Selcuk Journal of Agriculture and Food Sciences

https://dergipark.org.tr/tr/pub/selcukjafsci

Research Article

(2025) 39(2), 310-319 DOI:10.15316/SJAFS.2025.026 e-ISSN: 2458-8377 Selcuk J Agr Food Sci

Agriculture and Sustainability in Somalia: Challenges and Pathways to Sustainable Development

Abdirizak Ali Abdullahi[1,*]

[1] Selcuk University, Agricultural Faculty, Department of Agricultural Economics, Konya, Türkiye

HIGHLIGHTS

- Somalia's agricultural sector faces challenges hindering sustainable development.
- Opportunities exist for infrastructure investment and technology adoption.
- Threats include climate change, unsustainable practices, insecurity, and terrorism.
- Successful implementation can lead to economic growth and poverty reduction.

Abstract

The agricultural sector in Somalia is crucial to the country's economy, food security, and rural development; however, it faces challenges in adopting sustainable practices. To address these challenges, a mixed-method approach was employed, using data from the Ministry of Agriculture, FAO, World Bank, and scholarly sources to identify indicators of sustainable agriculture. A literature-based review and SWOT analysis revealed strengths, including agro-ecological zones, a traditional farming system, and international support. In contrast, weaknesses included inadequate infrastructure, low productivity, and dependence on rainfed agriculture. Opportunities included investment in infrastructure and technology adoption, while threats comprised climate change and limited financial resources. To enhance agricultural inputs, proposed recommendations included environmental protection policies, education on sustainable practices, and increased funding for research and development. Revitalizing Somalia's agricultural sector can promote economic growth, enhance food security, and contribute to poverty reduction. By addressing challenges and leveraging opportunities, sustainable development can be achieved, resulting in positive socio-economic outcomes for the country.

Keywords: Agriculture; Sustainability; Somalia; Challenges; Pathways; Development

1. Introduction

Agriculture plays a vital role in human survival and societal advancement. Sustainable farming encompasses three key aspects: sustainable agricultural production, sustainability in rural economy and society, and sustainability in environmental and ecological agricultural systems (Brodt et al. 2011). Sustainability is defined as an economic state that does not reduce the capacity of the environment because of the demand put on it by people. Hawken (1994) also proposed an economic golden rule: "Leave the world better than you found it, take no more than you need, try not to harm life or the environment, make amends if you do" (Hawken 1994). Sustainable farming embodies a farming approach that closely aligns with natural

Citation: Abdirizak AA (2025). Agriculture and sustainability in Somalia: Challenges and pathways to sustainable development. *Selcuk Journal of Agriculture and Food Sciences*, 39(2), 310-319. https://doi.org/10.15316/SJAFS.2025.026

***Correspondence:** abduressak@gmail.com

Received date: 17/08/2023

Accepted date: 15/04/2025

processes, aiming to reduce waste, minimize environmental harm, and maintain profitability. In a sustainable farm system, the resulting agricultural products are not only nutritious but also free from substances that may pose a risk to human consumption. These farming systems are designed to optimize the utilization of soil nutrients, soil organisms, energy flow, and water cycles (Eap 1989). The idea of agricultural sustainability development originated in the early 1980s and attracted more academic attention after the publication of the Brundtland Report by the World Commission on Environment and Development in 1987 (Millennium Ecosystem Assessment 2005; Harwood 2020). However, as sustainable agriculture is a vague and ambiguous concept, its use and implementation are extremely difficult. Velten et al. (2015) conducted a structured literature review of sustainable agriculture and divided its goals into the categories of "ecological soundness," "social responsibility," and "economic viability." Zhao et al. (2018) further emphasized that the essence of agricultural sustainability development was to develop agriculture without compromising the ecosystem, social development, resources, or environment. Sarkar et al. (2021) pointed out that the indicator of sustainable agriculture might vary by region and utilized partial least squares structural equation modeling (PLS-SEM) tactics to build an evaluation system for sustainable agriculture.

