The United Nations Development Programme

Promoting sustainable agriculture to build community resilience

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Introduction

Ever since the human race discovered agriculture and moved away from a hunter-gatherer society, farming throughout history has been a process of trial and error. We have always confronted obstacles as innovators and, most importantly, collaborators. Nonetheless, the agricultural sector is most definitely the most crucial and essential sector responsible for our health, wellbeing and pure survival. Without it, it would not have been possible to reach the level of international development we are at in modern times.

Today, the Agriculture sector faces many challenges including climate change, resource depletion, profit inequality and food security. In order to mitigate these threats to farming, we as an international community must make the effort to convert to sustainable agriculture in order to not compromise our future opportunities and maintain our resources as efficiently as possible. Sustainable agriculture is important to move a step forward and achieve the United Nations Sustainable Development Goals (SDGs), especially SDG 2: Zero Hunger and SDG 13: Climate Action.

Community resilience is critical for sustainable development. Sustainable Agriculture leads to healthy ecosystems, strong local economies and empowered communities, which creates greater community resilience to shocks and stresses such as natural disasters or economic crisis. It often involves participatory approaches and farmer cooperatives, which plays a major role in making the world a more equitable place.

The aim of this report is to explore strategies and stakeholders involved in promoting sustainable agriculture to build a more resilient local community, and present viable solutions so we as an international society can come together to solve a common problem. The Report will look at political and financial support to sustainable agriculture, as well as community engagement and capacity building.

Definition of Key Terms

Agriculture

Agriculture is the science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products. The agricultural sector is responsible for all the food on the planet, and threats to it will be detrimental to our global community.

Sustainable Agriculture

Sustainable Agriculture is a farming approach that meets present food needs without harming the environment or depleting resources for future generations. It balances economic profitability, environmental health and social equity.

Food Security

Food security exists when people have access to enough safe and nutritious food for normal growth and development, and an active and healthy life. By contrast, food insecurity refers to when the aforementioned conditions don't exist. [5]

Community Resilience

Community resilience is the sustained ability of a community to use available resources to respond to, withstand, and recover from adverse situations [11]. A resilient community is less dependent on corporations and larger economies and more resistant to climate hazards.

Food Sovereignty

Food Sovereignty is local communities' control over their food systems and produce. They have the power to choose what to involve their produce in or with. A large part of building stronger communities involves farmer's independence over their food.

Agroecology

Agroecology is a science, practice and social movement that applies ecological and traditional principles to manage sustainable food systems. It is the essential concept needed to build the sustainable agriculture movement and methodology.[9]

General Overview

Sustainable Agriculture is an international effort to kill multiple birds with one stone. There are many problems in modern day agriculture, and we as an international society have agreed on solving these problems together through the sustainable agriculture plan. Issues the agricultural sector faces are:

Climate Change Impact

The agricultural sector was responsible for about 26% of global greenhouse gas emissions in 2019 [1], largely due to the emission of Nitrogen Oxide in fertilizers, Methane emission of livestock animals such as cows, and Carbon dioxide emissions by vehicles used to transport food over large distances. Although the sector shares the second largest slice of global greenhouse gas emissions (after energy intensive industries), it is also heavily affected by our changing planet. Farmers around the world have been victims to the harsh hand of Climate Change, as weather patterns are among the key drivers of food insecurity; prolonged drought or extensive rainfall can be devastating to crops and soil fertility [2]. According to a NASA (The American National Aeronautics and Space Administration) report from March 2022 [3], “Average global crop yields for maize may see a decrease of 24% by late century, if current climate change trends continue.”

Food Insecurity

Despite growing productivity in the Agricultural sector, there is still a wide share of the population living without sufficient food to live a healthy life. According to an UN Report from July 2024 [6], around 733 million people faced hunger in 2023, equivalent to one in eleven people globally. This alarming statistic has plateaued for three consecutive years while regional trends vary significantly; the percentage of the population facing hunger continues to rise in Africa (at 20.4%) and remains stable in Asia (8.1%). Taking the rapidly growing population into account, this calls for the agricultural sector to adapt and produce for all the people on our planet suffering from food scarcity.

