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An Eritrean Perspective of Africa's Potential for Indigenous, Independent Food Sustainability

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Abstract

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MPA, Strayer University, 2008

BS, Asmara University, Eritrea, 1990

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Food insecurity in Africa is a threat to future generations because many countries rely on potentially unsustainable food policies. Eritrea's indigenous food sustainability policy has not been explored or analyzed in a scholarly manner. This qualitative case study analyzed the effectiveness of the current policy of food sustainability without relying on foreign food aid in Eritrea. The main research question addressed relates to how Eritrean irrigation farmers understand and implement the Eritrean government's food sustainability policy. The theoretical framework for this study, Kingdon's policy stream, set the agenda for a policy of sustainable indigenous Eritrean agricultural development without food aid. I have collected data by conducting semistructured interviews with 15 farmers who each have at least 7 years' experience providing food for their own families. Data from the interviews was audio recorded, transcribed, reviewed by the interviewees for increased credibility and reliability, translated in to English, and emergently coded and categorized for theme and pattern analysis. This study`s findings contain important lessons relative to advancing food self-sufficiency in Eritrea. The implications for social change across Africa may include informing practitioners and policymakers of the importance of applying appropriate policies to encourage food self-sufficiency.

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Dedication

This study is dedicated to my father, Weldeghebriel Tesfagabir, who passed away this year as I prepared to complete my study, for the values of hard work, discipline, resolve, and kindness he instilled in me. I would also dedicate this study to my loving mother for her unflinching love and for showing me the importance of education at my childhood age.

Of course, I dedicate this study to my lovely wife, Almaz Tekle. By her continued support and unwavering love, she encouraged me to make this dream a reality, and to my beautiful and brilliant daughters, Semai and Kumel, for their tender love and sacrifice.

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In addition, to all my family members, friends, and university staff who have supported me along the way, thanks for all your encouragements.

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Chapter 1: Introduction to the Study

In 2006, President Isaias Afewerki of Eritrea received negative attention from the United Nations (UN) and U.S. Agency for International Development (USAID) for refusing to allow any direct food aid delivery to Eritrea. All foreign food aid workers were banned and many left the country. President Afewerki argued the aid made his country a dependent, much like colonization, and his country should become food self-sufficient (Eritrea Profile, 2011). The president warned citizens there might be short-term sacrifice. Some scholars, including Dedu, Staicu, and Nitescu (2011); Moyo (2009); Easterly (2007); and Rugumamu (1997), supported the position of rejecting food aid and questioned the effectiveness of foreign aid to Africa, noting that it failed to economically develop the continent. However, because Eritrea has had no free press or open movement of aid workers since 2006, recent activities such as irrigational output are unknown.

Eritrea is an East African country bordering the Red Sea between Djibouti and Sudan, with Ethiopia to the south. The country is slightly smaller than the U.S. state of Pennsylvania, with a total area of 117,600 square kilometers. Eritrea is located in the Horn of Africa region, positioned along the world's busiest shipping lanes. Eritrea was an Italian colony from 1889 to 1941, a British military administration from 1941 to 1952, and, most recently, an Ethiopian province from 1962 to 1991. Eritrea gained its independence from Ethiopia in 1991 after 30 years of civil war, with casualties of 60,000 Eritrean independence fighters and hundreds of thousands of Ethiopians (National Geographic, 2014). After the 1993 UN-monitored referendum in which the Eritrean people were given the choice to vote for independence, Eritrea was recognized as an

independent state by the UN (Cheeseman, 2011). The former rebel group, the Eritrean Peoples' Liberation Front, is now the sole ruling party in Eritrea, changing its name to People's Front for Democracy and Justice (PFDJ).

Eritrea acts as the physical link between the Middle East and North Africa because it controls the coastal stretch of the Red Sea. Upon independence from Ethiopia on May 24, 1993, the country retained the entire 2,234-kilometer coastline of former Ethiopia along the Red Sea and its own islands. The current population is 6,233,682 (Central Intelligence Agency, 2013), where the bulk of the population concentrated on the highlands of the Southern Region. Figure 1 shows a map of Eritrea in 2013.

With a small economy and occupying the desert, Eritrea is vulnerable to adverse effects of climate variability, recurring droughts, and environmental degradation. Eritrea is also endowed with abundant natural resources including more than 1,000 known species of fish and 220 species of coral (Teweldemedhin, 2008).

Eritrea is a poor country with an estimated annual gross domestic product (GDP) of about $544 per capita (World Bank, 2015), $1.50 per day placing Eritrean incomes in the bottom 3% in the world and below average for countries in the Sub-Saharan Africa countries. African countries such as Tanzania, Uganda, and Kenya, which have larger populations, geographies, and economies (with better infrastructures, more political stability, and good water supplies), the relatively newly independent Eritrea lags behind in ensuring food security. Eritrea's Human Development Index at 0.351, was "below the average of 0.466" for countries in the Low Human Development group (World Bank, 2015, para 2). Eritrea has not yet reached a sustainable level of crop production that can support the entire population. The government of Eritrea indicated that the country

currently can sustain only 60% of the population without foreign food (World Bank, 2015), promoting the need to purchase substantial amount of food from abroad. Eritrea's economic growth was projected at 2.1% in 2015, up from 2.0% in 2014, reflecting increased investment in the mining sector (World Bank, 2015). However, the policy of the government views the concept of food sustainability from the perspectives of food-security strategy and multiple causes of food shortages.

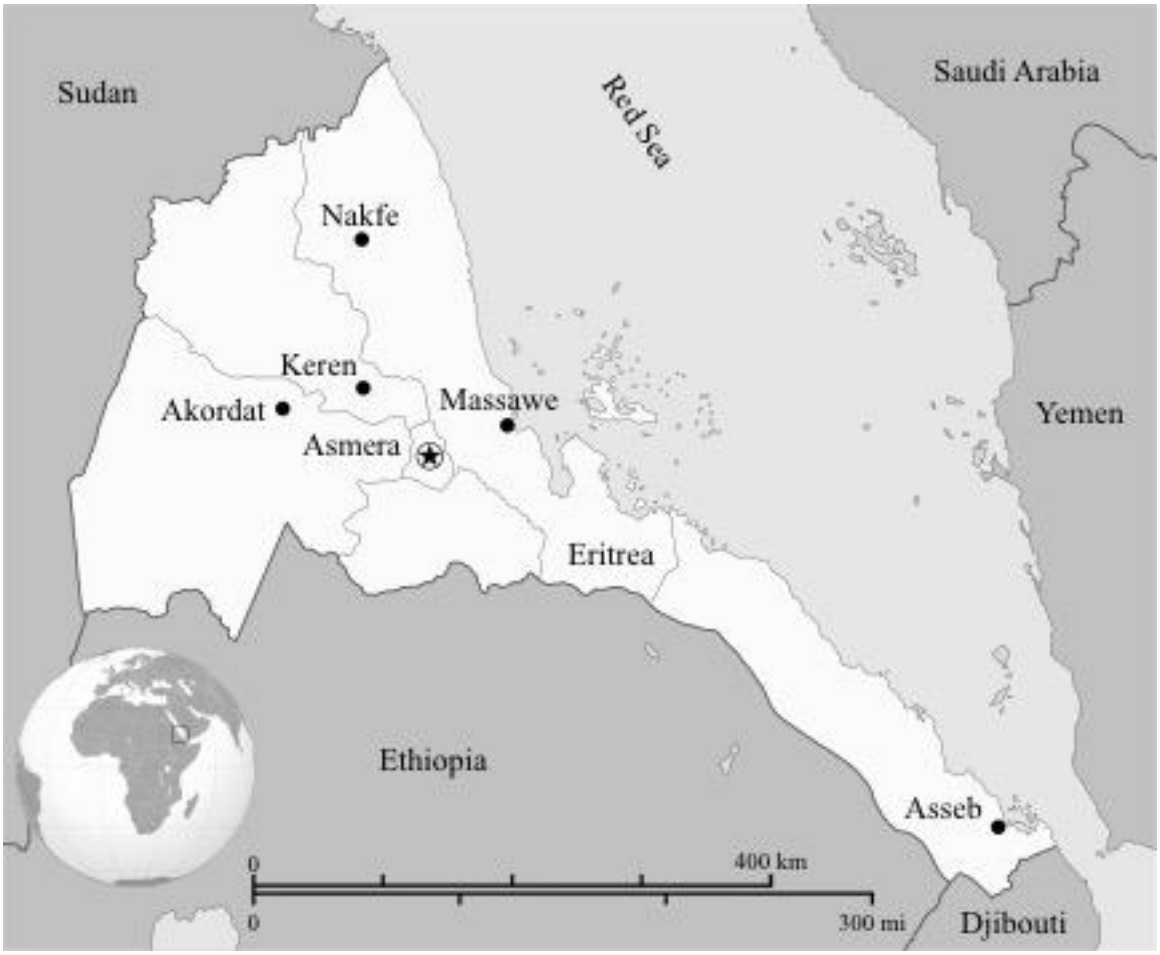

Figure 1. Map of Eritrea.
Adapted from "Maps of the World," by Encyclopedia Britannica, 2013, retrieved from http://www .britannica.com/EBchecked/topic/1788586/Maps-of-the-World. Copyright 2013. Used with permission (see Appendix A).

In Eritrea, different types of indigenous crops accompany sorghum and maize (corn). These indigenous crops can be distinguished by their grain color, shape, yield, and human preference for consumption. Other types of crops grown on Eritrean farms include, teff, millet, barley, wheat, legumes, vegetables, fruits, sesame, and linseed (Table 1; Ogba-Michael, 2002), where each locality has its own planting time determined by the soil moisture. Not enough reliable sources were available if crops are rotated to make use of the land all year.

Table 1

Edible Crops Grown in Eritrea

Crop	Characteristic	Crop	Characteristic
African eggplant	fruit	Marama	tuber
Baobab	tree	Marula	tree
Cowpea	legume	Monkey orange	fruit
Dika	tree	Moringa	tree
Egusi	melon	Okra	vegetable
Enset	tree	Pepper	fruit
Millet•	grain	Pigeonpea	legume
Fonio	cereal	Potato	tuber
Groundnut	nut	Safou	fruit
Kerkede (hibiscus family)	flower used in jams, sauces, and drinks	Sesame	seed
Lablab	legume	Sorghum	cereal
Locust bean	tree	Teff	grain
Maize	grain	Tomato	fruit
Marama	tuber	Watermelon	fruit

Note. Adapted from *Africa's Indigenous Crops,* by A. Stone, A. Massey, M. Theobald, M. Styslinger, D. Kane, D. Kandy, … E. Davert, 2011, retrieved from http://www.worldwatch.org/system/files/NtP-Africa%27s-Indigenous-Crops.pdf; *Types of Crops Grown in Eritrea,* by Eritrea Ministry of Information, 2013, retrieved from http://www.shabait.com/categoryblog/12607--types-of-crops-grown-in-eritrea.

Since 2006, Eritrea has embraced food self-reliance policies, and the sole political party, the People's Front for Democracy and Justice advocates for the growth of

indigenous food and zero foreign food aid (Asmerom, 2011; Ghebru & Mehari, 2007). Eritrea has addressed its food-sustainability needs by building dams, water holes, and irrigation schemes (Rena, 2007). As discussed in this qualitative case study, the government has been promoting a policy of food self-reliance to its population.

This qualitative case study of 2007–2016 where the Eritrean policy of food sustainability focused on increasing agricultural output and irrigation based agriculture was introduced to "increase output and create surplus in cereal corps, vegetables, fruits, and livestock" (Woldu, 2013, para 5). The current policy is to promote sustainable development and to achieve food security by building dams, microdams, and water-diversion schemes.

My goal was to analyze the small-scale farmers' perspectives on the effectiveness of the existing policies as a solution to food self-sustainability and food security in Eritrea (without any foreign aid). The findings of my study will provide effective strategies for further food-sustainability policies in Eritrea, and provide guidance for the leadership in setting new policies.

In Chapter 1, I provided the background of the qualitative case study, which includes a brief historical and contemporary context on foreign food aid and the current food-sustainability policy in Eritrea. Further, I discussed the qualitative research problem, the significance of the study, the purpose of the study, and research questions. After providing a brief methodology and conceptual framework, I have also included a definition of terms, the assumptions I have made, and the scope and delimitations of the study.

Background of the Study

According to the World Bank (2010), some of the catalysts of rising food prices in Africa include ineffective and unfair trade policies and "recurrent dumping of food surpluses on global markets, resulting in underproduction [of food] in poor countries" (World Bank, 2010, p. 1), that triggered a humanitarian emergency response by the international donor community. The international donor community responded to the crisis by increasing foreign food aid and promising increased agricultural investment (World Bank, 2010), currently bringing Eritrea to a food aid dependent food security. The goal is for Eritrea to become fully self-sustainable in food, independent of foreign food aid.

Globally, billions of people benefit from ongoing food self-sustainability, but most parts of Sub-Saharan Africa and southern Asia still suffer from food insecurity, malnutrition, and hunger (U.S. Agency for International Development, 2011). Despite well-intentioned promises from the international community, global food-related aid and programs have not been a sustainable or effective solution for famine relief in Africa (Abbott, 2012). Foreign food aid is a humanitarian emergency response with no future sustainability (Moyo, 2009). Eritrea's harvests should meet the food needs of the country without supplemental grain purchases, but the status of food security in the country has not reached that level of food security, and in rural areas, "80% depend on subsistence agriculture" (World Bank, 2015, para 2) for their livelihoods.

Many African countries have developed national strategies and programs geared toward self-sustainable food production (Bates, Chiba, Kube, & Nakashima, 2009). Some of these self-sustainable programs include the ongoing (since 2006) self-reliance model

in Eritrea, where food aid has been rejected in all of its forms (Ghebru & Mehari, 2007). Hence, Eritrea's future food consumption will depend on effective agricultural production and indigenous food crops. Currently Eritrean is not receiving a direct food aid, the government subsides the gap by purchasing cereals from abroad.

Eritrea has directed its developmental focus toward rural agriculture and food self-sufficiency (Ghebru & Mehari, 2007). Eritrea's developmental aspiration is "to achieve rapid, balanced, home-grown and sustainable economic growth with social equity and justice anchored on the self-reliance principle" (United Nations Development Program [UNDP], 2012, p. 7). In 1996, Eritreans adopted a policy of food self-reliance (Paice, 1996), which eventually led the government, in 2006, to terminate all foreign and donor-funded food-aid programs. "Political stream flows along according to its own dynamics and its own rules" (Kingdon, 1995, p. 162). Kingdon intended this to mean, in the case of Eritrea, change caused by the shifts of important participants such as the current political elites in the system or a response to shifts in national self-reliance mood during the armed struggle with Ethiopia for Eritrea's independence.

Eritrea's current rejection of foreign food aid may be a result of a change in ideological distribution among Eritrean leadership, shaped by its 30-year war for independence from Ethiopia. However, the initial application of the policy of self-reliance that was successfully pursued during the war of independence has, in fact, "turned in to a euphemism for the country's privation and debilitating international and regional isolation" (Welde Giorgis, 2014, p. 229). This means international issues are interrelated, and Eritrea benefits from partnerships and cooperation to attain a sustainable food system.

The Eritrean food self-reliance policy (EFSRP) does not allow foreign food aid; rather, it encourages the country to become food secure using partnerships with developmental agencies and governments (Asmerom, 2011; Ghebru & Mehari, 2007). The government collaborates with international agencies such as UNDP, which promotes sustainable livelihoods and food security in Eritrea through developmental partnerships (UNDP, 2013) but not with agencies that give food aid directly. Economic development policy of the country is based on "investment rather than foreign aid" (Woldu, 2013, para 3).The UN Strategic Partnership Cooperation Framework, signed in 2013 by the government of Eritrea and the UN, aims to contribute to "improving the availability and affordability of food for all Eritreans, and help build the resilience and the economic recovery of war and drought affected populations" (UNDP, 2013, para. 5). According to the signed partnership of cooperation, the UN planned to mobilize about US$188 million to Eritrea between 2013 and 2016 (UNDP, 2013), a fund designed to foster self-sustaining agricultural programs in the country. Eritrea's first wind energy pilot project, supported by UNDP, currently produces 18%–20% of Assab's energy needs, cutting carbon emissions and reducing diesel costs for power generation by over 30% (UNDP, 2013) while promoting social and economic benefits.

Problem Statement

Eritrean government has embraced food-sustainability policies that advocate for sustainable agricultural production (Asmerom, 2011; Ghebru & Mehari, 2007). However, because Eritrea has no independent press and ranks 154 out of 167 (better than Sudan at 165 and worse than Zimbabwe at 150) in the yearly index report for transparency and good governance (Transparency International, 2015), Eritrea may not have implemented

an alternative means to ensure citizens have adequate food needs. Transparency International is a global nonprofit, nongovernmental organization funded by government agencies along with multilateral bodies and foundations, which measures levels of perceived corruption around the world. It works together with governments, businesses, and citizens to stop the abuse of power, bribery, and secret deals. It is possible that Eritrean farmers have made progress toward increased food production, but no empirical evidence supports this contention. With the lack of transparent policy in Eritrea, in this case study I aimed to explore the degree of success of sustainable farming from the perspective of small-scale farmers (n = 15).

The International Fund for Agricultural Development (IFAD, 2015) has been spending millions of dollars annually to support the efforts of the Eritrean government to lay a foundation for the elimination of rural poverty and to increase food sustainability. Despite multiple variables related to this issue of the policies of government of Eritrea pertaining to food sustainability, understanding and evaluating the actions of the government will provide a solid basis for understanding the core of food-sustainability issues in Eritrea. Food self-sustainability is essential for the healthy growth of a developing country, but no existing data support self-reliance as a standalone policy to achieve economic self-sufficiency or prosperity (Welde Giorgis, 2014).

Food sustainability in Eritrea is a multifaceted, multidimensional problem. Researchers have not considered the current EFSRP to determine how well the policy is working. In light of the transparency problem in the country, it is important to see if the Eritrean government has implemented an alternative to food aid to ensure citizens (especially those in rural areas) have adequate food. Currently, a gap exists in the

empirical research on the impact of these indigenous food-sustainability programs in Eritrea: I aim to narrow this gap in the nomothetic network.

Purpose of the Study

In this qualitative case study, my purpose was to conduct a narrative policy analysis on the indigenous food EFSRP policies and examine the perspectives of 15 farmers about the current policies on food sustainability. I used the qualitative case-study method to explore and understand farmers' perspectives on four aspects of EFSRP, during the period 2006–2016: (a) the potential impacts of foreign aid on Eritrea's food self-sustainability, growth, and development; (b) the degree of success of indigenous, drought-tolerant crops for food self-reliance; (c) new strategies that may be adaptable or applicable for Eritrea's sustainable growth and developmental program; and (d) new knowledge on indigenous food self-sustainability.

Many African countries have tried different self-reliance models, but they have been largely unsuccessful, perhaps as a function of high rates of corruption and low rates of actual policy implementation (Winters, Maffioli, & Salazar, 2011). In this qualitative study, I analyzed the perspective of 15 irrigation farmers' about EFSRP's approach to help the country become food-aid free and food self-sustainable.

The findings from my case study may provide advanced general knowledge on successful indigenous food-sustainability policies and self-reliance models and strategies that, if adapted and implemented, could spare current and future generations in Eritrea from food insecurity. The historical and retrospective narrative real-life stories and perceptions of at least 15 farmers, who are implementing current policies of self-reliance and experiencing a life without foreign food aid.

Research Questions

The following three research questions guided the collection of interview data in this study:

Research Question 1: How do irrigation farmers implement the food-sustainability policy of the government?

