

DIETARY



Global Review of Dietary Shift Solutions

The Dietary Shift Competition



A collaboration between EAT, the Global Alliance for Improved Nutrition (GAIN), and The Food and Land Use Coalition (FOLU).

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The purpose of this report is to inform participants in the Dietary Shift Competition (DISH) and interested parties about the need for dietary shifts, as well as present examples of existing global solutions.

This paper is complemented by a local review, where stakeholder interviews and literature review describe local circumstances and various dietary shift solutions specific to Kenya and Indonesia.

1 Introduction and Background

Local and global diets urgently need to be transformed due to persistent hunger, malnourishment and the transgression of safe and just planetary boundaries.

However, encouraging dietary shifts requires overcoming vested interests, as well as political, cultural, and regional differences. Solutions for dietary shifts therefore need to be actionable, agreeable and adapted to local circumstances and preferences.

The groundbreaking 2019 report [‘Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems’](#) developed global scientific targets for such a shift (Willet et al., 2019). The commission found that it is possible to provide healthy diets for 10 billion people within planetary boundaries, but only by transforming what and how we produce and eat, while drastically reducing waste. The healthy reference diet recommended by the EAT-Lancet Commission, commonly known as the Planetary Health Diet (PHD), has outlined what sustainable food consumption looks like and allows for diversity based on cultural, regional and personal preferences. An updated version of the Planetary Health Diet is expected in the second half of 2025, when the EAT-Lancet Commission 2.0 publishes its report.

To help ground the recommendations from the EAT-Lancet Commission and the recent Food System Economics Commission (FSEC) (Ruggeri Laderchi et al., 2024), into actionable, acceptable and context-based local solutions, EAT and The Global Alliance for Improved Nutrition (GAIN) came together in this collaborative project, with support from Food and Land Use Coalition (FOLU). The project focuses on the FOLU/GAIN member countries Kenya and Indonesia, and will allow for a smoother transition towards the recommendations of the upcoming EAT-Lancet Commission 2.0.

The project is divided into two phases. In Phase 1, we aim to identify 10-14 integrated, viable solutions that are country-generated, context specific for dietary shifts in each country with a foundation in existing global solutions. These will be identified through a local competition in Kenya and Indonesia. In Phase 2, we will work closely with local stakeholders and policymakers to implement the winning solutions to support local-specific and equitable dietary shifts celebrating each country’s unique culture and identity. The project goal is to successfully implement strategies that operationalize the EAT-Lancet 2.0 recommendations by 2028, thereby positively impacting the lives of millions of people.

2 The Science

Our current food systems put enormous pressures on climate, nature, and biodiversity, and exacerbate inequalities and health problems. While the food system has succeeded in keeping pace with a growing population, distribution of calories is uneven, and has led to undernourishment, obesity, and micronutrient deficiencies. Globally, between 713 and 757 million people are undernourished, including 45 million children suffering from wasting, the most immediate and life-threatening form of malnutrition (FAO et al., 2024).

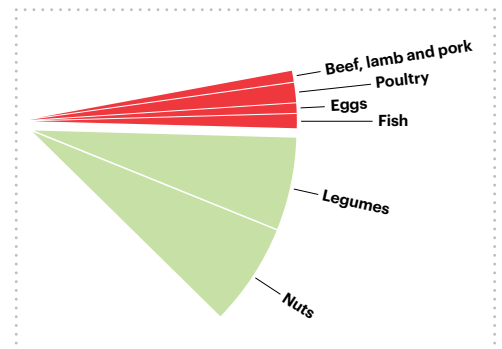
One in two school-aged children and two-thirds of women of reproductive age worldwide are affected by micronutrient deficiencies (Stevens et al., 2022). At the same time, prevalence of diseases associated with high-calorie, unhealthy diets are increasing, with 175 million children and adolescents, and 881 million adults suffering from obesity (World Obesity Federation, 2024; FAO et al., 2024). We have observed a steady increase in obesity over the last decade, from 12 percent among adults in 2012 to almost 16 percent in 2022.

Undernourishment is also on the rise, as around 9.1 percent of the global population (733 million mid-point estimate) were estimated to be undernourished in 2023, an increase of about 152 million from 2019 (FAO et al., 2024).