Resource Depletion

The extent and severity of soil degradation are influenced by both natural processes and human activities, such as deforestation, farming practices, overgrazing, and urbanization [7]. Of the 1.38 billion hectares of arable land available worldwide, more than a third has been irreversible compromised due to extensive land conversion that lead to soil erosion, desertification, and salinization [4]. Soil erosion is commonly caused by soil acidification, which is due to excessive nitrogen-fertilizer use. In Europe, soil acidification is diminishing crop yields which leads to less produce and eventually to food scarcity. This is why the pressure remains to preserve the existing arable land, despite most of it beginning to degrade; there is insufficient land available for more farming to feed the population.

To tackle the problems present in the global Agricultural sector as previously mentioned, we must all support Sustainable Agriculture as it is a strong viable solution, for the following reasons:

Environmental Benefits

There are techniques used by farmers to reduce soil erosion and to improve fertility to save the land we have left; these include crop rotation and agroforestry. Systematic crop rotation provides a healthy palette for the soil, which improves fertility and promotes beneficial

insects while getting rid of pests and diseases, ridding the need for any synthetic chemical input [8]. Agroforestry is the cultivation of crop, trees and livestock in a way that is mutually beneficial. For example, planting trees offers shade, which prevents soil erosion due to extreme sunlight, and enhances biodiversity by creating a microclimate that many different organisms can benefit from. Furthermore, trees are nature's carbon dioxide sink, meaning that they take in CO2 while we emit it; this is very valuable in the fight against climate change as it is important to know when to keep our trees and when not to.

Agroecology is essential when discussing sustainable agriculture; it is a science, practice and social movement that applies ecological principles to manage sustainable food systems. It also borrows from the traditional knowledge and expertise of small-scale farmers, especially women and Indigenous farmers. It advocates for practices such as the use of local seeds and minimizing the use of external seeds that may carry diseases to the already present local soil, as well as avoiding any synthetic fertilizers or pesticides to scale down the greenhouse gas emissions [9]. As a movement, Agroecology is the know-how behind sustainable agriculture and provides support for smaller local communities.

Economic Benefits

Agroecology and Sustainable Agriculture empowers smallholder farmers, workers, and entrepreneurs involved in shorter food supply chains, offering the potential to better serve local communities with improved nutrition and strengthened food security and sovereignty. It is one of the best strategies to address the challenges posed by the significant control that a few corporations exert over global and national food supply chains. Overall, it provides a more equal and less concentrated spread of profit made by the global agricultural sector.

Sustainable Agriculture advocates for accelerating the transition to agroecology as a strategy to reduce dependence on fossil fuels and the use of chemicals in farming. It is known that fossil fuels are a finite source, meaning that one day there will be none left for us humans to exploit. Switching to sustainable energy, such as hydraulic energy, solar energy or wind energy, is generally more profitable for global economies as it is simply a more secure and viable investment for the future.

Lastly, the use of natural resources as fertilizers reduces the costly dependence on chemical synthetic fertilizers, saving money that can be reinvested in sustainable agriculture by, for example, planting trees or promoting crop rotation.

Social Benefits

A priority when discussing sustainable agriculture is community resilience. The practice of agroecology helps small communities through farmer-to-farmer exchange, knowledge sharing networks and participatory breeding programs. It supports local food systems by offering a fairer price for farmers and reduces import reliance by using local ingredients. This all encourages community empowerment and strong community bonding instead of being minimalized and controlled by large Western corporations. Local farmers have more control over their produce and farms, building leadership skills and resilience towards external involvement by the unequal profit spread of MEDC-led industries such as coffee or chocolate.

Additionally, it underscores the key role women can play in accelerating the transition to agroecology through the empowerment of women's collective action in cooperatives and associations, both in production and across the food supply chain. Overall, integrated agroecological approaches build resilience in socio-ecological systems through diversification, soil health and community leadership.

Major Parties Involved

The United Nations Development Program (UNDP)

The United Nations Development Program is often involved in policy support, funding, capacity building.

