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8. Prof. Corinna Hawkes, Director, Centre for Food Policy, City, University of London
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<th>Topic</th>
<th>Challenge description</th>
<th>Recommendations to G20</th>
<th>Cross-cutting with other TF</th>
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<tr>
<td>The war in Ukraine impacts on Food Security and Agriculture</td>
<td><strong>Food Insecurity:</strong> The war in Ukraine has aggravated food insecurity especially in countries that are net food importers from Russia federation and Ukraine. And also, has aggravated the food access situation for the most vulnerable countries (supply problem)</td>
<td>The G20 should encourage members to act as soon as possible to minimize the consequences and risks resulting from the war in Ukraine. Specifically measures related to emergencies and to help most vulnerable countries to cope with the historically high food prices.</td>
<td><a href="https://www.xfinity.com/stream/listings">https://www.xfinity.com/stream/listings</a></td>
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<td><strong>Global food price increase:</strong> Food prices were already on the rise because of Covid-19 before the war in Ukraine but the war has exacerbated this situation. In March 2022, the FAO food price index reached its historical highest level and, although there was a small reduction in April and May, cereal prices continue to be on the rise (a total 30% rise of global food prices from March 2021 to March 2022). This is because both Ukraine and the Russian Federation are key exporters of wheat, maize and oil seeds. Together, the two countries supply about 30% of the world exports of wheat. In addition, before the war, the Russian Federation was the largest exporter of nitrogen fertilizer, the third largest</td>
<td>G20 countries should support the implementation of financial facilities such as the food import financing facilities proposed by FAO to minimize the effects of the increase in the food import bill of the most vulnerable countries. Regarding fertilizers, the G20 countries should continue to exclude fertilizers from the sanctions and also provide comfort letters (like the one provided by the US) to reduce the risk of insurance costs when importing fertilizers from the Russian Federation. The G20 should undertake concerted efforts to ease international trade of fertilizers.</td>
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exporter of phosphorus-based fertilizer and the second largest exporter of potassium-based fertilizers. However, the country has introduced export restrictions on fertilizers, putting at risk agricultural production during the next planting season in countries dependent on fertilizer imports from the Russian Federation.

### Trade flows and trade agreements will be affected.
Many countries have introduced export restrictions in efforts to protect domestic food security (nearshoring) or out of political considerations (friend shoring). However, such restrictions affect multilateralism, go against trade agreements, and are counterproductive in fighting food price inflation, as they tend to lead to higher prices in international markets and reduce the efficiency of food systems.

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<th>The G20 should support free trade for food and agricultural inputs and call for the removal of export restrictions. The G20 should also undertake concerted efforts to improve transparency regarding existing food reserves (stocks) held by all members. In this regard, the G20 should step up its support for AMIS to enhance food market transparency and to expand its mandate to also monitor markets for oils, seeds, and vegetable oils and related initiatives and those for fertilizers.</th>
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The G20 should encourage developed countries to assess the trade-offs of this world-wide transition in the energy mix, identify the best possible pathways to minimize them, and help developing countries to be part of the process. Subsidies and border protection mechanisms must be reconsidered.

As a consequence of the conflict, the developed world (especially the EU) will accelerate in a strong energy transition, looking for renewable sources like wind, solar, which will compete with resources needed for agriculture. In addition, the transition to more sustainable farming practices (e.g., organic) will lead to less...
| production per hectare and additional production costs. All of this will affect agricultural production globally. | As the crisis changes relative prices of certain agricultural commodities, fertilizers and energy, the global food system will have to readjust and adapt such as changing production practices. | The G20 should support a new global research program to develop appropriate technologies that can accompany this adjustment in production practices. Countries should invest more in research and development and innovation and the FAO, CGIAR and the NARS should actively cooperate to accelerate this process. |
| **An efficient food system capable of supplying nutritious and sufficient food for all while protecting the environment.** | Food production is responsible for 29% of global greenhouse effect gas emissions, 80% of deforestation, 70% of freshwater use, 70% of biodiversity loss, and 52% of soil degradation. In this era of climate change, ecological crisis and depletion of natural resources, the food system urgently needs to decrease its pressure on the environment.

