*September 2021*

## Socio-Economic Research and Applications (SERAP)

# Food Systems and Climate Change: A Potential Disaster for Humanity?

***The U.N. Food Systems Summit 2021 will take place during the U.N. General Assembly in New York on the 23rd of September. It will seek to set the stage for global food systems' transformation to achieve the Sustainable Development Goals by 2030. The current newsletter is an attempt to present a collection of critical reports and policy briefs to highlight the importance of the Food Systems and Climate Change nexus, one of the most pressing challenges faced in the contemporary world.***

Climate change is regarded as one of the greatest threats facing humanity in current times. There are climate changes being observed throughout the world and the disasters that have surfaced as a result, require our urgent and undivided attention. Wildfires in the United States have become imminent and have also spread to different parts of the world, including Turkey and Algeria, of late. Other disasters such as floods, tropical cyclones, and even earthquakes are predicted to become more frequent and powerful in the near future.

While scientists and international agencies have long been campaigning for strict measures to mitigate climate change, it was not until the Paris Agreement of 2015 that a global consensus was reached among national governments. The return of the United States to the Paris Agreement collective has been an encouraging sign, as the U.S. is the second largest emitter of greenhouse gases. The rate of change is currently predicted to befall humanity sooner than was initially predicted, which means it is more crucial than ever to take strict, immediate action. In order to proceed with mitigation policies, policymakers must take scientists, government officials, and the public on board. Every facet of society must unite and play their part in slowing down climate change. At its current rate, climate change is set to accelerate the number of people living in a state of food insecurity. While the current estimate of the food insecure population is 957 million, according to the UN, this number is likely to increase due to compounding effects of the pandemic.

The damage that has already been done must be assessed, particularly in the case of food systems without which the survival of humanity is impossible. So far, scientists have predicted increasing pressure on water and land resources, as well as temperature changes, which will affect the yield of crops and potentially reverse the progress that has been made towards combatting world hunger and food insecurity.

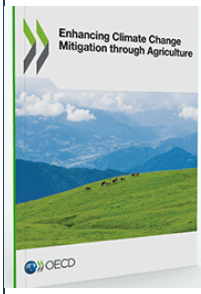
However, indigenous cultivation, farming, and hunting, could prove to be fruitful alternative methods of conducting agricultural activities, as they have survived for many decades while maintaining the integrity of raw materials and the natural landscape. Further innovations being made in the agriculture landscape include vertical farming, which reduces the space required for farming, while delivering a high yield of product. A combination of modern and indigenous farming techniques could serve humanity in its quest for sustainable global farming. The involvement of all sectors of society is crucial in sustainable food systems, as they might bring to the table innovations that were not previously thought of. Youth organizations, indigenous organizations, and those that consciously include women are becoming more mainstream, as we realize that it is only through inclusion that we can work towards a solution that benefits all of humanity simultaneously.

***SERAP connects peers, thought leaders, and practitioners across governments, diverse agencies, and academia to share ideas and experiences on Socio-Economic Research and Applications with inputs worldwide. To share papers, project news, interesting blogs, or upcoming events, please email us at info@serapllc.com.***

## Recommendations

1. Current food systems owe their survival to farmers, whose investment in agriculture is unparalleled. By advocating for greater responsibility and control for small-time stakeholders in the agriculture business, we could ensure that wastage is minimized, and investments are made after careful calculation from those who know the land best.
2. Communities that have been surviving for decades, or even centuries, via subsistence farming methods, should be brought into the conversation with larger companies, that can base future models on pre-existing methods that are proven to be sustainable.
3. Direct contribution and investment of the youth is crucial to ensure that both food systems and climate challenges are confronted with enthusiasm and ingenuity. By cultivating young minds to come up with innovative solutions, humanity as a whole could benefit off their ideas and creations. Inclusive agriculture is therefore, the way forward.

