



SPC2: Special Conference on Ecological Crises

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Issue: Protecting the diversity of plant and animal species from commercial agriculture

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I. Introduction

The scientific word for the variety of life on Earth is biological diversity or biodiversity. It encompasses not just species but also ecosystems and genetic diversity within a single species. Species coexist and rely on one another everywhere on the earth. Biodiversity is essential in almost every element of our life. People value biodiversity for a variety of reasons, some of which are utilitarian and others which are intrinsic. This means that people must appreciate biodiversity both for the benefits it gives to us and for its intrinsic value. The numerous essential necessities humans acquire from biodiversities, such as food, fuel, shelter, and medicine, are utilitarian benefits. Ecosystems also perform important functions such as pollination, seed distribution, climate regulation, water purification, nutrient cycling, and pest control. Biodiversity also has value in terms of as-yet undiscovered advantages, such as new medications. Humans cherish biodiversity for a variety of reasons, including spiritual and religious ones. The intrinsic value of biodiversity refers to its inherent worth, which is unaffected by who or what it is valued. This is a philosophical idea that might be described as the unalienable right to exist. Finally, the significance of biodiversity can be interpreted in terms of the relationships we make and strive for with one another and with the rest of nature.

Agricultural output has evolved from subsistence farming to more intensive commercial farming over the years. It is clear that industrial agriculture has been portrayed as a critical tool for improving farming efficiency and increasing agricultural output. The main difference between commercial agriculture and regular agriculture is that commercial agriculture is meant to provide the farmer with money and food. In wealthy countries, this has resulted in enhanced food sustainability. It has also aided in the alleviation of food shortages in developing countries. Despite the fact that commercial (industrial) farming has helped feed more people around the world, it has caused harm to both people and the environment. Thankfully, biotechnology has begun to make industrial farming more environmentally friendly, people must embrace the agricultural revolution it is ushering in more fully. It is clear that industrial farming has far-reaching environmental repercussions, ranging from pollution to the phenomenon of climate change.



II. Involved Countries and Organizations

China

China is a **big agricultural country** endowed with rich agricultural resources. The country has a long history of farming and the tradition of intensive cultivation as well as a huge rural population. The Chinese government has always placed high priority on the development of agriculture. It is estimated that the country's rural population is approximately 300 million people. With less than 10% of the world's arable land, China has produced one-fourth of the world's grain and fed one-fifth of the world's population(Britannica). This is a significant achievement not only in China but also globally, in the pursuit of food and nutrition security. China is currently the world's leading producer of cereals, cotton, fruits, vegetables, meat, poultry, eggs, and fish. China is now trying to shift its agricultural system from industrial agriculture to aerological agriculture due to the crises the country faced in the early 2000s.

Being one of the 17 mega-biodiversity countries in the world, China harbors nearly 10% of all plant species and 14% of animals on earth. Biodiversity assists both in maintaining the productivity of the ecosystem and supporting food security. Thus preserving the biodiversity in both animals and plants is of the utmost importance for the country.

Food and Agriculture Organization (FAO)

The Food and Agriculture Organization (FAO) is a United Nations specialized body in charge of international hunger relief initiatives. Its mission is to ensure that everyone has access to enough high-quality food on a regular basis so that they can live active, healthy lifestyles. FAO has 194 member nations and works in over 130 countries throughout the world. FAO has a long history of fostering sustainable agricultural development and the sustainable use of biodiversity for food and agriculture to pursue its goal of ending poverty and hunger. Closely interlinked, biodiversity and ecosystem services support agriculture in multiple ways, benefitting farmers' livelihoods and well-being.

FAO also deals with the threats to the protection of biodiversity. Protecting the biodiversity of plants and animals is a very crucial aspect of the ecological system and FAO is willing to do anything to tackle it. FAO until today has made an International Treaty on Plant Genetic Resources for Food and Agriculture. This treaty can be beneficial in order to solve the issue at hand.



United States of America

Agriculture is a significant industry in the United States, which is a net food exporter. According to the 2007 agricultural census, there were 2.2 million farms covering 922 million acres (1,441,000 sq mi), with an average farm size of 418 acres (169 hectares). With the new USA administration, the USA is a country that gives a lot of importance to the protection of biodiversity. "As President Joe Biden takes office today, his administration announced a series of steps aimed at combating the climate crisis and protecting wildlife from extinction. These include reentering the Paris Agreement, cancelling the permit for the Keystone XL pipeline, and imposing a moratorium on oil leasing activities in the Arctic National Wildlife Refuge."(Center for Biological Diversity). A former administrator from USAID said, "Biodiversity, environmental resilience, and natural resource management touch every part of our Agency's work—and every corner of the globe."(USAID).

