

Climate Change, Resource Degradation and Food Security

Policy Brief

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The Argentine Council for International Relations – CARI is a civil society, partisan-free, non-profit organization, with a long-standing track record that has made it a flagship institution in the field of international relations in Argentina. CARI's proposal consists in deeply studying the main global challenges and the road that Argentina must take to face them. CARI produces reliable papers, supplies updated information, conducts pluralistic debates, and provides a forum of discussion.

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GPS is a network of private institutions from Argentina, Brazil, Paraguay and Uruguay acting in the field of food security seeking to contribute to the integration of the food systems of the Southern Cone Countries and their International projection with a strategic vision of the world and the region.

One of the greatest challenges for humanity is how to address, in a coordinated manner, the urgent need to mitigate climate change and the degradation of natural resources with the requirements of increasing the production of safe and nutritious food in the context of constant population growth.

» **Climate change will continue to put pressure on food production, especially in regions with vulnerable ecosystems.** «

Climate change, armed conflicts and economic shocks continue to push more people into food insecurity. After a period of relative stability, since 2015, the food security indicators have worsened globally. Between 702 and 828 million people were affected by hunger in 2021¹ and the prevalence of malnutrition jumped to 9.8% of the population (FAO, 2022). The nutritional differences between countries have been exacerbated as a consequence of the uneven economic recovery post-COVID-19.

Climate change has also contributed to malnutrition in many regions and is expected to push 8 to 80 million people into food insecurity by 2050. Further, emerging climate-related food and food safety risks are increasing globally, putting human and animal health at risk (IPCC, 2022).

Extreme weather events have increased in intensity and frequency, impacting the growth rate of global agricultural productivity (IPCC, 2022). Soil and water resources are also threatened. Soil degradation currently affects around 1,660 million hectares of land, impacting 34% of global agricultural lands (FAO, 2021). Moreover, there are concerns that some of the current global crop and livestock areas will become climatically unsuitable as a result of increasing greenhouse gas (GHG) emissions (IPCC, 2022).

Annually, 10% of global renewable water resources are withdrawn for human use. The physical scarcity of water and the contamination of freshwater sources are of particular concern in some regions across the world (FAO, 2021). A substantial part of the water stress and contamination of watercourses is a consequence of poor agricultural practices. Currently, 11% of the world's rainfed land and 14% of its grazing land face frequent droughts (FAO, 2020). Drought and flood risks for agricultural land are projected to increase with each degree rise in global warming (IPCC, 2022), exacerbating water management challenges, particularly in regions that already suffer from water scarcity.

Thus, the evidence indicates that climate change will continue to put pressure on food production, particularly in regions which have highly vulnerable ecosystems and a smaller endowment of renewable natural resources.

A significant effort is needed to reduce the environmental impact on global food systems through adaptation and mitigation measures. However, any mitigation effort must be made keeping in mind its consequences for other dimensions. In particu-

lar, it is necessary to take into account the persistent regional imbalances between food supply and demand. Any policy that affects supply from surplus regions will affect food security in deficit regions.

So, promoting policies for sustainable development requires comprehensive planning. The need to respond quickly to climate change and growing social demands may tempt governments to come up with unilateral and inflexible tools. However, even laudable goals can lead to the wrong tools and bad policies can exacerbate vulnerabilities, increase risks and deepen existing inequalities (IPCC, 2022).

In this sense, any policy tool must consider the climatic conditions and the endowment of natural resources for the sustainable production of food and other agricultural products. These are not the same all over the planet and some regions have clear agroecological advantages.

The availability of renewable water, edaphic conditions of the soil, climatic conditions and agricultural practices are critical elements for the environmental sustainability of food systems. In terms of GHG emissions, for example, Europe and Central Asia are expected to register an emission reduction of 0.14% per year for each percentage point of increase in agricultural production by 2030, while emissions in Latin America and the Caribbean will grow by 0.08% per year. This is very low in comparison to the rest of the regions, which will nearly triple their GHG emissions in this period.

So, if the impact differs depending on where production takes place, the most logical solution is to boost production where food systems are more efficient from an environmental point of view.

