Journal of Social Political Sciences
JSPS
Vol. 5, No. 1, February 2024

RWANDA'S PARTNERSHIP WITH THE FAO: ADVANCING AGRICULTURAL SUSTAINABILITY AND MEETING THE SDGS

Atina Izza, Farah Anisa
International Relations Department, Faculty of Social and Political Science,
Universitas Nasional
atina.izza@civitas.unas.ac.id

Abstract: Rwanda's efforts to rebuild the country after the 1994 genocide received a good response from the international community. Thanks to the agricultural industry, Rwanda's economy is growing rapidly. The agricultural sector is a major contributor to Rwanda's economic growth, employing around 70% of its population and contributing 30% of the country's GDP. Even compared to other African countries, Rwanda experienced the fastest economic growth, despite traumatic post-genocide rehabilitation. The importance of the agricultural sector to Rwanda's economy makes it necessary to establish partnerships with international organizations such as FAO. Cooperation between FAO and Rwanda is then included in the Country Programming Framework: 2019 -2023. Not only to create sustainable agriculture, FAO and Rwanda's collaboration is also aimed at achieving Sustainable Development Goals (SDGs). Thus, this research will discuss in more depth how cooperation between Rwanda and FAO can contribute to achieving agricultural sustainability and the Sustainable Development Goals. The aim is to better understand how international organizations have a role in the development of developing countries. To answer this, this research will use secondary data analysis methods, both qualitative and quantitative. And the results found were that empowerment programs initiated by FAO had an important role in helping develop Rwanda's agricultural sector and had an impact on achieving several SDGs goals in Rwanda. However, it cannot be denied that the problems in Rwanda's agriculture have not been completely resolved. Challenges such as climate change are one that is still a problem for many countries, including Rwanda.

Keywords: FAO, Rwanda, Sustainable Development, Agriculture, Partnership.

Submission	:	Nov, 13th 2023
Revision	:	Januaury 24th 2024
Publication	:	February 28th 2024

INTRODUCTION

Rwanda's economy is primarily centred on agricultural, which contributes over 30% of the country's GDP and employs the majority of its workforce (MINAGRI, 2021). As such, the industry is crucial to the country. Despite playing a vital role for Rwandan economy,

Rwanda has experienced significant obstacles to sustainable agriculture, such as climate change, food security, and land degradation concerns (Babu & Shishodia, 2017; Clay & Lewis, 1996). To address these challenges, Rwanda has engaged in number of partnerships to strengthen its agricultural sector. The Food and Agriculture Organization (FAO), as a leading international organization that dedicate itself to achieve food security and promoting sustainable agricultural practices worldwide is one of the most significant partner for Rwanda in achieving agricultural sustainability (White, 1999).

The partnership between Rwanda and the FAO is not only just a bilateral effort; but it is part of collaboration to achieve the Sustainable Development Goals (SDGs) especially in Rwanda. The SDGs comprise of 17 global goals that aim to achieve by 2030. These goals include eradicate poverty, hunger, improve health, improve quality of education, achieve gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice, and strong institutions and partnerships (Sachs, 2015). Out of 17 goals of SDGs, SDG 1 (No Poverty), SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action) are seen directly related to agriculture and sustainability (FAO, 2020a). To establish a framework for sustainable growth and development, the Rwanda-FAO cooperation seeks to match its goals with these global aspirations.

Rwanda's journey from the devastation of genocide to economic recovery and prosperity to rebuilding and transforming the country has received many positive responses from the international community. The agricultural sector has played an important role in Rwanda's economic recovery. Agriculture is one of the main sources of Rwanda's national income and growth, employing nearly 70% of its population, contributing more than 30% to gross domestic product (GDP), and generating more than 50% of the country's merchandise exports. The Rwandan government has put a lot of effort into growing this industry, especially after food prices spiked in 2007 and 2008. The government has put laws and initiatives into place that have greatly affected the agriculture sector in an effort to boost output, diversify crop kinds, and improve food security. Rwanda's agricultural value added has grown at more than 5% per year over the past 15 years, indicating strong productivity increases in agriculture (Bank, 2020).

Compared to other African countries, Rwanda's economy is experiencing the fastest growth. This can be seen by the poverty level in Rwanda which fell significantly between 2001 and 2007, from 77.2% to 55.5% (Bank, 2018). However, Rwanda's efforts to carry out this development have not gone smoothly, because there are many challenges that need to be faced. High population density due to the increase in population in this country can reduce the amount of fertile land for farming. Agricultural sustainability can also be hampered by climate change and this will affect Rwanda's agricultural productivity in the

future if it is not addressed seriously. In 2023, Rwanda's economy showed good resilience and adaptation, marked by how it managed to achieve strong growth of up to 7.6 percent despite difficult financial conditions, a decline in foreign trade and global monetary tightening. The service industry in Rwanda, especially contact-related services, and strong domestic demand are key drivers for Rwanda's economic growth (Bank, 2024). However, although Rwanda is experiencing commendable growth despite internal challenges, it cannot be denied that climate change which has an impact on agriculture and a decline in the prices of major exports throughout the world in 2023 could have a negative impact on food security in Rwanda if not quickly addressed.

