



Review

Towards assuring food security in South Africa: Smallholder farmers as drivers

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Abstract: Smallholder agricultural sector in South Africa is regarded as one of the main livelihood options for the majority of people living in rural areas. As such, many of the poorest people living in rural areas regard smallholder subsistence agriculture as an important strategy to move out of food poverty and malnutrition. Food security has since been the goal that needs to be achieved by every nation given the agricultural sector reason to be productive enough to meet the food demand of each nation. The purpose of this paper is to provide information on the role and potential of smallholder farmers as being the drivers of achieving food security in South Africa. The paper identifies key references backing up this claim and suggests some recommendations which could help improve the synergy between food security and productivity of smallholder farmers in South Africa.

Keywords: driver; food security; livelihood; smallholder farmers; South Africa; wellbeing

Abbreviations: DAFF: Department of Agriculture, Forestry and Fisheries; DFID: Department for International Development; FAO: Food and Agriculture Organisation; FFSSA: Forum on Food Security in Southern Africa; GRP: Green Revolution Programme; HLPE: High Level Panel of Experts; HYVs: High Yielding Variety Seeds; MDGs: Millennium Development Goals; MPHTF: Millennium Project Hunger Task Force; NDP: National Development Plan; SDGs: Sustainable Development Goals; SLA: Sustainable Livelihood approach; UNICEF: United Nations International Children's Emergency Fund; WFP: World Food Programme

1. Introduction

Food security has since been the goal that needs to be achieved by every nation given the agricultural sector reason to be productive enough to meet the demand for food in each nation. According to FAO [1], rising urbanization, population and income growth are increasingly pushing up the demand for food especially at a time when agriculture is faced with the emerging threat of natural-resource constraints and climate change. The increase in global population growth is estimated to rise from 7.3 billion today to close to 9.8 billion by 2050, with highest increase projected to come from the developing countries and most especially sub-Sahara Africa and Asia. Schimidhuber and Tubiello [2] that the Food and Agriculture Organization (FAO) has a way of defining food security that covers all the important aspects of the right to nutrition and they have decided to define food security as a “situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

Food security exists in two levels that is the household level and nationally or at the national level. At the household level, there is food security if all members of the household at all times, have the access to enough safe, sufficient and nutritious food that meet their dietary needs. At the national level, it refers to the condition whereby the nation is able to produce, import, retain and sustain food needed to support its population with a minimum per capita nutritional standards, that is, there is enough production of food to meet all the food demands of the whole nation.

The definition of food security by the Food and Agriculture Organisation [3] highlights four keys points in relation to food supply and accessibility namely; food availability, stability, access and use. Food availability denotes the ability of the agricultural sector to be effective and efficient enough in meeting the demand for food, this, therefore, means that the agricultural sector will be productive enough to feed the whole nation. Food stability refers to access to food at all times without being vulnerable to any risk of encountering some temporary or rather permanent lack of access to enough food and we discover that time is an important factor as far as stability is concerned so if food is not available at all times then the stability aspect is not covered. Food access refers to being able to afford enough nutritious food around you while food utilization refers to the nutrients that food provides to the body, that is the dietary needs (nutrient adequacy).

South Africa, a middle income country is known to be food secure nationally but the food security situation cannot be said to be the same at household and individual levels. Again, considering the rural-urban dichotomy as well as multicultural diversities in the country [4], the food security conditions of households in South Africa differ especially with more of the households residing in rural areas where there are varying degrees of access to productive resources such as land, fertilizer and credit facility to mention just a few. This review therefore tries to unravel some of the underlining correlates of food security as well as the roles that smallholder farmers play in meeting the food needs of the populace despite their constrained access to key inputs and resources in the modern day South Africa.

2. The concept of smallholder farmers in South Africa

Smallholder farmers are farmers owning small plots of land on which they grow subsistence crops and sometimes some cash crops. These farmers rely on family labour for production and their

characteristics include simple production systems, outdated technologies, low profits, seasonal labour fluctuations are high and women play an important role in production (Department of Agriculture, Fisheries and Forestry-DAFF [5]).

Smallholder farmers differ in individual characteristics, farm size, resource distribution between food and cash crops, livestock and off-farm activities, their use of external inputs and hired labour, the proportion of food crops sold and household expenditure patterns. The definition of smallholder farmers is wide as they differ in many characteristics and there is no rigid definition for these types of farmers. For example, based on the size of farm holdings, they are described as farmers that are confined to farms of less than 2 hectares of owned land. The smallholder farmers in South Africa are widely known as communal or peasant farmers. All resettled (farmers who are still looking for their farms which were taken by the apartheid government) farmers in South Africa are in the category of the smallholder farmers.

