



TEIMUN 2021

# UNFCCC COUNCIL

**TOPIC B:** TOWARDS A GREENER PLANET THROUGH SUSTAINABLE  
AGRICULTURE

## **Introduction**

Global food production is responsible for one-quarter of the world's greenhouse gas emissions. Given this massive contribution to global warming, the many process stages that make up the world's food system are in dire need for more sustainable development. From the use of land and animals to the processing, packaging, transportation and storage of food products, the food industry is key towards ensuring a greener tomorrow. As supply chains and trade routes are among the most internationalized aspects of modern society, greening the global food system requires cooperation in times of crisis.

The food industry was among the most affected economic sectors during the COVID-19 pandemic, since its operation depends on conducting business as usual (BAU) — a state that has been disturbed by the changes of normal norms. Due to these unprecedented changes, the cycle of production, distribution, and consumption of food industries has had to adjust to new customer habits, the cost for which has often been paid by the environment. These new habits include: more usage of single-use plastic to prevent transmission of the virus; less dine-in orders and more takeaways and deliveries, which resulted in a bigger carbon footprint; and disrupted supply chains around the world as countries went into lockdowns, likely creating more food waste in the process. Therefore, as an issue that sits at the intersection of environmental, the economic, and health aspects, this issue demands a substantive and constructive debate that enables countries to solve this challenge together.

## **Problem Specification Topic 2**

Nowadays, millions of consumers around the world are used to an all-time availability of food during all seasons. Social Media is contributing to this problem by promoting a modern lifestyle, in which masses of tropical fruits, fresh seafood and exotic dishes are on the daily menu of people worldwide.

However, meeting the demand for accelerated agricultural productivity will be far more difficult than it ever has before. Climate change is destabilizing many of the natural processes that modern agriculture is relying on. At the same time, modern agriculture is partly responsible for the enormous acceleration of the climate crisis. Multiple techniques such as irrigation systems and chemical fertilisers used in modern forms of farming boost output while harm the environment. The soil of agricultural land tends to acidify, becoming infertile, leading to an increasing demand for new land. Today, more than 80% of global deforestation is a result of agricultural

production and heavily contributes to the amount of CO<sub>2</sub> emissions in the atmosphere.<sup>1</sup> Intensive agriculture therefore threatens the balance of non-agricultural ecosystems.<sup>2</sup> The processing of agricultural products, the packaging and transportation process are further contributing to the massive rise of global greenhouse gas emissions.

On top of this environmental degradation, the food industry and especially agriculture have been linked to exploitation and abuse of people, mainly in the form of “modern slavery” which forces millions of children and adults to work under inhumane conditions.<sup>3</sup> The environmental damages due to the exploitation of the life on land (SDG 15) and the life below water (SDG 14) are posing high challenges to many actors involved in the agricultural sector, which is why binding supply chain laws must set ambitious and strict rules for future agriculture to ensure a sustainable future for consumers and workers, a moderation of the global climate and relief for our planet earth. Not only farmers must be addressed within such guidelines, but also relevant actors who are involved in the processing, packaging, and transportation of food.

Covid-19 has shown just how much people depend on global supply chains, while simultaneously highlighting the urgent need to act with an eye on long-term sustainability. We have therefore elaborated the subsequent questions, which a Resolution must answer:

QARMAs

1. What are the ways that farmers could improve their system to make it more sustainable and less damaging to the surrounding environment?
  2. What framework or policy guidelines should be developed and adopted by member states to push forward the practices of climate-friendly processing of food, including the supply chain and waste management?
  3. Which actors are relevant and need to be addressed/involved to develop more sustainable agriculture after COVID-19? Then, how to ensure the actor's

<sup>1</sup> Greenpeace, Agribusiness and Deforestation:  
[www.greenpeace.org/usa/forests/issues/agribusiness/#:~:text=Agribusiness%20is%20one%20of%20the%20biggest%20drivers%20of%20deforestation%20worldwide.&text=Some%20agribusiness%20activities%20are%20leading%20causes%20of%20habitat%20destruction.](http://www.greenpeace.org/usa/forests/issues/agribusiness/#:~:text=Agribusiness%20is%20one%20of%20the%20biggest%20drivers%20of%20deforestation%20worldwide.&text=Some%20agribusiness%20activities%20are%20leading%20causes%20of%20habitat%20destruction.)

