



GLOBAL
ALLIANCE
FOR THE
FUTURE
OF **FOOD**

UNTAPPED OPPORTUNITIES

Climate Financing for
Food Systems Transformation

GLOBAL ALLIANCE FOR THE FUTURE OF FOOD
2022



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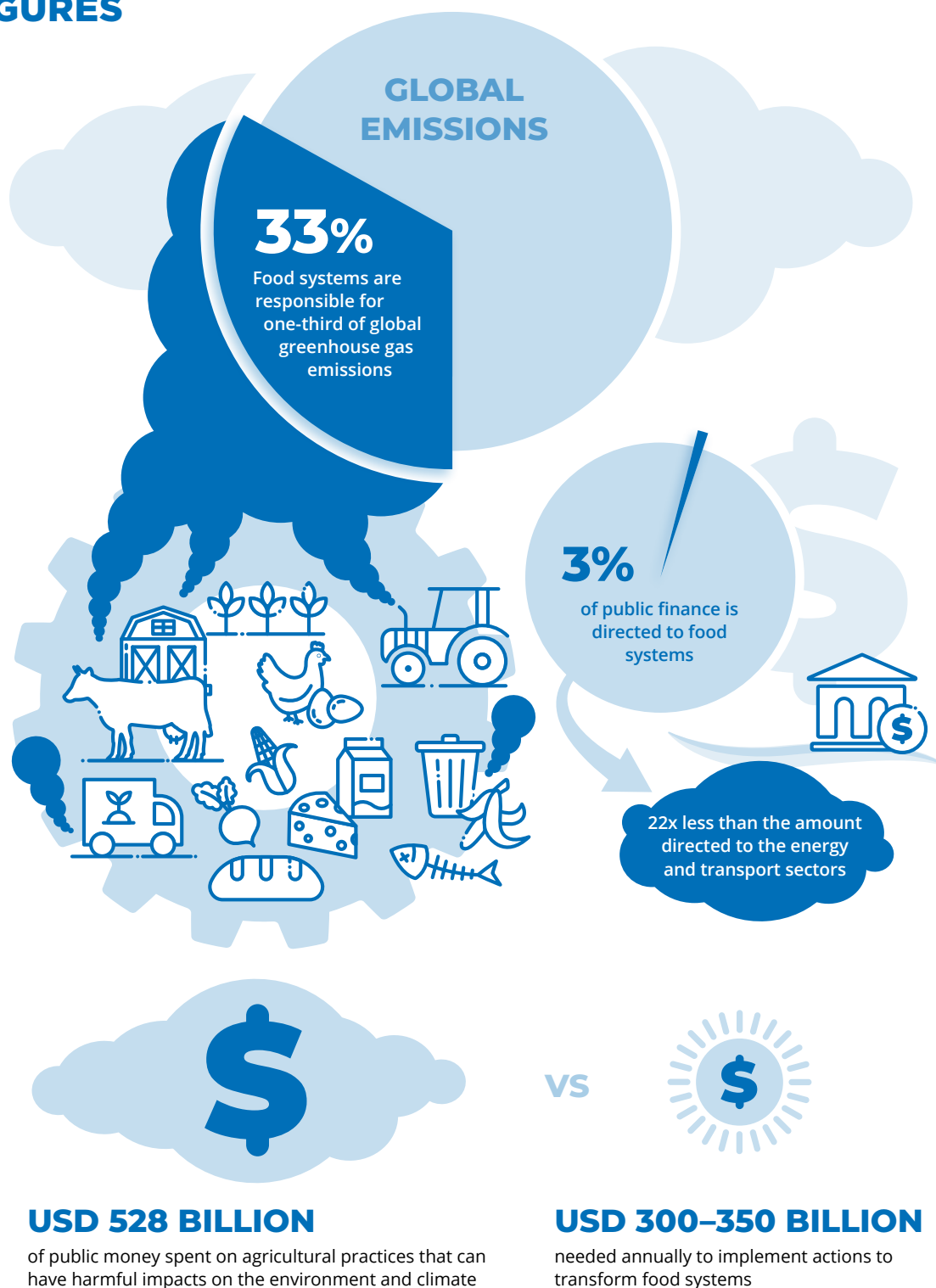
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CONTENTS

KEY FIGURES	2
KEY MESSAGES	3
INTRODUCTION	4
INVESTMENT IN FOOD SYSTEMS TRANSFORMATION IS UNDERFUNDED & OVERLOOKED	7
GOVERNMENT SUPPORT & PUBLIC SECTOR FINANCE FOR FOOD SYSTEMS TRANSFORMATION	11
ALIGNING FOOD SYSTEMS FINANCE & CLIMATE OBJECTIVES	15
10 RECOMMENDATIONS TO DIRECT CLIMATE FINANCE TO FOOD SYSTEMS TRANSFORMATION	18
APPENDICES	21
ENDNOTES	25
ACKNOWLEDGMENTS	27
ABOUT THE GLOBAL ALLIANCE	28

KEY FIGURES



Sources:

1. Francesco N. Tubiello, et al., *Environ. Res. Lett.* 16 065007 (2021).
2. Climate Policy Initiative, *Global Landscape of Climate Finance 2021*, and Climate Focus analysis of OECD climate-related development statistics (2021). See OECD DAC External Development Finance Statistics, available at <https://bit.ly/3ljzDjl>.
3. FOLU, “Growing Better: Ten Critical Transitions to Transform Food and Land Use,” (2019). Available at <https://bit.ly/2knlHhQ>.
4. OECD, “Agricultural Policy Monitoring and Evaluation 2022 Reforming Agricultural Policies for Climate Change Mitigation,” (2022). Available at <https://www.oecd-ilibrary.org/sites/7f4542bf-en/index.html?itemId=/content/publication/7f4542bf-en>.

KEY MESSAGES

- **Food systems receive only 3% of public climate finance, despite accounting for one-third of all global emissions.**ⁱ If the global community wants to meet the 1.5°C (2.7°F) target of the Paris Agreement, climate finance needs to fund food systems transformation. This is an urgent issue — even if we halt all non-food-systems-related emissions immediately, emissions from global food systems alone would likely exceed the emissions limit required to keep global warming below 1.5°C (2.7°F) in the next 40 years.¹
- **Investing in food systems transformation is a cost-effective way for the climate finance community to achieve huge emissions reductions.** An estimated USD 300 to 350 billion is needed every year through 2030 to support the transition to sustainable and climate-resilient food systems.² In the past 5 years, only USD 9.3 billionⁱⁱ per year in public climate finance was directed to food systems measures — a fraction of the USD 321 billion that was delivered for climate mitigation.ⁱⁱⁱ
- **70% of current Nationally Determined Contributions (NDCs) lack adequate detail on the funding needs for climate action in food systems** (based on a review of NDCs for this paper). This hinders the mobilization of climate finance. To attract international climate finance, countries must include food systems funding needs in their NDCs.
- **Beyond NDCs, countries must ensure that their domestic food and agricultural policies are coherent with climate goals.** Most public finance going to agricultural production ignores its environmental impacts. A startling 86.4% of the USD 611 billion spent annually has potential destructive impacts on climate, biodiversity, health, and food systems resilience. This amount of harmful public finance is 57 times greater than the climate finance provided for food systems during the same period.^{iv}
- **According to our analysis of developing countries' NDCs, food systems priorities are commonly underestimated and underfunded.** Developing countries declare funding needs of USD 14 billion per year to implement food systems actions; by contrast, they estimate finance needs of USD 64 billion for energy and transport measures. Developing countries should include more detailed food systems priorities and funding needs in their NDCs to mobilize climate finance.
- **In turn, developed countries must significantly increase the amount of climate finance provided for food systems action in developing countries.** Public climate finance provided to food systems has quadrupled in the past 5 years, increasing from USD 1.7 billion per year by 2016 to USD 9.3 billion per year by 2020. Efforts to continue this trend will be needed to keep the achievement of the Paris Agreement goals within reach.

i Climate Focus analysis of OECD climate-related development statistics. See OECD, “Climate Change: OECD DAC External Development Finance Statistics,” (n.d.). Available at <https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/climate-change.htm>.

ii This included USD 9 billion mostly from Development Assistance Committee members of OECD and multilateral banks and USD 329.6 million from international climate funds.

iii Total public climate finance was USD 321 billion per year in 2019–2020, as per Climate Policy Initiative, “Global Landscape of Climate Finance 2021,” (2021). Available at <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2021/>.

iv Own calculations based on the amount of public climate finance going to food systems and total harmful finance support to agricultural producers.

