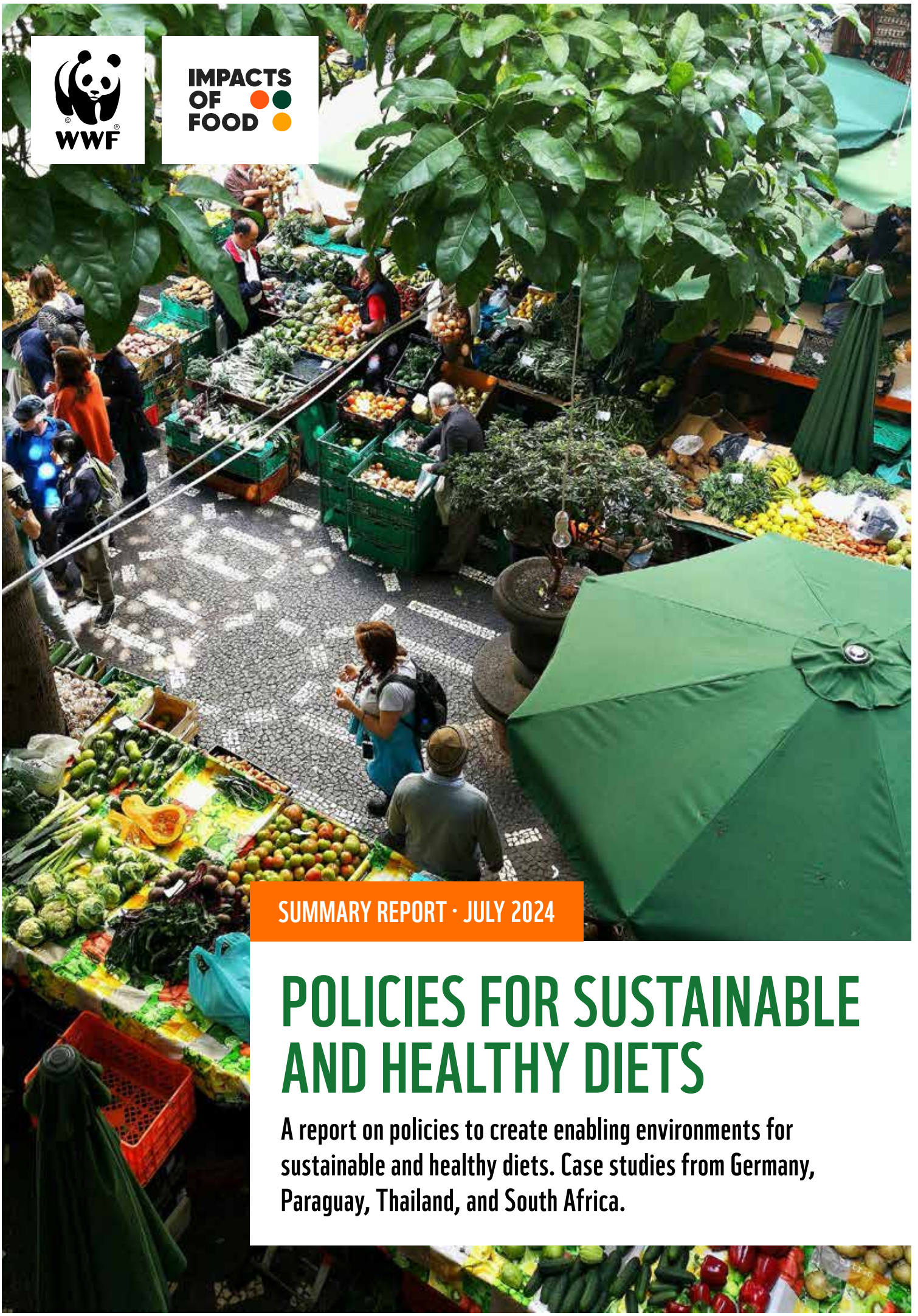




**IMPACTS
OF
FOOD**



SUMMARY REPORT · JULY 2024

POLICIES FOR SUSTAINABLE AND HEALTHY DIETS

A report on policies to create enabling environments for sustainable and healthy diets. Case studies from Germany, Paraguay, Thailand, and South Africa.

This summary report has been prepared by Nicole Holliday, Stephanie Pitt, and Peter von Philipsborn from the Chair of Public Health and Health Services Research, LMU Munich, Munich, Germany, with support from Elisa Kollenda and Maja-Catrin Riecher (WWF Germany) and the external experts listed in the acknowledgements section. The report has been commissioned by WWF Germany as part of the project Climate Impacts of Foods (CLIF), funded through the International Climate Initiative (IKI) by Germany's Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV). The funding of this initiative is based on a resolution of the German Bundestag.

The project aim is to inform consumers about the environmental impact of their diets. This report looks more broadly at policy instruments needed to achieve a transition towards more sustainable diets in the four project countries.



LEGAL NOTICE

Publisher: WWF Deutschland (foundation under civil law, represented by board member Meike Rothschädl), Reinhardtstraße 18, D-10117 Berlin

Date: July 2024

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Design: www.epoqstudio.com

Suggested citation

Holliday N, Pitt S, von Philipsborn P (2024): *Policies for sustainable and healthy diets. Summary report.* <https://food-impacts.com>

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1. BACKGROUND

Access to healthy and nutritious food is highly unequal, and in 2021, more than 800 million people suffered from hunger, 2.3 billion were moderately or severely food insecure, and a growing number of people are affected by diet-related chronic diseases.

The global food system, health, and sustainability

The global food system is characterized by extreme contrasts. It provides an increasing share of the world population with year-round access to a historically unprecedented variety of foods, and produces an abundance of food that would, equally distributed, be enough to feed more than the current world population of 8 billion.¹ The scale of these accomplishments is, however, matched by the scale of the challenges. Access to healthy and nutritious food is highly unequal, and in 2021, more than 800 million people suffered from hunger, 2.3 billion were moderately or severely food insecure, and a growing number of people are affected by diet-related chronic diseases.² Moreover, the food system is responsible for a third of global greenhouse gas emissions, thus contributing considerably to climate change.³ Food production is the most important driving force behind habitat and biodiversity loss, land degradation, deforestation, and the depletion of freshwater resources, and is an important contributor to air and water pollution.⁴ The global food system is therefore considered the single most important cause of global environmental change, threatening the integrity of the earth's natural systems which are the basis of human life and well-being.⁵

Urgent action is needed to address these challenges. The changes that are needed to reduce the environmental footprint of the global food system fall into **three** broad areas:

- 1/ a reduction of food waste;
- 2/ shift towards more sustainable agricultural production techniques; and
- 3/ population-level dietary change.⁶

By aligning dietary patterns with recommendations for healthy and sustainable diets, greenhouse gas emissions could be cut by half.

The last of these three fields of action – population-level dietary change – is also essential for reducing the food system's adverse effects on human health. It is also crucial for meeting global sustainability goals. It has been estimated that by aligning dietary patterns with recommendations for healthy and sustainable diets, global greenhouse gas emissions from the food system could be cut by half, even without changes to agricultural production techniques and a reduction of food waste.^{6,7} Several international initiatives have defined dietary patterns that are both health-promoting and environmentally sustainable. Details vary, but typically these dietary patterns emphasise fresh or minimally processed fruit and vegetables, legumes, nuts and seeds, and whole grain products, while recommending only limited amounts of ultra-processed and animal-based foods.^{6,8-10}

The food policy landscape

Demand-side policies targeting food consumption have thus far received less attention.

Food and nutrition policy research is still focused either on health or on environment, limiting the potential for synergies.

Public policies that shape the food environment (defined as the interface between individuals and the broader food system^{11 12}) play a crucial role in supporting dietary change by making healthy and sustainable foods available, accessible, attractive, and affordable for all.^{13 14} Public policies should aim to create food environments that are fair, defined as food environments that “*are (1) attuned to our human perception, decision-making possibilities and behaviour; and (2) are more health-promoting and have greater social, ecological and animal-welfare compatibility and thus contribute to sustaining the livelihoods of the world’s current and future generations.*”¹⁵ The evidence on the effectiveness of such policies has grown considerably over the past years, but implementation remains highly uneven between and within countries.^{13 16 17} In general, demand-side policies targeting food consumption have thus far received less attention in debates about the food system’s environmental impact than supply-side approaches targeting agricultural production.¹⁵ Moreover, most food and nutrition policy research and practice is still focused either on human health or on environmental sustainability, which limits the potential for realizing synergies.

Specific policies that can be used by governments and other actors to support sustainable and healthy diets on a population level include, among others, the following:



Labelling policies: Food labels, including interpretative front-of-pack health and sustainability labels, can inform consumer choice and incentivise industry to develop, produce, and offer healthier and more sustainable options.^{18 19} Evidence shows that front-of-pack interpretive labels (such as warning signs or colour-coded traffic light labels) are particularly effective in changing consumer behaviour and industry practices.^{19 20}



Food provision and procurement standards in public institutions and other settings: Food provision and procurement standards – defined as guidelines on the food served in public settings such as kindergartens, schools, workplaces, hospitals, universities, and other institutions – directly influence the food consumed in these settings and can contribute to forming sustainable and healthy dietary habits in the long term. Such standards should consider both health and sustainability, and be accompanied by measures to support their implementation (e.g. through sufficient public funding).²¹⁻²³



Economic tools (taxes and subsidies): The relative and absolute price of different foods is an important determinant of dietary choice. Well-designed fiscal policies can ensure that the true social and environmental costs and benefits of different foods are reflected in their price, and that sustainable and healthy diets become and remain affordable for all individuals and population groups.^{24 25} A combination of taxes on less healthy and less sustainable foods with subsidies for healthier and more sustainable foods may be particularly effective for changing dietary patterns.²⁶



Regulation of marketing: Food marketing influences the formation of food preferences, and can contribute to overconsumption, especially of unhealthy ultra-processed foods.^{27 28} Appropriate regulation of food marketing can protect children from these adverse effects, and contribute to more sustainable and healthy diets, particularly by reducing overconsumption. Voluntary commitments by industry are often not effective; policies should therefore be legally binding. Besides, they should comprehensively cover relevant marketing channels (such as TV and social media), and both the exposure to, and the power of advertisements.²⁸



