Forum: EVC1

Issue: Development of sustainable agriculture practices in the context of

a green economy

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Introduction

Since the Neolithic Revolution, agriculture has been central to human society. Today it maintains the same importance, especially to the global economy; yet the sustainability of current practices has been increasingly degraded. As the world grapples with the challenges of climate change, resource depletion, and a growing population, it has become abundantly clear that more importance must be placed on sustainable practices. Where agriculture once existed on small-scale, personal farms, it has now burgeoned into high-scale mass production, providing for over eight billion people.

It is imperative that sustainable substitutions for agriculture are found in order to quell the impacts of anthropogenic damages. From small island communities to big cities, every human is dependent on agriculture, thus certain practices cannot simply be eradicated without grave consequences, even if they are deemed unsustainable. If careful measures are not taken to implement new practices via a smooth transition, the livelihoods of millions could be at risk. For this reason, in order for sustainable agriculture practices to be developed, a new paradigm must be implemented over time, bearing in mind the livelihoods of farmers and agricultural specialists.

This paradigm shift involves embracing holistic approaches that prioritize soil health, water conservation, biodiversity preservation, and fair socioeconomic results for farmers. In the context of a green economy, the development of sustainable agriculture practices is crucial to driving positive environmental, social, and economic change. Agroecological practices, biotechnology, and ethics will collaborate to balance the needs of the present without compromising the ability of future generations to meet their own needs. The symbiotic relationship between sustainable agriculture and the concept of a green economy underscores the potential for fostering agricultural systems that contribute to the broader goals of environmental sustainability and economic resilience.

Definition of Key Terms

Agriculture

Agriculture is the practice of cultivating soil, raising crops, and rearing animals for products used to sustain and enhance human life. It encompasses a wide range of activities, from traditional subsistence

farming to modern large-scale industrial agriculture.

Green Economy

A green economy is an economic system that aims to promote sustainable development by minimizing environmental impact, conserving natural resources, and fostering social equity. It involves transitioning to low-carbon, resource-efficient, and socially inclusive practices across various sectors, including agriculture.

Agroecological

Agroecological practices refer to the application of ecological principles into agricultural systems. It involves the integration of environmental, social, and economic considerations in farming practices to promote sustainability, biodiversity, and resilience in food production.

Agroforestry

Agroforestry is an integrated land management approach that combines agricultural and forestry practices in the same land. It involves intentionally introducing trees and shrubs into agricultural systems, creating mutual benefits such as enhanced biodiversity, improved soil fertility, and diversified crop yields for the plants.

Monoculture

Monoculture is a farming practice where a single crop species is cultivated on a large scale within a specific area. While monoculture can lead to high yields of a particular crop, it is associated with increased vulnerability to pests, diseases, and soil degradation due to the lack of diversity in the agricultural system.

Polyculture

Polyculture refers to a farming or cultivation system in which multiple plant species are grown simultaneously in the same space. Unlike monoculture, which involves the cultivation of a single crop, polyculture aims to mimic natural ecosystems, promoting biodiversity and often providing ecological benefits such as pest control and soil fertility, one example being agroforestry.

Sustainability

Sustainability refers to the capacity to maintain ecological balance and meet the needs of the present without compromising the ability of future generations to meet their own needs. In agriculture, sustainability involves practices that consider environmental, social, and economic factors for long-term viability.

Short-term gains

Short-term gains refer to immediate benefits or profits achieved in the short term without considering long-term consequences. In agriculture, pursuing short-term gains may involve practices that maximize immediate yields but could lead to negative environmental or social impacts over time.

Environmental degradation

Environmental degradation is the deterioration of the environment through the depletion of natural resources, pollution, deforestation, and other activities that harm ecosystems. In agriculture, practices such as excessive pesticide use or deforestation can contribute to environmental degradation.

Biotechnology

Biotechnology involves the use of living organisms, cells, and biological systems to develop or create products and applications. In agriculture, biotechnology includes genetic engineering and molecular biology techniques applied to crops and livestock to improve traits such as resistance to pests or tolerance to environmental conditions.

Anthropogenic

Anthropogenic refers to anything that is produced, caused, or influenced by human activities. The term is often used in scientific and environmental contexts to describe phenomena, processes, or changes in the natural world that result directly from human actions.