The environmental impacts of food systems are also rising. We are currently pushing the world beyond six of the nine planetary boundaries (Richardson et al., 2023), with food production and consumption as a driving factor. Agriculture and food production claim almost half of the world's habitable land (Ritchie & Roser, 2024), are responsible for up to 30 percent of global greenhouse gas emissions (Tubiello et al., 2021) and 70 percent of freshwater withdrawal (Fujs & Kashiwase, 2023). Conversion of natural ecosystems to croplands and pastures is the biggest cause of biodiversity loss (Tilman et al., 2017), nearly 40 percent of world fish stocks are fished at unsustainable levels (FAO, 2024), and the rapidly expanding aquaculture sector has negative effects on coastal habitats, freshwater, and terrestrial systems.



Figure 1:
The Planetary Health Plate



The urgency for food systems transformation has never been greater, and dietary shifts are key to achieving this. The Intergovernmental Panel on Climate Change (IPCC) highlighted in its latest assessment report that shifts to healthy and sustainable diets has substantial potential to mitigate greenhouse gas emissions, while also providing positive health effects (IPCC, 2023).

Moreover, the 2024 Food System Economics Commission (FSEC) report from 2024—a joint initiative from the Food and Land Use Coalition (FOLU), Potsdam Institute for Climate Impact Research (PIK), and EAT—presented the economic case for food system transformation. FSEC estimates that transforming our food systems to become more inclusive, environmentally sustainable, and health enhancing, will provide global economic benefits worth 5-10 trillion USD a year, up to 20 times greater than the transformation costs (Ruggeri Laderchi et al., 2024). Dietary shifts are key to unlocking these benefits.

The 2019 EAT-Lancet Commission defined global boundaries for healthy diets and environmentally sustainable food systems. Through a careful review of the science on diets and health and the planetary boundaries, the commission suggests a healthy and sustainable reference diet known as the Planetary Health Diet (PHD) (Willett et al., 2019).

In short, the PHD describes universal healthy dietary patterns that includes a diversity of plant-based foods, moderate amounts of animal source foods, whole grains rather than refined grains, unsaturated rather than saturated fats, and small amounts of highly processed foods and added salt and sugar (see Figure 1). More specifically, the reference diet largely consists of vegetables, fruits, whole grains, legumes, nuts, and unsaturated oils, and includes a low to moderate amount of dairy, seafood, poultry, eggs, and red meat.

The PHD has been scrutinized with regards to nutrient adequacy and universal applicability across geographies and population groups

with diverging food cultures, preferences, and nutritional needs. A common misconception has been that the EAT-Lancet Commission proposed a “one size fits all” solution. However, although the definition of a healthy diet and corresponding healthy intake of major food groups is universal, the commission recognized that the PHD might seem extreme or unfeasible to some individuals or populations (Panel 2 in Willett et al., 2024). The commission noted that necessary dietary shifts may look different in different parts of the world—highlighting that among food insecure or malnourished populations, an increase in both healthy plant-based and animal-source foods are required to achieve a healthy diet (Panel 2 in Willett et al., 2024).