At the same time, the food system needs to produce the quantity and variety of foods necessary to satisfy the global demand at reasonable and time-stable prices and feed a projected 9.7 billion people by 2050. |
| **How to produce better and more with less?** | - G20 should support agriculture policies that encourage nature-positive production such as: protecting natural systems from new conversions for food production, sustainably managing existing food production systems and restoring degraded farmland.

- Trade, environmental standards, better practices and technology can contribute to achieving productivity increases and total food availability while taking into account the impact of the agri-food systems on climate change and natural resources. G20 need to:
  - Promote Digital Platforms that Facilitates Certification and Mobility of Sustainable Producers. The platform can help monitor sustainable farming practices at the land level, accuracy of incentives distribution, traceability of products in the market, and create certainty for all value chain actors.
  - Promote the R+D for the development of indicators and emission factors, which capture the true nature of the food systems of each country.
  - Promote the implementation of sustainable farming practices through the support of the CGIAR
  - Green technology transfer should be adapted to different models of production and local agricultural culture and ensure a lower carbon agri-food chain.
  - Ensure that any private standard development has to be aligned with WTO standards. This is to ensure the principle of transparency, openness, impartiality and consensus, effectiveness and relevance, coherence, as well as the concerns of developing/least developed countries are adhered to when developing the private standards.
  - Propose an effective mechanism in |
ensuring that all WTO members abide under WTO provisions (SPS, Standard, TBT).

- The G20 should support investments in basic rural infrastructure (roads, irrigation, electrification, and digital) as well as in value chain infrastructure (temperature-controlled storage facilities and transportation, banking and insurance infrastructure, waste recycling) to improve value chain efficiency and resiliency, as well as to substantially cut down on food loss and waste (Briefs 3, 6, and 8).

**Food logistics:** invest on improving food logistic and distribution systems and promote more efficient use of natural resources and reduce emission from food production, such as low emissions cold chains and more decentralized food logistic systems.

**Value chain efficiency:** Improving value chain efficiency, reducing food loss and waste and facilitating fair trade, is important to ensure access to food, in particular to allow poor countries to obtain nutritious foods at lower cost.

- G20 should develop the appropriate structures to promote sustainable consumption and invest in the adoption of certification so that consumers can make informed choices.

- G20 should promote international food trade that allows for a better global use of the scarce natural resources and to ensure the reduction of food prices. The search for global efficiency requires a comprehensive utilization of the available resources, concentrating production in the most fertile agro-ecological regions of the world.

- G20 should increase public investment on
research and innovation and enhance the global mechanism for knowledge sharing. The CGIAR should have a role.