Reformulation: Reformulation – i.e. changes in the choice of ingredients and in production processes – can help to make processed foods healthier and more sustainable, e.g. by reducing and replacing nutrients of concern (such as trans-fatty acids, sugar, or salt) or dietary components with a high environmental footprint (such as red meat and other animal-derived foods) with healthier and more sustainable alternatives.^{29 30}



Retailing and food service interventions: The commercial retailing and food service sector is a key space where individuals interact with the broader food system. Numerous approaches exist for increasing the availability, accessibility, and salience of sustainable and healthy choices in these settings. Illustrative examples include initiatives to introduce healthy checkouts in supermarkets, support for the establishment of farmers' markets, and rules and conventions on offering free drinking water in restaurants.^{31 32}



System-level and inter-sectoral interventions: A broad variety of policies across a range of policy areas, from agricultural subsidies to city planning and social investment policies, can influence population-level nutrition through direct and indirect effects, as they can influence, for example, the price of and access to different foods and thereby the food environment.^{6 33 34} Taking such inter-sectoral, system-level interactions into account can help to maximize the effectiveness of public policy.^{6 33 34}



Food and nutrition education, information, and advice:

Education is rightly acknowledged as a human right, and this also extends to the ability to learn about nutrition, food, and its effects on human health and the environment, as well as related skills and competencies. Evidence-informed food and nutrition education in schools, public information and awareness campaigns, and nutrition counselling in health care sectors are approaches to conveying such knowledge and skills.³⁵

Comparative analysis of the effectiveness of existing policy instruments and resulting demands

Overall, there is evidence for the effectiveness of all the main policy approaches outlined above.³⁶ The effectiveness of specific policies, however, depends on a number of factors, including aspects of policy design, national and local context, and the degree to which adopted policies are actually implemented on the ground.³⁷ Moreover, certain policies may be more effective for some population groups than for others. For example, food provision in public institutions is, in general, particularly relevant for children attending schools and kindergartens, while subsidies on healthy and sustainable foods are likely to be particularly effective in improving access to such foods among low-income households. Given these complexities, the comparative effectiveness of policies needs to be considered in relation to the specific context.³⁸ In particular, country-level expertise is needed to choose and adapt policies most likely to be effective in a given country. Moreover, it is important to note that single policies considered in isolation rarely have large impacts.^{38,39} This is not a case against policy action, but rather an argument for the necessity of comprehensive policy packages that include policies and concrete measures that form a coherent strategy.⁴⁰

It is important to note that single policies considered in isolation rarely have large impacts. Thus, comprehensive policy packages are necessary that form a coherent strategy.



1. BACKGROUND



Most countries worldwide have implemented some kind of food policy aimed at supporting healthy and sustainable diets.

While each case is unique, a number of success factors have been identified.

Most countries worldwide have implemented some kind of food policy aimed at supporting healthy and sustainable diets, and a number of countries have implemented policies considered to be good practice examples. This includes such diverse countries as Chile (which implemented mandatory front-of-pack warning labels in 2016),⁴¹ Finland (which has a universal school meal program emphasising the provision of healthy, nutritious foods),⁴² South Africa (which introduced a tax on sugar-sweetened beverages in 2018),⁴³ and the Netherlands (which developed dietary guidelines systematically considering both health and sustainability aspects).⁴⁴ While each case is unique, a number of success factors that enable the adoption and implementation of effective policies have been identified. These include strong partnerships between key stakeholders (including policy-makers, researchers, civil society groups, and practitioners), public support and demand for policy action (which can be increased by raising the awareness of the challenges faced by the food system, and the important role of public policies in addressing these), systems to evaluate policy effectiveness, and political leadership from politicians championing ambitious food policies.^{45 46}

Main factors to consider in policy design and implementation

In order to realize the potential of public policies to effectively support healthy and sustainable diets on a population level, several considerations are of particular relevance, as explained in Chapter 2 of the main report:

- **Using evidence:** Policies should be informed by evidence. Evidence-based decision-making processes generally involve consideration of the best available scientific evidence, the expertise of relevant experts, and the views, values, and preferences of relevant stakeholders, including the public. Special attention should be paid to how the evidence is produced; the influence of industry in research should be limited as much as possible. Public funding of research is therefore essential.⁴⁷
- **Combining policies into effective, coherent packages:** Comprehensive strategies, including a variety of policies, are needed to realize substantial effects on population-level diets, and thus on health and environmental outcomes. Single policies implemented in isolation are rarely sufficiently effective to bring about substantial change.³⁸

1. BACKGROUND



- **Considering ethical implications:** Food policies have important ethical implications. Policies should be designed with society's shared responsibility for the protection of its natural environment and the health and well-being of its members in mind, while also considering potential effects on individual autonomy. Importantly, food policies – rightly designed and understood – can protect health and the environment by enhancing, rather than restricting, the capacity of individuals to make informed choices, e.g. by providing information and by improving access to healthy and sustainable options.⁴⁸

- **Ensuring public support:** Public support is essential for successful policy adoption and sustained implementation. In most of the countries surveyed, the majority of the public supports policy action for healthy and sustainable diets, with important variations between countries and policies. Support for relevant policies can generally be improved by transparent and clear communication of the effectiveness and equity of the policy. Besides, policies that target vulnerable groups, such as children and adolescents, generally receive more support from the public, as do policies that are perceived to enhance, rather than restrict, the capacity of individuals to make informed individual choices.⁴⁹ Educating stakeholders and the public about the adverse environmental and health impacts of the food system, and the potential of well-designed policies in alleviating these, can also contribute to ensuring public support.⁵⁰

- **Overcoming barriers to implementation:** While the evidence base for effective policies has grown considerably, policy adoption and implementation remains a key bottleneck. Factors that can contribute to successful policy adoption and implementation include, among others:^{45 46}

- the engagement of key stakeholders, including the formation of broad advocacy coalitions
- platforms and procedures for mutual learning and collaboration between policy-makers, researchers, civil society, and experts and practitioners from relevant sectors
- sustained support from political leaders
- a strategic approach to the policy process, including the usage of policy windows.

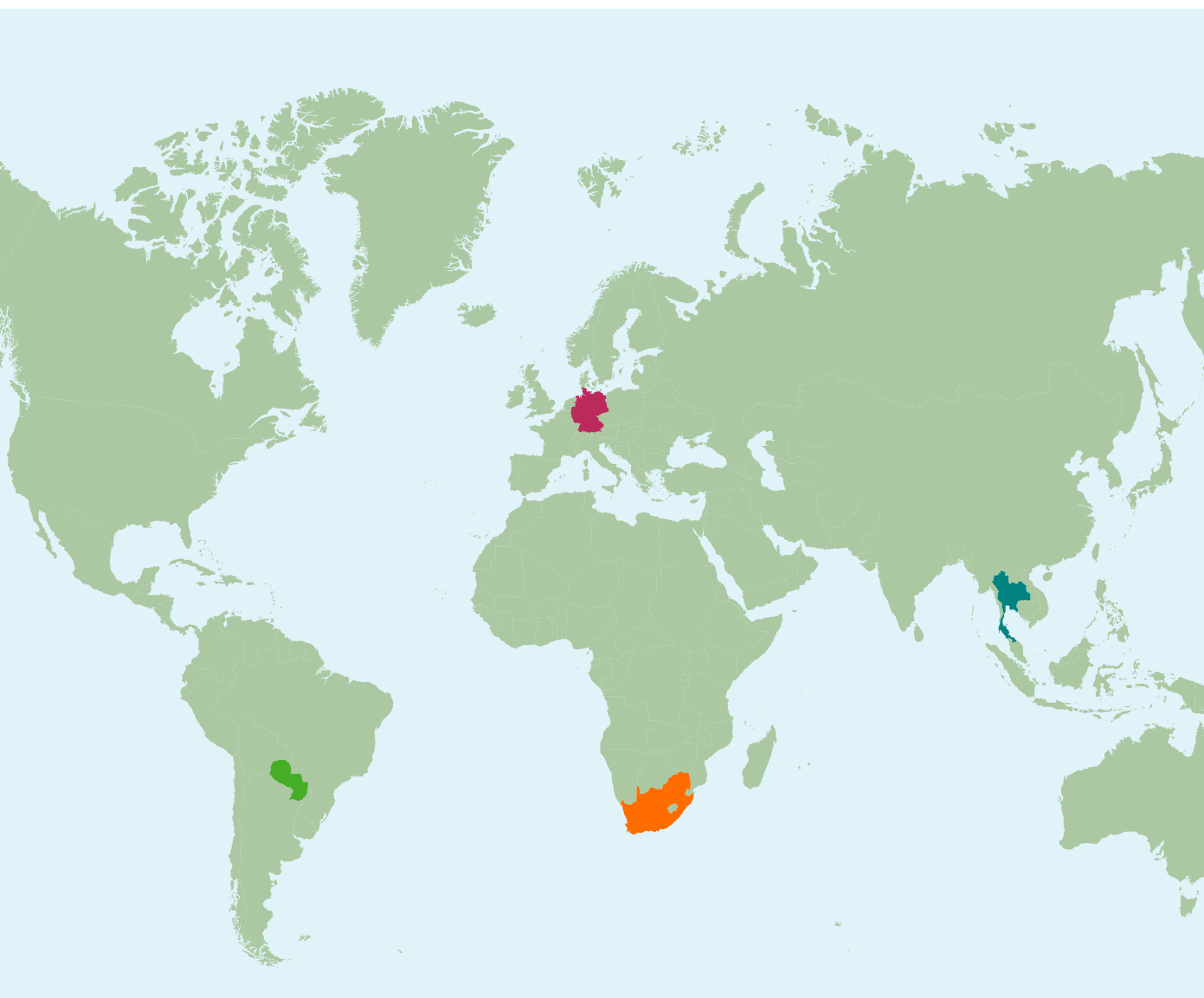
- **Accounting for context:** Substantial variation exists between the challenges and circumstances in different countries, and policies need to be tailored to these. In many countries in the Global South, the double burden of malnutrition – i.e. the co-existence and interaction of a large burden of both under- and overnutrition – poses specific challenges that need to be addressed, preferably by so-called double-duty interventions (i.e. measures that help to alleviate both under- and overnutrition).⁵¹

1. BACKGROUND

- **Realizing synergies:** Food policies affect a variety of outcomes that go beyond effects on health and environmental sustainability, including social equity, and social and economic development. Policies should strive for holistic solutions that create synergies between health-related, environmental, and societal goals.⁵²

Application of the recommendations to four countries

Most food policies are decided, adopted, and implemented on the national or sub-national level, and policies need to be adapted to context- and country-specific circumstances. In the following chapter we therefore present case studies on four countries from four continents: Germany, Paraguay, South Africa, and Thailand.



