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## **G20 Agriculture Working Group Side Events**

**Event 1: Stock Taking Exercise of G20 Initiatives**

**Event 2: Global Forum on Climate Smart Agriculture  
for Food Security**

**First Agriculture Deputies Meeting**

**February 13, 2023**

**1400Hrs to 1800Hrs IST**

## AGENDA

### Side Event 1: Stock taking of G20 initiatives in agriculture

1. Welcome Remarks by **India Co-Chair- Dr. Abhilaksh Likhi, Addl. Secretary**
2. Opening Remarks by **Indonesian Co-Chair- Dr. Kasdi Subagyono, HoD**
3. Presentation by **AMIS** (Agriculture Market Information System)
4. Presentation by **GEOGLAM** (Group on Earth Observations Global Agricultural Monitoring Initiative)
5. **Open Discussion**
6. Presentation by **TAP** (Tropical Agricultural Platform)
7. Presentation by **Wheat initiative**
8. **Open Discussion**
9. Presentation by **PARM** (Platform for Agricultural Risk Management)
10. Presentation by **TPFLW** (Technical platform on measurement and reduction of Food Loss and Waste)
11. **Open Discussion**
12. Wrap up and closing remarks by **Brazilian Co-Chair-Mr. Roberto Perosa, HoD**

### Side Event 2: Global Forum on Climate Smart Agriculture for Food Security

1. Opening Remarks by **India - Mr. Samuel Praveen Kumar, JS (Extension)**
2. Address by Co-Chair – **Dr. Rob Vos, IFPRI-** (G20 Collaborations to Promote Climate Smart Agriculture for Global Food and Nutrition)
3. Presentation by **Dr. Guillaume Gruere, OECD-** (Inclusive Policies for Tech-driven Climate-Smart Agriculture)
4. Presentation by **Dr. Anbumozhi, ERIA-** (Climate-Smart Agriculture for Livelihoods Protection and Opportunities)
5. **Q&A Session**
6. **Address by World Bank Co-Chair – Dr.Geeta Sethi -(Changing Farming for Changing Climate)**
7. Presentation by **Mr. Kunal Prasad, COO, Cropin-** (Agri-business Strategies for Climate-Smart Agriculture)
8. Presentation by **Dr. Srivalli Krishnan, BMGF-** (Adoption of climate smart agriculture by smallholder farmers in India)
9. Presentation by **Dr. Navin Twarakavi, ADB-** (Innovative Financing to Facilitate Climate Smart Agriculture Approaches)
10. **Q&A Session**
11. Closing Remarks by **Dr. Sachin Chaturvedi, DG, RIS**

Side Event Coordinators: Dr.Priti Priyadarshni and Ms.Vanshika Singh

## **SIDE EVENT-1**

### **Stock Taking Exercise of G20 Initiatives**

## Concept Note

### Background

The G20 or Group of Twenty is an intergovernmental forum comprising 19 countries and the European Union (EU) for international economic cooperation. It works to address major issues related to the global economy, international financial stability, climate change adaptation, and sustainable development.

While commitments around agriculture and food security were made since 2009, they were a part of the broader commitments under the Development Working Group (DWG), which focused on supporting the needs of the vulnerable beyond G20 economies. With rise in price volatility and global food crisis, the agriculture segment garnered more attention. Subsequently, in 2011, the French Presidency convened the meeting of the Agriculture Deputies. It was to mark the importance of agricultural production and productivity and their gravity in promoting food security and fostering sustainable economic growth. The G20 Ministers of Agriculture met for the first time in Paris on 22-23 June 2011 and agreed to mobilize the G20 capacities to address the key challenges of the sector, in close cooperation with all relevant international organisations and in consultation with producers, civil society and the private sector. The relevance of the agriculture segment within G20 countries was pronounced with 36 commitments made in 2011 on agriculture, food and nutrition. In 2022, on the occasion of the 17th G20 summit in Indonesia, 20 commitments were made on agriculture, food and nutrition, which accounted for 9 percent of the total commitments made across 22 sectors.

The meetings of the G20 Agriculture Deputies provide a platform for deliberation on issues affecting agriculture and food security in close cooperation with international organisations, and under the guidance of their respective ministers. Over the years, the meetings of the G20 Ministers of Agriculture led to the introduction of a series of important initiatives (Annexure A) to strengthen the food and agricultural sector and increase cooperation in many areas of work.

As tasked in the 2017, G20 Agriculture Ministers Declaration, a stocktaking exercise was initiated to be conducted on a regular basis from the First Agriculture Deputies Meeting of 2018. The exercise consisted in taking stock of the initiatives launched by the G20 Agriculture Ministers since its creation in the 2011 French G20 presidency.

### **Purpose for Stock-Taking Exercise**

In accordance with the Terms of Reference (TOR) established in 2017, Berlin G20 Agriculture Deputies Meeting, the defined purpose of the exercise is as follows:

1. To provide an account of achievements, developments and to address challenges observed since the 2011 French Presidency.
2. To benefit from the opportunity of discussion, this exercise provides and ensure consistent collaboration with other relevant G20 work streams.
3. To identify a number of opportunities for further leveraging the unique capabilities of the initiatives, for achieving more coherence across the different G20 Presidencies.
4. To prepare recommendations, guidance, and support for initiatives as appropriate for the consideration of the G20 Agriculture Ministers as a basis on their continuous alignment with the other multilateral standards and frameworks, not limited to the G20 Food Security and Nutrition Framework.
5. To communicate and update G20 Agriculture Ministers and Sherpas regularly on the status of ongoing initiatives and to establish their level of progress in implementation

### **Scope and structure of the Meeting**

The stocktaking exercise will help undertake a systematic and comprehensive overview of the six global agriculture initiatives started under G20 Summits. It will also give an opportunity to the G20 member nations to identify ways to work together to achieve the mandate of the initiatives. The exercise will contribute to a greater understanding of the strengths, synergies, gaps, constraints and opportunities for cooperation and partnerships.

A review of the initiatives since the last stock taking exercise will inform the G20 Agriculture Ministers and Sherpas about the status and implementation progress.