Food and Agricultural Commodity Systems

FACS are fundamental to the sustainable development of the 170 countries UNDP supports. They are often the largest contributor to developing country economies; food and nutrition is fundamental for citizen health.

Local Communities

It is the local communities that bring the plans conceived by FACS or UNDP into action; without the cooperation of farmers, cooperatives or indigenous groups, there is no way to reach a common goal.

Governments

Governments are essential in passing national and local policy frameworks to adapt to sustainable agriculture. They also hold influence over farmer communities, which can be used in favour of the UN's sustainable agriculture agenda.

Research Institutions

Research institutions are needed for agricultural innovation and knowledge dissemination; they provide the proof that we need in order to act upon sustainability.

Local Banks

Local banks are responsible for providing microcredit to smallholder farmers so they can afford climate-friendly technology as well as agroecological materials and supplies.

Timeline of Events

Neolithic revolution – 10,000 BCE

Domestication of plants and animals marked the early beginnings of agriculture and resource management. Irrigation and cultivation began to occur in Mesopotamia

Medieval Period

Three-field system in Europe introduced crop rotation and fallow practices to maintain soil fertility [14].

19th century

Back-to-the-land and vegetarian movements in the USA emphasized self-reliance and ethical farming. Establishment of the US Forest service in 1905 and the National Park service to preserve natural and cultural resources for future generations

1940

Lord Northbourne's *Look to the Land* coined the concept of "organic" farming as integrated, ecological systems [15].

1940s to 1970s

Green Revolution introduced high-yielding crops and chemical inputs (Borlaug's wheat) to address hunger—raising production but also environmental concerns.

1950s to 1960s

Emergence of the sustainable agriculture movement: groups like The Land Fellowship in Canada and biodynamic farming in Europe challenged industrial agriculture.

2015 – UN launches SDGs

The United Nations member states adopt a 15 year plan to fulfill 17 world Sustainable Development Goals, including initiatives to protect our environment and end world hunger. [18]

2019 – UNDP launches Climate Adaptation Programme

UNDP launched the Climate Adaptation Programme in São Tomé & Príncipe focusing on agroecology, resilience, and participatory planning.

2023 – UNDP published guidance

UNDP published guidance: "Building Resilience Through Livelihoods and Economic Recovery" and "Community-Based Resilience-Building" emphasizing sustainable agriculture as central to resilience.

2025 – UNDP issues Community Based Resilience Guidance Note

UNDP issued a Community-Based Resilience Guidance Note, integrating sustainable agriculture within ecosystem-based adaptation, disaster risk reduction, and climate resilience frameworks

Previous attempts to solve the issue

There have been multiple initiatives to make a step forward in the journey to convert to sustainable agriculture. Successful examples of this are the Global Environmental Facility (GEF) Council's $40 million nature-based climate adaptation projects in Liberia, Malawi and

Rwanda, drawing from the Least Developed Countries Fund [12]. These three of many projects are to be deployed by the UNDP in global action on nature, biodiversity loss and climate change.

Liberia

In Liberia, the proposed project known as SARTLA (Strengthening Agricultural Resilience through Transformational Livelihood Adaptation in Liberia) will "*introduce an integrated landscape approach to strengthening community resilience and food production systems*", according an UNDP report from February 2024. This initiative will benefit around 100,000 people thanks to plans emphasizing the need nature restoration including reforestation and coastal conservation; the aim is to restore degraded ecosystems while aligning with indigenous farming knowledge.

Around 75% of the Liberian population relies on agriculture for their livelihoods, so climate sensitive sectors like rain-fed agriculture and fisheries have the potential to drive growth and reduce poverty for the foreseeable future. The 5 year project that has been implemented as of June 2025 will "*not only restore degraded ecosystems, but also work with local authorities, communities and the private sector to address the drivers of soil degradation and sustainable practices among vulnerable communities*"[13].