2. POLICIES FOR SUSTAINABLE AND HEALTHY DIETS: COUNTRY-SPECIFIC ANALYSES AND RECOMMENDATIONS

2.1. Overview of the chapter

In the following sections we present case studies on four countries from four continents: Germany, Paraguay, South Africa, and Thailand. For each of the four countries, we review current challenges, strengths, and priority policy actions for supporting sustainable and healthy diets on the population level. This analysis is based on a review of published literature (including scientific research publications and reports by government bodies, civil society, and international organisations), and on input from country experts. The four countries were selected for being partner countries in the project.

At the end of each country chapter we present results from stakeholder workshops organized between June and October 2023 in the four focus countries by the respective WWF offices. Workshop participants were representatives of civil society organizations, ministries and government offices, food processing and retail companies and farmers, as well as academics with relevant expertise. Participants were presented with consolidated lists of existing recommendations from expert bodies and the academic literature, given the opportunity to discuss, adapt and amend these, and asked to rank them according to a number of criteria; specifically the expected level of impact for achieving more sustainable food systems, feasibility, scope of the measure, and potential speed of implementation (all WWF country offices used at least a selection of these criteria, but differed in voting methods and formats of discussion to reflect national circumstances). Subsequently, participants discussed and collated specific barriers to and facilitators of the policies that received the highest rankings.

Please note:

The following collation of recommendations represents the state of play in the respective project countries in Summer 2023 (before the workshops). Any political developments that afterwards are not summarised in this report.



2.2 Germany

2.2. Germany



Nutrition Profile

Dietary Recommendations and Actual Intake

Like in most countries, current dietary patterns in Germany are not well aligned with recommendations for healthy and sustainable diets. National dietary guidelines, published by the German Nutrition Society (DGE), have traditionally focused on health, but have more recently integrated sustainability aspects, and further revisions with a stronger emphasis on sustainability are ongoing.⁵³ The current version is, for most food groups, largely in line with the planetary health diet recommendations by the EAT-Lancet Commission, with the exception of milk, for which national guidelines in Germany recommend a higher intake than the EAT-Lancet Commission (see table 1).⁵⁴ Actual intake, however, differs substantially from these recommendations. In particular, consumption of vegetables and legumes, fruits and nuts, and whole grains is below the recommended levels, and consumption of meat exceeds the recommended levels (see Table 1).⁵⁴ Similarly, dietary surveys show a high average consumption of sweets, fast food, sugar-sweetened beverages, and other ultra-processed foods associated with adverse health effects.^{55 56} Of note, the last nationwide representative diet survey among the adult population in Germany ('National Nutrition Survey II') was carried out between 2005 and 2007.⁵⁵

Table 1: Recommended vs. actual intake of different food groups in Germany (g/day)
(Adapted from Breidenassel & Schäfer 2022)⁵³

Food group	Recommendation by the German Nutrition Society	Recommendation according to the Planetary Health Diet	Actual intake (National Nutrition Survey II)
Vegetables and legumes	≥ 400	440 (200–905)	134
Fruit and nuts	≥ 250	225 (125–325)	175
Whole grains	200–300	232	136
Milk or equivalents	596–728	250 (0–500)	464
Meat, incl. processed meat	≤ 86*	43 (0–86)	113
Fish and seafood	21–31	28 (0–100)	17
Eggs	≤ 26	13 (0–25)	11

*The recommendations of the German Nutrition Society specify that individuals who choose to eat meat should not consume more than 300-600 g/week, depending on the overall energy requirement. A vegetarian diet, i.e. a diet with 0 g meat, is among the dietary patterns recommended by the German Nutrition Society.

Burden of diet-related health conditions

Consequently, Germany faces a high burden of diet-related chronic disease. More than half of all adults (60%) have overweight or obesity, and one quarter (23%) have obesity.⁵⁷ Among children and youth, 15% have overweight or obesity, and 6% have obesity.⁵⁸ While the prevalence of obesity has stabilized among children and adults with a high socio-economic status, it continues to increase among the general adult population.^{59 60}



Current policy landscape

A comprehensive assessment and benchmarking of Germany's food policy landscape was published in late 2021 as part of Germany's Food Environment Policy Index (Food-EPI).⁶¹ Policy areas in which the status quo in Germany was rated as **relatively strong** compared to international best practices (but still showing room for improvement) included:

- development and dissemination of evidence-based dietary guidelines;
- monitoring and surveillance of population-level dietary intake;
- public funding for statutory nutrition organizations;
- training and guidelines on nutrition standards for public institutions.

Policy areas which were rated as **relatively weak** compared to international best practice included, among others:

- regulation of food marketing to which children are exposed,
- food taxation, and policies on food offered in retail
- food service settings.⁶¹

In light of these challenges, the promotion of healthy and sustainable diets has received increasing political attention in Germany. Over the past few years, a number of new nutrition policies have been adopted on a national level, including a National Strategy for the Reduction of Sugar, Salt and Fat in processed foods, and the introduction of the Nutri-Score nutritional labelling scheme on a voluntary basis in 2020.⁶¹ Similarly, the coalition agreement of the current federal government, concluded in 2021, outlines plans for a number of new food policy initiatives, including binding regulation of food marketing directed towards children, measures to promote plant-based diets, and the development of a national Food and Nutrition Strategy.⁶² The strategy was developed over the course of 2023 in a process that involved stakeholders from relevant sectors, including civil society, education, science, and industry.⁶³

The strategy has six strategic objectives:⁶³

- 1/** Ensuring an appropriate intake of nutrients and energy for all population groups.
- 2/** Promotion of plant-focused diets and a reduction in the consumption of animal-based foods.
- 3/** Creating socially equitable access to healthy and sustainable diets.
- 4/** Improving communal catering.
- 5/** Promoting and increasing the supply of sustainable and organically produced foods.
- 6/** Reducing food waste.





Barriers to and facilitators of policy adoption and implementation

Structurally, the adoption and implementation of policies is a key bottleneck. Several academic publications on food policies in Germany examined barriers to and facilitators of policy adoption and implementation.⁶⁶⁻⁷² Relevant barriers identified in these analyses include:

- The compartmentalization of policy fields (e.g. nutrition, agriculture, health, education, and finance) and political levels (i.e. the local or municipal level, the German states, and the federal and EU level).⁶⁶ For example, measures to improve school meals have been hampered by a diffusion of responsibility and friction between political levels and policy fields.⁷³
- Cultural rifts between academia (i.e. researchers and scientific and professional organisations and associations) and politics (i.e. politicians, policy-makers, and public officials).⁶⁶
- Corporate political activity by food industry groups, including lobbying to prevent the adoption of policies potentially detrimental to business interests, and the influencing of public discourse.^{66 71 74}
- The promotion of voluntary, non-binding self-regulatory approaches by industry groups and government in areas where these have been consistently shown to be ineffective, such as the regulation of advertisement for unhealthy foods to children.^{67 72}

Facilitators and strategies to **overcome barriers** include:

- A strengthening of capacities to develop integrated food policies, e.g. through improved coordination and collaboration across government departments and levels, and dedicated staff in key departments.⁶⁸
- Improved communication and cooperation between academia and policy-makers, e.g. through a strengthening of scientific advisory bodies.^{66 70}
- Alliances of scientific, professional, and civil society organisations.^{66 67 74}
- Engagement of the public, e.g. through improved science communication on all aspects of nutrition and sustainable consumption of food, including the role of societal and policy influences on diets.^{66 67 71 75}



Current policy recommendations

A number of expert bodies, research projects, and civil society initiatives have developed recommendations for policies to support healthy and sustainable diets in Germany.

These include:

- The Scientific Advisory Board on Agricultural Policy, Food and Consumer Health Protection (WBAE) at Germany's Federal Ministry of Food and Agriculture (BMEL).¹⁵
- The Policy Evaluation Network (PEN), a research network funded by Germany's Federal Ministry for Education and Research (BMBF).⁶¹
- The civil society coalition #ErnährungswendeAnpacken (Tackling the Food Transformation), a network of scientific, environmental, health, and social organisations.⁷⁶
- The *Zukunftskommission Landwirtschaft* (Commission for the Future of Agriculture), a government-endorsed multi-stakeholder body.⁷⁷

Specifically, the WBAE developed the following nine core recommendations in its landmark 2020 report on Policies for more Sustainable Diets:¹⁵

- 1/ A systemic change in pre-school and school catering (e.g. through publicly funded, high-quality school meals for all children that are aligned with the German Nutrition Society's nutrition standards).
- 2/ A reduction of the harms associated with the production and consumption of animal-based foods (e.g. through an end of the current value added tax reduction for animal-based foods).
- 3/ The use of price incentives (e.g. through an excise duty on sugar-sweetened beverages, and tax discounts and subsidies on fruit, vegetables, and legumes).
- 4/ Measures to ensure social equity in food consumption (e.g. through free school and pre-school meals, and improved monitoring of food poverty).
- 5/ The provision of reliable nutrition information (e.g. through the introduction of the Nutri-Score, climate and animal welfare labels, and the regulation of food advertisement to which children are exposed).
- 6/ Measures to re-calibrate social norms on sustainable food consumption (e.g. through initiatives to promote the consumption of tap water, to reduce food waste, and to limit portion sizes).

- 7/ Improved food services in public institutions (e.g. through a mandatory implementation of the German Nutrition Society's nutrition standards in public institutions).
- 8/ The use of agricultural policies to promote sustainable consumption (e.g. through a reform of the current agricultural subsidy system).
- 9/ The development of an integrated policy for greater sustainability in food consumption (e.g. through an upgrading of the policy field of sustainable food consumption, the use of evidence, and improved monitoring and evaluation).

In the Policy Evaluation Network's Food Environment Policy Index (Food-EPI) for Germany, a group of 55 experts from academia, civil society, and government rated proposed policy actions with regard to their potential impact on population-level diets, their potential contribution to reducing social inequalities in dietary outcomes, and their achievability.