Recognizing the importance of building cooperation with international organizations, Rwanda has partnered with FAO to address challenges in the agricultural sector. The FAO, founded in 1945, is dedicated to eradicating hunger and improving nutrition through sustainable agricultural practices. It provides technical expertise, resources, and a platform for knowledge sharing to its member countries, helping them develop and implement strategies for sustainable agriculture. The partnership between Rwanda and the FAO encompasses a wide range of initiatives, from promoting sustainable farming techniques to addressing food security and building resilience to climate change (FAO, 2020a). These collaborative efforts are designed to support Rwanda's National Strategy for Transformation, which aligns with the SDGs and seeks to create a prosperous and sustainable future for all Rwandans.

Considering the importance of cooperation between international actors to achieve common goals. Thus the main research question guiding this journal is: "How does Rwanda's collaboration with FAO contribute to achieving agricultural sustainability and the Sustainable Development Goals?" The aim is to better understand how international organizations have a role in the development of developing countries and achieving the SDGs. Through this question, researchers can explore what ways, methods and policies have been carried out jointly by FAO and Rwanda so that they can improve sustainable agriculture and support larger international initiatives such as achieving the SDGs in Rwanda. This is important to understand because it can provide a unique perspective on how international actors can collaborate to achieve sustainable development in developing countries. Not only that, through this study it is hoped that we can find policies, strategies, programs and lessons learned from Rwanda's experience that can be useful for other countries in facing similar problems in the agricultural sector.

LITERATURE REVIEW

A number of research papers and articles have examined Rwanda's journey towards growth following the genocide that occurred in Rwanda in 1994. Over the past 20 years or so, Rwanda has experienced rapid economic growth, often surpassing the growth rates of some of its African neighbours. Previous studies have also emphasized the importance

of agriculture to Rwanda's economy. Many studies highlight agriculture for its contribution to Rwanda's GDP and providing employment opportunities for the Rwandan people (Bank, 2018; Clay & Lewis, 1996). This can be seen from studies conducted by the World Bank and the International Fund for Agricultural Development (IFAD), both of which have documented the success of Rwanda's policies in post-genocide recovery, which is the foundation for sustainable development (Bank, 2020; Rispoli et al., 2019).

A number of studies and reports have also examined the function and role of FAO as a specialized UN agency. For example, there is a study that examines FAO's role in empowering farmers in Pakistan through the FAO project known as the Famer Field School (FFS). Through FFS, FAO has helped farmers drastically reduce the use of pesticides and this can certainly have a good impact on public health (Anon, 2007). Apart from Pakistan, FFS is also implemented in Indonesia. Farmers who participated in FFS in Indonesia experienced a significant increase in rice yields compared to before receiving this empowerment. With the FFS program, FFS participants gain a better understanding of integrated pest management and how to adopt more sustainable agricultural practices (Feder et al., 2004). Meanwhile in Ethiopia, FAO implements a quite different agricultural program. FAO aligns its program to Ethiopia's geography. This is because a village's development potential is also influenced by its geographical location, which can also have a major impact on resources and market accessibility. Thus the FAO program in Ethiopia is divided into several classifications such as soil type, terrain and rainfall (Chamberlin & Schmidt, 2012).

Although there have been several studies that discuss the role of FAO and the revival of the Rwandan economy after the genocide. However, there are no studies that discuss the two together, especially regarding cooperation between FAO and Rwanda in the field of agriculture and achieving the SDGs. First, few studies have discussed the role of FAO in Rwanda, especially in Rwanda's agricultural sector. How FAO and Rwanda's collaboration can contribute to realizing the SDGs. While the overall benefits of this collaboration have been recognized, further research is needed to understand how specific programs contribute to achieving SDG targets such as SDG 12, namely responsible consumerism, and SDG 2, zero hunger. Additionally, little research has been conducted on how FAO and Rwanda have managed to address the demands of implementing sustainable farming methods in Rwanda.

The theoretical framework of this research emphasizes a sustainable development theoretical framework that focuses on the balance between environmental sustainability, social inclusion and cohesion, economic prosperity, and good governance (Sachs, 2015). Rwanda's collaboration with FAO can be examined through the perspective of this framework, which is aligned with the SDGs. Apart from that, sustainable development theory also holds that apart from economic growth, successful international

collaboration must also consider social welfare and environmental sustainability. And we can use this in analysing FAO's role in Rwanda to encourage the achievement of the SDGs. To explain the cooperation between FAO and Rwanda, this study will also use the theory of Institutionalism. Institutionalism views international organizations such as FAO as important international actors in encouraging and supporting cooperation by offering structures, standards and methods to achieve common goals. Understanding how international organizations promote sustainable development as shared objectives is made possible by institutional theory. due to the absence of a universal authority in the system. According to Young (1992), institutions like conventions, organizations, and agreements are crucial for fostering greater collaboration and resolving environmental issues. But, Young (2003) also makes the case that institutional setups can worsen or even create environmental harm. Environmental damage may be unintentionally caused by, or made worse by, certain laws or architectural designs. This demonstrates how WTO-regulated international trade has exacerbated climate change and global warming.

The purpose of the study is to assess Rwanda's cooperation with the FAO and its contribution to the SDGs and agricultural sustainability through the use of the aforementioned theoretical frameworks. These frameworks, when combined, provide a thorough lens through which to view Rwanda's and the FAO's cooperation. This enables an examination of the advantages, difficulties, and wider ramifications of this partnership for the advancement of sustainable agricultural development and the SDGs. This research attempts to close knowledge gaps by improving our comprehension of how global cooperation might advance the achievement of sustainable development objectives.