- Technology and social innovations can help us to increase the efficiency of how we produce, especially in water efficient agriculture technologies.
- Cutting-edge innovations are emerging in agriculture, such as new breeding techniques to boost crop yields, desired traits, and climate resilience.
- Innovations in data availability, for example improved fertilizer use efficiency can be achieved with soil maps and improved fertilizer applications.
- Global multi-stakeholder tracking hub for investments in agrifood innovation, that regularly reports on agrifood innovation investment to the G20. This hub would bring together and build on existing tracking work of several organizations (CGIAR/IFPRI; OECD; FAO; WB; WBCSD).
| The economic system does not incentivize sustainable farming practices. The financial Returns-on-Investment (RoI) for natural resource intensive farming are higher in the short-run than sustainable farming practices. The negative environmental and social costs of these practices are externalized and borne by society at large. Many hidden benefits of nature-positive food production are also not accounted for. Economists recognize that externalities such as the emission of greenhouse gasses and the depletion of global biodiversity will persist, if what is best for the private agent (the consumer or firm) does not coincide with what is best for society. Furthermore, most of the agricultural subsidies and other support measures are targeted at the most productive farming systems rather than incentivizing sustainable practices and promoting healthy diets. These market failures should be addressed by the G20. | The G20 should adopt an action plan to make the economic case for nature-positive food systems through the application of True Value Accounting (TVA) developed by UNEP under the TEEBAgriFood Initiative. G20 should adopt a common framework for repurposing agricultural policy support to optimize gains for global sustainable development. Appropriate repurposing should support farmers to produce food in sustainable ways and consumers to make sustainable and healthy dietary choices. - The True Value Accounting framework can be used to repurpose agricultural policy support. This would include shifting support to alia food security, improved dietary/health outcomes, pro-nature regenerative agricultural systems that have lower yield variability and support for community-led carbon farming. Repurposing would mean that overall food prices would not necessarily need to rise. - The G20 should also shift resources towards R&D for further innovation of sustainable practices and incentives to adopt those practices. The CGIAR should have a key role in developing and implementing this innovation agenda. Further funding could be mobilized through innovative mechanisms such as publicly backed “green bonds”. |
| Developed consumer countries should take responsibility for the environmental impact of food production in developing producer countries. | G20 Global Cooperation Framework for Sustainable Production and Trade in Agricultural Commodities. The G20 countries could propose a new international treaty: -Developing agreed frameworks on definitions, standards, mechanisms, and |
### Food loss & Waste

One third of the food produced in the world is lost or wasted every year. This amount of food loss and waste (FLW) is equal to $940 billion in economic losses per year (UNEP Food Waste Index Report 2021). Reducing food loss and waste can increase farmer incomes, improve business margins and save money for households. Furthermore, it's a big waste of natural resources and it contributes to 10% of global greenhouse gas emissions (FAO, 2015). In addition, avoiding food loss and waste could help feed around 1.26 billion extra people per year. Cutting present food loss and waste by 50 percent would increase available supply of fruits and vegetables by more than enough to cover the recommended amount of fruit and vegetable consumption per person per day. SDG 12.3 targets to halve per

### Digitalization and technology

Such as the use of data analytics to optimize and forecast food production as well as shorten the distribution chain, play significant role in creating effective solutions to tackle food loss and waste. Innovation in financing sector to link the associated emission from FLW reduction to the sustainable financing products will also help the acceleration of FLW reducing practices in the related industries.
capita global food waste at retail and consumer levels and reduce food loss along production and supply chains, including post-harvest. To achieve this goal at scale, all stakeholders, including government, private sector, academia, civil society organizations, media, and citizens generally should act together.

The meat industry accounts for nearly 60% of all greenhouse gas emissions related to food production (Xu, 2021). It is also the leading cause of deforestation: the World Bank has found that animal agriculture is responsible for roughly 90% of the razing of the Brazilian Amazon (Margulis, 2004). Meat production is the number one consumer of freshwater by a significant margin (EPA, 2011). Most of the world's cropland is used to feed livestock, rather than people. Thus, meat production is a rather inefficient way of using natural resources for food production.

The G20 should encourage a shift towards more sustainable diets for our health and that of the planet. These should be based on a reduced share of animal-based proteins in the global protein consumption mix and richer in fruits, vegetables, nuts, legumes and whole grains. The reduction of animal-origin protein consumption should focus on the regions and consumer categories wherein consumption is excessive. Meat consumption is far beyond desirable in North America, Latin America, and Europe. It would be worth rethinking agricultural subsidies to reduce trade-offs between agriculture and climate change, such as repurposing meat subsidies to vegetables and fruits production.
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<th>The agro-food system is vulnerable to external shocks which endangers Food Security</th>
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<td><strong>How to increase food system RESILIENCE?</strong></td>
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The agro-food system is vulnerable to external shocks which endangers Food Security.

