



POLICY BRIEF

SCALING SUSTAINABLE AGRICULTURAL PRACTICES



Task Force 10
**SUSTAINABLE ENERGY, WATER, AND FOOD
SYSTEMS**

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موجز السياسة الارتقاء بالممارسات الزراعية المستدامة

فريق العمل العاشر
نُظُم الطاقة المستدامة والمياه والغذاء



المؤلفون

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ABSTRACT

Agricultural technologies implemented since the mid-20th century have helped triple food production and feed the growing global population. However, they have also negatively impacted the environment. The current challenge facing humanity is how to accelerate the transition to and scaling up of sustainable agriculture practices to ensure yields and the sustainable use of natural resources.

We propose three strategies that the Group of 20 (G20) must adopt to address this challenge. First, refocus existing agricultural policies to encourage small-scale farmers to adopt sustainable agriculture. Second, design new policies to support the transition to sustainable agriculture. Finally, encourage more research in the Food and Agriculture Organization (FAO) and global research organizations to measure the socio-economic and environmental impacts of sustainable agriculture.

ساعدت التقنيات الزراعية المُطبّقة منذ منتصف القرن العشرين على مضاعفة الإنتاج الغذائي ثلاثة أضعاف، وتغذية سكان العالم الذين هم في تزايد لكنها على الرغم من هذه المساهمات أثرت سلباً على البيئة. يتمثل التحدي الحالي الذي يواجه البشرية في كيفية تسريع الانتقال إلى الممارسات الزراعية المستدامة وزيادتها، لضمان زيادة المحاصيل واستدامة الموارد الطبيعية.

نقترح أن تتبنى دول مجموعة العشرين ثلاث استراتيجيات من أجل مجابهة هذا التحدي وهي: أولاً- إعادة التركيز على السياسات الزراعية الحالية من أجل تشجيع المزارع ضيقة النطاق على تبني الزراعة المستدامة. ثانياً- تصميم سياسات جديدة لدعم الانتقال إلى الزراعة المستدامة. وأخيراً، تشجيع المزيد من الأبحاث في منظمة الأغذية والزراعة والمؤسسات البحثية العالمية من أجل قياس الآثار الاقتصادية-الاجتماعية والبيئية للزراعة المستدامة.



CHALLENGE

The global debate regarding food has shifted from how to feed the world with more calories, no matter how they are produced, to how to feed the world healthily and sustainably. The ongoing depletion of natural resources and the increasing threat of climate change are two powerful arguments that support the need for a paradigm shift in terms of the way humanity produces food. Our current consumption of food, fiber, timber, and biofuels is responsible for the unprecedented pressure on global land and water resources. Agriculture alone is responsible for 70% of fresh-water use; and agriculture, forestry, and other land-use activities represent 23% of greenhouse gas emissions (IPCC 2020).

Additionally, the unsustainable management of marine resources and land-use change, including for agricultural purposes, are some of the primary causes of global biodiversity loss (IPBES 2018). The species extinction rate is dramatic: from 1970 to 2014, the total number of vertebrate species on earth decreased by 60% (UNEP 2019).

Agriculture is also the primary contributor to soil degradation (IPBES 2018), and 33% of global land is moderately to highly degraded (FAO 2015). The immoderate use of nitrogen- and phosphorus-based fertilizers¹ has come with a high cost for agricultural producers, who have been unable to mitigate the enormous damage that has already been done to the soil (FAO 2015).

For this policy brief, we will use the FAO's definition of sustainable agriculture: "The management and conservation of the natural resource base, and the orientation of technological change in such a manner as to ensure the attainment of continued satisfaction of human needs for present and future generations. Sustainable agriculture conserves land, water, and plant and animal genetic resources and is environmentally non-degrading, technically appropriate, economically viable, and socially acceptable" (FAO 1989).

In this policy brief, we will focus on a systemic perspective of sustainable agriculture to exclude solutions that only address a single variable (for example, that only reduce the use of chemical fertilizers). Instead, we will focus on comprehensive practices that incorporate the ongoing improvement of different ecosystem components as a fundamental and guiding element of agricultural activity, such as organic agriculture or agroecology.