Research Question 2: How do irrigation farmers understand the current ban on foreign food aid?

Research Question 3: What are the key practices irrigation farmers have followed toward EFSRP's food sustainability policies?

In addition to these three research questions, I examined secondary data from relevant document review and unbiased observations to add the needed credibility and validity to this study.

Theoretical Framework

Sustainable Agricultural Development Free of Foreign Food Aid

The theoretical framework I applied to this qualitative case study was Kingdon's (1995) policy stream, which sets the policy agenda for the self-sufficient agricultural development. As Kingdon indicated, "public policy is not one single actor's brainchild" (1995, p. 71); rather, it is an agenda of a government with sources that vary from one case to another. Similarly, Eritrea's policy stream was "an important promoter or inhibiter of high agenda status" (Kingdon, 1995, p. 163). This theoretical framework is important because the current government of Eritrea had pursued a self-reliance policy during the 30 years' war of independence from Ethiopia.

Internally generated development agendas (Rugumamu, 1997; Sen, 1981) could lead to self-sustainable agricultural development in Africa focused on sustainable agricultural development (Abbott, 2012). Adding to the theoretical framework, Willer (2002) charted the development of Eritrea and the hardships the people faced in the armed struggle for independence, the prior political turmoil, and the economic policies of leaders that declared indigenous-food sustainability. Willer also provided a model of the self-reliance policies from a regional and international context, a similar policy currently the Eritrean government is pursuing. Dedu et al. (2011) examined the efficiency and effectiveness of foreign food aid to Africa and concluded it should not stop, but instead the government should direct it toward self-sustainable programs, because food aid is not self-sustainable program. Dedu et al. concluded that foreign aid has failed to reduce poverty and revitalize the economy because it creates a culture of dependency. These ideas of direct food aid can be reconciled by targeting self-sustainable programs.

The international community sends food aid for humanitarian causes, and as Abbott (2012) noted through the UN World Food Program, the number of starvation-related cases has diminished, but the existing food insecurity with about 793 million people undernourished globally, means food aid is much needed (Food and Agricultural Organization of the United Nations [FAO], 2008). Proponents of food aid use statistics of the number of lives saved by foreign food aid, price-stabilization effects, increased food access for all, and the offsetting of the balance of payments and budgets for governments to justify its need of food aid (Abbott, 2012) as a means of curbing the threats of starvation.

Abbott (2012) is accompanied by other scholars such as Moyo (2009) and Easterly (2007) in opposing food aid as an unsustainable solution to food insecurity in Africa. Rugumamu (1997) argued that Africa has failed to develop, despite the international nonfood aid. Based on statistics released by the FAO (2011), 40% of people who die of starvation each year are in Africa, most of them children. In Eritrea, about 30% of children were found to be underweight for their age (World Bank, 2015). In the 1970s, the rate of starvation in African was lower (FAO, 2011). Rugumamu questioned the effectiveness of foreign aid to Africa and noted that it failed to economically develop the continent, prevent malnutrition-related deaths, and alleviate poverty. According to the latest data, about 50% of the Eritrean population lives below poverty line (World Bank, 2015). Rugumamu recommended adoption of self-sustainability policies due to their potential to achieve food security and end poverty in Africa.

Moyo (2009), supporting Rugumamu (1997), argued that foreign aid creates "a culture of dependency and economic laziness" (p. 148). Joining the campaign against foreign food aid, Easterly (2007) argued that the orthodox methods of poverty reduction used by public and private donors sometimes leave economies worse by fostering unsustainable program, such as food aid. Bolton (2008) and Calderisi (2010) viewed foreign food aid as furthering national interests of donor communities and as a means of dumping excess food surplus to Africa, rather than providing humanitarian aid. Abbott (2012) also advocated for foreign aid to be directed toward fostering sustainable agricultural developments that are sustainable.

Because the debate over the effectiveness of foreign aid does not solve the underlying problems in Africa, researchers have offered solutions toward food security.

A country in an environment that is not conducive to investments and unmanageable policy is prone to economic stagnation and instability. Sen (1981) explained that acquiring the social, political, cultural, and economic freedoms and having a transparent and protective security are necessities for any state to develop, as the lack of their accessibility and even distribution continues underdevelopment. Riddell and Currey (1987) examined the theoretical cases for and against aid and evidence about what has worked and what has not. Iyob (1997) explained the historiography of Eritrea, introducing external and internal political developments in the efforts for economic self-reliance, later discussed by Willer (2002). Following the above conceptual frameworks, in this naturalistic epistemological study, I qualitatively investigated whether indigenous food-sustainability policies are effective, locally generated alternatives (or adaptable alternative) for African nations' food self-sustainability.

Narrative Policy Analysis

To add clarity to the data-collection process and to provide organization of the data, I provided a narrative policy analysis. Researchers use narrative policy analysis to identify narratives or stories that dominate the issue at hand (Roe, 1994). "Policy narratives are stories (scenarios and arguments) which underwrite and stabilize the assumptions for policy makers" (Roe, 1994, p. 34). Roe's framework for analyzing public policy was useful in analyzing public policy on food self-sustainability. In this qualitative case study, I used the stories or narratives of key seasoned policymakers and farmers with extensive knowledge about food-sustainability policies to describe and analyze the issues, addressing the three research questions. Roe asserted that "many policy issues have become so uncertain, complex, and polarized—their empirical, political, legal, and

bureaucratic merits unknown not agreed upon, or both" (Roe, 1994, p. 3). Roe further argued that when traditional policy analysis does not provide clear and objective information on policy issues, the most appropriate policy approach is narrative policy analysis, and asserted "the only things left to examine are the different stories policymakers and their critics use to articulate and make sense of that uncertainty, complexity and polarization" (Roe, 1994, p. 3).

Researchers use narratives to organize and understand the world (Lyn, 2008). Trahar (2009) also described narratives as a form of qualitative research that strives to gather narratives that help readers understand the teller's perspective, focusing on the meanings that people ascribe to their experiences. Narrative inquiry lies on the premise that one understands and gives meaning to people's lives through story. Public policy accrues from many views, varying from one case to another (Kingdon, 1995). Oral and written narratives help readers understand the perspective of the narrator, providing "meaning, relevance, and importance of recounted experiences" (Lyn, 2008, p. 14). Narratives may persuade and shape policies through building group cohesiveness by sharing common values (Lyn, 2008, p. 15). Similarly, the stories of farmers who have lived effectively through food-sustainability policies will offer a solid picture of the policies in the country and their level of effectiveness.

Nature of the Study

In this qualitative case study, I examined the strategies and experiences of farmers (n = 15 or more), using the EFSRP as the nation's sustainable growth and development program. Case studies are effective in examining and exploring programs (Yin, 2009). This qualitative design allowed Eritrean farmers to describe their experiences of food

sustainability, helping me extract meaning from the information provided by participants. I assessed this qualitative case study inductively: "Inductive research draws general inferences from a particular phenomenon" (Anderson & Srinivasan, 2003, p. 56). Future studies may develop a theory generated from the findings of this study.

Qualitative research strategies helps "researchers seek answers to questions that stress how social experience is created and given meaning" (Denzin & Lincoln, 2004, p. 13); in this case, from the perspectives of the farmers themselves. I have undertaken a naturalistic approach that allowed me to interact with Eritrean farmers in person and at the site in addressing the research questions (Babbie, 2007). I used a qualitative case-study approach to investigate the impact of self-sustainable, indigenous policy and the rejection of foreign food aid through a narrative policy analysis (Roe, 1994).

Scholars in public administration often choose a case study due to its flexibility and common usage (McNabb, 2008), even though it is not generalizable. Yin (2009) recommended a case-study approach to contribute to understanding a group, organization, or program. Using a case-study approach helped me investigate the views of irrigation farmers who live in a poor country like Eritrea, where the government has banned food aid and encouraged indigenous food self-sustainability. A case study is also ideal for my study in Eritrea where researchers have revealed little and no scholars have assessed the situation (Leedy & Ormrod, 2005). In line with a case-study design, my research questions sought to explain the current social phenomenon of food sustainability in Eritrea.

During the data collection, I conducted semistructured interviews with 15 farmers. To gain a minimum of 15 participants, I selected a pool of more than 15 farmers to impart

their real-life experiences in the EFSRP using purposeful (convenience, criterion, and snowball) sampling. I interviewed the farmers individually face to face in their natural settings (Babbie, 2007) using semistructured interviews in Tigrigna, one of the two official languages of Eritrea, the other being Arabic. The farmers hailed from across the country where indigenous cereal grain is their main food consumption. Using purposeful sampling, I made efforts to select farmers who represent the direct population group with rich experience on the study of food self-sustainability. Purposeful sampling will ensure that case-study participants are available and have relevant information, which will make the qualitative study richer, objective, valid, and reliable (Creswell, 2007). Further, I used criterion sampling such that all farmers must (a) be more than 25 years of age, (b) be part of the food self-sufficiency policy and who have been farming for the past 7 years, and (c) have received food aid in their lifetime. I selected people older than 25 years of age because the government of Eritrea stopped receiving foreign food aid in 2005, making the sample element an adult (age 18 and over) at the time the government stopped food aid.

After identifying the research-participant farmers, I contacted the interviewees and request their informed consent to conduct interviews and collect data. I made sure that participants understand approved Walden University Institutional Review Board (IRB) protocols. I audiotaped the semistructured interviews and translated the interviews into English. I transcribe the interviews and code them for themes and patterns. After the transcription, I analyzed and interpret the thoughts, feelings, and stories the participant farmers shared through categorization, condensation, structuring through narrative, interpretation, and ad hoc methods of generating data. I have considered gender, as

demographic data for this research, but not age as it adds no relevance to answer the research questions.

I supplemented the primary data from farmers' interviews with secondary governmental documents such as annual government reports on food security and reports related to agricultural developments of the country. My purpose was to corroborate the research findings, draw conclusions, and making recommendations. This process will increase the validity and reliability of the findings (Creswell, 2007).

Definitions

Food aid: The charitable resources in the form of food, finance, or other related resources, from the international community to meet humanitarian concerns of food insecurity (Organisation for Economic Development and Co-operation [OECD], 2012). In this qualitative case study, foreign food aid will refer to any type of assistance, whether in form of foodstuff, grant, or agricultural investment, given to an individual, family, community, organization, or government for the purposes of solving food insecurity, starvation, and malnutrition issues. Food aid does not include work tradeoffs.

Food security: A condition related to the supply of food, and individuals' access to it. The UN World Food Program (2010) considered people food secure when they have availability and adequate access at all times to sufficient, safe, nutritious food to maintain a healthy and active life.

*Food self-reli*ance: The ability for humans in one nation to be able to achieve economic and physical accessibility to abundant, secure, and wholesome food stuffs that meet their consumption wants and needs from their own manufacture without importing and purchasing or receiving food aid (Sen, 1981).

Food self-sustainability: The ability to offer adequate, safe, healthy and nutritious food that meets the current and future generations' food needs (Cafiero & Gennari, 2011). At the same time, people must maintain healthy ecosystems that can provide food for generations to come with negligible negative impact to the ecosystem (Cafiero & Gennari, 2011).

Malnutrition (starvation): A hunger-related condition that arises because of inadequate essential minerals, vitamins, and other nutrients needed for healthy body function (Cafiero & Gennari, 2011). Malnutrition weakens the body to an extent that it cannot convert usable nutrients and thus leads to diarrhea and other diseases that can precede death, especially in children (FAO, 2011; United Nations Children's Fund [UNICEF], 2012).

Assumptions

I have carried out this qualitative case study in Eritrea and with focus on Eritrean's progress toward food self-sustainability. I have chosen the Eritrean self-reliance policy because of its uniqueness in its strict self-reliance policies. Eritrea has accepted no foreign aid since 2006. In addition, Eritrea has more socioeconomic and political challenges when implementing the self-sustainability than many other countries. In the case of Eritrea, the political stream was "an important promoter or inhibiter of high agenda status" (Kingdon, 1995, p. 163). This political stream, which comes from the history of struggle for Eritrean independence, may be one factor behind this strict policy of food self-reliance, although former Eritrean diplomat Welde Giorgis (2014) argued that the current policy of self-reliance was distorted from its initial application, pursued during the struggle for independence.

Even though the World Bank, International Monetary Fund, and UN agencies such as the World Health Organization and UNICEF have provided some general information on Eritrea, little academic research has been conducted on the results of the antiaid policy. According to Creswell (2007), interviews are expensive and cumbersome to implement. Therefore, purposefully selected farmers were regarded as samples of the whole population in the area of study. The samples are assumed to have the relevant experiences needed to achieve the objectives of the qualitative case study. First, I assumed farmers who participated in the study represent the direct population group with experience on the study of self-reliance, and are people with firsthand experience in a situation where there is no food aid at all.

Scope and Delimitations

As Africa's second newest country, Eritrea attained independence in 1991, and attained international recognition in 1993, after being a colony of four different countries. Eritrea is a young economy with a small population and small geographical covering. Politically unstable neighbors like Somalia and Sudan surround Eritrea. After being immersed in a brutal border war with its giant neighbor Ethiopia, both countries are still at odds, even after an international border commission submitted its ruling. Despite all of these hindrances, Eritrea has demonstrated the possibility that a developing country can successfully achieve food self-reliance. As a result, Eritrea was a good case study for emulation across Africa because it has a policy in place that effectively rejected foreign food aid.

The Eritrean food self-reliance policy entails many aspects; however, I have only focused on the policies of food self-sustainability and zero foreign aid. Political policies

unrelated to this qualitative case study were not addressed in this study. Criteria for joining the sample of farmers are that participants must be at least 25 years of age. For perspective, they must be knowledgeable about food aid and food production prior to the ban in Eritrea. To determine whether farmers are knowledgeable about the food aid policy, I made informal conversations prior to the study interview.

Limitations

A lack of sufficient scholarly material on Eritrea's food self-reliance policy was one of the limitations of this study. Western powers considered the country as closed to the outside world. As a relatively new independent country that gained independence only in 1991, Eritrea may be of strategic interest in pursuing a peaceful coexistence and cooperative relations during its attempt to achieve sustainable food security (Welde Giorgis, 2014).

Significance of the Study

Significance to Practice

The findings from this qualitative case study will help determine whether the indigenous food-sustainability model enforced in Eritrea is a timely (or adaptable) alternative for many African nations to adopt or to pull themselves out of chronic poverty and malnutrition, and to promote self-sustainable food-related socioeconomic development. By studying the understanding and experiences of minimum of 15 study participants in Eritrea about food-sustainability policy, this qualitative research may inform leaders, policymakers, and public and private donors and provide an additional tool to better allocate resources efficiently and effectively. Ideally, the findings may directly or indirectly lead to indigenous food self-sustainability, elimination of hunger,

malnutrition, starvation, and hunger-related deaths in Africa, as well as a reduction in poverty, improvement in livelihood, and, ultimately, lead to Africa's growth and development. If extra food is produced in Eritrea, it could be exported to food-needy nations in Africa, and agriculture would be a means of subsistence and source of income to the farmers.

Significance to Theory

The perceptions, understanding, and experiences of the farmers about whether the policy banning outside aid has benefitted or has negatively affected Eritrea's food-sustainability policy provided data collected during this qualitative case study. The findings of this study may contribute to the debate on food aid and on approaches to food sustainability in Eritrea. The experiences, opinions, and reasons of 15 farmers about the effects of the policy banning outside food aid and food self-reliance may provide knowledge for academicians and researchers interested in further studying the strategies and approaches for food self-reliance.

Significance to Social Change

This qualitative case study might provide information to be used by leaders who look to promote development agenda. Under the EFSRP, local Eritrean farmers may more successfully achieve food security, grow and develop further, and come closer to achieving all the post-2015 Millennium Development Goals set by the UN. In addition, by scrutinizing the challenges and strengths underlying each policy adopted by the Eritreans, other farmers and policy implementers across Africa as well as the Eritrean government may understand what strategies and policies are working and which need revisions. The potential of achieving indigenous food sustainability without foreign food

aid through self-sustainability can carry implications of positive social change in Eritrea in particular and possibly in African nations in general.

Summary and Transition

From an Eritrean national point of view, indigenous food self-sustainability is the ability of a country to be able to produce and distribute enough food for all of its citizens without receiving any foreign aid from other countries (Sen, 1981). Policymakers have come to the realization that foreign food aid is not working to alleviate food dependency. To promote a self-reliant food policy in Eritrea and reduce the country's dependence on food from other countries, the Eritrean government has decided not to allow direct foreign food aid in to the country. According to the model's design, the country should produce enough food to meet its population's needs (Asmerom, 2011; Ghebru & Mehari, 2007). Before rejecting any food aid, a country must ensure it is producing enough food to maintain its population. According to the policy, Eritreans have to learn to cope without foreign food aid by producing enough food for them at a sustainable level.

In Chapter 1, I introduced the first steps toward indigenous food self-sustainability in Eritrea. In Chapter 2, the literature review, I will include the theoretical framework for the model of food self-reliance. I will also provide an analysis of the effectiveness and drawbacks of foreign food aid as perceived from various authors' perspectives. I will further analyze the Eritrean indigenous food-sufficiency model and review literature on Eritrea and other parts of Africa. This literature review will include natural and human-made agricultural challenges and limitations and how Eritrean farmers overcame them.

In Chapter 3, I will include a discussion of the three research questions, the methodology chosen for this qualitative case study, the rationale for using a case study with a narrative policy-analysis paradigm, a description of the research location, the sample and purposeful sampling strategy, and the scope of the study, including data organization, storage, emergent coding, and analysis I made. In Chapter 4, I provided the results, and, in Chapter 5, I interpret the results and provided recommendations for further action. I have also included social-change implications.

Chapter 2: Literature Review

This literature review begins with an analysis of how African policymakers understand and perceive current food-aid policies. I have included information from several perspectives. A review of African nations with and without foreign food aid will follow. I have reviewed Eritrea's food-sustainability policy as a recipient of zero foreign aid (outlawed since 1996, implemented in 2005). Finally, I analyzed the experiences drawn from various studies on Africa's dependency on foreign food aid and Eritrea's indigenous food self-sustainability, reviewing Africa's development and food self-sustainability in both scenarios. The chapter also includes studies on the success and failure of various strategies for food sustainability.

Literature Search Strategy

In this literature review, I examined the effect of foreign aid and policies of food self-reliance on African nations' development. To find sources for this literature review, I accessed the following libraries: Library of Congress, Library of University of Maryland, and Asmara University, Strayer University, and District of Columbia Public libraries. I searched the databases of EBSCO*host* (Academic Search Premier and Business Search Premier), ProQuest Dissertations and Theses—Full Text Collections; ABI/INFORM Global, SAGE Full-Text Collections; African Development Bank (ADB); United Nations Development Program (UNDP); United States Census Bureau; Food and Agriculture Organization; U.S. Agency for International Development (USAID) Washington, World Bank; World Food Program (WFP); Organization for Economic Development and Cooperation (OECD); Eritrea's Ministry of Agriculture; Eritrea's Halhale Institute of Agriculture; Google; and Google Scholar. In addition, sources from the Internet included

web pages of news outlets in Eritrea and international media and Eritrean social and economic organizations. In addition, relevant literature such as academic journals, books, editorials, reports, periodicals, and Internet sites helped in finding secondary data for this chapter.