The following **five policy measures** received the highest ratings:⁶¹

- 1/ Mandatory nutrition standards for schools and kindergartens.
- 2/ A health promoting value added tax (with a reduced value added tax rate on healthy foods and increased value added tax rate on less healthy foods).
- 3/ Introduction of an industry levy on sugar-sweetened beverages.
- 4/ Regulation of the marketing of unhealthy foods and beverages towards children.
- 5/ Mandatory nutrition standards for public institutions other than schools and kindergartens.

The **top five infrastructure support actions** with the highest ratings were:⁶¹

- 1/ Evaluation of interventions and policies.
- 2/ Monitoring of nutritional status and dietary behaviour.
- 3/ Knowledge transfer between policy, practice, and research.
- 4/ Nutrition education in the curricula of relevant professions.
- 5/ Monitoring of food environments.



Results from the stakeholder workshops

At the German workshop, four different criteria were used to **evaluate potential policies**:

- 1/ Impact of the policy:** How much of a positive effect would the policy likely have on public health and the sustainability of diets?
- 2/ Feasibility:** How practical and easy is it to implement the policy (considering factors like cost, necessary resources, political resistance against the measure, and potential legal hurdles)?
- 3/ Scope:** How many people would the policy affect? Would it reach the people most in need?
- 4/ Speed:** How quickly could the policy be implemented and when would effects start to show?

For each criterion, participants could select the top five measures, awarding each with one point. For example, within the category “impact” each person could select the five most relevant/impactful measures. As a basis for the discussion and the subsequent voting, participants were presented with the highest-ranking recommendations from the report “Shaping an integrated food policy” by the Scientific Advisory Council at the Federal Ministry for Food and Agriculture (WBAE),¹⁵ the Food Environment Policy Index for Germany 2021,⁶¹ and the final report of the Commission on the Future of Agriculture mentioned above.⁷⁷



Ranking of policy options for Germany

1/ Improvement of the food served in schools and kindergartens through mandatory implementation of the nutrition standards of the German Nutrition Society.



Highest impact,
feasibility and speed

2/ A health promoting value added tax reform (with a reduced value added tax rate on vegetables, fruit and legumes, and an increased value added tax rate on ultra-processed foods with an unfavourable nutritional profile).



Highest scope

3/ Improvements of communal catering in other settings (e.g. companies, hospitals and care homes).

4/ Effective regulation of food marketing to which children are exposed.

5/ Action plan for the promotion of tap water.

6/ Introduction of an animal welfare levy.

7/ Introduction of a soft drinks industry levy.

8/ Strengthening and continuation of the national action plan to reduce food waste.

9/ Improved nutrition information (through labelling, education, and by raising awareness).

10/ Measures to reduce food insecurity (e.g. through free school meals for all families, welfare benefits reflecting the cost of healthy diets, improved monitoring).

The detailed voting results are listed in the annex of this report.



Key considerations underpinning these results highlighted in the discussion include:

- Through healthy and sustainable school and preschool meals it is possible to reach a substantial share of the population in a critical life phase.
- The introduction of binding nutrition standards should be accompanied with improved training of staff, e.g. of kitchen staff in preparing healthy, tasty, plant-based foods.
- A binding regulation of food marketing to which children are exposed is administratively feasible, but strongly resisted by lobby groups.
- The animal welfare levy is likely to be an effective instrument; however, one significant hurdle in realizing this policy is the need to mobilize the political will to implement it.
- A reduction of food waste is crucial, but the effective measurement and monitoring of food waste poses challenges.
- A sustainability-promoting reform of the VAT system would require coordination between various ministries and should be accompanied by a comprehensive communication campaign.



2.3 Paraguay

2.3. Paraguay



Nutrition Profile

Like many middle-income countries, Paraguay faces a double burden of malnutrition, with a decreasing, but still substantial burden of undernutrition and micronutrient deficiencies, as well as a rapidly increasing burden of overweight, obesity, and diet-related chronic diseases:

In the past 30 years, Paraguay has significantly reduced the level of undernutrition, particularly among children.

The rates of obesity are high: half of adults aged 18 or older are overweight.

- Undernutrition and food insecurity:** In the past 30 years Paraguay has significantly reduced the level of undernutrition, particularly among children. Moreover, the gap in the prevalence of undernutrition between children in urban and rural populations has also been reduced in this period.⁷⁹ However, the prevalence of stunting among children under five still stands at 6% (latest available data, 2014-2019), and studies in several areas have found high levels of micronutrient deficiencies among children.⁸⁰ Undernutrition remains particularly high among Indigenous children, among whom the level of chronic malnutrition was reported as 32% in 2016.⁸⁰ Food insecurity also remains high in the general population. It is estimated that around a quarter of the population in Paraguay is affected by moderate or severe food insecurity.⁸¹
- Overweight and Obesity:** 13% of children under 5 years have overweight, which is greater than the regional average in Latin America and the Caribbean of 8%.⁸⁰ The rates of overweight and obesity are even greater among older children and adults: 25% of children aged 5-19 have overweight, and 9% of girls and 11% of boys in this age bracket have obesity.⁸² Similarly, in 2016, half of adults aged 18 or older had overweight (including obesity), with 23% of women and 17% of men categorised as having obesity.⁸²
- Dietary quality:** For adults, average daily consumption of fruits, vegetables, and legumes is considerably lower compared to other countries in the region, and far below the targets recommended by the EAT-Lancet Commission. Meanwhile, dairy consumption is slightly above both the EAT-Lancet target and the average among countries in the region. Consumption of red meat is high, and over five times the EAT-Lancet target, although this is not unique for Paraguay, which has levels of red meat consumption similar to both the regional and global averages.⁸² Furthermore, about half of children between 6–23 months of age have a lack of dietary diversity and only 40% meet minimum criteria for a balanced diet, slightly below the regional average of 45%.⁸⁰
- Diet-related chronic diseases and risk factors:** Rates of non-communicable diseases (NCDs) have increased over the past decades in Paraguay and now account for the top 4 causes of death in the country.⁸³ A suboptimal diet is the shared link between the top risk factors driving

the most death and disability in Paraguay. High body mass index (BMI), high fasting blood plasma glucose, and high blood pressure are the top three risk factors while dietary risks, malnutrition, and high LDL (low-density lipoprotein cholesterol) are the fifth, seventh, and tenth highest risk factors.⁸³



Current policy landscape

From the 1990s to the present day, Paraguay has made significant progress in several social and infrastructure programs that are credited with reducing poverty and improving nutrition. Among others, these include:

- **Integrated Nutritional Food Program (PANI):** This program, which was initiated in 2005, provides nutrition assistance and support to pregnant women under the poverty line as well as children under five years of age.⁸⁰ Beneficiaries receive monthly deliveries of enriched whole milk as well as nutritional assessments and parenting orientations. Access to the program was expanded in 2012 with the passage of the law on Nutritional Guarantee. In five years, the program nearly doubled the amount of beneficiaries, from 48,000 children under five years of age and 11,000 pregnant women in 2013 to nearly 79,000 children under 5 and 24,000 pregnant women in 2017.⁸⁰
- **Conditional cash transfer programs:** Two conditional cash transfer programs (Tekoporã and Abrazo) provide monetary assistance conditional on vaccinations, school enrolment and attendance, and hospital check-ups, as well as home visits to discuss cooking and food quality.^{79 84}
- **National Strategy for the Prevention and Control of Obesity 2015-2025:** This strategy aims to promote multi-sectoral interventions to improve nutrition involving sectors such as health, education, and social care and to strengthen comprehensive care across the lifespan.⁸⁰
- **Law on the Protection of Breastfeeding:** This law was enacted in 2015 and expanded maternity leave from 12 to 18 weeks and increased the rate of cash benefits from 50% to 100% of previous earnings.^{80 85}
- **School Food Program of Paraguay:** This program, initiated in 1995, provides school meals to vulnerable students (e.g. in areas of high poverty and in indigenous communities). It has played an important role in improving nutrition and reaches over 300,000 students per year.^{84 86} Shortly before its initiation, in 1994, mandatory and free education was expanded from 6 to 9 years.⁸⁶
- **Food Fortification:** There are several fortification programs to address iron, iodine, and other micronutrients.⁸⁴

- **Access to safe drinking water:** Over the past 20 years, Paraguay made considerable investments in its drinking water supply infrastructure, which led to significantly higher coverage of safe water access among rural populations.⁷⁹

Whilst a tax on sugar-sweetened beverages exists, other fiscal measures are not present, such as subsidies on healthy food.

Despite the progress, policy gaps remain. For instance, whilst a tax on sugar-sweetened beverages exists in Paraguay,⁸² other fiscal measures are not present, such as subsidies on fruit and vegetables or other healthy foods. With regard to labelling, back-of-pack nutrient declarations do exist in Paraguay, and further tools to guide consumers to healthier choices (such as front-of-pack colour labels or warning signs) have been discussed in parliament, but are not yet implemented in the country.⁸⁷ Furthermore, bans on adverts and marketing of unhealthy foods to children in the media are not in use in Paraguay.



Barriers to and Facilitators of Policy Adoption and Implementation

In the year 2018 the Organisation of Economic Cooperation and Development (OECD) published a policy review of Paraguay, which included an analysis of barriers to and facilitators of the adoption and implementation of social and environmental policies. Reported barriers include a high level of fragmentation and weak stewardship in the healthcare system, combined with a lack of national dialogue on reform.⁸⁸ By contrast, better integration and coordination are highlighted as essential to achieving policy targets. Furthermore, barriers to efficient information management exist, which limits the available evidence upon which to build policies.⁸⁸



Current policy recommendations

A number of organizations and expert groups have published food policy recommendations for Paraguay. In 2021, UNICEF published recommendations based on an in-depth country study that included a review of available data, government reports, and scientific research as well as interviews with key informants from government, academia, and international organizations.⁸⁰

Key recommendations derived from this analysis include:⁸⁰

- Expansion of interventions to improve access to healthy foods for economically poor households.
- Development of appropriate regulations to reduce the consumption of ultra-processed foods.
- Expansion of the number of Family Care Units in the healthcare system, as well as improved training of staff throughout the healthcare system.