Malawi

The proposed plan for Malawi is known as the CLAP for Resilience (Championing Local Adaptation for Productive ecosystems and Resilience in Malawi), and it is similar in many aspects to the SARTLA. The Central Region of Malawi has encountered more frequent droughts, increased rainfall variability and increases in temperature driven by climate change; this has reciprocally caused increased poverty and food security as the agricultural sector is no longer producing as much as before. Intense severe weather-related hazards combined with the lack of preparedness among communities with limited capacity to cope have posed many challenges to the Malawi population.

The initiative will run from 2025 to 2031 and intends to restore much of the deforested landscape lost in recent years; according to the National Forest Landscape Restoration Strategy, Malawi lost 14.7 kha of natural forests in 2021. This evidently caused a detrimental amount of carbon emissions, so the project will contribute to enhancing the sustainable utilization of natural resources as well as improving community resilience to climate change through infrastructure development and enhanced agricultural production.

Rwanda

Being a country close to the equator, Rwanda is a nation that is increasingly vulnerable towards climate change, specifically in Rwanda's Southern Province where the agricultural industry is concentrated in. High rates of poverty, steep topography and poor soil quality amplify the vulnerability of communities in the Southern Province, which is why the GEF has proposed a plan running from 2025 until 2031 to build community resilience through innovative water resource-management and sustainable land management. Additionally, by

improving market access for vulnerable communities, the proposed project will contribute to Rwanda's ambitions for local communities to graduate from poverty [17]. The project will support the rehabilitation of 2,162 hectares of forests and wetland and will promote sustainable land management practices across 8,931 hectares of farmland. It will directly benefit more than 289,000 people in the Southern Province's Districts [16].

Each project aims to mobilize private sector engagement to unlock investment and secure the value chains which will sustain climate-resilient livelihoods into the future.

Although these three projects are not all the existing attempts that have aimed to solving the issue of unsustainable agriculture, they are good examples that the international community should learn from and apply to their individual situations.

Possible Solutions

Drawing from the previously mentioned initiatives to promote Sustainable Agriculture to build community resilience in Liberia, Malawi and Rwanda, there are three main aspects that member states should focus on when beginning to reshape their agricultural sector to a more sustainable one; these are Policy and governance, Financial Mechanisms and Capacity Building / Community Involvement.

Policy and Governance

An evident aspect of making a significant change on a global scale is mobilizing governments' power to pass legislation and influence citizens. Member states should also support other member states more vulnerable to the effects of climate change whether financially, socially or influentially as in the end it is the international community that is scarred as a whole by our changing planet, not our nations individually.

Governments could also develop initiatives based on agroforestry, that is, national plans to replant forests and recreate the planet's natural carbon sink. This would be vital in countries with a high concentration of trees and forestry such as member states surrounding the Amazon forest that has been severely deforested in recent years due to land cleared for livestock raising (Brazil, Colombia, Peru...). This step is essential in recreating all the nature that humans have destroyed through the process of urbanisation and industrialisation.

Financial Mechanisms

Banks can promote and empower local farmers by providing them with Microcredit (very small loans) to afford and adopt sustainable farming materials and technology. An example where this is in action is the UNDP's Financial Resilience in Agriculture (FRA) initiative which introduces agricultural insurance and risk financing in Africa and Asia [15]. Farmers can also earn income or compensation from local governments (for a determined amount of time) by

sequestering carbon through agroforestry initiatives and regenerative practices; this would be implemented to financially encourage local farmers to convert to sustainable agriculture.

Capacity Building and Community Involvement

Finally, farmers must be trained to promote agroecology and soil conservation through field schools and community workshops. They can be encouraged to involve their establishments in sustainable practices as opposed to previously used greenhouse gas-emitting methods such as chemical fertilizers and synthetic pesticides. Farmers would also be encouraged to implement previously stated procedures such as crop rotation and seed diversity, as well as climate-smart farming technology such as drought-resistance seeds and precision irrigation. This would reduce the vulnerability to displacement and shocks in the area as it would be less prone to extreme weather.

Training programs would be all Gender-Inclusive in order to empower women farmers with equal access to resources and training, as they play a critical role in food security. This also aligns with the United Nations agenda for Gender Equality, specifically in SDGs 5 and 10 [18].

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