INTRODUCTION

Global food systems are a significant driver of climate change. The way we produce, process, package, ship, shop for, eat, and waste food accounts for one-third of the world's net greenhouse gas (GHG) emissions, or 16 gigatons of carbon dioxide equivalents (Gt CO₂eq), annually.³ At the same time, climate change is already affecting food security through higher temperatures, changing precipitation patterns, and more frequent extreme weather events. We urgently need to transform our food systems to make them more resilient to climate change and lower their associated GHG emissions (see Box 1).

Solutions to reduce the climate impacts of food systems already exist and require increased support by the global finance community. Increasing finance to food systems is of urgent importance. Even if we halted all (non-food-systems-related) emissions immediately, emissions from global food systems alone would likely exceed the limit required to keep global warming below 1.5°C (2.7°F) in the next 40 years.⁴

The Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Reports reiterate the important role our food systems play in reducing GHG emissions and adapting to climate change.

The IPCC's reports underline the need to shift to sustainable food production and consumption to support climate action and highlight the significant ecological, health, economic, social, and cultural benefits of such a shift.

Transitioning to more sustainable food systems using supply- and demand-side measures could reduce global GHG emissions by at least 10.3 Gt CO₂eq a year by 2050. This is equivalent to 20% of emission reductions needed to meet the Paris Agreement's 1.5°C (2.7°F) target.⁵ For example, here is the impact targeted measures could have on emissions mitigation by 2050:

8.5 Gt CO₂eq

ANNUAL MITIGATION POTENTIAL OF SUPPLY-SIDE MEASURES SUCH AS:

- Curbing land-use change and the conversion of ecosystems
- Lowering agricultural emissions
- Enhancing carbon sinks

1.8 Gt CO₂eq

ANNUAL MITIGATION POTENTIAL OF DEMAND-SIDE MEASURES SUCH AS:

- Reducing food waste
- Shifting diets

Implementing these measures will require clear policy frameworks that direct financing to activities that are in line with national and international climate goals.

Nationally Determined Contributions (NDCs) are an important mechanism to guide finance and investment into activities that align with climate goals. These national climate action plans outline a country's climate change mitigation ambition and are key in directing international climate finance to the priority actions identified by the national government. They therefore play a critical role in driving finance toward activities that support the transformation of food systems.

Financial, regulatory, and fiscal policies such as subsidies, tariffs, and taxes are some of the tools available to policymakers to direct how public and private finance is used in food systems. When these tools are designed to account for the climate–food connection, they can increase the amount of money flowing toward activities that reduce climate vulnerability and lower the GHG emissions that food systems generate.

This paper highlights the need to increase climate finance and align public financial flows to food systems with the Paris Agreement targets. This includes channelling public climate finance into food systems to support policies, programs, and projects that deliver on climate and other Sustainable Development Goals. The paper makes recommendations for policymakers, Parties to the Paris Agreement, and public sector climate finance donors on how to shift and increase funding for food systems transformation. The Presidency of the Conference of the Parties (COP) 27 in Egypt is focused on adaptation, agriculture, food, nutrition, and finance. It is high time to bring finance for sustainable food systems to the forefront of the international climate agenda.

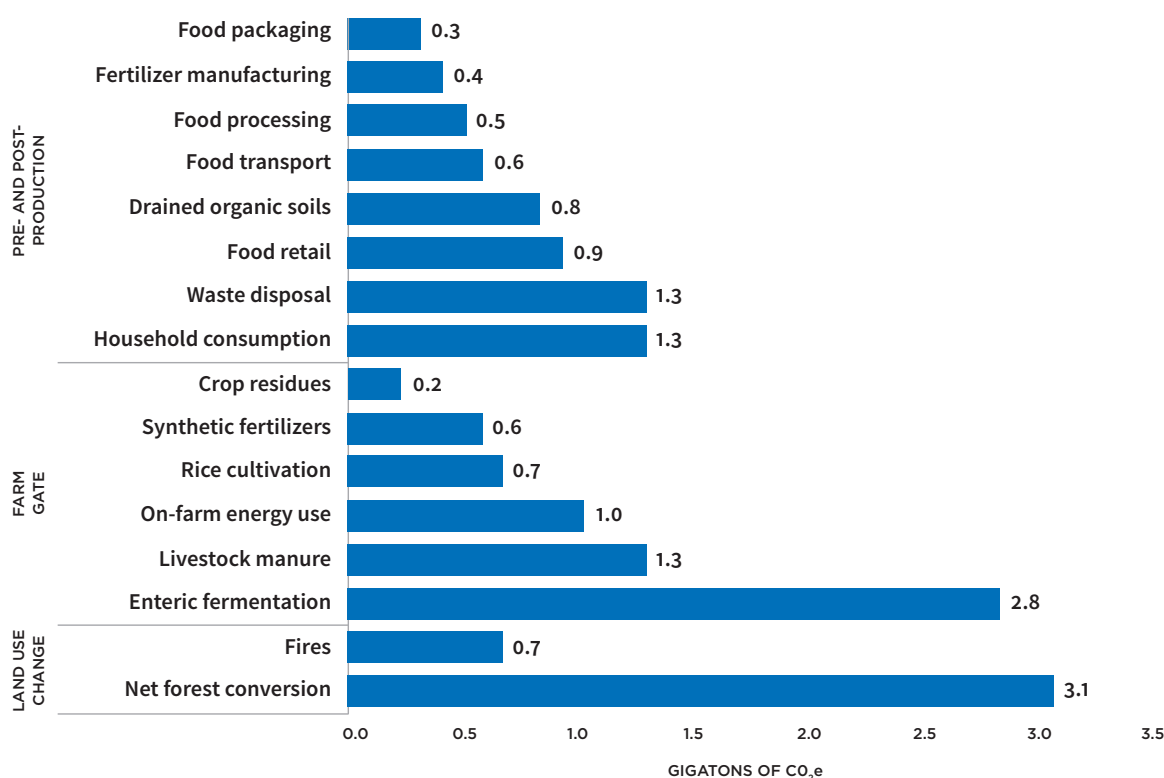
BOX 1: WHY INDUSTRIAL FOOD SYSTEMS FAIL US

Our current food systems have resulted in severe environmental, social, health, and economic challenges. The narrow focus on high yields, extensive use of chemicals in agriculture, concentrated livestock production, and extractive land and water practices is damaging ecosystem health, threatening and destroying biodiversity, and driving greenhouse gas (GHG) emissions (see Figure 1). The adoption of monocultural landscapes for food production has significantly eroded global soils and hindered nature's capacity to regenerate.⁶ Loss of biodiversity from deforestation and the destruction of natural ecosystems has also increased the risk of disease transmission from animals to humans.⁷

Further, deregulated and consolidated global value chains create inequity in access to food and exploit the workforce, undermining basic human rights.⁸ Losses of food production and access to food, compounded by decreased dietary diversity, have increased malnutrition in many communities – with millions in Africa, the Middle East, and Asia facing a looming famine.⁹ In addition, the large-scale production of a few commercial food commodities has led to land grabbing – particularly in tropical regions – with significant negative impacts on the livelihoods, cultures, and customary rights of local communities.¹⁰

To make matters worse, we are losing and wasting 40% of all the food we produce.¹¹ Global food losses amount to more than 10% of the world's energy consumption, while food systems in total account for around 30% of the world's energy use.¹² Even if significant technological changes in food production and storage practices are introduced, the efficiency gains will not be enough to reduce the food systems emissions significantly without other mitigation and adaptation interventions.¹³