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- Investments in water, sanitation, and hygiene (WASH) services for socioeconomically deprived populations.
- Expansion of the coverage of social protection and use of such programmes as an entry-point for nutrition programmes.
- Measures to improve the coordination of nutrition programmes.
- Measures to increase awareness of nutrition-related campaigns.
- Investments in data collection and regular monitoring of Infant and Young child feeding (IYCF) indicators and micronutrient deficiencies.

The 2017 report on Paraguay of the UN Special Rapporteur on the **Right to Food** included the following recommendations:⁸⁹

- Extensions in the coverage of school meals to cover 100% of children.
- Extension of public food provision programs to cover 100% of older persons.
- Use of revenues from the export of soya for social programs.
- Development of properly financed comprehensive nutrition policies aimed at dealing with all forms of malnutrition, including obesity and micronutrient deficiency.
- Adoption of a human rights-based national framework law on the right to food, with effective benchmarks and implementation plans for each region in the country.





Results from the stakeholder workshops

During the workshop in Paraguay, the prioritization of suggested policy measures was conducted via a digital menti-survey using a single criterion which was phrased as “What are the policies you would like to see being implemented in Paraguay?” As a basis for the discussion and the subsequent voting, participants were presented with the recommendations of the UNICEF country report on Paraguay published in 2021⁸⁰ and the Report on Paraguay of the UN Special Rapporteur on the Right to Food.⁸⁹

Ranking of Policy Options in Paraguay

The **ten recommendations** were ranked by participants in the following order:

- 1/ Social policies to improve access to healthy foods for low-income households.
- 2/ Improved coordination of nutrition programmes.
- 3/ Adoption of a human rights-based national framework law on the right to food, with effective benchmarks and implementation plans for each region in the country.
- 4/ Extensions in the coverage of school meal programs.
- 5/ Improved data collection and monitoring of infant and young child feeding indicators.
- 6/ Improved nutrition training for healthcare professionals.
- 7/ Extension of public food provision programs for the elderly.
- 8/ Policies comprehensively addressing all aspects of the double burden of malnutrition, including obesity, micronutrient deficiencies, and the consumption of ultra-processed foods.
- 9/ Improved water, sanitation, and hygiene (WASH) services for deprived population groups.
- 10/ Use of revenues from the export of soya for social programs.

Additional measures discussed by workshop participants and highlighted as potentially promising included the following:

- Policies on the use of pesticides and the management of residues in food.
- Improvements to food safety through quality assurance measures, food safety monitoring, and consumer information rights.
- Policies to reduce food waste.
- Measures to improve access to safe drinking water.
- Campaigns to increase awareness regarding the benefits of agroecological and organic agriculture.
- Unification of databases from different ministries and improved access to data by the public.

Ways to achieve **policy measures that are impactful, viable/feasible, speedy**, and broad in scope were discussed in smaller groups prior to the voting. General considerations raised in this regard were:

- Besides new policies, it is essential that existing policies are fully implemented.
- The social and economic aspects of food policies need to be considered (e.g. policies need to be economically viable and connected to development plans).
- Convenience and time constraints are important issues for many consumers; healthy and sustainable foods that are also convenient and easy to prepare (e.g. pre-assembled salads, pre-cooked beans) should be highlighted.
- Increased food security can also contribute to a reduction of multidimensional poverty and improvements in the quality of life of socially disadvantaged families.
- Increased research and improved knowledge management and data collection are essential, and could be supported through a data collection center for healthy and sustainable food production and consumption.

With regard to the **viability (or feasibility) of policies**, the following issues were raised:

- Public-private partnerships and working with institutions that are already in place can increase the feasibility of policies.
- Coordination and collaboration between different sectors, government departments, and relevant stakeholders is important.



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- Local communities should be involved in the policy-making process on food-related issues.
- Food and nutrition-related topics should be brought to the attention of the highest-ranking policy makers, who should be lobbied to take action.
- A legal right to food exists in Paraguay, but its scope should be broadened and its status raised.
- Measures capturing the double burden of malnutrition should be used as indicators to track progress on a national level.
- Small farmers currently face barriers to supplying school food programs, which should be addressed.
- Regulation, funding, and public monitoring of laboratories is needed to allow for the enforcement of food safety rules.

Regarding the **scope (or reach) of policies**, the following issues were discussed:

The nutritional status of children should be a key indicator.

- Children are a key target in order to achieve reach into all of society; consequently, the nutritional status of children should be a key indicator to track progress.
- To ensure that nutrition information reaches wider audiences, it should include more practical information for developing a culture of healthy consumption habits. This includes, among other things, information about food labels and pesticides.
- Social imbalances need to be considered, and social policies strengthened in order to reach wider parts of society.
- To ensure the broadest reach, it may be advantageous to focus on a limited number of policies.

The following topics were raised with regard to the **speed of policy adoption and implementation**:

- A roll-out of policies in multiple phases or steps should be considered.
- Administrative capacities need to be strengthened, and local governments involved in the process to allow for a faster roll-out.
- Political will is essential for a speedy transformation. This highlights the importance of the media in framing policy issues.



2.4 South Africa

2.4. South Africa



Nutrition Profile

Following the end of Apartheid, South Africa has experienced significant economic and social development, and an accompanying nutrition transition.⁹⁰ Like in many other low- and middle-income countries, this has resulted in a double burden of malnutrition, with persisting undernutrition in some population groups and increasing overnutrition and obesity in others:

Chronic hunger is a continuing issue. For the past 10 years, malnutrition has been the second most important risk factor for death and disability in South Africa.

In 2016 39% of women and 15% of men had obesity.

- Undernutrition and food insecurity:** Chronic hunger is a continuing issue. For the past 10 years, malnutrition has been the second most important risk factor for death and disability in South Africa.⁹¹ It is estimated that 27% of children under 5 years of age were stunted in 2016.⁹² In 2017, about 16% of all households in South Africa reported their food access was inadequate and 6% reported their access was severely inadequate.⁹³ There are marked disparities in reported access to sufficient food depending on race (Black African and coloured households reported less access).⁹³
- Micronutrient deficiencies:** Micronutrient deficiencies are widespread, and a key public health issue in South Africa. Among children under 5 years of age, 44% have deficiencies in Vitamin A, 40% in zinc, and 61% are anaemic (a sign of iron deficiency).⁹⁴ The levels remain high into adolescence and adulthood with 31% of women 15 years or older and 17% of men showing signs of anaemia.⁹⁴
- Obesity and other diet-related chronic diseases:** In 2016, 39% of women and 15% of men had obesity and it is estimated that these numbers have grown since then.⁹⁵ This is the highest prevalence in all of sub-Saharan Africa.⁹⁴ In 2016 the respective rates of obesity among girls and boys were roughly 13% and 10%.⁹⁵ The odds of developing overweight or obesity for a child that was previously stunted are twice that of children that were not stunted.⁹⁴ The rates of other diet-related non-communicable diseases are also on the rise in South Africa. Ischemic heart disease and diabetes are now the second and fifth leading causes of death in South Africa.⁹¹ It is estimated that 14% of women and 11% of men have diabetes.⁹⁵ High BMI, high fasting plasma glucose, and high blood pressure are the third, fourth, and fifth most significant risk factors for death and disability in South Africa.⁹¹
- Dietary quality:** Adults in South Africa are far below recommended intake levels for fruits, vegetables, legumes, nuts, and whole grains, while red meat consumption is ten times above the levels recommended by the EAT-Lancet commission.⁹⁵ Regular consumption of high-fat foods, sugary drinks, and sodium is above recommended levels among both adults and children, particularly in urban areas.⁹⁴

South Africa has one of the most unequal income distributions in the world (as measured by the Gini index) with the top 10% holding 86% of the total wealth.⁹⁴



Inequality and income poverty are considered to be critical drivers of malnutrition in South Africa.⁹⁴ South Africa has one of the most unequal income distributions in the world (as measured by the Gini index) with the top 10% holding 86% of the total wealth.⁹⁴ Unemployment is high and 40% of the population lived below the national lower-bound poverty line in 2015.⁹⁴

Current policy landscape

In recent years, South Africa has enacted several **new food policies** in line with international recommendations:

- **Sugar-Sweetened Beverage Tax:** In 2018, South Africa became the first country in Africa to enact a tax on sugar-sweetened beverages (SSBs).⁴³ While the current tax rate (10%) is below the WHO recommended level of 20%, there have still been significant reductions in purchases and consumption of SSBs since the law was enacted.⁴³
- **Limits on trans fat and sodium:** In 2011, South Africa was the first country in Africa to enact legislation limiting trans fat in processed foods, allowing no more than 2 grams of trans fat per every 100 grams of product.⁹⁶ In addition, South Africa passed mandatory limits on sodium levels in processed foods in 2013, these first took effect in 2016.⁹⁷
- **National nutrition strategies and plans:** South Africa has developed several national guidelines and plans to reduce malnutrition and support healthy and sustainable diets. This includes the National Strategy for the Prevention and Control of Obesity in South Africa 2015-2020, the National Food and Nutrition Security Plan 2018-2023, and the 2013 South African Infant and Young Child Feeding Policy. However, it is unclear how far implementation, monitoring, and evaluation extends for these programs.

In the 2017 Food Environment Policy Index (Food-EPI) evaluation for South Africa, 47% of the food environment policy indicators were rated as very low on implementation, 40% were rated as low, and 13% were rated medium.⁹⁸ Similarly low ratings were found among infrastructure support systems, with about 16% of policy indicators rated as very low, 62% rated low, and 22% rated as average.⁹⁸ In a comparison to Food-EPI evaluations in ten other high-, middle- and low-income countries, South Africa scored the second lowest in implementation overall (even though results for the different countries may not be directly comparable).⁹⁸





Barriers to and facilitators of policy adoption and implementation

A 2022 review that examined the coherence among food policies in South Africa identified four major barriers:⁹⁹

- 1/ Siloed approach to policies:** Historically, food system policies in South Africa, as in many other countries, mainly addressed agriculture. In more recent times, the approach has broadened to include other areas like nutrition and education, however, policies are still lacking tangible mechanisms to address the complex inter-linked issues driving malnutrition.
- 2/ Lack of shared understanding:** There are limited institutional arrangements for coordination and a lack of understanding about how different sectors can support one another in policy implementation.
- 3/ Intent lacking action:** Recent progressive policies, such as the Roadmap for Nutrition in South Africa 2013-2017, state an intention for broad participation across sectors during policy formulation, but lack clarity on how to achieve this and the intentions do not always materialise.
- 4/ Monitoring and evaluation:** Evaluation of the implementation of high-level statements into actual practice is limited.