Each initiative will be allocated 10 minutes to provide a presentation on the aim, purpose and objective of the initiative along with an update on the progress made since the last review exercise in 2021. It is suggested that the presentations and subsequent discussion by the G-20 member countries, invited countries and international organizations focus around the broad questions given below. This will enable the G20 Presidency in providing recommendations, guidance, and support, based on which future decisions on the initiatives can be made.

## Background Note on G20 Initiatives

### 1. Agricultural Marketing Information System (AMIS)

Launched in 2011, AMIS is an inter-agency platform to address price volatility and enhance food market transparency and policy response for food security. The data comprises demand-supply information on global production of rice, wheat, soya-bean and maize. It also includes a policy database that helps to share information on regulation, import tariffs, quotas, and producer-consumer estimates.

AMIS is composed of G20 members plus Spain and seven additional major exporting and importing countries of agricultural commodities. Together, AMIS participants represent a large share of global production, consumption and trade volumes of the targeted crops, typically in the range of 80-90 percent. By enhancing transparency and policy coordination in international food markets, AMIS has helped to prevent unexpected price hikes and strengthen global food security.

To carry out its functions, AMIS consists of: *The Global Food Market Information Group* assembling technical representatives from AMIS participants, to provide reliable, accurate, timely and comparable market and policy information; *The Rapid Response Forum* composed of senior officials from AMIS participants, to promote early discussion about critical market conditions and ways to address them; and *The Secretariat* involving ten international organizations and entities, to produce short-term market outlooks, assessments and analyses and support all functions of the Information Group and the Forum.

The Crop Monitor for AMIS brings together over 40 partners from national and global monitoring systems, space agencies, agriculture organizations and universities. These Crop Monitors were designed to provide a public good of open, timely, science-driven information on crop conditions in support of market transparency for the G20 Agricultural Market Information System (AMIS). The Crop Monitor methods were then adapted and applied to countries at risk of food production shortfalls, in line with the goals of the GEOGLAM initiative.

**Aim:** Enhance food market transparency and coordination of policy responses

**Objectives:**

- (a) To improve agricultural market information, analyses and forecasts at both national and international levels;
- (b) To report on “abnormal” international market conditions, including structural weaknesses, as appropriate and strengthen global early warning capacity on these movements;
- (c) To collect and analyze policy information, promote dialogue and responses, and international policy coordination; and
- (d) To build data collection capacity in participating countries.

**Emerging priorities, Opportunities, and Challenges for AMIS**

Over the past 10 years, AMIS has successfully contributed to enhancing global food market transparency and the coordination of policy responses. By providing up-to-date and objective data and analyses, AMIS has become a trusted source of information; at the same time, the initiative’s efforts to promote policy dialogue among the principal trading countries of main food commodities (wheat, maize, rice and soybeans) have helped stabilize global markets. The experience with COVID-19 has shown the need for a better understanding of market logistics and value chains. Going forward it will be important to strengthen the exchange of information among the AMIS participants and further consolidate the network. In addition, we also need to think about fostering a better understanding of global input markets (e.g. fertilizer), expanding the monitoring work of the Secretariat to other markets and commodities (e.g. vegetable oils), and strengthening research and analysis, including through model-based approaches.

## **2. The Global Agricultural Monitoring Initiative (GEOGLAM)**

Launched in June 2011 by the Group of Twenty (G20) Agriculture Ministers and reaffirmed in January 2017, the GEOGLAM initiative forms part of the G20 Action Plan on Food Price Volatility.

GEOGLAM aims to utilise and build on existing programs through coordinated earth observation, capacity development, monitoring, research and development activities with help of tools such as Crop monitor for early warning (CM4EW), AMIS Crop Monitor, Crop-watch and Sen2Agri. The primary purpose of GEOGLAM is to increase the transparency of the market and enhance food security by timely producing and disseminating the relevant and actionable information about agricultural condition and outlook of production at regional, national and global scales. It is achieved by strengthening the international community's capacity to use coordinated, comprehensive and sustained Earth observation.

The operational R&D foundation of GEOGLAM is the Joint Experiments for Crop Assessment and Monitoring (JECAM). Its goal is to reach a convergence of analytical approaches, developing monitoring and reporting protocols and best practices for a variety of global agricultural systems. The Thematic Coordination Team on Capacity Development (Cap-Dev Team) promotes the community research and operationalization agenda, developing a strategic vision for capacity development for GEOGLAM, documenting and promoting good practices around capacity development, coordinating the transfer of research-to-operations, and working with scientific leads. GEOGLAM has greatly benefited from open data sharing. Crop-Watch assesses national and global crop production and related information using remote sensing and ground-based indicators. The Sen2-Agri system is an operational standalone processing system generating agricultural products from Sentinel-2 (A&B) and Landsat 8-time series along the growing season. These different products consist of: Monthly cloud-free composites of surface reflectance at 10–20 m resolution, monthly dynamic cropland masks, delivered from the agricultural mid-season onwards, cultivated crop type maps at 10m resolution for main crop groups, delivered twice along agricultural seasons, periodic vegetation status maps, NDVI and LAI, describing the vegetative development of crops each time a cloud-free observation is recorded.

**Aim:** To coordinate and strengthen the international community's capacity to generate and utilize sustained Earth observations to enable timely and effective food security decision making.



**Objective:**

To increase market transparency and improve food security by producing and disseminating relevant, timely, and actionable information on agricultural conditions at national, regional, and global scales, to support markets and inform early warning for proactive response to emerging food emergencies

**Priorities:**

- Improved knowledge of the state and changes of agricultural production through better monitoring at the global to farm scale. This includes sustained systematic monitoring and improved forecasting.
- Support for a rapid response capacity to produce timely information in support of programs and policies that respond to emerging issues associated with market conditions and climate extremes.
- Building institutional and technical capacity in less-developed countries for better decision-making.