In Europe and North America, the adoption of sustainable farming practices has been rapidly increasing, particularly in the western world. Interest in sustainable farming extends beyond farmers who are interested in sustainable farming; political leaders, consumers, and conservationists also show a keen interest in promoting sustainable agricultural practices. Farmers in these developed regions are witnessing and reaping the benefits of embracing sustainability. Farming methods that are not sustainable are subjected to thorough scientific investigation, enabling farmers to produce safe and healthy food (Benbrook 1991). This progress is facilitated by government legislations and programs aimed at supporting sustainable farming. Many farmers in these regions have embraced this change and are actively engaging in research and training related to sustainable farming.

Although some improvements have been observed in key sustainable agriculture indicators in Africa, such as agricultural productivity and cereal yield, the region still lags behind the rest of the world on these performance indicators. African agricultural systems are marked by low productivity, land degradation, reliance on manual labor, and fragmented small-scale farms (Abdullahi and Arisoy 2022). Climate change is now a growing concern, while environmental pollution and over-dependence on fossil-fuel-powered machinery are not given top priority. Small-scale farmers, particularly women, perceive agroecological practices as adding pressure due to the requirement of producing organic farm additives like composts, biochar, and biopesticides themselves (Mestmacher and Braun 2021). Smallholder farmers, operating on plots averaging 2 hectares, reportedly feed approximately one-third of the 238 million urban dwellers and the majority of the 712 million hungry individuals in rural and remote areas worldwide (Altieri et al. 2012). This indicates that small-scale farming supports roughly half of the global population and produces over 70% of the world's food (Kihara et al. 2020; Sheppard et al. 2020).

Somalia, a country situated in the Horn of Africa, faces significant difficulties in implementing sustainable agriculture practices. Despite the potential benefits that sustainable agriculture offers in terms of food security, environmental conservation, and rural development, the country encounters obstacles that hinder its broad adoption. The purpose of this analysis is to explore these challenges and provide potential solutions to foster a conducive environment for sustainable agricultural practices in Somalia. This study aims to investigate the connection between agriculture and sustainability, identify the challenges involved, and propose viable pathways to achieve sustainable development.

2. Materials and Methods

This study employs a mixed-methods approach to analyze sustainable agriculture indicators in Somalia. Primary data sources include official statistics from Somalia's Ministry of Agriculture and Irrigation, supplemented by reputable international datasets (e.g., FAO, World Bank). Secondary sources consist of peer-reviewed articles, policy documents, and theses to establish a robust theoretical framework. To assess barriers and opportunities for sustainable agriculture, the study applies SWOT analysis, incorporating insights from

local studies (Zencirkiran and Gürbüz 2009; Baris and Uslu 2009), policy reviews, and expert consultations. Following Weihrich's (1982) methodology, the SWOT framework helps identify key factors influencing sustainability, offering a comprehensive evaluation of Somalia's agricultural sector and potential development pathways. By integrating empirical data with literature-based analysis, this study ensures methodological rigor, enhancing the reliability of its findings. The results aim to inform policy decisions and promote scalable solutions for sustainable agriculture in Somalia.

