Environmental-Outcomes-2019_09_06.pdf
- ²⁸ World Bank, 2020, Revising Public Agricultural Support to Mitigate Climate Change. openknowledge.worldbank.org/bitstream/handle/10986/33677/K880502.pdf
- ²⁹ Global Panel on Agriculture and Food Systems for Nutrition, 2020, Foresight 2.0, Future Food Systems: For people, our planet, and prosperity. foresight.glopan.org/
- ³⁰ WHO (World Health Organization), 2021, Nature, Biodiversity and Health: An overview of interconnections. apps.who.int/iris/bitstream/handle/10665/341376/9789289055581-eng.pdf
- ³¹ Carbon Brief, 2021, Food systems responsible for ‘one third’ of human-caused emissions. [carbonbrief.org/food-systems-responsible-for-one-third-of-human-caused-emissions](https://www.carbonbrief.org/food-systems-responsible-for-one-third-of-human-caused-emissions)
- ³² Edie, 2021, Biodiversity loss: Agriculture ‘threatening 86% of at-risk species’, says major UN-backed report. [edie.net/news/12/Biodiversity-loss--Agriculture--threatening-86--of-at-risk-species---says-major-UN-backed-report/](https://www.edie.net/news/12/Biodiversity-loss--Agriculture--threatening-86--of-at-risk-species---says-major-UN-backed-report/)
- ³³ FAO (Food and Agriculture Organization of the United Nations), 2019, The biodiversity that is crucial for our food and agriculture is disappearing by the day. [fao.org/news/story/en/item/1180463/icode/](https://www.fao.org/news/story/en/item/1180463/icode/)
- ³⁴ Foodtank, 2021, Monoculture Could Worsen Vulnerability to Climate Change. [foodtank.com/news/2021/02/monoculture-could-worsen-vulnerability-to-climate-change/](https://www.foodtank.com/news/2021/02/monoculture-could-worsen-vulnerability-to-climate-change/)
- ³⁵ Acclimatise, 2020, Crop diversity improves biodiversity and builds climate resilience finds new research. [acclimatise.uk.com/2020/04/22/crop-diversity-improves-biodiversity-and-builds-climate-resilience-finds-new-research/](https://www.acclimatise.uk.com/2020/04/22/crop-diversity-improves-biodiversity-and-builds-climate-resilience-finds-new-research/)
- ³⁶ World Agriculture, 2017, Crop Diversity for Human Nutrition and Health Benefits. [world-agriculture.net/article/crop-diversity-for-human-nutrition-and-health-benefits](https://www.world-agriculture.net/article/crop-diversity-for-human-nutrition-and-health-benefits)
- ³⁷ United Nations, 2020, The Sustainable Development Goals Report 2020. unstats.un.org/sdgs/report/2020/goal-02/
- ³⁸ Mabhaudhi, et al, 2019, Mainstreaming Underutilized Indigenous and Traditional Crops into Food Systems: A South African Perspective, MDPI. [mdpi.com/2071-1050/11/1/172](https://www.mdpi.com/2071-1050/11/1/172)
- ³⁹ The Lancet Planetary Health, 2020, The Paris agreement: charting a low-emissions path for a child born today. [thelancet.com/journals/lanplh/article/PIIS2542-5196\(19\)30246-3/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(19)30246-3/fulltext)
- ⁴⁰ UNCTAD (United Nations Conference on Trade and Development), State of Commodity Dependence 2019. unctad.org/system/files/official-document/ditcom2019d1_en.pdf

This briefing is supported by the following organisations:



Climate Change
& Planetary
Health



HCN is sponsored by the Wellcome Trust.



This is part of a series of HCN Briefings. Others include:

- *Energy systems that protect climate and health*
- *Transport systems that protect climate and health*
- *Sustainable and climate resilient health systems.*