**Opportunities:**

- Increased attention from governments on national food security in the context of extreme climate events, conflict, and disruptions to global trade.
- Enabling less developed nations to utilize existing open science resources, including access to data, computing, and analytics, for example the GEOGLAM National Adaptation Plan Guidance document, and associated training activities. Thus, creating the institutional and technical foundation to inform and drive forward more financially resilient, smallholder farming systems, and ultimately open the door to the implementation of climate smart agriculture practices.
- Developing an integrated AMIS/GEOGLAM Rapid Response capacity. This initiative is being developed in response to the increasing need for rapid agricultural assessments in the face of extreme weather, conflict, and supply chain disruptions. The goal is to provide rapid, actionable agricultural assessments both pre-emptively in response to emerging concerns and triggered at the request of various ministries of agriculture from around the world; the G20 AMIS Secretariat member organizations; international humanitarian organizations; and other relevant organizations. Through this initiative we can provide timely, spatially explicit, quantifiable data on threats to global food security that can help inform decisions and policies that save lives and better manage our resources across the globe.

**Challenges:**

- A long-range collective vision leading to sustained actions. Support of key policy drivers like SDG's, climate mitigation and adaptation require ongoing sustained systematic monitoring and processes that can rigorously measure change over time.
- Stable funding for initiatives. As an example, direct support for the GEOGLAM Secretariat has only been provided by three G20 nations. There is a need to spread the support across more stakeholders to ensure stability and share the burden.
- Better integration of information across initiatives, breaking down silos, and fostering a common and shared vision. A good example of this is the incorporation of GEOGLAM Crop Monitor into the AMIS market monitor, with the two G20 initiatives working together. We should explore other opportunities for information sharing.
- The demands for capacity development in the less developed world exceed our collective ability to respond. We need more efficient, integrated solutions to scaling-up support, where “the whole is greater than the sum of the parts”.

### **3. Tropical Agricultural Platform (TAP)**

TAP was launched in 2012 at the first G20-led Meeting of Agriculture Chief Scientists (MACS) in September 2012, Mexico, and FAO was requested to lead its development. The initiative aimed at enabling the tropical countries (most of the G20 countries) to develop their agricultural innovation. TAP primarily focuses on Capacity Development for Agricultural Innovation Systems. TAP has formed a coalition of more than 40 partners, including national agricultural research, education, and extension institutions as well as civil society actors, farmers' organizations and key regional and international fora, networks and agencies.

TAP works through the facilitation of innovation through a common framework developed in 2015 consisting of consolidation of diverse approaches, promoting attitude shift in the use of AIS, knowledge enhancement and promotion of learning. TAP focuses on the development of national capacities for agricultural innovation in the tropics, where most of the developing countries are located and the capacity gap is especially wide. By helping to bridge the capacity gap, TAP aims to pave the way for agricultural innovations that meet the demands of its principal users - small farmers, small and medium-sized agribusinesses, and consumers.

To achieve these goals, TAP has embraced the so-called Agricultural Innovation Systems (AIS) perspective, acting as a multilateral dynamic facilitation mechanism that enables better coherence and greater impact of Capacity Development (CD) interventions in AIS. Concepts and principles of the TAP Common Framework have been tested in eight countries in Africa, Asia and Central America as part of an initiative called CDAIS, or Capacity Development for Agricultural Innovation Systems. TAP Partners approved the TAP Action Plan, which included in 2015 the development of a Common Framework on CD for AIS. The first TAP Action Plan covered the period 2015-2018 along with the second TAP Action Plan covered the period 2018-2021.

In June 2019, EU and FAO signed an agreement for the implementation of a five-year EU-funded project: "Developing capacities in agricultural innovation systems: scaling up the Tropical Agriculture Platform (TAP) Framework", in short "TAP-AIS project", with a budget of EUR 5 million. The project is a component of the EU initiative "Development Smart Innovation through Research in Agriculture" (DeSIRA). Drawing on lessons learned from the CDAIS project, the new TAP-AIS DeSIRA project will improve, update, and expand the use of the TAP Common Framework.

**Aim:** mandate to work towards bridging the capacity gap for agricultural innovation in the tropics.

**Objectives:**

TAP's objective is to increase the coherence and effectiveness of capacity development interventions for agricultural innovation systems, so they can lead to sustainable change and impact at scale. Its governance includes the Partners Assembly (PA), a Steering Committee (elected among their members every two years), and the Secretariat.

#### **4. Wheat Initiative**

The Wheat Initiative was launched in 2011 following endorsement from the G20 agriculture ministries. The initiative encourages wheat research and productivity assuring quality and sustainable production around the world. The initiative provides a framework to establish and coordinate strategic research and organisation priorities for wheat research at the international level in both developed and developing countries. The Wheat initiative also aims at fostering communication among the research community, funders, and global policy makers for securing efficient and long-term investments.

Through this initiative the countries primarily aim at increasing food security, wheat nutritional value and safety and maximising opportunities for value addition at international level. Apart from 14 member countries, there are five observer countries including India. Expert Working Groups (EWG) are established with distinct visions. These comprise of: Adaptation of wheat to abiotic stress, Control of wheat pests, Durum wheat genomics and breeding, Global wheat germplasm conservation and use community, improving wheat quality for processing and health, nutrient use efficiency in wheat, wheat agronomy, wheat breeding methods and strategies, wheat information system, wheat phenotyping to support wheat improvement. Germplasm enhancement and sustainable intensification are two key research pillars that WHEAT uses to address these issues.

The Wheat Initiative brings together scientists, policy makers, and stakeholders from around the world to work together on research and development projects. It also encourages collaboration between government, academic, and private sector organizations to support research and development. It prioritizes funding for research projects that address key challenges facing the global wheat industry, such as increasing yield and quality, reducing environmental impact, and improving the livelihoods of farmers. The initiative also focuses on building the capacity of individuals and organizations in developing countries to conduct research and develop new technologies and best practices for wheat production.

Sustainable farming practices that are economically viable, socially acceptable, and environmentally friendly are further supported through this initiative. The initiative overall helps in the development and dissemination of new technologies to improve the efficiency and sustainability of wheat production. Some policies include improving the genetic diversity of wheat, developing new crop management strategies, and identifying and addressing key challenges facing the global wheat industry.

**Aim:** The Wheat Initiative aims to encourage and support the development of a vibrant global wheat public private research community sharing resources, capabilities, data and ideas to improve wheat productivity, quality and sustainable production around the world.