**Climate variability, extreme weather events such as droughts and floods, price instability, the Covid-19 pandemic, and armed conflicts, are all shocks that threaten the stability of our agri-food system with impacts felt most by the poor and vulnerable.** These shocks are increasing food insecurity and malnutrition and have been exacerbated by the covid-19 pandemic and the Russian-Ukraine conflict (SOFI report 2021).

The Covid-19 pandemic has forced hundreds of millions of more people into the poverty and hunger trap. Global hunger continues to be on the rise. According to the 2022 Global Report on Food Crises, the number of people in emergency need of food assistance, doubled from 100 to almost 200 million between 2016 and 2021. Both the supply and demand disruptions caused by the COVID-19 pandemic and the current war in Ukraine revealed how vulnerable global food systems are to shocks and that shock in one part tend to reverberate across the entire system.

The present global food price crisis that is being exacerbated by the war in Ukraine are likely to induce lasting impacts on food security.

The G20 should take leadership in looking beyond immediate crisis responses and ensure those responses are consistent with steering food systems change towards adoption of sustainable practices, enhancing resilience of supply chains to climate and other shocks, and enhancing affordable availability of and access to nutritious food for all. *(All briefs.)*

To build resilient agrifood systems and minimize the negative impacts of external shocks, the G20 should focus on:

- Guaranteeing **diversity in food sources**, supply and output markets, through diversifying production, food stocks, imports, international trade partners and supply chains
- Developing and maintaining **robust food transport networks** to guarantee physical access to food across countries.
- Tailoring policies based on a country’s specific challenges in providing **economic access to healthy diets through the provision of decent employment and social protection**
- Providing better information, coordination and pooling resources can help accomplish the three aforementioned points.
- **Digital agriculture** is another technological and social innovation that can significantly reduce market failures in agriculture and improve the functioning of the agricultural markets. It can boost the effectiveness of extension services, and make farmers more resilient to pests and weather fluctuations
- Finally, innovation on **early warning systems like ONE health approach** can help to improve eco-system sustainability.
systems. The current crisis is changing relative prices for agricultural commodities and inputs (fertilizers and energy) which will induce readjustments in production practices. Setbacks in the form of fallback on unsustainable practices should be prevented.

### Climate change

Food systems are deeply entwined with the climate crisis. Food systems do not only contribute to climate change by emitting 1/3 of global GHG emissions, but they also suffer from the impacts of climate change: diminished agricultural productivity, disrupted supply chains, putting pressure on livelihoods, increasing hunger and malnutrition. Food system transformation thus requires adequate climate mitigation and adaptation measures. The UN Food Systems Summit and UNFCCC COP26 meetings of 2021 recognized the importance of food systems for global climate solutions and achievement of the sustainable development goals (SDGs). Nonetheless, food systems still receive insufficient attention and funding to address the crisis. For instance, only 4 percent of climate finance is currently for agriculture and food systems.

The G20 framework for repurposing of existing agricultural support should include mechanisms for financial support and access to improved technologies supporting fiscally constrained developing countries to invest in energy and food-system transformations enabling them to contribute to climate change mitigation and adaptation and food security.

The G20 should promote and support aligning climate finance mechanisms with repurposed agricultural support and a framework for innovative financing mechanisms for investments in sustainable and healthy food systems. Repurposing a significant portion of the present agricultural support would take the world a long way towards meeting the financing requirements.
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| **Promote nutritious, safe and healthy diets** | Meeting climate- and food security goals for food systems may require as much as US$350 billion per year for new investments. Presently available finance for this purpose is just a fraction of this requirement. 

Risks associated with poor diets are the leading cause of death worldwide. Millions of people are either not eating enough or eating the wrong types of food, resulting in a double burden of malnutrition that can lead to illnesses and health crises. A 2021 report found that between 720 and 811 million people went hungry in 2020, more than 10% of the world’s population (The World Bank).