Amongst the barriers is the perception that highly visible issues, such as infrastructure, are more pressing than food access and nutrition.

Moreover, a recent review of barriers to and facilitators in implementing large-scale nutrition; policies in Africa cited similar barriers as well as the following: one, the perception that highly visible issues, such as infrastructure projects, are more pressing than less visible issues like food access and nutrition and two, the lack of policy champions for food and nutrition policies.¹⁰⁰

A more recent analysis undertaken by the International Food Policy Research Institute (IFPRI) similarly identified a number of barriers and facilitators for improving nutrition in South Africa (personal communication, Scott Drimie). These included, among others, insufficient pressure from civil society and limited commitment from higher political levels. Enabling factors, by contrast, included the high status given by the South African Constitution to the values of democracy and the human rights obligation to alleviate malnutrition. Innovative governance arrangements on the national level and in some provinces that link policy-makers and stakeholders from various sectors were also seen as promising.



Current policy recommendations

In 2021, a UN Food and Agriculture Organisation (FAO) Rapid Food System Assessment was undertaken in South Africa to provide evaluation and recommendations for a sustainable and inclusive transformation of the food system.⁹⁴

The review recommended **four key policy changes**:⁹⁴

- 1/ Reduce the cost of healthy, nutritious food and increase the range, scale, and coverage of child-centred food system interventions in the built environment.
- 2/ Support the transition towards agroecological food systems, and link land reform with place-based farmer support.
- 3/ Reform and enforce food system regulatory policies and adopt an integrated approach to building an inclusive food system.
- 4/ Improve inclusive stakeholder participation and enhanced engagement, and adopt a two-pronged place- and issue-based approach to food system governance.

According to the South African Food Environment Policy Index (Food-EPI), the top priority actions for **improving the food environment** are:⁹⁸

- 1/ Increasing taxes on unhealthy foods.
- 2/ Restricting the marketing and promotion of unhealthy food to children.
- 3/ Food composition targets for processed foods.
- 4/ Healthy school food policies.

The top priority actions identified include: intake targets for nutrients, monitoring population nutrition and an increase in funding.

Among the infrastructure support actions, the top priority actions identified by the Food-EPI include: intake targets for nutrients of concern, monitoring population nutrition status and intakes, and an increase in funding for population nutrition promotion.⁹⁸

The analysis undertaken by IFPRI mentioned above identified several key recommendations for addressing the nutrition-related challenges faced by South Africa (personal communication, Scott Drimie) in similar fashion. These include:

- Strengthening the strategic and operational capacity of nutrition professionals, as well as the capacity of professionals working in other sectors to enable them to apply a nutrition lens in their work.
- Regular collection of high-quality data on key food system parameters, including linkages between agriculture and nutrition.

- Safeguarding of sufficient nutrition-relevant funding, including in sectors such as education.
- Support for “double-duty” interventions which can address undernutrition and overweight or obesity simultaneously.

Double-duty actions for addressing the double burden of malnutrition

The Lancet Series on the Double Burden of Malnutrition identified a number of approaches holding particular promise for addressing the various forms of malnutrition (including undernutrition, micronutrient deficiencies and overweight and obesity) simultaneously.⁵¹ These so-called double-duty actions include:

- 1/ Measures in the healthcare sector to support breastfeeding and child and maternal nutrition (e.g. development and provision of appropriate guidance and counselling, as well as monitoring and referral systems)
- 2/ Redesign of cash and food transfer programs (e.g. with incentives for healthy foods and cash transfers conditional on health check-ups for children)
- 3/ Redesign of school feeding programs (e.g. by providing healthy and nutritious foods and by integrating food provision and nutrition education)
- 4/ Support for nutrition-sensitive agriculture (e.g. by supporting local production of fresh produce and by reducing subsidies for unhealthy foods)
- 5/ Implementation of policies to create healthy food environments (e.g. through marketing restrictions for unhealthy foods, well-targeted food and beverage taxes, incentives for reformulation and fortification, and incentives for retailers and traders to provide healthier foods)






Results from the stakeholder workshops

During the workshop in South Africa, the suggested policy measures were ranked according to two criteria, namely impact and feasibility. For each criterion, one measure could be selected and awarded with one point in this category respectively. Suggested recommendations were derived from the FAO Rapid Food System Assessment for South Africa,⁹⁴ the Food Environment Policy Index South Africa,⁹⁸ and expert interviews. The results of the ranking are shown below.

Ranking of policy options in South Africa

- 1/ Financial incentives (including free healthy school meals, reduced taxes on healthy foods, increased taxes and reduced subsidies for unhealthy foods).  Highest impact and feasibility
- 2/ Measures focused on children, including health care actions (e.g. development and provision of appropriate guidance and counselling, monitoring and referral systems for child and maternal nutrition, measures to restrict the marketing and promotion of unhealthy food to children).
- 3/ Intersectoral approaches (e.g. measures supporting agroecological food systems and the local production of fresh produce).
- 4/ Capacity building (e.g. strengthening the strategic and operational capacity of nutrition professionals, as well as the capacity of professionals working in other sectors to enable them to apply a nutrition lens in their work).
- 5/ Nutrition policies infrastructure support actions (e.g. regular collection of high-quality data on key food system parameters).
- 6/ Measures to support healthy food environments (e.g. incentives for reformulation and fortification, and food composition targets for processed foods).

The detailed voting results are listed in the annex of this report.

2. POLICIES FOR SUSTAINABLE AND HEALTHY DIETS: COUNTRY-SPECIFIC ANALYSES AND RECOMMENDATIONS

In addition to these, the following additional policy recommendations were discussed:

- Establishment of a coordinating body with an adequate mandate to ensure policy alignment.
- Measures to reduce food waste.
- Measures to restore nutrient cycles, including recycling of urban waste.
- Research on the co-benefits of urban farming.
- Dialogue between farmers, retailers, and regulators to ensure practical and implementable policy actions.





2.5 Thailand

2.5. Thailand



Undernutrition is particularly concentrated among children while the prevalence of obesity and other diet-related diseases is rising among the general population.

Nutrition Profile

Like many countries in the Global South, Thailand has recently experienced rapid economic development in parallel with a nutrition transition.¹⁰¹ Relevant developments have included a reduction in poverty and undernutrition (but not a complete elimination of these problems), and the growth of both transnational and Thai-owned food and beverage industries that primarily sell processed foods with high levels of salt, trans-fatty acids, saturated fat, and energy.^{102 103} Thailand is consequently now experiencing a double burden of malnutrition. Undernutrition is particularly concentrated among children (but also exists in other population groups), while the prevalence of obesity and other diet-related non-communicable diseases is rising among the general population:^{101 102 104}

- **Undernutrition and food insecurity:** Levels of stunting and wasting among children under 5 years of age stand at 13% and 8%, respectively (2019, latest available figures).¹⁰⁴ Low birth weight is the leading driver of stunting in Thailand and this is often a result of poor maternal nutrition during pregnancy.¹⁰¹
- **Overweight and obesity:** While the prevalence of overweight in children under 5 years fell from 11% in 2012 to 9% in 2019, prevalence among children 6-14 years more than doubled between 1996 and 2014.^{104 105} Similar trends have emerged for adults. Between 1991 and 2014, the prevalence of overweight and obesity increased nearly five times among men (8% to 33%) and three times among women (16% to 42%).¹⁰²
- **Diet-related chronic disease:** Diabetes prevalence has been steadily increasing in the adult population, reaching 10% in 2014, and diabetes is now one of the leading causes of death in Thailand.¹⁰⁶ The second, third, fourth, and sixth most significant risk factors that drive the most death and disability in Thailand are nutrition-related: high fasting plasma glucose, high BMI, high blood pressure, and dietary risks.¹⁰⁷ Hypertension is a particular issue with one out of five women and one out of four men having elevated blood pressure levels.¹⁰⁴
- **Dietary intake:** Based on recommendations by the EAT-Lancet report for healthy and sustainable diets, Thai adults have significantly lower levels of consumption than recommended for fruits and vegetables, legumes, nuts, and whole grains, and above recommended levels of red meat (250% of recommended intake).¹⁰⁴ Among 54 low- and middle-income countries, Thailand ranks the highest for adolescent fast food intake, with about 43% of adolescents eating fast food at least every second day.¹⁰⁸

- **Food safety:** Food safety, including contamination with pesticides, is an ongoing concern in Thailand and has attracted attention by civil society groups in recent years (see panel 1).^{109 110 11}

Panel 1: Pesticide contamination in the food supply chain in Thailand

Pesticide use, including the use of herbicides, insecticides, and fungicides, has increased significantly in Thailand in the last 15 years.¹⁰⁹ Pesticide exposure is connected to many health issues, including birth defects, cancer, sterility, and neurological conditions, among others.¹¹⁰ In Thailand, pesticide exposure presents a significant health risk not only for agricultural workers, who constitute 30% of the country's population, but for the population as a whole through residual pesticides in water and food.¹⁰⁹ Residual pesticides have been detected in community water supplies, edible plants, and in the human food chain. Several sentinel species (such as the rice field crab) were found to contain residue levels above the maximum residue limits (MRLs) established by Codex Alimentarius.¹⁰⁹ Similarly, pesticide residues above MRLs have been detected in fresh fruits and vegetables. Studies testing pesticide residues on fresh foods purchased from markets across Thailand have found a high incidence of multiple pesticides above MRLs on guava, oranges, pakchoi, garlic, Chinese kale, and many other products.^{109 110 111} Elderly people and children are particularly sensitive to toxins and are at greater risk for adverse health effects from pesticide exposure. In 2018, the Thai Educational Foundation found that among primary school students in Chiang Mai, 100% had measurable organophosphate metabolite levels in their urine, suggesting that the fruits and vegetables used in school feeding programs contain high pesticide levels.¹⁰⁹

A network of researchers and experts, including those from the Southeast Asia Global Occupational and Environmental Health (GEOHealth) Hub, recently produced a list of recommendations to address health risks posed by pesticide use in Thailand.¹⁰⁹ These include:

- Development of widespread and routine testing of residual pesticides in food, water, and the environment, including a transparent surveillance system.
- Updating the MRLs to include the most sensitive human health outcomes, including among sub-group populations.