**Objectives:**

- Develop a global strategic agenda for wheat research through the identification of research and outreach priorities and challenges beyond the capacity of single research groups/countries, and that can be achieved by international coordination and collaboration.
- Encourage efficient investment in wheat research based on the capabilities of, and synergies among, national and international programs.
- Initiate the development of new collaborative programmes and coordinated actions across developing and developed countries.
- Develop and coordinate knowledge sharing amongst the international wheat research community.
- Improve access to all resources, services, and facilities.
- Support education of students, and life-long learning of wheat researchers, and farmers.
- Stimulate public/private collaborations.

**Emerging priorities, Opportunities, and Challenges of Wheat Initiative**

- The impact of an increasingly variable climate and rising costs of agricultural inputs is placing pressure on most production systems.
- The dramatic improvement and delivery of innovations in crop breeding and production technologies offer great potential but requires access to capabilities and suitably trained staff.
- The increasing age of the agricultural workforce in many countries and the low intake of students into training programs threatens our ability to deliver technological innovations.
- Sharing of resources, germplasm and capabilities has played a critical role in ensuring the rapid development of efficient crop production systems. This needs to be expanded through open sharing of information, resources, and staff exchanges.
- Support systems to allow the research community to identify potential collaborators, training opportunities and resources

## **5. Platform for Agriculture Risk Management (PARM)**

Platform for Agriculture Risk Management (PARM), is a multi-donor G20 initiative launched in 2013 with partnership between European Commission, French Development Agency (FDA), Italian Development Cooperation and International Fund for Agriculture Development (IFAD). Since the launch it has been one of the central themes in the G20 agriculture meetings and discussions aimed at facilitating exchange of knowledge amongst the G20 countries as well as framing policies for the developing nations. Stakes in the agriculture sector are high as farmers' livelihoods are highly vulnerable to uncertainties. PARM role is hence more critical as it works on making risk management an integral part of agriculture policies framework and investment planning discussions.

In recent years, G20 discussions have been centred around the vulnerabilities of the agriculture sector towards weather events such as droughts, floods etc., which are highly uncertain in nature and thus require effective risk management for the involved chain partners. To ease the engagement process among the G20 nations and facilitate collaboration for managing risks and uncertainties PARM has been successfully providing a platform for G20 nations and promoting different methodologies for achieving the same. Agriculture Risk Management (ARM) is an innovative approach that has been used for reducing risks in the agriculture sector and thus help the stakeholders/actors such as farmers, suppliers and other chain members to be pro-active and increase their respective capacities to tackle and adapt to different uncertainties and risks. PARM has also increased awareness and knowledge on ARM via various workshops, seminars or knowledge sharing events for all the stakeholders.

PARM currently is in its second phase (2019-2024) and aims on achieving sustainable agricultural policies, framing advance food security initiatives and focusing on forming resilient livelihoods. PARM still acts as facilitator and a knowledge sharing platform for designing and integrating the risk management in agriculture policies. The focus of PARM is to identify the possibilities of public-private partnerships for improving engagement process of the partners/actors involved in agriculture value chains that involves risk assessments, tools assessments, capacity development and knowledge sharing.

**Aim:** PARM contributes to sustainable agricultural systems, boosts rural investment, reduces food insecurity, and improves resilience of rural households to climate, production, and market shocks.

**Objectives:**

- Integration of the holistic approach to Agricultural Risk Management (ARM) into regional and country agricultural policies and processes.
- Design and implementation of investment programmes/projects at country level.
- Improved generation, access, and capacity on ARM at country, regional, and global levels

**Emerging priorities, Opportunities, and Challenges of PARM Initiative**

In many developing countries, agriculture remains the backbone of the economies contributing to the stability of the country's macroeconomic framework, providing livelihoods of the majority of the population i.e. guaranteeing income, food and nutritional security. With the growing climate change phenomena along with other emerging and unforeseen events (pandemic), the agricultural sector that was already fragile, is getting much worse due, among others, to little adaptive and mitigation capacity of developing countries. PARM, as a global initiative with the mandate to support countries integrating ARM into their policy and development planning, has an opportunity to strengthen countries' resilience vis-a-vis all types of risks. The major challenge is to constantly make the PARM voice be heard in global fora and continuously get the attention and support of global decision makers.



## **6. Technical Platform on the Measurement and Reduction of Food Loss and Waste (TPFLW)**

It is estimated that around one-third of all food that is produced for human consumption is either lost or wasted on a global scale every single year. The social, economic, and environmental repercussions of food losses and waste (FLW) must be addressed concurrently owing to their direct and major effects on food and nutrition security, natural resources, and climate change. In May 2015, under the Turkish Presidency, the G20 agricultural ministers identified food loss and waste (FLW) as a "global problem of immense economic, environmental, and societal relevance" and urged all G20 countries to intensify their collaborative efforts to prevent and decrease FLW. After the G20 suggested a cut down on FLW, the International Food Policy Research Institute (IFPRI) and the Food and Agriculture Organization of the United Nations (FAO) reached an agreement to establish the Technical Platform to measure and cut down on food loss and waste.

The mission of the platform is to bolster global efforts to avoid and cut down on food waste and loss in every region of the world. Following the suggestions, a Technical Platform for FWL was founded in December 2015 and given its first launch by the heads of Rome-based agencies (RBAs). FAO oversees maintaining and coordinating the system. The platform puts out a quarterly update about news, events, scientific publications, and developments. It provides technical manuals; guidance documents on good practices to reduce food losses; factsheets that promote decision support on the adoption of best practise based on successful pilots implemented at the field level; case study reports; links to data sets on food losses; and multimedia, training courses, and online courses to support learning on food loss reduction approaches and strategies.

The Global Food Loss Index was made with the help of the information on policy briefs posted on the Technical Platform and food loss analyses done in 56 supply chains in 23 countries. The Technical Platform has a web-based Community of Practice where 1,600 members share knowledge and network about food loss and waste (FLW) issues. They also learn more by connecting to the databases of other partners with similar goals, such as the EU Platform on Food Loss and Waste.

**Aim:** The Technical Platform on the Measurement and Reduction of Food Loss and Waste (TPFLW), targets a global audience and **seeks to strengthen collective efforts to prevent and reduce FLW, toward achieving Sustainable Development Goal 12, target 3, (SDG 12.3\*\*),** contributing to Agri-food systems transformation.

