Global food and water security, trade and market stability

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July 7, 2020 | Last updated: July 7, 2020

This Policy Brief is offered to the Saudi T20 process, as a recommendation to the G20 in 2020.

The challenge to produce more food to meet the growing world demand requires a careful, integrated and global approach, to secure the efficient use of land, water and energy at the global level, aimed at increasing productivity and f regions the crop production is still developed under intensive production systems, which are deteriorating the natural resources and contributing to global warming. The purpose should be to move to more environmentally friendly pr sustainable practices in crop production and to monitor the production systems in different regions to provide international comparisons and track performance over time.

At the same time, trade is, and will be in the future crucial to cope with a global production system environmentally friendly providing sufficient food to meet food security, given that regional production and consumption imbalances as trade of agricultural products continues seriously limited by trade policies and could be worsened by new measures implemented by some countries during or after the COVID-19 crisis. Therefore, the G20 should promote policies and agreements between food trading partners, based on a more open trading system, aimed at reconciling both objectives: global food security and environmental sustainability.

Challenge

The world population is expected to reach 8,500 million people by 2030, about 800 million more than in 2019 (UN, 2019). At the same time, there is also growing social and political concern regarding the increasing economic scarcity of nat resources and it is also an EU Green Deal, which creates new challenges for food production.

The challenge to produce more food using available natural resources efficiently and sustainably requires a careful and integrated approach to secure the efficient use of land, water and energy, at the global level, aimed at increasing productivity. Trade is crucial to cope with such challenge, given that regional production and consumption imbalances are, and will be, very relevant. Differences in resource endowments, such as the amount of potential land available for agriculture and relevant between different regions (see Appendix). In fact, many countries are facing serious limitations on area and/or renewable water availabilities to sustain their needs of food production growth.

Therefore, a smooth world food trading system should also be a major objective aimed at facilitating food security while moving to production systems that use conservation practices, while at the same time attending water scarcity through and land degradation.

At critical times, such as the current COVID-19 crisis, the need to guarantee access to food and assess the logistical strength of the food trading systems as a whole becomes evident. Even if the world food supply is sufficient to meet the global a local or national level. Therefore, understanding where the trade junctures are is key for better decision making.

However, still today, world trade of agricultural products continues seriously limited by trade policies implemented by most countries. In the midst of the COVID-19 crisis, some countries are rapidly taking measures that could affect internati onal trade flows and generate greater price variability. Such obstacles affect international trade flows and the availability of food and generate greater price variability. Therefore, understanding where the trade junctures are is key for better decision making.

Despite its increasing importance, these issues have not been considered seriously enough in international trade negotiations in the WTO during the last decades. Therefore, world leaders should give more attention to considering what ex water availabilities. In the current context, the G20 could play an important role to promote future global food security and environmental sustainability based on a more open trading system.

Proposal

Proposal 1. Improvements in measurement of sustainable practices in crop production.

Increase the productivity and total food availability must be necessary achieved while taking into account the impact of the production systems on climate change and natural resources sustainability. These purposes require a careful and int global and food supply with production systems which are friendly with the environment.

Nowadays, most of current world crop production is still developed in some regions under production systems which are not friendly with the environment. Some of these production systems, have increased productivity based on high-use c quality; therefore in many regions there is still room to produce with more environmentally friendly practices in the main producing countries. This could lead to less intensive production systems in some regions, that should be balanced with climate conditions. A smooth world trading system is crucial for such global food security purpose.

By contrast, in other regions endowed with abundant natural resources there are being implemented interesting technological innovations and production process that have increased competitiveness and productivity with production system based on the convergence of various innovations like no-till strategy, crop rotations, cover crops and sanitation; precision farming; improved seeds including genes for herbicides, insects, and diseases resistances (which imply a lesser use of intensive use of information and communication technology, satellite-image support, logistic innovations like site bags, post-harvest management, precision nutrition, and others.

For example, the no-till strategy integrates a production system that reduces soil erosion and improves rainwater storage in the soil (strategic water management). It is a production system designed at maximizing productivity in a sustainable and reducing oil consumption and greenhouse gas (GHG) emissions. Despite its advantage, less than 10% of total world crop production is under the “no-till management strategy” (Begnanza et al, 2017).

There are very positive results of the “sustainable intensification strategy” in some countries, that provide an interesting experience for the challenge of producing more food while improving soil conditions, making a more efficient use of water and land. And, eventually, if these strategies could lead to lower increases in productivity in some regions with limited availability of water and land, such deficiencies could be balanced with increased supplies in other regions better e

To make progress in this strategy it is necessary to systematize the large amount of information available and to propose a global strategy that allows increasing the total availability of food, as well as mitigating the impact on the environment proposed:

1. Improvements in measurement of sustainable practices in crop production, such as no-till and cover crop practices among others with a focus on productivity, soil recovery and water resources availability in relation to cultivated land, i
2. The G20 should instruct the Meetings of Agricultural Chiefs Scientists of G20 States (MACS-G20) to coordinate a white paper on measurement of sustainable practices in crop production in different regions taking into consideration pri
3. The G20 should give a mandate to International Organizations (FAO, OECD, IFPRI, IICA, CGIAR, UNCTAD) to systematically and jointly monitor sustainable practices to provide international comparisons and track performance over time.

4. The G20 should lead in the WTO and the United Nations (in the framework of UN Water Convention) the addressing of the links between international trade and sustainable water use. This approximation should reflect availability and supply sources (green, blue or gray water).