In South Africa, smallholder agricultural sector is often considered as one of the key livelihood options for a sizeable number of people living in rural areas. As such, majority of the poorest people living in rural areas regard smallholder subsistence agriculture as an important strategy to move out of food poverty, and invariably providing food security for their households [6]. Better still, agriculture is regarded as one the most important sector in the South African economy for both social and economic transformation and food security especially for residents of rural areas. The agricultural sector in South Africa is highly dualistic comprising a smaller number of well-resourced commercial sector dominated and run by white farmers and a large number of poorly-resourced smallholder subsistence sector dominated and run predominantly by black farmers [7–9].

The smallholder subsistence farmers are mainly concentrated in the former homelands and produce on approximately 13 percent of the total agricultural land in South Africa [10,11]. According to Aliber and Hart [10], approximately three million smallholder subsistence farmers produce food primarily to meet their household food consumption needs in South Africa. While smallholder farmers represent a high proportion of those in agriculture at the national level, about one million people are engaged in smallholder subsistence agriculture with nearly 600,000 of these residing in the rural areas of Limpopo Province.

Smallholder agriculture is both an indirect and direct driver of food security such that it allows food sovereignty while smallholder farmers provide the domestic markets with the main food products in a potentially resilient way [12]. According to Sabo et al [13], smallholder farmers hold many of the practical solutions that can help place agriculture on a more sustainable and equitable footing. Smallholder farmers mostly produce staple food crops and when they are efficient and more productive, there will be more output of staples at lower prices which will, in turn, benefit those who have to buy and thereby making sure that everyone can afford and has access to safe and nutritious food which thus means that the goal of food security becomes achievable.

3. Contributions of smallholder farmers to food security in South Africa

According to Machethe [7], smallholder subsistence agriculture has the ability to provide for food security through increased food supply, employment creation and increased farm income as well as providing for household consumption. Forum on Food Security in Southern Africa (FFSSA) [14] argues that agricultural smallholders are suitable growth drivers with significant effects on food security and market expansion. Furthermore, expanded cash crop production by smallholder

subsistence farmers could contribute to the growth of rural areas through consumption, labour demand, etc. and to household food security through generating extra income to buy household food or other external farm inputs to maximize production.

Smallholder agriculture is simply too important to employment, human welfare, and political stability in most developing countries to be either ignored or treated as just another small adjusting sector of a market economy. The significance of smallholder subsistence agricultural sector is recognized on the basis of the sector's contribution to the wellbeing of smallholder subsistence farmers through food poverty alleviation, household food security, employment at local, regional or international level. In fact, a sizeable number of residents of rural areas engage in smallholder agriculture either as a transitory income generating opportunity or a readily available source of livelihood. Below are some of the potential contributions of smallholder agriculture to the economy of South Africa.

3.1. Increased food supply within South Africa

According to the Department for International Development [15], increased food supply provides smallholder agricultural producers with greater possibilities and leaves consumers with more food choices at reasonable prices through reduced food price shocks. On the basis that the majority of rural people are engaged in smallholder production, improving the sector will increase the chances of addressing food insecurity and hunger in rural areas. However, such an objective can only be attained only if the smallholder agricultural sector is more vibrant and productive [7]. Agricultural growth also has the ability to reduce the prevalence of food shortages at all levels through the increased overall supply of food, the creation of economic opportunities for poor people and improved dietary diversity and quality of food consumed by households [16,17].

3.2. Increased employment opportunities in South Africa

The smallholder agricultural sector has been recognized as one of the most important sectors in employment creation in most developing countries [18]. It has been shown that accelerated smallholder agricultural production through increased productivity could create jobs for most household members in rural areas-both on and off-farm. Increasing agricultural productivity on-farm increases the demand for labour in land preparation, planting, weeding and harvesting in most smallholder farms [15]. It was explained that smallholder farmers are increasingly inclined to substitute hired labour for household labour as they are getting richer, hence generating greater job opportunities for the poor.

