



Task Force 6
Accelerating SDGs: Exploring New
Pathways to the 2030 Agenda



IDENTIFYING PATHWAYS FOR SCALING UP CLIMATE- SMART AGRICULTURE

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Abstract



Climate-smart agriculture (CSA) is an evolving concept at the centre of global food security, climate action, and disaster risk reduction. The G20 leaders have resolved to adopt a climate-smart pathway for food and nutrition security through several declarations. Attaining the goals of the Paris Climate Agreement to limit the global mean temperature rise to 1.5 will not be possible without transitioning the world's agri-food systems in a climate-friendly manner. CSA provides an encompassing

framework to address mitigation, adaptation, and productivity challenges. This Policy Brief recommends a pathway that the G20 leaders and other intergovernmental collaborations could lead to accelerate CSA adoption: Existing multi-stakeholder platforms can be strengthened for collaboration, knowledge sharing, and information exchange; an enabling environment for deploying CSA should be created; and the planning, adoption, and implementation of monitoring, evaluation, and learning (MEL) processes for CSA should be accelerated.



The Challenge



1



Climate-Smart Agriculture (CSA) was first ideated in 2009 by the Food and Agriculture Organization (FAO) and the World Bank, and has since been refined and reshaped with inputs from various stakeholders.¹ The goal of CSA is to provide a new set of principles for the management of agriculture in a changing climate, with its focus on climate mitigation along with adaptation and productivity improvements.² CSA could also support the achievement of the Sustainable Development Goals (SDGs) and the Paris Agreement.³

The growing focus on CSA is timely. An estimated 22 percent of global greenhouse gas emissions in 2019 were from the agriculture, forestry, and other land use sectors.⁴ Moreover, adverse impacts of climate change on agricultural productivity—including those of increased frequency and intensity of extreme weather events such as floods and droughts—have diminished food and water security, thereby creating a massive challenge to meet the SDGs.⁵ A 2022 FAO report emphasises that the quest to end hunger, food insecurity, and malnutrition in all its forms is in a downward trend. In 2021, an estimated 2.3 billion people—or 30

percent of the global population—were moderately or severely food insecure. The COVID-19 pandemic caused the situation to further deteriorate, affecting 350 million more people after 2019.⁶ This trend underlines the need to focus on all three components of CSA—i.e., productivity, mitigation, and adaptation. In this context, CSA presents an encompassing framework that attempts to improve productivity while addressing mitigation and adaptation in the sector.

Despite such ambitions, the current practices of CSA are not without their challenges. A primary challenge is to acknowledge, identify and address the nexus of the three goals that CSA promises to deliver. Critics highlight that this “triple-win” theory is not a given—i.e., it cannot be substantiated that progress in one objective necessarily advances the other two.^{7,8} Therefore, maximising synergies and minimising trade-offs are critical for its implementation. Advances in CSA need a holistic approach by broadening the scope to include inter-, multi-, and transdisciplinary approaches; consider the entire agriculture value chain; and move beyond simple technological/scientific solutions. CSA implementation also requires addressing some common



governance challenges like fixing the gap between policy and practice; developing a participatory approach; focusing on small-scale producers, with women as primary targets; understanding and integrating the political economy context in planning and implementation; and finally, measuring progress using pre-defined monitoring, evaluation, and learning (MEL) processes.^{9,10}

CSA should grow to become a process to practise and govern agriculture and allied sectors to enhance nutritious food, lives, and livelihoods, and the sustainable use of natural resources in a changing climate. Simultaneously, it must ensure equity, especially for women and small-scale producers, acknowledge interdependence, and minimise trade-offs and maximise synergies wherever possible.

Although there is a substantial increase in global collaborations on efforts to improve food security,¹¹ there is also fragmentation in the agriculture sector on approach, framing and terminologies. For instance, a 2021 study on sustainable agriculture in India noted 70 definitions of the term ‘sustainable agriculture’.¹² Related concepts like ‘CSA’, ‘sustainable agriculture’, ‘agroecology’, ‘regenerative agriculture’, ‘organic farming’, and ‘natural farming’ attempt to achieve similar outcomes via slightly varying pathways. Therefore, while developing solutions that are critical for food security, there is a need for ‘true’ collaboration in the sector across the interest groups following the myriad different but related approaches, framing and terminologies. This brief recommends pathways for CSA; the challenges outlined by the authors are not limited to only CSA implementation, but across all the solution pathways identified for other related approaches.



The G20's Role

2





G20's focus on tackling food security and nutrition challenges has been instrumental in navigating global food crises. The G20 members have come together in the past to host multiple high-impact initiatives towards enhanced transparency of food markets, risk management, innovation in agricultural production, and increased investment in food security. With the looming climate change-induced food crisis, food security, productivity and sustainability have been the goal of successive G20 Agriculture Ministers' declarations.

