FOOD AND AGRICULTURE ORGANISATION

AGENDA

Agricultural strain on the environment and it's solutions

LETTER FROM THE EXECUTIVE BOARD

Greetings prospective diplomats,

It gives us great pleasure to welcome you to this sitting of the Food & Agricultural Organization 2018. Charged with the responsibility of worldwide food security, the FAO is a forum and a springboard for action - a responsibility one must not take lightly.

In a world where the global population continues to grow and technology advances rapidly, the world is urgently trying to produce sufficient amounts of food while maintaining environmental standards. These topics affect every country in the world, and every country needs to be involved. Your country, big or small, has important contributions to make in this debate. As we are trying to feed the world and transport food to every corner of the globe, this takes a huge toll on the environment, which is the first topic. Problems include contamination of water sources, arable land destruction, and air pollution. We all share the same earth, and nations have to help each other to find solutions to these problems, as well as prevent any other issues from arising. Each nation has its own concerns, but can also assist other nations to fix theirs. Additionally as reputable diplomats, what we ask of you is not to lose sight of diplomacy and consensus building in your efforts to call out what's right and wrong.

On a more personal note, we hope you find this background guide useful as an introduction of what's to come, but it is not however meant to replace further research. We encourage you to explore the agenda in-depth and to make it to the conference well prepared to avoid feeling left out and intimidated, or worse - to prevent committee from running dry. On our end, we promise to make committee fun and engaging! To help kickstart your research Avirath and I have filled this guide with a brief introduction of the potential issues that might surface in committee, but the guide is nonetheless not exhaustive and so we urge you to, again, not solely rely on the information given here. If you have any doubts or inhibitions and need to consult or speak with someone, feel free to contact us on Facebook. We won’t bite, I promise.

Good luck delegates, we look forward to meeting you in less than a week!

Regards,

Nidhi Rao Belman
Chairperson

Avirath
Vice Chairperson

FOOD & AGRICULTURAL ORGANISATION

"FAO will bring the findings of science to the workers in food and agriculture, forestry and fisheries, everywhere; and it will bring the practical problems of these workers everywhere to the attention of the scientists. It will assemble, digest, and interpret information to serve as a basis for the formulation of policy, national and international. It can suggest action, but only through the activities of governments themselves can the objectives be finally won."

Introduction

While the overall nutrition of the worldwide population increases as a whole, there is still a large proportion of the world that fails to get the appropriate amount of food to maintain their lifestyles. The Food and Agriculture Organization of the United Nations (FAO) was founded with the aim of achieving worldwide food security. Through the variety of functions that FAO performs, it works to reduce hunger, malnutrition, and food insecurity; increase the sustainability and productiveness of agriculture, forestry, and fisheries; reduce rural poverty; enable inclusive and efficient agriculture and food systems; and improve the resilience of livelihoods to disasters.

History

The idea of an organization that would address food and agricultural needs can be traced to the early 1900's when David Lubin, a merchant and agriculturalist, advocated for the creation an organization addressing agriculture. With the support of the King of Italy, the International Institute of Agriculture (IIA) was founded in 1905 and established in Rome, Italy. The IIA served primarily as an organization that collected and distributed agricultural statistics. The idea of an agricultural organization further evolved in 1943, when United States of America president Franklin Delano Roosevelt convened the representatives from 44 governments to discuss the creation, and committed to the founding, of a permanent agricultural organization. From this meeting, the Interim Commission on Food and Agriculture was established in Washington, DC. Shortly after the end of the Second World War, the founding conference of FAO was held in Quebec, Canada, with the signing of the constitution of FAO and its entry into force on 16 October 1945. FAO was initially based in Washington, DC, but later relocated to Rome, Italy, in 1951. FAO inherited the statistical functions of the IIA that remain one of the core functions of the organization today.

Mandate

FAO's primary responsibilities are outlined in the Basic Texts of FAO.12 These basic texts include FAO's Constitution and the applicable Rules of Procedure. 13 The mandate of FAO, as outlined in the preamble of the constitution, is to address the following:

- Raising levels of nutrition and standards of living of the peoples under their respective jurisdictions;
- Securing improvements in the efficiency of the production and distribution of all food and agricultural products;
- Bettering the condition of rural populations; and
- Contributing towards an expanding world economy and ensuring humanity's freedom from hunger.

