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**A Political Ecology Analysis of the Narratives
and Practices of Organic Agriculture in
Rwanda:
The case of Rwanda Organic Agricultural Movement**

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List of Acronyms

ROAM- Rwanda Organic Agriculture Movement

RSB- Rwanda Standards Board

PGS- Participatory Guarantee Systems

FAO- Food and Agriculture Organization

WHO-World Health Organization

NGOs- Non-Governmental Organizations

CIP- The Rwandan Crop Intensification Programme

ITC- International Trade Centre

HYVs- High-Yielding Varieties

EOA- Ecological Organic Agriculture

EOA-I- Ecological Organic Agriculture Initiative

ARECO- Association Rwandaise des Ecologistes

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Abstract

In the recent decade, efforts to initiate a new Green Revolution in Sub-Saharan Africa have been widely lauded in policy circles. As a result, there has been a rise in interest and focus on seeds and seed systems, among others, in the agricultural policy agenda. However, because of the widespread awareness of the adverse effects of the green revolution, corporate industrial agriculture and climate change, organic agriculture has been proposed as an alternative to the new green revolution for Africa. Based on qualitative interviews, this research investigates whether and how and the extent to which the emerging rhetoric of organic agriculture in Rwanda fits into and is compatible with the country's agricultural modernization policy initiatives. This study argues that critical scrutiny of the tensions and contrasting politics and narratives around organic farming and agricultural modernization policy is particularly crucial in the context of the growing interest among the global corporate actors involved in the food and farming sector to 'appropriate organic agriculture'. The study focuses on the critical analysis of Rwanda's experiences with organic farming and how it is playing out in light of the emerging debates around smallholder farming versus large-scale commercial agricultural investments. It mainly focuses on investigating the narratives and practices of the Rwanda Organic Agriculture Movement (ROAM), particularly focusing on its members/stakeholders' perceptions and experiences. The research establishes that despite the general increase in organic agriculture practice in Rwanda, there are still challenges in developing the sector. This may be attributed to the perception of stakeholders towards organic and inorganic agriculture. Rwandan organic agriculture movement stakeholders largely perceive it as contributing towards environmental and food safety and security, contrary to their perception of inorganic agriculture, which they largely deem as a threat to the environment and food safety. This perception favors the adoption of organic farming practices. The stakeholders also adopt organic farming due to the support they receive from different actors to adopt them. This includes financial and technical assistance from the government and NGOs. However, the findings also indicate that some farmers still engage in inorganic agriculture, largely because of the economic benefits that it offers compared to organic agriculture. This is a potential threat to organic principles. Moreover, organic agriculture is influenced by marketing and production challenges, which causes its slow/low adoption. One major challenge relates to certification, which restricts smallholders in developing countries while favoring large-scale players in developed countries. Political ecology (mainly through government policies); environmental factors (that organic agriculture is mainly based on); and social factors (which influence if and how stakeholders adopt organic practices) also affect the adoption of organic farming practices. Therefore, it is recommendable for the government (and other actors) to help boost the adoption of organic agriculture by offering support, creating awareness, and creating/pushing for policies that support organic agriculture practices.

Keywords

Organic farming, new green revolution, Rwanda, ROAM

Chapter One: Introduction

1.1 Context and Nature of the problem

According to the United Nations, the world's population will increase by more than two billion individuals by 2050. Half of the children will be born in Sub-Saharan Africa, with the remaining 30% in South and Southeast Asia (UN Department of Economic and Social Affairs, 2019). Drought, heat storms, and severe weather conditions, in general, are likely to strike those areas the hardest because of climate change. Humanity managed to remain ahead of the Malthusian race between population increase and food supplies for the majority of the twentieth century (Folger, 2013). However, there are concerns about whether the world will be able to maintain the lead in the race between food supply and population growth in the 21st century.

The world has managed to produce enough food through the Green Revolution since the 1960s. The main goal of the green revolution was to maximize agricultural yields. The green revolution led to doubling yields for wheat and rice in many parts of the world, particularly in Asia (Moseley, 2016). While the Green Revolution offered a few solutions to the issue of food security, it was not without flaws. The planet was confronted with a whole new set of issues, including deteriorating soil, pest-infested crops, and indebted farmers (Folger, 2013: Moseley, 2016: Sharifuddin et al., 2020). Pests became resistant to pesticides over time, and growers, desperate for a solution, started pouring out more of these chemicals. Their widespread use not only damaged the air, soil, and water supply, but also put plants and humans at risk of pesticide contamination (Pingali, 2012: Folger, 2013).

Furthermore, as Harrison (2011) mentioned, the reality that pesticide exposure and the ailments green revolution caused overwhelming effects on the vulnerable and marginalized groups poses environmental justice concerns. Similarly, while focusing on Punjab (in India), Shiva (1991) argues that the Green Revolution was formulated as a political and technological strategy for peace, aimed at creating abundance through dissolving the limits and variabilities of nature. However, to the contrary, after two decades of the Green Revolution,

Punjab is left ruined, through violence and ecological scarcity. According to her, the Green Revolution have brought about harm instead of the expected abundance in such areas, causing diseased soils, waterlogged deserts, pest-infected crops, and dissatisfied farmers.

In the recent decade, efforts to initiate a new Green Revolution in Sub-Saharan Africa have been widely lauded in policy and science circles. The New Green Revolution for Africa gained traction steadily in the 2000s but took off in earnest after the Global Food Crisis of 2007-08, when average food prices soared by around 50% in a year, with prices for certain crops such as rice rising by 100% (Moseley, 2016). The New Green Revolution, as the first, focused on the implementation of better seeds and related input bundles, including fertilizers and pesticides (Conway, 2013). Toenniessen et al. (2008) note that, unlike the previous green revolution, the current one focused on women's participation, nutrition, African crops, public-private partnerships, and supply chain convergence. This has also seen a rise in focus on seeds and seed systems in the policy agenda connected to agriculture across Africa; with much of the debate stressing on the technology and/or market areas, which have seen significant efforts being channeled towards seed enhancement and the development of both private and public deliver systems (Scoones and Thompson, 2011)

As a reaction to widespread malnutrition, climate change threats, higher prices of food, and a rise in global population, there were demands for a new second Green Revolution in Africa, billions of funds have been channelled towards combating hunger with organizations such as the Bill and Melinda Gates Foundation (Blankinship, 2012). However, despite arguments that the New Green Revolution for Africa is a hunger-relief program, it is based on neoliberal populism that steers it away from the real issue at hand, which is access to food (Toenniessen et al., 2008). Patel argues that the Green Revolution served as a solution to the problems framed by the geopolitics and ideologies of the early phase of the 20th century, with such framing having changed in the 21st century, and explaining why the New Green Revolution seems different from the old one. But, according to him, the underlying issues around management, control, and property still stands the same, and importantly, the goals of proponents of the New Green Revolution depicts a project which is more biopolitical, more

centred on the management of individual entities, compared to the original Green Revolution. As Moseley (2016) puts it, “the problem now is that many African nations are adopting the New Green Revolution model without learning from the mistakes of the past” (p. 183).

Critics of the new green revolution also mention biotech alone cannot ‘fix’ agriculture (Folger, 2013). This is partly because the new green revolution technologies and genetically modified crops are too expensive for most smallholder farmers (Moseley, 2017). Another problem with the new green revolution, as identified by Sen (1981), is that strengthening household food security entails more than just rising food production. It is mainly about the question of ensuring access to food. Based on their assessment of the evolution of the seed system research and development programs and processes in some African countries’ cases (Kenya, Zimbabwe, Ethiopia, Malawi, and Ghana), Scoones and Thompson’s (2011) argue that the new Green Revolution ignores the political economy of policy-making processes behind such agenda; that is, who loses, who wins, and whose interests are being satisfied? In the Rwandan case, the Rwanda Environment Management Authority (2019) notes that land and water pollution by hazardous pesticides is one of the critical environmental and climate change challenges. Similarly, the study by Okonya et al. (2019) on pesticide use among the smallholder farmers in Rwanda found that about all the insecticides and approximately one-third of the fungicides used are moderately hazardous and have caused animal and human deaths.

As a result of the negative implications of the green revolution of the 1960s, there are fears that the new green revolution is a shadow of the previous green revolution with similar negative implications (Folger, 2013). Transnational agrarian movements such as La via Campesina have come out strongly to speak against elements of the new green revolution being pushed on African nations. For instance, in an interview about food sovereignty, the General Coordinator of La Via Campesina, Elizabeth Mpofu, mentioned that “Transnational corporations are pushing policies in African countries for industrial farming and the use of GMO [genetically modified] seeds, while grabbing our land and [stealing] our natural resources. No one should come and tell us how to produce food” (Adler, 2016). Mpofu explained that the Via Campesina movement

believed in its peasant members controlling their own land and seeds and producing the healthy food they wanted in the manner they wanted.

The resistance to the new green revolution for Africa is founded on this fear and the need for an agricultural system that is much more conscious of the environment and ecological resources (Arah and Kumah, 2015). As a result of this resistance, organic agriculture has been proposed as an alternative to the new green revolution for Africa. For the purposes of this study, we will use the definition of organic farming established by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). According to this definition, organic agriculture is a comprehensive production management approach that encourages and improves agro-ecosystem sustainability, including habitats, ecological cycles, and soil biological activity, among other things. It stresses the use of on-farm management methods over off-farm inputs, recognizing that geographical circumstances necessitate locally tailored schemes. This is achieved by utilizing mechanical agronomic and biological approaches to perform some particular purpose within the structure, rather than synthetic materials (Codex Alimentarius, 2007). Overall, it is a system that relies on site-specific ecosystem management practices rather than the use of external agricultural inputs, such as chemical fertilizers and pesticides, genetically modified seeds, etc.

Several nations and organizations across the world have started investing more in organic agriculture. In Rwanda, the Rwanda Organic Agriculture Movement (ROAM) was established in 2007 as a national umbrella for coordinating and promoting organic farming in Rwanda. ROAM's mission is to be a diverse and thriving organic agriculture business organisation that leads to a healthier climate, improved livelihood, food security and protection, and a rising customer demand. However, the attempt to move away from the new green revolution for Africa to organic farming has its share of challenges. For instance, for the Rwandan case, ROAM activities are faced with such challenges as high cost of certification and lack of a specific program to support the organic agriculture sector (Mudendeli, 2010). Furthermore, as stated by Mudendeli (2010), organic agriculture policy is not well defined, and there is also a lack of adequate organic seeds. Also, local organic certification bodies have not yet been

established, and there is not enough knowledge among farmers and processors. This remained the case by 2018, with Rwanda being among countries with a regional organic standard (that is, the East African Organic Products Standard), but lacking a national legislation (Willer and Lernoud, 2019).

The International Trade Centre (2008) concludes that Rwandan policies are not *per se* pro-organic even though they are seen to acknowledge that organic agriculture can play a vital role in improving food security alongside conventional agriculture. Following the path of the new green revolution, the strategic plan for agricultural transformation created by the government of Rwanda emphasizes commercialization, regionalization, professionalization, and intensification of agriculture (Rundgren, 2008). For instance, Rwanda's Fertilizer Policy (April 2007) focuses more on increasing the use of chemical fertilizers.

