

S'MUN2030

SINGULARITY MODEL UNITED NATIONS

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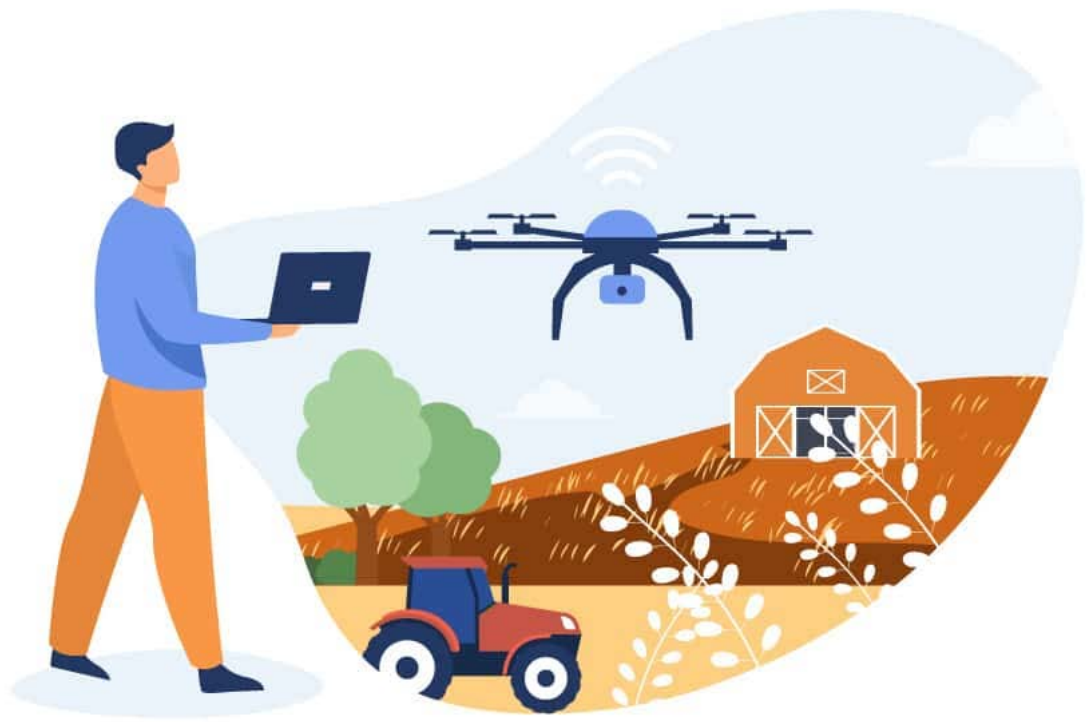
AI applied to production:
fighting world famine while
protecting local production



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ST.PETER'S
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BARCELONA
INDEPENDENT EDUCATION



Food and Agriculture Organization of the United Nations
***AI applied to production: fighting world famine
while protecting local production***

S'MUN 2030

Singularity Model of United Nations

Alba Marí Sánchez & Camila Velasco Ruiz



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1. Welcome Letter from the Chairs

Honourable delegates,

We are thrilled to welcome you to the Food and Agriculture Organization at SMUN 2030. We are Alba Marí and Camila Velasco, chairs of the committee, and we are delighted to have your presence in this model of the United Nations.

Through this study guide, you will get an introduction to the topic that will be discussed within our committee, so we recommend you read it carefully. Good preparation is essential to actively participate within the debate, and also influences the overall experience through the quality of discussion. Of course, you are encouraged to do any additional research as well.

Your task at SMUN2030 will be to represent your country's policies diligently and accurately and to negotiate for solutions that align best with your country's interests and global prosperity. The topic that will be discussed will be "Fighting world famine while protecting local production". Consequently, we expect you to try to find a solution to the topic taking into consideration that we will find ourselves in the year 2030, where the world we have today has turned upside down and many of the things you know have changed completely.

We are excited for the potential solutions you, in the role of your country, are going to offer. International understanding and cooperation is becoming more important than ever, as we move towards a more globalised world. MUNs give you a taste of how complex international politics are. Therefore, you will look at problems from an angle you may not have considered before, and maybe you will return home with a completely different perspective than you had before.

We are sure that you will have an amazing experience in Barcelona and we are also excited to meet you soon.

Best Wishes,

Alba Marí Sánchez and Camila Velasco Ruiz

2. Introduction

- ***What is the Food and Agriculture Organization of the United Nations?***

The Food and Agricultural Organization (FAO), founded in 1945, is a specialized agency of the United Nations (UN) that spearheads international efforts to eradicate hunger and food insecurity. The work of the FAO spans across reduction of hunger, malnutrition and food insecurity; increase of the sustainability and productiveness of agriculture, forestry and fisheries; reduction of rural poverty; enabling inclusive and efficient agricultural and food systems; and improving the resilience of livelihoods to disasters. Currently, the FAO has over 194 Member States and works in over 130 States worldwide.