1. The immoderate and misuse of fertilizers has caused greenhouse gas emissions and pollution of soils and waterways (Campanhola and Pandey 2019).

CHALLENGE

Sustainable agriculture promises positive externalities in terms of the environment, improving land-use, soil quality, and fresh-water use, and protecting biodiversity, among other benefits. However, it presents problems when it comes to adoption, as the transition from traditional agriculture can be risky, expensive, and slow. This has made this transition impossible for many farmers, particularly small-scale farmers, who struggle to access financing. For example, it is estimated that less than 10% of small-scale and family farmers worldwide have access to financing mechanisms (Peck and Anderson 2013).

At the same time, agricultural subsidies have traditionally been unsuccessful in terms of incentivizing a transition to sustainable practices, and they are usually considered to be an intrinsic part of the intensive agriculture model (Watson 2008). There is also a widespread lack of a systemic policy vision for agricultural and food issues at either the national or local level. Except for a few cases, stakeholders have not organized themselves at the national and sub-national levels to influence the agenda of policies and programs to support food systems and sustainable agriculture.

Due to the complexity of the environmental, economic, and social impacts of systemic, sustainable agriculture models, as well as their variability in different ecological zones, it has been impossible to adopt globally accepted methods to measure and monitor their impact and inform public policies and programs. Moreover, many studies, meta-analyses, and overviews have focused mostly on yield increase rather than on the complexity of results and outcomes (Campanhola and Pandey 2019).

Therefore, despite increasing demand for sustainable agricultural products in high income countries (HICs), and more widespread agreement about the positive environmental externalities (such as improving land-use, soil quality, and fresh-water use, and protecting biodiversity) of these practices, the adoption of sustainable agricultural practices has been slow. For example, organic agriculture, one of the systems that have been more actively monitored and measured, represents less than 2% of arable land, and both the production and consumption of organic products is concentrated in certain countries (FiBL 2019).



PROPOSAL

We recommend prioritizing and incentivizing sustainable agriculture by refocusing existing agricultural and food policies and designing new policies to support the transition to and scaling up of sustainable agriculture, particularly among farmers with limited capacity and access to finance. Additionally, we consider it important to improve the measurement of the environmental and socio-economic impacts of sustainable agriculture, as well as disseminate best practices to facilitate the transition to and scaling up of these practices.

Key Recommendation 1: G20 countries should encourage sustainable agricultural practices, with a focus on small-scale and family farmers.

A. G20 countries should increase the **support available to small-scale and family farmers**, as these are the production systems that represent a prime opportunity to develop, experiment, and disseminate sustainable agricultural practices.

Various research studies have demonstrated the relevance of small-scale and family farmers in sustainable agriculture. Small-scale agriculture incentivizes crop diversification and the effective use of ecosystem services (IPES-Food 2018). At the same time, a lack of support is found across the value chain of small-scale and family farmers, including technical assistance, technology packages, post-harvest management, distribution, and commercialization. As a result, small-scale and family farmers require significantly more support to transition to more sustainable practices.

We recommend channeling support for these farmers through producer organizations and cooperatives (where it is not already done), given that they are among the most effective vehicles for supporting small-scale and family farmers. Furthermore, they have a greater impact in terms of the number of beneficiaries and volume and quality of production. They also foster economies of scale and promote technology transfer and knowledge dissemination, among other benefits (The Aspen Institute 2016).

B. **G20 countries should redesign their subsidies and agricultural extension programs** to target small-scale and family farmers and include educational programs, technologies, incentives, and other tools necessary to transition towards sustainable agriculture.

It is well documented that the negative externalities resulting from intensive agriculture, such as the public health cost of unhealthy foods and environmental degradation, are simultaneously “exacerbated” by distortive subsidies and also “not reflected in market prices” (Erixon and Lamprecht 2020).

Many argue that these problems are associated with traditional “distorting subsidies” and would not apply to “smart subsidies,”² which are crucial for supporting the costly transition to sustainable agriculture (The Aspen Institute 2016). Over the past two decades, some countries have decoupled subsidies—meaning that many farmers no longer receive payments for producing a commodity—from specific production goals in favor of targeting environmental outcomes (OECD 2019).