Using the articles and publications found through the search strategies described above, I reviewed references cited by previous authors to locate additional resources undiscovered in my general search. I limited the content of the review to the impact of indigenous food-sustainability strategies and the potential impact of public and private foreign food aid on Africa's food sustainability, growth, and development. The key terms I used included *self-reliance, food aid, self-sufficiency, Eritrea agriculture, agricultural development, agricultural production, foreign assistance, food crisis, aid effectiveness, Sub-Saharan Africa, Millennium Development Goals, food sustainability, food security, malnutrition, poverty, indigenous food sustainability, growth and development, culture of dependency, poverty reduction, aid efficiency,* and *food production.*

Theoretical Foundation

The theoretical framework I applied to this qualitative case study was Kingdon's (1995) policy stream, which sets the policy agenda for sustainable agricultural development without food aid. Public policy is an agenda with sources that vary from one case to another (Kingdon, 1995); in Eritrea the policy stream has gained high status. Facing inward, internally generated development agendas could lead to sustainable agricultural development in Africa (Willer, 2002), focused on sustainable agricultural development (Abbott, 2012).

Internally generated development agendas can lead to sustainable food growth and development if nations have local-ownership components (Willer, 2002). Foreign aid has failed to reduce poverty and revitalize the economy (Dedu et al., 2011). Supporting Rugumamu (1997), Moyo (2009) argued that foreign aid "fosters corruption and distorts economies, creating a culture of dependency and economic laziness" (p. 148). A British Broadcasting Corporation investigation, in support of Mayo`s point, brought to public attention how Ethiopian rebels, headed by the current government, "poising as grain dealers stole aid money raised by Bob Geldof and others through Live Aid and Band Aid events", used the grain "to buy weapons rather than food for starving Ethiopians during the country`s 1984 famine" (Helin, 2011. P. 109). During that famine, over a million people died of starvation.

Because the debate over the effectiveness of foreign aid does not solve the underlying problems in Africa, many researchers have offered solutions toward food security. Sen (1981) explained that acquiring the social, political, cultural, and economic freedoms and having a transparent and protective security are necessities for any state to develop, as the lack of their accessibility and even distribution continues underdevelopment. Riddell and Currey (1987) examined the theoretical cases for and against aid and evidence about what has worked and what has not. Iyob (1997) explained the historiography of Eritrea, introducing external and internal political developments in the efforts for economic self-reliance, later discussed by Willer (2002). Following the above conceptual frameworks, in this naturalistic epistemological study, I have qualitatively investigated whether indigenous food-sustainability policies are effective, locally generated alternatives for Africa's nations' food self-sustainability.

Food Self-Reliance

Food self-reliance is the ability to achieve economic and physical accessibility to abundant, secure, and wholesome foodstuff that meets a nation's consumption demand with supply from their own manufacturing and agriculture and without importing and purchasing food (Ghebru & Mehari, 2007) or relying on foreign food aid. Dedu et al. (2011) defined foreign food aid as "material, charitable or economic support from an international country or organization" (p. 38). Foreign food aid refers to any type of assistance, whether in form of foodstuff, grant, or agricultural investment, given to an individual, family, community, organization, or government for the purposes of solving food insecurity, starvation, and malnutrition, and includes the work of food programs. Deb, Hossain, and Jones (2009) explained that a country could achieve food security only if it exercises food self-sufficiency. By doing so, the country is able to avoid the markets' unpredictable supply and pricing (Dedu et al., 2011).

Food self-sustainability in Africa could lead to the sustained development and growth of the continent. Food insecurity in Africa contributes to the escalation of poverty. When a country imports less and exports more, the balance of trade becomes favorable; if Africa were self-sufficient for food; it would have a positive balance of trade and improved economic growth and development (World Bank, 2012). Food security could result in increased per capita earnings because the leaders of self-sufficient countries could sell their excess produce and use the generated earnings for domestic investments (World Bank, 2012). The results could be increased employment and a higher standard of living Thus, in the long term, food security and food self-sufficiency in Africa may lead to a reduction in poverty levels.

Foreign food aid and food self-reliance in Africa have become issues of global developmental concern, with a growing number of researchers suggesting that the constant infusion of food aid to Africa is doing more harm than good (Clottey, 2012; Collier, 2008). Foreign aid may foster corruption and distort economies, creating a culture of dependency (Easterly, 2007; Lancaster, 2007; Moyo, 2009). This issue has led to an ensuing debate as to whether foreign aid is useful or detrimental to Africa.

Defining and Conceptualizing Foreign Food Aid

Global citizenship means that international communities have a moral obligation to assist those nations whose populations are disadvantaged, because every human is a global citizen (Collier, 2008). In Africa, the international community has offered food foreign aid to the poor population. Because of foreign aid, many poor children can access a good education; have a hot meal at least twice a day, drink clean water, and access health care (Collier, 2008). However, Easterly (2007) noted that foreign aid has been used to feed corruption. According to Klingner (2009), "Corruption and unaccountability of foreign aid undermines the efforts of millions of well-wishers and charitable citizens who dedicate their lives to improving the living conditions of their fellow global citizens" (p. 1178).

Stakeholders intend foreign food aid to decrease the gap between food accessibility and food needs and avert the diminishing of household assets (OECD, 2012). Eritrea's President Afewerki stated that although foreign food aid was useful in Africa's development history, with time that dependency on foreign food aid has been the reason for Africa's underdevelopment (Eritrea Profile, 2011). Afewerki blamed the failure of food aid to decrease hunger on corruption, mismanagement of resources, and

lack of leadership experience in managing food-aid resources (Eritrea Profile, 2011). Similarly, Welde Giorgis (2014) believed food aid fails the people of Africa, but arguing that Eritrea is in the situation of "growing dependence on foreign aid and a heavy burden of domestic and foreign indebtedness" (p. 228).

In the absence of accurate historical trends showing its effectives, stakeholders debate whether foreign food aid has actually helped Africans (Bolton, 2008; Collier, 2008; Moyo, 2009). Governments, multilateral public and private donor agencies, and international and local nongovernmental organizations have failed to show accountability of their food-aid efforts to Africa (Collier, 2008). Collier (2008) argued that despite assistance from the developed world, Africa is economically, socially, and environmentally worse off today than it was 30 years ago because of the corrupting influence of foreign aid. Collier questioned whether economic development and poverty alleviation have ever been the objectives of the donor states in the first place. Moyo (2009) further asserted, "Only a handful of [African] policy makers are critical of aid's dismal performance" (p. 148). Foreign food aid cannot end poverty, giving a sense of how orthodox methods of poverty reduction do not help and can even worsen poor economies (Easterly, 2007; Madote News, 2011). The continued inflow of food can be harmful to developing countries' agricultural sector. Furthermore, foreign aid has failed to reach its ostensible main goal of reducing poverty and revitalizing the economy (Madote News, 2011).

Traditionally, African leadership has built on participation, responsibility, and spiritual authority. African leadership requires the element of transparency, accountability, and legitimacy. "Leaders should be role models for their followers

through their actions, showing personal commitment to the values and goals established in the organization or institution" (Deb et al., 2009, p. 4). To achieve indigenous food self-sufficiency, effective leadership must be accountable and responsible; lacking effective leadership, countries cannot achieve the goal of reducing poverty.

International researchers who studied food aid efficacy in Botswana, Burkina Faso, Ghana, Kenya, Senegal, Tanzania, and Zambia showed that public and private donors dictate food-aid decisions, leaving governments without any sense of possession over their own growth and development efforts (Moyo, 2009). Therefore, to be able to make decisions that are applicable for their countries, governments must take full charge of their countries' development process. Based on years of historical EFSRP practices, Eritrean President Afewerki recommended indigenous food self-reliance as the only way for Africa to get out of the poverty trap (as cited in Eritrea Profile, 2011). Food sustainability experiences of one nation cannot work elsewhere in Africa, according to President Afewerki, because each continent and each country has its own realities.

How donors choose African countries to receive foreign food aid in Africa also deters its effectiveness. Deb et al. (2009) sought to determine whether the motivations of foreign aid were for self-interest or purely humanitarian responses; the authors determined some donors' first concern is self-interest. The act of donors and governments, giving foreign aid to countries primarily for their own interests is called *international realism* (Chand & Pandey, 2008, p. 11). Most international political realists wish to control the economy of the receiving country, leaving it with little or no control of its domestic powers (Chand & Pandey, 2008). "In the contemporary neo-realism, foreign policy does not emanate from policy formulation and the internal power struggle,

but from a retroaction to systemic attributes of the peripheral system" (Deb et al., 2009, p. 296). In this scenario, foreign aid is a bribe that hides the present corrupt system through a feigned development agenda (Chand & Pandey, 2008).

Global experts on poverty and food aid disagree. One group, such as Sachs (2005), Tyrangiel (2002), and Klingner (2009) advocated for increasing aid; in contrast, Moyo (2009), Easterly (2007), and Rugumamu (1997) argued against increasing aid, supporting self-sufficiency. Dedu et al. (2011), who examined the efficiency and effectiveness of foreign food aid, took a middle ground, eschewing a total stoppage of food aid to the poor, mainly in the underdeveloped countries where it worked, at least providing the poor with temporary relief. Eritrea is the first and only country to cut off food aid, making this a very important testing ground for self-sufficiency (Paice, 1996). The lack of transparency means only an onsite investigation can provide insight.

Lumsdaine (1993) provided the most detailed rationale and historical context for the relationship between domestic and international concerns for poverty and argued that "foreign aid is a product of humanitarian ideas and values [that] found support in the domestic political arrangements, religious, and moral traditions of the West" (p. 7). According to Lumsdaine, those African countries with high poverty levels received more foreign aid than those whose populations are better off, which led to social spending. Foreign aid, then, is given depending on the number of people living below the poverty level in a particular country. In other words, domestic and social spending, as well as individual contributions to those programs of international economic assistance to poor countries in Africa, is the main reason for increasing the levels of foreign aid (Lumsdaine, 1993).

Eritrea is highly vulnerable to drought. It is has only seasonal rivers and acutely lacks fertile land. The UNDP (2013) worked with Eritrean farmers to embark on sustainable land-management practices, and to increase food productivity.

The Global Context for Eritrea's Food-Sustainability Crisis

Ultimately, one cannot separate the global epidemics of a widespread food-sustainability crisis, a widespread water-shortage crisis, and a widespread climate-change crisis from the realities of international politics, international security, and international migration. This research seeks to focus on the food-sustainability crisis currently being experienced in the African nation of Eritrea, but not in its simplest or traditional terms. Instead, I argue that the literature suggests a case study of food self-sustainability issues in Eritrea must be framed in an entire set of interlocking issues that are now being manifested in a true global epidemic (Stigter & Ofori, 2014a, 2014b, 2014c).

This section of the literature review will consider (a) the current world epidemic in which a complex set of interlocking issues sets the terms and conditions for the nation of Eritrea; (b) the current perspective of African nations in dealing with these crises including researchers, farmers, policymakers, and the UN; and (c) the actual experience of Eritrea through which one can argue that the country addresses a hierarchy of interrelated issues on a global level, that impact the continent of Africa, and in turn, frame the experience of the nation of Eritrea.

Eritrea, as one of those countries increasingly producing thousands of refugees is facing multidimensional challenges. Such international and national issues are interrelated and inseparable (Hosford, 2015). The food security issue has two parts: "One centered on raising production as the core answer to under consumption and hunger. The

other is an emerging perspective, more social and ecological, accepting the need to address a complex array of problems, not just production" (Lang & Barling, 2012, p. 313). Thus, food sustainability in Eritrea is actually a multifaceted, multidimensional problem. This theme, here applied to Eritrea, may be applied variously to every nation.

Africa has the resources to achieve food self-sustainability if it optimizes them fully (World Bank, 2013). Africa holds "almost 50 percent of the world's uncultivated land which is [adequately] suited for growing food crops, comprising as many as 450 million hectares [1.74 million square miles] that are not forested, protected, or densely populated" (World Bank, 2013, para 5). Africa's harvests routinely yield far less than their potential (defined as a *gap*), and with food crops such as maize, the yield gap is as wide as 60%–80% (FAO, 2008). The majority (more than 50%) of African people live below the poverty line, which is less than $1.25 a day. People who are impoverished include small-scale farmers struggling to access land and water as well as loans for procuring agricultural materials (De Schutter & Vanloqueren, 2011). Low foreign- and domestic-investment levels in technology, agriculture, infrastructure, and agricultural marketing hinder indigenous food self-sustainability in Africa (De Schutter & Vanloqueren, 2011).

Furthermore, approaches to these issues are not easily reconciled. "There is a need for the integration of the environmental protection concerns into the manifold policies of African states in general and the [African Union] in particular" (Kuwali, 2008, p. 37). Thus, the following issues are inextricably interrelated: world-security perspectives, national-security issues, food insecurity, water insecurity, climate change, migration, political refugees, food and water refugees, climate refugees, and violence. Variations on

this theme are plainly evident in India, the United States, Canada, Mexico, North Korea, Colombia, Panama, and others. Yet, this multiplex may be best understood as a top-down series of issues and crises through which international politics, national policies, and free-roaming multinational corporations—that are often wealthier and more powerful than most nations—control seemingly local issues. Thus, issues of scale, dominance, privilege, and wealth must be seen as framing the ability of the poorest people in the world to sustain themselves.

For example, consider how Coca Cola negotiated water rights in Colombia and Brazil to its own advantage, and to the detriment of local populations (Students for Social Justice and Institutional Change, 2012). A wide disparity and lack of organization persists regarding food sustainability on the continent of Africa. What Braun, Jiggins, Röling, van den Berg, and Snijders (2006) wrote about Asia also applies to Africa: "One of the biggest problems with many of the developments in [integrated pest management] over the years has been the tendency to generalize and make recommendations for farmers across large and highly heterogeneous areas" (p. 2). Organizations such as the UNDP, organized by the UN, are working hard to eradicate poverty and improve food sustainability for the poorest people in the world.

Yet when one considers the UNDP approach to the food-sustainability crisis of Africa, for example, one also confronts the issues of international politics, national policies, multinational corporate interests, and life in advanced industrialized nations (Lang & Barling, 2012). Eritreans have been migrating to Europe because whatever happens in the new host country could not be worse than what has happened in their home country (Hosford, 2015). The issue is ordinarily split: (a) other nations perceive

Eritrea to have a local food-sustainability crisis and (b) Eritrea is becoming the focus of an international migrant refugee problem. The argument of this dissertation is that these issues cannot be split or separated (Kuwali, 2008). These issues are better understood in a global-systems or holistic approach.

In the case of Eritrea, many researchers publicize that Africans are learning to farm better (Braun et al., 2006), such is the thrust of the UNDP approach to food sustainability in Africa. UN Financial Disclosure Programme websites proudly display initiatives in which local residents have been taught to farm better, or to use new approaches to farming to resolve their food-sustainability issues. One may have anticipated this common sense approach. Wealthy industrialized people are helping the poor Africans to become better farmers in the face of climate change and food- and water-sustainability crises.

Often approaches tend to simplify the approach to African issues by making statements such as "value-chain collaboration (VCC) aims to increase smallholder productivity and market integration" (Ros-Tonen, Van Leynseele, Laven, & Sunderland, 2015, p. 523). However, one may appropriately question where local and international issues overlap. In fact, the UNDP approach of improving local farming methods does not align with the global, holistic reality of food production.

Today, advanced industrialized nations are looking to multinational corporations, such as Monsanto, to find better ways to feed everyone. Furthermore, the agendas of these international entities do not aligned with the circumstances on the African continent (GMWATCH.org, 2013). According to Nhamo (2009), it is evident that

> Governments from major export destinations, including Europe and the U.S., are putting stringent climate change (CC) policy regimes in place making it more and more difficult for African goods and services from so-called "dirty" energy-intense industries to penetrate those markets. (p. 119)

The advanced industrial world is learning how to eat genetically modified organisms/food (GMO). Corporations such as Monsanto already literally own the agricultural science of GMO with patents on all the GMO it develops (Public Patent Foundation, 2015). Therefore, it is possible to imagine that one of two eventualities may arise: either (a) corporations such as Monsanto are creating a new food crisis because scientists and the public do not know if the long-term effects of GMO are sustainable, or (b) organizations such as the UNDP are misleading African nations with bandage measures to improve farming because traditional farming has little to do with the production of GMOs.

Case in Point: Eritrea

In Eritrea, climate change imposes new constraints on traditional food and water sustainability, ravaging and destroying local environments (FAO, 2015). At the same time, the UNDP wants to teach Eritreans how to become better farmers. Meanwhile, multinational corporations might not mind mass migrations of refugees out of Eritrea or Africa overall.

Although one may perceive climate change as one problem and food/water sustainability as another problem, they are interdependent. Monsanto's GMO technology and improved farming techniques in Africa each resolve separate issues. However, the result is a fragmented approach to food sustainability in Africa. "As a direct consequence

of capricious behavior of particularly rainfall in West Africa, the adaptation of its farmers has lagged behind enormously" (Stigter & Ofori, 2014a, p. 8446). IFAD has spent hundreds of millions of dollars to support the efforts of the Eritrea government to lay a solid foundation for the elimination of rural poverty and increased spending on agriculture and food sustainability (IFAD, 2015). However, people live in a global economy and each nation is likely to view this set of problems from its own viewpoint, discerning what will serve its immediate best interests.

The focus of this research was to investigate the government of Eritrea and its policies pertaining to food sustainability. Despite multiple variables regarding this issue, understanding and evaluating the actions of the government was a solid basis for understanding the core of food-sustainability issues in Eritrea. "Scholars have wasted too much time and effort on a science versus traditional knowledge debate; we should reframe it instead as a science and traditional knowledge dialogue and partnership" (Zuma-Netshiukhwi, Stigter, & Walker, 2013, p. 383). Clearly, a complex set of interrelated issues underlies food sustainability in Africa. Eritrea is inextricably involved in world affairs, despite people's various perceptions. The problems of Eritrea are the problems of the world.

Africa With and Without Foreign Aid

In an effort to close the poverty and inequality gap, developed countries grant foreign aid in the form of military and capital inflow to Africa, despite limited evidence for growth in the receiving African countries (Moyo, 2009). Donor agencies have continued to pursue "the aid-based model even when it has become apparent that aid, under whatever guise, is not working" (Moyo, 2009, p. 27). Nevertheless, donor agencies

persist mainly to control the economy of the receiving country. Therefore, African poverty problems lie beyond the capital inflow from donors (Blanke et al., 2011).

The OECD and ADB (OECD, 2012; OECD & ADB, 2012) noted that the international community had donated an estimated $600 billion to Africa by 2008 and increased their donations by 25% to $750 billion by 2011. Despite these increased monetary contributions, underdevelopment has occurred or continued in many African nations.

Most African states are endowed with natural resources, especially western and northern Africa, which are rich in oil (Collier, 2008). As a result, the countries are characterized by conflict, as people scramble for these resources. The presence of such valuable resources in the country makes other industries less viable, due to the currency appreciation raised from the resource's proceeds (Collier, 2008). "Foreign aid perfectly sustains corrupt government in power. As foreign aid flows in, the country does not need to tax its citizens and, subsequently, the citizens will not demand … accountability" (Moyo, 2009, p. 2), leading to the prevalence of corruption and weak governance. Governments that depend on foreign food aid will not seek to improve their budgeting and financing mechanisms as long as they keep pleasing their donors by getting more aid from independent sources (Moyo, 2009).

Sharing boundaries with unstable neighbors and bad governance, common phenomena in Africa, contributes to the underdevelopment of African states and instability of the entire region (Collier, 2008; Fentaw, 2010). A good example is Somalia, a country not far from Eritrea and one that has become a hub of terrorists and pirates. "The twin problems of piracy and terrorism are symptoms of the deeper and broader

problem in Somalia, namely anarchy or state failure" (Fentaw, 2010, p. 2). Eritrea borders Ethiopia, Sudan, and Djibouti, and it is not far from Egypt and Somalia, countries that have very recently experienced social-media-prompted political uprisings and protests (Fentaw, 2010).