FIGURE 1. EMISSIONS FROM FOOD SYSTEMS ACCOUNT FOR 33% OF GLOBAL EMISSIONS

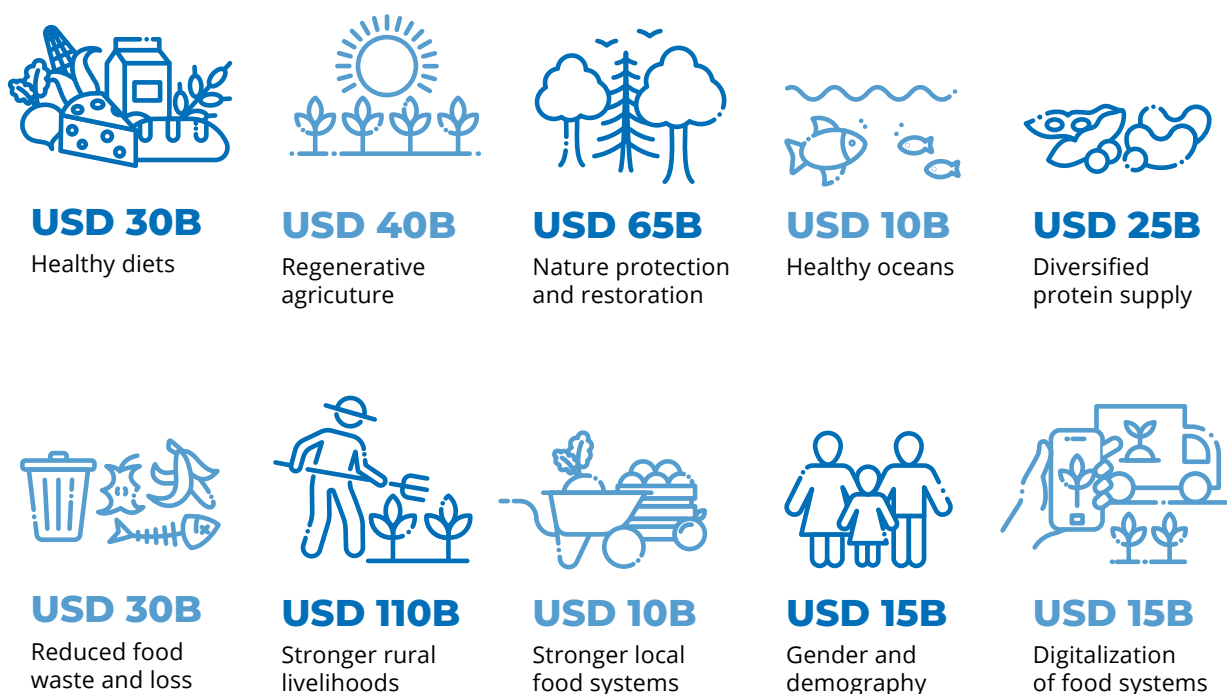


Source: Francesco N. Tubiello, et al., *Environ. Res. Lett.* 16 0650 (2021).

INVESTMENT IN FOOD SYSTEMS TRANSFORMATION IS UNDERFUNDED & OVERLOOKED

According to the Food and Land Use Coalition, we need **USD 300 to 350 billion per year to implement actions needed to transform our food systems (see Figure 2).**¹⁴ These investments are achievable: Even the top-end estimate is equal to less than 0.5% of the global gross domestic product in 2020. Finance is needed to protect and restore nature, adopt regenerative agricultural practices, shift to healthier diets, diversify protein supplies, reduce food loss and waste, and build stronger rural livelihoods and local food systems, among others. All of these have strong mitigation benefits and can help to build climate resilience. Without climate finance dedicated to food systems actions, we will not be able to meet the 1.5°C (2.7°F) target of the Paris Agreement or build food systems resilience against climate change.

FIGURE 2. ANNUAL FUNDING NEEDS FOR FOOD SYSTEMS TRANSFORMATION



Source: Food and Land Use Coalition, “Growing Better: Ten Critical Transitions to Transform Food and Land Use,” 2019. Available at <https://www.foodandlandusecoalition.org/wp-content/uploads/2019/09/FOLU-GrowingBetter-GlobalReport.pdf>.

Investing in this transition generates a multitude of benefits. In addition to lowering greenhouse gas (GHG) emissions and improving climate resilience, investing in food systems can halt biodiversity loss, reduce food insecurity and poverty, and increase access to sufficient, nutritious food for all.

The economic gains of such a transition are estimated at USD 5.7 trillion a year by 2030, and USD 10.5 trillion a year by 2050.^v Social returns include creating new jobs and markets in the fields of sustainable food production, transport, and consumption, estimated to be worth USD 4.5 trillion by 2030.¹⁵

Meeting these finance needs will require redirecting existing finance flows and raising new finance.

Most of the finance currently flowing to agriculture undermines climate goals and perpetuates destructive practices that weaken the sustainability of food production and distribution (see Box 1). This holds true for both public and private funding. Turning around incentive structures to build sustainable food systems requires political will and careful policy design to ensure an equitable and just transition.

Governments use an array of instruments to channel finance into food systems that influence what is produced, where, and how much.

These broadly include fiscal policy instruments, public finance instruments, financial regulations, and non-binding policies.¹⁶ Governments, for example, direct budget spending on credit lines and subsidies, and raise revenue through taxes, fees, and levies in the food sector; or channel public finance through grants, debt, equity, guarantees, and insurance both domestically and internationally. They also use regulations to steer the financial system and financial institutions within it, including regulations that affect monetary supply and influence how and where state and nonstate actors allocate their investments.

Public finance supporting agriculture and food production has significantly shaped our current food systems.

Historically, it has been the dominant source of finance for food systems across countries, influencing and determining which crops and livestock are produced as well as how and where they are made available. Finance may support producers directly through subsidies and price incentives or target the wider sector to create an enabling environment for the production and marketing of food products. Likewise, a lack of finance can reinforce the unequal distribution of value in food systems – the concentration of market power in the hands of just a handful of international companies and investors. This can inhibit the production and trading opportunities available to rural communities. In turn, the lack of investment reaching rural producers both perpetuates poverty and limits farmers' abilities to shift toward more sustainable practices.¹⁷

Despite rising rapidly, food systems financing remains small compared to what is needed.

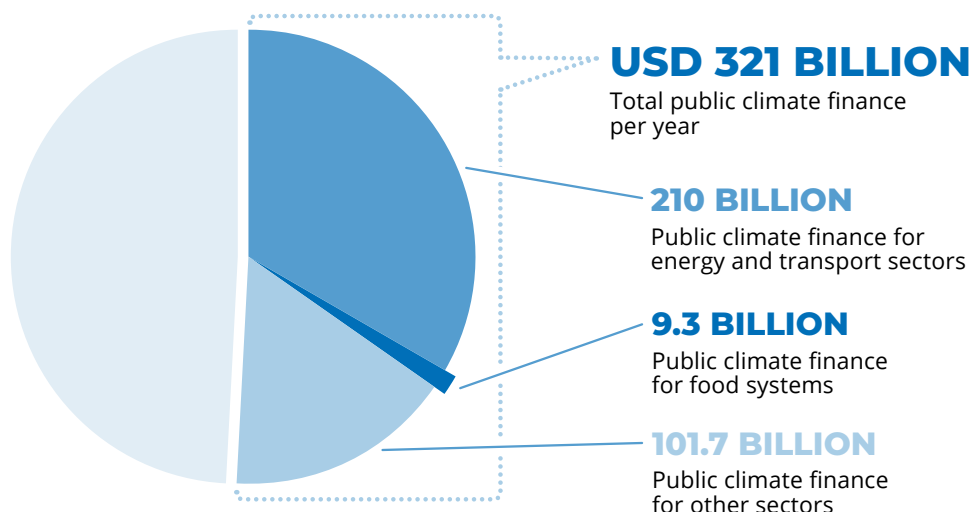
The Organization for Economic Co-operation and Development (OECD) tracks development finance flowing from public multilateral and bilateral sources to activities that have a climate-related objective. Their data reveals that public climate finance provided to food systems has quadrupled in the past 5 years.^{vi} In the period 2000–2015, food systems received USD 1.7 billion per year. This amount grew to USD 9 billion per year

v As compared to the “current trends” baseline scenario, which is based on historical trends. See FOLU, “Growing Better Report,” (2019). Available at <https://www.foodandlandusecoalition.org/wp-content/uploads/2019/09/FOLU-GrowingBetter-GlobalReport.pdf>.