FAO is primarily responsible for increasing the level of nutrition but is not responsible for the direct provision of food. FAO works closely with the World Food Programme (WFP) and other agencies to facilitate the provision of food, particularly in times of emergency.

Governance, Structure and Membership

As a specialized agency of the United Nations (UN), FAO reports to the Economic and Social Council (ECOSOC). FAO currently consists of 194 members, two associate members (Faroe Islands and Tokelau), and one member organization (European Union). The primary body of FAO is the Conference of Member Nations, which meets every two years. From this overall membership, a body of 49 Member Nations is elected to serve three-year terms on the Governing Council. The Council serves as the executive body of the Organization and meets between the biannual FAO Conference, during which time the council acts on current food and agricultural activities and situations, and current and future activities of the organization of the whole, including the development of the Programme of Work. FAO is led by the Director-General, who is appointed by the Conference for an initial four year term that is renewable for a further four years. The current Director-General is José Graziano da Silva. The Organization is composed of six main departments: Agriculture and Consumer Protection, Economic and Social Development, Fisheries and Aquaculture, and Forestry. These departments are divided further into specialized divisions.

Based in Rome, Italy, FAO is one of the Rome Based Agencies (RBA), including the WFP and the International Fund for Agriculture and Development. These organizations work together to develop sets of targets and indications related to food security, sustainable agriculture, and nutrition. With the Millennium Development Goals deadline approaching, the RBA identified five targets for activities moving forward. These targets are as follow: access to adequate food all year round for all people; end malnutrition in all its forms with special attention to stunting; make all food production systems more productive, sustainable, resilient, and efficient; secure access for all small food producers, especially women, to adequate inputs, knowledge,

productive resources and services; and develop more efficient post-production food systems that reduce the global rate of food loss and waste by 50%.

AGENDA: AGRICULTURAL STRAIN ON THE ENVIRONMENT

Overview

We all enjoy a great meal on our plates at the dinner table with our family. However, we often do not think about how our food is made, and how it gets to us. Many do not realize the impacts of food production on the environment, and the relevance it is on our lives every day. In the past few decades, the demand for food is skyrocketing as the global population continues to grow exponentially. The high demand for food production is leaving a huge strain on the environment, end the consequences affect everyone. Developed nations are carelessly impacting the environment, while the developing nations are on the other end receiving the negative impacts. The agricultural market globally has been dominated by developed nations, and the environmental impact has been detrimental to the global resources.

These resources include water pollution, air pollution, habitat loss, and ocean contamination. Although it seems like this issue is not that big of a concern, the gradual increase of development and commercial farming will cause a significant impact on the environment. Commercial farming is on the rise; farmers are steering away from self-sufficiency, and are farming for sale in markets, and trade with companies and other nations.

Maintaining our globe's well being and introducing more sustainable ways of agriculture should be a priority. It is incredibly important that measures are taken immediately and effectively to avoid problems that cannot be saved in the future.

Timeline

1700s – Agricultural Revolution occurs in Great Britain. More machinery and technology is introduced to agricultural practices.
1843 – First fertilizer factory built
1849 – Pesticides are sold commercially.
1940s – The idea of organic agriculture was introduced.
1945 – The Food and Agriculture Organization of the United Nations is formed. This organization was formed with the main goal of defeating hunger in both developed and developing nations.