Small countries such as Eritrea are not an investor's preference because their small populations and low-income earnings do not provide a lucrative market (Collier, 2008). In Africa, the return of capital is low and the earnings of the population are low as well, thereby discouraging investors. Calderisi (2010) stated that African problems are internal, and poor leadership and governance have worsened the situation.

> Why would a potential industrialist wait for 426 days or 119 days to start a business in Cameroon and Angola respectively whose populations and markets are too small while he can only take 40 and 17 days in [the] United States and South Korea respectively whose markets are promising? (Moyo, 2009, p. 32)

A country in an environment that is not conducive to investments and unmanageable policy is prone to economic stagnation and instability. According to Sen (1981), acquiring social, political, cultural, and economic freedoms and having a transparent and protective security system are necessary for any state to develop, as the lack of their accessibility and distribution portrays underdevelopment. Deb et al. (2009) defined development as an increase of a country's GDP per capita. Sen argued that underdevelopment is not the decline of the GDP but the lack or uneven distribution of the above freedoms and the gap between actual and potential GDP, that is, the difference between the maximum amount an economy could produce and the measurement of a country's output at any given time.

One can attributed the economic problems, then, at least in part to foreign aid. "As Africa continues to depend on foreign aid, its people will always be aid-dependent rather than their own endeavors, enthusiasm, arrangements and establishments" (Andrews, 2009, p. 9). Prunier (2007) opined that Africa should take responsibility for its failure to attain indigenous food self-sustainability due to its ineffective policies and governance bred by internal and external factors. Calderisi (2007) stated that African culture, corruption, and the lack of political direction and correctness from the donating countries and agencies leads to underdevelopment. Calderisi suggested that foreign aid be directed to countries that have shown efforts in implementing stringent and effective measures against corruption and toward stable government. Andrews (2009) stated, "Foreign aid encourages indolent, slavish, reliant mentality and culture across the general public—from governments to locals" (p. 10). Thus, Eritrea's policy of rejection of food aid calls for more study.

Some countries in Africa depend on foreign aid to fulfill their annual budgets (Andrews, 2009). In Chad, Burkina Faso, Somalia, Mauritania, Rwanda, Sierra Leone, and Mali, 70% of the total expenditure by governments, from 1970 to 2002, was in the form of foreign aid (World Bank, 2010). For this reason, Collier (2008) described foreign aid as a "control mechanism by which foreign aid donors can stage-manage political or macroeconomic end result" (p. 36). Easterly (2007) agreed, "Africa's development is dependent on its private sector industrialists, civic advocates and political reform agent and not on what futile, intrusive, corrupt and poorly inspired and informed foreigners do" (p. 18).

Further, African nations have accumulated debts that, when recompensing, interconnects them to a dependency on the donors. They abandon local development and other crucial domestic issues (Dedu et al., 2011). Similarly, "the West has actually failed Africa because as long as this poor continent (Africa) keeps servicing its debts, it will always remain at the mercy and control of its donors (the West)" (Bolton, 2008, p. 26). Countries need to have accountability of foreign aid and support sustainable programs (Lancaster, 2007). Donors have made Africans dependent on foreign aid (Moyo, 2009). The presence of free, donated essentials crowds local investors out of the manufacturing business. The cycle of dependency on foreign aid ensues as domestic industries and production die, meaning Africa will never stop being dependent on foreign aid if the cycle of dependency continues (Moyo, 2009).

In summary, the economic implications of foreign aid cannot be ignored. As long as foreign aid and donations stream into a country, domestic industries will fail and, hence, the country will have nothing to export and its currency will depreciate. Self-sustainability and less dependency will be impossible for "African surrogates of Western culture to fashion indigenously adjustment development arrangements" (Andrews, 2009, p. 10). As long as Africa keeps depending on foreign aid for its development plans, it will not be able to sustain itself.

Food Dependency Versus Food Self-Sufficiency in Africa

Food self-sufficiency is a concern for Africa, given its unfavorable weather conditions; poor roads and infrastructure; lack of government support and appropriate policies; HIV/AIDS and other virulent diseases; lack of markets, information and agricultural technical skills; and prevalent poverty. These factors have led to increased

food insecurity and undernourishment of African populations. Donors ostensibly intend food aid to remove the difference between food accessibility and food needs, thereby averting the diminishing of assets and, instead, supporting the accumulation of assets among households (OECD, 2012). However, food aid brings other unintended consequences.

According to the FAO (as cited in Blanke et al., 2011), a large percentage of foreign aid to most African countries is in the form of food aid. In a country like South Africa, cereal exports have gone down by 30% while cereal imports and food aid has increased since 1992. "Food aid became intrusion measure due to lack of a better socioeconomic substitute to food insecurity in Africa" (IFAD, 2012, p. 35). Africa's dependency on food aid has created an ineffective market, which has discouraged locals from actively participating in productive agriculture. In contrast, Barrett (2006) stated that food aid gives locals an incentive to participate actively in food production in the subsequent farming seasons.

Former Malawi president Mutharika initiated a food self-sufficiency program in 2003 that sensitized locals to the importance of food security, and President Wade of Senegal initiated a similar program for that country (FAO, 2011). In 2007 alone, the following countries imported the following amounts of grain: Senegal (120 tons), Burkina Faso (313 tons), Mauritania (330 tons), Niger (216 tons), Cape Verde (102 tons), and Mali (209 tons; Kulindwa, Kameri-Mbote, Mohamed-Katerere, & Chenje, 2007). This is more than the amount each of these countries can produce locally. In the same year, 2007, while countries like Somalia and Sierra Leone spent 12% and 24% of their GDP on imported grain, respectively, 80% of the food consumed in 2008 in Eritrea was

produced locally (IFAD, 2012). This means Eritrea imported 20% of its food consumption. The government's policy is food aid free, not import free. For comparison purposes, Sub-Saharan Africa imported less grain (2.5 million tons vs. 12 million tons) in 1970 than in 2000 (OECD & ADB, 2012). If these countries were food self-reliant, they would have used the budgets allocated for importing foodstuffs to meet their population's needs. They would also be able to implement sustainable-development programs like infrastructure, education, and other economic stimulus projects that can lead to self-sufficiency.

Socioeconomic, natural, or climatic and political challenges have hindered African countries from becoming fully food self-reliant (Ghebru & Mehari, 2007). These challenges can be conquered through the implementation of locally conversant sustainable projects aimed at agricultural development (Ghebru & Mehari, 2007). Another way of resolving these challenges is through rural development (Boon, 2005). The country should adopt projects that teach and encourage rural inhabitants to develop alternative livelihoods. Generally, most inhabitants of areas experiencing drought, like parts of Somalia, parts of Ethiopia, Eritrea, and Northern Kenya, are pastoralists and rarely participate in farming (Oxfam, 2012). Thus, the evidence suggests that if these inhabitants reclaimed this land and used the scarce water catchments, including digging boreholes, they could irrigate and would have an alternative livelihood to pastoralism. They could also adopt other agricultural activities like beekeeping. These activities may lead to food self-sufficiency and less dependency on other nations.

Agricultural Challenges in Africa

Africa faces many natural and human-made challenges and limitations toward self-food reliance, including drought and the correct measures to tackle them (Kulindwa et al., 2007). Therefore, local rural people in Africa need effective ways to achieve food self-reliance. Africans rarely implement alternative sustainable livelihoods available to them, especially in agricultural intensification, rural development, and livelihood diversification. The efficiency and suitability of the adjustment mechanism depends on the amount of comprehension, information, and expertise of the individual or the community on the subject matter (Kulindwa et al., 2007).

Drought and Attempts to Ameliorate Its Effects

Drought is one of the most persistent occurrences, inhibiting agricultural productivity and food self-reliance in Africa, with 66% of the land in Africa being arid and semiarid (IFAD, 2012). Despite drought, farmers continue to amend their means of producing and consuming, as well as their means of livelihood. By taking conservative actions like water harvesting, farmers can prevent most socioeconomic and environmental losses presently incurred as a result of drought (IFAD, 2012). How individuals perceive the socioeconomic and environmental implications of drought and how to cope with it is crucial in determining the mitigation strategy and relief measures for self-reliance. Africa's rural inhabitants must have knowledge of the drought's distinctiveness in the specific region and its result, including the correct measures to take, and the consequences of those measures.

One of the main measures against droughts is planting drought-resistant crops, which enables farmers to get some seasonal yields (Hussein & Nelson, 2000).

Traditionally, African farmers have been able to read weather signs to help them determine when the rains will come (Hussein & Nelson, 2000). In contemporary times, reading the weather and making informed decisions has become easier because of weather predictors. Farmers in Africa may mitigate a drought's consequences by choosing the varieties of crops to plant, knowing when to plant them, picking the method of crop establishment, timely weeding, and fertilizer application (Hussein & Nelson, 2000). Farmers also depend on wage income, borrowing, disposing of liquid assets, migrating to more productive areas, seeking more information through media, foraging and relying on nature for food, changing to animal keeping and income, adjusting food balance, relying on public relief, and minimizing domestic expenditures on education, clothes, medicine, travel, and other luxuries (IFAD, 2012).

Pests and Diseases

Pest and disease attacks and other natural disasters also affect farmers. Dry areas are prone to crop pests and disease attacks that reduce productivity (IFAD, 2012) and increase gap yield. To cope with such mishaps, farmers in Africa apply traditional and modern pest and disease-control methods such as weeding, insecticides, early planting, and rotational planting (IFAD, 2012). Other coping measures farmers use for such tragedies are migration and livelihood diversification. Most farmers in Africa practice mixed farming: growing various crops, keeping animals, and other agricultural practices (IFAD, 2012).

Other Challenges and Responses

Agriculture in Africa is not affected by natural challenges alone. The main human-made challenges farmers face in Africa are the lack of agricultural and economic

knowledge, lack of information, and lack of technical skills (Klingner, 2009). However, farmers in Africa have counteracted these challenges by listening to weather reports and business news, exchanging ideas, attending agricultural workshops and trainings, investing in education, and engaging with the media. Other problems are bad governance, the lack of government support to farmers, and poor agricultural policies and programs initiated by policymakers. Farmers campaign for better and sustainable agricultural policies and programs (Klingner, 2009). Farmers also cope with this challenge by engaging in sustainable agricultural activities that promote food security.

Despite all of these mechanisms, most farmers in Africa are incapable of maintaining their annual expenditures. This lack compels most families to reduce the number of their daily meals or seek foreign food aid. Other high-level strategies, which IFAD (2012) defined as institutionalized mechanisms, include technical and government policies such as digging boreholes, rural development, educating rural children, supporting farmers' initiatives, and changing agricultural policies. In African rural communities, agriculture is not only the means of subsistence but is also a source of employment. Therefore, if any event happens and upsets the normal agricultural means, locals have to develop an alternative mechanism (IFAD, 2012).

Food Self-Sufficiency in Eritrea

As discussed earlier, in present-day Eritrea, the government is avoiding food-aid reliance through self-sufficiency policies and strategies (Rena, 2007). The government has attempted to boost agriculture by introducing modern technology, irrigation, terracing, and soil and water conservation, with less dependence on rainwater. It is also using human-development capacities on food-security themes. The government also uses

the strategy of filling the supply and foreign exchange gap by maintaining tactical reserves (Rena, 2007) of crops.

The policy of the Eritrean government is to manage existing local productive resources to produce enough food and address food-sufficiency and thus food security (Rena, 2007). The post-2005 EFSRP does not allow foreign food aid but works to become food secure using partnerships. According to the model's design, the country should produce enough food for its population (Asmerom, 2011; Ghebru & Mehari, 2007). The government rejects all developmental-aid programs that are not Eritrean government priorities, and restricts operations of nongovernmental organizations, local and international, under EFSRP, to operating through governmental channels (Connell, 2006). The government collaborates with international agencies such as the UNDP, which prioritizes encouraging sustainable livelihoods and food security in Eritrea (UNDP, 2013). The UN Strategic Partnership Cooperation Framework, signed in 2013 by the government of Eritrea and the UN, aims to contribute to "improving the availability and affordability of food for all Eritreans, and help build the resilience and the economic recovery of war- and drought-affected populations" (UNDP, 2013, para. 5). According to the signed partnership of cooperation, the UN had a plan to mobilize about US$188 million between 2013 and 2016 (UNDP, 2013).

The UN and Eritrean government design such policies to avoid handouts and to prevent domestic market distortions that come from subsidized food aid. Relating this to other African nations that are not currently food self-reliant, subsidizing agriculture is not the solution to sustainable development and food self-reliance. The economic implications behind subsidies are too large to ignore. In Africa, farmers face a low yield

potentiality with their crops (World Bank, 2012) resulting from the failure of farmers to maximize agricultural techniques like water and nutrient management and pest control appropriate to the crop used (World Bank, 2012). Measures such as boosting agricultural products by introducing modern technology, avoiding food-aid reliance through self-sufficiency policies and strategies, human-development capacities on food-security-related themes, and filling the supply and foreign exchange gap by maintaining tactical reserves are possible for some of the more advanced African nations (World Bank, 2012).

The Future of African Food Self-Reliance

At the turn of the 21st century, pundits predicted growth and development characterized by enhanced economic growth, a more robust infrastructure, easy access to information, market integration, poverty reduction, improved democratic institutions and governments, less conflict, and increased use of technology (Deb et al., 2009). Yet, Africa's underdevelopment issues have increased due to the continued use of policies that are unfamiliar and irrelevant to the African population (OECD & ADB, 2012). "What works well in Asia or Europe might not work in Africa since structural formations in each nation is different" (Collier, 2008, p. 76), in addition to the arid conditions and subpar fertile ground. Different nations have various needs and futures, especially in Africa where the population is of diverse cultures.

The African Union must ensure proper governance in African states and that members of different states should integrate for trade (OECD & ADB, 2012). Lessons learned from other developed countries have demonstrated that regional amalgamation in trade contributes to the growth and development of these continents (World Bank, 2010). If African states integrated with each other in trade, together with the international

community, Africa would develop and grow. With enough support, rural inhabitants have the ability to achieve indigenous food self-reliance and stop depending on food aid. Most rural inhabitants have the resources to achieve food self-reliance but are unable to turn the resources into useful assets. Foreign aid that helps rural people become food self-reliant should be encouraged in Africa (Prunier, 2007; Sen, 1981). Given the solutions to Africa's food dependency, it is important to analyze the local coping mechanisms of the rural people in Africa.

Summary and Conclusions

Africa lacks the key socioeconomic and political orientations that are necessary for development. Countries must transform economically, appropriately planning and implementing policies (Calderisi, 2007). The problem in most African countries is not the planning but the implementation. "African leaders cannot act for the good of their country as long as they keep pleasing their donors" (Moyo, 2009, p. 49). Corruption and dependency may be assigned to foreign aid, accounting for Africa's failure (Moyo, 2009).

Africa has been the biggest recipient of foreign food aid, and that aid is not working due to several factors. Food insecurity is high in Africa due to unfavorable weather conditions, poor roads and infrastructure, lack of government support and proper policies, the HIV/AIDS pandemic and other virulent diseases, the lack of markets, agricultural technical skills, and prevalent poverty (Boon, 2005). Despite Africa having the largest food-insecure population, farmers have developed coping skills against natural and human-made disasters and challenges (IFAD, 2012). These skills include crop diversification, agricultural intensification, mixed farming, information gathering and

skill development in agriculture, migration, livelihood diversification, rural development, and policy changes.

With its large labor force, Africa could do better by investing in labor-intensive industries such as agriculture. African states should engage in sustainable agriculture by using locally available resources to achieve self-sufficiency. The only way for Africa to have sustainable development is through food self-sufficiency (Sen, 1981). Although several countries have grown by almost 10% in the past several years, "as many as thirty other developing counties, mainly aid-dependent in Sub-Saharan Africa, have failed to generate consistent economic growth, and have even regressed" (Moyo, 2009, p. 29). Food aid not only makes Africa food dependent, but also has adverse socioeconomic and political consequences that undermine development (Moyo, 2009).

Foreign aid should focus on long-term sustainable development projects, like infrastructure, which is poor in Africa (Andrews, 2009; Lancaster, 2007). Similarly, good leadership and policies for the sustainable growth of Africa are significant (Calderisi, 2007). Collier (2008) provided four steps for Africa and the international community to take: lobbying for the concentration of foreign aid on areas that are needy, risky, and demanding; military intrusion for increased democracy; good governance and leadership; and equality in trade, characterized by favorable terms of trade for all. In addition to the enhancement of information systems on agriculture, all coping skills and mechanisms, individual and institutional, should be encouraged for the sustainable development of Africa. Since adopting the food self-sustaining policy in 1996, and effectively implementing it in 2005, Eritrea has been intensifying its agricultural investments. Even

though the country has not yet fully achieved food security, its goal of achieving full food self-sufficiency without aid may serve as sample guidance for other nations in Africa.

In Chapter 3, I include a description of the three research questions, the research methodological design I chose for this study, as well as the purposefully selected sample population, the scope of the study including data collection and analysis, procedures to be followed in the study, storage, and analysis. I also discuss potential ethical issues, protection of participants, informed consent, and reliability and validity of the qualitative research case study in Chapter 3.

Chapter 3: Research Method

Introduction

This qualitative narrative case study has explored the perceptions and experiences of Eritrean farmers about the implementation of Eritrea's policy on food self-reliance and ban on foreign food aid. I have explored and investigated Eritrea's food self-reliance to determine whether a food-sustainability approach is a good model for sustainable growth and development in Eritrea.

Chapter 3 includes three research questions, as well as the research methodology chosen for this study. In this chapter, I present the rationale for using a case study, a description of the research location, the sample population and sampling method, and the scope of the study. I also explain the method for the selection of the minimum 15 participants, the procedures for data collection, transcription, member checking, translation, storage, and analysis. I will discuss potential ethical issues, protection of the participants, and reliability and validity of the research study in Chapter 3.

Research Questions

To meet the research objectives, I worked to answer the following three research questions:

1. How do farmers implement the food-sustainability policy of the government?
2. How do farmers understand foreign food aid?
3. What are the key practices farmers have followed toward food sustainability?

Nature of the Study

Qualitative case-study methods guided my narrative analysis and provided the process and direction for coding and analyzing collected data. In this qualitative case

study, I used a narrative approach, asking questions that took the data to the saturation level. Collis and Hussey (2009) recommended the use of exploratory research when the data in previous studies are limited and when the sampled population is observed in their natural setting.

This case study does not have a reality that could be measured through a deductive process; thus, the design is inductive (Creswell, 2007). "Inductive research draws general inferences from a particular phenomenon" (Anderson & Srinivasan, 2003, p. 56). The narrative case study helps "researchers seek answers to questions that stress how social experience is created and given meaning" (Denzin & Lincoln, 2004, p. 13), in this case by farmers themselves. Moreover, a qualitative study is preferable to a quantitative study because it will help researchers explore a social problem where "the researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting" (Creswell, 1998, p. 15). Scholars in public administration also often choose a case study due to its flexibility (McNabb, 2008).

During the data collection, I employed purposeful sampling to conduct semi structured interviews with a pool of more than 15 farmers to document their real-life experiences with the EFSRP. I have sampled more than 15 to ensure I do not interview less than 15 participants total. I individually interviewed each participant face to face in their natural settings in their language of convenience (Babbie, 2007). The farmers are located across three regions of the country of Eritrea, regions where cereal is the main staple crop. With purposeful sampling, I made efforts to select farmers who represent the direct population group with rich experience on the policy of food self-reliance.

