**Country: Federative Republic of Brazil**

**Committee: Food and Agriculture Organization (FAO)**

**Agenda Item: Strategies for Advancing Sustainable Agricultural Practices in the Green Transition**

 Agriculture has been playing a significant role in our lives since the beginning of human civilization. Although agriculture started with a process as simple as the domestication of wheat, it has kept developing drastically changing the course of human society. As technology and industry develop, many environmental issues have occurred with climate change being the most challenging ecological problem to tackle. Since agriculture depends solely on nature, it is the industry that has been affected the most by climate change. Climate change has global effects on the agriculture industry both directly and indirectly due to shifting and unpredictable rainfall patterns and temperatures, a higher incidence of extreme weather events and disasters such as drought, floods, outbreaks of pests and disease and ocean acidification[1].

 Agriculture is a major sector of the Brazilian economy and is critical for economic growth and foreign exchange earnings[2]. Brazil is one of the biggest exporters of tropical agricultural products such as coffee, sugar, citrus and cacao thus agriculture sector contributes to the Brazilian economy greatly[3]. Thus climate change has a significant effect on the Brazilian economy and agriculture. Projections indicate that climate change will cause a loss on all currently produced food grains that will amount to US$ 4 billion by 2050[2]. Aside from that, since 1990, Brazil's land use, land-use change and forestry (LULUCF) sector has been emitting more carbon than it has sequestered. The LULUCF emissions in Brazil are directly linked to deforestation in the carbon-rich Amazon tropical forest and to the release of underground carbon from the loss of the tropical savannah ecoregion in the eastern part of the country[4] thus contributing to climate change.

 In order to prevent severe outcomes of climate change and mitigate the contributions to climate change, the Brazilian government initiated the National Policy on Climate Change (PNMC) in 2009 as a sign of adherence to the Kyoto Protocol. The PNMC is aimed at making socio-economic development compatible with climate protection, reducing anthropogenic greenhouse gas emissions, mitigating the utilization of harmful sources by switching to eco-friendly sources[5] and supporting the creation of a regulated carbon market in Brazil[6].

 In addition to PNMC, the Brazilian government also established the Action Plan to Prevent and Control Deforestation in the Amazon (PPCDAm) in 2004 which establishes the guidelines to reach the goal of zero deforestation rate by 2030. The guidelines include: ensuring the effectiveness of the decentralized and shared management of public policies, through partnerships to prevent environmental damages and promote sustainable production systems; encouraging the active participation of different sectors for the prevention and control of deforestation, social control and political ownership; supporting State Plans for Prevention and Control of Deforestation; encouraging sectoral agreements with the productive sector, in order to strengthen the governance and sustainability of the productive chains of the Amazon, aiming at the reduction of deforestation; combatting land grabbing by strengthening assigned task forces and management of Legal Reserve and Permanent Protection Area; enhancing the environmental monitoring system; inducing the adoption of sustainable agricultural practices, to counter the possible negative effects of high agricultural product and area requests[8]. Between 2004 and 2012, the PPCDAm enabled the historic 83% decrease in deforestation in the region to happen during its first three phases[7].

 Aside from these policies, the Low-Carbon Agriculture Plan (ABC Plan) was initiated in 2010 to ensure that GHG gas emission goals would be met. The ABC Plan consists of the following: Integrated Landscape Approach (ILA), an approach that emphasizes on the importance of using each unique agricultural area efficiently according to its nutrition values and water abundance; integration of adaptation and mitigation strategies such as integrated risk management, environmental performance evaluation, climate forecasting, land use zoning and early warning systems; fostering sustainable agricultural practices like maintenance of crop residues over the soil surface and diversification of agricultural species in rotation (crop rotation); providing technical assistance and training to farmers via offering farm monitoring done by trained professionals[9].

 Thanks to the actions taken in the past, Brazil is one of the world leaders in sustainable agriculture. To ensure that the agriculture sector won’t be harmed by climate change, the Brazilian government keeps working with adherence to the Paris Agreement sustainability goals. The Federative Republic of Brazil has renewed its Nationally Determined Contributions (NDCs) once again in 2024, our new goal is to reduce net greenhouse gas emissions by 59% to 67% by 2035, relative to 2005. This goal equals a reduction of 850 million to 1.05 billion tons of carbon dioxide equivalent by 2035 as it was presented by Vice President Geraldo Alckmin in COP29. The new NDC covers all sectors of the economy and is aligned with the Paris Agreement goal of limiting the planet’s average temperature rise to 1.5°C above pre-industrial levels, as per the Global Stocktake agreed at COP28 in Dubai in 2023. This commitment will enable Brazil to move towards climate neutrality by 2050, which is the long-term goal of its climate commitment[10].