METHOD

To answer the research question, a secondary data analysis methodology will be employed, with a focus on literature review of qualitative and quantitative secondary data analysis. The first stage is to locate and gather pertinent secondary data from many sources. Peer-reviewed journal articles, official reports, FAO publications, and other reliable materials about Rwanda's partnership with the FAO and agricultural sustainability will be included in this. Important materials to evaluate could be the national agricultural policies and plans of Rwanda, reports from the FAO on joint projects and their effects, United Nations documents monitoring Rwanda's progress toward the SDGs, and recent scholarly works on agricultural sustainability in Rwanda and the surrounding area.

Church (2002) claims that there are a number of significant benefits to secondary data analysis. First of all, because researchers may utilize pre-existing datasets rather than incurring additional costs for data collection, it is incredibly cost-effective. Primary data collecting might be costly and time-consuming, but it gives you control over the experiment design and data quality. Church claims that secondary data analysis has a

number of significant benefits. First off, it is incredibly economical because researchers don't have to pay to gather fresh data—they can use pre-existing databases. Secondary data analysis could be a worthwhile option to take into consideration for research that need to examine big data sets but lack the budget for primary data collecting. Second, this approach can save time by avoiding protracted procedures in obtaining primary data, so that the time required for research is not long. Secondly, this methodology can reduce the amount of time needed for research by circumventing drawn-out processes in the acquisition of primary data. Researchers can work with a variety of variables and data points that may not be available or too time-consuming for a researcher to obtain using existing data archives. Researchers can perform more thorough analyses and have more options for in-depth exploration because to the wide assortment of data available (Church, 2002).

RESULT AND DISCUSSION

Rwanda's Agriculture:

Since the horrific genocide that occurred in 1994, Rwanda has made incredible strides (Ruranga et al., 2014). The nation has made economic development its top priority, putting a lot of emphasis on creating stability and reconstructing infrastructure. Although Rwanda wants to become a knowledge-based economy, the country's agriculture sector—which employs more than 70% of the labour force and makes a substantial GDP contribution—remains the engine of its development (Bank, 2020). Gaining insight into Rwanda's current agricultural situation might help one better understand the intricate relationship that exists between the country's population well-being, economy, and food security.

A wide range of important crops and farming techniques that assist in producing food and revenue are part of the nation's diverse agricultural landscape. Bananas, beans, maize, potatoes, coffee, and tea are among Rwanda's main crops. As the nation's main export goods, coffee and tea are especially important since they generate foreign exchange profits (Hausmann & Chauvin, 2015). Modern agriculture has improved the quality and sustainability of these crops while adding value (Antonites & Haguma, 2011). Thanks in part to government initiatives and cooperation with international organizations that aim to improve export standards and market access, Rwandan coffee and tea are becoming more and more recognized internationally for their high quality. The Rwandan government implemented research and development initiatives in fields related to economic growth, like information technology and agricultural technology, as one of its main economic transformation strategies (Malunda & Musana, 2012).

Subsistence agriculture is vital to guaranteeing Rwandans' access to food, even beyond cash crops. Important food crops such sweet potatoes, cassava, beans, and maize are extensively grown and provide basic foods for the community's diet (Clay et al., 1995).

Rwandan agriculture must adopt contemporary methods and technologies in order to achieve both food security and sustained economic growth. According to Sylvère and D'amour (n.d.) Rwanda's agriculture sector is radically changing as it moves from subsistence farming to a more commercial and market-oriented strategy. To increase sustainability and production, the government has sponsored a number of agricultural practices, including crop rotation, terracing, and the use of better fertilisers and seeds.

The creation of sustainable agriculture is very important to encourage food security in Rwanda. Moreover, the agricultural sector is the main backbone in supporting the country's economy. Therefore, the government has started an initiative aimed at encouraging food diversity and reducing malnutrition to ensure food availability and access in Rwanda through the Girinka or "One Cow per Poor Family" program in 2006. Girinka or "One Cow per Poor Family," is a program that provides livestock, in this case a cow, to low-income families in Rwanda. The government runs this program as one of its initiatives to help low-income households get better nutritional intake. healthy and getting increased income from selling dairy products. And since it was launched in 2006 in Rwanda, this program has played an important role in improving the welfare of rural communities, encouraging economic growth through increasing agricultural output, and also improving community nutrition (Ezeanya, 2014).

Despite significant progress, Rwanda's agriculture sector still faces a number of challenges.. The tiny size and mountainous topography of the nation limit the amount of fertile land available for agriculture. Furthermore, unpredictable rainfall patterns and degraded soil due to climate change pose a danger to agricultural output for important crops including maize, beans, and Irish potatoes—crops that are essential to Rwanda's food security (Mikova et al., 2015). Rwanda witnessed a dip in 2023 in agriculture, one of its main exports, although achieving a great growth rate of 7.6% (Bank, 2024). Rwanda's national GDP and foreign market, however, continue to benefit greatly from the agriculture industry. Furthermore, according to Yongabo and Göktepe-Hultén (2021) agriculture is essential to the growth of other sectors of the economy as well as industry, business, health, and community well-being.