vi Sources tracked by the OECD include DAC members, non-DAC members, multilateral development banks (MDBs), other multilaterals, and private donors. To calculate total public finance, we filtered out private donors.

during 2016–2020 (see Figure 3).^{vii} Development Assistance Committee members provided most of these funds – up to 75%, followed by multilateral development banks, which together provided most of the remaining volume of finance.^{viii} Multilateral climate funds (see Box 2) also channel finance to food systems–related activities. From 2003–2015, these funds channelled USD 57.4 million per year of climate finance to food systems–related activities, with this volume growing to USD 329.6 million per year during the period 2016–2021, bringing the total annual public finance to 9.3 billion during this period.^{ix}

FIGURE 3. FOOD SYSTEMS RECEIVED JUST 3% OF TOTAL PUBLIC CLIMATE FINANCE ON AVERAGE PER YEAR DURING THE PERIOD 2016–2020



TOTAL CLIMATE FINANCE PER YEAR USD 632 BILLION (including public, private, and other sectors)

Sources:

1. Climate Policy Initiative. (2021). Global Landscape of Climate Finance 2021. Retrieved September 21, 2022, from <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2021>.
2. Climate Focus analysis of OECD climate-related development statistics. See OECD. (n.d.). Climate Change: OECD DAC External Development Finance Statistics. Retrieved September 21, 2022, from <https://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/climate-change.htm>.

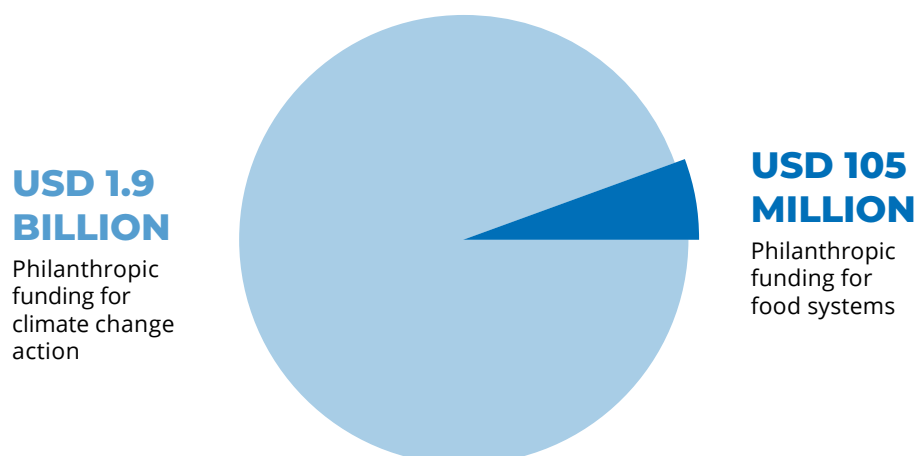
Philanthropic finance for food systems transformation, while growing, remains very small compared to total philanthropic funding for climate change action. Philanthropic finance flowing from foundations to climate change mitigation has grown steadily in recent years, from nearly USD 900 million in 2015 to over 1.9 billion in 2020 (see Figure 4).¹⁸ Finance provided by foundations to activities for decarbonizing

vii Under the conservative analysis, total public finance over the years 2000–2015 (inclusive) equalled USD 28.2 billion. This total was divided by 16 to obtain an annual average of USD 1.7 billion; total finance over the years 2016–2020 (inclusive) equalled USD 45 billion. This total was divided by 5 to obtain an annual average of USD 9 billion.

viii The Development Assistance Committee (DAC) of Organisation for Economic Co-operation and Development (OECD) is an international forum of many of the largest providers of development aid. At the moment, DAC has 30 members, including mostly European and North American countries as well as Australia, New Zealand, Korea, and Japan.

ix To calculate finance channelled by multilateral climate funds to food system measures, we used data from <https://climatefundsupdate.org/>. Under a conservative scenario, total finance over the years 2003–2015 (inclusive) equalled USD 746 million. This total was divided by 13 to obtain an annual average of USD 57.4 million; total finance over the years 2016–2021 (inclusive) equalled USD 1.98 billion. This total was divided by 6 to obtain an annual average of USD 329.6 million.

FIGURE 4. FOOD SYSTEMS RECEIVED JUST 5.5% OF PHILANTHROPIC CLIMATE FINANCE PROVIDED PER YEAR DURING THE PERIOD 2016–2020



Source: ClimateWorks, H. Desanlis, et al., “Funding Trends 2021: Climate Change Mitigation Philanthropy,” (2021). Available at https://www.climateworks.org/wp-content/uploads/2021/10/CWF_Funding_Trends_2021.pdf.

food systems and agriculture totalled an estimated USD 105 million between the years 2015–2020, accounting for 5.5% of total philanthropic giving to climate change mitigation.¹⁹ Activities supported include actions to increase efficiency in food production, encourage alternative production models, shift consumption patterns, support deforestation-free commodities, and accelerate a just rural transition. The major recipients of funding were Europe, Africa, and the United States of America, which received 20, 17, and 12% of these flows, respectively. Philanthropic funding could play a major role in supporting governments’ efforts to strengthen local food systems, build infrastructure, and build public awareness; funding could also support community and national food advocates and other stakeholders to take part in policy-making.

BOX 2: THE LANDSCAPE OF CLIMATE FINANCE

“Climate finance” broadly refers to finance channelled to activities that have a stated objective to mitigate climate change or support climate resilience. This includes multilateral funding flows within the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement frameworks as well as bilateral flows at national and regional levels. Multilateral climate funds represent the largest providers of climate finance. These are international institutions funded by several developed countries with the specific objective of advancing climate goals – usually in lesser-developed countries. Examples include the Global Environment Facility, Adaptation Fund, and Green Climate Fund. Climate finance is disbursed through a range of different modalities, most commonly through grants and concessional loans provided through multi- and bi-lateral channels.

The first recipients of climate finance include national or subnational governments, development finance institutions, research institutions, and non-governmental organizations. These institutions are typically responsible for managing disbursement to final beneficiaries, which may include small-scale producers, farmer cooperatives, or other actors in the food value chain. Many developing countries have established regional and/or national funds that aggregate domestic and international financial resources and facilitate its management and distribution.

GOVERNMENT SUPPORT & PUBLIC SECTOR FINANCE FOR FOOD SYSTEMS TRANSFORMATION

A tremendous opportunity exists for governments to do more to direct climate funding to food systems transformation. A country's Nationally Determined Contributions (NDCs) are an outlet to do this. These national climate action plans are at the heart of the Paris Agreement and the achievement of long-term climate goals. They embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.

While most developing countries include measures relevant for food systems in their NDCs, only about a quarter of them specify finance needed for implementing these measures. Our review of 167 NDCs reveal that 92% of developing countries make references to food as part of their mitigation, adaptation, or cross-cutting measures (see Table A.1 in the Appendix).^x However, only 27% of these countries specify any finance needs for these measures.^{xi} Among developed countries, the majority (62%) did not include measures for food systems, and only two countries include information on finance for NDC implementation.^{xii} Countries continue to focus on agriculture and land-use in their NDCs with little attention given to climate opportunities in addressing food loss and waste and consumption, both of which are important sources of emissions from food systems (see Figure 1).

Only 4% of finance needs quantified in the NDCs of developing countries are earmarked for implementing food system measures, despite land-based measures in these countries having potential to provide almost one-fifth of global mitigation needed to meet the 1.5°C (2.7°F) target of the Paris Agreement.^{xiii}

Collectively, these countries state financing needs of USD 14 billion per year to implement their planned food systems measures, which include ecosystem conservation, sustainable agriculture, and fisheries and aquaculture. This value is much lower than the stated USD 64 billion needed for their energy and transport measures. However, as outlined in the following pages, most of the stated finance needs do not clearly specify in which sector (e.g., agriculture, energy, or others) and for what measures (e.g., mitigation or adaptation) (see Figure 5).