Proposal 2. Policies to facilitate dialogue, information exchange and foster trade agreements between food trading partners

Global balanced sustainable production systems and a smooth food trading system are the two needed elements to comply with environmentally sustainable food security. However, we have seen during the last few years that the trading environment has deteriorated specially in relation to the food sector. For example, the price and quantities of soybeans exported by Brazil to China were significantly affected by import tariff imposed by China to more protectionist attitudes, in some cases accompanied by specific trade policies. These situations could become a major negative element for trade, and consequently for food security in net importing countries that depend on trade to ensure food supplies for their population (Figure 1).

Figure 1: Food dependence (trade as a share of domestic food supply)

Sources: Bloomberg based on FAO Global perspectives

Countries that are especially sensitive to instability of food markets are those that are big net importers, but also the big exporters. The main countries that respond to these characteristics can be seen in Figure 2.

Figure 2: Shares Net Food excluding fish Importers and Exporters, average 2015–2017

Source: Author’s calculations based on FAOSTAT, June 2020

The G20 should act in a concerted manner to contribute to necessary sustainability of the global governance system in relation to international trade. Of particular importance is the reform of the WTO to incorporate new ways of working that takes into consideration the new realities of global trade. In particular, the full incorporation of a regime under which plurilateral agreements made among a limited number of countries are opened to others that may wish to join after its conclusion.

In this context it is proposed that the G20 promotes and facilitates the organization, within the WTO, of a special group of countries with high interest in agricultural trade and environmental sustainability, aimed at promoting dialogue, discuss proposals and progress in special trading agreements to facilitate agri-food trade among them, while promoting environmental sustainable practices.

Within the G20, AMIS can lead the creation of a special group of countries and generate a space for dialogue on their agendas and in the gathering of relevant information. Different groups of countries can be selected by the AMIS Secretariat to represent the diverse interests in the food trade and environmental sustainability. These groups could then engage in dialogue and discuss ways to improve food security, at local level and national level. The G20 should provide AMIS with financial support to fulfil this task.
meetings and activities that the platform already has in place. Also, AMIS can analyze the trade junctures and promote research and dialogue related to the food system's most pressing issues that are a threat to food security, at local, regional, and national levels.

This initiative is especially important given the present situation created by the COVID-19 crisis, and the negative consequences that it will have associated to eventual additional restrictions to trade, and the potential impact of these restrictions on food security, at local level and national level. The G20 should provide AMIS with financial support to fulfil this task.

Having AMIS monitoring global and regional markets and providing analysis from a well-established G20 initiative that was created in times of the previous international food crisis, could also be a fundamental asset to prevent a future crisis.

### Table 1: Export Restrictions Measures

<table>
<thead>
<tr>
<th>Country Label</th>
<th>Products</th>
<th>Day of End Date</th>
<th>Day of Start</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>Buckwheat, wheat, rye, including flours and sugar, potatoes, carrots, turnips, beets, onions, cabbages, sunflower seeds and oil.</td>
<td>15-Apr-20</td>
<td></td>
</tr>
<tr>
<td>Russian Federation</td>
<td>Processed grains</td>
<td>30-Mar-20</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>Eggs</td>
<td>31-Mar-20</td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Rice</td>
<td>28-Mar-20</td>
<td></td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>compound feed and bran.</td>
<td>15-Apr-20</td>
<td></td>
</tr>
</tbody>
</table>


Summarizing, the main objective of this brief is to show the global importance of food trade in the wellbeing and sustainability of humanity.

Two main themes are developed within this brief. The first theme is related to the contributions of food trade to global sustainability and the efficient use of natural resources globally. This can be seen through the import of a product that can imply saving water at a global level if the flow is from sites with relatively high-water availability and productivity.

The second one is related to the need of an efficient and effective global trade system to ensure the food security of net importing countries that given their scarce endowment of agricultural natural resources are unable to produce the level of food that they need. Given that food trade is a key engine of economic growth for many countries and makes possible a viable and prosperous world.

These two global functions of a smooth food global trade system justify all possible efforts to sustain and strengthen global governance systems that contribute to a vibrant multilateral trading system that serves all countries and makes possible the proposed improvements in the understanding and measurement of sustainable production systems, the systemic approach that should be taken into consideration on global food security, and the need of a constructive dialogue among net food importing and exporting countries and makes possible a viable and prosperous world.

### APPENDIX. Imbalances in the global availability of food and natural resources for agriculture

During the last two decades, the imbalances between food supply and demand at the regional level have increased, and the trend is expected to continue in the immediate future. Despite the fact that agriculture and food production growth Figure 1 shows the variation in regional imbalances during the last 60 years. While South America has become a major net food exporter, Asia, the Middle East and Africa have increased their external food demand.

**Figure 1. Food surpluses and deficits in selected regions, 1990-2025**

Source: OECD and FAO agricultural outlook 2016-2025.
Lastly, the provision of renewable water available for agriculture also has an unequal distribution between countries and it is possible to cover these imbalances through virtual water (Figure 3).

Figure 3. Annual renewable water resources per capita (thousand cubic meters per year)


Human activities consume and pollute a lot of water. The sustainable use of water as a vital resource is one of the major global challenges. At a global scale, water footprint in the period 2006-2010 was 9087 Gm3 yr⁻¹ (74% green, 11% blue, 15% grey) (Hoekstra and Mekonnen, 2011). This indicates that most of the virtual water traded internationally comes from renewable sources of water and therefore, it is an efficient mechanism for the use of resources.
In this sense, trade in crop products contributes 76% to the total volume of international virtual water flows; trade in animal and industrial products contribute 12% each. The global water saving as a result of trade in agricultural products in th saving (53%) is due to trade in cereal crops, followed by oil crops (22%) and animal products (15%) (Hoekstra and Mekonnen, 2011).

Figure 4. Global water savings associated with international trade in agricultural products (1996–2005)

Source: Hoekstra and Mekonnen, 2011.

References


Existing Initiatives & Analysis