<sup>2</sup> National Geographic, 2020: Environmental Impacts of Agricultural Modifications.

<https://www.nationalgeographic.org/article/environmental-impacts-agricultural-modifications/>

<sup>3</sup> Abigail McGregor, Jacob Smit, JP Wood, 2018: Modern Slavery and the food supply chain. <https://www.newfoodmagazine.com/article/73746/modern-slavery-and-the-food-supply-chain/>.

compliances with the sustainable agriculture schemes?

## Explanatory Section Per QARMA

**QARMA 1: What are the ways that farmers could improve their system to make it more sustainable and less damaging to the surrounding environment?**

### History and Background of the Problem

The oldest known agricultural activities done by humans are believed to have originated more than ten thousand years ago.<sup>4</sup> The birth of agricultural marks an important stage in our history, since it enabled people to settle in one place, build civilization, and find time to create stuff. Early activities of agriculture are thus often said to be part of the first agricultural revolution.<sup>5</sup> This moment is often viewed in a hasty manner by modern researchers, as it set the foundation for the systematic exploitation of natural resources by humans.<sup>6</sup> The period is said to have created a destabilization of life in the forests, ecosystem in wildlife, and even water population. The aftermath of the first agricultural revolution laid the groundwork for events that would lead to the frequent forest fire, high number of species extinction, the rise of the seawater and such that we see nowadays.

Fast forward to today, at least 40% of the entire population works or takes part in agricultural activities.<sup>7</sup> With agriculture being the most dominant for human activities and arguably the most important sector that fuels human life, farmers around the world have to carefully improve their systems to be sustainable and less damaging to the surrounding environment while simultaneously providing food for the world's growing population.

### Recent Developments

Plants, crops, animals, and other food products obtained from agricultural activities require a stable climate with predictable weather conditions and steady weather patterns.<sup>8</sup> Under this understanding, it would be dangerous for countries to expand

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<sup>4</sup> Mazoyer, Marcel, and Laurence Roudart. 2006. *A History Of World Agriculture*. London: Earthscan.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> FAO Statistical Pocketbook 2018. n.d.

<sup>8</sup> Kumar, Sunil. 2020. *GOOD AGRICULTURAL PRACTICES (GAPS) FOR SUSTAINABLE AGRICULTURE*.

their agricultural lands.<sup>9</sup> Not only that because it could agriculture activities altogether, but also because it could damage the climate pattern in those regions.

Mindful of such conditions and problems, some governments have come up with solutions that integrate technology into the current most common agricultural system. With the help of technology, it aims to increase the output of production in the existing farmland for the long run while maintaining sustainability, protecting biodiversity, saving water, and reducing greenhouse gas emissions.

Governments started to recommend the use of drones to monitor the farm.<sup>10</sup> This enables farmers to delicately engineer the use of land that intertwines crops and livestock with the wild. This is advantageous from conventional farming methods where farmland is cleared and planted with a single type of crop, disturbing wildlife, and emitting large amounts of greenhouse gasses. This new-found approach aims to mitigate such damages. In addition to drones, farmers also use sensors that could measure water and nutrition level to reduce unnecessary use of water and fertilizer and inform farmers on which area is in need of those.<sup>11</sup>



Figure 1. Drones on farms.<sup>12</sup>

Many governments are looking towards integrating technology into their agriculture system. Stakeholders' joint research can help to enable such technologies to assist farmers in food producing, while adapting it to the nuances of local ecosystems.

<sup>9</sup> Oberč, Barbara P., and Alberto Arroyo Schnell. 2020. "Approaches To Sustainable Agriculture: Exploring The Pathways Towards The Future Of Farming". doi:10.2305/iucn.ch.2020.07.en.

<sup>10</sup> Abdelgader, Abdeldime. 2015. Drones and its Application In Agriculture. 10.13140/RG.2.2.20397.90088.