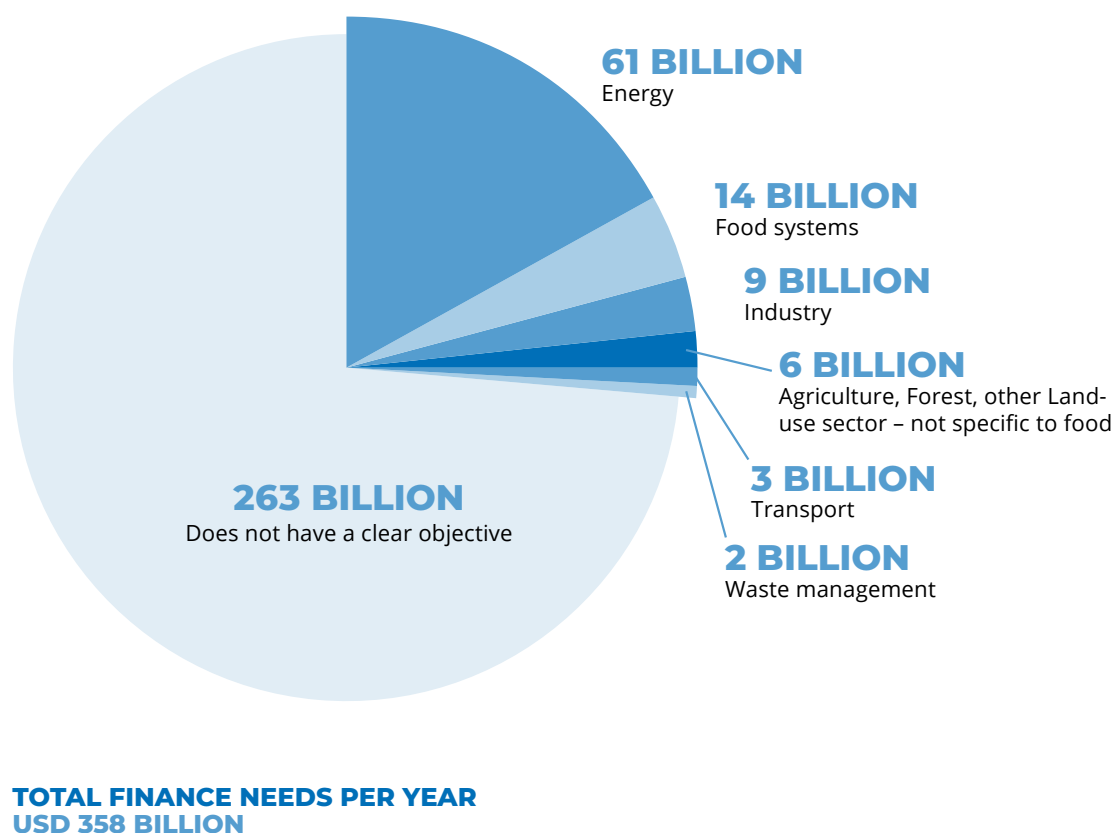
x We reviewed the most recently submitted NDC documents (as of May 15, 2022) found in the UNFCCC NDC Registry at <https://unfccc.int/NDCREG>.

xi Developing countries are Non-Annex I Parties to the UNFCCC as per division and groupings of countries by the UNFCCC.

xii Developed countries are Annex I and Annex II Parties to the UNFCCC as per division and groupings of countries by the UNFCCC.

xiii For mitigation potential data, see S. Roe, et al. "Land-Based Measures to Mitigate Climate Change: Potential and Feasibility by Country," *Global Change Biology* 27 (23): 6025–6058.

FIGURE 5. ONLY 4% OF FINANCE NEEDS STATED IN NDCs OF DEVELOPING COUNTRIES IS DEDICATED TO IMPLEMENT FOOD SYSTEMS MEASURES



Current climate finance flows focus primarily on measures in energy and transport, with over 80% of climate funding going to these sectors. Of the total USD 632 billion in climate finance delivered during 2019–20, USD 509 billion was channelled to mitigation activities in the energy and transport sectors, while only 14 billion went to land-use activities and the rest was channelled to water, infrastructure, and cross-sectoral activities.²⁰ While these flows cannot be considered entirely distinct from food systems activities – e.g., energy or transport interventions may indirectly facilitate more sustainable production and distribution of food and a large portion of finance for land use goes to food systems – the volume of climate finance being channelled to food systems remains dwarfed by finance being provided to other sectors.

Directing public climate finance to food systems measures requires specification of clear mitigation and adaptation targets in NDCs. A recent comprehensive assessment of 14 NDCs by the Global Alliance for the Future of Food found that NDCs differ greatly in the manner and extent to which they consider and integrate food systems.²¹ This is undoubtedly a reflection of the great diversity in food systems and climate priorities across the globe. Nevertheless, public and private funders refer to the NDCs to ensure that the finance provided is in line with the goals of the host country. Good examples of integrating food systems measures into NDCs can be found in Kenya’s and Colombia’s NDC (see Box 3 and Box 4). They include specification of mitigation and adaptation measures that can clearly be identified as a food systems measure as well as funding needs for their implementation.

BOX 3: FOOD SYSTEMS MEASURES & FINANCE NEEDS IN KENYA'S NDC

The overall objective of Kenya's NDC is to reduce national greenhouse gas (GHG) emissions by 32% relative to business as usual by 2030.²² Finance needs for implementing measures in the period up until 2030 are estimated at USD 60 billion, 13% of which will be funded by domestic resources while the remaining 87% will require international support.

Kenya's NDC specifies several mitigation measures that have potential to contribute to food systems transformation, including scaling up nature-based solutions and climate-smart agriculture. Adaptation measures include building the resilience of agricultural systems through sustainable management of land, soil, and water and strengthening early warning systems for weather events.

The country's National Climate Action Plan outlines mitigation and adaptation measures to achieve NDC targets and the Medium-Term Plan (2018–2022) outlines budgets for implementing these measures:

TABLE 1. MOST RELEVANT FOOD SYSTEMS MEASURES & FUNDING NEEDS FOR THEIR IMPLEMENTATION IN THE MEDIUM-TERM PLAN

ACTIVITIES	OBJECTIVE	FUNDING NEEDS (USD MILLION, 2018–2022) ^{xv}
AGRICULTURAL INSURANCE PROGRAM	To manage risks and losses amongst smallholder farmers and pastoralists	292
CLIMATE-SMART AGRICULTURE PROGRAM	To promote adaptive and mitigation capacities in agriculture	240
FERTILIZER SUBSIDY	To improve agricultural productivity through accessible, affordable, and quality fertilizers	109
AGRICULTURAL MECHANIZATION PROGRAM	To increase crop production	51
CROP DIVERSIFICATION PROGRAM	To improve productivity of traditional high-value and industrial crops, and livestock	35
FOOD & NUTRITION SECURITY PROGRAM	To improve food and nutrition security	34
TRADITIONAL HIGH-VALUE CROPS (THVC) PROGRAM	To improve farmers' access to quality seed and planting materials	1

xv Figures are rounded to their nearest whole number.

BOX 4: FOOD SYSTEMS MEASURES & FINANCE NEEDS IN COLOMBIA'S NDC

The overall objective of Colombia's NDC is to achieve an unconditional reduction in greenhouse gas (GHG) emissions of 51% by 2030. Total finance needs for implementing the country's Nationally Determined Contribution (NDC) measures up until 2030 are estimated at a minimum USD 0.6 billion.

The updated NDC contains mitigation measures put forward by national ministries, cities, and department governments as well as private sector companies (which have not yet been quantified). Mitigation measures referenced in the NDC that have the potential to positively contribute to food systems transformation include promoting agroecology and regenerative approaches; strengthening capacities related to agroecology and regenerative agriculture; and strategies to protect, conserve, and recover natural resources and ecosystems as well as strengthen protected areas. The NDC also includes measures for promoting diversified food production that is adapted to different microclimates and sociocultural contexts. Table 2 outlines the specified food systems activities and funding needs for each.