*\*\*SDG 12.3 seeks to, by 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.*

## **Objectives**

- Toward achieving this aim, the TPFLW **consolidates a broad spectrum of resources that address the complexity of the drivers and impacts of food loss and waste (FLW)** –technical, economic, social, environmental and policy and which provide context appropriate tailored approaches to tackle the issues.
- The TPFLW also **provides a mechanism for collective learning and capability strengthening to reduce FLW** by making available e-learning courses, technical guidance documents, case studies, fact sheets and pertinent multimedia resources. It **promotes awareness raising** to stem the problem through a dedicated section on the International Day of Awareness of FLW and facilitates networking and communication through a Community of Practice (CoP).

## **Emerging priorities, Opportunities, and Challenges of TPFLW Initiative**

The effects of climate change, the COVID-19 pandemic and war has placed the global economy under tremendous strain with increasing hunger, food insecurity, and malnutrition. The transformation of Agri-food systems toward building their resilience and sustainability, leaving no one behind is, therefore a key global priority. Reducing food loss and waste (FLW) is a necessary pillar of food systems transformation to ensure better planetary outcomes and healthier diets for current and future generations.

It presents a triple win opportunity, with immediate climate benefits, increased availability of nutritious food while improving the overall sustainability of our food systems. It is now opportune for countries to scale up their efforts and actions to reduce FLW toward accelerating the transformation of their food systems. The addition of an “in action” section, to the TPFLW during the reporting period, allows countries to proactively contribute their input to be included on their respective pages, toward facilitating knowledge and information sharing and exchange to strengthen the collective efforts of the G20 and other countries in making progress toward achieving target SDG 12.3.

## **SIDE EVENT-2**

# **Global Forum on Climate Smart Agriculture for Food Security**

## Concept Note

The deepening climate crisis manifested in rising global temperatures, erratic precipitation, and more frequent extreme weather events has intensified the difficulty of producing enough food to meet its buoyant demand which is fuelled by the growing global population and income. Climate-induced threats to food security can be reduced by increasing the adaptive capacity of farmers as well as increasing resilience and resource use efficiency in agricultural production systems. To address the interlinked challenge of food security and accelerating climate change, Climate Smart Agriculture (CSA) approach is imperative.

Climate-smart agriculture (CSA) is an approach for transforming and reorienting agricultural systems to support food security and nutrition under the new realities of climate change. CSA promotes coordinated actions by farmers, policymakers, the private sector, researchers, and civil society towards climate-resilient pathways through three main action areas of (i) increasing productivity, incomes, and livelihoods; (2) fostering resilience through the adoption of technologies and best institutional practices to reduce the vulnerability to climate-related risks and shock; (3) mobilizing financial resources through innovation, experimentation, and public-private partnerships.

CSA differs from 'business-as-usual' approaches by harnessing the farmer's capacity to implement flexible, context-specific solutions, supported by innovative policy actions, systematically considering the trade-offs between productivity, and resilience, and capturing new opportunities to close the gaps in agriculture infrastructure investments.

Recognition of synergies and trade-offs among the components of CSA is particularly important in the global south, where agricultural growth, adaptation for food security, and inclusive economic growth to supply nutrition are the priority, and where poor small-holding farmers are most affected by but have contributed least to climate change.

### **Productivity, Incomes, and Livelihoods**

Climate-smart agriculture practices emphasize a production system that utilizes ecosystem services to support the increase in productivity, adaptation, and mitigation. Examples include integrated crop, livestock, aquaculture, and forestry systems; improved pest, water, and nutrient management; practices such as residual tillage and use of diverse varieties and breeds; restoring degraded lands; improving the irrigation efficiency and fertilizer uses; and manure management, including the use of bio-digesters, integrated crop, livestock,

aquaculture, and agroforestry systems<sup>1</sup>. Enhancing soil quality can generate production and livelihood benefits for farmers. Sustainable land management of the farming system is an important part of CSA while simultaneously dealing the climate vulnerability and the daunting food security and access to nutritious food to maintain healthy and active lives of small-holding farmers in the global south<sup>2</sup>. Thus, CSA has functions beyond the production and distribution of food, such as the delivery of water, energy, fiber, and building materials that minimize the negative effects of climate change, while securing quality livelihood for a growing rural population in developing countries in Asia, Africa, and Latin America.

### **Climate-Smart Technologies and Practices**

Vulnerability to climate change is not only determined by the degree of climate change, but also by the prevailing socio-economic conditions in a community and the existing management practices in a system. Although farmers have always dealt with variability and uncertainty in weather patterns, the increased uncertainty calls for more flexible and rapid response capacity. Building resilience means reducing the risk of becoming food insecure and increasing the adaptive capacity with climate-smart technologies and practices to cope with risks and respond to change<sup>3</sup>.

Therefore, successful CSA should include technological interventions and actions that are directed at improving hazardous climatic conditions and management practices. Incremental changes include better early warning systems on droughts, and cyclones, timely access to production inputs using digital platforms; shifts in production techniques to enhance ecosystem services; improved agriculture market information services through digital connectivity to reduce price volatility, and expanded insurance and safety net program for financial inclusion. The scope of Climate-smart technologies necessitates a life-cycle approach including the production of related inputs like fertilizers right up to the consumption and waste disposal.

Adaptation and mitigation of climate change is the need of the hour but we cannot undermine the variations across the countries in their development stages. The principle of common but differentiated responsibilities needs to be honored in terms of the adoption of adaptation and mitigation practices. At this stage, developing countries can focus more on adaptation measures while developed countries remain in a better position to deepen both adaptation and mitigation measures. Sharing of best and related technologies needs to be

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<sup>1</sup> Climate-smart agriculture Source Book: Executive summary, Food and Agriculture Organization of the United Nations, 2013

<sup>2</sup> AGRA, Africa Agriculture Status Report: The Business of Smallholder Agriculture in Sub-Saharan, Nairobi, Africa

<sup>3</sup> Anbumozhi V, Reddy and Breiling (2020). Towards a Resilient ASEAN: Disasters, Climate Change and Food Security

promoted with more focus on technologies important for achieving nationally determined contributions (NDCs).