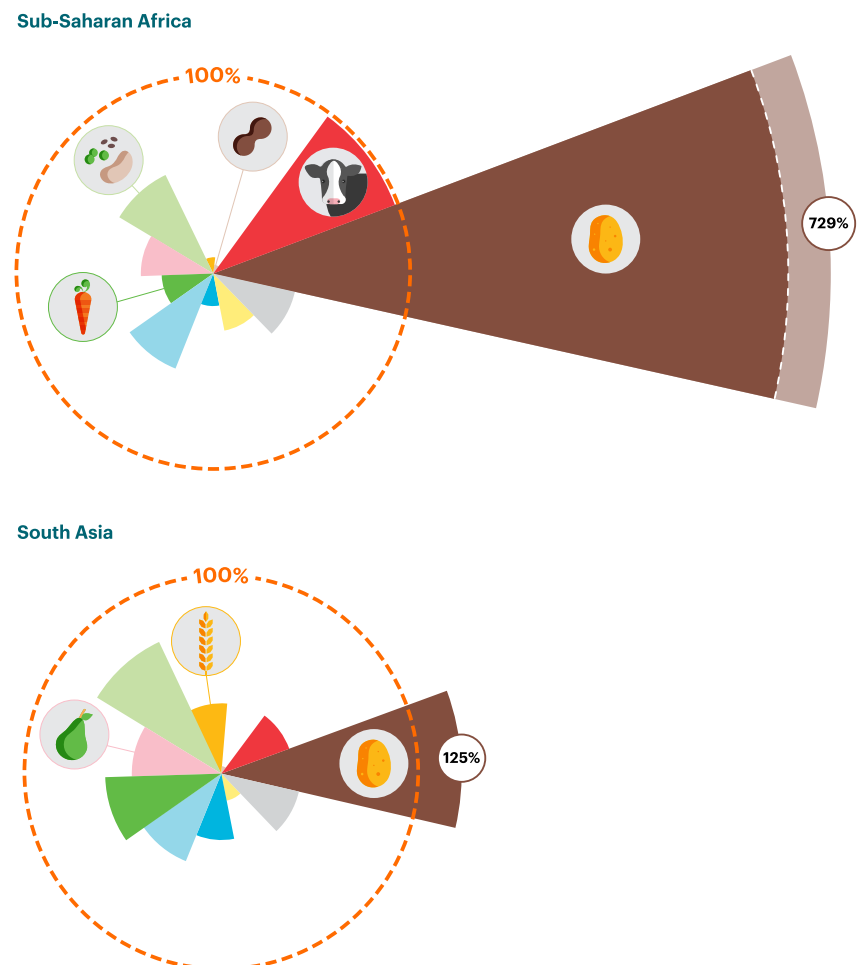


Figure 2: The “diet gap” between current dietary patterns and intakes of food in the planetary health diet.

EAT-Lancet Commission 2.0 will update and expand the evidence base for healthy diets, provide greater regional and cultural acceptability and careful attention to dietary diversity and nutritional adequacy. The preliminary findings very much support the current composition of the PHD, encouraging local adaptations. Moreover, the preliminary findings maintain that achieving healthy and sustainable food for all will require major dietary shifts in most regions of the world. There is a global need

to increase consumption of healthy foods such as whole grains, vegetables, fruits, legumes, and nuts. Some regions or populations would benefit from reduced consumption of animal source foods, especially red meat, while other populations would benefit from increased consumption of healthy animal source foods to address malnutrition (Figure 2).

EAT-Lancet Commission 2.0 will review potential solutions for dietary shifts based on the latest evidence. Several solutions promoting dietary

shifts have already been implemented by countries and municipalities, and there is a growing number of reports presenting potential solutions, some of which have been reviewed in this report.

3 Solutions for Dietary Shifts

There is a broad range of potential solutions to promote dietary shifts, targeting everything from production to consumption. Some solutions can provide results in isolation, while others should be integrated and work together to enhance each other. Some interventions (i.e., school food programs, reformulation, fiscal measures) reduce socio-economic differences in diets, and increasing purchasing power seems more effective than reducing prices among low-income individuals and populations. Innovation can be important to boost the supply of nutritious foods in cities and towns. Capacity building and increasing knowledge is important to boost the effectiveness of positive advertisements and other behavior change efforts.

Affordability of food, determined by prices and disposable income, is crucial to healthy food consumption. Research consistently shows that food purchases and consumption are inversely related to food prices and positively associated with purchasing power.

Governments can play a critical role in addressing malnutrition and reducing the burden of diet-related non-communicable diseases (NCDs) through public policies that foster food environments conducive to healthy diets (WHO, 2024). Effective regulation of private sector activities, known as the commercial determi-

nants of health, is essential. However, the private sector often influences public health policy and regulation through lobbying and other actions.

Agribusinesses, manufacturers, and retailers significantly influence food prices, affordability, availability, safety, and desirability. In the current food systems, it has become challenging for consumers to make healthy and affordable choices that align with optimal nutrition outcomes. While the cost of a healthy diet varies across major world regions and World Bank income groupings, a healthy diet that reflects global guidelines is currently unaffordable for almost 3.1 billion people. Conversely, unhealthier options, such as sugar-sweetened beverages (SSBs), have become increasingly affordable.

The various solutions for dietary shifts reviewed in this report are grouped under five larger categories: regulation and policy, product reformulation and culinary strategies, design of food service or food retail strategies, advertisement and cultural strategies, and technology. The next chapter includes a snapshot of existing global solutions for each category, with the aim to serve as a snapshot of some of the most important solutions to shift diets.

3.1 Regulation and policy

This category includes initiatives that aim to encourage consumption of healthy and sustainable foods or restrict consumption of unhealthy and unsustainable foods through financial (subsidies, taxes or other financial incentives), legal (laws and judicial frameworks), and/or regulatory (rules, guidelines or directives issued by government agencies) measures.

Examples include price regulation and better alignment of taxes and subsidies, marketing and advertising regulations, food labeling, school food programs and other public food procurement programs, nutrition-sensitive social protection programs, and nutrition-sensitive agriculture programs (e.g., production subsidies or repurposing agricultural policies toward nutritious foods).