3. Results

3.1. An Overview of Agricultural Sector in Somalia

Agriculture remains the sector with the most significant potential for driving broad-based and inclusive economic growth. This is because most of its people live in rural areas, where the mainstay is agricultural production. It also plays a pivotal role in the economic growth and development of Somalia, consistently remaining the largest platform for economic activities. Also holds significant economic importance in the country, serving as a vital activity that fulfills the population's food needs, generates income through crop sales, and offers employment opportunities within the agricultural sector (Abdullahi 2023). Over 70% of the land area of Somalia is arable land, with a total of 8.9 million hectares. Its two main rivers have a total length of 2,300 km (Anonymous 2022). With an annual average temperature of 28 degrees Celsius, south-central Somalia has a tropical climate. The mountainous terrain leads to great agro-climatic variability that is favorable for numerous crop varieties. Somalia is strategically located in the Horn of Africa along the southern approaches to the Bab el-Mandeb and routes through the Red Sea and Suez Canal. Its proximity to critical Middle East markets and its maritime connection to EU markets confer an advantage in terms of freight costs and rapid transport access to markets. Improved governance and security over the past decade have contributed to an expanding economy, with GDP growth averaging 3.4% per annum during 2017 to 2020 (AFDB 2020). The role of the agricultural sector in the Somali economy can be evaluated based on its contribution to the GDP (Gross Domestic Product) and employment, as well as its significance for sustainable economic development. In addition, more than two-thirds of the country's labor force is employed in the agriculture sector, and it accounts for more than sixty percent of the country's productivity (Pyrtel 2018). Also, in testing the correlation between GDP and the agriculture sector, the test showed that there is a strong positive correlation between them (Sheikdon 2019). According to the World Bank's 2018 report, agriculture holds a substantial share of Somalia's gross domestic product (GDP), accounting for nearly 60.18%. Furthermore, the agricultural sector contributes approximately 93% to the country's total exports, with a significant focus on thriving livestock exports, particularly in the years preceding the recent drought period. By examining the below table, we can observe the changes in Somalia's economic performance over the years. For example: In 2022, Somalia's GDP grew by 4.8%, and the GDP per capita reached $476. The agriculture sector contributed about 60.17% to the overall GDP its evident that agricultural is backbone of economy in Somalia. In 1990, the country experienced a negative GDP growth of -1.5%, and the GDP per capita decreased by 15.6%. In 1985, Somalia's GDP had a substantial growth rate of 8.2%, and the GDP per capita increased by 6.8%. Overall, this table gives us insight into the fluctuations in Somalia's economic indicators over the specified years, providing a glimpse into the country's economic trends and performance.

Analyzing this data, we observe that Somalia's economy has experienced various periods of growth and contraction over the years. For instance, in 2022, the country's GDP increased to $8,126 million, with a growth rate of 4.8%. The GDP per capita reached $476, indicating an improvement in individual economic output. On the other hand, in 1990, there was a negative GDP growth of -1.5%, and the GDP per capita experienced a significant decline, dropping to $131. The table highlights the fluctuations in Somalia's economic performance, which can be influenced by multiple factors such as global economic conditions, policy decisions, and the performance of key sectors like agriculture, forestry, and fishing.

While the existing production system suffers from traditional farming practices, unimproved seed, lack of fertilizer use, etc. (Abdi-Soojeede 2018). The production area, production amount, yield of the cereal group, and the number of livestock, which have an important place in terms of nutritive properties in Somalia, are

shown in the table below. The number of livestock in Somalia has decreased between 1980 and 2021. Possible reasons for this decline include recurrent droughts and the impact of climate change, conflicts and insecurity disrupting traditional herding practices, disease outbreaks, overgrazing and land degradation, economic challenges, population growth and urbanization, and limited access to resources and services. The situation is complex and influenced by multiple factors.

Table 1. Economic Data for Somalia Over Various Years: Annual GDP and Agriculture Sector Contribution

Date	Annual GDP	GDP Growth (%)	GDP per capita	GDP P.C. Annual Growth	Agriculture, forestry, and fishing, value added (% of GDP) - Somalia
1980	$604M	-3.9%	$102	-6.2%	64.4
1985	$876M	8.2%	$132	6.8%	63.6
1990	$917M	-1.5%	$131	-15.6%	69.34
1995	$1,122M	0%	$156	-3.8%	60.09
2000	$2,052M	3.0%	$235	-2.2%	60.16
2005	$2,316M	3.0%	$221	12.8%	60.09
2010	$1,093M	2.6%	$91	-14.5%	60.18
2015	$5,335M	4.6%	$310	-0.7%	60.18
2016	$5,534M	4.7%	$313	0.8%	60.18
2017	$5,609M	2.2%	$327	4.4%	60.18
2018	$5,856M	3.7%	$332	1.8%	60.18
2019	$6,485M	2.7%	$338	1.8%	60.18
2020	$6,883M	-0.3%	$416	23.1%	60.17
2021	$7,628M	2.9%	$447	7.4%	60.18
2022	$8,126M	4.8%	$476	6.5%	60.17

Source: Anonymous; 2023

As seen in the table, when we look at the years 1980-2021 in Somalia, there have been fluctuations in grain production over the years. Although there is a decrease in the number of areas harvested in 2021 compared to 1980, there is a significant decrease in production. On the other hand, there is an increase in yield. Among the most important reasons for this are the technological developments in agriculture, the farmers becoming more conscious, the increase in labor productivity, the better irrigation opportunities, and the use of fertilizers.