Undernourishment and micronutrients deficiency continue to rise while overweight and obesity are becoming more prevalent. These affect about a quarter of the world’s population and poor diets are the largest global health risks. A healthy diet is out of reach for 3 billion people (FAO) |
| **Social Protection** | Support the development of cash-transfer programs that incentivize the purchase and sale of nutritious, safe and healthy foods. Leverage the programmatic versatility of cash-transfers to add elements with a healthy diets objective, such as increasing the size of the transfer to enable people to afford a healthy diet, top-ups for nutritionally-vulnerable groups and incentives to promote spending on nutritious food. |
| **Food environments** | Work in coordination with UN agencies and financial institutions to design and implement policies for healthier food and environments, learning from other national experiences. Examples of policies include healthy school feeding programmes, front of pack nutrition labeling, sugary-drinks taxes, regulations on marketing food to children and measures to increase food safety. |
| **Supply chains** | Provide investment into local/national/regional and global supply chain infrastructure and associated enabling business & regulatory environments to ensure nutritious, safe and healthy food is available to people year round at affordable prices. |
| Economic and social sustainability of production to be inclusive and fair | Smallholder Farmers | Empower small farmers through policies that fully integrate them into regional value chains so that developing countries with a comparative advantage in agriculture are not compromised by the domination of global value chains by a handful of Transnational Corporations (T20 Italy).  
To meet the Malabo goals and to achieve multiple SDGs in all LMICs by 2030, creating an enabling environment where small farms are included in and benefit from rapid growth and transformation of agrifood systems is urgent (Barrett et al. 2020).  
G20 countries should support initiating contract farming among farmers or agribusiness actors with multinational corporations (MNC). Closed loop model is integrated with contract farming models through business cooperation for young farmers.  

Smallholder Farmers  
While smallholder farmers produce around 1/3 of the world’s food, many smallholder farmers are some of the poorest people in the world and tragically also those who often go hungry (Ricciardi, V., Ramankutty, N., Mehrabi, Z., Jarvis, L., & Chookolingo, B. (2018). How much of the world’s food do smallholders produce?. Global Food Security, 17, 64-72.).  

Smallholders are often excluded and lose from current rural transformations. They remain underserved in terms of access to market, finance and knowledge as well as energy and natural resources. Contract Farming conditions are unfair to smallholders and unattractive to young farmers, which cause some of them to migrate to cities for better income. However, most of the poor populations are depending on agri-food systems for their livelihoods and food.  

*Also See “redirecting agriculture subsidies” from calorie-rich staple crops to healthy and nutritious food! The G-20 should play a role to enhance the public and private investment to produce nutrient-rich food to make healthy diets more affordable.
The **gender gap** in food and agriculture is extensive! As consumers, women are more likely to be food-insecure than men in every region of the world. As producers, rural women face greater constraints than men in accessing essential productive resources and services, technology, market information and financial assets. They are under-represented in local institutions and governance mechanisms and tend to have less decision-making power. In addition, prevailing gender discrimination often mean that women face an excessive work burden, and that much of their labour remains unpaid and unrecognized.

Rural women are recognized as major agents of change. Women are as good at farming as men: evidence shows that if women farmers used the same level of resources as men on the land they farm, they would achieve the same yield levels. Rural women are resilient, resourceful, industrious and innovative. Across low-income countries, women make up 48 percent of agricultural employment. As farmers, horticulturists and market sellers, businesswomen, entrepreneurs and community leaders, they fulfill important roles throughout agrifood value chains, as well as in the management of natural resources such as land and water. To reach food and nutrition security for all, it is essential that food assistance policies and programs create conditions that advance, rather than undermine, gender equality and women's empowerment.