Background Information

Historically, conventional agricultural practices often prioritize short-term gains, leading to the depletion of natural resources, soil degradation, and negative impacts on ecosystems. Unsustainable agricultural practices, characterized by excessive use of chemicals, monoculture, and intensive land use, have contributed to environmental degradation and posed threats to agricultural longevity. However, a paradigm shift has been underway, spurred by increased awareness of these consequences and the imperative for a more sustainable approach to be implemented. Advancements in technology have played a pivotal role in the development of sustainable agriculture practices, offering innovative solutions such as surveillance, precision farming, and organic methods. These technologies empower farmers to enhance productivity while minimizing environmental harm. This transformation aligns seamlessly with the principles of a green economy, emphasizing ecological sustainability and social inclusivity. Agroecological agriculture, in particular, stands out as a holistic and nature-based approach that integrates ecological principles, traditional knowledge, and cutting-edge science to create resilient and

sustainable food systems. By promoting biodiversity, conserving natural resources, and fostering resilient farming communities, agroecological agriculture not only contributes to the goals of a green economy but also ensures a more secure and equitable future for the planet.

In less economically developed countries (LEDCs), switching from conventional to agroecological techniques presents a number of problems that the UN has addressed with notable actions. Promoting the significance of agriculture in accomplishing development objectives, the United Nations has underscored the necessity for customized policies and support systems to ease this shift. For example, giving LEDCs financial and technical support to enable them to adopt and customize agroecological methods appropriate for their unique circumstances is one such undertaking. In order to provide local farmers with the information and abilities needed for the effective implementation of sustainable agricultural practices, capacity-building initiatives must be put in place. Through the mitigation of obstacles like restricted resource availability, inadequate infrastructure, and possible economic instability during the shift, the United Nations endeavors to establish a conducive atmosphere for the implementation of agroecological methods in LEDCs, consequently endorsing robust and sustainable farming systems across the globe.

Acknowledging both the potential advantages and difficulties of implementing biotechnology in the agricultural sector, the UN has made proactive measures to address the economic effects of biotechnological integration. The UN stresses how crucial it is to design a regulatory framework that strikes a balance between innovation and social, ethical, and economic factors. In this regard, the UN works to promote global cooperation and information exchange in order to provide LEDCs fair access to biotechnological innovations. In addition, the UN promotes inclusive policies that support ethical business practices in the biotechnology industry while defending biodiversity, food sovereignty, and the rights of farmers. The United Nations endeavors to integrate biotechnology into agriculture promotes sustainable development, economic resilience, and fair benefits for everyone by addressing economic inequities, ethical issues, and international collaboration.

While the United Nations does not possess direct regulatory authority over individual nations, it plays a crucial role in promoting global initiatives and guidelines to address unethical agricultural practices. In the context of Southeast Asia, the UN takes steps to collaborate with regional governments, NGOs, and relevant stakeholders to develop and implement measures aimed at eradicating unethical agricultural practices. This involves advocating for policies that prioritize environmental sustainability, fair labor practices, and animal rights within the agricultural sector. The UN also supports capacity-building programs to enhance the awareness and skills of local farmers, encouraging the adoption of more ethical and sustainable farming methods. By facilitating knowledge exchange, promoting transparency, and fostering international cooperation, the United Nations aims to contribute to the elimination of unethical agricultural practices in Southeast Asia, fostering a more responsible and sustainable agricultural sector in the region.

Mitigating the challenges of transitioning from conventional to agroecological practices in LEDCs.

The United Nations has taken significant steps to address the challenges associated with transitioning from conventional to agroecological practices in less economically developed countries (LEDCs). Recognizing the importance of sustainable agriculture in achieving global development goals, the UN has emphasized the need for tailored policies and support mechanisms to facilitate this transition. One key initiative involves the provision of financial and technical assistance to LEDCs, enabling them to adopt and adapt agroecological practices suitable for their specific contexts. Capacity-building programs have been implemented to empower local farmers with the knowledge and skills required for the successful adoption of sustainable farming methods. Moreover, the UN has fostered international collaboration and knowledge-sharing platforms to facilitate the exchange of best practices and lessons learned. By addressing barriers such as limited access to resources, lack of infrastructure, and potential economic uncertainties during the transition, the UN strives to create an enabling environment for the widespread adoption of agroecological practices in less economically developed countries, thereby promoting resilient and sustainable agricultural systems worldwide. Mitigating the challenges of transitioning from conventional to agroecological practices in less economically developed countries (LEDCs) necessitates a multifaceted approach that acknowledges the unique socio-economic and environmental contexts of these regions. To address financial constraints, international organizations and donor agencies often play a crucial role in providing financial support, grants, or low-interest loans to farmers and communities willing to adopt agroecological practices. Simultaneously, educational and capacity-building programs are instrumental in equipping farmers with the knowledge and skills essential for the successful implementation of sustainable agricultural techniques. Collaborative efforts between governments, NGOs, and local communities are essential to establish supportive policies, infrastructure, and market access that encourage and reward the adoption of agroecology. Additionally, fostering community engagement and incorporating traditional and indigenous knowledge can enhance the resilience and effectiveness of agroecological systems in LEDCs. By addressing financial, educational, and institutional barriers, the transition to agroecological practices becomes more feasible, promoting long-term sustainability, improved food security, and environmental resilience in less economically developed countries.