Aside from being a source of employment, Rwanda's agriculture industry also holds promise for future job growth. With the majority of workers (80.2%) living in rural areas, the industry currently employs about 69% of the nation's workforce. Many workers in this sector have only completed primary or elementary school; of these, 86.5% have no formal education, and 75.7% have only completed their schooling. Yet of those with advanced degrees, very few (7.9%) are employed in the agricultural sector. A scarcity of knowledgeable experts could hinder the integration of new technologies with conventional practices by reducing the chances for interactive learning and experience sharing (Yongabo & Göktepe-Hultén, 2021). The government of Rwanda and its allies have put these issues into effect by adopting a variety of measures, such as conserving

soil, expanding irrigation systems to lessen reliance on rainfall, and using agricultural practices that are climate resilient.

FAO's role and Objectives:

The FAO is a specialized agency of the United Nations that leads international efforts to end hunger (FAO, 2024). The main goal of FAO is to achieve global food security and ensure that people have access to good nutritious food so that active and healthy lives can be created. As a specialized agency of the UN, this goal is quite clear (FAO, n.d.-a). A primary goal of the FAO is to eradicate malnourishment, food insecurity, and hunger. By helping member states create and carry out policies that encourage access to and production of sustainable food, it works toward this objective (FAO, n.d.-b). The FAO facilitates the enhancement of agricultural practices, food distribution networks, and resilience to natural catastrophes and climate change in countries by means of knowledge sharing, technical competence, and resource mobilization (FAO, 2022a).

To solve agricultural problems that can endanger food availability, FAO tries to produce programs that are well-measured. For example, the agricultural industry in Africa, which often faces major obstacles in achieving food security, is mostly made up of small farmers. So FAO (2022a) makes farmer empowerment a top priority in its program. This includes efforts to improve the accessibility of seeds, fertilizers and irrigation technology. In addition, FAO also promotes environmentally friendly and climate-smart agriculture, by teaching farmers how to reduce the environmental impact of agricultural practices and adapt to changing weather patterns (FAO, 2022a).

FAO's work in Rwanda is one illustration of its substantial presence in Africa. Rebuilding the agricultural sector in Rwanda has come a long way since the horrific genocide in 1994. The 'One Cow per Poor Family' program introduced by the Rwandan government in 2006 with the aim of providing livestock, a cow for poor families has become especially successful in improving the welfare of Rwandan society after the genocide. With the program of giving a cow to poor families, it has increased the income of poor families, from selling milk, reduced levels of malnutrition, increased crop production, increased soil fertility by using animal manure as natural fertilizer, and increased social involvement (Colverson, 2018; Klapwijk et al., 2014). Achieving food security and empowering rural communities—especially women, who often play an important role in livestock management—can be improved thanks to the success of this program. And a year after GIRINKA was launched in Rwanda in 2006, in November 2007 FAO started an initiative, New Partnership for Africa's Development (NEPAD), to improve food security in four African countries including the Rwandan government (FAO, 2014).

The NEPAD Project's goal by FAO in Rwanda's Gicumbi District were to give farmers better access to food and nutrition while also raising their revenue. This was accomplished through increase agricultural productivity, adding value to farm products,

commercializing livestock and agricultural products. Aiming to make every stage of the milk value chain profitable and effective, the project collaborated with dairy farmers, milk collectors, processors, merchants, and other relevant parties. In order to increase the plant's production capacity, the FAO backed this endeavours by supplying feed processing equipment, such as machines for sieving, cleaning, grinding, and combining raw materials. The economic empowerment of female dairy farmers has been effectively facilitated by this project (FAO, 2014).

FAO in Rwanda:

Rwanda's continuous development efforts, especially in the agricultural sector, are greatly aided by FAO. Rwanda and the FAO work together on a number of initiatives and projects that address these vital needs because they have a same goal of attaining food security, better nutrition, and rural development. Donatille Mukabalisa, the Speaker of the Rwandan Chamber of Deputies, stated that the FAO is still a vital ally in Rwanda's endeavours to end hunger and guarantee food security for all (FAO, 2022c). The work that the FAO does in Rwanda is in line with the national development plans of the nation, including the National Strategy for Transformation (NST1) and the Fourth Strategic Plan for Agriculture Transformation (PSTA 4) (FAO, 2020a).

Under the FAO Rwanda Country Programming Framework (CPF) 2019–2024, the government of Rwanda and FAO will work together on four priority areas. The Rwandan government and FAO have identified four primary areas of cooperation after a thorough examination. In order to support integrated and sustainable production systems that include aquaculture, livestock, and crops, their first goal is to support creative approach. To combat illnesses, offer new crop types, assist farmers in boosting output, and enhance the value of their output, among other goals, research and innovation are employed. By utilizing sustainable and diverse production techniques, they also aim to enhance food security, nutrition, and resistance to shocks such as the climate (FAO, 2020a).

Expanding market diversity and enhancing the competitiveness and worth of diverse agricultural goods in local, regional, and global markets constitute the third goal in the agriculture sector. As a last measure to guarantee effective service delivery in the agriculture sector, the fourth goal places a strong emphasis on developing receptive institutions and a supporting environment. These collaborative projects aim to increase Rwanda's agricultural sustainability and economic growth (FAO, 2020a). The new CPF is meant to support Sustainable Development Goals (SDGs) 1 and 2, which are focused on ending extreme poverty and hunger. It was co-developed by the FAO and the Rwandan government. It is in line with the Global FAO Objectives, Rwanda's development ambitions, and the United Nations Development Assistance Plan for Rwanda (UNDAP II) (FAO, 2019b). Therefore this is ensures that agriculture will continue to be given top priority in Rwanda's overall development agenda.