The transition to sustainable agriculture is expensive. The temporary decrease in yields, the learning curve required to understand and implement new technologies, and the necessity of developing new commercialization channels to increase the value-add of the products all imply temporarily lower profits compared to the intensive model. Furthermore, considerable investments will be needed to develop the required skills and acquire new technological resources. For example, restoring degraded soil involves investing in fencing, seeds, and machinery, and the restoration itself can take years.

As a result, there is a need for more smart subsidies, and for a greater percentage of these smart subsidies to be focused on agricultural knowledge, science, and technology (Watson 2008). Furthermore, a particular focus on R&D, extension services, technology transfer, and support for producer organizations (Bellmann 2019). These priorities still account for less than one-fifth of public investment in the agricultural sector (OECD 2019).

C. G20 countries should redirect **agricultural investment and financing programs** on production systems and value chains that implement sustainable agricultural practices or that include clear strategies for transitioning to sustainable agriculture.

In low income countries (LICs), financing has not yet shifted from supporting food systems that meet the needs of ever-increasing populations to supporting food systems that provide nutritional and high-quality products. In countries with more developed food systems, investments “have often been incompatible with the development of inclusive and sustainable food systems” (Morrison et al. 2018).

2. A “new generation” of input subsidies that favor market-based solutions and promote the development of agricultural input markets while targeting and enhancing the welfare of people living in poverty (FAO 2011).

Not only are investors reluctant to invest in these types of sectors, but traditional financial instruments do not meet the specific financing needs of small-scale and family farmers or sustainable production. As a result, new and expanded financial instruments are required to support more sustainable agricultural practices while also connecting farmers with markets that distribute a fair share of the added value of products (Morrison et al. 2018).

Pandemic related disruptions in food chains and economic recessions will result in the need for funds for small-scale and sustainable farmers. Considering the many urgent demands for public spending on health costs and economic recovery, it is crucial to seek innovative financing mechanisms that combine public and private funds. A combination of financing sources is the only way to support a transition towards sustainable agricultural practices.

It is particularly important to explore the implementation of blended finance³ and similar instruments that combine funds from different sources to support the transition of small-scale and family farmers to sustainable agriculture. These instruments could potentially include the following components: financing for small-scale agricultural producers to support the transition process, protection against market fluctuations, technical assistance, and commercial opportunities to sell their products.

Key Recommendation 2: G20 countries should encourage the design of new policies and governance structures to support the transition towards sustainable agriculture and scale-up sustainable agricultural practices

D. G20 countries should promote the development of **national and regional strategies** to support sustainable food systems, including public policies that promote sustainable agriculture.

Currently, political actors involved in various issues related to food systems act from their separate silos, giving rise to a framework of disjointed sectoral policies (such as health, environment, agriculture, and education). Inter-institutional coordination is complex and expensive, particularly when it involves attempting to coordinate stakeholders who act based on the status quo.

3. Blended finance connotes a combination of public and private finance, which may or may not involve a form of subsidy. There are many shapes and forms in which public and private sector funds can be combined—or blended—within the scope of one project (World Bank 2016).

However, some progress can be seen in similar or related systemic strategies, such as the Sustainable Development Goals. First, because they emphasize the importance of agriculture and nutrition as significant challenges facing humanity. Second, because their understanding of the problems to be addressed involves a multi-sector intervention to achieve common goals (Fanzo and Byerlee 2019).

We recommend developing national and regional strategies that envision food systems and build on the progress made in the 2030 Agenda. However, they should also go beyond and include specific public policies with a systemic perspective of food and must foster sustainable agriculture.

E. G20 countries should implement **governance structures** to ensure that the actors that promote sustainable agriculture are empowered and represented.

It is important to encourage food system governance structures that ensure a systemic vision and that consider the different variables related to production and consumption. Examples of these variables range from land and water use to yield to environmental impacts and nutrition, among others. The case for sustainable agriculture is strengthened if all these variables are taken into consideration.

