WORLD BANK GROUP

What We Do

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Climate-Smart Agriculture: From Knowledge to Implementation

Weather station in crop field. Photo: ©Suwin66 - Shutterstock

HIGHLIGHTS

- *In fiscal year 2024, climate finance amounted to 62 percent of total lending in the agriculture and food sector, in the World Bank.*

- *World Bank food- and agriculture-oriented projects approved between FY22-24 are expected to avert 174.5 million tons of CO2 emissions in their lifetime.*

- *As of fiscal year 2024, active World Bank projects in agriculture and food have supported 4.7 million farmers in adopting improved agricultural technologies.*

Climate-smart agriculture, which aims to achieve the triple goal of reducing emissions, increasing resilience, and boosting productivity, represents an important pathway toward low-emissions and resilient development while ensuring food security. However, the agrifood system still receives only 4.3 percent of global climate finance, and coordinating action across many stakeholders is complicated. Since the Paris Agreement, the World Bank increased its annual investment in climate-smart agriculture eightfold to nearly $3 billion by fiscal year 2023 (FY23). In fiscal year 2024 (FY24), climate finance amounted to 62 percent of total lending in the agriculture and food sector, which represents a significant increase from 51 percent from the previous year. Newly approved projects in FY22-24 in agriculture and food are expected to avoid 174.5 million tons of CO_2 equivalent emissions. As of FY24, active World Bank projects have helped 4.7 million farmers to adopt improved agricultural technologies including CSA technologies, while advancing global food security and sustainability.

Challenge

Around the world, climate change is threatening agriculture and food production, driving millions of people into poverty and food insecurity. Agriculture is also a major driver of climate change, emitting a third of total global greenhouse gas emissions. Limiting the impacts of climate change on the global supply of food hinges on transforming the food system itself. Globally, governments provide over $650 billion per year in public support to the agriculture sector—but much of this spending disrupts markets, fails to reach beneficiaries, or generates high environmental and health-related costs.

Between the Paris Agreement (2015) and FY23, the World Bank increased its annual investment in climate-smart agriculture eightfold to nearly $3 billion. However, the

global agrifood system still receives only 4.3 percent of global climate finance. A broader coalition of actors and innovative approaches are needed to significantly scale up this financing.

Approach

The World Bank's approach to boosting climate-smart agriculture includes three main elements: (i) producing **knowledge and diagnostics** on how to achieve food security and development goals in the context of a rapidly changing climate, (ii) turning analytics into action through **financing and advice,** including repurposing of existing support programs to help countries roll out more sustainable policies, technologies, and other investments, and (iii) **bringing financing and impact to scale** through global partnerships and crowding in private sector financing. These operations align with the Sustainable Development Goals (SDGs), particularly SDG 2: Zero Hunger and SDG 13: Climate Action, by focusing on initiatives that combat hunger and promote climate resilience.

The first pillar of the World Bank's approach is the use of diagnostics to inform and accelerate climate action in the agriculture and food sector. These aim to help governments, private investors, citizens, and development partners identify actionable opportunities for implementing climate-smart agriculture.

Issued in 2024, the Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System offers a comprehensive global strategic framework for mitigating the agrifood system's contributions to climate change. It shows how the agrifood system can cut greenhouse gas emissions while continuing to feed the world, and identifies affordable, impactful solutions for high-income, middle-income and low-income countries.

At the macroeconomic level, Country Climate and Development Reports help countries prioritize actions to reduce greenhouse gas emissions and boost adaptation and resilience, while delivering on broader development goals across sectors. The reports identify specific opportunities in farming, livestock and broader food systems investments.

The World Bank and partners have produced a series of country-level Climate-Smart Agriculture Investment Plans that identify concrete public and private

financing opportunities for developing the sector. Most recently, the World Bank is developing a new series of Food-System Climate Action Plans that aim to address both adaptation and mitigation challenges across a country's entire food system.

The second prong of the World Bank's approach is financing and advice. The World Bank offers a comprehensive range of investments and technical advice, and executes large-scale programs of support for farmers, communities, and consumers, focusing on several key priority areas such as climate-smart rice production, sustainable livestock, and value chains.

The World Bank is currently supporting seven countries (Bangladesh, Colombia, Ghana, Indonesia, Malawi, Mozambique, and Tanzania) to repurpose public policies and expenditures to increase farmers' productivity and resilience while reducing emissions. In Colombia, for instance, long-term credit lines and credit guarantee instruments are incentivizing small- and medium-sized farms to invest in climate-smart agriculture. In Indonesia, the World Bank works with the government to improve the efficiency and efficacy of a $2 billion fertilizer subsidy program.