World Bank

The World Bank is an international financial agency that lends and gives money to governments in low- and middle-income nations to fund capital projects. The World Bank supports agricultural activities and also funds these projects. For Example, World Bank funded new IBRD/IDA commitments to agriculture and related sectors totaled \$5.8 billion in 2020. In 2020, 128 initiatives will have contributed to the provision of agricultural assets and services to 7.2 million farmers. Improved agricultural technology was embraced by three million farmers. On 986,000 hectares of agricultural land, farmers upgraded irrigation and drainage.

Brazil

Brazil's agriculture has long been one of the country's main economic pillars. Brazil became the world's leading exporter of coffee, soybeans, cattle, and crop-based ethanol after initially focusing on sugarcane. The development of agriculture during the Estado Novo (New State) led to the term "Brazil, breadbasket of the world," coined by Getlio Vargas. Brazil is also a very important country in this issue because of the fact that in their region they have the Amazon Forest. The Amazon Forest is the home for many biological species and ecosystems. Forests are being removed in some locations, such as the Amazon rainforest, to make room for soy and palm oil production, as well as pasture for grazing cattle. By 1995, 70% of formerly forested territory in the Amazon had been converted to cattle ranching, with 91 percent of land deforested since 1970. Farmers clearing land (often employing the slash-and-burn method) for small-scale subsistence agriculture or mechanized cropland producing soy, palm, and other crops have caused much of the remaining deforestation in the Amazon.



Argentina

Argentina's economy is based in part on agriculture. Agriculture in Argentina is relatively capital demanding, employing approximately 7% of the workforce now and accounting for less than a third of all labor even during its heyday around 1900. After accounting for approximately 20% of GDP in 1959, it now contributes less than 10% of GDP directly. Commercial agriculture has led Argentina to lose its forests and this is a clear example of the effects of commercial agriculture's effect on biodiversity. Deforestation because of soybean, agricultural growth is harming Argentina's Yungas cloud forest and the Chaco ecoregion, one of the world's largest wooded biomes (a major regional grouping of different plant and animal species).

III. Focused Overview of the Issue

1. Commercial Agriculture Systems

Commercial agriculture is the term used for large-scale farming. Commercial (Industrial) agriculture is when food is produced for sale. This includes selling to or through restaurants, supermarkets, wholesale distributors, other countries, local produce stands, and a variety of other businesses. All aspects of feeding, breeding, growing, and processing animals and crop products for human use are included in industrial farming (Winson, 2014). Individuals, private enterprises, large and small corporate consumers, the community, state and federal regulators, and the general public are all involved in this complicated topic.

Commercial Agriculture systems feature unsustainable levels of use of fossil fuels, soils, and water. It has been linked to numerous types of environmental deterioration, including air and water pollution, soil depletion, fish extinction, and biodiversity loss. For example, meat production adds greatly to these issues (Winson, 2014). Producing grains for animal use rather than direct human consumption results in energy loss and resource degradation. It is also claimed that the spread of industrial-style livestock farming has resulted in environmental and public health concerns, such as pollution from big animal wastes and antibiotic overuse (Winson, 2014). Because of the widespread use of antibiotics, animal fat contains higher quantities of antibiotics and other substances that are thought to contribute to the severity of human diseases.

2. A Cultivated Planet

Agriculture's need for land leads to habitat conversion, which is likely its most significant environmental cost. Approximately 40% of ice-free land (4,300 million hectares) is already planted with crops or used for cattle, and by 2030, an extra 2.7–4.9 million ha of cropland, the size of a small European country, may be required to feed the world's population. Agriculture is thought to be responsible for 80



percent of worldwide deforestation, and agriculture has a detrimental influence on about 53 percent of terrestrial species classified as endangered by the International Union for Conservation of Nature (IUCN). The size of the terrestrial carbon sink is also reduced as a result of land conversion. Global simulation models suggest that current landscapes will store 24 percent and 10% less carbon in plant and soil, respectively, than if they keep their natural flora. Agriculture, more than any other economic sector, contributes to various forms of environmental deterioration. Agriculture accounts for 30–35 percent of worldwide greenhouse gas (GHG) emissions, and crop irrigation accounts for 70 percent of global freshwater withdrawals. Since 1950, the usage of synthetic nitrogen fertilizers has increased roughly 21-fold, with more nitrogen being added to agricultural soils than is produced naturally. Almost all nitrogen generated from humans is lost to the atmosphere or receiving seas. Furthermore, inadequate agricultural management degrades soils, lowering agricultural production and increasing demand for fertilizers, water, and land conversion.