These governance structures must:

- Encourage collaboration between different food system stakeholders that is focused on the shared goal of the common good.
- Foster a rebalancing of powers in food systems, including greater involvement from stakeholders committed to the public good.
- Prevent a “regulatory capture by powerful interests” that “has become a persistent problem in food systems” (IPES-Food 2019, 27), and that blocks the transition towards more sustainable practices.
- Empower food system stakeholders that defend the principles of sustainability (particularly producers and consumers).
- Encourage the exchange of information, the establishment of agreements, and the organization of negotiations.

With these considerations in mind, at the federal level, this might include the creation

of inter-sectoral commissions that incorporate the agricultural, fishing, environmental, and health sectors among their core members, as well as representatives from private organizations, civil society, and academia. At the state and local levels, food councils can be set up that bring together stakeholders that represent various sectors to find collective solutions to specific problems facing local food systems.

F. G20 countries should create **new skills and structures** in their governments to facilitate the scaling up of sustainable agricultural practices.

The transition to and scaling up of sustainable agriculture present additional challenges for public officials due to the complexity of the impacts of these processes and the cost and time associated with their adoption. Governments face institutional difficulties and barriers when trying to scale up local, pilot, or experimental projects. Bureaucratic inertia, limited operational flexibility, and resistance to change are just some of the reasons that governments struggle to adapt to the particular stages and characteristics of these types of processes.

It is, therefore, important to develop institutional capacity within government agencies and public operators to address the specific contexts at the local level using participatory processes that involve communities, cooperatives, farmers, civil society, and academia, among others. It should involve creating regional scaling-up strategies, based on the identification of technologies and practices that are proven to adapt better to certain climates and agroecosystems.

Key Recommendation 3: G20 countries should encourage more research in FAO and global research organizations to measure the socio-economic and environmental impacts of sustainable agriculture, and disseminate good practices to support the transition and inform scaling-up strategies.

G. G20 countries should reallocate the current food systems **research budget** to the impact assessment of sustainable agriculture.

Public policies and support programs for transitioning to and scaling up sustainable agriculture require more precise information on the impact of this system on environmental quality, natural resources, productivity, biodiversity, soil health, external input use and pest management, pollination services, and many other variables. This information will enable policymakers and investors to make better decisions regarding the value of public-private investments, as well as their environmental, social, and economic returns.

The public spending allocated to food system research should be redirected to measure the impact of sustainable agriculture, focusing on the crops and models that promise the greatest impact on ecosystems in each country. This spending should prioritize the need to develop a multivariable data collection system that compares different agricultural production structures, economic costs, and other outcomes. It should consider the most efficient methods for measuring many variables so that the system is not cost-prohibitive.

H. G20 countries should encourage FAO and global research organizations to **adopt a method** to measure the key variables of sustainable agriculture systematically and disseminate best practices and success stories on sustainable agriculture transitions and scaling-up processes around the world.

The G20 may be the ideal forum to lead the adoption of methods to measure the complex impacts of sustainable agriculture, as G20 countries represent “around 60% of the world’s agricultural land area and account for about 80% of world trade in agricultural products in value” (G20 2019, 1).

Currently, there is no consensus regarding how to transform agriculture to increase production and decrease the negative externalities that impact the environment and natural resources. The proposals include a broad range of alternatives, such as climate-smart solutions, sustainable intensification, and the systemic, sustainable agriculture models proposed in this policy brief, such as agroecology and organic agriculture. This lack of agreement extends to how to measure the impacts of these solutions and which variables to consider. Collective leadership from the G20 countries, FAO, global research organizations, and other partner institutions (development banks and academia) is necessary to align definitions, models, and measurement methodologies, particularly of key variables such as the yield and impact on soil quality, biodiversity, and others.

Sustainable agriculture models, whether agroecological, organic, or other, involve different practices depending on the local climate, natural resource conditions, and the needs of farmers and communities (Campanhola and Pandey 2019). While it is important to measure systemic and complex impacts, it is also essential to provide more information on good practices and success stories that can be adapted to the specific contexts of farmers, experts, and academics. This will facilitate the transition to and scaling up of sustainable agriculture practices.

Disclaimer

This policy brief was developed and written by the authors and has undergone a peer review process. The views and opinions expressed in this policy brief are those of the authors and do not necessarily reflect the official policy or position of the authors' organizations or the T20 Secretariat.



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