**Small-Scale Fisheries** are under-protected and unsustainable:
- Lack of infrastructure and technical capacities impeding the smallholders to remain competitive
- Lack of sustainable long-term environmental planning causing ecologically harmful practices
- Perceived barriers to fish consumption and marginalization of farmers and fishers limit its potential for nutrition and food security
- Conflicting local, regional, and national policies and legislation on natural resource

Recommendations to G20 that are practical, economical, and attainable in one fiscal year:
- Anchoring supply chains in an effective regulatory environment
- Recognising and protecting small scale and indigenous fisher interests in supply chain resource ownership
- Investment and upgrading of aquaculture and fishery supply chains and ensuring inclusive access to financing
- Deploying integrated environmental planning and waste management to ensure biodiversity conservation
- Social protection and employment opportunities for the actors and improved awareness of nutritional benefits to consumers
- Streamlining policy coordination across
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**Digital Transformation** creates digital divide and socio-economic exclusion. Despite technological advancement, small farm households, women and young entrepreneurs in many developing countries continue to face limited access to better knowledge, farm equipment, training, and many other constraints in adopting and implementing digital technologies. Moreover, the implementation of emerging digital technologies require access to mobile networks and internet services.

Use G20 international cooperation to optimize the role of digital transformation in achieving sustainable and inclusive growth. Increase the participation and contribution of smallholder farmers and other chain actors including new young and women entrepreneurs by improving the policy and regulatory environment using the public investments to crowd in private investment and mitigate the risks arising from the digital agriculture transformation.

To maximize the intended benefits of technological advancement and lower the costs of organizing the transformations for equitable access by all stakeholders, innovative policy and strategic approaches is required.

G20 should:
- set up a concerted strategy to encourage its members to invest more in digital infrastructure and help other countries do the same with the aim of bridging the divide in access to digital technologies.
- Develop an action plan for a sustainable digital transformation of agriculture, which would lead to putting in place institutional mechanisms.
- Support institutional capacity building that enables farmers to apply digital technology to enhance productivity and sustainability.
- Encourage agriculture ministers to adopt a nexus approach to prioritize and act on cross-sectoral policy themes and the distribution of public investment towards cross-sectoral initiatives to advance digital agriculture and food system.
- Champion an international governance structure to support digitally enabled sustainable agriculture solutions (for the SDGs).
Background

The global food systems are facing big challenges. COVID-19, conflict and climate crisis have combined to create jeopardy for up to 828 across the world in 2021-2022 (FAO, 2022). Global food systems feed 7.9 billion people, employ 40% of world’s population and generate a third of global GDP, but at same time current agriculture production places a hefty burden on the environment, creating more than a quarter GHG, and put pressure on tropical forest and biodiversity. Last year, the IPCC sounded the alarm on a looming crisis: climate change is generating a “Code Red for Humanity” that requires urgent action. Food systems are deeply entwined with this crisis.

Global hunger continues to be on the rise, ironically obesity rates are also increasing. More than 800 million people go to bed of hungry each night, while 1 billion are considered as obese. According to the 2022 Global Report on Food Crises, the number of people in emergency need of food assistance, doubled from 100 to almost 200 million between 2016 and 2021, mainly driven by impacts on food security caused by extreme weather, conflict, and/or economic collapses. Even though food and agriculture sectors provide huge contribution to overall economic, but 65% of working adults who live in poverty depends on their livelihood in agriculture. Smallholders produce around one-third of the world’s food, but they are also often the poorest. Tragically, and somewhat paradoxically, they are also those who often go hungry.

In this regard, the Task Force 4 of T20 on Food Security and Sustainable Agriculture has discussed several issues: (i) Global and inclusive recovery from the pandemic through trade and global value chains in food and agriculture, (ii) Increasing agricultural productivity to feed a growing world population, (iii) Resilient food systems, sustainable landscape management, and nature-positive agricultural production that adapts to climate change and external shocks, (iv) Rethinking agricultural subsidies to directly benefit impoverished farmers and to reduce trade-offs between agriculture and climate change, (v) Reducing food loss and waste in the food systems, (vi) Food access, affordability, literacy and sustainable consumption, (vii) Land ownership and livelihood of smallholder family farms, (viii) Future of farming in a digital and data-driven world, and agriculture market information system, (ix) Policies and infrastructure for sustainable small-scale fisheries, and (x) Innovative models to finance sustainable agriculture. These issues a crucial to provide future clear direction and input for policy making process around the world.
As the ideas bank of the G20, T20 has released the T20 Communique and the T20 Policy Briefs that present evidence-based inputs from experts around the world. These T20 Task Force Notes on Food Security and Sustainable Agriculture provide policy recommendations based on the policy briefs, synthesis from events organized related to G20 Food Security and Sustainable Agriculture issues and discussion in TF4 related with ten priority issues.