TABLE 2. FOOD SYSTEMS MEASURES & FUNDING NEEDS FOR THEIR IMPLEMENTATION

ACTIVITIES	FUNDING NEEDS (USD MILLION, 2018–2022) ^{xvi}	IMPLEMENTATION PERIOD (YEARS)
DEVELOPMENT OF THE PROJECT “LOW-EMISSION AND RESILIENT AGRICULTURE TO CLIMATE VARIABILITY AND CHANGE IN COLOMBIA”	85	7
FUNCTIONING OF THE TECHNICAL AGRO-CLIMATIC ROUNDTABLES	1.3	5
RESEARCH ON POTENTIAL USES OF NATIVE SPECIES	0.8	5
IMPLEMENTATION OF THE WATER GOVERNANCE PROGRAM	0.5	4
RESEARCH AND INNOVATION FOR SPECIES PROPAGATION IN ECOSYSTEMS VULNERABLE TO CLIMATE CHANGE	0.5	10

xvi Figures are rounded to their nearest whole number.

ALIGNING FOOD SYSTEMS FINANCE & CLIMATE OBJECTIVES

Governments have an important role to play in ensuring that the finance flowing to food systems measures does not undermine climate objectives. This may seem logical, but in reality, there is often misalignment between spending and incentives in the agricultural sector and climate action. OECD reports that every year between 2019–2021, USD 528 billion in public money was channelled to the agricultural and food production practices with potentially destructive impacts on climate, environment, and human health.^{xvii} What's more, approximately half of this finance was channelled through instruments such as payments linked to farm output without constraints on the use of potentially harmful farm inputs and practices, such as herbicides, pesticides, and use of synthetic fertilizers.²³ As little as 0.3% of finance provided to the agricultural producers was conditional on environmental welfare criteria.^{xviii} The total amount of finance channelled to producers in the agricultural sector during 2019–2021 was more than double the amount channelled to the sector a decade ago, and is 66 times greater than the climate finance provided for food systems during the same period.^{xix} This finance can be repurposed to agricultural practices (e.g., agroecology) with multiple climate and environmental benefits without undermining local livelihoods.

Production has moved away from native and indigenous varieties toward a narrower scope of products, in the process eroding the extensive and sophisticated local agricultural knowledge once present and weakening food systems resilience against climate change and other crises as dependence on just a few commodities has increased.

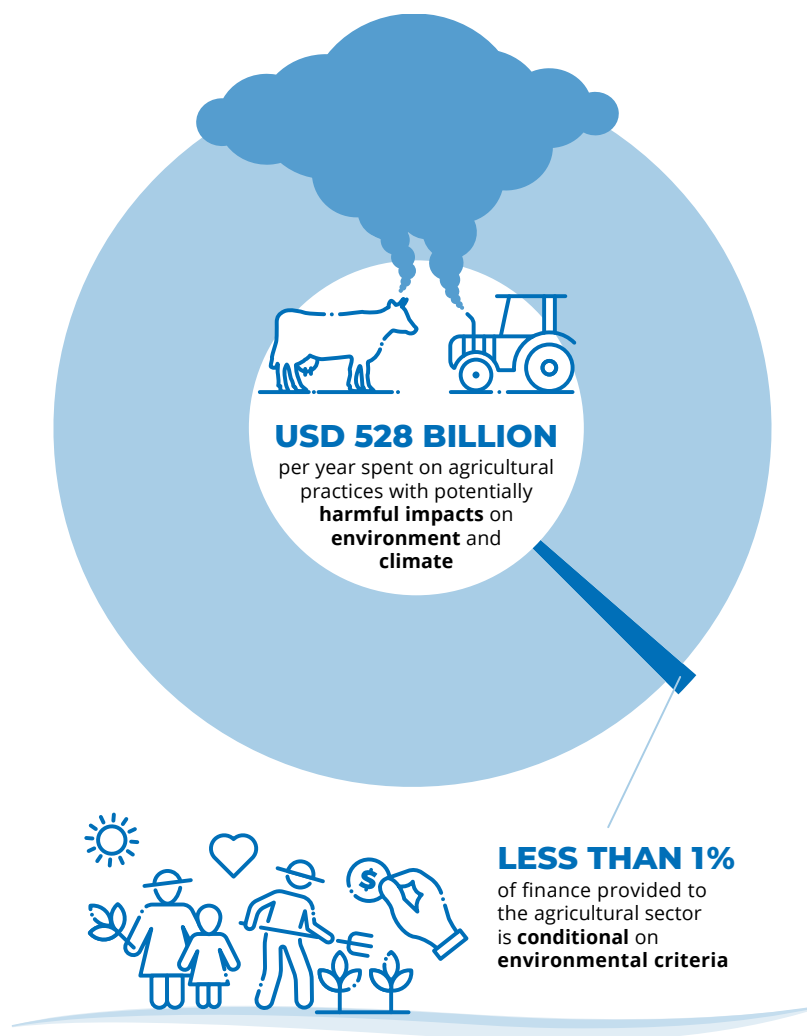
Emissions-intensive and unhealthy commodities receive the most fiscal support while fruits and vegetables are less supported overall.²⁴ Sugar, beef, dairy, and rice are the commodities receiving the highest levels of public support worldwide – mostly delivered through market price support – despite their potentially negative impacts on health and climate. Beef, dairy, and rice collectively account for 80% of global emissions from cultivation practices.²⁵ The support has the dual effect of increasing production of these commodities while creating disincentives to produce healthier, more nutritious, and culturally diverse foods. Production has moved away from native and indigenous varieties toward a narrower scope of products, in the process eroding the extensive and sophisticated local agricultural knowledge once present and weakening food systems resilience against climate change and other crises as dependence on just a few commodities has increased.²⁶ The impact of this financial support on the climate is particularly relevant for high- and upper-middle-income countries, where dairy and meat consumption per capita is higher. In poorer countries and regions, the production of staple foods such as cereals receives more support, leaving farmers with fewer incentives to diversify production toward more nutritious foods.²⁷

xvii Provided by the OECD countries and 11 major developing economies. See OECD, “Agricultural Policy Monitoring and Evaluation 2022: Reforming Agricultural Policies for Climate Change Mitigation,” in *Agricultural Policy Monitoring and Evaluation* (2022). Available at https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2022_7f4542bf-en.

xviii Only USD 1.7 billion in agricultural support was directly linked to the provision of environmental goods.

xix Own calculations based on amount of public climate finance going to food systems and total harmful finance support agricultural producers as reported by OECD. Total producer support was USD 252 billion in 2011 and USD 611 billion per year in 2019–2021.

FIGURE 6. PUBLIC FOOD SYSTEMS FINANCE WITH POTENTIALLY DESTRUCTIVE ENVIRONMENTAL IMPACTS



Source: Own analysis based on OECD, “Agricultural Policy Monitoring and Evaluation 2022,” (2022). Available at https://www.oecd-ilibrary.org/agriculture-and-food/agricultural-policy-monitoring-and-evaluation-2022_7f4542bf-en.

In addition to shaping farmers’ decisions during food production, public subsidies can also influence consumer purchasing behaviour. Between 2018–2020, for example, the EU provided EUR 60 million (USD 60.1 million) for marketing campaigns that promoted the consumption of pork, beef, poultry, and lamb;²⁸ and most countries subsidize the production and consumption of meat and dairy at a far higher rate than plant-based sources of protein for human consumption.²⁹ In the EU alone, between EUR 28.5 to 32.6 billion (USD 28.56 to 32.67 billion) goes toward livestock farms or producing fodder for livestock every year, eventually reducing the price of these goods when they reach the consumer.³⁰ In low- and middle-income countries, subsidies overwhelmingly target staple commodities such as wheat, maize, and rice to enhance farm incomes and protect food security. However, while such subsidies have helped reduce the price of these staple foods, they have also created a disincentive for consumers in the form of distorted higher prices for more nutritious foods that do not receive subsidies.³¹ Subsidies can, however, also be used to support the transformation of food systems to improve dietary diversity and access to healthy food, and decrease poverty (see Box 5).³²

The Organisation for Economic Co-operation and Development's (OECD) flagship annual Agricultural Policy Monitoring and Evaluation publication (2022) explicitly outlines how reforming agricultural policies can contribute to climate change mitigation while still meeting sustainable development objectives.³³ The six policy reforms recommended include:

1. Phase-out market price support and payments that present risks to the environment and risks of distorting markets and trade. Support for inputs with potentially harmful environmental impacts should be taxed, not subsidized, in accordance with their negative environmental externalities.
2. Re-orient budgetary support to the provision of public goods and key general services. This includes redirecting support toward direct, decoupled environmental payments, such as payment for ecosystem services, and carbon sequestration in agricultural soils.
3. Target income support to households most in need. Transitional assistance and extended social safety nets will be needed for farmers most affected by the removal of negative price supports to offset sudden income losses or high food costs.
4. Enhance the resilience of the sector in today's world of increasing risks and extreme weather events. This includes investment in research and development, data, and other tools that can help anticipate and manage small- and large-scale risks.
5. Implement effective pricing systems for agricultural greenhouse gas (GHG) emissions. Mechanisms that put an explicit price on emissions – such as emissions taxes, trading schemes, and offsets – are the most effective way to account for the range of abatement costs that exist across the sector.