<sup>11</sup> Ibid.

<sup>12</sup> "How Drones Are Reshaping Agriculture". 2021. Thehill. <https://thehill.com/changing-america/sustainability/infrastructure/472063-how-drones-are-reshaping-agriculture>.

## **Relevant Actors/Institutions**

It will take all relevant stakeholders, from policymakers, research and development and to the farmers itself in order to revolutionize agricultural activities and implement sustainable practices. High-tech intervention stands to amplify climate and conservation oriented approaches to farming and large food industry or agriculture producers will need to invest in implementing these technologies. At the same time, governments would have to think of a way to make lower cost methods accessible to smaller farmers.

All in all, to take the next revolution in agriculture in a green direction requires a global cooperation. Not only that, but consumers must be nudged towards healthier diets that reduce the trend of food waste, which puts pressure on farmlands.

## **International Approaches that Have Already Been Undertaken**

A newly found method of lower cost agricultural practices are being adopted by many farmers all around the world. In developing countries such as Costa Rica most farmers adopt the idea of lower cost agricultural practice by intertwining farmland with the wild.<sup>13</sup> This enables the surrounding damaged environment to recover, restore biodiversity, activate natural pollination and pest control. This method produces a good amount of food while restoring the planet. Meanwhile, in Bangladesh, Nepal, and Cambodia governments are encouraging research to find lower cost solutions by experimenting with strains of rice that require less irrigation, easy to pollinate, hence need less workforce.<sup>14</sup> Their neighbour, India, has already developed and had implemented low cost solar-powered cooling storage to keep longer food life and sustain the supply chain while mitigating food loss or waste.<sup>15</sup>

In developed countries such as the United States, lower cost agricultural practices can be found with ranchers that are raising cattle on grasslands composed of native species, generating protein sources while storing carbon to protect biodiversity.

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<sup>13</sup> Stamm, Andreas. 2020. Inclusive And Sustainable Agriculture In Costa Rica. 1st ed. Friedrichebert Stiftung.

<sup>14</sup> Faroque, MAA, MA Kashem, and SE Bilkis. 2013. "Sustainable Agriculture: A Challenge In Bangladesh". International Journal Of Agricultural Research, Innovation And Technology 1 (1-2): 1-8. doi:10.3329/ijarit.v1i1-2.13922.

<sup>15</sup> Ashish, Aniruddh & Verma, Aneeh & Mishra, Aman & Jha, Ankush & Chauhan, Kalpana & Chauhan, Rajeev. 2020. Low Cost Solar Based Hybrid Cold Storage for Farmers.



Figure 2. Solar Powered Cold Storage for Farmers in India<sup>16</sup>

**QARMA 2: What framework or policy guidelines should be developed and adopted by member states to push forward the practices of climate-friendly processing of food, including the supply chain and waste management?**

### Problem Background

Unsustainable practices of food production occur globally, affecting all countries regardless of the level of their economic development. In most developed countries, technologies have been developed and utilized to reduce the costs of production. Unfortunately, such advancements tend to neglect environmental impacts. Particularly the modern agriculture industry continues to rely on chemical fertilization and unnatural methods of farming that are usually tailored to boosting the productivity of crops and rapidly increase the number of products. In general, food industries opt to import their production factors from other countries, especially from developing countries with cheap raw materials and low-cost labour. Emerging economies of Latin America, South East Asia, and South Asia are facing similar environmental problems of the food industry, but the condition is much more complex due to their needs to prioritize the development of productivity and economic growth.<sup>17</sup>

Many multinational and giant corporations tend to conduct land clearing by cutting

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<sup>16</sup> "Is Cold Storage The Next 'Killer App' For Green Mini-Grids?". 2021. Medium. <https://medium.com/energy-access-india/is-cold-storage-the-next-killer-app-for-green-mini-grids-1538b12b5a31>.