Table 2. The Cereal Crop Cultivation Area, Production, and Yield Status, and Number of Livestock in Somalia (1980-2021)

Date	Cultivation Area, Production and Yield Status of Cereal Crops			Number of Livestock in Somalia by Type (Heads) (Million)				
	Area harvested (1000 Hectares)	Production (1000 tons)	Yield (Kg/tons)	Date	Camels	Cattle	Goats	Sheep
1980	575200	266100	4626	1980	5.8	4.3	17.0	10.3
1985	687500	513500	7469	1985	6.4	4.4	19.0	11.8
1990	732500	580925	7931	1990	6.7	4.0	18.5	13.0
1995	576080	284919,9	4946	1995	6.1	5.2	12.5	13.5
2000	535373	392408	7330	2000	7.0	5.1	12.3	13.8
2005	546473	355708,7	6509	2005	7.2	5.5	14.6	14.7
2010	618634	355814,9	5752	2010	7.0	4.8	11.5	12.0
2015	447104	265481,4	5938	2015	7.2	4.8	11.6	12.0
2018	330636	234812,8	7102	2018	7.3	4.7	11.6	10.3
2019	353489	184581,7	5222	2019	7.3	4.8	11.7	11.0
2020	353531	177639,8	5025	2020	7.4	4.8	11.6	11.3
2021	353551	177683,2	5026	2021	7.4	4.4	11.6	11.4

(FAOSTAT 2023)

However, over time, Somalia's agricultural sector has faced challenges that have led to a shift towards unsustainable farming practices. Factors such as recurring conflicts, climate change, and economic instability have negatively impacted agricultural productivity and sustainability (FAO 2021). As a result, traditional and sustainable farming practices have been disrupted, leading to an increased dependence on chemical inputs, unsustainable land use practices, and the overexploitation of natural resources.

This transition from sustainable to unsustainable farming practices poses significant threats to the environment and ecosystem. Soil degradation, deforestation, loss of biodiversity, and water pollution are among the adverse consequences of the shift towards unsustainable practices in Somalia's agriculture.

Efforts to address these challenges are essential to promote sustainable agriculture in Somalia. Implementing practices that protect the environment, conserve natural resources, and promote resilience to climate change will be crucial to ensure the long-term viability of the agricultural sector and food security for the population. Moreover, investment in research, training, and capacity-building for farmers can enable them to adopt sustainable farming techniques that are both environmentally friendly and economically viable.

3.2. SWOT analysis of sustainable Agriculture in Somalia

To achieve sustainable agricultural development in Somalia, it is essential to address the identified challenges and leverage the opportunities. Implementing strategic pathways is crucial in promoting resilience, productivity, and long-term sustainability in the sector. In order to develop an effective plan to make the agriculture in Somalia competitive and back to its best, a SWOT analysis was carried out. Therefore, this part of thesis will be discussing the strengths, weaknesses, opportunities and threats of the agriculture in Somalia. The table below shows the elements used in this analysis.