- ***What is Artificial Intelligence?***

Generally speaking, Artificial Intelligence can be defined as the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience (Copeland, 2022).

Some examples of artificial intelligence in the agricultural field include: digital assistants, robots, sensors, intelligent spraying, image recognition technology or monitors of crops and soil.

- ***What is food security?***

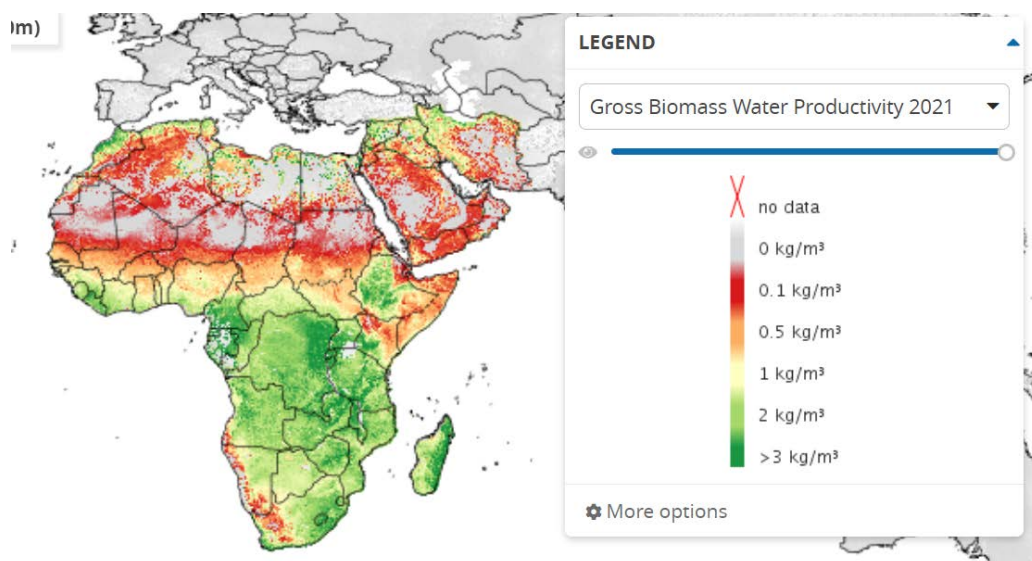
According to the Food Agriculture Organization (1996), food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. It is built on four pillars: food availability, food accessibility, food utilization and stability.

3. Current situation

According to the United Nations (2020), as many as 811 million people in the world were hungry in 2020 (almost 10% of the total world's population) and 118 million suffered from chronic hunger. Moreover, roughly half of those 811 million were those who dedicated their lives to producing food for others: farmers. With a projected increase in world population up to 9.1 billion by 2050, hunger and food insecurity pose an important challenge to be addressed over the next few years.

Besides the rapid growth of population, we will have to tackle several other issues in order to achieve global food security. Among them we include: a decrease in natural resources, diminishing agricultural lands, unstable markets, conflict, and climate change. For this reason, agriculture needs to be more productive, resilient to climate change and sustainable for future generations (Chamara, 2020). In this sense, Artificial Intelligence can be a tool to address these challenges.

Some examples include the use of sensors and drones to target pesticides, help smallholder farmers reduce pesticide use, promote agricultural diversity, counter monocropping or employ satellite imagery and remote sensing technology to monitor and report on agricultural water productivity. With respect to the latter point, the FAO has launched a project called *The FAO Water Productivity Open-Access Portal (WaPOR)*, which employs remote sensing technologies to provide insight on the amount of food that can be produced per unit of water in Africa and the Middle East.



Furthermore, Artificial intelligence can also play a role in food waste and help alleviate world hunger. It is projected that by 2050 over two billion people will be undernourished globally.

Food waste AI will allow us to understand overproduction and properly allocate the correct resources to meet supply and demand while adapting to various population needs. These technologies can control the amounts of production materials needed in correlation with weather forecasts to create the maximal amount of product needed for distribution.

Artificial intelligence and machine learning, therefore, have many applications through farm fields to create more efficient systems that will not only benefit the economy but also improve the health of consumers, the field, and the world.

Even though AI represents a great opportunity for combating global hunger and food insecurity, its implementation also comes with important responsibilities. In this sense, the most important aspect to take into account is that the utilization of these technologies imply a huge production of data. Some farmers may be hesitant to adopt certain technology to risk divulging their future plan or pricing information to competitors. Therefore, building farmers' trust is also a key question to answer.

In addition, we need to take into consideration that some countries don't have access to artificial intelligence, such as some developing countries. Therefore, beforehand, we should be able to help them become more technified so they can have access to artificial intelligence. Some of the possible solutions to this issue could be to provide training and ongoing support for farmers and agribusiness owners who are ready to implement the AI in their fields. Financing would also be necessary to implement this AI, consequently, the members of this committee will have to reach an agreement to find a way to finance the implementation of artificial intelligence in the poorest countries.