### **Financing for Climate-Smart Agriculture**

The effective implementation, adoption, promotion, and inclusion of CSA in the Agri-food system require targeted financing that also at a scale. Investments are essential to improve access to climate-smart technologies, scaling-up R&D, innovations and creating better awareness, capacity building, providing agri-advisory services, etc. Linking climate finance to traditional sources of agriculture finance is an important part of those efforts to upscale investments. There is a need for larger investments in the immediate and short-run, whereas many of these would have long pay-back periods. Investment finance for agriculture is insufficient to meet the demand and is often poorly targeted. Although climate finance may increase significantly in future years, it is still likely to meet only a relatively small share of total agriculture investment needs which are estimated at US\$209 billion year by 2050 to increase agricultural production<sup>4</sup>.

The most promising climate financing sources for CSA include the adaptation fund, an innovative finance mechanism that focuses on the needs of the most vulnerable communities and the possibility of direct access; the Global Environment Fund (GEF); and the Green Climate Fund (GCF). Allocations from public funding mechanisms can be leveraged by supplementing private sector investments with credit guarantees from multilateral development banks and international financial institutions. Discussion regarding the role of capital markets enlists new opportunities for financing CSA technologies by directly funding research and development through public and private partnerships and reducing the tax burdens for innovators.

Identifying and crediting mitigation benefits generated through the carbon markets is an important means of augmenting the financial process. Widespread adoption of natural capital accounting and perhaps underpinned by appropriate regulations as well as financial accounting are also needed. The insurance industry can encourage the farmer's actions towards greater climate resilience. For example, the impacts and risks of large-scale extreme weather events on small-scale farmers could be shared by innovative risk-sharing mechanisms through public-private-community partnerships-making an important contribution to the resilience of the global food system<sup>5</sup>. Also, the approach of payment for ecosystem services (PES) through agro-ecological services can be promoted to enhance farmers' incomes in synergy with sustainability measures.

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<sup>4</sup> Issues Related to Agriculture. UNFCCC subsidiary body for Scientific and Technology Advice, 2022

<sup>5</sup> Food System Shock: The insurance impacts of Acute Disruption to Global Food Supply. Lloyd's Emerging Risk Report – 2027, London

G20 collaborations are needed to step up these efforts to promote climate-smart technologies and practices.

**The following issues are identified for deliberations**

1. Collaborations in STI for Climate Resilient Agriculture and Food Systems.
2. Innovative Financing to Facilitate Climate Smart Agriculture Approaches
3. Agri-business Strategies for Climate-Smart Agriculture
4. Inclusive Policies for Tech-driven Climate-Smart Agriculture
5. Climate-Smart Agriculture for Livelihoods Protection and Opportunities

**Expected Outcome**

The proposed side event aligns with the past G20 commitments and with the discussions thematically supporting CSA for the resilient Agri-food systems. The reflections by experts and stakeholders in the side event will enrich the deliberations in ADM.

## About Speakers

### Speaker1: Dr. Rob Vos, IFPRI



Dr. Rob Vos has been Director of the Markets, Trade, and Institutions Division (MTID) at the International Food Policy Research Institute since September 2017. He is also coordinator of the Food Security Portal. Previously, he was, among other things, Director of Agricultural Development Economics at the Food and Agriculture Organization of the United Nations (FAO). He has also served as FAO's director for social protection, rural employment, and gender equality and as coordinator of FAO's strategic program for rural poverty reduction. Dr. Rob holds honorary professorships at the International Institute of Social Studies of Erasmus University, The Netherlands, and at FLACSO, Ecuador. He has published widely on sustainable development issues, including food security, climate change, trade policy, inequality and poverty, financing for development, poverty and social policy analysis, and macroeconomic and general equilibrium modelling for development policy.

Presentation Title: **G20 Collaborations to Promote Climate Smart Agriculture for Global Food Security and Nutrition**

#### Abstract

The world produces enough food to feed everyone. However, food systems are under pressure from the threat of climate change and degradation of natural resources. Climate change is already affecting agricultural productivity growth. Sustainable intensification of agriculture and food systems is a must as there is no more scope for increasing production through further land expansion. Sustainable intensification is also needed to make food systems more climate resilient and also to drastically reduce their present massive carbon footprint. Sustainable intensification can create multiple wins for people and the planet.

To achieve this transformative shift, much greater, internationally concerted efforts in at least four critical domains:

- Investments in R&D for the development of climate-smart technologies along agri-food supply chains. Many current technological innovations have shown great potential to reduce emissions, adapt to climate change, while also raising productivity and making food affordable. But food systems research and development (R&D) remains underfunded to adopt these in low- and middle-income countries. We need to double

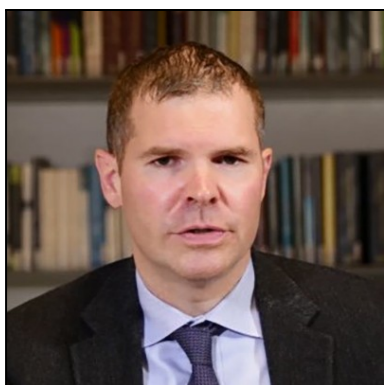


public funding for agricultural and food system R&D, including US\$15 billion per year globally for sustainable intensification in poorer countries.

- Improved, integrated management of natural resources such as land, soils, water and energy resources and provide incentives to farmers to do so.
- Targeted support for the most vulnerable to help them build more resilient livelihoods, including through improved rural infrastructure and social protection

New financing mechanisms and more appropriate market incentives to de-risk and promote investments in resilient and sustainable agriculture and food systems. The world may need as much as \$350 billion to meet climate-related goals for food systems. We can fund this by repurposing the large amounts governments now spend on agricultural support and instead, redirect these incentives to farmers and consumers to produce and consume in more sustainable and healthier ways.