Current policy landscape

Over the past years, the Thai government has introduced a variety of new food policies:

In 2019 a ban on trans fats in all domestic and imported foods took effect.

- **Tax on sugar-sweetened beverages:** In 2017, Thailand introduced a tax on sugar-sweetened beverages.¹⁰² This tiered tax was planned to be implemented in four phases, with an increase in tax rate in each phase up to a maximum rate of 5 Baht per litre for fruit and vegetable juices, soda, and carbonated drinks and 44 Baht per litre for beverage concentrates.¹¹²
- **Regulation on marketing of foods for infants and young children:** Also in 2017, Thailand implemented the Infant and Young Child Food Marketing Control Act to better conform to the WHO International Code of Marketing of Breast-milk Substitutes. The law bans the advertisement of food for infants, including bans on prizes, sponsorship, discounts, or promotions for these foods.^{113 108}
- **Limits on trans fat:** In 2019, a ban on trans fats in all domestic and imported foods took effect.¹¹⁴
- **Front-of-pack labelling:** There are two front-of-package labels for packaged foods – the Guideline Daily Amounts, which must display sugar, fat, sodium, and energy content, and the voluntary Healthier Choice Logo for products under thresholds for certain nutrients.¹¹⁵
- **Advertising regulation:** In 2008, the government passed regulations regarding food advertising on TV. Advertisements must not be false or misleading and may only present health claims which are on the food label itself and have been previously approved by the Food and Drug Administration.¹⁰⁸ In 2020, Thailand committed to creating a ban on inappropriate marketing to children of foods and non-alcoholic drinks high in free sugar, salt, trans fatty acids, and saturated fats, but this has not yet been implemented.¹⁰⁸
- **Marketing in schools:** In 2020, Thailand introduced a ban on marketing activities for all types of food and beverages in educational institutions. Schools are also requested to voluntarily avoid selling sugary drinks or snacks with high levels of sugar or sodium.¹⁰⁸
- **Sodium reduction campaign:** In 2016, the Thai Ministry of Public Health began implementation of its 2016-2025 national sodium reduction policy and action plan, which includes education, labelling, product reformulation, and surveillance.¹¹⁶

In the latest Food Environment Policy Index, two areas received the highest ratings of implementation: monitoring of body weight and monitoring of non-communicable disease risks.

In the latest Food Environment Policy Index (Food-EPI) evaluation for Thailand, conducted in 2016, there were two areas which received the highest ratings of implementation when evaluated by both state and non-state actors in Thailand: monitoring of body weight and monitoring of non-communicable disease risk factors and prevalence.¹¹⁷

There have also been more recent commitments to addressing obesity, non-communicable diseases, and other diet-based health issues. For example, in 2016, as part of the nation's 20-Year National Strategy, the Department of Health developed a set of indicators to monitor and assess childhood overweight/obesity in ages 0–5 years and 6–14 years.¹⁰⁵ In addition, the Department of Health instituted the Five-year National Nutrition Action Plan (2018–2022), which included ambitious goals relating to malnutrition, breastfeeding, diabetes, and obesity.¹⁰⁵

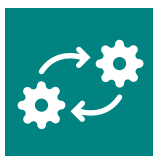
While progress has been achieved in some areas, there remain significant gaps between stated goals and actual policy.

While progress has been achieved in some areas, there remain significant gaps between stated goals and actual policy, implementation, and accomplished targets. In the 2016 Food-EPI evaluation, there were several policy areas that were rated as low compared to international best practices. The policies receiving the lowest ratings of implementation include:¹¹⁷

- Taxes on unhealthy foods.
- Monitoring of food environments.
- In-store availability of healthy foods.
- Cross-sectoral coordination platforms.

A 2021 assessment of policies relating to childhood obesity compared the implementation of Thai policies to recommendations by the WHO Commission on Ending Childhood Obesity and rated the policy implementation in terms of five criteria: comprehensiveness; coverage; monitoring and evaluation; multisectoral collaboration; and coherence. The study reported that while there was at least implementation of one policy in each policy area recommended by the Commission, very few policies had 'high' performance across the five criteria.¹⁰⁵ In particular, the authors identified infrastructure support, particularly a lack of policy coherence and an effective monitoring and evaluation system, as a major barrier for effective implementation.¹⁰⁵

Similarly, a 2019 study compared the policies and commitments relating to obesity and non-communicable diseases of prominent food companies in Thailand with recommended international good practices. The study found that a majority of the selected companies had policies in at least one of the four policy domains recommended by the WHO.¹⁰² However, very few policies covered all of the recommended components and most were not specific enough to allow for proper monitoring or evaluation.¹⁰²



Barriers to and facilitators of policy adoption and implementation

A study conducted in 2017 examined barriers to and facilitators in implementing two food environment policies in Thailand based on interviews with senior-level stakeholders from industry, government, and civil society organisations.¹¹⁸ The findings are applicable with regard to understanding general barriers to food environment policy implementation in Thailand. The major **barriers** that were identified include:

- 1/ A lack of effective monitoring and evaluation systems.
- 2/ Limited organisational knowledge and skills to commission implementation activities.
Limited governance structures, which limit the authority of the
- 3/ responsible agency to implement policies, thereby inhibiting effective coordination and integration amongst policies and sectors, reducing transparency, and contributing to ill-defined roles among different levels and stakeholders.
- 4/ A lack of funding and resources, as food and nutrition policies are not seen as funding priorities.
- 5/ Influence of the food industry.
- 6/ Limited comprehensiveness of policies.
- 7/ Shifting policy priorities.



Current policy recommendations

In 2021, the Ministry of Public Health of Thailand, the WHO, the UNDP, and the United Nations Inter-Agency Task Force on the Prevention and Control of NCDs published a joint report on the Prevention and Control of Non-Communicable Diseases in Thailand, which included, among others, recommendations on policies to support healthy and sustainable diets (see Table 2).¹¹⁴

These recommendations are largely in line with the recommendations of the 2016 Food-EPI evaluation for Thailand, which included, among others, the following **policy recommendations**:⁵⁸

- Standards for foods and beverages provided and sold in schools and child-care centres.
- Provision of healthy food in hospitals and other settings.
- Expanded display of ingredient lists and nutrient facts labels.
- Improved nutrition labelling.

2. POLICIES FOR SUSTAINABLE AND HEALTHY DIETS: COUNTRY-SPECIFIC ANALYSES AND RECOMMENDATIONS

- Regulation of health and nutrition claims.
- Regulation of food and beverage marketing.
- Clear political commitment for maximum intake targets for nutrients of concern (saturated fat, sodium, and sugar).
- Improved nutrition and health education.

Table 2: Recommendations of the 2021 Thai Report on Prevention and Control of Non-Communicable Diseases in Thailand (adapted from UN 2021)¹⁴

Policy domain	Recommended policy actions
Food prices	Progressively increase the tax on sugar-sweetened beverages, as mandated in the Excise Act 2017.
	Discourage unhealthy diets and encourage food reformulation by introducing taxes on junk food and foods with excessively high levels of salt, sugar, and saturated fats.
	Consider tax measures to promote healthy behaviour, such as a 50% reduction in the excise tax on fruits and vegetables.
Food Promotion	Ban the sale of carbonated and sugary drinks and unhealthy foods in and around schools.
	Replace unhealthy snacks in school lunches with healthy options such as local, seasonal fruits.
Food Labelling	Introduce more effective front-of-package labelling, including warning labels on excessively sugary, salty, and high-calorie foods to discourage consumption of ultra-processed foods.
Food Composition	Set maximum levels of sodium in food categories as per WHO benchmarks.
	Continue to monitor enforcement of the trans-fat ban through surveillance of partially hydrogenated oils.
Food Provision	Introduce procurement policies for schools and public and private institutions to ensure consumption of healthy foods low in sugar, salt, and saturated fats, together with large amounts of fruit and vegetables.
Leadership	Ensure that a high-level inter-ministerial committee on NCD prevention and control, with designated operational staff, meets regularly to plan, coordinate, and review actions for implementation of the national multisectoral NCD plan by different sectors.
Governance	Organize workshops or sectoral briefings to raise awareness in other ministries about the risk and implications of industry interference in national NCD prevention and control.
	Establish a multi-partner group led by academia or civil society to monitor industry interference and to release the information publicly at regular intervals.
	Develop and disseminate official guidelines for national ministries and other public bodies to define appropriate code of conduct in relation to the alcohol, tobacco, and food industries.
Funding and Resources	Use the budget for public-private partnerships to support implementation of NCD regulations and national strategies.
Platforms for Interaction	Strengthen infrastructure for policy implementation and resource mobilization for NCD prevention and control.
	Recognize the invaluable work of champions and NCD leaders and support them in increasing their advocacy.
	Create and institutionalize a programme for identifying and nurturing champions, NCD leaders, and agents of change, and build a network of champions and leaders for sustainable, collective NCD prevention and control in Thailand.
	Establish a “think tank” for knowledge management, knowledge exchange, and policy communications.



Results from the stakeholder workshops

At the workshop in Thailand, policies were evaluated with the same four criteria used in Germany:

- 1/ **Impact of the policy:** How much of a positive effect would the policy likely have on public health and the sustainability of diets?
- 2/ **Feasibility:** How practical and easy is it to implement the policy (considering factors like cost, necessary resources, political resistance against the measure, and potential legal hurdles)?
- 3/ **Scope:** How many people would the policy affect? Would it reach the people most in need?
- 4/ **Speed:** How quickly could the policy be implemented and when would effects start to show?

A scoring system for each criterion was used with a 1–5 scale (1 = very poor, 5 = very good). Participants were asked to give each policy a score for each criterion. The voting results are shown below.

Ranking of policy options in Thailand

- 1/ Improved nutrition and health education. ★ Highest impact, speed and scope
- 2/ Standards for food in schools, child-care centers, and other public institutions.
- 3/ Fiscal measures (lower tax on fruit and vegetables, and higher taxes on unhealthy, ultra-processed foods). ★ Highest feasibility
- 4/ Improved nutrition information, declarations, and labelling.
- 5/ Regulation of food and beverage marketing.

The detailed voting results are listed in the annex of this report.