FAO has started two projects to improve social empowerment, food security, and eradicate of poverty. First, as part of FAO's efforts to increase climate resilience FAO launched "Bioenergy and Food Security Assessment and Capacity Building for Rwanda". It is sought to identify appropriate bioenergy solutions for the Rwandan environment (FAO, 2019c). Bioenergy becomes interesting approach as it can increase food security by increasing productivity and bringing in resources when it is managed responsibly and skilfully. Moreover rural incomes, poverty rates, and economic growth can all be positively impacted by the bioenergy sector, which can also offer up new markets for producers and job opportunities. Also, by lowering greenhouse gas emissions, bioenergy has the potential to assist in the accomplishment of environmental goals. The second project is called "Knowing Water Better: Toward Fairer and More Sustainable Access to Natural Resources - KnoWat." Its goals are to address water scarcity, enhance food security, increase competition for water resources, improve the skills of local farmers and water specialists in Rwanda, and add perspectives and experiences from the nation to discussions on water tenure (FAO, 2020d).

Through the KnoWat project, FAO gave farmers in the district access to solar-powered irrigation equipment and basic training on how to use them in order to support their water management efforts. Farmers benefit greatly from this because, in the past, traditional ways of distributing irrigation water presented difficulties for vegetable farmers, so impeding their productivity. Due to its reliance on renewable energy sources, solar-powered irrigation is seen as dependable, economical, and ecologically benign. It also increases the production of water. Rulindo district Vice Mayor Prosper Mulindwa praised the implementation of solar-powered irrigation as a significant example of small-scale irrigation in the region. In order to ensure long-term sustainability, he underlined the significance of equipment maintenance and urged farmers to learn new techniques for utilizing and overseeing this technology (FAO, 2020c). Farmers are able to cultivate crops all year round because to solar-powered pumps.

The Yanze Catchment, which is close to Rwanda's capital city of Kigali, benefits greatly from the KnoWat. Water resources are extremely important in the area, as evidenced by the frequent confrontations over water scarcity that existed prior to the start of the FAO project. More over 68,100 people live in the Yanze watershed, where this was most clear. The catchment's water is essential for many daily activities, including drinking, cooking, bathing, and farming. Vegetable gardening provides a substantial component of the rural population's livelihood, with about 40% of them living in poverty. Families experience financial hardship and food insecurity as a result of reduced crop yields caused by insufficient water. Irrigation used to require a lot of labour, especially from women. However, farming has grown more productive and yields have improved dramatically with the advent of new solar-powered pumps. For instance, a local farmer named Jean d'Arc reports that after implementing the new technique, her harvests of broccoli have

tripled. The increase in production has resulted in more earnings and enhanced financial security for female farmers such as Jean d'Arc, enabling them to put money aside and make investments for their future. Furthermore, the availability of fresh produce has improved community nutrition and decreased cases of malnutrition, especially in children. According to the beneficiaries, the execution of the project has, in general, improved the livelihoods and general well-being of the local population while also transforming agricultural methods.
(FAO, 2022d).

Additionally, the KnoWat makes farming fish and pigs more profitable. As a result, the club has already made $750 by selling 376.5 kg of tilapia fish. They currently have over 300 pigs, compared to their original 30. The farmers have gained more money from the sale of the pigs and fish. They learned improved product sales techniques from the project as well. Additionally, employing the fish and pig dung promotes healthier crop growth without requiring costly fertilizer. Additionally, eating meat and fish improves people's diets (FAO, 2022b). There was a discernible increase in the yearly revenue from fish and pig production from 2020 to 2022. 5,000 fish fingerlings were given to 245 recipient families overall at this time. Sales growth led to a noteworthy 23% increase in the cooperative's annual income. In addition, 30 pigs were given to 80 needy families, increasing their yearly revenue from sales by an average of 40%. The beneficiary households' improved financial well-being is mostly attributable to these programs (FAO, 2022b).

Rwanda's contribution to raising banana output is another indication of FAO support for the country. Rwanda's diet has included bananas as a staple for a long time. Similar to other crops, bananas have been subject to pest and disease outbreaks. One such example is Banana Xanthomonas Wilt, also referred to as Kirabiranya locally, which has affected about 3,600 hectares of the 170,000 hectares of banana land. Introducing hygienic and disease-resistant banana planting materials has been the main tactic used to fight banana diseases and promote banana yield. The Food and Agriculture Organization of the United Nations (FAO) and the Ministry of Agriculture and Animal Resources (MINAGRI) have collaborated to launch the project "Support for enhancing the production and distribution of seeds and banana planting materials" in addition to the government's ongoing efforts in this regard. Through this project, high-yielding banana planting types and disease-free planting supplies will be made available to farmers in five districts (Gisagara, Muhanga, Karongi, Rwamagana, and Rubavu). In order to update their understanding of efficient banana growing techniques, the project also provides farmers, district and sector agronomists, and farmer promoters with extra training sessions (FAO, 2019a).