Establishing an initial pool of more than 15 potential participants was to ensure that the study participants are available and have relevant information, which helped me make the my qualitative case study more objective, valid, and reliable (Creswell, 2007). Further, I used criteria sampling where all the farmers must (a) be more than 25 years of age, (b) align with the food-sustainability policy for the past 7 years, and (c) have received food aid in their life time. People older than 25 years of age were purposely selected because the government of Eritrea stopped receiving foreign food aid in 2005, making the sample element an adult (age 18 and over) at the time food aid stopped.

After identifying participants, I contacted the interviewees and requested their informed consent to conduct interviews and collect data. I made sure that the participants understand approved Walden University IRB protocols. I have conducted the interviews in the participants' native language while I was audiotaping the interviews. Then I have transcribed and reviewed for accuracy by each interviewee, and then I translated the interviews into English. After the transcription, I analyzed and interpreted the thoughts, feelings, and stories the participants shared through categorization, condensation, structuring through narrative, interpretation, and ad hoc methods of generating data.

The demographic data I collected partitioned into groups using common characteristics such as gender. I have not considered other demographics for this research, as they add no relevance to answer the research questions. I triangulated the primary data with reliable and independent reports, such as academic papers, to corroborate the research findings, allowing me to draw accurate conclusions and make pertinent recommendations. This process will increase the trustworthiness and reliability of the findings (Creswell, 2007).

Research Design and Rationale

Qualitative researchers "seek answers to questions that stress how social experience is created and given meaning" (Denzin & Lincoln, 2004, p. 13). The objective reality in this qualitative case study cannot be measured through a deductive (quantitative) process. Rather, I used a naturalistic approach by inductively interacting with policymakers and farmers to answer the research questions.

A researcher chooses a qualitative research design if wishing to explore a social problem such that the researcher "[builds] a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting" (Creswell, 1998, p. 15). I have chosen to do a qualitative research case study because it can provide a "deeper understanding of social phenomena than would not be obtained from purely quantitative data" (Silverman, 2005, p. 10). A qualitative approach has many strengths for a study instead of using quantitative or mixed-method approaches. Researchers can use qualitative research to describe the phenomena from participants' viewpoints and lived experiences. Qualitative methods typically produce "a wealth of detailed information about a much smaller number of people and cases" (Patton, 2002, p. 14). Unlike quantitative or mixed-methods designs, researchers cannot use qualitative research to predetermine the viewpoints of people through prior selection of questionnaire categories (Patton, 2002). Open-ended responses allow researchers to understand the world as seen by the respondents, and to let the data drive the research findings. Researchers can use the qualitative approach to better understand the social phenomenon from the actors' perspectives through participation in the life of those actors. In a qualitative study, inquirers state research questions, in contrast to mixed-

method or quantitative approaches where researchers commonly use objectives and hypotheses as means of controlling the phenomena (Creswell, 2007). This qualitative method can include the uniqueness of individuals' experiences about food self-reliance in Eritrea. The goal of this qualitative study was to explore the perceptions of research participants about food self-reliance without foreign food aid in Eritrea. Eritrea is not only the second newest country in Africa (after South Sudan), but is known for closing off the outside world. Hence, no convenience of access exists to get enough participants to conduct meaningful quantitative research.

Creswell (2007) discussed five approaches of qualitative design: narrative, phenomenology, ethnography, case study, and grounded theory. I have considered the criteria on how to answer the research questions, what to collect, and from whom the data for this qualitative case study should be collected. I take an epistemological position that requires empirical data to understand the perceptions of those people achieving food self-reliance in Eritrea. Researchers use a case-study approach to explore a "bounded system through detailed, in-depth data collection" (Creswell, 2007, p. 73). Using a case-study approach will help me investigate people who live in a poor country where food aid is banned under a self-reliance policy. In addition to its flexibility and being commonly used by scholars in public administration (McNabb, 2008), a case study is also ideal for "a little known or poorly understood situation" (Leedy & Ormrod, 2005, p. 137). Little is known about food self-reliance where food aid is banned in the country of Eritrea.

I also considered grounded theory as a research method for this study. Grounded theory is a qualitative method of inquiry where researchers produce theory based on a common explanation of the views of participants (Creswell, 2007). In the grounded-

theory approach, researchers adopt data inductively to explore patterns to develop theories from the bottom up (Babbie, 2007). This qualitative narrative analysis study is not about theory building. Rather, I have presented an in-depth explanation of the real-world experiences of food self-reliance from policymakers and farmers to reduce food insecurity for the country's population.

An ethnographic study is another qualitative approach. Researchers use ethnographic research to understand cultural patterns to examine how societies cope in their natural setting (McNabb, 2008). Ethnographies are an ideal approach for understanding common and shared cultural patterns of behaviors, values, norms, and beliefs, as well as the language of a group in a particular setting (Creswell, 2007, p. 68). Because the goal of the qualitative research is to understand the perceptions and beliefs of stakeholders in the drive for food self-reliance in Eritrea, where food aid is banned, I did not choose the ethnographic method.

After the case-study approach, the next best design would be the phenomenological approach, because in addition to interviewing policymakers, I also wish to explore the lived experience of farmers who live in a country with a policy of rejecting foreign food aid. However, I did not wish to understand the self-reliance phenomenon by focusing on the "meaning of lived experiences" of the participants (Van Manen, 1990, p. 62), but to get the stories and perceptions of participants in a bounded study. To report the description or themes from stories by participants, I used a detailed and in-depth data-collection method from multiple sources such as interviews, observation, and documents.

Role of the Researcher

As the researcher, I carried out the data collection, data analysis, and reporting of the research findings. For more than 15 years, I have been working as an international broadcaster with the Voice of America, a U.S. federal broadcasting agency based in Washington, DC. During the past 7 years, I have traveled three times to the region of interest, and visited the main sites of my qualitative case study. As a professional journalist, I have attempted to develop professional questions that can be used to probe the feelings and perceptions of participants about foreign food aid and the policy of the Eritrean government on food sustainability.

After I have identified research participants, I requested the necessary consent to conduct interviews and to collect data. To access prospective participants and collect data, I traveled to Eritrea to meet my research participants and stayed there for at least 3 weeks. I personally conducted the interviews and audiotaped them for later transcription. During the interviews, I took observational field notes. In addition, I transcribed and produced transcripts of the interview recordings, and reviewed them with participants for accuracy. Finally, I translated them into English prior to analysis, and while I played an interpretive role. I concentrated on the research participants to ensure I interviewed them in accordance with approved Walden University IRB protocols.

Methodology

Participant Selection and Rationale

I have conducted this qualitative case study in Eritrea in October and November of 2016. To add more context and richness to the study, I have conducted the research in the natural setting where the participants live (Babbie, 2007). Although I interviewed 15

farmers from across of three regions of the country, a country with six regions. The regions I have conducted my study are Central, Southern and Northern Red Sea Regions. Although, Gash Barka, one of the six regions and located in western Eritrea was considered at large as the "bread basket" region of the country, I have not included it in my study. The region has been the main source of agricultural products for the country, but I have not selected it because of its remoteness and concern of malaria.

For this qualitative case study, I used purposeful sampling selection (Creswell, 2007). Participants were men and women who have backgrounds I believe is essential and consistent with the goals of the study of food self-reliance in Eritrea. Kvale and Brinkmann (2008) added that a purposive or convenience sampling is a strategy used to obtain the information relevant to the study. A purposive sampling offers a qualitative inquiry where researchers explain the participants' viewpoints by selecting those who can offer the most information on the topic (Merriam, 2002). I have chosen purposeful sampling because it helped me engage participants of similar experiences that is related to my qualitative case study. However, it was important that I conduct the purposeful sampling in a manner that can result in credibility and with available time and resources. I conducted purposive sampling by identifying farmers who meet my predetermined conditions. I used criteria sampling in which all the farmers (a) are more than 25 years of age, (b) aligned with food-sustainability policy for the past 7 years, and (c) have received food aid in their lifetime. Other sampling strategies include opportunistic sampling, maximum-variation sampling, and intensity sampling (Creswell, 2007). Any sampling strategy that gives good information about the problem, study sites, and individuals from

which I can gain access and collect data is an effective sampling strategy (Creswell, 2007).

Sampling includes selecting a portion of the population in a research area. The challenge is ensuring the selected portion represents the whole population, which is often not true in qualitative studies (Creswell, 2007). In qualitative studies, researchers should sample a population in a manner from which the most can be learned. Sampling can be performed based on probability and nonprobability methods (Babbie, 2007). Probability involves a random selection such that every participant in the population has an equal chance of being selected. Babbie (2007) stated that the nonprobability sampling technique is based on the judgment of the researcher. First, researchers must be clear about what they wish to achieve (Patton, 2002); the narrative analysis research design and analysis flows from purpose to describe the food-sustainability policy in Eritrea. The choice of sampling strategy, thus, will align with the study's purpose. Specifically, in this qualitative study, the purpose is to understand the perceptions of participants about banned foreign food aid, food self-reliance, and sustainable agricultural development. This qualitative case study focused on farmers living in Eritrea (see Appendix B). As discussed below, I interviewed 15 farmers, based on their ability to explain the experience of food self-sustainability from their respective viewpoints.

I purposefully selected 15 participants who can represent the direct population group with rich experience on the study of food self-reliance, that is, people with firsthand experience in a situation where food aid is banned. I determine the sample size by data saturation: the point at which new information or themes no longer emerge from research data (Guest, Bunce, & Johnson, 2006). Although the skill of the interviewer

affects the quality of data collected (Morse, 2008), as an experienced interviewer, my interaction with informants also had a subsequent effect in achieving saturation. With a minimum of 15 interviews, I elicited rich data such and I have sensed when I had sufficient data. I had planned to increase the number of the participants if new themes continue to emerge, as the qualitative study dictates, but saturation has achieved within the number of 15 informants.

In this qualitative case study, I used a criterion-based sampling approach to select participants in Eritrea because I wanted to find knowledgeable individuals who can comprehensively describe and explain the case. In addition, participants should have firsthand experience with the situation and should be willing to be interviewed for 3 hours each (Moustakas, 1994). In keeping with the tradition of the criterion-based sampling technique, I selected participants who meet the focus of the case under study and my preconditions for participating.

Instrumentation

I have collect data through qualitative semi structured interviews with each of the 15 participants. A semistructured interview is a data-collection method with a predetermined set of questions that allows emerging questions to develop from the responses of the interviewees (Babbie, 2007). As it was my goal, I have obtained exhaustive information from 15 irrigational farmers living in three regions of Eritrea. Although I was targeting a minimum of 15 participants, the actual number of the participants was determined by data saturation, the point at which new information or themes no longer emerge from research data (Guest et al., 2006). The “potential yield of findings” in a qualitative study should be the determinant of the sample size and not the

latitude of the researcher (Wertz, 2005, p. 171). I have not increased the number of the participants because new themes were not continued to emerge. However, I have interviewed 15 participants until real saturation was achieved.

I have begun by asking about the background of each participant with the intent to put the participant's experience in context. Interviews were involved in building rapport, signing the consent form, and gathering information about the individual's life up to the present time. "Reconstructing [participants] early experiences in their families, in school, with friends, in their neighborhood, and at work" allows them to provide the context of their current situation (Seidman, 1998, p. 11). I have addressed the details of participants current experiences that stem from the research questions in this study, having participants provide the concrete details of their experiences and perceptions (Seidman, 1998). I have also asked participants to describe their stories and understanding as Eritreans without foreign food aid and how much they understand their government's policy of food self-reliance. I have conducted the interviews in locations selected by participants that are free from distraction and with an environment, which ensures their privacy. I recorded and transcribed the interviews. Additionally, I took notes to document nonverbal communications of the interviewees to provide details of the environment.

I organized the data by creating files of the transcribed interviews. Researchers create and organize files as the first step in the analysis process (Creswell, 1998). I ensured the safety and security of the data, aligned with Walden University IRB regulations. I maintained files and recordings in a locked filing cabinet at my home. After I transcribed the interviews, I began analyzing the information.

Data-Analysis Plan

I analyzed and interpreted the thoughts, feelings, and stories expressed by participants through open-ended interviews using Kvale's (1996) method of categorization, condensation, structuring through narrative, interpretation, and ad hoc method of generating. I organized information and to track themes, linking arguments across a number of qualitative data sources.

Issues of Trustworthiness

Credibility

To ensure credibility, verifiability, and trustworthiness in this qualitative case study, I used multiple sources with data triangulation and data corroboration. As a means of demonstrating sufficient efforts to maintain the quality of the study, I used triangulation at the end of the methodology. I asked peer reviewers, including my dissertation committee, school colleagues, university professors, and policy analysts to review the results and conclusions of the qualitative case study. Presently insufficient scholarly material exists on Eritrea. The World Bank, International Monetary Fund, and UN agencies such as the World Health Organization and UN Children's Fund provide some general information on Eritrea. However, I have verified claims in some reports against the reality on the ground.

Ethical Procedures

Although I used human participants to gather data, I am aware that I must respect all ethical protocols for conducting this social research. I followed the ethical standards required by the institution that sanctioned this study. I have not contacted participants or I have not started collecting data before I received approval from my dissertation

committee and from the Walden University IRB (approval # 09-30-16-0187476). I anticipate ethical issues may arise either during the planning, conducting, or reporting stages of this study (McNabb, 2008), and I will address these issues with my dissertation committee and the Walden University IRB, if necessary. I have completed the National Institutes of Health web-based training course entitled "Protecting Human Research Participants" (see Appendix C).

I have prepared informed-consent forms that explain the purpose, nature, risk, and benefits of the study to participants before the actual series of interviews. I assured participants that I would make efforts to protect their privacy and safety because of their participation in this qualitative case study. I reminded participants that they are free to withdraw from the process at any time. They could also refuse to answer any question they consider intrusive, psychologically stressful, or otherwise painful. The principle of voluntary participation requires that people not be coerced into participating in research (Babbie, 2007).

Summary of Chapter 3

In Chapter 3, I described the method I used to gather data needed to answer the research questions. I used a qualitative case study with naturalistic inquiry to capture the feelings and emotions of participants about the ban on food aid and whether a food-sustainability approach is a better alternative for Eritrea's sustainable growth and development. I used narrative policy analysis to evaluate the contemporary policy of food self-reliance in Eritrea, and to make effective policy recommendations. Participants in this qualitative case study were those who can express and explain the issue in depth

(Seidman, 1998). Experiences and feelings of people was valuable in gaining scientific knowledge.

In Chapter 3, I addressed the justification for selection of the sample and the issue of participant protection. I used a naturalistic approach by inductively interacting with farmers in answering the research questions. I purposively selected farmers from across the country with a focus on three out of the six regions of the country. In this chapter, I explained how I collected the data and my role in gathering data, especially during the interview process. I also explained that I used a narrative policy analysis to better address the real-world problems of food sustainability.

In Chapter 4, I present the results produced from the research data. I also explain the implications of the results in relation to the study. Finally, I describe the implications of this research for other African nations that are not food self-reliant.

Chapter 4: Results

Introduction

As discussed in earlier chapters, in present-day Eritrea, the government is avoiding food-aid reliance through self-sufficiency policies and strategies (Rena, 2007). The government has attempted to boost agriculture by introducing modern technology, irrigation, terracing, and soil and water conservation, with less dependency on rainwater. The government is also using human-development capacities on food-security themes.

However with the lack of transparent policy in Eritrea (Transparency International, 2015), a qualitative study was conducted to determine whether the country had alternative means to ensure citizens had adequate food needs. This study explored the degree of success of sustainable farming without foreign food aid from the perspectives of small-scale farmers (n = 15).

Using a narrative qualitative case study, I explored the perceptions and experiences of Eritrean farmers' implementation of Eritrea's food self-reliance policy and ban on foreign food aid. I used Eritrea's self-reliance model to investigate if a food-sustainability approach was a good model for sustainable growth and development in Eritrea. This investigation was informed by in-depth interviews of a purposefully selected group of 15 irrigation farmers living in Eritrea. I designed the study to explore the views and perceptions of research participants about food self-reliance without foreign food aid in Eritrea. I analyzed the collected data using a narrative policy analysis to identify stories, scenarios, and arguments that dominate the issue (Roe, 1994). Roe's (1994) framework for analyzing public policy was useful in analyzing public policy on food self-sustainability.

Three primary research questions served as the focal point and the primary direction for this study.

Research Question 1: How do irrigation farmers implement the food-sustainability policy of the government?

Research Question 2: How do irrigation farmers understand the current ban on foreign food aid?

Research Question 3: What are the key practices irrigation farmers have followed toward food sustainability policies?

The research questions guided the study. In addition to these three research questions, I examined secondary data from relevant document review and unbiased observations to add the needed credibility and validity to this study. This chapter covers the setting, the sampling procedure, the process by which data analysis occurred, and a comprehensive review of the systematic inductive analysis

Research Setting

Eritrea has six administrative regions: Southern, Central, Northern Red Sea, Southern Red Sea, Gash Barka, and Anseba. This study had focused on three regions: Southern Region, Central Region, and Northern Red Sea regions. I purposefully selected these locations for their varied climate and water resources, to add credibility to the research. In addition, these areas met the focus of the study by identifying small-scale, private farmers, rather than large government-owned farms. The specific locations where the research was conducted were privately owned farms in Mendefera area, Kudo Felassi, Mai Aini, Ala, Maihabar, Demas, Ghahtelay, Gindae, Serejaka , Lamza, Embaderho, Beleza, Emni Tselim, Dieda.

Data Collection

This qualitative case study with naturalistic inquiry captured the feelings and emotions of participants about the ban on food aid and whether a food-sustainability approach is a better alternative for Eritrea's sustainable growth and development**.** Participants took part in face-to-face interviews in their natural settings, where the agricultural farmers live and farm, and in their language of convenience. Conducting research in a natural setting where informants live adds greater context and richness to the study (Babbie, 2007). The farmers were located across three regions of the country of Eritrea, regions where cereal is the main staple crop.

The research pool for this study comprised 15 participants, all meeting the abovementioned criteria. Of the 15 informants, 11 chose to meet while at their farms; the other four chose to meet in their personal residences. The settings were secluded to protect privacy, and I noticed no signs of uneasiness from the informants. I samples more than 15 participants to ensure that no less than 15 participants took part in total.

Though more irrigational farmers could have been interviewed, the strategy of selecting 15 farmers was based on the argument supported by Glesne (2011) to gain a deeper understanding of their perspectives and experiences. Glesne underlined that the researcher should determine the number of participants based on whether the study goes by depth or breadth. No new information emerged beyond that provided by the 15 informants.

Interviews with each of the 15 informants used the case-study protocol questions (see Appendix D). Some instances arose in which follow-up questions kept the discussion flowing and gained depth to responses. Although I asked several informants to answer all

the case-study protocol questions and additional follow-up questions, others did not need to answer follow-up questions, due to their exhaustive responses, answering the research question.

According to the methodological plan, data accrued, preserved in media recordings. I transcribed the recordings by hand directly after interviews, while I was still in the country and completed the data transcription when I returned to the United States using Microsoft Word. I repeatedly read the recorded data against the transcripts for data accuracy. The recorded data is secure, in the event that additional checks are needed for data accuracy.

Data Analysis

The analysis of data followed the approach of organizing to fit the responses to the research questions and prioritizing the responses for presentation as integral parts of themes.

Research Question 1: How do irrigation farmers implement the food-sustainability policy of the government?

As revealed by the themes that emerged from this research questions, 60% and 55% of the informants, respectively, responded saying they implement the food-sustainability policy by working hard and through the efforts of self-reliance. Another 33% of participants believed the policy could be implemented by building dams and maximizing the use of rain water.