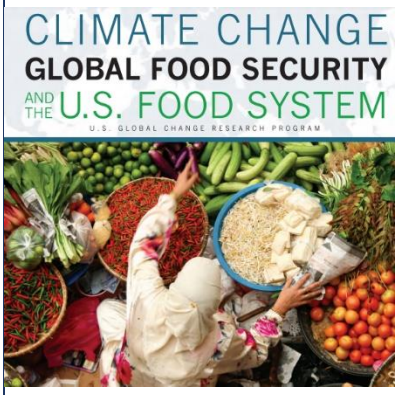
## Key articles and reports addressing food systems and climate change




**Climate change and the policy implications for agriculture and fisheries:** Climate change will increase pressure on water resources while reducing yield growth for most countries, with the exception of only a few regions. Productivity is expected to decrease for about half of all fisheries worldwide due to climate change impacts on stock productivity and fish migration patterns. Since the Paris Agreement, governments and international organizations such as the U.N. have been trying to keep global warming between 1.5-2 degrees by implementing stronger mitigation plans. Read more

**How to Transform Food Systems in the Face of Climate Change:** It's clear that agriculture as we know it can't thrive in a warming world — especially in hotspots like coasts, semi-arid and arid areas, and in farming regions fed by glaciers and snowpack. Incremental adaptation alone won't be enough in these places. Agricultural systems will need to transform to survive fundamentally. Read more


**Climate Change and Food Systems**
Climate change affects the functioning of all the components of food systems, often in ways that exacerbate existing predicaments and inequalities between regions of the world and groups in society. At the same time, food systems are a significant cause of climate change, accounting for a third of all greenhouse gas emissions. Therefore, food systems can and should play a much bigger role in climate policies. This policy brief highlights nine actions points for climate change adaptation and mitigation in the food systems. The policy brief shows that numerous practices, technologies, knowledge, and social capital already exist for climate action in the food systems, with multiple synergies with other important goals such as the conservation of biodiversity, safeguarding of ecosystem services, sustainable land management, and reducing social and gender inequalities. Read more




**Climate Change, Global Food Security, and the U.S. Food System:** Adaptation across the food system has great potential to manage climate-change effects on food security, and the complexity of the food system offers multiple potential points of intervention for decision-makers at every level, from households to nations and international governance structures. However, effective adaptation is subject to highly localized conditions and socioeconomic factors, and the technical feasibility of an adaptive intervention is not necessarily a guarantee of its application if it is unaffordable or does not provide benefits within a relatively short time frame, particularly for smaller operations around the world with limited capacity for long-term investments. The accurate identification of needs and vulnerabilities, and the effective targeting of adaptive practices and technologies across the full scope of the food system, are central to improving global food security in a changing climate. Read more

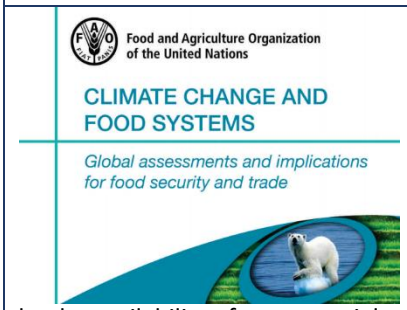

**Agricultural policy monitoring and evaluation:** Efficient agricultural policies are crucial for meeting increasing demands for safe and nutritious food grown sustainably. Countries have substantially altered their agricultural trade and domestic support policies over the past two decades in ways that do not always benefit producers and consumers. In some developed countries, support is given to farmers based on production, while some emerging economies have also increased policy interventions that distort production decisions. Policies that cater exclusively to production tend to ignore environmental outcomes and vice versa, which is why policy monitoring and evaluation are necessary to amend agricultural practices in a sustainable way for producers and the environment. Read more

**Special Report on Climate Change and Land: Food Security:** 


Observed climate change is already affecting food security through increasing temperatures, changing rainfall patterns, and greater frequency of extreme events. Studies that separate climate change from other factors affecting crop yields have shown that yields of some crops, such as maize and wheat, in many lower latitude regions have been affected negatively. In contrast, yields of the same crops have been positively affected in recent decades in many higher altitudes. Based on indigenous and local knowledge, climate change affects food security in drylands, particularly those in Africa and the high mountain regions of Asia and South America. This is especially troubling, as the described areas are among the less wealthy parts of the world and will therefore face trouble mitigating these changes. Read more

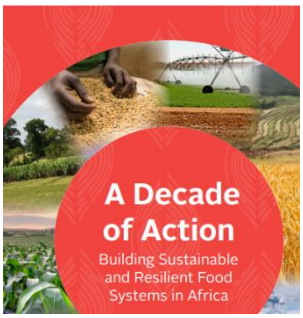

**Sustainable Diets for All:** The Sustainable Diets for All (SD4All) program has been informed by the linkages between food systems and climate change. The program has worked in low- and middle-income countries, including Bolivia, Indonesia, Kenya, Uganda, and Zambia. The purpose of their work is to build multi-stakeholder coalitions and enhance the capacity of civil society organizations, so they can advocate for more inclusive, sustainable food system policies that integrate climate change resilience. Read more