Given the potential of organic farming to contribute to sustainable livelihoods and the hindrances it faces, there is a need to study the political, social, and economic factors that influence its adoption and enactment. Moreover, there are also growing concerns about contradictions in the recent Rwandan government drive in facilitating the transformation of the agriculture sector through large-scale commercial agriculture investments and initiatives aimed at agricultural intensification (Huggins 2014). The Rwandan Crop Intensification Programme (CIP), which aims at bringing agricultural intensification through the use of modern inputs such as improved seeds, fertilizers, and pesticides, is a good example through which the government is trying to advance 'the new green revolution in Africa' initiatives in the country (Cioffo et al. 2016).

This study will investigate whether and how and the extent to which the emerging rhetoric of organic agriculture fits into and are compatible with Rwanda's agricultural modernization policy initiatives and vice versa. Critical scrutiny of the tensions and contrasting politics around organic farming and agricultural modernization policy is particularly crucial in the context of the growing interest among the global corporate actors involved in the food and farming sector to 'appropriate organic agriculture'. This involves the critical analysis of Rwanda's experiences with organic farming and how it is playing out in light of the emerging debates around smallholder organic farming versus

corporatized organic agriculture. The study will mainly focus on investigating the narratives and practices of the Rwanda Organic Agriculture Movement (ROAM), a non-governmental national umbrella organization for a range of diverse actors involved in organic agriculture in Rwanda, including producers, farmers, processors, exporters, and importers.

1.2 Research objective and questions

The main objective of this study is to critically examine the narratives and practices of organic farming in Rwanda. It aims to explore the influence of political-ecology factors affecting the adoption of organic farming by smallholder farmers and other actors involved in organic agriculture.

Research Questions

The central research question of the study is: What are the main narratives driving organic agriculture in Rwanda, and how and to what extent do they reflect the aspirations and challenges of organic farming among smallholders?

Sub-questions

1. What are ROAM stakeholders' perceptions of organic farming vis-a- vis the new green revolution?
2. What are the production and marketing challenges facing organic farming activities of ROAM stakeholders?
3. How do political-ecological factors (agricultural policies, environmental factors, and social factors) influence the adoption of organic farming among ROAM stakeholders?

1.3 Justification and relevance of this research

While the challenges facing efforts of moving from conventional agriculture/new green revolution to organic farming have been and are being conducted in the context of other countries (Sharifuddin et al., 2020; Arah and Kumah, 2015; Taylo, 2006; Willer et al., 2009), there seem to be few academic studies on the factors influencing organic farming in Rwanda. Therefore, this study hopes to contribute to the literature on the direction and evolution of organic farming in Rwanda. Moseley (2016) recommends that in order to help

vulnerable rural African households feed themselves at a reasonable risk, low-cost, long-term, and sustainable agricultural improvements must be implemented. In Rwanda, one-fifth of the population is food insecure and the new green revolution technologies include harmful fertilizers and pesticides that harm smallholders and the environment (World Food Programme, 2019; Okonya et al., 2019; Rwanda Environment Management Authority, 2019). The organic agriculture movement may be an improved alternative farming method that would contribute to eradicating hunger, poverty, diseases, and the negative implications of the new green revolution technologies. The findings of this study will be of significant value to several stakeholders in the organic agriculture value chain, including policymakers and smallholder farmers.

1.4 Background to the Proposed Study

Green Revolution and the ‘New Green Revolution’

The Green Revolution, also known as the Third Agricultural Revolution, was a series of research and technology transfer programs that increased agricultural productivity worldwide between 1950 and the late 1960s, with the late 1960s being the most important (Hazell, 2009). As a result of the interventions, new technologies such as high-yielding varieties (HYVs) of cereals, especially dwarf wheat and rice, have been adopted. Chemical fertilizers, agrochemicals, regulated water source often embroiling irrigation as well as newer methods of agriculture, such as mechanization were all linked to it. The use of new technical and capital inputs, introduction of advanced scientific farming practices, use of high yielding varieties of crops, use of chemical fertilizers and pesticides, and consolidation of land holdings are all core elements of green revolution (Farmer, 1986).

Organic farming in Rwanda

The organic agriculture movement in Rwanda

Organic farming is advanced as a progressive revolution in agriculture that aimed to promote social justice and environmental protection. One reason for the United Nations and European Union's strong policy support for organic agriculture is founded on the widespread belief that organic farming is beneficial to sustainable development (Milestad, 2003). Natural Resources Defense

Council (2016) notes that governmental agencies are slow in limiting the use of harmful pesticide products as they are hindered by pressure from pesticide manufacturers and their trade associations. Oceania has the most organic agricultural land, with 12.1 million hectares, followed by Europe with almost 7.8 million hectares, Latin America with 6.4 million hectares, Asia with 2.9 million hectares, North America with 2.2 million hectares, and Africa with almost 0.9 million hectares (Willer et al., 2009).

Organic farming started in Rwanda in 2001, through government agencies, multiple Non-Governmental Organizations (NGOs) and projects. All these players focused on training related to production techniques based on locally available farm tools. This also involved the staff from government agencies, NGOs and the projects attending workshops and training abroad (Mudendeli, 2010). As highlighted by ITC (2008), the Rwandan government developed a comprehensive Strategic Plan for Agriculture Transformation, which emphasized on intensification, regionalization, professionalization, and commercialization. But, as mentioned earlier, generally, Rwandan policies have not been *per se* pro-organic, but they appreciate that organic agriculture can have a critical role, alongside conventional agriculture, and some of the promoted practices support organic agriculture (ITC, 2008). By 2018, Rwanda operated under the East African Organic Product standards, without a national legislation (Willer and Lernoud, 2019). Currently, Rwanda has some ecological organic agriculture (EOA) linked policies in place. But they still lack the strength for promoting and supporting the sustainability of EOA, and the necessary transformative change in the organic sub-sector

However, there has been strong goodwill from stakeholders pushing for the EOA initiative (EOA-I), which is evident through the founding of the national body devoted to promoting EOA; that is ROAM (Ozor and Nyambane, 2021). ROAM was officially founded as a national umbrella for coordinating and promoting organic farming in Rwanda in the year 2007 (Mudendeli, 2010), and was legally registered as an NGO in 2014 (ROAM, 2021). ROAM was established in response to a need expressed by various stakeholders in the organic sector (producers, farmers, processors, exporters, and importers) for a more organized and focused movement to spearhead the stimulation, growth,

and promotion of the organic sector toward finding solutions. The crops that ROAM is involved in include apple, banana, pineapple, coffee, tea, honey, gooseberry, avocado, passion fruit, papaya, tree tomato, chilies, and essential oil plants (Geranium, Lippia, Pacoura, Citronella, and Pyrethrum). The requirements for membership in ROAM are not clearly stated, but ROAM has over 1000 members across Rwanda, working in organic production, processing, and marketing of the above listed crops (ROAM, 2021).

ROAM's mission is developing and promoting the ecological organic agriculture (EOA) as an alternative farming method that sustains soil's health and, the ecosystems and people, by increasing consumer awareness. Its vision is to create "vibrant and sustainable organic agriculture systems that contribute to healthy environment, better livelihood, food security, safe nutrition, and a growing consumer market" (ROAM, 2021). In doing so, ROAM collaborates with the government, and other stakeholders in strengthening the EOA National platform in making sure EOA is integrated in national policies, plans and strategies, and form links and partnerships among stakeholders and build a critical mass and voice on EOA (ROAM, 2021). Among the stakeholders are various government institutions such as the Rwanda Environment Management Authority (REMA), National Agricultural Export Development Board (NAEB), Ministry of Foreign Affairs and International Cooperation.

What ROAM does.

Standards and Certification

ROAM aims to expand the use of organic standards and promote certified organic farming. ROAM plans to collaborate closely with the Rwanda Standards Board (RSB) and other relevant regional and international organisations to ensure that consistency is maintained and that no efforts are duplicated.

ROAM also works with other development partners in the establishment of a system that will support smallholder farmers/ traders to access certification services at a relatively affordable cost (strengthening the development of Participatory Guarantee Systems (PGS).

Value chain development

Regarding organic markets, ROAM has a significant role to play in increasing and strengthening the capacity of the market for traded organic products at local, regional, and international levels, to encourage value addition on Organic Agriculture Products. ROAM aims to establish an organic business center, and they are working tirelessly to strengthen the existing organic market outlets to at least 4 provinces of the country.

Preserve Ecosystems

ROAM promotes initiatives for broadening the spectrum of organic agriculture technologies and products. Further, it underscores the promotion of research, education, training, and extension in organic agriculture systems.

1.5 Chapter Outline

This thesis is structured into five chapters. Chapter one provided a background to the study and explains the study's rationale, significance, aim and objectives. The second chapter discusses the study's conceptual framework employed in the study. The third chapter deliberates the methodologies adopted in collecting and analyzing data used in this study, accompanied with justification for the choice of the methodologies. The fourth chapter presents the findings and discussions of the study's data analysis process. The fifth chapter contains conclusions drawn from the study's findings and recommendations.

Chapter Two: Conceptual Framework

2.1 Political Ecology of Organic Farming

Benjaminsen and Svarstad (2019) point out that political ecology is a way of looking at how societies make decisions regarding the natural environment in the context of their political environment, economic pressures, and societal laws. Several political ecologists have begun to investigate the politics of power and knowledge at a local level as the notion of political ecology has expanded into new disciplines (Walker, 2005). de Micheaux and Jenia (2021) explain that political ecology focuses on localized fields and communities, rather than wider sets of economic or political patterns, like those driven by neoliberal-based policies or capitalism, to examine local changes, especially in rural communities. In this sense of reasoning, the use of green revolution technologies for farming can be perceived as a form of neoliberal initiatives vis a vis organic farming. The place-based approach of political ecology and its higher involvement with users of local resources permits environmental analysis to be informed by contemporary and historical patterns of resource use, which is contrast to many types of environmental analysis that are made in relative ignorance, particularly in developing world (Turner, 2016).

Studies (Alrøe et al., 2006; Benjaminsen and Svarstad, 2019; Walker 2005) indicate that political ecology can be effectively used to assess agriculture, including organic agriculture. This can be seen from its application in assessing sectors such as agricultural exports (agri-exports). Firstly, is the perception created as commodities move along the value chain (Fischer, 2006; Howes, 2013), by addressing the ecological conditions and other features of processing and distribution, and the manner in which environmental and other features of certain commodities are framed (Perreault, Bridge and McCarthy, 2015). Secondly, certain political ecology studies seek to explore the environmental implications of agri-food systems in totality (Perreault, Bridge and McCarthy, 2015). Third is the key theme of transnational politics of agri-food chains; with two interwoven strands.