The consumption of targeted foods can be reduced by taxes and increased by subsidies, due to their effect on food prices. The State of Food Security and Nutrition in the World 2023 report summarizes that taxation of unhealthy foods and beverages has been implemented in 85 countries for SSB and 29 countries for other unhealthy foods. The report shows clear evidence of taxation being a disincentive for buying these foods, contributing to shifting the demand towards more nutritious foods with related health benefits (FAO et al., 2023). In a review by WHO, taxes on SSB were found to increase prices and reduce consumption of taxed beverages,

both in high-income countries and low- and middle-income countries (WHO, 2024). Findings also suggest that lower socio-economic groups are more responsive to price changes in SSB products compared to other groups. Evidence for effectiveness of taxes on other unhealthy products is less robust.

Furthermore, subsidies for healthy foods have been suggested to support positive dietary shifts. Subsidies can be implemented at various levels of the food system. At production and distribution level, options include implementing or reallocating agricultural subsidies to promote production of healthy diverse foods, or VAT reductions on fruit and vegetables or other healthy foods (FSEC, 2024b). This can increase supply, reduce prices, and improve accessibility and affordability of healthy foods for all. Currently, most agricultural support favors larger producers and is often linked to negative environmental and health impacts. In Mexico, subsidies for fruits, vegetables, nuts, and legumes have shown a potential return on investment of more than 200:1, demonstrating the significant benefits of this approach (FSEC, 2024b).

At consumer level, nutrition-sensitive social protection programs targeting low-income individuals or families can provide food vouchers for healthy food options or cash transfers. Although cash transfers may not specifically target healthy food intake, evidence suggests that increased purchasing power is associated with more diverse and healthy food purchases (Huangfu et al., 2024).

Another documented policy tool is labeling, including front-of-pack labeling (FOPL), nutrition labeling, environment labeling, and certifications. Such labeling could potentially help consumers make informed food choices that are healthier and more sustainable. FOPL should be comprehensive, simple and compelling for consumers to understand, including for illiterate people. There are existing labeling schemes that are intended to be attractive to consumers such as Multiple Traffic Lights and Nutri-Score. There is emerging evidence showing that colored and highly interpretive labels on food products guide consumers towards healthier

Photo: [Erly Tatontos / World Bank](#)



options and keeps them away from unhealthier ones (Pettigrew et al., 2023).

Healthy and sustainable school food programs and other public procurement programs provide benefits across multiple sectors. Estimates indicate that school meal programs offer a benefit-cost ratio ranging from USD 7 to USD 35 for every USD 1 invested, depending on the context. The positive impacts are particularly pronounced for poor households and girls. The returns span at least four sectors: agriculture, education, health and nutrition, and social protection. However, there is variation in the strength of evidence supporting the effects across these sectors. Additionally, there are other sectors where the returns have not yet been adequately quantified, despite their political and social significance. These include gender equality, in terms of the impact on girls' education, and peacebuilding, in terms of the role of schools in post-conflict reconstruction and community building (Bundy et al., 2024). Healthy school food programs and other public procurement programs could be based on national food-based dietary guidelines.

National food-based dietary guidelines (FBDG) are considered a primary tool to communicate healthy eating advice to populations and act as a basis for policy development. Studies have shown that FBDG can be useful to guide transition from current consumption patterns towards healthier and more sustainable food consumption (Wood et al., 2023; FAO & WHO 2019; Springmann et al., 2020; Springmann et al., 2023). Development of sustainable food-based dietary guidelines, including capac-

ity building to translate recommendations to tangible meals and dishes, has therefore been recommended as an important starting point for enabling policies that contribute to human health, as well as to environmental sustainability.

Regulations on marketing and advertising of unhealthy products, especially targeting children, can also be a powerful solution. Advertising is frequently and increasingly used by the food industry, particularly for ultra-processed foods and fast foods targeting children. Evidence shows that self-regulation through voluntary guidelines is largely ineffective in reducing this type of food advertisements, partly due to companies prioritizing profitability in a competitive market (Global Panel on Agriculture and Food Systems for Nutrition, 2020). A study in Brazil showed that 80 percent of 1,610 food and beverage advertisements on free-to-air TV did not meet health standards and were subject to marketing restrictions. Governments can force strict laws and regulations to decrease such negative exposure. In South Korea, legislation has led to a decline in children's exposure to food-related marketing. A review of 79 countries with policies restricting junk food marketing found a decrease in sales per capita, while countries without such policies saw an increase (ibid.).

3.2 Product reformulation and culinary strategies

Product reformulation and other culinary strategies can enhance the nutritional quality and appeal of foods. Examples include new products or product reformulation, and innovations in packaging of fresh foods.