**Policy Recommendation**

**Recommendation 1: Financing for short term food and nutrition insecurity.**

Disruption in the global food supply and rising agriculture prices in the COVID-19 pandemic are pushing tens of millions more people into severe malnutrition, food insecurity and the brink of starvation. The current war in Ukraine is only to worsen this worrisome trend. This revealed how vulnerable global food systems are to shocks and that shocks in one part tend to reverberate across entire system. Securing stable food supplies at affordable price is an immediate humanitarian need. Speedy mobilization of adequate financial resources to address the food crisis in low- and middle-income countries should be a top priority for the G-20.

**Recommendation 2: Support food systems transformation toward affordability of healthy diets for all.**

A major cause of food and nutrition insecurity is the affordability of nutritious foods. 2022 is a year of unprecedented hunger, with 828 million hungry people across the world. This not include the “hidden hunger”, the presence of multiple micronutrient deficiencies (particularly iron, zinc, iodine and vitamin A) which can occur without a deficit energy intakes as result of consuming an energy dense, but nutrient-poor diet. It is estimated that it affects more than two billion people worldwide, particularly in low- and middle-income countries where there is a reliance on low-cost food staples and where the diversity of the diet is limited. Addressing inequalities within the food system must be central to developing a sustainable, cost-effective strategy for improving food quality that delivers benefit to the seldom heard and marginalised communities. The G20 should play role in enhancing food systems transformation to focus on production, distribution, and marketing nutritious food, that support healthy diets for all.

**Recommendation 3: Investing on resilient food systems and nature-positive agricultural production that adapts to climate change and external shocks.**

Estimates suggest food systems contribute more than a third of the greenhouse gas (GHG) emissions causing climate change. The impacts of climate change have already started to diminish agricultural productivity and disrupt supply chains, putting pressure on livelihoods and threatening to significantly increase hunger and malnutrition. The UN Food Systems Summit and UNFCCC COP26 meetings of 2021 recognized the importance of food systems for global
climate solutions and achievement of the sustainable development goals (SDGs). Nonetheless, food systems still receive insufficient attention and funding to address the crisis. The G20 should take leadership in looking beyond immediate crisis responses and ensure those responses are consistent with steering food system change towards adoption of sustainable practices, enhancing resilience of supply chains to climate and other shocks, and support food-system transformations to contribute to climate change mitigation and adaptation.

**Recommendation 4: Repurposing agricultural subsidies and supports to directly benefit of sustainable practices.**

Governments spend billions of dollars every year on agricultural subsidies that can incentivize practices that harm the environment and public health. The current food crisis is changing relative prices for agriculture commodities and inputs which will induce readjustment in production practices. Setbacks in the form of fallback on unsustainable practices should be prevented. It is need to repurpose agriculture subsidies and supports toward sustainable practices that promotes more sustainable, equitable and efficient food systems. The G20 should support an internationally concerted effort for repurposing of existing agricultural support shifting resources towards R&D for further innovation and adaptation of sustainable practices and incentives for farmers and other agrifood producers to adopt those practices.