 To advance sustainable agricultural practices under the framework of green transition goals, the Federative Republic of Brazil offers comprehensive solutions rooted in innovation as the following:

1- Advancing and promoting soilless agriculture practices such as:

i) Aquaponics, the combined culture of fish and plants in recirculating systems[11]

ii)Hydroponics, the technique of growing plants in nutrient solutions with or without the use of an inert medium such as gravel, vermiculite, rockwool, peat moss, saw dust, coir dust, coconut fiber, etc.[12]

to combat the negative effects of deforestation caused by the high agricultural area requirement that is needed to meet the agricultural product request rate,

2- Promoting and funding the utilization of “Internet of Things” (IoT) technology to precisely detect the water and nutrient abundance of the soil and provide the soil’s needs without wasting any resources as it increases agricultural output but can also effectively improve the quality of agricultural products, reduce labor costs, increase farmers' income[13]

3- Initiating an online international course for farmers who would like to integrate sustainable agriculture practices into their agribusiness and giving a competency certificate by the Foundation for Environmental Education (FEE) to help farmers who have gotten that certificate receive government funding for sustainable agro practices easily.

We would like to discuss these matters in the subsequent sessions.

**Bibliography**

[1] Food and Agriculture Organization of the United Nations. "Climate Change." *FAO*, [www.fao.org/climate-change/en#:~:text=Climate%20change%20has%20both%20direct,and%20disease%20and%20ocean%20acidification](http://www.fao.org/climate-change/en#:~:text=Climate%20change%20has%20both%20direct,and%20disease%20and%20ocean%20acidification).Accessed 15/12/2024.

 [2]World Bank Group. *Brazil: Impacts of Climate Change on Brazilian Agriculture*. Washington, D.C., World Bank Group,<http://documents.worldbank.org/curated/en/379021468224390590/Brazil-Impacts-of-climate-change-on-Brazilian-agriculture>.Accessed 15/12/2024.

[3]United States Department of Agriculture, Economic Research Service. "Brazil’s Momentum as a Global Agricultural Supplier Faces Headwinds." *Amber Waves*, Sept. 2022, [www.ers.usda.gov/amber-waves/2022/september/brazil-s-momentum-as-a-global-agricultural-supplier-faces-headwinds/](http://www.ers.usda.gov/amber-waves/2022/september/brazil-s-momentum-as-a-global-agricultural-supplier-faces-headwinds/).Accessed 15/12/2024.

[4]European Parliamentary Research Service. *The European Green Deal and Agriculture: Preparing for the Green Transition.* European Parliament, 2022,[https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/738185/EPRS\_BRI(2022)738185\_EN.pdf.Accessed](https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/738185/EPRS_BRI%282022%29738185_EN.pdf.Accessed) 16/12/2024.

[5]”Law No. 12.187: Brazilian National Policy on Climate Change." *Brazilian NR*,<https://braziliannr.com/brazilian-environmental-legislation/law-no-12187-brazilian-national-policy-on-climate-change/#:~:text=The%20National%20Policy%20on%20Climate%20Change%20%E2%80%93%20PNMC%20shall%20aim%20at,III%20%E2%80%93%20(VETOED)%3B>. Accessed 16/12/2024.

[6]"President Lula Signs Law Creating Regulated Carbon Market in Brazil." *Planalto*, 2024,<https://www.gov.br/planalto/en/latest-news/2024/12/president-lula-signs-law-creating-regulated-carbon-market-in-brazil>. Accessed 16/12/2024

[7]"PPDCAM: New Plan Against Deforestation Includes Technologies to Anticipate Devastation and Investment in Bioeconomy to Develop the Amazon." *InfoAmazonia*, 14 Apr. 2023,<https://infoamazonia.org/en/2023/04/14/ppcdam-new-plan-against-deforestation-includes-technologies-to-anticipate-devastation-and-investment-in-bioeconomy-to-develop-the-amazon/>. Accessed 16/12/2024.

[8]"Brazilian Forest Code: Law No. 12.651/2012." *FAOLEX*, Food and Agriculture Organization of the United Nations, 2012,<https://www.fao.org/faolex/results/details/en/c/LEX-FAOC167018/>. Accessed 16/12/2024

[9]"ABC Program: Brazil’s Low-Carbon Agricultural Development Program." *Brazilian Ministry of Agriculture*, 2024,<https://www.gov.br/agricultura/pt-br/assuntos/sustentabilidade/planoabc-abcmais/publicacoes/abc-english.pdf>. Accessed 16/12/2024.

[10]"COP29: Brazil’s Commitments Mark Global Advancements in the Fight Against Climate Change." *Secretariat for Social Communication (SECOM)*, 2024,<https://www.gov.br/secom/en/latest-news/2024/11/cop29-brazil2019s-commitments-mark-global-advancements-in-the-fight-against-climate-change>. Accessed 16/12/2024

[11]Rakocy, James E. "Aquaponics—integrating fish and plant culture." *Aquaculture production systems* (2012): 344-386.

[12]Sharma, Nisha, et al. "Hydroponics as an advanced technique for vegetable production: An overview." *Journal of Soil and Water Conservation* 17.4 (2018): 364-371.

[13]Xu, Jinyuan, Baoxing Gu, and Guangzhao Tian. "Review of agricultural IoT technology." *Artificial Intelligence in Agriculture* 6 (2022): 10-22.]