Innovations in food packaging can contribute to maintaining the quality, safety, and nutritional value of food products, while also making healthy options more appealing. It can lead to reduced food loss and waste, hence more fresh and healthy foods available for consumers. As a consequence, better packaging can potentially reduce the cost of nutritious foods (FAO et al., 2023). Another benefit is reduced food loss and waste. More sustainable alternatives to plastic packaging include bio-packaging solutions from organic waste streams or circular packaging solutions, i.e., returnable and reusable packaging (FAO et al., 2023).



Photo: Maria Fuchs/Adobe Stock

3.3 Design of food service or food retail strategies

Healthy and sustainable food options should be portrayed as enjoyable, filling, and aspirational, leading them to become the preferred choice. This solution category includes measures to improve choice offerings and change consumer mindsets through menu choices in restaurants and public canteens, and the design of supermarkets.

A prevalent solution in restaurants, canteens, and food retail is nudging consumers towards healthier food options. Suggested strategies in restaurants and canteens include having a default healthy and sustainable choice, such as designating a vegetarian dish as the “lunch special”,

reducing plate and portion size, making the healthier option the cheapest option, e.g., water being cheaper than soda, and disclosing health and environmental impacts of the menu options. Strategies that eliminate the need for an active decision-making process by having a healthy and sustainable default choice, can be effective (Jungsberg et al., 2024).

Strategical placement of products can steer consumer behavior towards healthier and more eco-friendly choices in supermarkets. According to UNICEF-commissioned studies from 2019, 65 percent of products sold in supermarkets are processed foods while only 15 percent are fresh products (UNICEF, 2019). This can be attributed to in-store marketing

Table 1:
Examples of strategies in food retail or food service.
(Reich et al., 2021)

Strategies in food retail or food service

Behavioural Intervention	Examples
Default Rules	Implementing ‘meatless days’ in public canteens
	Making the default choice a healthy and/or sustainable one (while continuing to make others available)
Simplification	Simplifying access to healthy and sustainable vegetarian menu choices
	Ensuring all food service outlets offer at least one healthy and sustainable choice
Increase in ease and convenience	Making the healthy and sustainable choice the cheapest one e.g., offering water in a cheaper price than alcohol
	Making low-carbon options more visible and access easy and convenient
Disclosure	Disclosure of environmental costs associated with unsustainable food products on a menu
Warnings	Colored carbon warning labels on unhealthy and unsustainable meat products
Physical or digital micro-environment changes that alter the context of a choice	Ordering products on shelf spaces in supermarkets or of choices on a website; changing the affordances and signaling atmosphere of a building
Priming	Using visual or spatial or other primes (e.g., store design, signs in shops)

practices, e.g., store layout, coupons, end-of-aisle displays, price, and sampling programs. Such practices have enormous potential to influence consumers, particularly children and adolescents, and motivate them to purchase healthier and more sustainable food options. In Chile, one of the supermarket chains partnered with Disney on a campaign to promote healthy eating under the slogan “Eating healthy is fun” (UNICEF, 2019). Fruits, vegetables and nuts were promoted by Disney characters, with packaging that provided information on nutritional content and the benefits of a healthy diet.

3.4 Advertisement, behavior change, and cultural strategies

Increasing the knowledge and capacity of consumers and key food systems actors to make healthy and sustainable food choices, can increase the effect of other behavior-influencing solutions, such as nudging, food environment interventions and positive advertisement. This solution category includes measures that influence behavior and consumer mindsets through advertisements. The use of social media and strong role models should not be underestimated as a means of promoting diet shifts. Available tools include communication technologies, shared cultural and social experiences, and social movements (See Table 2).

Achieving the level of societal change required for these dietary shifts necessitates collective action. It calls for multisector and innovative collaboration.

Successful social and behavior change (SBC) interventions make use of a combination of informational, technological, and social platforms (e.g., educational institutions, mobile phone technology, mass media, social groups, or gatherings) to apply behavior change techniques. This can include providing written instructions or demonstrations, such as cooking or feeding sessions, information on benefits or negative consequences, e.g., through posters or TV/radio spots, or using a credible or influential source, such as campaigns with respected leaders or celebrities (IFPRI, 2024). SBC interventions have proven to be successful in influencing consumer behaviors towards consumption of healthy foods and improved dietary diversity, but less successful in reducing consumption of unhealthy foods.