One strand focuses on activists' actions against the negative environmental and social implications of key export crops from the Global south. Such campaigns have witnessed population directly impacted by the implications, which does make common cause with activists focused on their own and other countries, and hence assumes the contentious politics to national and transnational levels (Veuthey and Gerber, 2012; Baird and Quastel, 2011). These studies focus on the nature of networks and alliances established, the strategies adopted (such as boycotts), and the effects of mobilization. The other strand is centred on the reactions to campaign against Southern export crops, largely by companies in the industry, but also by international bodies, state actors, scientists, and established environmental NGOs. These actors also form transnational alliances and links to push for their interests (Perreault, Bridge and McCarthy, 2015). According to Perreault, Bridge and McCarthy (2015), since around 2000, studies in political ecology have been tackling the most common results of such alliances; that is, the speedily increasing sets of certifying systems for agri-food commodities as "responsible", "sustainable", "organic" (which is the focus of this study), among others.

As mentioned by Perreault, Bridge and McCarthy (2015), while most political ecologists researching on transnational activism around export crops have directly and indirectly taken activists' side, they have put much direr position towards certification schemes. Among the reasons for these, is the fact that certification serve a double-edged role in moulding the participation of producers located in the Global south in international agri-food systems, by allowing them to demonstrate compliance with priorities of (normally Northern) export markets, while at the same time pushing to exclude producers who for different reasons may not be certified. For example, it may be challenging for a smaller producer to pay for certification while lacking the financial and technical assistance of external actors (such as donors) (Bush *et al.*, 2013). Additionally, political economists also argue that certification systems subject standards produced basically in the North onto producers (and regulators) from the South, who may hold relatively different priorities (Vandergeest and Unno, 2012). Lastly, studies stress that the environmental and social consequences of certification, and the degree to which the assumptions on ecological and social

relations are rooted in certification schemes relates to local conditions, are extremely wide-ranging (Galt, 2010; Kusumawati *et al.*, 2013).

According to Perreault, Bridge and McCarthy (2015), certification can be seen from the lens of political ecology from three perspectives. Firstly, from a policy viewpoint, certification has turned into an unavoidable element of modern conservation initiatives. Secondly, from a government viewpoint, certification systems are productive in nature. In this case, they are to be perceived as a process whereby environmental qualities are attached to commodities, hence forming new platforms for environmental decision-making, and valorising certain environmental tasks and areas, while devaluing others. Thirdly, and most important, regarding the persistent political ecology concerns for environmental justice, is the certification service economy organizers ‘conservation work’ that offer jobs for millions of small producers, accreditors, and assessors (Perreault, Bridge and McCarthy, 2015). However, Perreault, Bridge and McCarthy (2015) argue that the combination of low payments for such work and high costs of certification normally shifts the economic burden of conservation from consumers (wealthier) to the producers (poorer). This expresses why some farmers in field tend to deem environmental certifications as an ‘ecological neo-colonialism’, and a sense of injustice to them (Perreault, Bridge and McCarthy, 2015).

Besides certification other aspects, such as states subsidies are argued to also create distortion to competition between organic products from different regions. This is coupled by the fact that the established organic standards and control systems may in fact act as barriers to potential growth of organic farming (Fuchshofen and Fuchshofen, 2000). As argued by Alrøe, Byrne and Glover (2006), the global uniform standards tend to be unfair to certain parties since they do not regard the value of different natural and cultural conditions under different regions. In this sense, Alrøe, Byrne and Glover (2006) propose that the identity of organic agriculture must be expanded and strengthen to prevent the negative environmental and social implications from free, global trade of organic products.

However, as expressed by Force (2008) organic agriculture can influence improvements in social capital, by leading to development of more and stronger

social entities at local levels, fresh norms, and rules for managing collective societal natural resources and trigger better connectedness to external institutions of policy. This includes creation of farmers groups and informal community collaborations, which reduce the cost of working while increasing knowledge transfer among farmers. This is also coupled by strong links formed with NGOs and government, organizations supporting organic agriculture (Force, 2008). In this study, a political ecology perspective will be employed in analysing the economic, social, and political factors which influence organic farming activities in Rwanda.

Polanyian Concept of Protective Countermovement

Agriculture models that are assumed to be sustainable such as organic farming are a response to the existing agricultural model's perceived negative implications. Organic certification systems are market mechanisms that forbid certain farming techniques and inputs that supporters of organic agriculture believe are damaging to the environment and the community (Larrivée, 2019). Karl Polanyi described the dynamic of the free market producing undesirable effects and social actors attempting to mitigate those repercussions as a "double movement." Organic farming movements, according to Polanyi, could be viewed as a cultural critique on the rising neoliberalization of food production and consumption. This was partly due to Polanyi's argument that money, land and labor are all fictitious commodities. He said that they are fictitious since they are not created for the market (Mostafanezhad, 2016). As a result, Polanyi foresaw a double movement, or societal opposition, to the de-socialization of money, land and labor. This, he maintained, is why the "free market" doctrine will eventually fail (Mostafanezhad, 2016). This research investigates farmers' reasons for participating in ROAM, drawing on Polanyi's notion of the double movement as well as contemporary work on neoliberalism and emerging social movements for organic farming.

According to Alrøe, Byrne and Glover (2006), while the certification of pro-environmental agricultural processing and products is perceived as a form of ecological justice, the rules are defined by certification standards that are designed and controlled by non-localized and distant systems, working across regions and nations. These certification standards are, ideally, competitive under

mainstream market systems based on consumer preferences for environmental and socially friendly products. However, their competitiveness can be damaged by aspects such as subsidy structures, and if they are not supported by society-based actions, the responsibility for commons is based solely on individual consumers and their daily choices. In this sense, such a non-localized form of ecological justice, based on certification and preferences of consumers, will face difficulties in growing into an influential system for global commons. For instance, from a survey of Canadian certified organic producers, Larrivee (2019) notes how some perceived certain aspects of agriculture are having more negative implications than others. They also perceived how organic certification provides certain protection from the perceived issues while still anticipating protection from government. But the survey also shows that these perceptions differed between aspects of organic agriculture, by for instance, the economic aspects of agriculture being perceived less problematic. This suggests the need for Polanyian scholars to consider how countermovement may act as a complex integration of responses to more specific concerns and issues, and that there is no single homogenous countermovement, but a combination of overlapping countermovement's, which expresses the key differences in levels of concerns on specific issues and on suitable responses (Larrivee, 2019).

According to Polanyi, counter-movements were born out of the need to safeguard society from the negative consequences of commodification. For instance, carbon markets have been developed to lower greenhouse gas emissions and to protect the society, in reaction to threats of climate change (Stuart, Gunderson and Petersen, 2019). Using the case of Carbon Trading, Carton (2014) argues that market-based solutions are a representation of a modern countermovement to climate change, whereby carbon trading can be viewed as an example of Polanyian social protection. However, drawing from Fraser (2014), Stuart, Gunderson and Petersen (2019) interpret Polanyi by arguing to the contrary that carbon markets are not a representation of genuine counter-movements to climate change, and they lack the ability of protecting the society, by instead increasing commodification. Polanyi (2001) states that commodities are 'objects that are produced for sale on market'. He further argues that since such commodities are produced for sale, 'land, labour, and

money are obviously not commodities', and hence exist as fictitious commodities. When these fictitious commodities are treated as actual commodities, negative consequences will follow. This calls for protection, without which, according to Polanyi, nature/society will be destroyed (Polanyi, 2001). Patel (2013) argues that, historically, capital accumulation is stimulated by competition between states and corporations. The move to feed the world, which the proponents of New Green Revolution tend to ride on, appears to express concerns of statehood, but the New Green Revolution is still tied to geopolitics. The original Green Revolution often entailed the formation and shaping of markets with the geopolitical participation of nations. Similarly, despite being presented in philanthropic terms, the New Green Revolution is a representation of new efforts to control the power of commodification, which is largely performed by instruments of the U.S-based hegemony (Patel, 2013). In this sense, the New Green Revolution is not a countermovement, but a form of capitalism.

In Africa, according to Willer and Lernoud (2019), majority of the certified organic product are meant for export. Two African countries have organic agriculture legislation, while seven are still in the process of drafting, and nine have national standards, but lacking organic legislation, Rwanda being among them (Willer and Lernoud, 2019). Similar to most countries, Rwanda's organic agriculture has been developed and promoted through two parallel paths: that of NGOs and that of commercial (driven by firms). The government of Rwanda has also been involved since the early phases (ITC, 2008). Rwanda's national organic agriculture initiatives are operated through the governance of the agricultural sector that seem friendly to organic practices. The overall objective of the National Agricultural Policy and Strategic Plan for Transformation of Agriculture for 2018-2024 is moving from subsistence to a productive, green, and market-oriented agriculture sector, and to resolve the challenges (present and future) and exploit the available opportunities. The policies are not particular on matters related to the implementation of organic agriculture, but they recognize the critical role that organic farming plays, alongside conventional agriculture (ARECO-Rwanda Nziza, 2020; Ozor and Nyambane, 2021). The priorities of the government's policies in this sector

include regionalisation, intensification, professionalization, and commercialization (ITC, 2008). Intensification and commercialization tend to be a potential for capitalism/commodification in what Polanyi terms as a threat to the society (Polanyi, 2001).

Regardless of the existing policy intention, the promotion of organic agriculture in Rwanda is still weak at the production level, relative to the subsidies of chemical fertilizers that makes organic agriculture disadvantaged (ARECO-Rwanda Nziza, 2020). There are still few commercial organic programs that are organized in Rwanda (ITC, 2008), and the local market is also non-existent, with some substantive progress made in 2012 for developing the export of organic agriculture product, like vegetables, tea, coffee, flowers, and fruits (ARECO-Rwanda Nziza, 2020). Organic farming in Rwanda has seen a decline in terms of organic agriculture land occupied over the years in hectares; with survey showing a decline from 2,248 (in 2014), 1,269 (in 2015), 1,284 (in 2016), and 1,276 (in 2017) (Willer and Lernoud, 2019). Despite such decline, there was an expected 764 hectares, 10 years growth from 2017, as illustrated by Willer and Lernoud (2019). By the year 2010, three private firms were engaging in organic production, for export of fresh fruits, hot chillies, and geranium oil. The destination market for these exports was Europe, which has tight regulations regarding organic farming requirements, which in turn influence on the development of organic farming in Rwanda (as shown in Table 2.1) (Muhamadi and Boz, 2018).

Moreover, organic agriculture is also virtually in the extension, education, and research and development services and activities. Hence misinformation and a lack of awareness remains one of the huge challenges (Ozor and Nyambane, 2021). However, the Rwandan government has offered support to boost the sector through offering financial support for certification process, based on subsidizing the cost involved. Some allege that more or less all farmers in Rwanda are “organic by default”, unless in cases where they engage in tea or coffee, with a significant number said to be using small quantities of agro-chemicals. Additionally, there are farmers who are also said to be engage in organic farming consciously, despite them not being certified, and are commonly linked to NGO’s programs (ITC, 2008). According to Muhamadi and Boz

(2018), this suggests that the main issue that certified organic firms face in Rwanda is beyond abiding by the standards and is more related to a lack of experience and understanding of the certification process. Besides government's role, this highlights the role that organizations such as ROAM can play in boosting organic agriculture through offering information communication and extension services and helping smallholder farmers and traders in accessing certification services at a comparably affordable cost, among other roles (ROAM, 2021). All these indicates the dynamic of the global organic agriculture space, which tends to be uniquely local-specific, while still interconnected to other parts of the system, working regionally, and international across the global.