3. Environmental Pollution by Fertilizers

To continue, it has been discovered that using inorganic fertilizers for crop production increases food output. The levels of nitrogen sprayed to the most arable areas vary between 120-550 kg of nitrogen per hectare, according to Altieri (1998), an ecological specialist. However, the abundant harvests obtained as a result of fertilizer application has been linked to disastrous environmental impacts. According to Winson (2014), increased fertilizer application results in a higher prevalence of pests and diseases. Because of their increased foliage levels, crops treated with fertilizer have been proven to be more sensitive to pests. As a result, they act as pest harbors for bugs that damage foliage, further degrading the environment.

4. Green Revolution

Green Revolution is the set of technology transfer initiatives that increased agricultural production in some parts of the world. This incident may be given as a decisive point in the development of modern methods of commercial agriculture. The initiatives that were established with the Green Revolution resulted in technological advancements and new techniques in agriculture. Chemical fertilizers, agrochemicals, and a controlled water supply (typically requiring irrigation) were all linked to it, as were modern methods of farming, such as mechanization. The key aspect of the revolution includes the following:

1. Use of the latest technological and capital inputs
2. adoption of modern scientific methods of farming
3. use of high yielding varieties of seeds
4. proper use of chemical fertilizers
5. consolidation of land holdings
6. Use of various mechanical machineries



The Green Revolution has started in Mexico, with multilateral, co-operational governmental financial support. The project was led by the Mexican government in 1943, with cooperation from the US government, the United Nations, the Food and Agriculture Organization (FAO), and the Rockefeller Foundation.. Mexico was a significant experimental case in the application of technology and scientific expertise in agriculture for the US government, and it became a model for international agricultural development. To address its lack of food self-sufficiency, Mexico undertook a deliberate effort to transform agricultural productivity, particularly in its northwest with irrigated rather than dry-land cultivation. With the revolution, the country had a significantly increased agricultural production, especially in terms of wheat.

India, a country that was going through a famine in early 1960s, and other countries also had their respective Green Revolutions. However, in Africa, such projects couldn't be successful due to political reasons (widespread corruption, insecurity, a lack of infrastructure, and a general lack of will on the part of the governments) and environmental factors (availability of water for irrigation, the high diversity in slope and soil types in one given area).

Despite its economical benefits for the countries, the Green Revolution has had negative effects on both agricultural biodiversity and wild biodiversity. Thus, the revolution may be interpreted as, in a way, conflicting with the agenda item.

5. Ecological Imbalance

When a natural or human-caused disturbance disrupts an ecosystem's natural balance, it is called ecological imbalance. Natural or human-caused disturbances can throw an ecosystem's balance off. The extinction of a species or the introduction of a new species can cause an ecosystem to become ecologically unbalanced.

From an ecological standpoint, industrial farming has clearly resulted in a massive ecological imbalance in the ecosystem. First and foremost, the degradation of wetlands for agricultural purposes has resulted in the loss of habitat for aquatic animal and plant species. Wetlands are normally ecological places where creatures that are adapted to that environment interact. These interactions improve the ecosystem's energy flow. As a result, the destruction of wetlands has caused an unparalleled disruption in the ecosystem's energy flow. As a result, some animal and plant species are at risk of extinction.

6. Convention on Biological Diversity

The Biodiversity Convention, sometimes known as the Convention on Biological Diversity (CBD), is a multilateral convention. The agreement has three basic objectives: conservation of biological diversity (or biodiversity), sustainable use of its components, and fair and equitable distribution of benefits derived from



genetic resources. Its goal is to build national policies for biological variety protection and sustainable use, and it is frequently regarded as an important document in terms of sustainable development. On the 5th of June 1992, the Earth Summit in Rio de Janeiro opened the convention for signatures, and it went into effect on the 29th of December 1993. Additionally, The Cartagena Protocol and the Nagoya Protocol are two supplemental agreements. The Cartagena Protocol on Biosafety to the Convention on Biological Diversity governs the movement of living modified organisms (LMOs) generated from modern biotechnology from one country to another. It was adopted as a supplementary agreement to the CBD on January 29, 2000, and went into effect on September 11, 2003. This vital convention addresses topics such as; Measures the financial incentives for biological diversity conservation and sustainable usage. Access to genetic resources and traditional knowledge is regulated, with the person providing the resources obtaining Prior Informed Consent. The results of research and development, as well as the benefits arising from the commercial and other use of genetic resources, will be shared in a fair and equitable manner with the Contracting Party providing such resources (governments and/or local communities that provided the traditional knowledge or biodiversity resources used). Reporting on national attempts to carry out treaty obligations.