Irrigation farmers stated that every farmer was given or leased a plot to produce. The size of each plot varied from farmer to farmer. Some started very small with one hectare of land, and today could develop up to 10 hectares, allowing them to harvest up to

three times a year. Almost every participant indicated they had to produce more local crops and even extra for export, working incredibly hard to avoid receiving food aid. All unanimously stated it took collective hard work to obtain the results. They worked together to protect the land from erosion by engaging in terracing and worked to stabilize land.

> We as a village work collectively. We use the water from the dam together and farm together. We grow economically together. … That means if we fail to succeed, of course we fail together. We are very close to each other here. We work hand in hand. We have dams and water holes. Our forefathers survived by just depending on rain. We are in a better situation, because we have dams and irrigation. (F-12, 70 year-old man)

The farmers stated that even though the land was green and fertile, they still enriched it with fertilizers for better yield. Climatic conditions were not always favorable, and therefore the farmers did not depend solely on rainwater. As from time immemorial, farmers have used irrigation in Eritrea; these farmers have maintained that culture and also rely on dams and underground water to supplement their water supply. In areas where the building of dams was not ideal, they used water wells. Farmers in the village of *Lamza*, in the Central Region, for example, have made sure everyone got at least a piece of land for irrigation. They also practiced diversification of crops for their farming fields (see Figure 2).

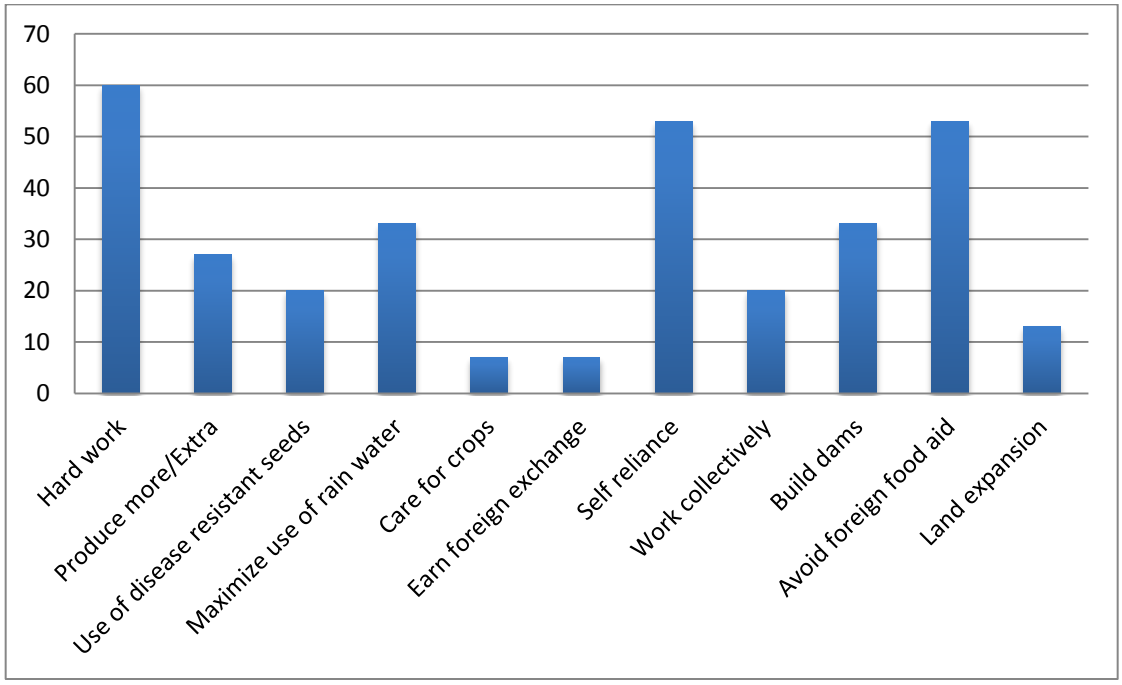

Figure 2. Food self-sustainability implementation percentages.

Research Question A1.: How much do you understand the policy of food sustainability in the country?

Although most informants (80%) understood the policy of food self-sustainability as self-support or self-reliance, 72% also said it is a policy that rejects foreign food aid. Some farmers (20%) clearly stated that the ideology of food self-sustainability came from the days of a hard-fought independence. They responded that they knew what the government's policy was and that it wanted the country to be self-reliant; a policy that required every citizen to be able to support him or herself.

> We know the policy of food sustainability since the time of independence struggle. We secured our independence with no outside help. It was a hard won independence. I think the policy of food self-sustainability came from the ideology of our independence veterans. (36-year-old man)

The 80% of the informants who said they understood food self-sustainability as self-reliance or self-support offered no alternatives to the policy of self-sustainability (see Figure 3).

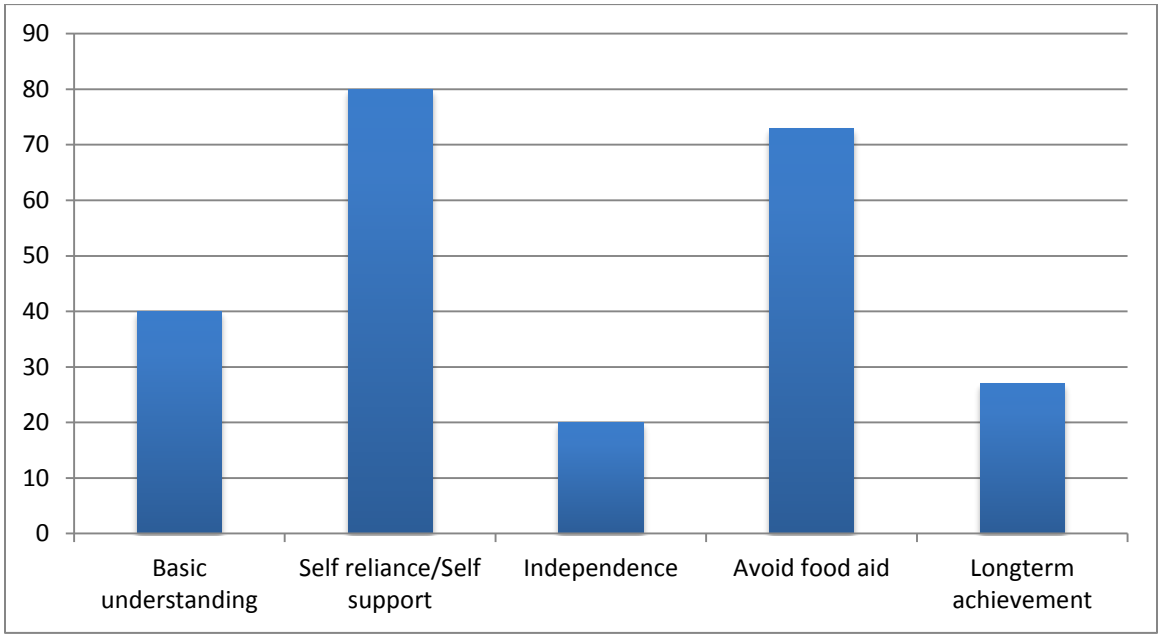

Figure 3. Understanding food self-sustainability policy percentages.

Research Question 1b: Do you feel prepared to implement the policy?

Of the interviewees, 46% said they had sufficient water supply; 38% had sufficient land availability; and 40% were prepared to implement the food-sustainability policy through the attitude of hard work. Of the farmers, 20% acknowledged that only through collective effort could they achieve their goals. One main concern was peace and security. For many, growing food was a family affair, but for most it was a collective effort between the government and the farmers: they helped each other obtain good disease-resistant seeds; they constantly increased the size of their lands; they diversified their crops; and they strove to help the country earn foreign exchange. Although the government built large dams, the individual citizens built small dams and water wells.

They indicated that to succeed, the government should work more and equip them with materials and staff.

> As I said, we are prepared and we are implementing it. I farm 6.7 hectare of land. I produce different types of vegetables with more emphasis on orange and papaya, but I plant other seasonal and nonseasonal food plants also. Most importantly, we produce extra sometimes, and we succeed in more crop production we even strive to help the country earn foreign exchange. (61-year-old man)

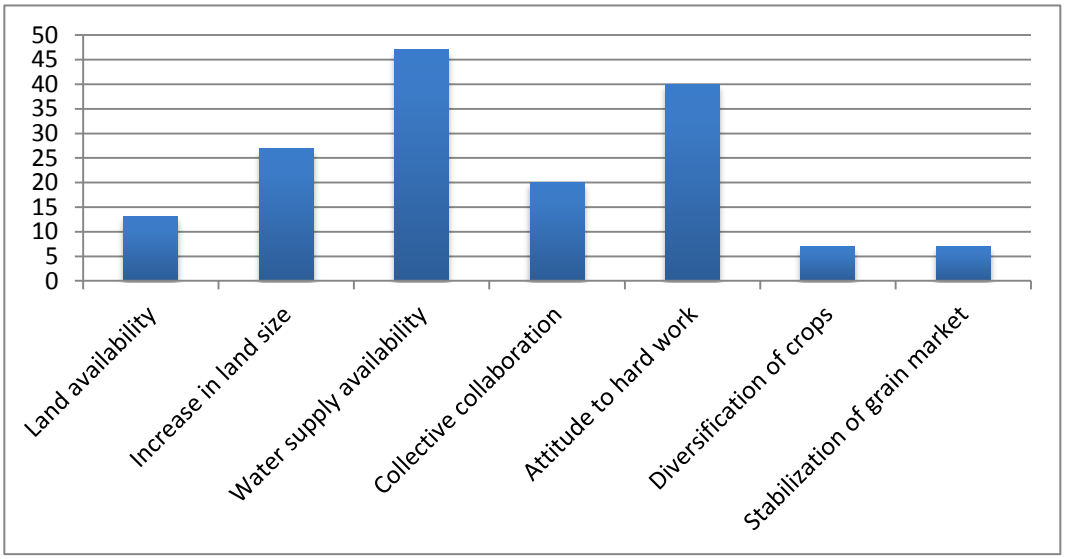

Figure 4. Preparedness for policy implementation percentages.

Research Question 2: How do irrigation farmers understand the current ban on foreign food aid?

The concept of food aid suffers from a nearly universal rejection by the informants in this study. More than 80% of informants understood foreign food aid as a tool that increased dependency and weakened creativity, and a lesser number of them even saw food aid as "a disease that will not go away." They perceived food aid as

something received from foreigners/donors when short of locally produced food. They indicated that it was a short-term solution (38%) and that it was more harmful than good. Of participants, 40% said food handouts paralyzed their efforts to produce, and invariably resulted in long-term dependency. Informants in the same category believed food aid could be lifesaving during famine or natural-disaster situations, but was not a solution for poverty alleviation. Should they run into a situation where they needed food aid, they could make a request to the government (see Figure 5).

> Food aid is something that we know long time ago. It has been decades since we took out the notion of food aid out of our mind. Food Aid is out of question now in our community. It doesn`t matter if we produce more crops or less, but we don`t consider food aid as a solution to our poverty. And if we can support our family we are not poor. There are times we even produce surplus that can be exported. So, we are ok. We don`t want to go back to those years where food aid was considered as a solution. (68-year-old man)

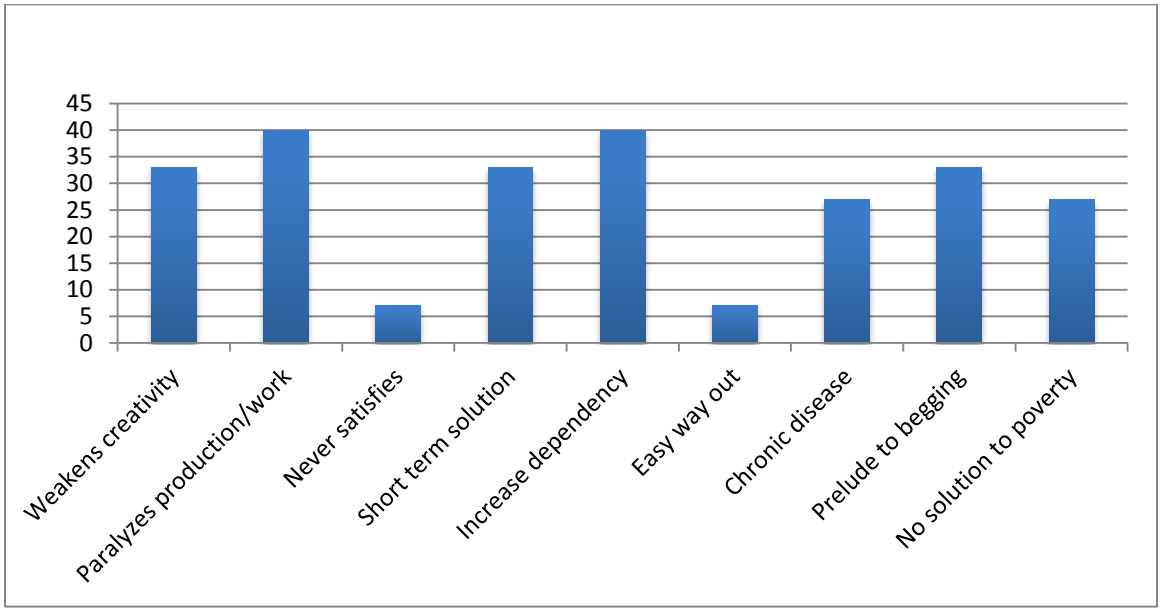

Figure 5. Understanding food aid percentages.

Research Question 2a: Do you believe this no-food-aid policy can sustain or improve your welfare?

The farmers indicated that even though they experienced many challenges, such as rain and supplies shortages, they were working hard toward self-sustainability. Although nearly 55% of informants indicated that the food-sustainability policy had increased their resolve and enhanced their pride, 40% of them indicated that their food production had increased after they had adopted and implemented the food-sustainability policy and the policy was working for them. In some agricultural sites, farmers farmed year round and farmers with enough lots said the results were good (see Figure 6).

> Of course the policy of food self-sustainability is working for us. It is teaching us not to think of food aid. If you receive food aid today, you are not going to be interested in producing for yourself tomorrow. You don`t want to be dependent. No one in the community likes to see someone being like parasites in others. We

don`t want to look for handouts but grow sustainable food crops. (38-year-old man)

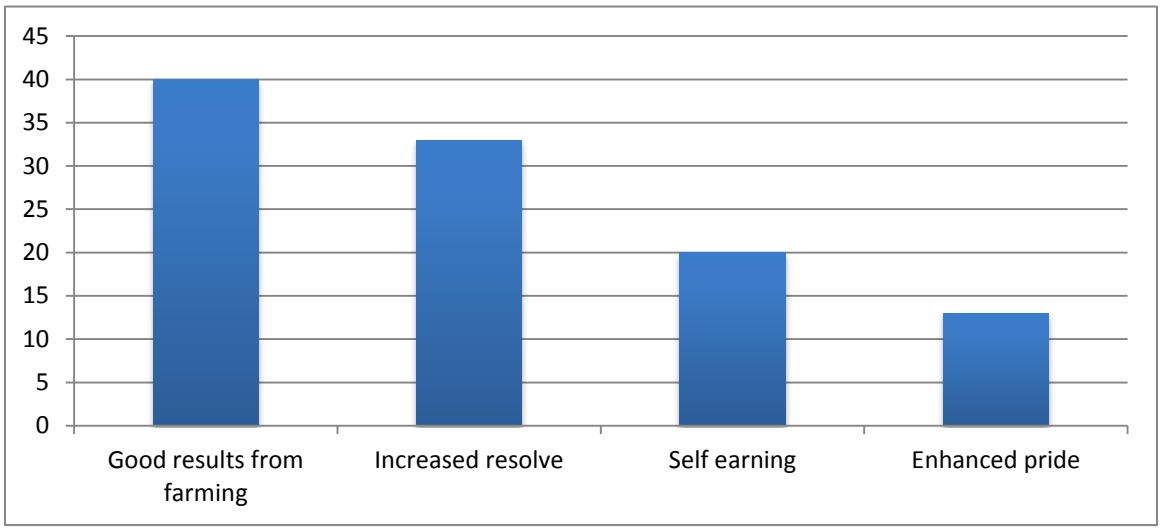

Figure 6. No-food-aid policy improves welfare percentages.

Of the 15 interviewees, seven (47%) were fortunate to get land for investment. I interviewed these farmers at their fruit plantations. They described the chance to hold the land as long as they were contributing to stabilizing the fruit market.

Research Question 2b: What help do you get from the government in implementing the self food-sustainability policy?

The government has been helping them in several ways: the farmers received training on the no-food-aid policy and how to develop the farms; the government aggressively mobilized people to work on land terracing; provided fuel and machinery; provided selected seeds, pesticides, and fertilizers free or at discounted price; and built dams. The government built some dams in cooperation with the people in some areas where the farmers work. Using those dams and water holes, the farmers cultivate as much as they can. Sometimes, they produce surplus and sometimes they get less than average.

No one indicated they have ensured food security. They use irrigation, which is more sustainable for crop production and plant cultivation than dependence on rainwater. The government provides some materials like fertilizers and hybrid seeds, which are very important to farming for higher yield. Although they receive help from the government in implementing the food self-sustainability policy with fertilizers, pesticides, and hybrid seeds, the government also allows them to work and agree among themselves for everyone in the community to have an assigned farming plot.

Research Question 2c: Would you consider receiving food aid? Why?

When asked if they would consider receiving foreign food aid, 87% of informants said "no," and when asked why they would not consider food aid, 58% gave related reasons, mostly attributed to the good harvest of the year. This group of informants indicated that this year they had been particularly successful, as the rainy season had been good, increasing their productivity; they were able to have an abundant harvest. However, two farmers in the Northern Red Sea region (13%) of informants were not sure if they were going to ask for food aid, as they were concerned about this year's shortfall of rains in their area (see Figure 7).

> As a mother, I always want to see my children have enough food. We passed through difficult times before our independence. We had an acute shortage of food. We used to welcome foreign food aid. It is true that food aid saved many lives. But it has been years since we have seen foreign food aid. We can have shortage of food here and there, and we are not sure if we need food aid this year, as the shortfall of rain is evident in our area. (41-year-old woman)

As illustrated in Figure 7, participants gave varied answers when asked in-depth follow-up questions about why they did not want to consider food aid.

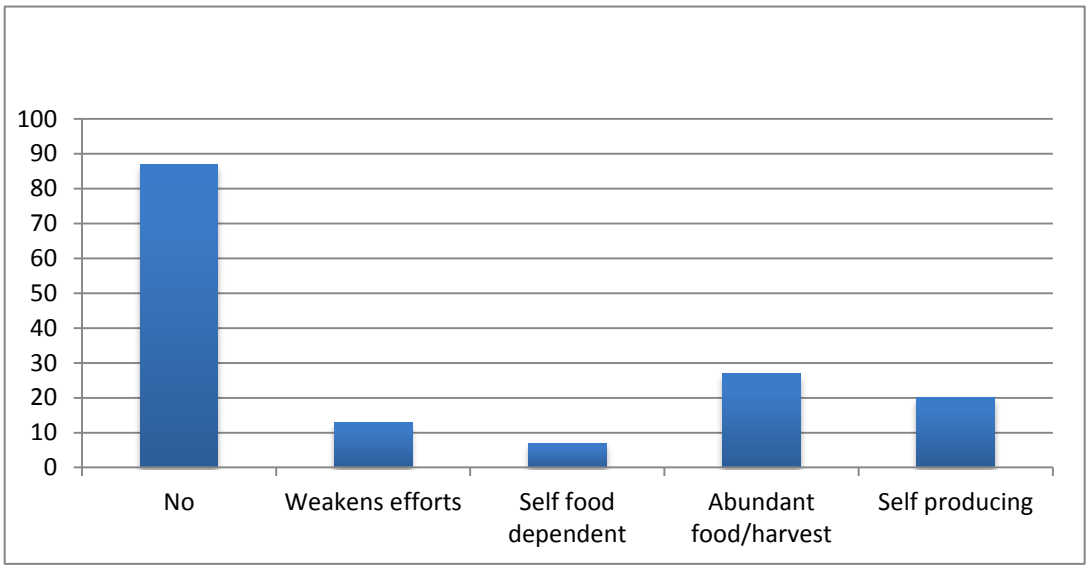

Figure 7. Consideration of food aid percentages.