Table 2.1: Rwanda's Organic Products and Export Markets

Company	Organic product	Market volume	Export Market
Urwibutso	Passionfruit Juices	-10 tons/week to national market - 10-15/week export destinations	Uganda, Kenya, and Belgium
Shekina Enterprise	Vegetables Like Cassava Leaves	2 tons ...export 3 tons domestic consumption	Belgium and Oman
Ikirezi Natural Products	Geranium Oil	It had just started	United Kingdom (UK)
R-Chilex	Chilies	6 tons export before disagreements	Belgium but halted due to prices disagreements among others
Floris	Organic Apple Banana	1-2 tons/week	Belgium

Source: (Muhamadi and Boz, 2018)

Karl Kautsky's Agrarian Question

The Agrarian Question, as initially addressed by Karl Kautsky (1988), is essentially two problems, one theoretical and the other political. The first one posed the question of what the dynamics of capitalist agriculture are, while the second one asks what states should do about peasantry given the dynamics of capitalist agriculture. Kautsky (1988) responded to the first problem by forecasting the end of smallholder farms under capitalism, and to the second by saying that the states should not do anything to arbitrarily hurry or slow the peasantry's proletarianization (McLaughlin, 1998). Linking this to organic

farming, as stated by Hanson *et al* (2004), despite the long history of organic farming, the recent rapid growth experienced in the sector may have triggered increase in risks for organic farmers. For instance, giving an example of the increase in number of certified organic farmers in America, Dobbs, Shane and Feuz (2000) indicate how price premiums linked to the organic niche market and family-based farms were at risk, with the entry of large-scale organic processors and producers in the market, especially if the demand did not expand sufficiently. However, regarding the first question, he later changed from his initial position, asserting that indeed the peasants would survive longer than

Marx's prediction, since peasantry were not being swept aside through capitalism, but serving instead as reservoir for capitalist farm's labour. From Hanson *et al*'s (2004) argument organic production techniques can lower the risks on organic farmers in the long-term, through techniques such as crop rotation. Comparing the application of conventional crop rotation and organic crop rotation, studies indicates that a risk-averse farmer would prefer organic system over conventional (Hanson *et al*, 2004). According to Diebel, Williams and Llewelyn (1995), using diverse cropping lowers the variability of the general farm income since the prices and yields of multiple crops do not necessarily move together (Hanson *et al*, 2004). Additionally, in his perspective of his earlier argument on SDP agrarian commission, Kautsky ironically concludes in the Agrarian question that there are tendencies within capitalism, along with effective political pressure for state intervention (normally with large farmers' and Junkers' backing), which will make sure peasants survive (Kautsky, 1988). For instance, there has been increased interest by governments and (other players) in managing the risks faced by organic agriculture farmers/producers, especially with evidence suggesting that organic agriculture can potentially significantly contribute towards the global food supply, while also lowering the destructive environmental effects of conventional agriculture (Badgley *et al.*, 2007).

In Rwanda, as mentioned earlier, although the government has not shown explicit concerns on boosting organic agriculture, it has offered significant support, through its efforts to increase pro-environmental and ecological farming practices. This also includes more direct support through

training and subsidies for organic standard certification to farmers (Muhamadi and Boz, 2018; ARECO-Rwanda Nziza, 2020; Ozor and Nyambane, 2021). This also includes programs such as the crop intensification program (CIP), for increasing agricultural productivity in high-potential food crops, ensuring self-sufficiency, and food security (Ozor and Nyambane, 2021). These efforts, though not very strong, may help to ensure the survival of the sector.

Toporowski (2002) argues that, regarding accumulation, politics, and production, agriculture has posed (in developed markets) and continues to pose (in contemporary transitional and developing markets) the ability to enable or restrain structural transformation and economic development. According to Toporowski (2002), in order to eliminate agricultural hurdles to accumulation, the agrarian question must, in a sense, be ‘addressed’, through certain form of successful ‘agrarian transition’. Whereby, Byres (1996) proposed that an agrarian transition occurs when changes happen in the countryside, which are necessary to the general development of a mode of production and to the final dominance of that mode of production within a given economy.

However, despite many context-specific routes to agrarian transition having been tried (Bryes, 1991), argues that the only superficially successful and sustainable case of agrarian transition tend to follow the capitalist route, and for such reason, analysis of the agrarian question seems to be centred on circumstances that contribute to or hinder a capitalist agrarian transition. Among the circumstances as concluded by most studies is that economic growth (to the degree that it has happened at a national level) has been characterised by an uneven (class and sectoral) distribution of benefits, which has seen rural inequalities intensify across both low and high growth states, and a huge portion of the rural population experiencing low (or no) improvements in their living standards or suffered a drop in their consumption or income (Watts, 1985). According to Watts (1985), this is not surprising, and is similar to discussion on issues such as state neglect, ecological degradation, and among others. This may also apply in explaining the challenges faced in adopting of organic farming in this study’s context.

Moreover, Toporowski (2002) seem to suggest that the problem is replicating the outcome of a single path (the one navigated largely by developed

countries) on the wide range of developing and transitional economies. This suggest that the challenges/issues faced in organic agriculture adoption in transitional developing economies (such as Rwanda, in this case) may emerge from the attempts by actors (such as NGOs, international bodies) to impose initiatives that are not necessarily fitting for the developing/transitional economies' context, by instead applying what works/worked in the developed market context.

A range of studies have explored the factors that influence on the decisions by farmers to switch from conventional to organic farming practices in both developing and developed countries. According to Brenes-Munoz *et al.* (2016), the most important factor relates to the access to government subsidies for organic farming. Nevertheless, Kuminoff and Wossink (2010) argue that government subsidies can also contribute towards policy risks that may lower the adoption of organic practices under particular conditions. Moreover, organic farming may also be linked to higher risks in production since some risk-reducing inputs are not permissible (Serra, Zilberman and Gil, 2008). For example, while chemical pesticides assist in lowering damages caused by pests, they are forbidden in organic farming (Kallas, Serra and Gil, 2010). Other influencing factors to adoption of organic practices involve the access to information and high-value certified markets that consumers are will to pay premium prices for organic products (Meemken and Qaim, 2018). As Bolwig *et al.* (2009) argue, this is especially the case for small farmers in developing countries, where adoption of organic standards is decisively dependent on development initiatives for offering marketing and training support to farmers.

On the other hand, conventionalisation debate holds that the increasing constrictions in decision making, together with increase in other pressures (such as economic) that farmers experience, could trigger an erosion of the ethical conduct and attitudes of organic farmers (Hendrickson and James, 2005). The smaller (artisanal) farmers are unable to resist pressure posed by the large operations, including their incapacity to survive (in the long-term) and avoiding conventionalisation from spreading to all organic farms. For instance, according to Guthman (2004) the involvement of agribusiness in organic farming triggers the rationality of intensification, and thus alters the conditions under which all

organic growers operate. By the control of agri-business over functions such as marketing and processing, and them introducing industrial inputs, agribusiness renders the smaller operations less profitable, as they engage in direct competition with larger producers in same markets. This pressures smaller organic farmers into adopting conventional practices, including labour, farming, and marketing in order to ensure their survival. However, some scholars argue that smaller farmers may still survive under such conditions, such as their nature and ability to target niche, and demand from those who perceive them as local, and speciality in products. Their survival is also argued on the basis that the relationship between large and small farmers may as well be complementary, and hence help in survival (Darnhofer *et al.*, 2010).

In Rwanda, the government acknowledges that organic farming together with conventional farming play important roles in attaining goals such as increasing revenues from agricultural exports and sustainable development. This has seen the adoption of various policies aimed at encouraging organic production practices, including banning plastic bags and mandatory community soil conservation activities (Källander and Rundgren, 2008). However, the 2007 Fertilizer Policy principally promotes the use of chemical fertilizer to stimulate crop and livestock production (Muhamadi and Boz, 2018). Muhamadi and Boz (2018) note the low usage of conventional farming input technologies by smallholder farmer, who form 80 percent of the rural population and are still into subsistence farming.

Muhamadi and Boz (2018) argue that with policies and supports, which are targeted to such smallholder farmers who form a majority of the population, then it could be easy to shorten the duration needed to convert farmer to organic farming. This is confirmed by the fact that the development of organic agriculture in Rwanda, just as the rest of East African countries, is largely driven by the private sector, NGOs, and exporters. For instance, ROAM, which 2014 was registered in 2014 as an NGO is the main driver of organic agriculture in Rwanda (Muhamadi and Boz, 2018; ROAM, 2021). The agrarian is used to interrogate the challenges faced by smallholder's farmers Rwanda in using organic farming methods over convention/inorganic technologies inherent in capitalist agriculture.

Chapter Three: Methodology and Methods

3.1 Research design

The sampling methodology employed in this study includes critical case sampling and convenience sampling. Critical case sampling is the process of collecting samples that are most likely to provide the information needed. These are samples that are often noteworthy and have crucial and relevant information about a topic of discussion. Critical case sampling has been utilized because it would allow for the selection of participants who have knowledge of organic farming issues either from conducting the farming themselves, studying organic farming or working with organic farming stakeholders. After identification of these groups of individuals, convenience sampling was used to reach out to them and ask them to participate in the study.

The research participants include:

- 6 farmers who are members of ROAM
- 2 members of the executive committee of ROAM
- 2 processors from ROAM
- 2 exporters from ROAM

3.2 Research assistant profile and role

Because of corona-related travel restrictions, I was not able to travel to Rwanda to contact the participants. In that case, I enlisted the services of a research assistant. The research assistant works as an assistant program coordinator at ROAM. Because of his rapport with stakeholders at ROAM, he helped me to ask the members of ROAM to take part in my study after giving them some background information regarding the study. Upon showing their interest in accepting to take part in the study, the members were recruited to participate. The research assistant asked for their active phone contacts and relayed them to me. While I contacted the participants directly to continue with the research process, the research assistant continued acting as a link with the participants in cases that I was not able to get in touch with them. But before the research

process could proceed it was critical to ensure that participants were assured of their safety and privacy in relation to issues such as their personal information and identity. It was also critical to ensure from every participant that they willingly participated in the study, without coercion, and that they had the opportunity to opt out at any time during the study. This was necessary to increase the rate of participation, while also avoiding potential bias. As already stated, the research assistant was in Rwanda, where the participants were, and where the data was being collected, but as for me, I was barred from going there. Therefore, the research assistant took up all of the responsibilities of the research that I would have executed if I was there. In line with Ratkovic et al., (2013), he stood in my position as the researcher in my absence and performed some of the responsibilities I would have taken if I was there. His main duties were to recruit those who took part in the study and hand their contacts to me. In case there was a problem, and I could not reach any of the participants I would contact the research assistant to help me trace the participant.

3.3 Data collection process and tools

Semi-structured phone interviews were employed in collecting the primary data from this study's sample. This is because of the nature of this study's subject, which requires a technique that allows participants to express the intricacies and potential conflicts of their experiences will be required. Therefore, semi-structured interviews were appropriate for this study because they are conducted using an open framework that allows the researcher to maintain focus and have a two-way communication with meaningful conversations (O'Keeffe et al., 2016). It was possible for the interviewer to follow a guideline, but also stick to topical trajectories within the conversation that strayed from the conversation when necessary.