In addition to public money, public policy and regulation significantly shape how private finance influences food systems. The current aggregate value of the global food system is an estimated USD 9 to 11 trillion dollars.^{xx} In the absence of regulation to make private finance coherent with climate goals, increasing investments in the food and agriculture sector have led to negative environmental and social impacts through the production of key agricultural commodities. Between 2015–2020, global meat and dairy companies received USD 478 billion from 2,500 investment firms, banks, and pension funds around the globe.³⁴ Another study in the European Union found that investors channelled USD 70 billion between 2010–2015 to subsidiaries of 23 firms who had been linked to land grabbing and illegal deforestation in their production and trading of agricultural products.³⁵

USD 9 TO 11 TRILLION The current value of the global food system.³⁶

USD 478 BILLION The amount received by global meat and dairy companies with significant negative environmental impacts between 2015–2020 from 2,500 investment firms, banks, and pension funds around the world.³⁷

xx Planet Tracker estimate based on ongoing food system research by Planet Tracker using a database of over 400,000 companies across 160 countries. Source: Planet Tracker, “Planet Tracker,” (n.d.). Available at <https://planet-tracker.org/>.

10 RECOMMENDATIONS TO DIRECT CLIMATE FINANCE TO FOOD SYSTEMS TRANSFORMATION

The following recommendations aim to facilitate the flow of climate finance that contributes to food systems transformation.

FOR POLICYMAKERS

1. Clearly identify food systems measures in Nationally Determined Contributions (NDCs). NDCs are used by donors and investors to ensure that finance provided is aligned with the priorities of the host country. They play an essential role in directing finance, but very few NDCs clearly mention planned measures for mitigation and adaptation in food systems. This makes it challenging for funders aiming to support food systems measures to identify activities in need of support that are in line with the host country's priorities. Outlining which activities fall within food systems and how they are aligned with national priorities in the country's NDC can help to better attract funding for these measures.

2. Include funding for food systems mitigation and adaptation in NDCs. Once food systems measures are identified in NDCs, a price tag should be attached to each activity. Quantifying the investment needed will help international funders get a clear picture of the level of commitment needed.

3. Include targets and indicators to measure how climate investments yield multiple benefits. Performance measurement is critically important for funder reporting. Metrics related to mitigation activities often take the form of emissions reductions achieved. Adaptation interventions lack such standardized, quantifiable outcomes. Adding a suite of health, social, and other environmental targets and indicators to NDCs will provide a fuller picture of the impact of mitigation and adaptation measures, including those related to food systems. This can help to attract international climate finance.

4. Redirect public finance and leverage private finance to activities that align with NDCs. In many cases, existing finance stymies the achievement of climate goals and perpetuates other social and environmental crises. Policymakers must reform public support from business-as-usual agriculture. This can be done either by re-channelling mainstream agricultural support to other public goods and services aligned with climate targets by making investment conditional upon achieving environmental and social outcomes. Another option is to use public finance to de-risk investments that yield high social and environmental returns but have longer payback periods (such as many investments in climate resilience through food systems transformation).

5. Recognize and account for the true costs and benefits of investments in building sustainable national food systems. Climate action and finance are currently siloed in sectoral approaches that address mitigation and adaptation activities. This makes it challenging to identify food systems investments among other sectoral spending – and sometimes it's overlooked altogether. Policymakers should raise the profile of sustainable food systems in a way that best meets their national context to channel funding to holistic food systems policies and actions.

6. Create cross-sectoral linkages and mechanisms to ensure policy coherence across government.

A cross-sectoral government body that coordinates national priorities linked to food systems can ensure policy coherence in key ministries including climate, environment, health, and others. Coordination should also extend beyond the ministerial level and seek to engage regional and local authorities and the wider public through activities such as citizens' assemblies. The development of food systems policies must be shaped by people, communities, and their institutions. This process needs to be informed by diverse evidence, knowledge systems, and ways of thinking that uphold and value the interconnectedness between our food systems, health, and the planet.

7. Minimize externalities, trade-offs, and risks by aligning climate and food systems policies.

Most of the finance supporting food systems is not aligned with climate goals and risks perpetuating other social and environmental crises. Care must be taken when developing and adjusting policies to ensure that the objectives of climate- and food-related policies are complementary, and that any trade-offs are minimized. This includes putting processes in place to ensure that policy coherence is achieved and maintained over time.

FOR DONORS & INVESTORS

1. Increase funding going to adaptation interventions in agriculture. Most finance is still directed to mitigation activities. Increasing the finance available for adaptation activities is especially relevant for countries in the Global South whose farmers lack access to the capital, savings, and insurance mechanisms that can safeguard against the shock of crop failures, livestock losses, and other risks caused by climate change. The provision of better indicators for measuring the impact of adaptation investments – as described in recommendations for governments – can also help provide financiers with the clarity they need to make and measure investment into adaptation activities.

2. Increase funding going to mitigation measures in food systems. Presently, most mitigation measures focus on supply-side activities such as agroecology, regenerative agriculture, and actions to conserve and restore ecosystems from the impacts of agriculture. Demand-side measures such as the promotion of dietary changes, tackling food waste, and emissions-reduction activities in food processing, storage, and transformation are rarely identified as Nationally Determined Contribution (NDC) priorities and, as a result, lack funding support. To tap into the mitigation potential of food systems, funding must be expanded to these other mitigation measures.

3. Assess funding and investment portfolios to minimize negative externalities and maximize social, economic, health, and environmental returns over time. This may include leveraging private finance to scale and fund local and national food and nutrition security, agroecology, and regenerative agricultural projects. For example, a small grants fund that is flexible and easy to access by locally led and innovative food systems initiatives can deliver multiple benefits to local communities.

We must move toward food systems that are focused on multiple benefits, including health, resilience, diversity, equity, inclusion, renewability, and interconnectivity. If we are to address the climate crisis and deliver on all Sustainable Development Goals, we must capitalize on the mitigation potential of our food systems and recognize the need to invest in climate resilience to cope with the impacts already being felt around the world. This demands not only new climate finance but also redirecting existing financial flows toward climate-aligned actions in food systems.

APPENDICES

APPENDIX 1: SUMMARY OF NDC REVIEW

The following table presents a list of all Nationally Determined Contributions (NDCs) reviewed and whether they included information on finance needs for NDC implementation, food systems measures, and clear finance needs for specific measures relevant for food systems transformation. An Excel sheet with the finance numbers for each NDC can be received upon request to the Global Alliance for the Future of Food.