In addition to bananas, FAO helps Rwanda combat the Fall Armyworm, a pest that has devastated numerous nations, including Rwanda, harming smallholder farmers. The Fall

Armyworm invasion in 2017 cost Rwanda dearly, wiping out some maize farmers' whole season's crop. In all 30 districts, maize—one of Rwanda's most significant crops—was the main crop damaged. In order to solve the issue, the MINAGRI turned to the FAO for technical support and direction. In order to improve farmers' capacities and equip them with tools for better monitoring, management, and early detection of Fall Armyworm (FAW) infestations, FAO launched the project "Assistance to the Government of Rwanda in Sustainable Control and Management of Fall Armyworm TCP/RWA/3608". Farmers received the skills and information needed to properly monitor, control, and identify FAW outbreaks through training sessions. Due to the project's assistance to Rwandan farmers, it was a great success. Due to the Fall Armyworm, the yield of maize in Rwanda's Nyanza area decreased to 2.5 tons in 2017; however, following the FAO project, it increased to 3.8 tons in 2018 (FAO, 2020b). Farmers in Rwanda's Nyamagabe district were pleased with the 2018 overhaul of maize production. A 10-hectare swamp used to yield 5 to 6 tons of food each farmer. However, bug infestations caused this output to drop to 3.5 tons in 2017. However, as a result of concerted efforts to manage the Fall Armyworm, farmers are now harvesting 7 tons from 10 hectares of marsh area in 2019 as a result of this empowerment program. Productivity levels have risen even further than earlier (FAO, 2020b).

DISCUSSION –

Impact On SDGs

From the exploration above we can see that several SDG points that have been set by the UN are basically in line with the work carried out by FAO in Rwanda. Specifically, in sectors such as food security, poverty alleviation and environmental sustainability. Cooperation between FAO and the Rwandan government is very important for achieving the Sustainable Development Goals (SDGs) in Rwanda. Through several FAO programs in Rwanda, especially through the agricultural sector, FAO has supported the achievement of SDG 2 Zero Hunger, SDG 1 No Poverty, SDG 12 Consumption and Production, SDG 13 Climate Action, and SDG 5 Gender Equality (Sachs, 2015).

Through pest eradication programs, FAO has helped farmers in Rwanda increase food security by increasing agricultural yields. So that hunger in Rwanda can be prevented and this is in line with the SDG 2 goal, namely Zero Hunger. Not only preventing hunger, this FAO program is also in line with SDG 1 goal, namely No Poverty. This is because empowering farming communities can help them to increase their income from increasing sales of agricultural products. According to MINAGRI, agriculture contributed greatly to reducing the poverty rate in Rwanda, from 60.4% in 2000 to 38.2% in 2017 (MINAGRI, 2021).

Through its empowerment program, FAO provides the latest knowledge, especially regarding the use of sustainable bioenergy resources and minimizing environmental

impacts. With a diverse and climate-resilient production system, farmers are encouraged to carry out responsible production and this is in line with SDG 12 consumption and production.

Meanwhile, through the KnoWat program, FAO seeks to increase resilience to climate change by supporting programs that improve water management, encourage drought-tolerant crops, and provide early warning systems for severe weather. This is in line with the goal of SDG 13, namely Climate Action. Lastly, of all the programs launched by FAO, FAO seeks to ensure that women farmers have resources and training that promote gender equality. This is done through promoting gender mainstreaming in their initiatives and this is in line with SDG goal 5, namely gender equality.

CONCLUSION

From the search results, it can be seen together that the cooperation between FAO and Rwanda provides a useful illustration of how to coordinate development initiatives with the common goals stated in the UN sustainable development guidelines. To help Rwanda progress in achieving agricultural sustainability and the SDGs, the country is collaborating with the Food and Agriculture Organization (FAO). Food security, climate resilience and sustainable resource management are just some of the important issues that FAO is addressing with the government of Rwanda through a number of programs and projects.

FAO has been encouraging environmentally friendly agriculture through its projects in Rwanda by providing farmers with knowledge to reduce environmental impacts from farming methods to adapting to climate change. In addition, to support the “One Cow per Poor Family” initiative launched by the Rwandan government in 2006, in 2007 FAO launched a program to increase farmers' food security, nutritional security and cash income. As the milk productivity increase, FAO support the community by focusing on the milk value chain and collaborating with dairy farmers, collectors, processors and retailers to ensure profitability and efficiency at every stage. In addition, this project also effectively helps the economic empowerment of Rwandan women who farm dairy products.

From 2019 to 2024, the FAO and the Rwandan government will collaborate on four projects with a focus on the following four areas: (1) innovative and extension; (2) productivity and resilience; (3) inclusive market and value chain; and (4) enabling environment and responsive institution. Rwanda needs to be assisted in achieving the Sustainable Development Goals (SDGs), particularly SDGs 1 and 2.

FAO started a project employing bioenergy that is appropriate for Rwanda's setting as a climate resilience strategy to promote clean energy in agriculture. By lowering greenhouse gas emissions, this project has the potential to assist in the accomplishment of environmental goals. The FAO encourages climate-smart agriculture, which gives

farmers the know-how to lessen the environmental effect of agricultural methods and adjust to shifting weather patterns.