Secondly, although semi-structured interviews give room to the researcher to prepare questions ahead of time, they also allowed the interviewer to create questions in the course of the interview because not all the questions could be generated and phrased before (Rahman, 2019). Creating questions during the interview allowed the interviewer and the interviewee the flexibility to have room for details, where necessary (Boyce and Neale, 2006). With semi-structured

interviews, interviewees had the freedom of expressing their views and opinions in their own ways. The semi-structured interviews also provided reliable, qualitative data that could be compared to other data. The interviews were undertaken in different languages based on what participants were more effective in communicating. This included the French, some English, and the local language. The interview responses were then transcribed accordingly.

Moreover, the two-way conversation held between the interviewer and the interviewee made it possible for the respondents to ask the interviewer questions and that created an atmosphere of learning (O'Keeffe et al., 2016). It was possible to confirm what was already known, but at the same time providing opportunities for learning. The information obtained through semi-structured interviews did not provide answers only, but also the reasons behind those answers as well (Rahman, 2019). It was also possible for the interviewer and interviewees to discuss sensitive matters which could not have been discussed using other data collection methods such as questionnaires and structured interviews (Boyce and Neale, 2006).

As such, interviews were used in this study as a tactical approach to open up the dialogue with participants, prevent being constrained to specific categories, and move beyond conventional responses. According to Flowerdew and Martin (2013), these are some of the advantages of conducting interviews over other methods of data collection such as questionnaires. All these informed the choice of semi-structured interviews in the study.

On the other hand, primary data was collected so that the researcher can obtain specific, current, and timely information about the particular topic being studied. This could not be achieved through secondary research, because secondary data may not be specific to the area (Rwanda) and organization under study (Rwanda Organic Agriculture Movement).

Apart from the primary data gathered through interviews, data was also collected using secondary methods of data collection. The secondary data was used to supplement interview data was collected from books, and peer reviewed journal articles, as well as published and unpublished reports on the topic (Martins et al., 2018). Secondary data was necessary for purposes of supporting and corroborating the information collected from the interviewees. The data

collected through primary research methods was gauged based on what previous studies found on the same topic (Lowry, 2015).

3.4 Data analysis methodology

The qualitative data gathered from both secondary and primary data collected in this study was analyzed using thematic analysis. Thematic analysis is an iterative technique for turning semi-structured data into a map of the data's most essential themes. Thematic analysis helped identify patterns of themes within the data collected through interviews. One advantage of thematic analysis is its flexibility for use in explorative or inductive studies where there is no clear idea of the patterns being searched for (Nowell et al., 2017). Thematic analysis is based on inductive coding of qualitative data to make clusters that have like entities or conceptual groups, and the identification of constant patterns and the relationships between various themes in order to obtain theoretical explanations of what is being studied (Maguire and Delahunt, 2017). It provided prearranged and richly defined information about the database. Themes were developed in the data collected through coding. Thematic analysis recognizes vital moments within the data, and it encodes it prior to interpretation (Clarke and Braun, 2013; Javadi and Zarea, 2016). To explain the codes, the researcher compared theme frequencies, and compared the relationships within various themes, and hence discovering the co-occurrence of themes.

This method was selected because the present study involves multiple actors and groups who may have different opinions about the topic of research. As a result, thematic analysis was a valuable tool for assessing diverse study participants' viewpoints, showing parallels and variations, and uncovering unexpected findings, as explained by Kin (2004) and Braun, and Clarke (2006). It was also appropriate given the big volumes of interview data generated from the interview sessions (Javadi and Zarea, 2016).

3.5 Research ethics

In the context of the global COVID-19 pandemic, the most significant ethical principle to be considered in the study was the principle of do no harm. As such, all measures were taken to ensure the safety of those always involved in the

research process. Through a letter to the ISS Institute Board, permission was sought and granted for the research to be done through a research assistant, because of the Covid-19 restrictions which could not allow travelling to Rwanda. However, since the research assistant may have had physical contact with the intended participants, he made sure that he had adhered to corona-related rules in Rwanda. These rules include wearing facemask, avoiding physical touch with others, and frequently sanitizing hands.

Additionally, the research followed the research ethical principles of informed consent and voluntary participation. Adhering to these principles entailed explaining to the expected participants about the purpose of the study, what their role will be in the study and how the data collected will be used and where it will be publicized. After comprehending these elements, the individuals were asked if they would voluntarily take part in the study. No coercion mechanism was used to solicit for their participation.

Verbal informed consent was obtained prior to the beginning of the study and before the participants were allowed to take part in it. In line with Dilmi (2012), the participants were assured of confidentiality through anonymity because the interviewer avoided collecting their personal information, together with the data shared while answering the interview questions. For example, the names of the respondents, ages and their addresses were not collected from them (Halai, 2006). Instead, the researcher used pseudo names to hide the true identity of the interviewees.

Chapter Four: Results and Analysis

4.1 Introduction

In exploring the influence of political-ecology factors affecting the adoption of organic farming by smallholder farmers and other related actors in organic agriculture in Rwanda, it was critical to gain an understanding of the perceptions, knowledge, and experiences that such actors have on aspects revolving around organic agriculture. Therefore, this chapter presents the findings from the interview response of the stakeholders of ROAM. The findings are presented and analyzed based on themes that address the research objectives. The first section examines ROAM stakeholders' perceptions of organic farming vis-à-vis the new green revolution. The second section focuses on the production and marketing challenges facing organic farming activities of the ROAM stakeholders. This is followed by an assessment of the political-ecological factors (that is, agricultural policies, environmental and social factors) that influence the adoption of organic farming among ROAM stakeholders.

4.2 Brief description of respondents

4.2.1 Farmers (members of ROAM)

Respondents	Gender	Age
R1	Male	39
R2	Female	45
R3	Male	40
R4	Female	44
R5	Female	46
R6	Female	38

Table 4.2.1 above illustrates that there were six farmers, who included two men and four women. Their average age is relatively young; that is 42 years.

4.2.2 Members of the executive committee of ROAM

Respondents	Gender	Age
R7	Male	38
R8	Male	40

Table 4.2.3 Processors from ROAM

Respondents	Gender	Age
R9	Male	40
R10	Male	42

Table 4.2.4 Exporters from ROAM

Respondents	Gender	Age
R11	Male	44
R12	Female	46

4.3 Respondents' perceptions of organic farming vis-à-vis the new green revolution

Respondents' perception of inorganic practices

In the attempt to establish the narratives of organic agriculture supporters in Rwanda, the participants (ROAM stakeholders) were asked on how they perceive the inorganic/conventional farming and the organic farming practices. Firstly, on the part of inorganic farming, their responses suggested that most ROAM stakeholders view inorganic as a threat to the environment, food safety and security in the long-term. This was confirmed by several respondents. For instance, as one farmer interviewed stated:

“Although it is the most dominant farming approach, especially with regard to increasing farm yields, inorganic agricultural practices do not offer a healthy way (environmentally and in living) to ensure food security and safety” (R1, 2021).

This was similarly expressed by another farmer, who said:

“Even though progressively, over the years, the market forces (such as profits) and other related factors have favored inorganic agriculture, this does not mean that it is the most appropriate approach to farming. This is because of the potential negative environmental and health implications, which are very critical to our lives and cannot be ignored in favor of aspects such as high focus on profits” (R3, 2021).

A member of the executive committee of ROAM also expressed his views against inorganic farming by suggesting how it benefits a few while its consequences for societies are harsh. He stated that:

“Inorganic agriculture is a farming approach that is damaging to the community and the environment in general. Its benefits tend to impact only a few (larger farmers) and are not as fundamental as the concerns over the implications of such practices to our life on the planet. This can be seen in the increased diseases, climate change, and other negative implications across the world, which can be traced back to such practices” (R7, 2021).

These statements are consistent with what Karl Polanyi described as the dynamic of free market generating undesirable effects, with social actors (in this case the ROAM stakeholders) trying to mitigate the repercussions, in what he calls the “double movement” (Larrivée, 2019). This is also regarded as a form of desocialization of money, labor, and land (Mostafanezhad, 2016). Therefore, based on Polanyi’s description, inorganic farming is a form of emerging neoliberalization of food production and consumption.

This was coupled by seven of the respondents noting that inorganic farming bears some benefits, which are largely economic, which could explain why farmers are still highly engaged in inorganic farming in the country relative to organic farming.

“Increased inorganic agricultural practices may act as a risk factor to our environment and livelihood, and hence needs to be relooked with care” (R9, 2021).

“Over the years, the inorganic agricultural techniques have focused on providing economic result and efficiency, which are achievable in a unit of area, but ignoring the health factors and environmental balance” (R11, 2021).

This is in agreement with de Micheaux and Jenia (2021), who refer to inorganic agriculture as neoliberalism that is highly driven by capitalism, while as seen from the responses, tends to ignore the consequences of their practices on the environment and other aspects, such as human health. Inorganic agriculture is also advantaged by the Rwandese governmental strategic priorities. This match with Alrøe, Byrne and Glover (2006) argument that there are a range of trade barriers and other economic hurdles that organic products from low-income nations need to overcome for them to compete fairly in the same conventional and organic products. Subsidization of conventional and organic products was a particular issue for concern for Alrøe, Byrne and Glover (2006). In Rwanda, the use of inorganic input is promoted by imports of inorganic fertilizer, which is normally subsidized, and distributed to farmers, particularly under the Crop Intensification Program (CIP) (ITC, 2008; Ozor and Nyambane, 2021). This is coupled by government’s advisory extension services promoting access to and use of artificial fertilizer for higher crop yields (Muhamadi and Boz, 2018). This also includes the crop intensification program (CIP), aimed at increasing agricultural productivity strategic plan of the Rwandese government, since it has made unified efforts in increasing ecological and environmentally friendly practices based on both conventional and pro-organic practices (Ozor and Nyambane, 2021). Therefore, these suggests that the existing condition in Rwanda tend to work in favor of inorganic (conventional)farming, which may explain the low adoption rate for organic agricultural practices, and the need for more effort to fix such trends.

Respondents’ perception of organic practices

On the other hand, ROAM’s stakeholders seem to perceive organic agriculture as a movement towards addressing the negative implications posed by inorganic approach to agriculture. This included the need for environmental protection, ensuring food safety and security. As stated by one farmer:

“Organic farming offers an inclusive approach to sustainable development that is beyond just profits, but also involving consideration for environmental protection and food safety and security” (R1, 2021).

Another farmer expressed almost the same views but adding that organic farming is a solution to healthy living, besides ensuring a healthy environment. She said that:

“Organic farming is a solution to the production of healthy foods, while at the same time helping in reducing the negative externality to our livelihoods and the environment” (R6, 2021).

While expressing a similar view of organic farming being pro-environmental, another farmer expressed his opinion of organic farming as an affordable approach to farming, stating that.

“Organic farming is an alternative farming approach that contributes towards eradication of poverty, hunger, and disease in a way that is more sustainable and environmentally friendly. This is because this is an approach to farming that promotes the use of local-based, affordable, and pro-environment inputs (R3).