## **Speaker 2: Dr. Guillaume Gruere, OECD**



Dr. Guillaume Gruere has over twenty years of experience in the analysis of policy issues at the intersection of agriculture, food, environment, natural resources, and international trade. He joined the OECD Trade and Agriculture Directorate in 2013 as a senior policy analyst where he led OECD's work on agriculture and water and on climate change in agriculture. In 2021, he was appointed Head of Unit, Climate Change, Environment and Resources in the Agriculture and Resource Policies (ARP) division overseeing a team of economist expert on environmental sustainability of agriculture. He is currently serving as Acting Head of Division for ARP, which leads OECD's work on agriculture and fisheries policies, including the annual OECD Agriculture Monitoring and Evaluation report. Prior to OECD, he was a senior research fellow at the International Food Policy Research Institute (IFPRI). He has published over 80 peer reviewed publications, including two journal articles that received research awards by the Agriculture & Applied Economics Association (AAEA). G. Gruere, a French national, holds a Ph.D. in Agricultural and Resource Economics from the University of California, Davis and two M.S. in Natural Resource Economics and Agriculture and Life Science Engineering from Agro ParisTech France.

**Presentation Title:** Leveraging tech solutions for climate smart agriculture: the role of policies

### **Abstract:**

The adoption of technological and agronomic solutions is said to play an essential role in progressing towards climate change agriculture objectives. While farmers and private companies can drive innovation and deployment of practices and technologies from which they benefit, government policies are needed to provide an enabling environment for their development and foster the use of technologies supporting the provision of climate smart agriculture innovations with public benefits. The presentation will provide an overview of how government policies can leverage, or in some cases hamper, the use of tech solutions for climate smart agriculture by farmers.

### **Speaker 3: Dr. Venkatachalam Anbumozhi, ERIA**



Dr. Venkatachalam Anbumozhi is the Director of Research and Strategy and Innovation at the Economic Research Institute for ASEAN and East Asia (ERIA), Indonesia. His previous positions include Senior Capacity Building Specialist at the Asian Development Bank Institute, Assistant Professor at the University of Tokyo, Senior Policy Researcher at the Institute for Global Environmental Strategies, and Assistant Manager at Pacific Consultants

International, Tokyo. He has published several books, authored numerous research articles, and produced many project reports on climate smart development, digital economy, and green infrastructure design. Dr. Anbumozhi was invited as a member of the G20 task force on Smart Cities Living Lab, APEC Expert Panel on Green Growth, the US-ASEAN advisory group on Smart Cities, and the ASEAN Panel for promoting climate-resilient growth. He has taught climate technologies and resource management, international cooperation for sustainable development, and innovative finance for inclusive growth at the University of Tokyo. He obtained his Ph.D. from the University of Tokyo.

**Presentation Title:** Climate-Smart Agriculture for Livelihoods Protection and Opportunities

#### **Abstract**

Climate-Smart Agriculture (CSA) is seeking to overcome the food security problem and develop rural livelihoods while minimizing negative impacts of the climate change. When such synergies exist, the situation of small-scale farmers and their livelihood protection opportunities could not be overlooked, as they are unable to implement new CAS practices and adopt appropriate technologies. Therefore, CSA approached should aim by adding the neglected but very important element “small-scale farmer and vulnerable poor as completed version of CSA. Therefore, to identify different levels for possible CSA interventions and develop monitoring indicators, a framework consisting of three elements: prediction of critical incidents and measuring the consequences of incidents at local level, enhancing coping strategies based on , assessing the livelihood capital and innovative financing to mitigate climate risks. A deeper dive into G20 economic cooperation and coordinate processes surrounding these three issues by target setting and development of guidelines will bring critical attention to factors relevant to sustainable agricultural development that highly impact climate smart farm-level practices and carry important implications for rural livelihood outcomes.

#### **Speaker 4: Dr. Geeta Sethi, World Bank**



**Dr. Geeta Sethi is the Advisor and Global Lead for Food Systems at the World Bank.** She is the lead architect of the World Bank's Food System Transformation agenda, a food system that provides the triple bottom line—prosperity, sustainability and healthy people. She also manages the World Bank's program on Food Loss and Waste Reduction. She has more than 20 years of experience working as an economist on fragile, low-, and middle-income countries. Her

work has focused on issues of rural development, service delivery and intergovernmental fiscal policies around the world. She has delivered many lending programs to the World Bank Board and published books and articles in refereed journals on issues relating to rural labor markets, trade policy and fiscal decentralization. Previously, she was the Chief of Staff to the Climate Change Vice President and Special Envoy, the Operations and Strategy Manager for Climate Change, and worked as the Program Manager for the Global Agriculture and Food Security Program. She has an MBA and PhD in Economics.

**Presentation Title:** Changing Farming for Changing Climate.

#### **Abstract**

The importance of farming cannot be understated. And yet the current state of the food system is one of the leading reasons why we struggle to create a healthy people, a healthy planet, and healthy economies.

In the 21st century, farmers must adopt three revenue streams: environmental services, agriculture, and renewables. Farmers need to be resilient and climate smart, by pursuing payment for environmental services, increasing productivity of healthy foods, and recognizing renewable opportunities in areas including energy, nutrient recycling, and irrigation. For this purpose, incentives need to be realigned in support of climate smart and nutrition smart outcomes. There is also an increasing need for a new food finance architecture that can reshape public support and incentives, integrate health, environmental and social risks into financial decision making, and scale fit-for-purpose financial products and business models.

We are in a crisis. Several factors are compounding one another and play out differently in each country. This means solutions must be tailored depending on the country's specific situation. Global challenges must be addressed with local solutions, but international coordination is vital for global success.

## **Speaker 5: Mr. Kunal Prasad, Co-Founder & COO, Cropin**



Kunal Prasad is the Co-founder and Chief Operating Officer at Cropin, an Agtech pioneer building the first global Intelligent Agriculture Cloud. He has more than 15 years of experience in sales and business development, project management, product and customer experience. Kunal is passionate about reimagining agriculture, leveraging digitization and AI at scale. He firmly believes in the power of data-driven farming to increase per acre value and improve outcomes for farmers and every other

stakeholder in the agriculture ecosystem.

At Cropin, Kunal is responsible for planning and driving global operations and rapidly extending the company's footprint of computed farmlands worldwide.