Table 3. SWOT Analysis of Agriculture in Somalia

STRENGTHS	**WEAKNESSES**
✓ Great Agro and Ecological Zones ✓ Native Farming system ✓ Low cost of labor ✓ Large numbers of farmer ✓ Nomadic Livestock Herding ✓ International organizational support e.g., World bank, FAO	✓ Insufficient Infrastructure ✓ Low Productivity ✓ Dependency on Rainfed Agriculture ✓ Unstable economic ✓ Lack of support ✓ Large numbers of small farmers (Low skilled) ✓ Poor marketing ✓ Lack of current information
OPPORTUNITIES	**THREATS**
✓ Investment in Infrastructure ✓ Good telecommunication system ✓ Modernization and Technology Adoption ✓ Export Potential ✓ Foreign Aid and Investment	✓ Climate Change ✓ Unsustainable agricultural practices ✓ Pest and disease ✓ Terrorists ✓ Limited Access to Finance ✓ Unstable government

3.2.1. Strengths for Agriculture in Somalia

Somalia benefits from a diverse range of Agro-ecological zones, including fertile farmlands, pastoral areas, and coastal regions. These zones offer favorable conditions for growing a variety of crops and support diverse livestock production. The potential to cultivate different crops and rear various livestock species contributes to the resilience and adaptability of Somalia's agriculture sector. Somalia's agriculture relies on traditional and native farming practices that have been adapted over generations to suit local conditions. The native farming system incorporates age-old knowledge and practices that align with the region's climate and natural resources. This system not only preserves cultural heritage but also offers sustainable solutions that are well-suited to the local environment. One of the strengths of Somalia's agriculture is the availability of a low-cost labor force. The country's predominantly agrarian economy ensures a large workforce engaged in farming activities. The availability of affordable labor helps reduce production costs and provides opportunities for labor-intensive agricultural activities. Somalia has a significant number of farmers engaged in various agricultural activities. The agriculture sector is a primary source of livelihood for a considerable portion of the population, especially in rural areas. The large numbers of farmers contribute to the sector's productivity and potential for growth. Nomadic livestock herding is a traditional practice deeply ingrained in Somalia's culture and history. This unique system allows herders to move their livestock to different grazing areas based on seasonal changes and available resources. The mobility of nomadic herding helps optimize resource utilization and supports the livelihoods of pastoral communities. Somalia receives support from international organizations like the World Bank and the Food and Agriculture Organization (FAO). These organizations provide financial assistance, technical expertise, and knowledge sharing to bolster the country's agriculture sector. Their contributions play a crucial role in developing sustainable agricultural practices, building capacity, and implementing projects aimed at improving food security and rural livelihoods.

3.2.2 Weaknesses for Agriculture in Somalia

Somalia's agriculture sector suffers from inadequate infrastructure, including poorly maintained roads, limited irrigation systems, and insufficient storage facilities. The lack of proper transportation and storage infrastructure hinders the efficient movement of agricultural products from farms to markets, leading to post-harvest losses and reduced market access for farmers. Low agricultural productivity is a significant challenge in Somalia. Farmers often lack access to modern farming techniques, improved seeds, and fertilizers. Traditional and outdated practices contribute to low yields and limit the sector's potential for growth and increased food production. Somalia's reliance on rainfed agriculture makes it vulnerable to climate variability and periodic droughts. Inconsistent and unpredictable rainfall patterns can negatively impact crop yields and food production, leading to food insecurity in affected regions. Somalia's economy is susceptible to fluctuations and instability, which can have adverse effects on the agriculture sector. Uncertain economic conditions may lead to reduced investments in agriculture, making it challenging for farmers to access credit and resources needed for agricultural development. The agriculture sector in Somalia faces a lack of adequate support from the government and other stakeholders. Limited financial and technical assistance hinders the adoption of modern agricultural practices and inhibits the sector's overall growth and productivity. A significant portion of Somali farmers consists of small-scale farmers with limited access to training and resources. Many of these farmers lack the necessary skills and knowledge to implement modern agricultural practices effectively, which further contributes to low productivity. The lack of an efficient and organized marketing system presents a challenge for Somali farmers. Inadequate market linkages and price fluctuations make it difficult for farmers to obtain fair prices for their produce, discouraging further investments in agriculture. Access to up-to-date agricultural information and data is limited in Somalia. The absence of timely and accurate information on market trends, weather forecasts, and best agricultural practices hampers farmers' ability to make informed decisions and adapt to changing conditions.