<sup>17</sup> Prabhu L. Pingali, "Policies for Sustainable Food Systems", in Sustainable Food and Agriculture: An Integrated Approach, Eds. Clayton Campanhola and Shivaji Pandey (FAO, 2019): p. 511.

or burning down trees to make way for their business, causing deforestation as part of their process of acquiring supply chains. A study by the Carbon Disclosure Project (CDP) suggests almost a quarter of company revenues depend on deforestation-linked commodities, comprising three food industries among others—cattle products, soy, and palm oil.<sup>18</sup> Just from the processes of distributing supply chains and production, the food and agriculture industry has contributed to worsening the climate crisis through their big amount of energy usage and carbon footprint. In addition to the problems posed by the supply chain management, food packaging also significantly harms the environment as the excessive production of packaging creates an abundant amount of waste which is rarely managed responsibly. Lack of waste management also comes in the form of food waste, since food releases methane when it rots and therefore contributes about 8% of the global greenhouse gas emissions.

## Recent Developments

Due to the regulations and restrictions in response to the Covid-19 pandemic, the food production industry faced several disruptions: shortage of human resources; closure of production facilities; restricted trade policies; and disturbed flow of supply chain. Although the pandemic does not directly affect production through livestock or agricultural products, governments around the world have made significant restrictions in the transportation (land, water, and air transport) of goods, as well as in the migration of labour.<sup>19</sup> These disruptions have resulted in more waste, both food and packaging waste, since a significant amount of food products weren't distributed effectively.<sup>20</sup> The safety protocol also pushed consumers to opt for new forms of packaging and delivery options in order to avoid transmission of the virus. In consequence, the food production and agriculture sector have been facing a lack of efficiency in its conduct of business, indirectly affecting the environment through inefficient usage of energy.

In response to the functional obstacle of the food industry during the pandemic, some regulatory responses for food workers have been developed to provide guidance for continuity of operations in the food processing facilities and contain the transmission of the virus in the food industry. One of the plans includes a hierarchy of control requirements for cleaning, sanitation, disinfection of facilities, screening, and monitoring of workers for COVID-19, managing the

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<sup>18</sup> Mark Kinver, "Corporate growth still driving deforestation, CDP shows", BBC. % December 2016. Last accessed 30 April 2021. <https://www.bbc.com/news/science-environment-38210577>

<sup>19</sup> Serpil Aday and Mehmet Seckin Aday, "Impact of COVID-19 on the food supply chain", Food Quality and Safety, Vol. 4 (2020): p. 169. doi:10.1093/fqsafe/fyaa024.

<sup>20</sup> Ibid., p. 172.

sick employees and education programs for workers and supervisors to prevent the spread of coronavirus.<sup>21</sup> However, the existing policies have barely touched the environmental aspect of the problem, despite the necessity of achieving substantial changes to unsustainable agricultural production practices in order to meet the Paris Agreement target.

### **Relevant Actors**

The problem revolving around policy guidelines clearly involve the role of states in regard to the formulation of the policies, however other actors and institutions also play significant roles in the implementation and monitoring mechanisms. At the regional level, intergovernmental bodies such as the European Union (EU) hold a strategic position in persuading its member states to cooperate for implementing certain policies or principles. These efforts could be seen through the EU Green New Deal which contains the Farm to Fork strategy to create a more sustainable food production system, connecting the health of societies to the health of the planet.<sup>22</sup> However, since the issue of agriculture and the food industry is interlinked with many aspects within the global economy, solving it requires the cooperation of not only regionally-connected states but also all states globally. Sub-organizations of the United Nations, namely the Food and Agriculture Organization (FAO), have been established to respond to these issues specifically through a multilateral lens.

As part of the food and agriculture industry, corporations and most private actors are relevant in terms of fulfilling the interests of their businesses and maintaining the global competition between companies in the international market. Corporations are also faced with the increasing importance of sustainability in corporate social responsibility (CSR), in which sustainability has evolved from an expected part of good corporate citizenship to a driver of business strategy and a key decision-making consideration for consumers.<sup>23</sup>

### **International Approaches**

To address the problems arising from unsustainable food and agriculture, the United Nations Development Programme (UNDP) has embraced the urgency of this

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<sup>21</sup> Ibid., p. 168.