Research Question 3: What are the key practices irrigation farmers have followed toward food sustainability policies?

When irrigation farmers were asked about the practices they applied to implement the government food-sustainability policy, more than 70% stated they used underground water in addition to the dams for farming. They invested in water infrastructure for irrigation and pursued multilayered programs and packages of food security. They also engaged in purposeful and planned storage during lean years. Practices such as irrigational farming, soil and water conservation, and the use of fertilizers and selected seeds were major themes among the 13 themes emerging to answer this research question (see Figure 8).

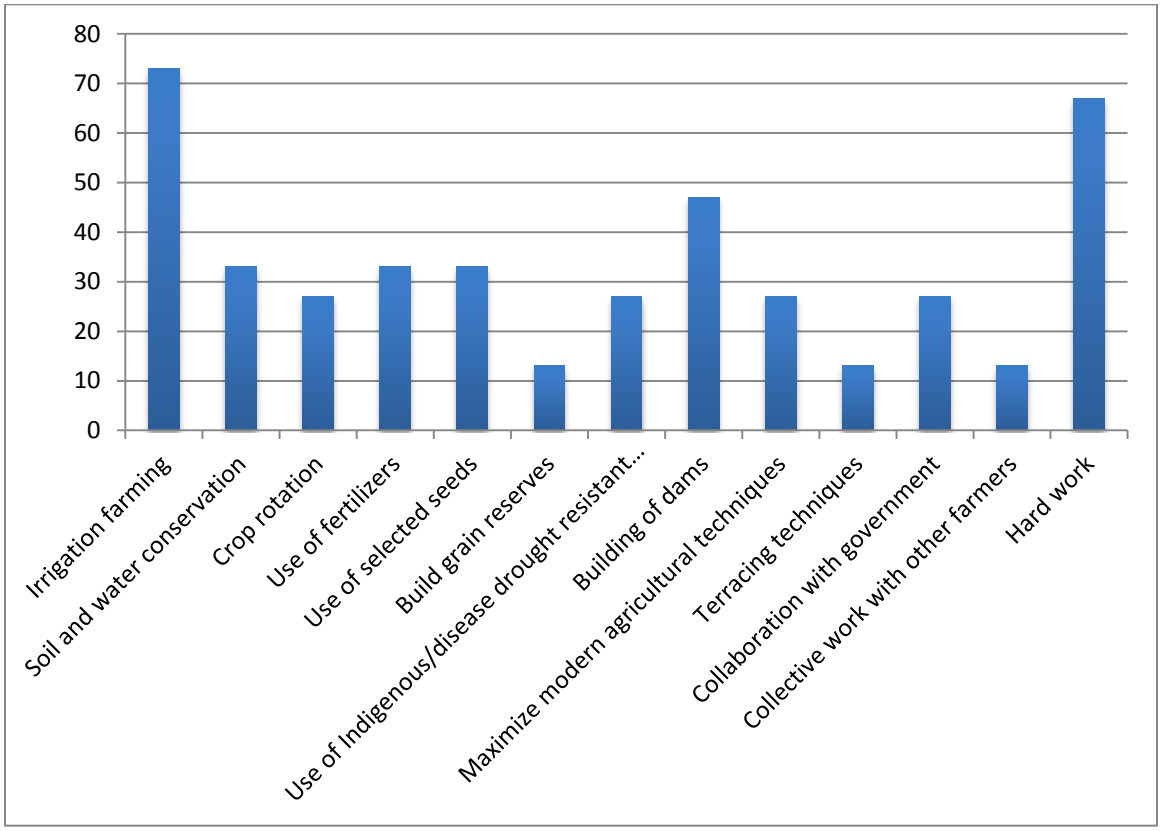

Figure 8. Key practices percentages.

Research Question 3a: What are the challenges of implementing the food sustainability policy?

Although most informants acknowledged government support and the practices they used toward food sustainability, they also experienced challenges in implementing the food-sustainability policy. They believed the government could do more in providing supplies (pesticides, fuel, and fertilizers) as the farmers could not import them directly. Also, the government could allocate more land to some farmers and improve landownership policies (land reform) in the areas of right to use, control, and transfer ownership. Though some inherited land, other farmers had to rent from landowners.

Nearly 70% of the farmers indicated they needed to hold the land longer for better yield and better food sustainability.

> The most underlining criterion for effective food-sustainability is the land-tenure system. I know this is a thorny issue in our country, but we cannot achieve food security if we don`t have solid program on land policy. My suggestion is if the farm land has to be on lease type of policy, a farmer should at least have a right of ownership for 15–20 years' time, instead of 6–7 short years. That way the farmers can have the confidence to develop their farm for better production, something like applying fertilizers every year and they can plan for longer term development. (38-year-old man)

Farmers indicated they needed more cooperation from government's lower level bureaucrats in responding to their needs. Of the 15 informants, 65% had concerns about the government calling upon men to national service to defend the country. Sometimes this period fell during harvest time, when the work force was most needed. The burden then rested on the women, who could not handle certain tasks in farming, thereby slowing productivity.

> We have challenges, we are short of man power my husband and children are in the army. What can a woman do by herself? The policy is good and we have been working to implement it but the government is assigning everybody to the national security duty. (F-5, 35-year-old woman)

Other issues, such as shortage of machinery, fuel, fertilizers, and hybrid seeds for crops and plants, were cited by 85% of participants, as they were the main contributors to the dramatic rise in agricultural output. "Farmers need supplies such as fuel, machineries,

fertilizers, and selected seeds like hybrid seeds for our crops and fruit plants. These are important, because these are the main contributors to the dramatic rise in agricultural output" (36-year-old man).

Another major issue was the location of some farms where dams could not be built. In these areas, farmers had to rely greatly on underground water when there was no rain. Farmers complained about the presence of pests such as the white flies damaging citrus and other fruits. If they were to ask for foreign aid, 33% of informants said pesticides would be the type of aid they would request to combat these pests (see Figure 9).

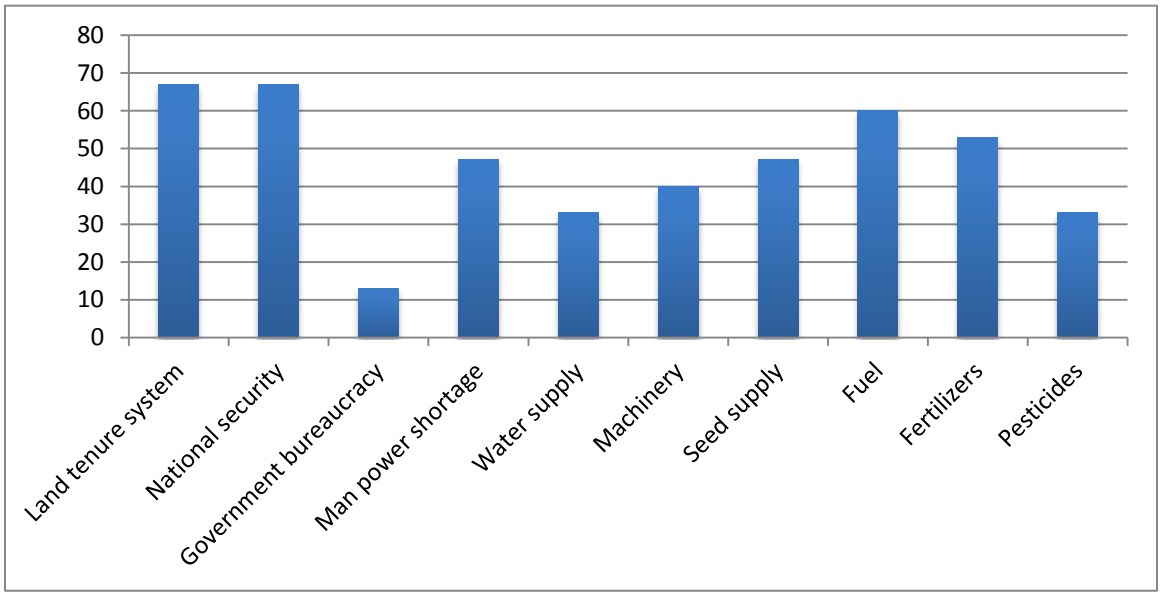

Figure 9. Challenges percentages.

Research Question 3b: Do you have suggestions for effective food sustainability?

As part of the protocol and follow-up questions, to gain deeper understanding of the perceptions and practices of these purposely sampled informants, farmers proposed the following 10 points for effective food sustainability:

1. Peace and security in the region.
2. A well-planned strategy and implementation of the self-sufficiency program.
3. The land tenure system should be reviewed. Currently, farmers lease lands for 6–7 years. Farmers suggested 15 to 20-year leases for sustainability.
4. Uninterrupted and timely supply of fuel and irrigation materials including seeds and pesticides.
5. The government frequently check with farmers and listen to their demands.
6. The government should continue training irrigation farmers, keeping them updated on useful information and exploring the possibility of external training abroad for a range of exchange experiences.
7. Farmers need to familiarize themselves with new technologies and modern methods of farming.
8. Train farmers in modern animal production for better understanding of milk production.
9. Collective farming and joint markets.
10. Freedom for farmers to choose the type of crops they should grow on their farm (see Figure 10).

Evidence of Trustworthiness

To ensure the accuracy of this qualitative research, I considered the four aspects of qualitative research constructed by Lincoln and Guba (1985): credibility, transferability, dependability, and confirmability. No deviation or adjustment of plan was necessary during the data-collection process as I conducted the study as described in Chapter 3, which ensures the credibility, transferability, dependability, and

conformability of the study, representing confidence in the truth, applicability in others contexts, consistency of findings and the degree of neutrality in the findings (Lincoln & Guba, 1985).

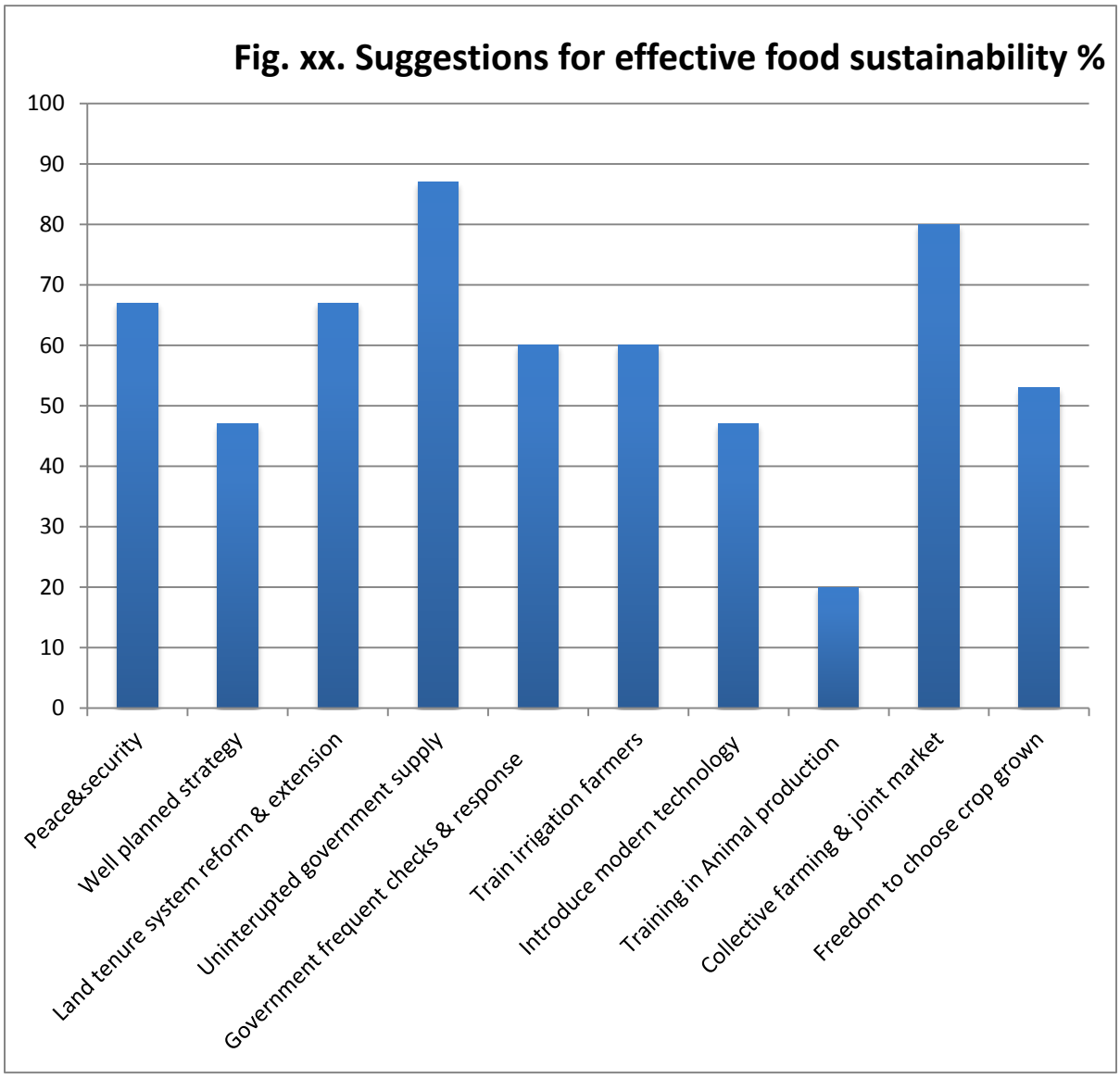

Figure 10. Suggestions for effective food sustainability percentages.

Credibility

As indicated earlier, I gathered data by interviewing each participant face to face, in their natural settings, in their language of convenience (Babbie, 2007). In this qualitative case study, to add richness to the data gathered, I used multiple sources such as in-depth interview with participants and data triangulation and corroboration to ensure credibility, verifiability, and trustworthiness.

I asked peer reviewers, including my dissertation committee, school colleagues, university professors, and policy analysts to review the results and conclusions of the qualitative case study. Presently, insufficient scholarly material exists on Eritrea. The World Bank, International Monetary Fund, and UN agencies such as the World Health Organization and UNICEF provide some general information on Eritrea.

Transferability

Findings from this qualitative study has applicability to other contexts related to food security in Africa. Many countries in Africa continue to face challenges of unsustainable developmental programs. The challenges include suffering from recurring drought and hunger (World Bank, 2015). This case study of Eritrean food sustainability is facilitated by clear descriptions that are transferable to other similar contexts, as similar situations exist in some African countries offering similarity to this study conducted in Eritrea.

Dependability

Dependability demands the consistency and stability of the findings and whether the findings can be repeated with other inquiries. This qualitative research enables researchers to understand the techniques and effectiveness of the study, so they can

follow the process (Onwuegbuzie & Byers, 2014). To build dependability in this qualitative study, I produced audio tapes and transcripts of informants' responses. I have reported the process and the methodology I followed. I explained and interpreted the results in detail so other researchers can depend on the results my research produced.

Confirmability

To meet the standard of confirmability, I, as the researcher of this qualitative case study, am aware of the threat of bias, motivation, or interest (Ali & Yusof, 2012). The degree of neutrality of findings from this study is completely shaped by the responses of the irrigational farmers who participated in the research. Participants and independent reviewers reviewed the collected data to evaluate the accuracy and whether the data supports the findings, interpretations, and conclusions. I also crosschecked against similar literature, supported by materials on similar contexts.

Demographics

Participants were men and women who met the requirements for this study. Kvale and Brinkmann (2008) added that a purposive or convenience sampling is a strategy used to obtain the information relevant to the study. Of the 15 participants, 10 were men. All participants met the criteria for participation and were men and women irrigational farmers who could offer the most information on the topic (as suggested by Merriam, 2002). I used criteria sampling such that all farmers (a) were more than 25 years of age, (b) aligned with food-sustainability policy for the past 7 years, and (c) had received food aid in their lifetime. Gender was a factor only when the issue of staffing to implement food self-sustainability was raised.

Ethical Protection of the Participants

The IRB approval number for this dissertation is 09-30-16-0187476. I presented consent agreements to each participant and each participant signed one. I visited the sites from October 22–November 15, 2016. I went to participants' farm sites and private homes. I explained the nature of the study to them. For most, I left a flyer to give them freedom of decision. I made sure their privacy was protected by offering them the choice of place and time they felt more comfortable to be interviewed. As stated in my consent form, participants decided the time and location of the interviews.

Due to the nature of privacy, I personally handed flyers to participants only; almost all of them decided to be interviewed before I left their site. In most cases, I interviewed informants without handing them a flyer because they agreed to the consent form right away. Participants felt more comfortable when third-party persons were not involved in the study. I presented all the consent information prior to asking farmers to commit to an interview. I verbally read the consent form prior to asking them to participate.

This study provided all the necessary privacy protections. Although the study did not demand high levels of privacy protection, it was unnecessary to record names or contact information in the research records. Participants' identities were not directly or indirectly disclosed. Codes replaced names during analysis.

Research Results

The results of the current study maintain the confidentiality of informants and information was not attributed to informants as individuals. I present the findings as integrated results without identifying individuals. All information collected from

participants appears in this results section. As stated in Chapter 3, I interviewed 15 farmers in three regions of the country and their responses are organized and presented below under the three research questions.

Based on the case-study protocol interview questions, I asked each of the 15 informants the 10 protocol questions and asked some follow-up questions. For the purpose of this analysis, these protocol questions are categorized around similar themes. I organized the findings under major responses to the three research questions: (a) avoiding foreign food aid, (b) key practices in implementing the food-sustainability policy, and (c) the challenges of implementing the food self-sustainability policy.

Avoiding Foreign Food Aid as a Solution to Self-Sustainability

Farmers opined that looking for handouts from donors could paralyze their efforts to develop, and it was possible to achieve food security without foreign food aid. They all set aside foreign food aid from their thinking. The concept of producing themselves was a sustainable strategy and gave them the opportunity to learn how to produce repeatedly. The government has instilled in its citizenry that foreign aid is not sustainable. One farmer recalled that the last time food aid was received was 20 years ago and the farmer did not know its source. They did not need it today.

The concept of food aid was nearly rejected by participants in this study. Informants understood foreign food aid as a tool that increases dependency and weakens creativity. Some even labeled food aid as “a disease that will not go away.” They all acknowledged food aid as short-term solution, but it has been more harmful than good. Informants believed food aid could be lifesaving during famine or natural-disaster situations, but was not a solution for poverty alleviation. When asked why they do not

want to consider food aid, 58% gave related reasons, mostly attributed to the good harvest of the year. However, at the same time, they indicated that if they needed food aid, they could make a request to the government.

Key Practices of Implementing the Food-Sustainability Policy

Findings concerning key practices that the informants use when implementing food self-sustainability revealed 13 major thoughts, organized and integrated as follows. To avoid dependence on the unreliable and inadequate rainfall, Eritrea has made investment toward the construction of dams. In many parts of the country, once-dry areas have been rehabilitated with the construction of dams, microdams, reservoirs, and check dams, all with local resources and capacity. Farmers use various irrigation systems to improve food production. The main rainy seasons tend to be unpredictable in distribution and occurrence, particularly in recurring years when the overall rain volume is below average. To implement the food-sustainability policy of the government, irrigation farmers have to work sustainably.