3.2.3. Opportunities for Agriculture in Somalia

Investing in agricultural infrastructure presents a significant opportunity for Somalia's agriculture sector. Improving roads, bridges, irrigation systems, and storage facilities can enhance the efficiency of the agricultural supply chain. Better infrastructure will facilitate the transportation of agricultural produce from farms to markets, reducing post-harvest losses and improving access to both domestic and international markets. Somalia's relatively good telecommunication system can play a crucial role in transforming the agriculture sector. Access to mobile phones and the internet enables farmers to access timely information on weather forecasts, market prices, and agricultural best practices. Improved communication also facilitates the exchange of knowledge and expertise between farmers and agricultural extension services. Modernizing agriculture through the adoption of advanced technologies presents a significant opportunity for growth. Implementing practices like precision farming, greenhouse cultivation, and drip irrigation can increase productivity and resource efficiency. The use of modern agricultural machinery and equipment can further enhance farm productivity, reducing manual labor and operational costs. Somalia's agriculture has considerable export potential, especially for products like livestock, fruits, and fish. The country's geographical location and proximity to international markets create opportunities for increased export volumes. With proper quality control and compliance with international standards, Somali agricultural products can access a broader customer base and generate foreign exchange earnings for the country. Foreign aid and investment from international organizations, donor countries, and development partners offer valuable opportunities for the growth and development of Somalia's agriculture sector. Such investments can be channeled into projects that focus on improving agricultural practices, enhancing value chains, and building capacity within the sector.

3.2.4. Threats to Agriculture in Somalia

Somalia is particularly vulnerable to the impacts of climate change, including erratic weather patterns, prolonged droughts, and increased frequency of extreme weather events. These changes can disrupt agricultural activities, reduce crop yields, and affect livestock productivity. Climate change poses a significant threat to food security and livelihoods for farmers and pastoral communities. Unsustainable agricultural

practices, such as overuse of chemical fertilizers and pesticides, improper land management, and deforestation, can lead to soil degradation and loss of biodiversity. These practices jeopardize the long-term productivity of farmland and contribute to environmental degradation. Outbreaks of pests and diseases can devastate crops and livestock, leading to significant economic losses for farmers and agribusinesses. Inadequate pest and disease management can further exacerbate food insecurity and disrupt agricultural production. The presence of terrorist groups and ongoing conflicts in certain regions of Somalia pose serious threats to agricultural activities. Insecurity and violence can disrupt farming operations, hinder market access, and displace farmers, resulting in a negative impact on food production and distribution. The lack of access to affordable credit and financial services is a major challenge for Somali farmers. Limited access to finance hampers investments in modern agricultural technologies, inputs, and equipment, hindering the sector's growth and potential. Political instability and governance challenges in Somalia can create an uncertain environment for agricultural development. Frequent changes in government policies and weak institutions can affect agricultural planning and investment decisions, leading to a lack of long-term vision for the sector.

4. Discussion

The SWOT analysis of Somalia's agriculture reveals a complex landscape with both favorable attributes and significant challenges. The strengths of diverse agro-ecological zones, traditional farming systems, low-cost labor, a high proportion of smallholder farmers, nomadic pastoralism, and international institutional support establish a strong foundation for sectoral growth. However, significant threats remain. However, several weaknesses, such as insufficient infrastructure, low productivity, dependency on rainfed agriculture, unstable economic conditions, lack of support, large numbers of low-skilled small farmers, poor marketing, and limited access to current information, pose obstacles to its development.

Despite these challenges, there are significant opportunities to enhance the resilience and productivity of Somalia's agriculture. Investing in infrastructure, such as irrigation systems and storage facilities, can improve market access and reduce post-harvest losses. The country's relatively good telecommunication system enables the dissemination of crucial information to farmers, empowering them to make informed decisions and adopt modern agricultural practices. Moreover, modernizing agriculture through the adoption of advanced technologies like precision farming and drip irrigation holds promise for increasing productivity and resource efficiency.