1960s – The Green Revolution – the industrialization and modernization of global agricultural production – spread globally.
1989 – 90 million metric tons of fish and seafood were taken from the ocean
1992 – International Conference on Water and the Environment took place in Dublin, Ireland. This conference focussed on strategies, innovations, and management on freshwater resources
1994 – Satellite technology is introduced to farmers to track farming practices.
1997 – Agri-Environment Correspondents Group in Europe; the meetings by this group allowed for discussions regarding agriculture and the environment.
1999 – Very first International Conference on Sustainable Agriculture, Environment and Forestry took place
2001 – Conference on Agricultural and Environmental Statistical Applications took place in Rome, Italy
2005 – A significant amount of bees began to die from pesticides. This goes on for over a decade.
2013 – The European Union decided to ban neonicotinoid pesticides for two years

Historical Analysis

Humans began as hunters and gatherers at the beginning of human existence. The beginning of agriculture – the domestication of plants and animals 10 000 years ago – aligned with climate fluctuations and the beginning of accelerated population growth. Thousands of years later, another population boom overtook the globe. Ever since the Agricultural Revolution occurred in the 18th century, modern improved technology has been used to increase crop yields. The priority was to mass-produce as much as possible, with the environmental impacts often overlooked. With that, industrial agriculture has taken over the globe, and it was not long until the environmental impacts were evident. New machinery was introduced, as well as the use of pesticides and chemical fertilizers. In 1840, Justin von Liebig produced a publication named Chemistry in the Application to Agriculture and Physiology outlining the use of fertilizers will "maintain the productivity of agriculture" while requiring less labour. Livestock production was also in high demand, and this became an issue as livestock produces a lot of waste.

The most serious issue about agriculture still stands today. Soil erosion has been evident in past civilizations, and has in fact lead to the downfall of civilizations because of unfarmable land damaged by soil erosion. Strategies such as terracing and contour ploughing were proposed, and to farm on a larger land area; however, the large land area resulted to be more prone to erosion. Maintaining soil conditions lead to additional finance issues to farmers; any potential short-term risk of profit loss outweighed any long-term benefits of preserving and maintaining soil.

Pesticides

Pesticides in the post-World War II era were the some of the best forms of pest management. The very first pesticides included extremely toxic compounds such as arsenic and hydrogen cyanide, thus becoming too toxic or too ineffective to use towards pest control. These were considered "first generation" pesticides, with "second generation" pesticides being the result of synthetic organic compounds. In 1939, the pesticide was discovered by Swiss chemist Paul Muller. This pesticide was demonstrated by Muller when he used it to kill Colorado potato beetles that were invading potato crops in North America and Europe.

Case Study: Brazil

Sustainable rural life and agro-ecology, Santa Catarina State, Brazil

A case study performed by the FAO regarding sustainability in agriculture took place in the rural state of Santa Catarina in Brazil. Agreco, an NGO located in Santa Rosa de Lima, stated, "all associates must develop agroecological systems and promote sustainable management on their farms" (FAO). Since the introduction of sustainability in these farms, a noticeable decrease in tobacco, pig and poultry production among other practices has helped protect local vegetation and livestock. Livestock feeds on produce and vegetation and other crops, hence placing a strain on vegetative crops, Agreco also states their goals on developing agricultural policies focusing on "solidarity and cooperation" (FAO) rather than producing for the market. The group has also focussed on incorporating traditional agricultural practices, and more sustainable paths of producing food. Overall, the goal of Agreco through the project is to sure more sustainable and environmentally friendly ways of producing agriculture in areas of the rural and self-sustained state of Santa Catarina in Brazil.

Current Situation

The global demand for food continues to grow, and agricultural practices have changed to become more efficient and meet these demands. However, many agricultural practices result in detrimental impacts on the environment. The well being of our globe's oceans, atmosphere, water sources, and natural habitats are all in jeopardy. The outstanding amount of water, fuel, and land area used by the agricultural industry is alarming and many do not understand the severity of the issue.

As the world is rapidly developing, the majority of the population is slowly steering away from subsistence farming, and relying more on commercial and industrial agriculture. Subsistence farming is farming for one's own needs, and they focus on growing enough food for their family and often do not participate in trade. On the other hand, commercial farming is the practice of

mass production and food is made to earn a profit, in both trade as well as selling to a market. Both of these production processes are extremely different, and the lifestyles of farmers are different as well. Subsistence farming requires more man labour, whereas in commercial farming, more machines are used and there is less labour involved. These two types of farming have different effects on the environment.