<sup>22</sup> European Commission. "EU Policies on "Sustainable Food Systems", 2021. Last accessed 30 April 2021. [https://knowledge4policy.ec.europa.eu/global-food-nutrition-security/eu-policies-sustainable-food-systems\\_en](https://knowledge4policy.ec.europa.eu/global-food-nutrition-security/eu-policies-sustainable-food-systems_en)

<sup>23</sup> Margaret Malochleb. "Sustainability: How Food Companies Are Turning Over a New Leaf", Institute of Food Technologists (IFT). 1 August 2018. Last accessed 1 May 2021. <https://www.ift.org/news-and-publications/food-technology-magazine/issues/2018/august/features/sustainability-at-food-companies>

problem for decades, starting with the goals to eradicate hunger and achieve environmental sustainability in the Millennium Development Goals (MDGs). In 2015, these goals were specified into one goal within the Sustainable Development Goals (SDGs), which is the Goal No. 12 to achieve responsible consumption and production by 2030.

In addition to the goals formulated by the UNDP, FAO has also proposed a vision for a sustainable food and agriculture system in which 5 principles should be taken. These principles are as follows: (1) increase productivity, employment and value addition in food systems; (2) protect and enhance natural resources; (3) improve livelihoods and foster inclusive economic growth; (4) enhance the resilience of people, communities and ecosystems; and lastly (5) adapt governance to new challenges.<sup>24</sup> Not only that, FAO has created a guideline comprising 20 interconnected actions for states and other stakeholders as the decision-makers.

### **QARMA 3: Which actors are relevant and need to be addressed/involved to develop a more sustainable agriculture after COVID-19? Furthermore, how to ensure the actor's compliances with the sustainable agriculture schemes?**

#### **History/Background of the Problem**

As this paper has already described above, at the advent of agricultural practices very few actors were involved in the process. Local farmers used to work their fields, sell their products to locally based consumers and pay their workers directly.

But with globalization, agriculture experienced a major shift away from local areas to exporting goods all around the globe. Nowadays, agricultural products are getting transported millions of kilometres by trains, cargo ships and aeroplanes, in order to fulfil the high demand of an all-season availability of products.

This shift in transportation involves many actors throughout the entirety of agricultural supply chains. These actors of course have their own specific interests that often compete or even contrast. Some actors are more powerful than others to lobby for their specific interests which makes the coordination of different actors even more complicated, yet even more important.<sup>25</sup>

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<sup>24</sup> Food and Agricultural Organization (FAO). "Sustainable Food and Agriculture", 2021. Last accessed 1 May 2021. <http://www.fao.org/sustainability/background/en/>

<sup>25</sup> <https://www.sciencedirect.com/science/article/pii/S1877343514000037>

## Relevant Actors and Recent Developments

By looking into recent developments, many relevant actors throughout the whole supply chain must be addressed. From farmers to lobby groups to international organizations, each actor plays a significant role in shaping a more sustainable future.

Starting off with the beginning of the supply chain, workers, local farmers and farmer groups must be addressed. For farmers, the transition towards agroecology implies redesigning both their production system and their commercialization system. To engage in this type of transition, novel practices need to be adapted to local conditions, which will require the involvement of new stakeholders.<sup>26</sup>

Especially farmer organizations can have a huge impact on the improvement of working conditions on local farms. Be they formal or informal, registered or unregistered membership-based collective action groups, they are integral to supporting their members, who receive part of or all their livelihood from agriculture (crops, livestock, fisheries and/or other rural activities). These organizations aim to improve the livelihoods of its members by facilitating access to information, markets, inputs, and advocacy.<sup>27</sup> Heads of states also have a lot of power when it comes to implementing binding law for sustainable supply chains and the standards of agricultural practice, which are crucial for driving forward environmental protection and fair loans for involved workers. Germany for example recently joined the very small circle of countries who have introduced a law for modern, sustainable supply chains.<sup>28</sup>

Several economic lobby groups however have been strongly influencing the decision-making processes of the supply-chain laws, which resulted in a much weakened and not sufficient outcome. Sustainability and Climate Actions chapters have been strongly prevented from strengthening.<sup>29</sup> This shows that interest groups and especially lobby groups must be strongly addressed in a draft resolution as well, to include them into the decision-making process but also to limit their veto power. Next to lobby groups, NGOs like the Sustainable Agriculture Network can help unite different actors as they are well-connected and do have the resources to fund certain projects.<sup>30</sup>