Those who live in drought-prone regions of the country were struck by drought more than once. Their efforts now are to ensure they do not return to the dark ages of drought and hunger. They work hard to prepare themselves for unpredictable occurrences. Some measures they take are building dams and water ditches, and they use underground water by digging wells below the dams. They cultivate seasonal and nonseasonal crops and plants. Thus, key practices for implementing the food self-sustainability policy include irrigational farming, investing in water infrastructures and learning how to us the available water efficiently and wisely. They know they do not

want to depend on seasonal rain, which leads to food shortages, which they consider a prelude to requesting food aid.

The farmers work hard to get all the food materials themselves:, “the materials that the food donors want to supplement to us.” Other practices include crop rotation and alternating shorter-age crops with long-age plants. However, implementing the self-sustainability policy of the government is not easy, especially for women, as it requires much hard work and patience.

Challenges of Implementing the Food-Sustainability Policy

Results from this research indicated irrigational farmers in Eritrea have been facing challenges from the land-tenure system, national service, and shortage of material supply. Shortages of material supplies, including fuel, fertilizers, and machinery supplies, have negatively impacted agricultural productivity. To achieve indigenous food self-sufficiency, which would ensure food security in Eritrea, the farmers expect more cooperation from the government’s low-level bureaucrats in responding to their demands. They want to have effective, accountable, and responsible leadership in their communities. If effective leadership is in place, ultimately food security can be achieved.

The Eritrean government argues that national service is important to safeguard the new country from adversaries, to rebuild the economy, and to ensure food self-sustainability. The farmers understand their government’s concern, while simultaneously seeking a solution for the shortage of staffing. The impact is even greater when the men serve in the army and the burden of irrigational efforts is left to the women.

Participants were open about criticizing the government’s land-tenure policy, which they see as a roadblock to a long-term food self-sustainability. Land-tenure

policies discourage farmers from taking care of their farm as their own. Whether challenges are socioeconomic, circumstantial, or political, land rights have not been sufficiently guarded and restricted by law, resulting in such problems as low productivity. The results of this study show the land-tenure policy discourages farmers from feeling safe to develop their land. This can result in low productivity for farmers who strive to implement the government's no-food-aid policy.

Recapping the findings for the research questions, the irrigation farmers implement the government's food-sustainability policy by working hard and through the efforts of self-reliance. To live in with the policy, they had to produce more local crops and unanimously stated it took collective hard work to obtain the results.

The concept of food aid suffers from a nearly universal rejection by the informants. They understood foreign food aid as a tool that increased dependency and discouraged creativity. They indicated that food aid was a short-term solution that could be lifesaving during famine or natural-disaster situations, but not a solution for long-term poverty alleviation. They also indicated that if they run in to an emergency situation where food aid is needed, they would not shy away from requesting help from their government.

The key practices the irrigation farmers applied to implement the government's food-sustainability policy were investing in water infrastructure for irrigation and multilayered programs and packages of food security. They also engaged in purposeful and planned storage during lean years. Practices such as irrigational farming, soil and water conservation, fertilization, and seed selection were major themes emerging to answer the research question.

Summary

In this qualitative case study, I examined the strategies and experiences of farmers (n = 15), using the EFSRP as the nation's sustainable growth and development program. I interviewed 15 irrigation farmers from three administrative regions in Eritrea until data saturation was reached, meaning no new information emerged. Findings from this case study provided knowledge on indigenous food-sustainability policies and self-reliance models and strategies that could spare current and future generations in Eritrea from food insecurity. Findings suggested that the policy of self-sustainability strikes deep personal and cultural chords for farmers who have a strong commitment and acceptance of hard work in Eritrea. However, lack of understanding of how the government operates the policy of self-sustainability and concern about lack of government material support have challenged farmers to achieve food self-sufficiency in Eritrea.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Eritrea is positioned in one of the driest areas of the African continent. Repeated shortfall of rains affects agricultural production and availability of drinking water in the country. However, the country has worked to ensure food security is one of the top national priorities and the cornerstone for sustainable economic growth and poverty reduction. The food-security strategy, adopted more than a decade ago, aims to ensure all Eritreans have sufficient quantities of nutritious food at an affordable price at any given time and place in the country (Eriswiss.com, 2017). This policy of food security must be achieved largely from increases in domestic food production. The purpose of this qualitative case study was to explore and understand the perspectives of irrigational farmers of Eritrea on four aspects of the EFSRP during the period 2006–2016.

The four aspects were (a) the potential impacts of foreign aid on Eritrea's food self-sustainability, growth, and development; (b) the degree of success of indigenous, drought-tolerant crops for a food self-reliance approach; (c) new strategies that may be adaptable or applicable for Eritrea's sustainable growth and developmental program; and (d) new knowledge on indigenous food self-sustainability.

In this qualitative case study, I examined the strategies and experiences of farmers (n = 15), using the EFSRP as the nation's sustainable growth and development program. I assessed this qualitative case study inductively to draw "general inferences from a particular phenomenon" (Anderson & Srinivasan, 2003, p. 56). I undertook a naturalistic approach that allowed me to interact with Eritrean farmers in person and at their sites to address the research questions (as suggested by Babbie, 2007). This study targeted real-

life stories and perceptions of 15 farmers, who were implementing current policies of self-reliance; farmers who were experiencing a life without foreign food aid.

Three research questions guided the collection of interview data in this study:

1: How do irrigation farmers, implement the food-sustainability policy of the government

2: How do irrigation farmers understand the current ban on foreign food aid Research

3: What are the key practices irrigation farmers have followed toward EFSRP's food sustainability policies?

Findings from case study provided knowledge on indigenous food-sustainability policies and self-reliance models and strategies that could spare current and future generations in Eritrea from food insecurity. Key findings from the results suggest the following:

- The policy of self-sustainability strikes deep personal/cultural chords for farmers who have a strong commitment and acceptance of hard work
- Farmers conceive self-sustainability at the family and community levels
- Nearly universally, farmers reject the idea of food aid
- Farmers take collective systemic action to abandon food aid
- Farmers lack understanding of what the government provides
- Farmers have concerns about the lack of government material support

One key finding from this study was the challenges of the land-tenure system, which most participants saw as an impediment to the implementation of the self-sustainability program. Although some participants enjoyed holding their farms longer,

most participants (70%) want to see the land-tenure policy overhauled. Other factors investigated in this study included government assistance and farmers' key practices for implementing irrigational farming.

Interpretation of Findings

These findings confirm knowledge in the literature that internally generated development agendas (Rugumamu, 1997; Sen, 1981) could lead to self-sustainable agricultural development in Eritrea, focused on sustainable agricultural development (Abbott, 2012). The policy of the government is to transform the traditional farming system into a modern, efficient, and sustainable agricultural sector (Government of Eritrea, 2016). The government also envisions promoting high-value products through irrigation development.

The themes described in this chapter are avoiding foreign food aid, self-reliance, and water supply availability; irrigation farming as a key practice; and land-tenure challenges. The Eritrean food-sustainability policy entails many aspects; however, I only focused on the food self-sustainability and zero-foreign-aid policies. I did not address political policies unrelated to this qualitative case study.

Avoiding Foreign Food Aid

This theme confirms the literature that food-aid-free policies have the potential to achieve food security and end poverty in Eritrea. Facing inward, internally generated development agendas could lead to self-sustainable agricultural development (Willer, 2002), focused on sustainable agricultural development (Abbott, 2012). All 15 informants in this study would not consider food aid at this time for two reasons. First, they do not believe food aid it is a long-term solution. Second, they do not have acute shortages of

food at the time this study was conducted. Literature revealed that foreign food aid could not end poverty, providing information on how orthodox methods of poverty reduction do not help and can even worsen poor economies (Easterly, 2007; Madote News, 2011). Even with food shortages, most farmers said that food aid does not bring any long-term solutions. More than 80% of the irrigation farmers opted to avoid food aid.

Interviewees who participated in this study consistently argued that if they received food aid today, they would not go to work tomorrow. They do not want to be perceived by the community as waiting for food handouts, thereby providing a bad example to the community. Moyo (2009) argued that foreign aid "fosters corruption and distorts economies, creating a culture of dependency and economic laziness" (p. 148). Further, Easterly (2007) and Rugumamu (1997) argued against increasing aid, thereby supporting self-sufficiency, and 73% of those participating in the current study believed that food aid weakens creativity and productivity and discourages self-sufficiency. Those who receive food aid may not be interested in producing. For those who are unable to produce in the future, dependency on food aid will persist as a trademark for life. In support of Mayo, irrigational farmers believe Eritrea will never stop being dependent on foreign aid, if the cycle of dependency continues.

Key Practices to Implement the Food-Sustainability Program

As discussed earlier, in present-day Eritrea, the government is avoiding food-aid reliance through self-sufficiency policies and strategies. This interpretation of the findings relates to the literature showing that the government has attempted to boost agriculture by introducing modern technology, irrigation, terracing, and soil and water

conservation, with less dependence on rainwater (Rena, 2007). The government is also using human-development capacities on food-security themes.

All interviewees used the term irrigational farming, and stressed they invested in water infrastructure for irrigation. This finding supports literature that socioeconomic, natural, or climatic and political challenges that have hindered countries from becoming fully food self-reliant can be conquered through implementation of locally conversant sustainable projects aimed at agricultural development (Ghebru & Mehari, 2007). Almost 50% of the irrigational farmers stated they used underground water in addition to water dams for farming. The following practice represents the responses of those farmers who invested in irrigational farming.

> We use irrigation water that comes from groundwater or water that comes through rivers, lakes or water reservoirs. We get water distributed over our farm under low pressure. We also use a piped network to supply the farm with the water. We don`t look for easy way. We work hard to get all the food materials ourselves. (R-9)

Evidence also suggested that if these irrigational farmers reclaimed land and used the scarce water catchments, including digging boreholes, they could irrigate and would have an alternative livelihood for farming (Jordan, 2016). Deb et al. (2009) explained that a country could achieve food security only if it exercises food self-sufficiency. In contrast, this finding contradicts some of the literature (Oxfam, 2012), which stated Africans rarely implement alternative sustainable livelihoods available to them, especially in agricultural intensification, rural development, and livelihood

diversification. However, results support the notion that local rural people in Africa need effective ways to achieve food self-reliance.

Challenges of Implementing the Food-Sustainability Policy

All 15 irrigation farmers interviewed for this research study indicated they have faced challenges of supply shortage. More than 60% of respondents averred that some of their challenges include depending on the government for their fuel, fertilizers, and machinery supplies. These challenges support the literature that leadership requires the elements of transparency, accountability, and legitimacy. "Leaders should be role models for their followers through their actions, showing personal commitment to the values and goals established in the organization or institution" (Deb et al., 2009, p. 4).

Farmers also believed the government could do more to provide them with supplies (pesticides, fuel, and fertilizers) as farmers cannot import them directly. More than 10% of them also believed they should get greater cooperation from the government`s lower level bureaucrats in responding to their demands. To achieve indigenous food self-sufficiency in Eritrea, effective leadership must be accountable and responsible. With effective leadership, poverty can diminish and food security can be achieved.

The issue of national security is a challenge. Eritrea has a conscription policy such that adults under the age of 50 must serve with prolonged stretches of work as soldiers and civil servants; a policy the government says it needs to rebuild the economy and ensure food self-sustainability. Some interviewees have several siblings in the army which can impact productivity, particularly if they are absent during harvest season. The impact is ever greater when the men are away to serve in the army and the burden of

irrigational efforts is left to the women. But farmers do not offer tangible solutions of how and what should be done to alleviate the national security issue other than suggesting that the government should accommodate their issues.

Participants were open about criticizing the government's land-tenure policy. The land-tenure system is central to 70% of participants, evidenced by farmers who suggested an extension to about 20 years of land holding. Land reform is a roadblock to self-sustainability. It discourages farmers from caring for their farm as their own. Land should be reformed in 15–20 year spans rather than the current 6–7 years.

As supported by Ghebru and Mehari (2007), challenges to food self-reliance can be socioeconomic, natural, or political and can be solved through implementation of locally friendly policies for sustainable agricultural projects aimed at changing the livelihood of the local community as a whole. Farmers need longer lease of farms so they can treat their farm with more care and with continuing fertilizers. Farmers hesitate to treat their farms with expensive fertilizers when they know their farm will be given to other owners the following year. The land-tenure system is a problem in the country. Land rights have not been sufficiently guarded and restricted by law, resulting in many problems such as low productivity because of changes in tenure. Results from this study show the land-tenure policy discourages farmers from feeling safe to develop their land. This can result in low productivity for farmers who strive to implement the government's no-food-aid policy.

Limitations of the Study

Eritrea is a young economy with a small population and small geographical area. It is situated in a politically unstable neighborhood as part of the Horn of Africa. After

being immersed in a brutal border war with its giant neighbor Ethiopia, both countries are still at odds, even after an international arbitration panel submitted its ruling. The Eritrean food-sustainability policy entails many aspects; however, I only focused on the food-sustainability and zero-foreign-aid policies. Political policies unrelated to the qualitative case study were not addressed in this study.

Another limitation of the study was the purposive sampling. I was able to eliminate bias by adhering to the criteria of the sampling process. Personal bias from having personal connection with Eritrea was diminished through purposive sampling and in-depth interviewing and observations. One key limitation to this study that should be acknowledged was the absence of Gash Barak, one of the six regions, from this study. The regions of the study were the Central and the Southern and Northern Red Sea Regions. Gash Barka, one of the six regions, is located in western Eritrea's "bread basket," and has been the main source of agricultural products for the country. I did not include Gash Barka in this study because of its remoteness and health-related concerns.

Recommendations

Eritrea is implementing agricultural development projects to improve food production, nutrition, and the incomes of rural poor communities. This research investigated the views of irrigational farmers to gain insight on how their experiences might help craft better policies to enhance food sustainability. While interviewing at one of the villages, one participant showed me strategies they use to ensure each household gets a share of the water that comes from a dam near their village. Supporting with documented evidence, the farmer explained how they organize themselves, use collective marketing without government interference, and ensure no household is left without

farming land. Thus, my first recommendation is that this experience be further explored for food sustainability. This model can provide helpful resources for further research.

A number of possibilities exist for continued research on the impact of the national service in implementing the food-sustainability policy of Eritrea. The impact of the national service, where the conscription policy requires men to serve in the army, might be more prevalent when the family is headed by a woman. This study was able to capture some pertinent information on the issue through follow-up questions, but informants were not pushed to feel uncomfortable, which could result in holding back valuable information on the food-sustainability-focused study.

This study could also lead to an opportunity for further research by repeating purposeful sampling from policymakers, heads of agricultural sectors, and community leaders. Such a process would provide deeper understanding of the strategies of implementing the food-sustainability policy and the need for effective farm-development work, which is more pressing than ever. This current study can also help in triangulating with additional investigation on the rest of the country, which could also lead to quantitative surveys covering larger samples.

Implications

This study could influence social change in developing better strategies to ensure food security, as well as contribute to a better theoretical understanding of food self-sustainability. Results from this study will be shared with the Ministry of Agriculture and the Department of Economic Development of Eritrea in hopes of promoting a development agenda. As a result, Eritrean farmers could gain more understanding to successfully achieve food security.

As revealed in this study, developing positive relationships between farmers and government officials is necessary to accomplish effective agricultural production. This study sheds light on the importance of leaders reaching constituents to strengthen traditional social-democratic system (Giddens, 2013). As suggested in the literature and indicated by interviewees in this research, improving working relations between government and farmers could eliminate corruption and unnecessary bureaucracy.

In addition, by scrutinizing the challenges and strengths underlying each policy program, other farmers, the Eritrean government, and policy implementers from across Africa may understand which strategies and policies are working and which need revision. The potential of achieving indigenous food sustainability without foreign food aid, but through self-sustainability, would carry implications of positive social change in Eritrea in particular, and possibly in other developing countries.

Conclusions

Eritrea`s food-sustainability policy, adopted more than a decade ago, aims to ensure that all Eritreans have sufficient food. I made use of a qualitative case study to explore and analyze the perceptions and experiences of 15 irrigational farmers in three regions of Eritrea about food self-sustainability. This research study provided details of the practices and implementations of indigenous food-sustainability policy as a key aspect of food security in Eritrea.

Findings from this case study provide knowledge on indigenous food-sustainability policies and self-reliance models and strategies that could spare current and future generations in Eritrea from food insecurity. Result from this study support the notion that the policy of self-sustainability in the country strikes deep personal and

cultural chords for farmers who have a strong commitment and acceptance of hard work, and rejection of food dependence in Eritrea. The outcome of this study suggested that food shortages would not imply the need for foreign food aid as a long-term solution. However, lack of understanding of how government operates the policy of self-sustainability and concern about a lack of government material support have emerged as challenges to achieving self-sufficiency efforts in Eritrea. The outcome of this study pointed to the need for leaders and policymakers in Eritrea to maximize the bond created with farmers.

The results of this study suggested that all developmental actors must exert integrated efforts to implement food-sustainability and development programs with the realization of sustainable economic growth and poverty reduction in Eritrea. A close and strong working relationship and transparent communication can enhance the nation`s sustainable growth and development program, and will likely ensure positive change among the communities and beyond. My hope is that this study of Eritrea`s food-sustainability policy will impact future realization of food security and economic development in Eritrea and throughout the developing world.

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Appendix A: Permission to Reproduce Map

You may display, reproduce, print or download content on the Services only for your personal, noncommercial use. If you are a teacher, scholar, or student, you may copy reasonable portions of the content for lesson plans, interactive whiteboards, reports, dissertations, presentations, school newspapers and for similar nonprofit educational purposes to the extent permitted by applicable law. In each case, however, you may not remove or alter any copyright, trademark, service mark or other proprietary.

Appendix B: Permission to Conduct Interviews

The State of Eritrea
Ministry of Agriculture

دولـة ارتريـا
وزارة الزراعـــة

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Office of the Minister

ዕለት/Date: 14/09//2016
ቁ.መ/Ref : 0.1/ 421/ I.7.1/16

Dear Mr. Tewelde Tesfagabir,

Based on your research proposal, I give my permission for you to conduct face-to-face interviews with irrigation farmers in Eritrea.

As part of this study, I expect you to interview farmers and review related documents to gather information related to strategies and policies of food self-sustainability in Eritrea from the farmers perspectives.

Individual participation will be voluntary and at their own discretion. We reserve the right to withdraw from the study at any time if our circumstances change.

It is my expectation that the data will remain confidential and shall not be provided to anybody outside the Ministry and the relevant research team and authorities.

Regards,

AREFAINE BERHE
MINISTER OF AGRICULTURE

MINISTRY OF AGRICULTURE

Tel. 291-1-181499 Fax: 291-1-181415 Box: 1048 email: arefaineb202@gmail.com AsmaraEritrea.

Appendix C: NIH Certificate of Completion for Ethical Conduct

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that

Tewelde Tesfagabir

Successfully completed the NIH web-based training course

"Protecting Human Research Participants".

Date of completion: 04/18/2016.

Certification Number: 2058769.

https://phrp.nihtraining.com/users/cert.php?c=2057769

Appendix D: 10 Interview Protocol Questions

1 How do you implement the policy of food self-sustainability?

2 How much do you understand the policy of food self-sustainability in the country?

3 Do you feel prepared for implementing the policy?

4 How do you understand foreign food aid?

5 Would you consider receiving food aid? Why?

6 Do you believe this no-food-aid policy can sustain or improve your welfare?

7 What are the key practices you use to implement the food sustainability?

8 What help do you get from the government in implementing the food-sustainability policy?

9 What are the challenges of implementing the food-sustainability policy?

10 Do you have suggestions for effective food sustainability?