Table 2:
Examples of behavior change strategies.
(Reich et al., 2021, p. 4)

Behavior change strategies	
Behavioural Intervention	Examples
Use of social norms	Emphasizing what most people are doing and eating
Pre-commitment strategies	Self-pledge to reduce food waste by a certain percentage
Reminders	Reminding people of their plans, e.g., via e-mail or text message
Eliciting implementation intentions	Asking: “Do you plan to eat more vegetables and fruits today?”
Informing people of the nature and consequences of their own past choices	Disclosing what earlier food choices meant, e.g., in GHG savings

3.5 Technology and innovation

This category encapsulates new and innovative technologies, methods, and structural designs to encourage dietary shifts, and can complement several of the solutions in previous categories. Technology and innovation can contribute to increased efficiency, inclusiveness, resilience and sustainability of food systems (FAO et al., 2023). However, potential trade-offs and co-benefits must be considered. Automation can, for instance, increase unemployment, especially for manual laborers/low-skilled workers, while it on the other hand also has the potential to stimulate employment in logistics and processing due to increased production.

Innovations in digital technologies may risk increasing the digital divide across socioeconomic groups (e.g., income, gender, age) and geographies (e.g., rural and urban populations) in addition to raising concerns around control of information and power, democracy and human rights (FAO et al., 2023).

Farm workers use water pumped from a solar water pump in the village of Jagadhri, in Haryana, India. Photo: [Prashanth Vishwanathan / IWMI Flickr Photos](#)

Online food sharing services to redistribute food surpluses across local communities and supermarkets can lead to cheaper access to food coupled with reduced food waste (FAO et al., 2023). Food sharing can be between food outlets, from food outlets to food distribution services, or directly from food outlets to consumers via mobile apps.

Another relevant solution can be “food labs” (FAO et al., 2023), which refers to bringing together a group of people in complementary roles in

order to find novel solutions to complex challenges, including food insecurity and unaffordability of healthy diets. Experimenting with technologies, policies, participatory approaches, actions and ideas can be important for innovation and capacity building. As an example, food labs have executed food dialogues, research, and workshops with diverse actors, including marginalized groups, in order to generate stakeholder awareness (FAO et al., 2023).



4 Conclusion

The evidence linking food systems to some of the world’s biggest challenges is strong. The potential to reap multiple benefits by transforming food systems is demonstrated from climate, economic, biodiversity, and health perspectives. Shifting diets to be healthier and more sustainable is one of the strongest levers for positive change.

This review of dietary shift solutions focuses on highlighting a few solutions under five overarching categories: regulation and policy, product reformulation and culinary strategies, design of food service or food retail strategies, advertisement and cultural strategies, and technology.

All solutions for dietary shifts need to carefully maneuver a complex landscape of vested interests, including from producers, policymakers, and retail, as well as ingrained

cultural norms and traditional practices. The solutions for dietary shifts in this document are only meant to serve as a snapshot of what is already out there. The impacts of dietary shift solutions can provide valuable examples for others to follow.

In addition to showing further impacts of change, dietary shift solutions need stronger accountability and ways of measuring success. This starts by identifying and agreeing on what dietary patterns already exist in the country in question, and to agree on what the optimal healthy and sustainable diet looks like in different countries, cultures and contexts.

There is a need for stronger multi stakeholder collaborative efforts around dietary shifts to keep all actors in the food system accountable and increase the chance of lasting impacts.