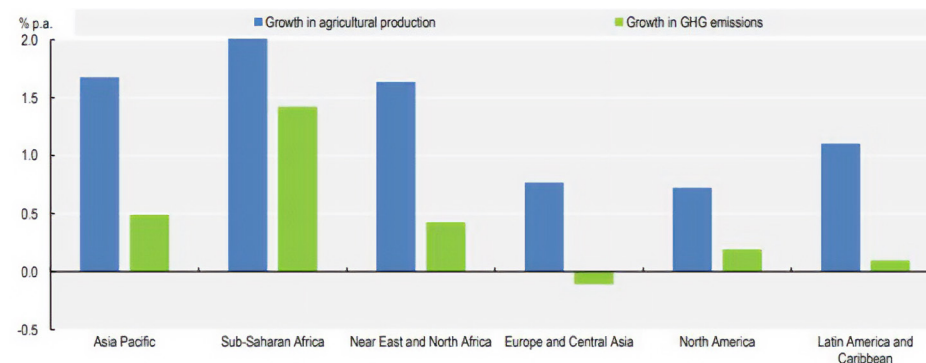


Figure 1: Annual Change in Agricultural Production and Direct GHG Emissions, 2022 to 2031.

Note: Projected annual growth in direct GHG emissions from agriculture together with annual growth in the estimated net value of production of covered crop and livestock products (measured in constant 2014-16 USD prices).

Source: OECD-FAO (2022).

However, this is not recognized by most countries, and many of them are imposing barriers to trade for environmental reasons without a solid scientific basis to support them. Even worse, these new barriers do not consider the differential impacts they may have on different food production ecosystems around the planet.

These kinds of responses are inefficient from an environmental point of view and, by restricting trade, threaten global food security (Elverdin et al, 2022). Further, by imposing unjustified requirements, without adequate financing, they will also adversely affect the livelihoods of millions of small farm producers around the world.

For example, Beckman et al (2020) estimated the global impact of the implementation of the Farm to Fork and Biodiversity Strategies implemented by the EU.

Even in its most conservative scenario, with the application of these policies only in the European Union countries, where there are no restrictions on international trade, an additional 22 million people worldwide will be plunged into food insecurity by 2030. If this policy proposal is replicated globally, the estimate could rise up to 185 million new hungry people.

»The logical solution is to boost production where food systems are more efficient from an environmental point of view.«

After nearly a decade of worsening food security indices, the design of any environmental sustainability strategy regarding food systems must take into account the various trade-offs between environmental, productive, economic and social consequences. It is not possible to define a single strategy for environmental sustainability concerning global food systems; it must mutate and adapt to different agroecological, socio-cultural and economic conditions of each region (Piñeiro et al, 2021).

»Removing unjustified trade barriers will improve global food security and reduce the total environmental impact.«

Increasing efforts in research, innovation and technology transfer to generate new basic knowledge to improve productivity, reduce environmental impact and increase the resilience of food systems should be a priority.

However, these efforts will not be enough if at the same time they do not seek to reduce hunger in the world. Removing unjustified barriers to food trade in order to facilitate the flow of food surpluses from regions of greater environmental efficiency will reduce the total environmental impact of global food systems.

In turn, increasing investment and implementing new green financial mechanisms in these regions will allow the

spread of climate-smart technologies and sustainable food production practices, thereby improving global food security indicators and reducing the environmental impact per product unit. There is still a lot of scope to improve the indicators of sustainability of food systems, but this depends on getting the necessary financing.

According to the International Food Policy Research Institute (2022), up to 350 billion USD per year will be needed to meet climate targets related to food systems. Currently, only about 20 billion USD (4% of total global climate funds) of the globally available green funds are directed towards agriculture, forestry and other land use (AFOLU). The total funding needed could be obtained from a re-prioritization of existing agricultural subsidies, which stands at an estimated 620 billion USD annually (Gautam et al, 2022). The discussion about repurposing internal support is on the rise, especially since it has been detected that a big part of this type of agricultural support has had negative effects on the environment (FAO, IFAD, UNICEF, WFP and WHO, 2022; OECD, 2021). Therefore, from a global perspective, a relocation of those same economic resources to countries with better environmental performance would be the optimal solution (Martin et al, 2022). Promoting this discussion in international forums is necessary, since many of the areas with good environmental performance are found in developing countries.

There is no doubt that food systems contribute significantly to GHG emissions, which requires the development of sustainable value chains and a reduction in losses and waste. Promoting the development of climate-smart and productive food

systems will require a joint global effort, including major food producing and consuming countries, and the relevant international organizations. The main objective should be the development and promotion of environmentally conscious production systems, especially in those regions which are endowed with abundant renewable natural resources, and which will always be the main source of global food security.

However, efforts to tackle food security, natural resources sustainability and global warming should not be limited exclusively to food production. It is necessary to revise all the production systems prevalent in the main producing countries, using a sustainable strategy that promotes economic and social development while preserving natural resources and reducing GHG emissions.

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¹ The COVID-19 crisis would have pushed 150 million people into situations of food insecurity (FAO, 2022).