By far, the largest contributor to impacting the environment is animal agriculture. Alone, livestock production occupies up to 30% of the earth's land. Over 30% of water consumption is also by the animal agriculture industry, as well as being the reason behind 91% of the Amazon rainforest destruction. Meat production require substantial amounts of land, and the rainforest is continued to be cleared out and converted into farmland. Clearly, the demand for meat and meat products have skyrocketed in recent years, and demands will continue to grow. There is no sustainable way to produce meat, and the global situation will worsen.

In addition to the impacts of animal agriculture, the entire agriculture industry as a whole leaves a significant impact on the globe's environment. Unsustainable ways of farming and agriculture leave a significant strain on the earth's resources and many have reached beyond rates of renewal. The globe's population will continue to exponentially rise, and the earth's resources will continue to face heavy strains. The main impacts are on habitat loss, air pollution, water usage, water sources, soil erosion, and arable land destruction.

Habitat Loss

Due to the globe's limited amount of arable land, industrial farmers have cleared habitable land into farming land. In fact, around 50% of the world's habitable land has been turned into farming land. Up to 91% of the Amazon Rainforest destruction is due to animal agriculture, and it is expected that more will be destructed. With farmland covering over 38% of the earth's total land area, we can only expect an increase in this number. In developing countries, an additional 120 million hectares of natural habitats will be converted to farmland by 2050 in order to cope with food demands worldwide.

Air Pollution

In industrial agriculture, the food distribution chain is long and complicated. Each nation has its own abundant resources that are unique due to their geographical region. This has allowed globalization to happen, and international trade is booming; but it has come to an expense of producing air pollution. Especially in developed nations, food from the farms is often in rural, isolated areas, and food travels thousands of kilometers before reaching our plates for consumption. Vehicles vary from trucks, trains, ships, and airplanes, depending on the range of

delivery. Throughout the entire distribution process, lots of fuel and gas are consumed, resulting in carbon emissions and carbon dioxide released into the air.

Water Usage and Water Sources

By far, agribusiness – agriculture used for commercial purposes – is the greatest user of water. Over 70% of accessible freshwater is used for agriculture, compared to 23% used by the industries and technology. The major food producing countries such as the United States of America and India have reached or are reaching their renewable water limits. There are a few reasons behind the dangerously low water supplies. Leaky and insufficient irrigation systems result in a lot of water wasted through pipes and hoses, and planting thirsty crops in not ideal environments also results in significant water usage. In addition, overconsumption places a strain on aquifers, and also affects the water availability in other parts of the world. The impacts of not taking care of the earth's water sources are serious. The water table is changing drastically, and water supplies are depleting rapidly.

Soil Erosion

Soil erosion is the wearing away of a field's topsoil, usually caused by water and wind. The result of soil erosion leads to degraded land, and reduced soil fertility. The loss of fertile land is detrimental to agriculture, because of the already very limited amount of land that is available for planting. Some of the major crops that cause erosion are coffee, cotton, corn, rice, tea, wheat, etc. Unfortunately, these crops are incredibly important to the agriculture business, and are important toward international trade and consumption. The results of soil erosion also cause problems in other areas. The soil that is carried off after irrigation or rainfall can lead to sedimentation in rivers, lakes, and other water sources. This causes severe damage to freshwater supplies, as well as marine habitats, resulting in a significant loss of fish.

Arable Land Destruction

In many countries, arable land is limited, and often times, not enough in order to sustain a country's population. Over the years, land degraded has reached about 30% of the total global land area. This is problematic because land area will continue to be converted into agricultural space, and commercial agriculture will continue to make the situation worse. There is currently a reported loss of 10 million hectares of arable land every year, and this number is only expected to increase.

Past UN/International Involvement

Ultimately, the goal for everyone is to receive sufficient, affordable, and nutritious food while sustaining the environment and natural resources. There have been several international efforts working toward that goal.

The United Nations Environment Programme (UNEP) have laid out the UNEP Sustainable Food Programme, with the goal to raise awareness of food sustainability at the local, regional, and the international level. They have tried to create more market-based approaches to tailor the needs of every region. For example, in Asia, rice production sustainability would be a focus there, and coffee beans would be the focus of South-East Asia and South America.