The FAO also empower Rwandan farmers through its project “Knowing Water Better” or “Knowat”. This is very helpful for the farmers because, before, vegetable farmers faced challenges in providing irrigation water using traditional methods and hindered their productivity. Disputes over water scarcity were frequent because the watershed provides essential water for drinking, cooking, bathing, and farming. For the farmers in the Yanze Catchment, KnoWat therefore provides meaningful results. Farming has become more efficient and yields have grown dramatically with the advent of new solar-powered pumps. For female farmers, increased incomes and better financial stability are the results of this production increase. Furthermore, fewer cases of malnutrition, especially in children, have been reported in the community as a result of the increased availability of fresh fruit. Therefore, the FAO project's implementation has not only changed agricultural methods but also positively impacted the local population's well-being and standard of living.

FAO has played an important role in Africa, especially Rwanda, this can be seen from how FAO helped solve farmers' problems which led to increased corn and banana production in Rwanda. This certainly contributes to Rwanda's food security, as maize and bananas play a major role in the Rwandan economy. Through cooperation between FAO and the Rwandan government, FAO has helped Rwanda fight pests and diseases such as Armyworm and Xanthomonas Banana Wilt that harm small farmers by concentrating on important commodities such as bananas and corn. Through the FAO empowerment program “Support to increase production and distribution of banana seeds and planting materials” farmers now have access to superior cultivars and disease-resistant planting materials. To improve farming practices, they also provide training courses. Likewise, the “Assistance to the Government of Rwanda in Sustainable Control and Management of Fall Armyworm” project has provided farmers with the knowledge and resources they need to efficiently monitor, control and identify fall armyworm infestations, increase maize yields and improve quality of life, welfare and living standards of farmers. With the above cooperation achievements, it increasingly shows the important role of FAO in its efforts to support Rwanda in achieving the common goals set out in the SDGs.

A number of SDGs are notably advanced by the FAO-Rwanda partnerships. SDGs 2 (Zero Hunger), 12 (Responsible Consumption and Production), and 13 (Climate Action) are immediately addressed by their emphasis on sustainable agriculture, food security, and climate resilience. Furthermore, by supporting gender mainstreaming in their projects, these partnerships help achieve SDG 5 (Gender Equality) and SDG 1 (No Poverty) indirectly.

Problems still exist in spite of the beneficial contributions. To make the relationship between FAO activities and particular gains in areas like yield, environmental impact, and adoption of sustainable practices more clearly defined, one of the main challenges is to strengthen data gathering systems. Effectively reaching more Rwandan farmers in every area is necessary for this program to maximize the benefits of these development measures.

REFERENCES:

Anon. (2007). Pakistan cuts pesticide use dramatically. *Appropriate technology*, *34*(1), 25-27.

Antonites, A. J., & Haguma, J. (2011). Assessing the innovative nature of the agricultural based small businesses in Rwanda-The case study of the coffee industry.

Babu, S. C., & Shishodia, M. (2017). Analytical review of african agribusiness competitiveness. *Africa Journal of Management*, *3*(2), 145-162.

Bank, W. (2018). *Future Drivers of Growth in Rwanda : Innovation, Integration, Agglomeration, and Competition (Vol. 2)*. W. B. Group. http://documents.worldbank.org/curated/en/680671541618477651/Overview

Bank, W. (2020). *Future Drivers of Growth in Rwanda: Innovation, Integration, Agglomeration, and Competition*. (131875). World Bank Group and Government of Rwanda Retrieved from https://documents1.worldbank.org/curated/en/522801541618364833/pdf/Future-Drivers-of-Growth-in-Rwanda-Innovation-Integration-Agglomeration-and-Competition.pdf

Bank, W. (2024). *Rwanda Economic Update: Mobilizing Domestic Savings to Boost the Private Sector in Rwanda*. World Bank Retrieved from https://openknowledge.worldbank.org/server/api/core/bitstreams/12e1fec7-3f5d-4a94-9a97-fbfd108784fa/content

Chamberlin, J., & Schmidt, E. (2012). Ethiopian agriculture: A dynamic geographic perspective. *Food and agriculture in Ethiopia: progress and policy challenges*, *2*, 1-52.

Church, R. M. (2002). The effective use of secondary data. *Learning and motivation*, *33*(1), 32-45.

Clay, D. C., Byiringiro, F. U., Kangasniemi, J., Reardon, T., Sibomana, B., Uwamariya, L., & Tardif-Douglin, D. (1995). Promoting food security in Rwanda through sustainable agricultural productivity: Meeting the challenges of population pressure, land degradation, and poverty.

Clay, D. C., & Lewis, L. A. (1996). Land use, soil loss, and sustainable agriculture in Rwanda. *Case Studies in Human Ecology*, 271-287.

Colverson, K. E. (2018). Increasing the Health and Nutritional Outcomes. *Food Studies*, *8*(2), 31.

Ezeanya, C. (2014). Indigenous knowledge, economic empowerment and entrepreneurship in Rwanda: the Girinka approach. *Journal of Pan African Studies*, *6*(10), 241-263.