References

- Afshin, A., Sur, P.J., Fay, K.A.,... Murray, C. J. L. (2019). 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 [https://doi.org/10.1016/S0140-6736\(19\)30041-8](https://doi.org/10.1016/S0140-6736(19)30041-8)
- Bundy, D. A.P., Gentilini, U., Schultz, L. B., Bedasso, B. E., Singh, S., Okamura, Y., Iyengar, H. TMM. & Blakstad, M. M. (2024). School Meals, Social Protection, and Human Development: Revisiting Trends, Evidence, and Practices in South Asia and Beyond (English). Social Protection and Jobs Discussion Paper; No. 2401 Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/099041224184540055/P17869113518c10a-718069136ea8f15e424>
- FAO. 2024. The State of World Fisheries and Aquaculture 2024 – Blue Transformation in action. Rome. [The State of World Fisheries and Aquaculture \(fao.org\) https://openknowledge.fao.org/items/39252084-8b0b-4492-b527-a431d5ded151](https://openknowledge.fao.org/items/39252084-8b0b-4492-b527-a431d5ded151)
- FAO, IFAD, UNICEF, WFP & WHO. (2023). The State of Food Security and Nutrition in the World 2023. Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum. Rome, FAO. <https://doi.org/10.4060/cc3017en>
- FAO, IFAD, UNICEF, WFP & WHO. (2024). The State of Food Security and Nutrition in the World 2024 – Financing to end hunger, food insecurity and malnutrition in all its forms. Rome. <https://doi.org/10.4060/cd1254en>
- FAO & WHO. (2019). Sustainable healthy diets – Guiding principles. Rome. <http://www.fao.org/3/ca6640en/CA6640EN.pdf>
- Food System Economics Commission. (2024a). The Hidden Costs of Food. Accessed 28 July 2024 from: <https://foodsystemeconomics.org/hidden-food-costs/>
- Food System Economics Commission. (2024b). Food System Economics Commission, Policy Brief 4; The Dietary Shift, accessed 24 July 2024 from: https://foodsystemeconomics.org/wp-content/uploads/FSEC_Policy_Brief_Diets_v1.3.pdf
- Fujs, T. & Kashiwase, H. (2023). World Bank Blogs. Strains on freshwater resources: The impact of food production on water consumption. Accessed 27 July 2024 from <https://blogs.worldbank.org/en/opendata/strains-freshwater-resources-impact-food-production-water-consumption#:~:text=Today%2C%20around%2070%20percent%20of,goes%20to%20the%20industrial%20sector>
- Global Panel on Agriculture and Food Systems for Nutrition. (2020). Chapter 7, Encouraging demand: making sustainable, healthy diets desirable. In: Future Food Systems: For people, our planet, and prosperity. London, UK.
- Huangfu, P., Pearson, F., Abu-Hijleh, F.M., Wahlich, C., Willis, K., Awad, S.F., Abu-Raddad, L.J., & Critchley, L.A. (2024). Impact of price reductions, subsidies, or financial incentives on healthy food purchases and consumption: a systematic review and meta-analysis. *Lancet Planet Health* 2024; 8: e197–212 [https://doi.org/10.1016/s2542-5196\(24\)00004-4](https://doi.org/10.1016/s2542-5196(24)00004-4)
- International Food Policy Research Institute (IFPRI). (2024.) 2024 Global Food Policy Report: Food Systems for Healthy Diets and Nutrition. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/141760>
- IPCC. (2023). Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland.
- Jungsverg, L., Berlina, A., Ormstrup, L., Guðmundsdóttir, H., Ueland, Ø. (2024). Policy tools for sustainable and healthy eating: Enabling a food transition in the Nordic countries. Nord 2024:007 ISBN 978-92-893-7809-3 PDF. <http://dx.doi.org/10.6027/nord2024-007>
- Mbow, C., Rosenzweig, C., L.G. Barioni, L.G., Benton, T.G., Herretero, M., Krishnapillai, M., Liwenga, E., Pradhan, P., Rivera-Ferre, M.G., Sapkota, T., Tubiello, F.N. & Xu, Y. (2019). Food Security. In: 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 [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D.C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. <https://doi.org/10.1017/9781009157988.007>
- Pettigrew, S., Jongenelis, M. I., Jones, A., Hercberg, S. & Julia, H. (2023). An 18-country analysis of the effectiveness of five front-of-pack nutrition labels, Food Quality and Preference, Vol. 104, 2023, 104691, ISSN 0950-3293, <https://doi.org/10.1016/j.foodqual.2022.104691>
- Ritchie, H. (2021). “How much of global greenhouse gas emissions come from food?” Published online at OurWorldInData.org. Retrieved from: <https://ourworldindata.org/greenhouse-gas-emissions-food>