On the other hand, the most involved actors in pushing and promoting organic agriculture as a movement, such as the executive committee members of the board of ROAM, expresses a deeper perception of organic farming. One of them stated.

“Organic agriculture is an approach to farming that promotes better livelihood, food safety and security, and healthy environment. The farming system helps to sustain healthy soil, people, and environment. This approach to farming also incorporates fairness, by making considerations to issues beyond profit maximization, unlike the inorganic approaches which may benefit some section of the community, while harming a majority” (R7, 2021).

In this sense, such stakeholders (ROAM) serve as what Karl Polanyi describes as social actors attempting to mitigate the repercussions caused by the undesirable effects of the free-market dynamics promoting neoliberalization of food production and consumption (Larrivée, 2019). Moreover, the overall

response over organic agriculture suggests that unlike inorganic agriculture, which is more focused on the economic aspect, offers other unique benefits. This includes promoting conservation of biodiversity, use of methods of production that are adjusted to the locality, promoting soil fertility, and avoiding chemical inputs (Kilcher, 2007). According to Kilcher (2007), use of such techniques plus cultivating diverse crops helps to stabilize the ecosystems in the tropics, and lowers pest influxes and drought sensitivity. For instance, de Micheaux and Jenia (2021) refer to inorganic agriculture as a form of neoliberalism that is highly driven by capitalism, and which needs to be addressed in order to protect the society/nature, as proposed by Polanyi (2001). In this sense, players of organic movement (ROAM) act as the critiques of such form of neoliberalization, and a countermovement as argued by Polanyi (Larrivée, 2019).

On the other hand, the traders held a similar view to the rest, in relation to organic agriculture helping in ensuring environmental and health safety. But they also expressed their perception of the business opportunities it presented to them. For instance, one processor said;

“I believe organic farming serves as a possible resolution for the growing continued conventional methods of production, which threaten the health and general livelihood of humans. It also serves as an opportunity to tap into the market of consumers who are sensitive to food and environmental safety” (R9, 2021).

The earlier responses indicating the perception of inorganic agriculture as being more economically beneficial, and such responses indicating perception of organic agriculture as also business opportunity, creates the picture of the likely trend towards conventionalization. According to Guthman (2004), with such trend’s products along the organic commodity chain are likely to be seized by conventionally oriented agribusiness). The conventionalization hypothesis hold that organic farming is turning into a slightly altered version of contemporary conventional agriculture, reproducing similar history, and in turn leading into various of similar technical, social, and economic outcomes (Guthman, 2004). As suggested by Darnhofer *et al.* (2010), this could see farms abandoning the more sustainable organic practices in the attempt to gain more economic value.

This is because, such trend could see organic farming being exposed to aspects such as increased dependence on purchased of more conventional inputs (such as chemical fertilizer), adoption of economic of scales at the farm level (with larger pieces of farming land), and mechanization of processes such as production (Guthman, 2004; Darnhofer *et al.*, 2010). Therefore, this suggests that as long as the business/economic perception towards organic farming is held by farmers (and other players), conventional/inorganic farming practices are advantaged since they are highly perceived to bear more economic benefits.,,

Why the participants chose organic farming over inorganic farming inputs

All the interviewed farmers suggested that they chose to use organic farming inputs (such as seeds and non-chemical fertilizer) over inorganic ones due to the need to maintain the environmentally friendly and safe and secure foods/product standards that are embraced through their usage.

“Traditional approach to farming has been a way of farming in my family for years, and most of the practices embraced by organic agriculture tend to match with such traditional practices. I have been also encouraged to go along this path from the exposure received through being a member of ROAM, where I have learnt more values of organic farming practices, including being pro-environmental and suitability for a healthy life and sustainability” (R5, 2021)

The revelation by the participant, associating organic agricultural practices with the traditional practices is not entirely correct. Firstly, supporting this association of organic agriculture to traditional farming, Kilcher (2007) states that organic agriculture operates based on a mix of traditional, indigenous knowledge, and modern agro-ecological ideas. According to Kilcher (2007), traditional organic farming is mostly small-scale, meant for home consumption, and local markets, and based on traditional methods. Moreover, just as traditional farming, Kilcher (2007) suggests that organic farmers do not act against the natural dynamics, but instead they utilize them to their benefit.

However, as reported by UNCTAD and UNEP (2008), many traditional farming approaches practiced in developing countries tend to practice organic practices

without the motive to seek or receive the premium price offered to organic produce in certain domestic markets. The traditional agricultural practices involve management practices that have experienced evolution over centuries to form the agricultural systems practiced to match the local culturally and environmental condition. Based on their nature, the traditional systems do not apply artificial agricultural inputs, but adopt ecological approaches for enhancing agricultural production (UNCTAD and UNEP, 2008). Therefore, just as UNCTAD and UNEP (2008) argue, most of such traditional systems may not wholly satisfy the production standards of organic agriculture, even if they can be regarded as near organic. According to UNCTAD and UNEP (2008), the near-organic agricultural systems in Africa do not depend on bought inputs, commonly since they were bypassed by the Green Revolution, or farmers lack the access to, rather cannot afford the artificial inputs. In Rwanda, 95.4% of segment plots farmers and 59.7% of large-scale farmers use traditional (non-genetically modified) seeds; against 34.7% of segment plots farmers and 32.7% of large-scale farmers, who use organic fertilizers (Muhamadi and Boz, 2018). Coupled with evidence suggesting misinformation and low awareness as huge challenges in Rwanda's organic sector (Ozor and Nyambane, 2021), this may pose as a threat to organic agriculture, especially in cases where the traditional agricultural practices are contrary to the principles of organic agriculture.

Similarly, the reason for choosing organic farming input and equipment based on its pro-environmental attribute was also expressed by a processor, who stated.

“My choice for organic farming inputs and equipment is not so much against inorganic ones but is instead based on the belief that a smart combination of organic and conventional approaches could add towards sustainable productivity of global agriculture in general. This is based on the fact that organic farming enhances healthy living, environmental and climatic cautious practices, which seem to be highly ignored by inorganic farming (R7, 2021).”

These responses highlight the importance that organic farming stakeholders attach to organic-based principles, including inputs. This is because, in essence, organic agriculture is a response to the existing agricultural models that are perceived as having negative implications (Larrivée, 2019).

The exporters also expressed that farmer should use organic input over inorganic farming input in order to push for an environmental-friendly and sustainable approach to farming, as embraced by organic practices. However, they also stressed that this is also helpful in following the set standards for organic products in their target markets, which would ensure they not only get access to such markets but also become competitive. This was confirmed by one of the exporters who stated that:

“I am a businessperson, so I view the organic agriculture market as a niche market, especially for export and partly for local markets, which attracted me to the sector. And of course, this comes with the need to use inputs that promote a safe and secure environment and farm products, which are embraced by organic farming (R12, 2021). This is coupled with the fact that organic consumers, as a niche market, tend to be conscious of healthy and pro-environmental practices and products, which then serves as standards that need to be followed in order to successfully access the market and at competitive prices (R12, 2021)”

Besides the use of organic farming inputs being pro-environmental, their attractiveness, as expressed by another farmer, is based on their affordability and access to farmers. According to the responses, access and affordability are enabled through the support received in promoting organic agriculture by several parties, including NGOs and the government. One of the farmers who had been a member of ROAM for some years said:

“I choose organic farming since it has always been an affordable approach to farming for me, through the use of readily affordable inputs within the farm. However, this has been made more attractive after joining and getting further support from ROAM, in terms of information on the value of organic farming, financial support and

inputs, and connection to ready markets for farm products, among others (R4, 2021)”

This suggests how the support towards organic farming makes it attractive to farmers, which was also shared by the exporters. Among the important form of support was the facilitation of access to high premium markets. For instance, while addressing the question as to why they chose organic agriculture over inorganic, an exporter indicated that:

“The market for organic products has been increasingly growing internationally over the years, and this creates opportunities for businesspersons, such as exporters like me. This attracted me, so I joined the ROAM organization to get more exposure and facilitation in tapping such markets for organic agriculture products (R 11, 2021).”

The responses indicate the value of support offered towards promoting the growth of organic agriculture in making it more attractive. This is because a significant number of stakeholders connected their choices to the support received from different actors, including governments and NGOs, which made it attractive to engage in organic farming. This included government subsidies and support for certification fees, and advisory services from both the government and NGOs. Bush *et al.* (2013) highlight the financial and technical assistance needed by smaller producers of organic farming. For example, studies indicate how certification restricts organic producers, mainly in third world countries, from accessing markets (Vandergeest and Unno, 2012; Perreault, Bridge and McCarthy, 2015). This will help to prevent the pressure and potential switch to inorganic farming. According to Henderickson and James (2005), the growing restrictions in decision-making, combined with increase economic pressure experienced by farmers, could trigger an erosion of ethical behavior and attitudes away from organic agriculture principles. For instance, in the effort to address this issue, the Rwandan government finances certification processing, by subsidizing the actual costs to be incurred during the certification process for organic status (Muhamadi and Boz, 2018). This support is important since as indicated by Muhamadi and Boz (2018), besides the certification costs, the challenges experienced by organic farms in Rwanda are not essentially connected to following the certification standards, but instead, more about lack of adequate

experience for understanding and managing the certification process. The government also offers advisory services to farmers, through extension institutions such as Rwanda Agricultural Development Authority (RADA), Rwanda Bureau of Standards (RBS), and Rwanda Horticulture Development Authority (RHODA). These institutions facilitate farmers in getting organic inputs and offer guidelines on how to comply with organic farming standards and certification (Muhamadi and Boz, 2018). This is also the case for NGOs such as ROAM, which enhances farmers understanding of effective approach to organic farming practices.

4.4 Production and marketing challenges facing organic farming activities of study participants

Production challenges facing organic farmers

The findings indicated inadequate inputs for organic farming, such as seeds, and fertilizers, challenges in effectively using appropriate/efficient organic farming technologies due to lack of expertise/experiences, lack of finances to apply appropriate organic innovations. One of the farmers shared her opinion as follows:

“I had been applying the traditional/local farming methods for years because that is what I had been able to afford and knew how to. This was due to lack of finances to adopt appropriate inputs (such as seeds) and technologies, coupled with little expertise on more innovative and appropriate techniques. Some of these local farming methods match with organic agriculture practices, but they are not highly efficient, and are somehow short of what is recommendable by organic standards, as I came to later realize after joining ROAM (R5, 2021).”

Another one also expressed the similar economic challenges for adopting the required standards and technologies by stating:

“I have depended on agriculture as my source of income and given the size of my farm and my financial abilities, it has been challenging to make it economically viable while still meeting the standards set by organic certification. Currently, it is much better given the support received from

being a member of ROAM and the government's effort to facilitate organic farming (R3, 2021)."

The processors and exporters also expressed similar sentiments in relation to finance but added on challenges related to certification since it influences their ability to process (for processors) and export (for exporters) products that are based on the required organic standards.

Board members of ROAM also expressed the challenges for getting the necessary support from the key stakeholders in the value chain and the government.