Addressing the economic implications of biotechnological integration in agriculture.

It is crucial to take strategic steps to address the economic implications of biotechnological integration in agriculture, recognizing the potential benefits and challenges associated with the adoption of biotechnology in the sector. The UN emphasizes the importance of creating a regulatory framework that balances innovation with ethical, social, and economic considerations. In this context, international

collaboration and knowledge-sharing is necessary to ensure that developing countries have equitable access to biotechnological advancements. Capacity-building initiatives are implemented to enhance the technical expertise of farmers and stakeholders, enabling them to harness the benefits of biotechnological tools effectively. Furthermore, advocating for inclusive policies that safeguard smallholder farmers' rights and biodiversity, while promoting responsible business practices within the biotechnology sector will promote its integration. By addressing economic disparities, promoting ethical considerations, and fostering global cooperation, the United Nations aims to guide the integration of biotechnology into agriculture in a manner that contributes to sustainable development, economic resilience, and equitable benefits for all. Addressing the economic implications of biotechnological integration in agriculture requires a balanced approach that considers the potential benefits and challenges associated with the adoption of biotechnology. On the positive side, biotechnological advancements, such as genetically modified crops and precision agriculture techniques, have the potential to enhance crop yields, reduce resource inputs, and contribute to food security. However, concerns about the economic impacts center around issues such as access to technology, market concentration, and the potential displacement of traditional farming practices. Policymakers and agricultural stakeholders need to establish regulatory frameworks that ensure fair competition, protect the rights of small-scale farmers, and promote equitable access to biotechnological innovations. Additionally, investment in education and training programs can empower farmers to make informed decisions about adopting biotechnological practices, helping them navigate potential economic challenges. A comprehensive and inclusive approach to biotechnological integration in agriculture is essential to maximize the economic benefits while addressing the socio-economic concerns associated with these technological advancements.

Measures to eradicate unethical agricultural practices in Southeast Asia.

Southeast Asia is actively addressing unethical agricultural practices through approaches that combine regulatory measures with technological innovations. Countries such as Thailand, Vietnam, Cambodia, and Myanmar have been accused of unethical agricultural practices, to which these new innovations have been used to combat. For example, Thailand has recently employed the use of digital technologies such as drones, data analytics, and satellite images. These tools enable authorities to more effectively monitor and enforce regulations related to land usage, pesticide application, and labor conditions. Real-time information provided by these technologies allows for swift identification and handling of infractions, adding a contemporary dimension to the overall strategy. In Vietnam, precision methods have also gained traction, offering benefits that include lower environmental impact and increased resource efficiency. By utilizing sensors, GPS, and data analytics, precision agriculture optimizes crop management, reducing the overuse of fertilizers and pesticides. This not only enhances overall agricultural output but also encourages the adoption of sustainable farming practices. In addition

to the invention of these technologies, it is crucial that policies are formed to complement the integration and promotion of ethical practices. Countries that are the most accused of wrongdoings are encouraged to take a lead to ensure that suitable resolutions are made. Before solutions are created, it is important to understand the main sources of issues. While these countries are taking measures to counteract the unethical practices taking place, accountability should be expected in order to set a precedent for the future of agriculture and sustainability. In conclusion, the incorporation of technology into the fight against unethical farming methods in Southeast Asia enriches the region's capacity to oversee, control, and encourage moral behavior in the agriculture industry.

Major Countries and Organizations Involved

Economic and Social Council (ECOSOC)

ECOSOC facilitates global collaboration and policy coordination to advance sustainable agriculture practices within a green economy. Through initiatives, partnerships, and advocacy, it promotes multi-stakeholder engagement, capacity-building, and the integration of SDGs to achieve environmentally conscious and economically viable agricultural development.

United Nations Educational, Scientific, and Cultural Organization (UNESCO)

UNESCO contributes indirectly to sustainable agriculture by preserving traditional agricultural knowledge, recognizing agricultural landscapes in World Heritage Sites, and encouraging international scientific collaboration, aligning with a broader vision of sustainable development.