- Ritchie, H. & Roser, M. (2024). “Half of the world’s habitable land is used for agriculture” Published online at OurWorldInData.org. Retrieved from: <https://ourworldindata.org/global-land-for-agriculture>
- Richardson K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S., Donges, J. F., Drüke, M., Fetzer, I., Bala, G., von Bloh, W., Fuelner, G., Fiedler, S., Gerten D., Gleeson, T., Hofmann, M., Huiskamp, W., Kummu, M., Mohan, C., Nogués-Bravo, D.,...Rockström, J. (2023). Earth beyond six of nine planetary boundaries. *Sci. Adv.* 9, eadh2458(2023). DOI:10.1126/sciadv.adh2458
- Reisch, L.A., Sunstein, C.R., Andor, M.A., Doebbe, F.C., Meier, J., Haddaway, N.R. (2021) Mitigating climate change via food consumption and food waste: A systematic map of behavioral interventions, *Journal of Cleaner Production*, Volume 279, 2021, 123717, ISSN 0959-6526, <https://doi.org/10.1016/j.jclepro.2020.123717>
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F. S., Lambin, E. F., Lenton, T. M., Cheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U.,... Foley, J. A. (2009). A safe operating space for humanity. *Nature* 461, 472–475. <https://doi.org/10.1038/461472a>
- Ruggeri Laderchi, C., Lotze-Campen, H., DeClerck, F., Bodirsky, B.L., Collignon, Q., Crawford, M.S., Dietz, S., Fesenfeld, L., Hunecke, C., Leip, D., Lord, S., Lowder, S., Nagenborg, S., Pilditch, T., Popp, A., Wedl, I., Branca, F., Fan, S., Fanzo, J.,...Songwe, V. (2024). The Economics of the Food System Transformation. Food System Economics Commission (FSEC), Global Policy Report [FSEC-Global-Policy-Report-February2024.pdf](https://www.foodsystemeconomics.org/FSEC-Global-Policy-Report-February2024.pdf) ([foodsystemeconomics.org](https://www.foodsystemeconomics.org))
- Springmann, M., Spajic, L., Clark, M.A., Poore, J., Herforth, A., Webb, P., Rayner, M. & Scarborough, P. (2020). The healthiness and sustainability of national and global food based dietary guidelines: modelling study. *BMJ*. 2020;370:m2322. <https://www.bmj.com/content/370/bmj.m2322>
- Springmann, M., Wiebe, K., Mason-D’Croz, D., Sulser, T.B., Rayner, M. & Scarborough, P. (2018). Health and nutritional aspects of sustainable diet strategies and their association with environmental impacts: a global modelling analysis with country-level detail. *Lancet Planet Health* 2018; 2: e451–61. Available from: [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(18\)30206-7/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(18)30206-7/fulltext)
- Stevens, G.A., Beal, T., Mbuya, M.N.N., Luo, H., Neufeld, L.M., on behalf of the Global Micronutrient Deficiencies Research Group. (2022). Micronutrient deficiencies among preschool-aged children and women of reproductive age worldwide: a pooled analysis of individual-level data from population-representative surveys. *Lancet Glob Health* 2022; 10: e1590–99 [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(22\)00367-9/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(22)00367-9/fulltext)
- Tilman, D., Clark, M., Williams, D.R., Kimmel, K., Polasky, S., & Packer, C. (2017). Future threats to biodiversity and pathways to their prevention. *Nature* 2017; 546: 73–81. [Future threats to biodiversity and pathways to their prevention | Nature](https://doi.org/10.1038/nature21498)
- Tubiello, F.N., Rosenzweig, C., Conchedda, G., Karl, K., Gütschow, J., Xueyao, P., Obli-Laryea, G., Wanner, N., Qiu, S.Y., Barros, J.D., Flammini, A., Mencos-Contreras, E., Souza, L., Quadrelli, R., Heiðarsdóttir, H.H., Benoit, P., Hayek, M., & Sandalow, D. (2021). Greenhouse gas emissions from food systems: building the evidence base. *Environ. Res. Lett.* 16, 065007. <https://doi.org/10.1088/1748-9326/ac018e>
- UNICEF Regional Office for Latin America and the Caribbean (2019). ‘Childhood Overweight and the Retail Environment in Latin America and the Caribbean: Synthesis report’. United Nations Children’s Fund, Panama City. [UNICEF-Childhood Obesity and the Retail Environment LAC \(1\).pdf](https://www.unicef.org/lac/publications/Childhood-Overweight-and-the-Retail-Environment-LAC-1.pdf) ([cesni-biblioteca.org](https://www.unicef.org/lac/publications/Childhood-Overweight-and-the-Retail-Environment-LAC-1.pdf))
- Wood, A., Moberg, E., Curi-Quinto, K., Van Rysselberge, P. & Röös, E. (2023). From “good for people” to “good for people and planet” – Placing health and environment on equal footing when developing food-based dietary guidelines. *Food Policy*. 117:102444. <https://linkinghub.elsevier.com/retrieve/pii/S0306919223000428>
- WHO. (2024). Fiscal policies to promote healthy diets: WHO guideline. Geneva: World Health Organization. [Fiscal policies to promote healthy diets: WHO guideline](https://www.who.int/publications/m/item/fiscal-policies-to-promote-healthy-diets-who-guideline)
- Willett, W., Rockstrom, J., Loken, B.,...Murray, C.J.L. (2019). Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. Vol 393, ISSUE 10170, P447-492. [https://doi.org/10.1016/S0140-6736\(18\)31788-4](https://doi.org/10.1016/S0140-6736(18)31788-4)