Most recently, the Matera Declaration of 2021 called for “better understanding and managing of climate risks, leveraging the power of the private sector and of the local, national, and international

agricultural research organisations and knowledge institutes, as well as focusing on sustainable management and use of natural resources that are essential to the food system.”¹³ These goals were echoed in the 2022 G20 Bali Leaders' Declaration, with a call for an “accelerated transformation towards sustainable and resilient agriculture and food systems and supply chains, coordinated actions to address food security challenges including price surges and shortage of food commodities and fertilisers globally.”¹⁴ These declarations and the deliberations of G20 Agriculture ministers through the Agriculture Working Group since its inception in 2011 have sparked G20 and its members' domestic actions toward improvement in agriculture value chains, productivity, and nutrition. Some of these initiatives are listed in Table 1.¹⁵

Table 1: Key G20 Initiatives for Improvement in Agriculture Value Chains, Productivity, and Nutrition

Key initiative	Year of inception	Objective	Source
Global Agriculture and Food Security Programme (GAFSP)	2010	Assists projects across the agriculture value chain through financial and technical support.	16
AgResults	2010	Incentivises the private sector through financial rewards for successful and high-impact innovations and their adoption.	17
Agricultural Market Information System (AMIS)	2011	Coordinates policy action in agriculture during market uncertainty to enhance transparency in food markets.	18
Group on Earth Observations Global Agricultural Monitoring Initiative (GEOGLAM)	2011	Makes relevant, timely, and actionable information on agricultural conditions and outlooks of production at various scales accessible to all.	19
G20 Framework for Analysing Policies to Improve Agricultural Productivity Growth Sustainably	2011	Identifies innovation, structural change and natural resource use, and climate change as the main drivers of productivity and sustainability in food and agriculture	20
International Research Initiative on Wheat Improvement (IRIWI)	2011	Reinforces cooperation and coordination between national and international wheat research programs.	21
G20 Agricultural Chief Scientists (MACS)	2012	Coordinates international efforts on agricultural research systems and aids nations in solving major challenges in agriculture and nutrition.	22
Tropical Agriculture Platform (TAP)	2012	Supports tropical countries in developing capacities for agricultural innovation.	23
Technical Platform on the Measurement and Reduction of Food Loss and Waste (TPFLW)	2015	Coordinates policy and sharing knowledge on the prevention of food loss.	24
Platform for Agricultural Risk Management (PARM)	2021	Provides technical support to governments of Least Developed Countries and Lower Middle-Income Countries for the integration of ARM into policies, institutional capacities, and investments for building resilience in the agricultural sector.	25



Under the Indian presidency this year, the focus on agriculture has further been intensified, providing an important opportunity for joint global efforts on food security. The calls are for “policy

coherence with a food system approach to policies, and common support for innovation and therefore technical and technological solutions.”²⁶



Recommendations to the G20

3





The recommendations contained in this Policy Brief focus on the following action pillars: Engage, Align, Accelerate, and Account.^{a,27} The proposals aim to better engage stakeholders at the international, national, and local levels; align ambitions and strategies, policies and approaches at various scales; accelerate actions using data and information; financing; capacity development; innovation and governance; and seek accountability among all processes and policies using a shared framework for MEL.

Recommendation 1: Strengthen multi-stakeholder platforms for collaboration, knowledge sharing, and information exchange.

The G20 countries and partnerships should leverage their position and influence to bring together representatives from various stakeholder and interest groups to deliberate and contribute collectively on shared

challenges, opportunities, policy actions, and advocacy strategies, especially through existing CSA and CSA-relevant multi-stakeholder platforms (MSP). The Matera Declaration could be the pivot for continuing participatory action required for this. A number of initiatives in the form of multi-stakeholder initiatives are underway to support agriculture amidst a changing climate. Prominent among these, initiated for the advancement of CSA, is the Global Alliance of Climate-Smart Agriculture (GACSA) facilitated by FAO, started in 2014.^b Among the GACSA government members of the G20 countries, currently, only agriculture departments from Japan and the US and the Global Affairs Department of Canada are a part of this alliance.²⁸

The G20 may consider the following actions. First, the G20 should lead the alignment of the numerous stakeholders employing different approaches to improve agriculture under climate change and variability and encourage collaboration in the common aspects. Second, the G20 should encourage its

a We have adopted this framework, developed for the water and sanitation sector, as a guide for our recommendations because the authors agree that the accelerators identified are a suitable starting point even for a different (but connected) sector like agriculture.

b GACSA is an inclusive, voluntary, and action-oriented multi-stakeholder platform on CSA with a vision to improve food security, nutrition and resilience in the face of climate change.



member countries to enrol as members of MSPs like the GACSA and others. Third, the G20 should actively support existing and build new joint work programmes with the goal of knowledge exchange and experience sharing in these MSPs. An immediate research goal could be to test, assess, evaluate, demonstrate and document CSA-relevant practices and interventions from across the globe. This could pave the way to developing process learning and perusing options and enablers for future investments in a collaborative manner. A few other relevant and important research priorities and work programme ideas are discussed in recommendation 2.

Recommendation 2: Create an enabling environment for deploying CSA that are context-specific and targeted.

The G20 member countries and partnerships should lead the development of a robust enabling environment for establishing CSA by accelerating data and information generation, generating and leveraging finance, capacity development for multiple stakeholders, bolstering innovation and technology transfer, and establishing relevant governance

systems. The following actions should be prioritised by the G20 countries to facilitate an enabling environment for the scaling up of CSA in the member countries.