**Transforming food systems to combat climate change:** Food systems emit between 21-37% of GHG emissions, mainly due to animal production and deforestation for agricultural use. These statistics make food systems one of the most significant contributors to climate change. Furthermore, due to the increased demand for meat and dairy products, the GHG emissions of food systems are expected to rise by almost 90% from 2010-2050. Without the transformation of food systems, the Paris Agreement goals are unattainable. Read more




**Climate Change and Food Systems: Global assessments and implications for food security and trade:** There has been growing concern over constraints to agricultural production and productivity growth caused by the availability of raw materials and resources, including water, land, and fertilizers. These constraints are likely to compound the impact of climate change in many regions and slow down attempts at adaptation. Climate change will directly affect the availability of water available for agriculture, and population growth will affect the availability of other resources such as land. The evaluation of source availability and constraints is crucial. It must be expanded to a multi-sectoral context that includes assessments by hydrological models, agro-economic and integrated assessment models, and even ecosystem models, for instance. Read more


**Innovation for more sustainable and prosperous agriculture:** The first step to improving the policy environment in the context of agriculture, according to the OECD, requires rolling back policies that retain farmers in uncompetitive and low-income activities, harm the environment, stifle innovation, slow structural and generational change and weaken resilience. Good policies must prioritize the sector's long-term productivity and sustainability by investing in human capital, infrastructure, and farmers' market connections. A sound policy environment and smooth-functioning markets ensure that there is a case to be made for producers to innovate in response to productivity and environmental challenges. Read more




**A Decade of Action Building Sustainable and Resilient Food Systems in Africa:** Food systems are a real art of the global economic system – the world's population depends on them for sustenance. As is the case elsewhere, in Africa, many people rely entirely on food systems for employment and income. For these reasons, building resilient and sustainable food systems is crucial to ensuring sustainable economies and achieving the Sustainable Development Goals (SDGs) and Agenda 2063 Goals. However, Africa remains food insecure, accounting for 256 million of the world's 795 million people suffering from hunger. Moreover, 239 million of the 256 million food-insecure people are in sub-Saharan Africa (SSA), with 17 million in North Africa. Africa is off-track from reaching its food security targets across all continental policy frameworks and the SDGs. Against this background, there has been a broad consensus that Africa's food systems as currently constructed are flawed due to the high levels of food and nutrition insecurity, food losses and waste, and prevailing human and environmental health concerns arising from unsustainable production systems. Read more

**What can food companies learn about sustainability from Indigenous Peoples' food systems?** Nearly 500 million people in more than 90 countries identify as Indigenous Peoples. They obtain hundreds of food items from the environment without depleting natural resources while also maintaining high levels of self-sufficiency. For instance, in the Solomon Islands, the Melanesians people combine agroforestry, wild food gathering, and fishing to generate 70% of their dietary needs. In Finland's Arctic region, through fishing, hunting and herding, the Inari Sámi people generate 75% of the protein they consume in a diet characterized by high intakes of fatty fish, red meat, fat, blood and organ dishes; wild berries, unfiltered coffee and low intakes of cultivated vegetables and fruit also constitute parts of their diet. According to an FAO report, the report revealed that these varied and unique food systems combine different food generation techniques like fishing, gathering, hunting, pastoralism, and shifting cultivation. Read more

**Youth Organizations Transforming Food Systems:** Act4Food Act4Change is a campaign giving young people worldwide the chance to demand policymakers and businesses to make reforms regarding food systems. They recently launched a pledge which young people and allies can sign to demand large-scale action. The youth can also vote for the activities they believe are the most important for food system transformation. The campaign's youth leaders will then deliver these actions to the U.N Food Systems Summit (UNFSS). Young people must take up an active role in determining the course of their futures. Read more

**Research and development are key to resilient food systems in Africa**

Recently, African ministers of agriculture met before the United Nations Food Systems Pre-Summit. Among the issues, they discussed included using agriculture to reduce poverty, particularly for women and youth. High farm production growth in sub-Saharan Africa since 2000 has contributed to high overall economic growth and improvements in the welfare of most people in the region. However, approximately 75% of Africa's agricultural production growth resulted from area expansion, and only 25% was from yield improvements. The future livelihoods of millions of land-constrained African farmers will depend on raising the productivity of existing farmland. Read more

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