"We operate in a niche market with very tight and specific certification and compliance requirements for export commodities that need to be met. But the environment where we operate makes it challenging for our farmers, who are largely smallholder farmers/producers. This is coupled by the fact that this sector is still young in Rwanda, and we have players within our downstream of the value chain who are still inexperienced, have low financial and production abilities, and are expected to compete with their counterparts from foreign markets, which have high experiences and technological abilities, and operating under favorable conditions. Some of the favorable conditions for the foreign large players include favorable policies that promote organic agriculture. This informs our role as ROAM in trying to advocate and promote organic farming in Rwanda."

From the response, farmers from the global South seem to operate in unfavorable (disadvantaged) position compared to their counterparts in the North. Government in developed nations (global south) started subsidizing their organic sector, which increased the market share for their certified organic products. For instance, in the United States and the Europe, policies for supporting organic farming involves direct subsidies to producers, government regulations and standards, sponsorship of promotion campaigns and research funding, and organic labelling (Meemken and Qaim, 2018). On the other hand, although developing countries (including Rwanda) also offer support, it is not strong enough as mentioned earlier. This plus the challenges revealed from

the responses this may be the reason for the slow pace at which the organic sector in Rwanda has been growing, even experiencing some decline at some point (between 2014 and 2017), in regard to the agricultural land occupied (Willer and Lemoud, 2019). The conventionalization debate stresses that the increasing restrictions in decision making, plus the increase in other pressure (including economic), could cause an erosion of the ethical attitudes and conduct of organic farmers, which suggests a shift towards conventional (inorganic) approaches.

Marketing challenges facing organic farmers

The responses indicate that the market environment is unfavorable for Rwandese organic farmers to compete effectively in the international markets. For farmers, the marketing challenge is significant since it comes from two perspectives. First is the fact that their farming is on a small-scale, and they have to compete against other organic-based farmers who operate on a large-scale for both local and international markets. Secondly, the farmers have to compete with inorganic farmers who have the ability to produce high-yielding crops in a large scale for markets of consumer markets that are not specifically organic-oriented. One of the farmers stated:

“We tend to operate in a niche market, with consumers who are sensitive to what we produce based on given organic standards. However, we compete for the same market with bigger players, especially internationally, which is challenging given their strength in matters such as free (rather affordable) certification, and easy access to markets (R4, 2021).”

Another farmer said:

“Marketing is a great challenge for us since it influences the value that we get from the sale of our produce, which we depend on as our source of livelihoods, and to invest back in farming. However, we face competition from inorganic farmers who apply more advanced techniques that offer more yields per land occupied, and then we also have to compete against counterparts in the organic sector who are operating under more favorable marketing conditions because they have

easy access compared to us. Some of our counterparts have favorable conditions to produce organic products cheaply and hence able to sell at competitive prices. This makes it even more challenging for us to operate sustainably in the long-term (R6, 2021).”

On the other hand, the marketing challenges were deemed very critical for exporters and processors, as they tend to face them directly in their regular operations. One of the processors said:

Marketing is (and has been) a very great challenge, given that it influences how, when, and to whom we sell our products, which affects our overall operations. For instance, if we process more than the markets available, then we are more likely to experience losses from the remaining stock, especially for perishable commodities. This affects operations across our value chain (R10, 2021).

On the other hand, an exporter also expressed his marketing challenges, saying that:

It is tough operating in the international market, which is characterized by strong competition from a range of international players with very high experiences, expertise, and operating under favorable terms than us. This is because most of these international organic traders have easier access to markets, have policies that boost their operations, and the finances and other relevant factors which work in their favor compared to players from developing countries. This makes it difficult not just to compete, but survive in this niche market (R11, 2021).

Lastly, acting as promoters/facilitators in the sector, the members from the executive board of ROAM expressed issues that were cross-cutting in their responses. One of them said:

“The market for organic produces is very tightly controlled, which makes it challenging to access. This comes from the sensitive nature of organic consumers regarding environment and health issues. Moreover, the certification and validation process also put restrictions on our players in the international market, compared to foreign ones who seem more favored to have easy access (R9, 2021).”

The responses of the research participants indicate that the most critical marketing challenge for Rwanda organic farmers is difficulties in accessing markets. Firstly, these marketing challenges come from low demand from consumers in the local market in Rwanda. This can be attributed to factors such as low support for producers, and low awareness among consumers of the benefits of organic products, and availability of the organic products the market in the local context (Muhamadi and Boz, 2018; Ozor and Nyambane, 2021). Secondly, is the fact that the market information related to market trends and prices of organic product has been low (Muhamadi and Boz, 2018). Moreover, as confirmed by Muhamadi and Boz's (2018) argument that the destination market for organic export is tightly regulated, which has, in turn, contributes towards the rate of development of the sector in developing countries that depend on exports. These marketing challenges, together with the production challenges make it challenging for smallholder farmers (largely in developing countries) to survive. The Agrarian question acknowledges the dynamics of capitalism in agriculture (Kautsky, 1988), and in this case their implications to smallholder farmers in developing countries. These challenges (both marketing and in production) are contrary to Kautsky's (1988) earlier and Marx prediction that holds that smallholder organic farms, under capitalism, will not survive even beyond the possible predictions. Guthman (2004) argues that the involvement of agribusiness in organic farming triggers the rationality of intensification, and thus alters the conditions under which all the organic farmers operate. Through the control of agri-business over functions such as marketing and processing, agribusiness renders smaller farmers less profitable (largely in developing countries), as they engage in direct rivalry with larger producers in the same market (Guthman, 2004). Moreover, as explained by studies, certification serve double-edged role, which ultimate works against producers who happen to be largely from developing countries (Bush *et al.*, 2013). Generally, in Guthman's (2004) opinion, organic agriculture faces three threats from agribusiness. Firstly, the political threat of lowered standards, which would erode the meaning of organic. Secondly, the direct economic threat, whereby agribusiness is in the state of significantly damaging the livelihoods of practicing, seemingly more committed producers, in what can be generally referred to as appropriation.

Thirdly, agribusinesses practicing organic farming in a manner that is more superficial or an industrial mode, and thus successfully reducing certain unique aspects of organic farming, in what is known as conventionalization.

4.5 How political-ecological factors influence the adoption of organic farming among study participants

The influence of agricultural policies on the practice of organic farming

The findings suggested that agricultural policies do greatly influence on the adoption of organic farming. One of the main reasons was attributed to the sensitive nature of the organic market as a niche, which has to ensure all standards are followed.

Firstly, in their responses, the farmers indicated that agricultural policies influenced almost every aspect of their operations, including the inputs and techniques. One of the farmers said.

“As expressed earlier we need support from the government and other players in the sector in order to effectively apply the principles of organic agriculture, as well as compete in the international markets. Such support can be facilitated (or discouraged) through agricultural policies. For instance, our government does offer subsidies towards lowering the cost of certification, which is a key influencing aspect of organic agriculture operations and activities”.

For processors agricultural policies were important influencing factor for their adoption of organic farming, directly and indirectly. When asked what the effect of agricultural policies has been, one processor responded that;

“As processors we may be affected by agricultural policies either directly or indirectly. For instance, by being in the middle of the organic commodity value chain, we are indirectly affected by policy at the downstream of the farmer, and at the upside of the consumer. This is because we process what we receive from the farmer, and so, agricultural policies that promote production of organic products have increased our business and made it attractive. On the other hand, some policies tend

to limit/improve the access of market for organic product to the market, which consequently impacts on the demand for our services, and hence making it unattractive/attractive to engage in organic farming value chain. On the other hand, a more direct policy would touch on our area of operations, for example a policy to export organic products without necessarily processing them would render our business in organic farming useless, rather unattractive.” (R10, 2021).

The exporters gave a similar opinion to processors. One of them stated;

“Agricultural policies do affect our practice of along the organic farming value chain, directly and indirectly, locally and internationally. For instance, agricultural policies that are aimed at facilitating farmers to access organic input have helped (and help) in boosting production, which increases the product that we can export. On the other hand, policies that does have a negative effect on production, also negatively affect our business, and hence our engagement in organic farming practices. Moreover, policies that helps in offering support and information on how to comply with organic farming standards and certification, have helped (and may help) in boosting our access and attractiveness to international market since they help in compliance with the tight organic regulations” (R7, 2021).

A Board member said;

“Just like any other sector, policies do determine the terms of engagement of activities in our sector as well; be it negatively or positively. For instance, several policies have been introduced by the Rwandan government to promote organic production activities, which includes mandatory soil conservation. However, on the contrary, policies such as those encouraging the use of fertilizer (like the 2007 Fertilizer Policy) tend to encourage inorganic farming practices, while going against the principles of organic agriculture. This influences on our operations as a body purposed to advocate and promote certified organic farming” (R7, 2021).

Generally, the feedback from all the participants suggests that policies do negative or positively impact on the practice of organic farming. This suggests that governments need to channel more efforts facilitating organic farming practices. Among the areas to be looked at, is certification system/schemes for organic produce, which has impacts on different activities across the agri-food systems, such as possible exclusion of smaller producers from the market (Bush *et al.*, 2013; Perreault, Bridge and McCarthy, 2015). Therefore, the government can help by offering subsidies where necessary, because evidence suggests that smaller producers (farmers) find it challenging to pay for certain cost, such as certification, while lacking the technical and financial assistance (Bush *et al.*, 2013). In the Rwandan case, the government has been financing the certification process by offering subsidies to address costs that would be experienced by farmer/producers in the certification of organic status. However, as expressed by political ecologists, the government can do more beyond policy that finance certification processes, by also influencing on the nature of the certification systems since some of the certification systems tend to be aimed at subjecting standards that are basically produced in developed countries to developing countries (in the South), who may have relatively different priorities (Vandergeest and Unno, 2012; Kusumawati *et al.*, 2013).

Besides certification, the government of Rwanda has adopted other several policies for promoting organic agriculture. These include tree planting, banning the usage of polluting plastic bags, and the mandatory community soil conservation practices. Other pro-organic policies include the introduction of the advanced cookstove, use of solar energy, and exploitation of other alternative source of energy, such as methane gas in Lake Kivu (Muhamadi and Boz, 2018). However, despite these policies promoting agriculture in Rwanda, the government has also implemented other policies that tend to discourage organic agriculture, such as the 2007 fertilizer Policy, which encourages the use of chemical fertilizer. Another threat from the government policies includes imports of inorganic fertilizer, which are normally subsidized particularly under CIP program, as mentioned earlier. Moreover, government performs advisory extension services that boost access to chemical fertilizer (Muhamadi and Boz,

2018). Therefore, government policies in Rwanda have a lower impact due to the blend of both positive and negative policies towards organic agriculture.