The IAEA also has joined with the FAO in ensuring safe food and sustainable food. The Food and Environmental Protection Laboratory (FEPL) has developed detection methods for pesticides, livestock drugs, and other chemical pollutants. These detectors were given to farmers and other field owners, to give feedback. These regulations and practices were applied to ensure food safety while also protecting the environment. In addition, the Soil and Water Management & Crop Nutrition Laboratory (SWMCNL) have used isotope and nuclear techniques to improve the quality of soil, water, as well as cutting down on carbon emissions and greenhouse gas production. They have also done soil erosion assessments, and used nuclear techniques to ensure water conservation, while improving water quantity and quality.

The United Nations itself has recognized the "collective will and commitment" by international efforts to ensure that the global population is fed, while maintaining environmental sustainability.

Possible Solutions and Controversies

Reducing the Farming of Livestock

Without a doubt, farming animals and other livestock use up a lot of water and resources. Feeding and grazing livestock requires a vast area of land and the environmental impacts are detrimental. Livestock is by far the leading cause of air pollution and climate change, produces 65% of the world's nitrous oxide, and is the leading cause of ocean dead zones, habitat destruction, and species extinction. Often times, food and crops produced are fed to livestock animals rather than for human consumption. By reducing livestock farming, resources could be used elsewhere and more effectively.

Being Mindful of Water Source Usage

Even in countries and regions where fresh water is plentiful, there have been warnings and dangers of fresh water shortages. Water is the essential resource for life. The agricultural

business uses up a lot of fresh water, and aquifers and rivers are often contaminated, which affects the global freshwater resources.

By being mindful of water usage, the strain on aquifers will be relaxed, allowing water sources to renew themselves. Fresh water is the most important source for all living organisms on the planet, and it is essential we all take part in preserving it.

Watching Food Waste

So much food is wasted every day. As millions starve every day, those living in the developed world are wasting over a third of produced food. Food waste result in unnecessary waste in the landfills, which is detrimental to the air and the land.

Currently, roughly a third of food produced is wasted. There is enough food produced to feed the entire globe and for everyone to live comfortably, but the produced food is not put to good use. Much of agriculture production is not used to feed people, but instead, to feed livestock animals. For example, not only are cows not supposed to live of corn, but it is also not a good use of the harvested produce. By feeding produce grown to humans, the developing regions can have more resources to distribute around to its people.

Eating Local and Supporting Local Farmers

Eating local drastically reduces the carbon footprint created by the transportation sector in agriculture. Transporting food over large distances is not just bad for the environment; it is also very expensive. Transportation vehicles vary between trucks, trains, ships, and planes, depending on the distance of which the product must be delivered. Fuel consumption is significant, and sometimes unnecessary, if products can be found more locally. In addition, supporting local farmers can also improve food distribution within a local community. The food production chain is a lot shorter and simpler, and citizens are more aware of where their food came from. By buying produce from a local farmer, farmers earn a profit, it is easy access for citizens, and transportation costs are minimal.

Bloc Positions

Canada and USA

Undoubtedly, North America is a global leader in production and consumerism. The abundance of natural resources allow for development and extensive industrial agriculture. Both Canada and the USA boast a high standard of living, but also a high standard of waste production. Sharing the longest border in the world, they also share common concerns relating to agricultural impacts

of the environment. Water quality is generally exceptional in both countries, and water consumption reach astonishing levels. Poor agricultural practices have affected the quality of some rivers, lakes, and other water sources. In addition, overfishing is a major concern in the region, as well as loss of habitat, Air pollution is created by methane production by livestock, and other pesticides released in the air. Both Canada and the USA aim to reduce the impacts of agriculture on the environment.