The final pillar of the World Bank Group's approach involves leveraging partnerships and knowledge to help bring financing and impact to scale. This approach works to increase awareness of the agriculture-climate change nexus while mobilizing a coalition of organizations dedicated to promoting climate- smart agriculture around the world and investing in sophisticated tools and practices.

For example, the World Bank contributed as a knowledge partner to the COP28 UAE Declaration on Sustainable Agriculture, Resilient Food Systems, and Climate Action.

The World Bank also supports the Sharm el-Sheikh Joint Work on Implementation of Climate Action on Agriculture and Food Security, a four-year work program under the United Nations Framework Convention on Climate Change (UNFCCC), adopted at COP27, to address the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change.

Results

As the world's largest funder of agricultural development assistance, the World Bank puts climate-smart agriculture at the heart of all of its agriculture and food portfolio. In close collaboration with the World Bank, developing countries have been incorporating lessons from World Bank-produced diagnostics into their national agricultural plans and investments. In Bangladesh, the government and the World Bank partnered to invest $578 million in a project derived from Bangladesh's Climate-Smart Agriculture Investment Plan, resulting in the adoption of new technologies by 127,500 farmers. In Lesotho, the investment plan informed the design of a $57 million smallholder agriculture project that helped nearly 24,000 vulnerable farmers bring beans, maize, peas, and potatoes to market despite arid conditions.

The World Bank's financing and advisory approaches also play a critical role in promoting climate-smart agriculture. In FY24, **climate finance amounted to 62 percent of total lending in the agriculture and food sector**, which represents a significant increase from 51 percent from the previous year. World Bank projects in agriculture and food (approved between FY22-FY24) are expected to **avert 174.5 million tons of CO2 emissions** in their lifetime. As of FY24, active World Bank projects in agriculture and food have supported **4.7 million farmers in adopting improved agricultural technologies.** The **Viet Nam** Sustainable Agriculture Transformation Project reduced water use and methane emissions while equipping over 156,000 rice-farming households in the Mekong Delta with practices to produce more higher-quality rice that boost livelihoods and contribute to sustainability. In **Bangladesh**, the NATP-2: National Agricultural Technology Program - Phase II Project mobilized more than 1 million smallholder farmers—of whom 366,000 were women—and organized them into groups. The adoption of climate-smart and innovative practices led to 15-60 percent increases in members' per hectare crop yield, productivity of fisheries, and livestock productivity over eight years of project implementation.

Innovative financing approaches also are having an impact. In 2023, **Uruguay** secured a $350 million development policy loan from the World Bank with an innovative, built-in interest reduction mechanism. Under this pioneering loan, interest payments will be reduced if Uruguay meets its ambitious targets for lowering the methane emissions intensity of beef production.

Partnerships are yielding concrete dividends. To date, the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) project has reached 7 million farmers in **Ethiopia, Ghana, Kenya, Mali, Senegal, and Zambia** with enhanced climate services and technologies for climate-smart agriculture. In collaboration with CGIAR and a large coalition of regional and country-level partners, the project aims to strengthen the capacity of governments, regional organizations, farmers, and other relevant stakeholders to use climate data and new technologies. It is also building a new research hub for fertilizer and soil health in West Africa.

Partnerships

The World Bank Group's approach to climate-smart agriculture relies heavily on partnerships. Regional and international organizations such as CGIAR are integral to this effort, supporting projects like the West Africa Food System Resilience Program (FSRP). The private sector is also an important partner to scale financing and impact. Additionally, the World Bank works with international coalitions, such as under UNFCCC, regional partners, and local stakeholders including farmers and community groups, ensuring broad-based participation and impact in its projects.

Looking ahead

Moving forward, the World Bank aims to further expand its climate-smart agriculture initiatives by increasing investment, producing new knowledge, broadening global partnerships, and innovating in financial mechanisms and strategic planning. Strategic frameworks such as "Recipe for a Livable Planet" provide scalable models that countries can adapt to their contexts. Additionally, innovative financing mechanisms, like the performance-based interest reduction loans exemplified by the example of Uruguay discussed above, offer replicable models that integrate financial incentives with environmental outcomes. Together, these strategies suggest a robust blueprint for extending the reach and effectiveness of climate-smart agriculture efforts worldwide.

RELATED

Publication:

- Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System

Websites:

- Climate Smart Agriculture
- Climate Smart Agriculture Investment Plans
- Climate Explainer Series: What You Need to Know About Food Security and Climate Change

Multimedia:

- **Podcast**: Table For 10 Billion: Recipe For A Livable Planet
- **Video**: Recipe For A Livable Planet Launch Event
- **Explainer Video:** Recipe For A Livable Planet
- **Immersive Story:** Recipe for a Livable Planet
- **Video**: A Better Food System For Healthier People, Planet And Economy
- **Video:** COP29 - Climate Solutions in Agrifood: Building Tomorrow's Sustainable Food Economy

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