Yet, threats loom large on the horizon, threatening to undermine agricultural development efforts. Climate change exacerbates agricultural vulnerabilities through erratic weather, prolonged droughts, and declining yields. Unsustainable agricultural practices, such as overuse of chemicals and improper land management, degrade soil quality and threaten long-term productivity. Moreover, ongoing conflicts and insecurity in certain regions of Somalia disrupt farming operations, exacerbating food insecurity, and hindering economic development.

Addressing these challenges and opportunities, a concerted effort is needed to build resilience and sustainability in Somalia's agricultural sector. Strengthening governance structures, enhancing access to finance, and promoting peace and stability are essential for creating an enabling environment for agricultural development. Furthermore, investing in research and extension services, promoting climate-smart agricultural practices, and improving market linkages can empower farmers and enhance the sector's productivity and resilience.

Overall, achieving sustainable agricultural development in Somalia requires a multifaceted approach that addresses the sector's complex challenges while harnessing its inherent strengths and opportunities. By investing in infrastructure, technology, and human capital, Somalia can unlock its agricultural potential, improve food security, and promote economic growth and resilience across the country.

Somalia benefits from its diverse agro-ecological zones, which include fertile farmlands, pastoral areas, and coastal regions. These zones offer favorable conditions for cultivating various crops and supporting diverse livestock production. The inherent resilience and adaptability of Somalia's agriculture sector are

bolstered by the potential to cultivate different crops and rear various livestock species, ensuring food security and livelihoods for a considerable portion of the population. However, their effective utilization in the agricultural sector has been hindered by misplaced priorities, loss of focus, and insufficient support for key players. Nevertheless, there are ample opportunities for Somalia to revitalize its agricultural sector and make it a driving force in the economy. Addressing issues such as land degradation, conflicts, unstable policies, and attracting investors are critical steps in achieving this goal. Successful implementation of the mentioned recommendations can lead to significant achievements, including increased investment and contribution to the country's GDP. This, in turn, can bring about income growth, diversified revenue sources, job creation, and ultimately a reduction in poverty.

5. Conclusion

In conclusion, Somalia's agricultural sector has the potential to contribute significantly to the country's economic development. By fostering overall progress, especially in rural areas, Somalia can achieve food security and agricultural sustainability. The country benefits from diverse agro-ecological zones, traditional farming practices, a large labor force, and international support. However, inadequate infrastructure, low productivity, dependency on rainfed agriculture, economic instability, inadequate support, and limited access to resources and information pose significant challenges. Despite these hurdles, investing in agricultural infrastructure, modernizing farming practices, accessing international markets, and leveraging foreign aid represent key opportunities for advancement. Nevertheless, threats such as impacts of climate change, unsustainable practices, insecurity, and limited access to finance require careful management. Addressing these challenges and seizing opportunities can unlock Somalia's agricultural potential, fostering economic growth, food security, and rural development. Achieving sustainable agriculture in Somalia demands coordinated efforts from government, stakeholders, and international partners to overcome barriers and realize the sector's transformative potential for the country's future prosperity. To enhance the contribution of agriculture to the Somali economy, several recommendations have been proposed. These include establishing and enforcing environmental protection policies, educating farmers on modern and sustainable practices, conducting surveys to identify areas prone to climate change and environmental degradation, and increasing government investment in research and development for sustainable agriculture.

Author Contributions: The author has read and agreed to the published version of the manuscript.

Funding: This research received no external funding

Institutional Review Board Statement: Not applicable

Informed Consent Statement: Not applicable.

Conflict of Interest: The author declares that they have no conflict of interest.

Reference

Abdi-Soojeede MI (2018). Crop production challenges faced by farmers in Somalia: A case study of Afgoye District. *Agricultural Sciences* 9(8), 1032-1046. https://doi.org/10.4236/as.2018.98071

Abdullahi AA, Arisoy H (2022). Agricultural structure in Somalia. *Eurasian Journal of Agricultural Economics* 2(1), 1-14.

Abdullahi AA (2023). Improvements of sesame production: Marketing and its export trends in Somalia. *Conference: 8th International Student Symposium. At: İstanbul.* Volume: 978-625-7480-21-5.