**Recommendation 5: Reducing food loss and waste.**

Food loss and waste have increased with recent supply and demand disruptions in agri-food supply chains. Avoiding the high amounts of food loss and waste could help feed around 1.26 billion people per year. Cutting present food loss and waste by 50 percent would increase available supply of fruits and vegetables by more than enough to cover the recommended amount of fruit and vegetable consumption per person per day. Food loss and waste also results in a huge negative impact on the environment. The G20 should promote and support a worldwide programme for incentives and finance for investments in basic rural infrastructure (roads, irrigation, electrification, and digital) as well as in value chain infrastructure (temperature-controlled storage facilities and transportation, banking and insurance infrastructure, waste recycling) to improve value chain efficiency and resilience, as well as to substantially cut down on food loss and waste. G20 through effective multilevel governance should promote the circular bioeconomy at the city-regional scale and minimizing food waste through the role urban and peri-urban farming and innovative behavioral intervention.
**Recommendation 6: Investing on smallholders, small-scale producers, and family farming.**

The world’s smallholder farmers produce around a third of world’s food. It is estimated that there are more than 608 million family farms around the world, occupying between 70 and 80 percent of the world’s farmland and producing around 80 percent of the world’s food in value terms. The world needs to believe that small-scale farmers can offer solution for the problems of food crisis. But in order to succeed, they need the right tools, and require us to reorient food systems so that these farmers are given opportunities to thrive, and fairly rewarded for the work they do. Moreover, small-scale farming is also contributes to culture and community, they offer and represent a rich and diverse cultural heritage, encompassing art, traditional music, history and landscape architecture. Small-scale farming is also contributes to culture and community, they offer and represent a rich and diverse cultural heritage, encompassing art, traditional music, history and landscape architecture. The G20 should invest and support the small-scale producer’s empowerment, inclusive governance of food systems that enable participation of smallholders, small-scale producers and family farming, enhancing sustainable livelihood, access to information, finance and market, reducing inequality, promoting inclusive growth and rural transformation.

**Recommendation 7: Enhancing food production on the basis of sustainable agriculture practices.**

Agriculture production is currently not only affected by the impact of climate change but also contributes to global greenhouse gas emissions. Promoting sustainable food production need massive implementation on sustainable practices on the ground that contribute greater level impacts to landscape and ecosystems. It is need broader implementation of nature-based practices such as organic agriculture, agro-forestry, conservation agriculture, crop rotation, integrated pest management, permaculture and so on, that all rely on the wealth of localized environmental knowledge that small-scale farmers possessed. The G20 should promote the mobilization of innovative financial resources to facilitate sustainable transformation of agri-food systems.

**Recommendation 8: Enhancing diversification of food production, supply and inclusive global value chains.**

The G20 should invest in innovations in food diversification and reiterate its calls on countries to refrain from imposing restrictions on the food and fertiliser trade and provide leadership within the WTO to reinvigorate agricultural trade negotiations and establish an internationally coordinated framework for the repurposing of agricultural support within the WTO’s rules of engagement and multilateral climate agreements. The G20 could further promote multilateral coordination in diversification of food sources for any given country and region. This
coordination would involve, inter alia, the development and maintenance of robust food transport networks to guarantee physical access to nutritious food across countries and export policy reforms reflecting the competitive conditions on a level-playing field for producers and exporters in developing countries toward inclusive global value chains.

**Recommendation 9: Support research and innovation on sustainable food systems.**

Food systems transformation need investment on research and innovation of impactful food and nutrition that creating transformative change at micro, meso and macro level across the world. This requires the development and adoption of novel research and innovation approaches that will provide evidence to inform food system transformation and will serve as catalysts for change. It is need strengthening global collaborative and transdisciplinary research for improved science, policy and practices alignment. Innovation on sustainable food systems include technological innovation such as agricultural digitalization, sustainable food production and practices, social and institutional innovation, market innovation, circular bioeconomy, and food diversification including blue food. Blue foods – fish, shellfish, algae and plants cultivated and captured in freshwater and marine environments – are highly diverse, are rich in protein, essential micronutrients and fatty acids, and can offer sustainable alternatives to many terrestrial animal-source foods. The G20 should support investment, financing, and framework to boost research and innovation on sustainable food systems.