Latin America and the Caribbean

Latin America and the Caribbean are always facing the dangers and effects of climate change. Latin America's food production exports are a significant contribution towards the world food trade, because of the commodities available and grown in the region. Despite producing goods that are sought for in other regions, a significant number of Latin America and Caribbean citizens are still undernourished. Climate change will worsen the situation, affecting environmental conditions for production and farming. These regions are hot; temperatures are expected to increase with climate change. Increase in temperatures affect water, soil, and air quality, as well as rising sea levels and increase in greenhouse gas emissions. When the region experiences droughts and significant dry periods of time, food-producing areas face challenges and ultimately affect the production of food. Latin America and the Caribbean will continue to face climate change, which will affect their crop production and variety, as certain crops will not be able to be grown under drastic environmental changes. This region hopes to focus on soil conservation, careful crop irrigation, and watching water consumption.

Sub-Saharan Africa and South Asia

These regions are always facing the dangers of food insecurity. As a result, any form of agriculture is put towards feeding the population. In an effort to produce enough food for everyone, several agricultural practices result in impacts on the environment. Major examples include deforestation, water depletion, air pollution, soil erosion, and climate change, among others. Because of the large population in both of these regions, limited land space is available for production. This results in field expansion, which destroys habitats and forests, and also in a limit of crop diversity. Environmental impacts affect all sorts of crop production, but the severity of the results of agriculture clearly affects both of these regions. Climate change also targets these areas, and CO2 emissions cause air pollution. Other factors that greatly impact the wellbeing of these regions include the strain on land availability, soil fertility, and unpredictable water availability. Because of the geography of these two regions, Sub-Saharan Africa and South Asia also face droughts, and water shortages. Overall, the use of fertilizers, large water consumption, and field expansion lead to environmental concerns in Sub-Saharan Africa and South Asia.

Central Asia

Central Asia is a region vastly covered by desert; only 20% of the region is suitable for producing agriculture. Its agricultural struggles date back to the break up of the Soviet Union, in which water sources were used carelessly and resulted in the disappearance of the Aral Sea.34 Soil salinity has also increased, with up to 90% of soil unusable for agriculture in Turkmenistan.35 Climate change, alike other regions, is also detrimental to Central Asia. Rainfall has declined, and temperatures and sea levels are rising. Climate change has also affected crop yields, both positively and negatively, with an increase in certain crops, but a noticeable decline in several others. Water supplies are also low due to the disappearance of the Aral Sea (which was actually a freshwater lake) and rainfall levels are not high enough to compensate. Many regions in Central Asia are vulnerable to water scarcity, and the region will focus on being more efficient with water usage and water consumption.

Europe

With the Agricultural revolution originating from Great Britain, the entire continent has since undergone significant changes in agricultural practices. Agriculture by far is the largest occupant of land in Europe, and is expected to expand. Lots of natural areas and habitats are being converted into agricultural land. Europe's agricultural scene also includes a loss in crop diversity, due to modern agriculture production systems. By 2025, the rural areas of Europe will face an increasing pressure on biodiversity. Another concern by Europe as well is water supply and water availability, which is affected depending on climate change. Fortunately, restrictions on water usage for agriculture will be established, especially because several regions are currently facing droughts. Soil erosion and pollution in Europe are caused by unsustainable practices of production, and will affect resources varying from water sources to the atmosphere. Alike North America, livestock production in Europe result in rising methane and nitrous oxide levels in the atmosphere. On the other hand, Europe is a world leader in renewable energy, and is looking to use bioenergy in any way during agricultural processes to reduce environmental impacts. Europe's goals are towards restoring the diversity of crops, and maintaining and developing sustainable agricultural practices.

Discussion Questions

1. How has globalization contributed to environmental impacts of agriculture?
2. How can developed nations help developing nations be sustainable in agriculture?
3. What is the biggest change needed to reduce environmental impacts?
4. What can citizens of a nation do to contribute to helping the environment?
5. Why has it taken so long for the world to recognize that agricultural impacts on the environment is detrimental?

Additional Sources

Introduction to the Agricultural Revolution: https://www.britannica.com/topic/agricultural-revolution
Information on separate countries: http://www.fao.org/countryprofiles/en/
Additional information on Agriculture and the environment:
http://www.fao.org/docrep/004/y3557e/y3557e11.htm