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<sup>26</sup>[www.researchgate.net/publication/331429559\\_The\\_Key\\_Role\\_of\\_Actors\\_in\\_the\\_Agroecological\\_Transition\\_of\\_Farmers\\_A\\_Case-Study\\_in\\_the\\_Tarn-Aveyron\\_Basin](https://www.researchgate.net/publication/331429559_The_Key_Role_of_Actors_in_the_Agroecological_Transition_of_Farmers_A_Case-Study_in_the_Tarn-Aveyron_Basin).

<sup>27</sup> <https://www.raflearning.org/topics/farmer-organizations>

<sup>28</sup> Johanna Kusch and Claudia Saller Germany's proposed supply-chain law - a glass half empty. <https://www.socialeurope.eu/germany-s-proposed-supply-chain-law-a-glass-half-empty>.

<sup>29</sup> Benjamin Wehrmann, 2021: German development minister says lobby groups prevent sustainability in global trade:[www.cleanenergywire.org/news/german-development-minister-says-lobby-groups-prevent-sustainability-global-trade](https://www.cleanenergywire.org/news/german-development-minister-says-lobby-groups-prevent-sustainability-global-trade).

<sup>30</sup> Sustainable Agriculture Network: [www.sustainableagriculture.eco](http://www.sustainableagriculture.eco).

## **International Approaches that Have Already Been Undertaken**

Supranational institutions like the European Union (EU) or the African Union (AU) and Intergovernmental organizations such as the World Trade Organization (WTO) or more regionally operating Trade Organizations like the Asia-Pacific Economic Trade Organization play a significant role in the change of agriculture. These big institutions exert massive influence on world markets, supply chains and, crucially, on the funding of new, collaborative projects.

The WTO is considered an institution with the most influence in the International Trading System: it operates a global system of trade rules, it acts as a forum for negotiating trade agreements, it settles trade disputes between its members and it supports the needs of developing countries.<sup>31</sup> These different competences make the WTO an important actor in the development of sustainable standards for the import and export of agricultural products. Sustainable development is one of the core principles of the WTO, while agricultural trade policies are implemented more and more. The Doha Development Agenda in 2001 have set important corner stones for further refining the international trading system.<sup>32</sup>

The EU has also taken efforts into driving forward a more sustainable agriculture: around one billion euros have been spent by the EU to fund around 180 multi-actor projects of interest to agriculture, forestry and rural development throughout the years 2014-2020. Multi-actor projects can be described as projects in which consumers and farmers or farmers' groups, advisers, enterprises are closely cooperating throughout the whole research project period.<sup>33</sup>

The United States have launched a Sustainable Agriculture Program which is embedded in the United States Department of Agriculture (USDA). Their concept is based on promoting sustainable agriculture through national program leadership combined with the funding for research and extension by collaborating with other federal agencies.<sup>34</sup>

These recent developments and the interconnection of multiple actors depict the difficulties a sustainable agriculture system is facing today. Binding international law must be adapted by member states of different Trade Organizations in order to end the exploitation of nature and to build a more sustainable agricultural system of tomorrow.

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<sup>31</sup> World Trade Organization: The WTO: [www.wto.org/english/thewto\\_e/thewto\\_e.htm](http://www.wto.org/english/thewto_e/thewto_e.htm)

<sup>32</sup> Farmer Organizations: [www.fao.org/3/ca9544en/CA9544EN.pdf](http://www.fao.org/3/ca9544en/CA9544EN.pdf).

<sup>33</sup> Multi-actor projects: scientists and farmers creating solutions together:

[ec.europa.eu/eip/agriculture/en/about/multi-actor-projects-scientists-and-farmers](http://ec.europa.eu/eip/agriculture/en/about/multi-actor-projects-scientists-and-farmers).

<sup>34</sup> Sustainable agriculture program: <https://nifa.usda.gov/program/sustainable-agriculture-program>.

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