Influence of environmental factors on practice of organic farming

Most farmers indicated that environmental factors do influence on their practice of organic farming by influencing on how effective they adopt the required/recommendable standard practices. One of the farmers said that;

Environmental factors have had an influence on my practice of organic farming in a couple of ways. Firstly, due to environmental degradation, our government has been able to acknowledge the important role that organic farming, together with other conventional ways can help in reviving the situation. This has influenced government's decisions to adopt policies that are pro-organic, which have consequently benefited by practice as an organic farmer in a positive way. Some of the benefits from this includes receiving government's facilitation to acquire required inputs (such as seedlings), receiving the relevant guidelines and support for certification (R1, 2021)

This may indicate the impact of government policies towards the development of organic agriculture, as mentioned above. To the processors environmental factors tend to affect their practices along the organic farming value chain in a more indirect way. For instance, one of the processors stated that;

“Environmental factors have affected on our operations on organic farming in a more indirectly, since we do depend on what, when, how farmers produce, which is affected by the environment. For instance, when there are poor harvests due to poor rainfall, this reduces the amount and quality of workload to handle, and ultimately on our revenues as well. Therefore, if such trends were to persist, there is a possibility that we could have to end our operation, and may be switch to something else more sustainable” (R9, 2021)

Moreover, similar to the processors, environmental factors (such as climatic change and soil erosion) also influence on the operations of exporters of organic farming products indirectly. A member of the ROAM group of exporters indicated that;

“We do export what we receive from the farmers, hence since environmental factors tend to affect the farm produce, and practices, this tends to consequently impact on the quality and quantity of product that we can export. Moreover, such impacts emerge from both the local and international market, by influencing on the demand and supply of organic products in market, which tend to impact on the demand of our products and their pricing in the markets” (R12, 2021)

The executive members of the board as advocates and promoters of organic agriculture indicated that environmental factors affect their practice of organic farming directly and indirectly. A member of the board explained that;

“Our work is to promote and advocate for organic agriculture, and thus any aspects that impact on organic farming (including environmental factors) also influence on our practices directly or indirectly. For instance, due to environmental degradation, and poor soils in some regions, the government has had to adopt the use of fertilizer, which is not necessarily in agreement with organic-based principles. Therefore, we have had to encourage pro-environmental practices to avoid such patterns, while also pushing for alternative organic-based approaches to address such issues. On the other hand, we have a chance to ensure that our members, can access markets for their produces, even in cases where the harvests have increased due to favorable environmental factors” (R8, 2021).

The responses suggest that environmental factors do influence on individuals practice of organic farming directly and indirectly, largely due to the fact that organic farming principles are largely based on environment friendliness. According to Scialabba and Müller-Lindenlauf, 2010), a key potential contribution of organically managed systems to the mitigation of climate change is based on careful management of nutrients and thus the reduction of the elimination of N₂O from soils, and mitigation of carbon isolation in soils. However, as expressed by Alrøe, Byrne and Glover (2006), while the certification of pro-environmental agricultural processing and products is perceived as a form of ecological justice, their rules are defined by certification standards that are controlled and designed by non-localized and distant systems. This way such

standards do not appreciate the local specific factors such the environment, which affects how players in the downside of the value chain (such as farmers) differently based on their specific local regions (Alrøe, Byrne and Glover, 2006). For instance, as expressed by Perreault, Bridge and McCarthy (2015), certain farmers in field regard environmental certifications as some form of 'ecological neo-colonialism', and a form of injustice to them. This may explain the slow development or adoption of organic farming practices. However, despite the mentioned environmental benefits, studies also suggest that organic agriculture have potential for enhancing adaptation, through building resilient food systems in cases of uncertainties, by building soil fertility and farm diversification with organic matter, both in developing and developed countries (Scialabba and Müller-Lindenlauf, 2010).

The influence of social factors on the practice of organic farming

Social factors may influence how the different stakeholders practice organic farming in a relatively similar way.

Firstly, the response from farmers suggested that organic agriculture influenced on the development and improvement of social capital. One of the farmers said;

"The social factors such as religion, beliefs, and lifestyle in general, have greatly influenced on my practice of organic farming. But I would say mostly positively, since they tend to highly match with principles of wellness and care for humanity and environment, which are in harmony with organic farming principles. Additionally, based on the manner of operations of the systems of organic farming, I have been able to develop and enhance my social capital. This includes being a member of strong social organization, through bodies such as ROAM, where I am a member at the local level. Moreover, we have new norms and rules that we apply in managing collective natural resources connected to organic farming. All these have influenced largely positively on my practice of organic farming" (R4, 2021).

Similar opinions were held by the other members, including the processors, exporters, and executive members of the ROAM board.

The processor stated that;

“My own social life has had an impact on my engagement in organic farming. This includes my belief, and way of life, which tend to resonate with living healthy and agrees with most of the principles of organic farming. Moreover, the social links that I have developed with partnering actors along the value chain, such as government officials, NGOs (such as ROAM), and other organic actors, I have gained greater knowledge on my area of operations in relation to organic product processing. This includes the types of crops, organic techniques, and markets, which have positively influenced on my practice of organic farming” (R9, 2021).

On the other hand, one of the exporters explained that;

“As a businessperson, I would greatly opt for profit maximization as opposed to following the values embraced by organic farming. But social factors connected to personal belief, upbringing, and religion have made my participation in organic farming as passion, since they are in harmony with what organic farming stands for, regarding the environment and healthy living. This is coupled by the social networks I have created while practicing exportation in organic farming, and as a member of ROAM, which have helped in knowledge transfer from and to me, including aspects on export promotions” (R11, 2021).

Lastly, an executive member of the ROAM board had this to say over the influence of social factors;

“Definitely, my belief and principles, and lifestyle in general, compelled me to join the organic agriculture movement, to promote and advocate for practices and principles embraced by organic farming. From experience in the field, I have experienced its effect on other participants, such as farmers, where it would be difficult to convince some individuals to switch to what looked less economic in value. Moreover, the social class of individuals would affect if and how they engage in organic farming. Last, but not least, social networks that we facilitate and encourage among different actors have been helpful in enhancing knowledge transfer, and networking, among other aspects that have positively influenced on organic practices” (R7, 2021).

Generally, the feedback suggests that social factors do affect if and how individuals engage in organic farming, due to personal aspects such belief systems and lifestyles. Moreover, it is also common among participants that social factors enhance organic practices through the networks and knowledge transfer enabled from interactions with different actors along the value chain of organic farming. As Force (2008) argues, organic agriculture can trigger improvements in social capital, leading to establishment of stronger organizations at local levels, creation and adoption of new norms and rules for managing collective societal resources. This may contribute to collaboration among individuals at the local level in implementing organic initiatives and change of individual's habit towards what may favor organic farming practices. Therefore, as argued by Alrøe, Byrne and Glover (2006), the identity of organic agriculture is wider and should involve the environmental and social factors to prevent the negative social and environmental implications of free-moving global of organic product. Studies argue that social (and environmental) consequences of certification, and the degree to which the assumptions (on ecological and social relations) are rooted in certification, relate to local conditions, are extremely wide-ranging (Galt, 2010; Kusumawati *et al.*, 2013). This is also coupled by the views that global uniform organic certification standards, which are designed and controlled based on non-local standards tend to be unfair to certain individuals since they ignore the fact that different regions and location have different natural and cultural conditions (Alrøe, Byrne and Glover, 2006). This also confirms Bridge and McCarthy's (2015) sentiments that the combination of low payments for work-related to certification and high costs of certification, normally shifts the economic burden of organic farming practices from consumers to producers, who are often wealthier and poorer, respectively. Therefore, there is need for the global organic standards to be redesigned by expanding and strengthening them to encompass such local-specific factors in order to enhance the development of organic farming practices across the world.

Chapter Five: Conclusion

This study investigated the narratives and practices of organic farming in Rwanda and explored the political-ecological factors affecting its adoption. Despite the general increase in organic agriculture practice in Rwanda, there are still inconsistencies in the development of the sector. Firstly, the increased adoption is influenced by the perception of individuals towards organic agriculture vis-à-vis new green revolution. For instance, based on the feedback of participating ROAM stakeholders, they tend to engage in organic farming practices largely because of the perceptions attached to its contribution towards environmental and food safety and security. Such perception works in favor of the adoption of organic practices, as they regard organic practices as a form of solution against the negative implications of inorganic agriculture practices.

The Rwandan organic agriculture stakeholders also adopt agriculture practices and use the associated inputs due to the support that they receive from different actors to use them since it makes it attractive. Among the support includes financial and technical assistance aimed at promoting organic farming practices. Some of the actors offering such support include the government and NGOs. Though the evidence indicates that the Rwandese government has implemented policies promoting organic agriculture, the support is not adequate, and hence more support can help to enhance the adoption of organic agriculture practices and the development of the sector in Rwanda.

However, despite the marked increase in adoption of organic practices, some farmers, and other players along the agribusiness chain (such as producers and exporters) still engage in inorganic agriculture. This is because of their perception that it offers more economic benefits compared to organic agriculture. Some suggest that a smart blend of the two approaches can be effective in ensuring food safety. But there is indication that this is potential threat to organic agriculture, by causing the potential erosion of its principles. Based on Polanyi's argument, this suggests that organic agriculture in Rwanda is not largely a countermovement, since it is largely characterized with elements of profit-making.

The organic agriculture sector in Rwanda is also influenced by several production and marketing challenges, hence contributing to the experienced slow rate of development. The production challenges include low expertise and experiences, inadequate finances to support the use of appropriate organic innovations and satisfy the organic standards. On the other hand, the marketing challenges faced organic agriculture players in Rwanda include difficulties in accessing markets (especially international), due to the tight regulations/control, which are largely presented in the form of certification systems. This controls work in favor of large farmers (largely in developed countries where the regulations are designed), while restricting smallholder farmers in developing countries (such as Rwanda as demonstrated in this study).

Thirdly, political-ecological factors were also found to contribute to the level and nature of adoption of organic agriculture in Rwanda, both positively and negatively. This is largely through government policies which affects the operations and activities in the organic sector both directly and indirectly, by facilitating and discouraging the associated practices and activities. On the positive side, as mentioned earlier, the government policies provide technical and financial assistance, which makes the adoption of organic practices more attractive. Additionally, such support helps to address some production and marketing challenges by for instance helping farmers in fulfilling the organic certification processes that have been a key source of restrictions. The support also helps farmers who are still inexperienced in the organic sector compared to their counterparts in the developed world. On the other hand, negatively, the government has indirectly discouraged the adoption of organic practices by creating policies that promote inorganic practices, such as use of chemical fertilizer. Therefore, the mix of such policies discourages and promotes organic farming, hence may explain slow rate of organic agriculture practices in Rwanda that needs to be relooked in order to ensure the sector is well developed.

The study also established that the environmental factors influence on organic farming practices, by affecting how effective the adopted practices match with the principles/standards of organic agriculture. This is based on the fact that the principles of organic agriculture are mainly based on environmentally friendly practices. This is coupled with social factors that

influence on if and how different stakeholders adopt organic farming practices. These include individual's belief and lifestyles, which impacts on if and how they engage in activities, including organic agriculture. From the ROAM participants' viewpoint, social factor enhances organic farming practices by helping in knowledge transfer and in establishing networks along the organic agriculture value chain. This promotes collaboration among organic agriculture stakeholders, which influence on change of habits in favor of organic agriculture. This explains the value of NGOs such as ROAM, which have helped in building such social factors in Rwanda. Therefore, all these factors can be beneficial in helping to boost the development of organic agriculture in Rwanda, and similar contexts, and state (and other key player's) support can facilitate the adoption of organic agriculture.

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