TABLE A.1. OVERVIEW OF NDCs REVIEWED

COUNTRIES	Are quantified finance needs included in the NDC?	Are some or all aspects of food systems considered in the NDC?	Are specific finance needs included for relevant food systems measures?
Afghanistan, Angola, Bangladesh, Belize, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Chad, Colombia, Congo, Cuba, Democratic Republic of Congo, Dominican Republic, El Salvador, Equatorial Guinea, Gambia, Ghana, Guinea, Jordan, Kiribati, Lao PDR, Malawi, Mali, Mauritania, Moldova, Morocco, Myanmar, Namibia, North Macedonia, Pakistan, Papua New Guinea, Rwanda, Saint Kitts and Nevis, Seychelles, Sierra Leone, Somalia, South Sudan, Sudan, Suriname, Togo, Zimbabwe	Yes	Yes	Yes
Botswana, Cabo Verde, Central African Republic, Comoros, Côte d'Ivoire, Djibouti, Dominica, Egypt, Eritrea, Eswatini, Ethiopia, Fiji, Grenada, Guinea Bissau, Haiti, India, Indonesia, Kenya, Kyrgyzstan, Lesotho, Liberia, Madagascar, Mauritius, Monaco, Mongolia, Mozambique, Nepal, Niger, Nigeria, Palestine, Panama, Saint Lucia, Sao Tome and Principe, Senegal, South Africa, Tanzania, Tunisia, Vanuatu, Viet Nam, Zambia	Yes	Yes	No
Palau, Trinidad and Tobago, Turkmenistan, Ukraine	Yes	No	No
Nicaragua	No	Yes	Yes

CONTINUED

TABLE A.1. OVERVIEW OF NDCS REVIEWED, CONTINUED

COUNTRIES	Are quantified finance needs included in the NDC?	Are some or all aspects of food systems considered in the NDC?	Are specific finance needs included for relevant food systems measures?
Albania, Algeria, Andorra, Antigua and Barbuda, Argentina, Armenia, Azerbaijan, Bahamas, Bahrain, Barbados, Belarus, Bolivia, Brazil, Brunei Darussalam, Chile, China, Costa Rica, Democratic People's Republic of Korea (North Korea), Ecuador, European Union, Gabon, Georgia, Guatemala, Guyana, Honduras, Iceland, Iraq, Japan, Jamaica, Kazakhstan, Kuwait, Lebanon, Malaysia, Maldives, Marshall Islands, Mexico, Montenegro, Nauru, New Zealand, Niue, Norway, Oman, Paraguay, Philippines, Qatar, Republic of Korea, Saint Vincent and the Grenadines, Samoa, Saudi Arabia, Singapore, Solomon Islands, Sri Lanka, Syria, Tajikistan, Thailand, Timor-Leste, Tonga, Trinidad and Tobago, Turkey, United Arab Emirates, United States, Uruguay, Uzbekistan, Venezuela	No	Yes	No
Bosnia and Herzegovina, Cook Islands, Israel, Liechtenstein, Micronesia, Peru, Russia, San Marino, Serbia, Switzerland, Tuvalu, Uganda	No	No	No

APPENDIX 2: METHODOLOGICAL NOTES

1. CALCULATING THE INTERNATIONAL PUBLIC FINANCE FOR FOOD SYSTEMS

We used the most recent data on climate-related official development finance at the activity level reported by the Organisation for Economic Co-operation and Development (OECD) [here](#). To calculate the total public climate finance going from OECD to food systems, we filtered this data to get a conservative estimate of finance going to projects or activities relevant for food systems. The filter may have excluded some forestry-related projects that fall in the Agriculture, Forestry and Other Land Use (AFOLU) sector but did not have clear food-relevant objectives.

Our conservative estimates included public international support for food systems projects with the following description and/or objective: agrarian reform; agricultural alternative development; agricultural cooperatives; agricultural development; agricultural education/training; agricultural extension; agricultural financial services; agricultural inputs; agricultural land resources; agricultural policy and administrative management; agricultural research; agricultural services; agricultural water resources; agro-industries; basic nutrition; emergency food

assistance; fishery development; fishery education/training; fishery research; fishery services; fishing policy and administrative management; food assistance; food crop production; food safety and quality; food security policy and administrative management; forest industries; forestry development; forestry education/training; forestry policy and administrative management; forestry research; forestry services; household food security program; industrial crops/export crops; livestock; livestock/veterinary services; and plant and post-harvest protection and pest control.

We used the most recent data from Climate Funds Update found [here](#) to calculate finance going from multilateral climate finance initiatives to food systems projects and activities. To do this, we filtered this data to get a conservative estimate of finance going to projects or activities relevant for food systems. The filter may have excluded some forestry-related projects that fall in the AFOLU sector but did not have clear food-relevant objectives.

Our conservative estimates included public international support for food systems projects with the following description and/or objective: agriculture; agricultural alternative development; agricultural development; agricultural financial services; agricultural land resources; agricultural policy and administrative management; agricultural production; agricultural water resources; agriculture and landscape development; agriculture/coastal management; agro-industries, agroforestry; basic drinking water services; agriculture water resources; fishing policy and administrative management; food aid; food security programs; food crop production; food security policy; livestock; and plant and post-harvest protection and pest control.

2. CALCULATING ESTIMATES OF FINANCE NEEDS IN THE NDCs

In reviewing and calculating climate finance needs in the most recent NDCs of 167 Parties to the Paris Agreement found [here](#) in the NDC registry of the UNFCCC, a team of reviewers took the following stepwise approach:

1. An assessment framework was created to identify what information and references are critical to gathering information on finance and food systems mentioned throughout each NDC. Specifically, this would allow us to gather information related to financing mitigation and adaptation plans, sector-specific finance information, and specific narrated food system measures. The framework used the following terms to identify food systems measures and finance: sustainable agriculture, agroecology, regenerative agriculture, sustainable and healthy diets, ecosystem conservation, afforestation and ecosystem restoration, sustainable fisheries and aquaculture, and strengthening food systems governance.
2. Three reviewers applied this assessment framework, reviewing all 167 NDCs in a spreadsheet. When needed, NDCs were translated into English using DeepL, a translation software, to identify and collect data. The NDC documents varied in length and level of detail. Some NDCs do not compile sectoral-based finance information but instead detail project-specific finances. When NDCs included finance for specific measures related to food systems mitigation or adaptation (i.e., sustainable agriculture, agroecology, regenerative agriculture, sustainable and healthy diets, ecosystem conservation, afforestation and ecosystem restoration, sustainable fisheries and aquaculture, or strengthening food systems

governance), this finance was categorized as finance for food systems; and if the description of a measure was not clear, the finance was categorized as unspecified or unclear. Other NDCs do not detail sectoral nor project-specific finance and solely include mitigation and adaptation totals, in which case we categorized the finance as “unspecified or unclear.” When a range of a finance needs was stated in the NDC, researchers recorded the highest limit articulated to encapsulate the full frame of reference for food-related finance in these NDCs. No differentiation between finance for conditional and unconditional targets and measures was made. Both were combined as total finance needed. While care was taken to limit subjectivity, the main limitation of the framework was that it allowed reviewers to interpret the scope of measures in the NDCs in order to categorize the finance needs relevant for food systems and other sectors.

3. These researchers then analyzed the spreadsheet, synthesizing results to compile finance needs in the following categories: total finance, finance for specific sectors (i.e., energy, transport, industry, waste, AFOLU), finance for food systems measures, and unspecified or unclear finance.
4. Finally, these researchers re-checked and verified all finance-related information and numbers before they were examined by a fourth researcher who was not involved in developing the prior framework.

APPENDIX 3: DEVELOPING RECOMMENDATIONS FOR POLICYMAKERS & PUBLIC SECTOR DONORS & INVESTORS

The recommendations are informed by research by the Global Alliance for the Future of Food and inputs from expert interviews with key actors in the climate finance landscape. The project team conducted semi-structured interviews with eight experts from international climate mechanisms and development aid agencies including Green Climate Fund, the Adaptation Fund, International Fund for Agricultural Development (IFAD), the United States Agency for International Development (USAID), African Development Bank, and the Government of Kenya. The interviews were designed to gather insights on challenges and opportunities in channelling finance into food systems measures for climate change mitigation and adaptation.

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ABOUT THE GLOBAL ALLIANCE FOR THE FUTURE OF FOOD



The Global Alliance for the Future of Food is a strategic alliance of philanthropic foundations working together and with others to transform global food systems now and for future generations. We believe in the urgency of transforming global food systems, and in the power of working together and with others to effect positive change. Food systems reform requires that we craft new and better solutions at all scales through a systems-level approach and deep collaboration among philanthropy, researchers, grassroots movements, the private sector, farmers and food systems workers, Indigenous Peoples, government, and policymakers.

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