Food and Agriculture Organization of the UN (FAO)

The FAO leads the development of sustainable agriculture practices by shaping policies, offering capacity-building, and promoting global collaboration. Initiatives like agroecology and climate-smart agriculture, contribute to a resilient and environmentally conscious future for global agriculture.

United Nations Environment Programme (UNEP)

The UNEP actively drives the development of sustainable practices within a green economy. Through policy advocacy, international collaboration, and integration with green economy initiatives, the UNEP plays a role in promoting environmentally friendly and socially responsible farming practices on a global scale.

Myanmar

In Myanmar, escalating conflicts due to land grabs by government-backed entities and foreign companies for agriculture have led to farmer displacements and restricted access to resources. Laws in 1991 and 2000, favoring large enterprises over small-scale farmers, exacerbated these issues. Ethnic

tensions further complicated land ownership regulation, contributing to the conflict. Despite over 4,000 farmer complaints in 2012, the effectiveness of government measures implemented to address these land grabs and conflicts, including the establishment of a commission to monitor disputes, remains unclear.

Vietnam

Vietnam faces challenges related to excessive pesticide use and water pollution. This excessive use of pesticides increases production risk and chances of drought. Vietnam has seen a surge in rice production and pesticide use, particularly in the Mekong delta region. The overuse of pesticides, including common ones like fenobucarb and hexaconazole, has led to environmental damage and health risks, exacerbated by farmers' lack of knowledge and inadequate government monitoring.

Thailand

Despite efforts to reform, the Thai fishing industry continues to grapple with serious issues of forced labor and human rights abuses, particularly among vulnerable migrant workers. The Thai government's initiatives, including the ineffective "pink card" registration scheme, have failed to address these abuses adequately, with government inspections often overlooking cases of forced labor. Thailand's inconsistent migration policies and weak inspection regimes contribute to the problem, as they focus more on controlling fishing operations than on protecting worker rights. This has created an environment where exploitation, particularly of migrant workers, persists among legal gaps.

Cambodia

Cambodia confronts issues of land grabbing and exploitative labor practices. Since the turn of the century, Cambodia has experienced significant deforestation, with 27,000 km2 or 14.8% of its total land area lost, mirroring global land acquisition trends and agricultural commodity prices. The main reason for deforestation is due to large-scale land acquisitions for agro-industrial development.nThrough these acquisitions of forestland, smallholders are displaced while seeking new opportunities. This multifaceted issue reflects that Cambodia's deforestation over the past two decades stems from a combination of commercial, socio-economic, and illegal activities.

Timeline of Events

Date	Name	Description
10,000 BCE	The Neolithic Revolution	Transition from hunter-gatherer lifestyles to settled agriculture marks the beginning of the Neolithic era. Humans domesticate plants and animals, leading to

		the cultivation of crops and the establishment of
		early farming communities.
Circa 3000 BCE	Indus Valley Civilization	Advanced agricultural practices, including irrigation systems, are developed in the Indus Valley, showcasing the importance of sustainable water management in early agricultural societies.
1700-1100 BCE	Ancient Mediterranean Agriculture	Greek and Roman civilizations practice diverse agricultural methods, including crop rotation, to maintain soil fertility and prevent soil degradation.
18th – 19th Century	Agricultural Revolution in Europe	Innovations such as the seed drill, crop rotation, and enclosure movements improved agricultural productivity during the Agricultural Revolution, contributing to increased food production.
20th Century	Green Revolution	Introduction of high-yielding crop varieties, synthetic fertilizers, and pesticides leads to significant increases in global agricultural productivity but raises concerns about environmental and social sustainability.
1970s–1980s	Awareness of Environmental Issues	Growing awareness of environmental issues, including pollution, soil degradation, and resource depletion, prompts discussions about the need for more sustainable agricultural practices.
1992	Earth Summit in Rio de Janeiro	The concept of sustainable development gains prominence at the Earth Summit, with discussions on integrating economic, social, and environmental considerations. Agenda 21 emphasizes sustainable agriculture.
2000s	Rise of Organic Farming	Increasing demand for organic products reflects a shift in consumer preferences towards environmentally friendly and sustainable agricultural practices.
2015	United Nations Sustainable Development Goals (SDGs)	SDGs include goals related to ending hunger, achieving food security, promoting sustainable agriculture, and combating climate change, highlighting the integral role of agriculture in global sustainability.
2020s	Agroecology and Sustainable Practices	Growing emphasis on agroecological practices, precision farming, and regenerative agriculture as

		means to enhance sustainability, biodiversity, and resilience in agriculture.
2023	Advancements in Green Technologies	Ongoing developments in technology, including precision agriculture, biotechnology, and data-driven solutions, contribute to the evolution of a green economy within the agriculture sector.
2030s and Beyond	Integration of Sustainable Agriculture into the Green Economy	Continued efforts towards sustainable agriculture, policy initiatives, and global cooperation contribute to the integration of agriculture into the broader framework of a green economy, emphasizing ecological responsibility, social equity, and economic resilience.