Prior to joining Cropin, Kunal was in the sales and marketing team at Tata Motors. He has a degree in Mechanical Engineering from Birla Institute of Technology, Mesra and an MBA in Marketing from Great Lakes Institute of Management. In his leisure time, Kunal loves travelling and exploring places. He never misses an opportunity to meet new people and experience different cultures worldwide.

**Presentation Title:** Agri-business Strategies for Climate-Smart Agriculture

### **Abstract:**

We are staring at one of the biggest challenges in the history of human civilization. The world population will reach nearly 10 billion by the middle of the century. This requires food production to double in the next 2-3 decades. On the other hand, challenges created by climate change are putting pressure on our ability to enhance food production. Increased temperatures, weather variability, and more frequent extreme weather events have detrimental effects on farming – from diminishing yields to weakening the nutritional quality of food, reducing farmer incomes, and managing food security.

The need of the hour is to use digital and cutting-edge AI solutions which will enable farmers, businesses, and governments to take smart and timely decisions. Such solutions aid farmers select the right crops and seeds, the right time for sowing and harvesting, the optimal use of water resources, and the adoption of the right farming practices. Climate change is no more a future challenge for the world to address. Today, Cropin's remote sensing-enabled solutions help to monitor the field over a period of time and take various measurements for better decision-making during the cultivation process: such as evaluating the climatic conditions and deciding what crops to plant and the right time to harvest,

monitoring drought and weather-related dependencies, soil mapping and forecasting irrigation needs, evaluating the impact of climate change on regional crops and the changing patterns, and predicting crop yield in advance, among many others. Our solutions enable agribusinesses and governments to do it at the regional, state, and country scale.

As the UN warned recently, without immediate course correction of these problems, this scenario would have a catastrophic impact on global food security, livelihoods and lives. The time to act is now!

## **Speaker 6: Dr. Srivalli Krishnan, BMGF**



Dr. Srivalli Krishnan is the Senior Program Officer - Agricultural Development - Asia at the Bill & Melinda Gates Foundation and focuses on agricultural programs in India and Bangladesh. She is also the lead for all livestock, digital ag and food systems programs in India. Prior to joining the Gates Foundation, she was with the United States Agency for International Development (USAID) India Office as the coordinator for agriculture and climate change programs in India, Africa and Asia region; and with the

Australian Government's Department of Agriculture, Fisheries and Forestry providing technical and policy advice to enhance Australia's bilateral engagement with India in agriculture trade, economy and policy. Dr. Krishnan holds PhD in Crop breeding and genetics from TERI University, and has done Graduate work with Cornell University, Masters in Life Sciences from the University of Delhi and advanced diploma in Intellectual Property Law from WIPO Academy, Geneva.

**Presentation Title:** Adoption of climate smart agriculture by smallholder farmers in India

### **Abstract:**

Climate change is real and impacts smallholder farmers disproportionately compared to other sectors. Our climate strategy is designed with the aim of strengthening the public and private sector capacity to achieve Small Scale Producer (SSP) centric climate adaptation goals. These goals can be achieved with three key levers: institutional implementation capacity, innovation promotion, and inclusive markets all of which need to be focused on smallholder farmers.

As we take holistic view on smallholder farmers, it is critical to take a system lens in tackling the challenges in the way of mainstreaming climate adaptation in agriculture. In the current scenario, there is limited uptake of solutions at the SSP level, high perceived risk in backing new innovations, and high cost of doing business in climate-smart innovation. Governments, private sector institutions, and development finance institutions and foundations must collaborate to advance innovation and technology, drive solution adoption at the last mile, and create an enabling ecosystem to make climate smart technologies competitive with incumbent technologies, to accelerate India's journey towards climate adaptation in agriculture.

To create a conducive environment and drive adoption of climate smart agriculture by smallholder farmers, we believe there are four pathways that provide opportunity for success:

1. Promoting emerging innovations by developing a strong pipeline of tested solutions, providing product R&D support, and enabling businesses to start early and start small,
2. Positioning tested innovations for success through effective regulations, capital and financial leverage, financial de-risking and setting up distribution channels,
3. Leveraging community institutions for scale to test solutions for diverse commodities and geographies, innovate new distribution models, and diffuse innovations organically, and
4. Advancing digital extension services for SSP resilience by leveraging the existing extension infrastructure, supporting SSPs to mature to precision agriculture, and using data for financial products and value-added services.



## **Speaker 7: Dr. Navin Twarakavi, ADB**



Dr. Navin Twarakavi is a senior digital agriculture specialist at Asian Development Bank and serves as a food security focal for the bank. Dr. Navin was integral to the development of ADB's ambition to invest \$14 billion towards food security between 2022-2025. Specifically, Navin is focused on ADB's investments in addressing food security challenges including innovations in climate-smart agriculture, digital agriculture, and nature-based solutions. Dr. Navin has a PhD in water resources engineering

and soil sciences. He has over 15 years of experience in agriculture spanning research, enterprises, start-ups, and international development. Dr. Navin has nearly 10 patents in agriculture and digital technologies and has authored over 30 peer-reviewed publications on agriculture, digital technologies, and the environment.

**Presentation Title:** Innovative Financing to Facilitate Climate Smart Agriculture Approaches

### **Abstract:**

Agriculture and climate change are inextricably linked to each other. While agriculture productivity is affected by climate change-induced systemic changes and extreme events, the sector is also responsible for contributing approximately a quarter of all the global GHG emissions. For these reasons, shifting towards climate-smart agriculture practices is a necessary step towards a sustainable future. A shift towards climate-smart agriculture is most effective when innovative financing mechanisms are enabled that are inclusive and effectively cater to the smallholder farmers.

ADB's \$14 billion ambition for food security has significant overlaps with climate financing. Financing for climate-smart agriculture is intended to target the entire agriculture value chains that includes support for policy change and promote private-sector participation. ADB has also committed to aligning its operations with the goals of the Paris Agreement, with full alignment of its sovereign operations will be achieved by 1 July 2023 and alignment of its private sector operations will reach 85% by 1 July 2023 and 100% by 1 July 2025. In this presentation, we discuss the various financing mechanisms and the objectives of ADB's operations related to climate-smart agriculture.

***This information booklet can be accessed from given QR below in print layout format***