First, to achieve a robust enabling environment for CSA, improve data and information by developing scientific and policy research on CSA practices and governance using the capabilities in the G20. Developing adaptation and resilience in agriculture systems needs a thorough understanding of the process since they are a complex function of physical, physiological, chemical, and biological processes. Continuing to understand the agricultural systems through research is critical. Investigation of methods that are context-specific for mitigating climate impacts on agriculture and adapting agricultural practices and technologies to climate change is also required. To analyse whether intervention choice is guided by vulnerability, an ongoing project at the Council on Energy, Environment and Water (CEEW) mapped out and overlaid the interventions to districts with high flood and drought vulnerability.²⁹ Preliminary findings suggest that there is a low overlap between climate risk and risk-related interventions. Future interventions should be better



targeted based on climate vulnerability and related needs. Existing spatial vulnerability datasets could act as a guide to choosing and implementing adaptation interventions.

Second, governance of these interventions requires institutional capacity for the design and implementation of policy options and interventions that are dynamic and adaptive. Research focusing on policy frameworks and options should also encompass an understanding of synergies and trade-offs, especially in the CSA objectives. Exchange between G20 countries should enable cross-learning between the nations exhibiting the institutional capacities, discussed earlier in this brief, in one or more CSA areas and those in need of the same. This would enable the collective improvement of institutional capacities wherever required.

Third, the G20 nations should drive and leverage catalytic finance and investments for CSA in line with the Matera Declaration. The importance of the establishment of the 'Finance in Common' Working Group on Financing Sustainable Food Systems, led by

the International Fund for Agricultural Development (IFAD), cannot be overemphasised.³⁰

Fourth, capacity development at all scales should be prioritised. For instance, CEEW, the Asian Institute of Technology (AIT), and Asian Development Bank (ADB) through their engagements with various governments across Asia, have understood that there is a need to build capacities of various stakeholders for effective climate action. Such capacity-building efforts need to focus on understanding the climate risks to agriculture, assess existing agricultural practices for their impact and enablers, and analyse interventions that can make agriculture climate-resilient and able to mitigate.

Fifth, encouraging innovation as well as technology transfer for scaling up CSA is an important accelerator. For instance, technology transfer for scaling up micro-irrigation technologies has led to efficient use of water,³¹ reduction in groundwater depletion,³² and reduction in greenhouse gas emissions from irrigated agriculture.³³ Such technological breakthroughs are paramount for making CSA a reality.

Recommendation 3: Accelerate planning, adoption and implementation of MEL processes for CSA at all scales.

Countries and global partnerships like the G20 must participate to accelerate MEL for CSA.^c The primary approach of institutionalising MEL for climate change systems at a global scale was forged by the United Nations Convention on Climate Change (UNFCCC) at the Conference of the Parties (COP) 13 in Bali in 2007. Parties to the convention adopted the measurement, reporting and verification (MRV) framework for transparency, primarily to assess emissions and emissions reductions to ensure whether and how efforts to combat climate change are paying off.³⁴ The deliberations on the Paris Agreement rulebook have led its parties to work towards an Enhanced Transparency Framework (ETF) which details how they must report on

progress in climate action and support provided or received.^{d,35,36} G20 countries must lead the efforts to strengthen mitigation-focused ETF and overall MEL and improve and implement adaptation-focused ETF and MEL should be of high priority for CSA.^{e,37,38} Implementing MEL will ensure that there is a possibility of comparing and assessing between types of interventions and consequently provide ample evidence to drive evidence-based policymaking and upscaling.

The G20 countries and partnerships can focus on the following two actions. First, develop and drive CSA programme and project-level monitoring and evaluation using indicators and taxonomy that is universal and therefore, comparable. The CEEW is working on a project in three Indian states where its analysts evaluate 60 impact assessment studies of implemented projects including pilots and demonstrations using a systematic-like review methodology. More than 100

c MEL embodies a cyclical process to ensure accountability and assess progress by forming a crucial link between elements like goals/objectives and progress; implementation and impact; implementers and beneficiaries; policymakers and policies, among others.

d The ETF builds and enhances the existing MRV arrangements and facilitates reporting on information on climate change impacts and adaptation. All developed and developing countries are encouraged to complete their existing transparency reports by 31 December 2024.

e Adaptation reporting remains loose as the nature of adaptation itself is context- and country-driven and scale-specific, with little global consensus on an appropriate method to stock-take progress.



impact indicators were recorded across these studies evaluating the impact of interventions. Majority of the indicators reported were unique and not used in more than three studies, indicating the lack of a common indicator repository making the comparison between studies difficult.³⁹ A universal taxonomy, at least at a project and programme level will facilitate a tally of outputs, outcomes and impacts that can subsequently be combined for ETF reporting on climate change impacts and adaptation.

Second, facilitate institutional readiness to support reporting at all scales that can be culminated in the national ETF. Most developed countries already have institutional arrangements in place that are relatively better established than developing countries. In that regard, the developed G20 countries should hand-hold the developing nations and build capacity for the development of domestic appropriate institutional arrangements.⁴⁰

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