Relevant UN Treaties and Events

- 2030 Agenda for Sustainable Development, 27 September 2015
- Paris Agreement, 12 December 2015
- Convention on Biological Diversity (CBD), 5 June 1992
- International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), 3
 November 2001
- Cartagena Protocol on Biosafety, 29 January 2000
- ASEAN Guidelines on Responsible Agricultural Investment, October 2018

Previous Attempts to Solve the Issue

The journey towards sustainable agricultural practices within the context of a green economy has been marked by significant global efforts and milestones. The Earth Summit in 1992, through Agenda 21, initiated this journey by integrating environmental and developmental considerations, placing a strong emphasis on sustainable agriculture as a crucial part of a green economy. Following this, the Kyoto Protocol in 1997 brought climate change concerns to the forefront, influencing agricultural practices to include sustainable land use and carbon sequestration, acknowledging the role of agriculture in climate change mitigation.

The United Nations Sustainable Development Goals (SDGs) established in 2015 further cemented the importance of sustainable agriculture. SDG 2, aiming for "Zero Hunger," and SDG 12, advocating for "Responsible Consumption and Production," both underscored the need for sustainable practices in agriculture to achieve these broader goals. The period of the 2010s to 2020s witnessed significant advancements in green technologies and precision agriculture, which introduced the integration of technology for more efficient resource use. This era emphasized data-driven

decision-making, propelling agriculture towards sustainability through technological innovation.

Global collaboration and partnerships have also played a pivotal role. Ongoing international collaborations, facilitated by organizations such as the Food and Agriculture Organization (FAO) and the Consultative Group on International Agricultural Research (CGIAR), have been instrumental in sharing best practices and research in sustainable agriculture. These partnerships have also provided incentives for farmers to adopt agroecological and green practices, further encouraging the shift towards sustainable methods. Collectively, these efforts and commitments at various levels have significantly contributed to the development of sustainable agriculture practices within the framework of a green economy.

Possible Solutions

Mitigating the challenges of transitioning from conventional to agroecological practices in LEDCs.

Policy and Governance

Ensuring environmental stewardship, encouraging social responsibility, and supporting sustainable agriculture methods all heavily depend on policy and governance. The cornerstones are regulatory frameworks, which demand the creation and implementation of laws that encourage sustainable farming methods, such as precision farming, agroecology, and organic farming. Sustainable agriculture management requires supporting environmentally friendly alternatives and tightening laws to restrict the use of dangerous agrochemicals. In addition to policy and governance, financial incentives can be employed to encourage transition. By offering subsidies, tax exemptions, and other financial support to farmers, incentives serve as an additional catalyst for the adoption of sustainable practices. By reducing financial obstacles, the establishment of green finance structures aids in the shift to sustainable agriculture.

Addressing the economic implications of biotechnological integration in agriculture.

To support smallholders in reaping the benefits of biotechnological integration in agriculture, it is crucial to establish tailored microfinancing and credit schemes that enable them to invest in these solutions. Additionally, creating farmer networks can aid in pooling resources, fostering knowledge sharing, and collectively achieving technological advancements. Additionally, promoting sustainable agriculture practices is essential. This can be achieved by encouraging the development and adoption of drought-resistant crops, pest-resistant varieties, and technologies that enhance soil quality. Furthermore, advocating for the use of precision agriculture technologies will help smallholders reduce input costs and

optimize resource utilization, further enhancing their economic resilience and sustainability in an increasingly biotechnologically integrated agricultural landscape.

Measures to eradicate unethical agricultural practices in Southeast Asia.

Corporate responsibility encourages businesses to embrace ethical supply chain management and sustainable sourcing practices. This leads to the promotion of sustainable supply chains. Partnership with companies helps to match their operations with the objectives of sustainable agriculture.

Transparency and adherence to sustainable practices are ensured by putting traceability systems in place to monitor the origin and production methods of agricultural goods. The focus of community and stakeholder engagement is on local community participation in land use and agricultural development decision-making processes. Planning for sustainable agriculture is encouraged to include participatory methods. Governments, non-governmental organizations, corporations, farmers, and academic institutions can work together to address sustainability issues through partnerships. Encouraging communication and collaboration guarantees the creation and execution of sustainable agricultural projects that are advantageous to communities and the environment.

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