In order to understand the rationales behind certain voting decisions, participants were asked to provide insights into their decisions. This discussion was organised around the criteria of “impact”, “speed”, “scope” and “feasibility”. Key considerations mentioned in this discussion were:

- Nutrition and health education could quickly reach large parts of the population, in particular when general awareness-raising campaigns are combined with education in schools
- Fiscal measures (taxes and subsidies) can be implemented in a wide range of settings and have been shown to be effective in promoting behavioural change.

Participants were then asked to express their opinions on **barriers to implementing comprehensive policy packages for a sustainable food environment**. Key considerations mentioned in this discussion included:

To improve nutrition and health education, it is necessary to develop staff and training courses.

- To improve nutrition and health education, it is necessary to develop staff and training courses. For this, educational institutions need additional funds.
- The readiness of schools to implement new curricula incorporating health and nutrition may vary, and schools with less resources may need additional assistance.
- Against the background of rapid changes of technology and media, it is often difficult for individuals to differentiate between trustworthy and misleading health and nutrition information, which needs to be considered when designing educational measures.
- The implementation of more stringent quality standards for food in schools and other institutions faces a number of barriers, including a low budget provided for food in these settings, the food preferences of students, and corruption in the procurement process.
- Barriers to the implementation of fiscal measures include a general political climate against taxes, and concerns about the cost of food.
- Challenges that need to be overcome to improve nutrition information, declarations, and labelling include the misleading use of labels by companies (including greenwashing), the confusion among consumers created by the abundance of labels, and the costs of implementation and certification.

3. SUMMARY AND CONCLUSIONS

Food production and consumption is the single most important driving force behind global environmental change, which threatens the integrity of the earth's natural systems on which human life and well-being depend.

The global food system constitutes a key link between human health and environmental sustainability.¹¹⁹ Food production and consumption is the single most important driving force behind global environmental change, which threatens the integrity of the earth's natural systems on which human life and well-being depend. At the same time, unhealthy dietary patterns are among the leading risk factors for ill-health and premature death worldwide. A transformation towards a sustainable, health-promoting food system is therefore essential for the world to meet global sustainability targets, and for safeguarding human health and well-being in the short and long term.⁶

Population-level dietary change is of particular importance, and essential for both human health and environmental sustainability.

In order to achieve systematic transformation of the agri-food system, action across three broad areas is needed: Halving food waste at a global scale, aligning agricultural production techniques, and population-level dietary change towards consumption that is healthy for humans and the planet.⁶ The latter is of particular importance, and essential for both human health and environmental sustainability. It has been estimated that by only aligning dietary patterns with recommendations for healthy and sustainable diets (without changes to agricultural production techniques and a reduction of food waste), global greenhouse gas emissions from the food system could be cut by half.^{6 120}

Public policies are essential in bringing about this change. Policies that have been shown to be effective in supporting healthy and sustainable diets on a population-level diets include, but are not limited to: food labelling rules; food provision and procurement standards in public institutions and other settings (e.g. standards for school meals); taxes and subsidies; regulation of food marketing; reformulation of processed foods; retailing and food service interventions; system-level and inter-sectoral interventions; as well as food and nutrition education, information, and advice.³⁶

The policies included in optimal policy packages will vary from country to country. In the four focus countries examined in this report, policies that received high priority rankings from the participants of our stakeholder workshops in most or all countries included the following: improvements in the school food environments (including school meals), fiscal measures to improve the affordability of healthy and sustainable foods (such as 0% tax rate on fruit, vegetables, legumes and whole grain products), measures to protect children from advertisements for unhealthy foods, and improved nutrition information through labelling and other means.

3. SUMMARY AND CONCLUSIONS

Food policies aimed at supporting healthy and sustainable diets should be informed by evidence, be combined into effective and coherent policy packages, and be designed and framed in a way that ensures public support.⁶ Moreover, policies should account for the local, national, or regional context, and try to maximize synergies while minimizing trade-offs between health, sustainability, and other societal goals. Policy adoption and implementation can be challenging, but strategies exist to overcome relevant barriers, including strong stakeholder engagement, the use of policy windows, and mobilization of public support.^{46 121}

Food policies can not only restrict, but also enhance individual liberty by giving individuals opportunities for free choices which may not be attainable through individual action alone.⁴⁸

Food policies can have important ethical implications. In particular, food policies can be a means to fulfil ethical demands to protect vulnerable members of society as well as future generations from the detrimental effects of current food system practices. Furthermore, food policies can have implications for personal liberty and choice. Importantly, food policies can not only restrict, but also enhance individual liberty by giving individuals opportunities for free choice which may not be attainable through individual action alone.⁴⁸ For instance, increasing the availability of healthy foods in a school cafeteria may increase the students' freedom to choose healthy options.⁴⁸



A number of **key recommendations** follow from the analysis presented in this report:

- **Implementing strong policies for supporting healthy and sustainable diets on a population level.** No country worldwide has fully realized the full potential of public policies to create food environments and systems that are on track to meet global sustainability targets.⁶
- **Conducting evidence-based, country-specific analyses to inform choices of policy prioritization** (such as those described in Chapter 4 of this report). The effectiveness and feasibility of policies depends on contextual factors, which may vary by country.³⁸
- **Combining priority policy actions into comprehensive strategies or policy packages.** No single policy is likely to be sufficiently effective on its own, and well-drafted policy packages are more likely to receive support from stakeholders, including the public.^{38 40}
- **Collaboration and engagement of policy-makers, civil society actors, and researchers through appropriate processes and platforms.** Evidence suggests that such partnerships can contribute to the implementation of well-designed, effective policies that are sustained over the long term.⁴⁶
- **Taking measures to ensure public support.** This includes the consideration of factors that are known to influence the level of public support in the choice and design of policies. This also involves measures to raise awareness of the challenges created by current food production and consumption patterns, and the important role of public policies in addressing these.⁵⁰
- **Putting evaluation systems into place in order to monitor progress on policy implementation and effectiveness.** This helps to ensure that policies are implemented effectively on the ground and allows policies to be fine-tuned and adjusted given the context and new circumstances.¹²¹

The enormous challenges posed by the global food system to health and sustainability imply an urgent call to action to policy-makers, civil society organisations, researchers, business actors, and society at large.

ACKNOWLEDGEMENTS

We would like to thank a number of experts who provided feedback on earlier versions of this report.

Maja-Catrin Riecher and Elisa Kollenda (WWF Germany), Michael Mulet Solon (WWF International) as well as Tanja Dräger and Stephanie Wunder (Agora Agrar) reviewed the report as a whole; Tilman Kühn (Vienna University), Anja Kroke (University of Applied Sciences Fulda) and Dietrich Garlichs reviewed the section on Germany; Carmen Monges and Oscar Rodas (WWF Paraguay) provided feedback on the section on Paraguay; Pavitray Pillay and Modau Innocentia (WWF South Africa) and Zandile Mchiza and Jillian Hill (South African Medical Research Council) reviewed the section on South Africa; and Ply Pirom and Chonlathan Narantree (WWF Thailand) and Suladda Pongutta (International Health Policy Program) reviewed the section on Thailand.

We would also like to thank Maja-Catrin Riecher and Elisa Kollenda (WWF Germany) for their contribution to the conceptualization of the report, and the participants of the stakeholder workshops in Germany, Paraguay, South Africa and Thailand for their valuable contributions. All opinions expressed in the report, and any errors, are our own.



ANNEX

Table 3: Ranking of policy options for Germany.
The highest rankings in each category are marked with a ★.

Rank	Policy recommendations	Impact	Feasibility	Scope	Speed	Overall Score
1	Improvement of the food served in schools and kindergartens through mandatory implementation of the nutrition standards of the German Nutrition Society	★ 17	★ 16	15	★ 15	63
2	A health promoting value added tax reform (with a reduced value added tax rate on vegetables, fruit and legumes, and an increased value added tax rate on ultra-processed foods with an unfavourable nutritional profile)	13	11	★ 16	12	52
3	Improvements of communal catering in other settings (e.g. companies, hospitals and care homes)	16	12	13	10	51
4	Effective regulation of food marketing to which children are exposed	12	12	10	13	20
5	Action plan for the promotion of tap water	2	11	1	12	26
6	Introduction of an animal welfare levy	9	2	6	3	20
7	Introduction of a soft drinks industry levy	5	5	4	4	18
7	Strengthening and continuation of the national action plan to reduce food waste	6	2	8	2	18
8	Improved nutrition information (through labelling, education, and awareness raising)	1	7	1	8	17
9	Measures to reduce food insecurity (e.g. through free school meals for all families, welfare benefits reflecting the cost of healthy diets, improved monitoring)	4	1	3	0	8

Table 4: Ranking of policy options in South Africa

The highest rankings in each category are marked with a ★.

Rank	Policy recommendations	Impact	Feasibility	Overall Score
1	Financial incentives (including free healthy school meals, reduced taxes on healthy foods, increased taxes and reduced subsidies for unhealthy foods)	★ 11	★ 13	24
2	Measures focused on children, including health care actions (e.g. development and provision of appropriate guidance and counselling, monitoring and referral systems for child and maternal nutrition, measures to restrict the marketing and promotion of unhealthy food to children)	7	9	16
3	Intersectoral approaches (e.g. measures supporting agroecological food systems and the local production of fresh produce)	7	6	13
4	Capacity building (e.g. strengthening the strategic and operational capacity of nutrition professionals, as well as the capacity of professionals working in other sectors to enable them to apply a nutrition lens in their work)	7	4	11
5	Nutrition policies infrastructure support actions (e.g. regular collection of high-quality data on key food system parameters)	2	4	6
6	Measures to support healthy food environments (e.g. incentives for reformulation and fortification, and food composition targets for processed foods)	1	0	1

Table 5: Ranking of policy options in Thailand

The highest rankings in each category are marked with a ★.

Rank	Policy recommendations	Impact	Feasibility	Speed	Scope	Overall Score
1	Improved nutrition and health education	★ 76	66	★ 79	★ 87	308
2	Standards for food in schools, child-care centers, and other public institutions	73	61	59	77	270
3	Fiscal measures (lower tax on fruit and vegetables, and higher taxes on unhealthy, ultra-processed foods)	74	★ 81	44	49	248
4	Improved nutrition information, declarations, and labelling	45	71	56	59	231
5	Regulation of food and beverage marketing	58	40	50	57	205

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