African Development Bank Group (2020). AFDB Group, Somalia Country Brief 2017-2020; https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Somalia- Country-Brief -2017-2020.pdf. (access date: 15.12.2024).

Altieri MA, Nicholls CI (2017). The adaptation and mitigation potential of traditional agriculture in a changing climate. *Climatic Change* 140, 33–45. https://doi.org/10.1007/s10584-013-0909-y

Anonymous (2022). Overview of country profile, Somalia *https://data.worldbank.org/country/somalia*. (access date: 01.01.2025).

Anonymous (2023). Gross Domestic Product by Country, Somalia GDP - Gross Domestic Product *https://countryeconomy.com/gdp/Somalia* (access date: 10.11.2024).

Baris ME, Uslu A (2009). Cut flower production and marketing in Türkiye. *African Journal of Agricultural Research* 4(9): 765-771.

Benbrook C (1991). Sustainable agriculture research and education in the field. 1st ed. Washington: *National Academy Press.*

Brodt S, Six J, Feenstra G, Ingels C, Campbell D (2011). Sustainable Agriculture. *Nature Education Knowledge* 3(10):1.

Eap MC (1989). An Introduction to Sustainable Agriculture. [online] Available at: http://eap.mcgill.ca/publications/EAP16.htm (access date: 05.04.2017).

FAO (2021). The impact of disasters and crises on agriculture and food security: 2021. Rome. https://doi.org/10.4060/cb3673en (access date: 18.06.2022).

FAOSTAT (2023). Somalia Crops and livestock products https://www.fao.org/faostat/en/#data/QCL (access date: 15.11.2024).

Harwood RR (2020). A History of Sustainable agriculture. Sustainable agricultural systems. Boca Raton, FL: CRC Press, 3–19. https://doi.org/10.1201/9781003070474-2

Kihara J, Bolo P, Kinyua M, Nyawira SS, Sommer R (2020). Soil health and ecosystem services: lessons from sub-Sahara Africa (SSA). *Geoderma* 370, 114342. https://doi.org/10.1016/j.geoderma.2020.114342

Mestmacher J and Braun A (2021). Women, agroecology and the state: new perspectives on scaling-up agroecology based on a field research in Chile. *Agroecology and Sustainable Food Systems* 45, 981–1006. https://doi.org/10.1080/21683565.2020.1837330

Millennium Ecosystem Assessment (2005). Mea. Ecosystems and Human Well-Being. Washington, DC: Island Press.

Paul H (1994). The ecology of commerce: A declaration of sustainability. New York: *Harper Business.*

Pyrtel M (2018) Sustainable agriculture in Somalia. Somalia Strat Rev 2012, 1-5

Sarkar A, Azim JA, Asif AA, Qian L and Peau AK (2021). Structural equation modeling for indicators of sustainable agriculture: Prospective of a developing country's agriculture. *Land Use Policy* 109, 105638. https://doi.org/10.1016/j.landusepol.2021.105638

Sheikdon AA (2019). An analysis of the contribution of the agriculture sector to the Somali. International *Journal of Economics & Management Sciences* 8, 2.

Sheppard JP, Bohn Reckziegel R, Borrass L, Chirwa PW, Cuaranhua C J, Hassler SK (2020). Agroforestry: an appropriate and sustainable response to a changing climate in southern Africa? *Sustainability* 12, 6796. https://doi.org/10.3390/su12176796

Velten S, Leventon J, Jager N, and Newig J (2015). What is sustainable agriculture? A systematic review. *Sustainability 7*, 7833–7865. https://doi.org/10.3390/su7067833

Weihrich H (1982). The TOWS Matrix—A tool for situational analysis. *Long Range Plan* 15(2): 54-66.

Zencirkiran M, Gürbüz IB (2009). Turkish ornamental plants sector in the European Union screening process. *Journal of Fruit and Ornamental Plant Research* 17(2), 235-250.

Zhao D, Liu C, and Bao B (2018). Agricultural sustainable development ability evaluation and subsystem coordination degree analysis: Take the major grain-producing areas of China as an example. *Economic Geography* 38, 157–163.