7. Actions of Member States

The European Union is an important contributor in order to tackle this problem. The EU's strategic efforts to protect biodiversity began in 1993, when it ratified the United Nations' Convention on Biological Diversity (CBD). Each Member State is also a party to the Treaty on its own. The UN Sustainable Development Goals, particularly Goal 15 of the 2030 Agenda for Sustainable Development, address biodiversity issues and are compatible with a number of the CBD "Aichi" biodiversity targets. The European Commission adopted a Communication on a European Biodiversity Strategy in February 1998 to fulfill its duties under the Convention. In 2001, as part of the Gothenburg Agenda for Sustainable Development, it established an EU Biodiversity Action Plan. The plan's goal was to prevent biodiversity loss in the EU by 2010 and take steps to restore habitats and natural ecosystems; it was amended in 2006. The action plan, however, was mainly ineffective, and its objectives were not reached.

IV. Key Vocabulary

Commercial Agriculture: Commercial agriculture is the growing of crops on a big scale for sale and distribution to wholesalers and retailers. Crops such as wheat, maize, tea, coffee, sugarcane, cashew, rubber, banana, and cotton are harvested and sold on global markets in commercial farming. Livestock production and livestock grazing are examples of commercial agriculture.



Diversity: the fact that anything contains a variety of various things or individuals; a range of distinct things or persons

Ecology: the scientific study of the connections between air, land, water, animals, plants, and other elements in a given area

Fertilizers: Any natural or manufactured item that is applied to soil or plant tissues to offer plant nutrients is known as a fertilizer. Limiting materials and other non-nutrient soil additives are not necessarily fertilizers. The term fertilizer is vital because it has a direct connection with affecting the diversity of plants.

V. Important Events & Chronology

Date (Day/Month/Year)	Event
1950	The Green Revolution has taken place
5 June 1991	The Convention on Biological Diversity was signed
3 November 2001	The International Treaty on Plant Genetic Resources for Food and Agriculture was signed.
11 September 2003	The Cartagena Protocol was adopted to the CBD
21 April 2012	The Intergovernmental Platform on Biology and Ecosystem Services was established.
12 October 2014	The Nagoya Protocol was adopted to the CBD

VI. Past Resolutions and Treaties

- [The Convention on Biological Diversity](#)

The Convention on Biological Diversity (CBD) is an international legal instrument that has been ratified by 196 countries and is dedicated to "the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from the utilization of genetic resources. Its main goal is to urge people to take actions that will lead to a more sustainable future. The Convention on Biological Diversity (CBD) has done a good job of advocating and directing the creation and



implementation of the global biodiversity agenda, though not at the scale or pace required to reverse the current crisis and reduction in biodiversity.

- [International Treaty on Plant Genetic Resources for Food and Agriculture](#)

The International Treaty on Plant Genetic Resources for Food and Agriculture has as its goals the conservation and sustainable use of all plant genetic resources for food and agriculture, as well as the fair and equitable distribution of the benefits arising from their use, in accordance with the Convention on Biological Diversity, for sustainable agriculture and food security. The International Treaty on Plant Genetic Resources for Food and Agriculture had its positive effects on the problem but by itself, it isn't enough and there is a need for new treaties and conventions.

VII. Failed Solution Attempts

The European Union (EU) implemented the modified Common Agricultural Policy (CAP) for 2014–2020 in December 2013, providing over 40% of the EU's budget and impacting the management of half of the continent's land area. Many EU lawmakers declare the new CAP to be "greener," but the new environmental prescriptions are so weak that they are unlikely to boost biodiversity. Individual Member States (MSs) can still use the new CAP's flexibility to establish national plans to safeguard farming habitats and species, as well as to assure long-term ecosystem service provision.

VIII. Possible Solutions

An agricultural policy with clear environmental goals is usually organized in one of three ways: laws, such as pesticide use limitations or water restrictions, that can be enforced through penalties and conditions attach financial assistance to farmers; community-based methods (meaning solution ideas coming from the people which are getting affected by the problem), which encourage farmers and other local stakeholders to collaborate on environmental issues; and Tariffs can also be used to internalize environmental costs by paying farmers directly or creating markets for adopting techniques that minimize environmental impacts and produce non-commodity outputs beyond those needed by present regulation.

Any of these adopted measures will support farmers on account of lifting a burden on their shoulders. Eliminating financial incentives for farmers to increase agricultural productivity is critical to lowering the social costs of environmental practices adoption. Since the 1980s, reforms in industrialized



countries have supported producer incomes more through direct payments than through production subsidies or price protection.

IX. Useful Links

[OECD Agriculture:](#)

- OECD Agriculture is a useful link where there is a lot of information about agriculture and its effects on biodiversity, plants and animals.

[FAO:](#)

- FAO can be very helpful because there is a lot of information about the actions of the UN and examples that can be solution ideas.

[The Impact of Industrial Farming on the Environment:](#)

- This site is a very important site where the issue is explained.

[The Convention on Biological Diversity:](#)

- This is a vital Convention and by accessing with the link delegates can learn more about the issue while also seeing solution alternatives.

X. Works Cited

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