4. What to tackle

Once the context of the situation and all the problems that are involved have been understood, it is important to highlight the main points that should be marked in your resolution.

First of all, as mentioned, Artificial Intelligence (AI) offers many possibilities to end world famine, however, great disadvantages can also be observed with respect to production by local producers. That is why you, as representatives of your countries, will have to look for different methods to use AIs that solve the following main points:

- Decrease in natural resources

Humans are causing a lot of stress to the earth's resources due to over-reliance on food production for daily nutritional requirements. Poor irrigation practices, for example, in addition to generating the depletion of natural resources, are a key factor that contributes to salinization and alkalization of the soil that supports plant growth. Also, poor soil management practices and the use of heavy machinery and farm equipment also destroy soil structure, making it unsuitable for plant growth. Some agricultural practices, such as excessive use of pesticides, fungicides, and herbicides, also destroy important soil microorganisms that are essential for replenishing nutrients in the soil.

- Diminishing agricultural lands

Around the world, about three million hectares of agricultural land are lost each year because the soil degrades and becomes unusable due to erosion, which is when soil components are moved from one place to another by wind or Water. An additional four million hectares are lost each year when agricultural land is converted and used for roads, housing, factories and other urban needs.

- Diminished varieties ties of crops

Since the development of industrialized agriculture, the number of different types of crops and livestock has decreased. This decrease in variety is due to the fact that it is cheaper to grow large quantities of the same type of crop.

Although producing less variety of crops means that farmers can produce items more cheaply and easily, there are some negative effects of less variety. The biggest negative effect of variety decline is that it causes a loss of genetic diversity. When there is less genetic diversity and organisms have more similar genetic structures, they are more susceptible to disease. Genetic similarities make it easier for diseases to travel between individuals and potentially wipe out an entire crop or herd of livestock.

- Global conflicts

There are over 50 armed conflicts in the world, stopping the education and healthcare access, as well as the local production, putting therefore the population in a hunger position.

- Climate change

Crops need adequate soil, water, sunlight, and heat to grow. Global warming alters the development and reproductive cycle of plants, advancing flowering and harvest times and reducing crop yields. In addition, variations in temperatures and growing seasons promote the proliferation and spread of pests. And as a consequence of changing rainfall patterns, harvests are lost and long-term production of major crops declines.

In addition, it's important to understand that not all of the countries around the world have access to AI, which therefore shows a huge inequality in the achievement of the 2 and 12 Sustainable Development Goals (SDGs): "no hunger" and "responsible consumption". This committee should make sure that these new technologies and advancements can reach all populations around the world and that the possibility of having access to food is not limited and correlated to the power of each individual or country.

The responsible management of the data collected must also be taken into account and the fact that some farmers, associations or even countries may be against AI, either due to personal beliefs or fear of the disclosure of their future plan or pricing information to competitors.

You should keep in mind that these are only some examples of the points that you should discuss. If you find more on your own, feel more than welcome to present them for debate in the committee session. You must also take into account what ideology your country has regarding the issue, trying to create solutions that your country would take in real life.

- ***Questions A Resolution Must Answer (QARMA)***

- How can AI help eradicate hunger and food insecurity?
- How can we provide safe access to food to the entire world population?
- How can local producers be protected against mechanization and their replacement by artificial intelligence?
- How can member states avoid inequality in the access to the advantages of Artificial Intelligence?
- How could the trust of farmers (especially small and local workers) be gained in regard to the implementation and use of AI?
- How can climate change be reduced to improve local production?
- How can we ensure that the data collected from the local production is not being sold off for commercial purposes to other farmers, organizations or governments?

5. Relevant sources

<https://www.fao.org/home/en>

<https://aiforgood.itu.int/feeding-the-future-how-ai-can-strengthen-food-security/>

<https://www.britannica.com/technology/artificial-intelligence>

https://www.researchgate.net/publication/348871804_Role_of_artificial_intelligence_in_achieving_global_food_security_a_promising_technology_for_future

[How artificial intelligence can tackle climate change \(nationalgeographic.com\)](#)

[Artificial Intelligence \(AI\) in Farming, Agriculture & Food Industry \(pixelplex.io\)](#)

[Food Waste FAQs | USDA](#)

[Gamaya - Crunchbase Company Profile & Funding](#)

[SIFT Smart Information Flow Technologies - Crunchbase Company Profile & Funding](#)

[USDA ERS - Ag and Food Sectors and the Economy](#)

[Future AI Applications for Businesses & Their Benefits \(pixelplex.io\)](#)

[The World Counts](#)

[Number of global conflicts by region and intensity 2021 | Statista](#)

[Artificial Intelligence in Agriculture - Role, Benefits, and Examples \(agrifarming.in\)](#)

6. Vocabulary

Famine: widespread condition in which many people in a country or region are unable to access adequate food supplies. Famines result in malnutrition, starvation, disease, and high death rates.

Food security: food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Remote sensing technology: process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance, usually from satellite or aircraft.

Monocropping: practice where a field is used for production or pure stands of one crop only.