FAO. (2014). *FAO supports dairy farmers to bring quality milk to the market*. Food and Agriculture Organization of the United Nations. Retrieved 10 May from https://www.fao.org/africa/news/detail-news/en/c/238284/

FAO. (2019a, 20 February 2019). *Increasing banana production and productivity through clean and high yielding seedlings*. Retrieved 12 May from https://www.fao.org/rwanda/news/detail-events/en/c/1185123/

FAO. (2019b). *Understanding the 2nd edition of the FAO Country Programming Framework for Rwanda*. Food and Agriculture Organisation of the United Nations. Retrieved 11 May from https://www.fao.org/rwanda/news/detail-events/en/c/1270269/

FAO. (2019c, 7 March 2019). *Using bioenergy to promote food and energy security for agricultural and rural development*. Retrieved 12 May from https://www.fao.org/rwanda/news/detail-events/en/c/1185165/

FAO. (2020a). *Country Programming Framework for Rwanda: 2019 - 2023*. Retrieved from https://rwanda.un.org/sites/default/files/2020-06/FAO%20Country%20Programming%20Framework%20for%20Rwanda%20%28CPF%29%202019-2023.pdf

FAO. (2020b). The Fall Armyworm project achievements and impacts in Rwanda. https://openknowledge.fao.org/server/api/core/bitstreams/f2288bf0-2c48-4cc2-afdb-93d0f686df9c/content

FAO. (2020c, 19 October 2020). *FAO delivers Rulindo's first solar-powered irrigation system*. Food and Agriculture Organization for the United Nations. Retrieved 11 May from https://www.fao.org/rwanda/news/detail-events/en/c/1315231/

FAO. (2020d, 28 September 2020). *Knowing water better: towards fairer and more sustainable access to natural resources - KnoWat*. Retrieved 11 May from https://www.fao.org/in-action/knowat/en/

FAO. (2022a). *FAO in Africa Impact in 2021*.

FAO. (2022b). *KnoWat:Knowing water better - Towards a more equitable and sustainable access to*

natural resources to achieve food security (Project results in Rwanda). FAO. https://openknowledge.fao.org/server/api/core/bitstreams/b924b05e-8f6d-49ba-aa69-7584af941a2d/content

FAO. (2022c, 28 april 2022). *Speaker Mukabalisa commends FAO's work to achieve food security*. Food and Agriculture Organization of the United Nations. Retrieved 10 May from https://www.fao.org/rwanda/news/detail-events/en/c/1506812/

FAO. (2022d). *Stories from the field: Harnessing source of life in Rwanda*. Food and Agriculture Organization for the United Nations. Retrieved 11 May from https://www.fao.org/in-action/knowat/country-activities/rwanda/stories-field-rwanda/en/

FAO. (2024). *About FAO*. https://www.fao.org/about/about-fao/en/

FAO. (n.d.-a). *About FAO*. Retrieved 9 May from https://www.fao.org/about/about-fao/en/

FAO. (n.d.-b). *Knowledge Sharing*. Food and Agriculture Organization of the United Nations. Retrieved 9 May from https://www.fao.org/knowledge-sharing/en/

Feder, G., Murgai, R., & Quizon, J. B. (2004). Sending farmers back to school: The impact of farmer field schools in Indonesia. *Applied Economic Perspectives and Policy*, *26*(1), 45-62.

Hausmann, R., & Chauvin, J. (2015). Moving to the adjacent possible: Discovering paths for export diversification in Rwanda. *CID Working Paper Series*.

Klapwijk, C., Bucagu, C., van Wijk, M. T., Udo, H., Vanlauwe, B., Munyanziza, E., & Giller, K. E. (2014). The 'One cow per poor family'programme: Current and potential fodder availability within smallholder farming systems in southwest Rwanda. *Agricultural Systems*, *131*, 11-22.

Malunda, D., & Musana, S. (2012). Rwanda case study on economic transformation. *Kigali, Rwanda: Institute of Policy Analysis and Research*.

Mikova, K., Makupa, E., & Kayumba, J. (2015). Effect of climate change on crop production in Rwanda. *Earth Sciences*, *4*(3), 120-128.

MINAGRI. (2021). *RWANDA'S AGRICULTURE SECTOR TRANSFORMATION JOURNEY OVER THE LAST 27 YEARS*. Retrieved 15 May from https://www.minagri.gov.rw/updates/news-details/rwandas-agriculture-sector-transformation-journey-over-the-last-27-years

Rispoli, F. M., McGrenra, D., & Mbago-Bhunu, S. (2019). Republic of Rwanda Country Strategic Opportunities Programme. *International Fund for Agricultural Development. https://webapps. ifad. org/members/eb/126/docs/EB-2019-126-R-13-Rev-1. pdf*.

Ruranga, C., Ocaya, B., & Kaberuka, W. (2014). Analysis of Rwandan economic performance before and after the 1994 genocide. *African Journal of Economic Review*, *2*(2), 1-18.

Sachs, J. D. (2015). *The age of sustainable development*. Columbia University Press.

Sylvère, N., & D'amour, R. J. (n.d.). Updates on Modern Agricultural Technologies Adoption and Its Impacts on the Improvement of Agricultural Activities in Rwanda: A Review. *International Journal of Innovative Science and Research Technology*, *5*(12), 222-229.

White, P. (1999). The role of UN specialised agencies in complex emergencies: A case study of FAO. *Third World Quarterly*, *20*(1), 223-238.

Yongabo, P., & Göktepe-Hultén, D. (2021). Emergence of an agriculture innovation system in Rwanda: Stakeholders and policies as points of departure. *Industry and Higher Education*, *35*(5), 581-597.

Young, O. R. (1992). International Environmental Governance: Building Institutions in an Anarchical Society. *IIASA, Science and Sustainability-Selected Papers on IIASA's 20th Anniversary*, 245-268.

Young, O. R. (2003). Environmental governance: the role of institutions in causing and confronting environmental problems. *International Environmental Agreements*, *3*, 377-393.