3.3. Food poverty alleviation in South Africa

There is no doubt about the potential role of smallholder agriculture in alleviating food poverty. Machete [7] notes that smallholder agriculture is capable of alleviating food poverty in three ways, namely: Increased food supply, employment creation and increased farm income. The Millennium Project Hunger Task Force-MPHTF [19] notes that it is conditionally feasible to decrease the proportion of hungry people by half by 2015 in line with the millennium development goals (MDGs) through increasing agricultural productivity in smallholder farms which has also been incorporated

into the MDGs with a target of another 15 years. Furthermore, improving the performance of markets is viewed as the key to solving hunger problems in most rural areas of developing countries.

3.4. Improved food purchasing power of consumers in the country

Smallholder agricultural production is critical towards achieving household food security through increased income for the majority of the rural poor which may provide households with the ability to purchase food from the market in order to supplement and meet their food needs. The sector is regarded as a source of livelihoods for over 70 percent of the rural people and provides employment for the majority which consequently generates income for their household through the sale of some food surplus [20]. Aliber [21] indicates that agriculture can contribute by up to 15 percent of the total household income in rural households, while for the poorest quintile by up to 35 percent. While smallholder agriculture is regarded as the greatest contributor towards household income by up to 40 percent in most developing countries, giving poor people the means to access food from the markets for household consumption which consequently enhances household food security [3,14,22]. These incomes include income derived from the sale of farm produce by households as well as farm wages which consequently provide households with the means to buy food surplus from the markets.

From the foregoing, it is clear that the pivotal place of smallholder agriculture in South Africa cannot be overemphasized looking at its significant contribution not only in terms of food production but also in relation to other macroeconomic growth indicators such as employment generation and welfare improvements.

4. Constraints faced by smallholder agriculture in South Africa and its impacts on food security

The genesis of food security in South Africa can be found in the diverse livelihood strategies of indigenous communities before the advent of colonialism [23]. The arrival of the Dutch East India Company in 1652 heralded an era of conflict that continued down the centuries with farmers settling across the country and the rise of food-production needs in the mining towns in the 1860s. Friction between black and white farmers, as Hendricks illustrates [23], resulted in the Natives Land Act of 1913 and the creation of the Bantu homelands in 1951. Together, these effectively resulted in a dualistic farming sector, with white farmers having most of the access to land and subsidies.

In South Africa, the issue of food security has continued to give rise to increasing challenges over the past 20 years. Love et al [24] argue that it is not logical to resolve food-security problems by focusing on increasing the production of commercial farmers. Kirsten and Van Schalkvsk [25] also argue that small-scale farming is not backward or non-productive, but can be as viable, profitable and efficient as large-scale farming. However, the South African government is faced with the tremendous tasks of lowering transactional costs and reducing the number of barriers facing smallholder farmers.

Smallholder farmers with surplus production remain trapped in poverty due to lack of access to markets [26]. Almond and Hainsworth [27] argue that field extension agents are ill-informed about local markets and often do not provide the necessary training and assistance so that smallholder farmers can gain access to information about markets. These authors maintain that government

should leverage the private sector and facilitate access to markets by using existing value-chain infrastructure.

Smallholder farmers in South Africa face various challenges that hinder their growth and ability to effectively contribute to food security relative to the commercial farmers. Some of the constraints they face relate to lack of access to land, poor market access and inability to meet product standard specification, credit access constraints (due largely to little or no collateral), poor physical and institutional infrastructure e.t.c. Most smallholder farmers are located in rural areas and mostly in the former homelands where lack of both physical and institutional infrastructure limits their expansions. Lack of access to proper roads, for example, limit the ability of farmers to transport inputs, produce and also access information. Infrastructure is very poor, markets for agricultural inputs and outputs are often missing and unreliable for smallholder farmers. This means that the acquisition of agricultural resources becomes difficult and the supply of market services also becomes limited. Lack of access to information and communication facilities hinders smallholder participation in potentially lucrative markets.

High transaction cost is also one of the major factors constraining the growth of smallholder farmers and this is largely attributed to poor infrastructure. A poor road network, for example, and unreliable distribution will force farmers to grow their own food and produce less of perishable commodities causing resulting in lower productivity. The increased cost of transport will also affect inputs used and the market strategies followed by the farmers. In most cases, high transaction costs are caused by among others poor infrastructure and communication services in remote rural areas. It can also result from information inefficiencies and institutional problems such as the absence of formal markets.

Lack of human capital has also been found to be a serious constraint to smallholder agriculture. A good number of smallholder farmers are often illiterates with poor technological skills, which can be serious obstacles to adopt and access useful formal institutions that disseminate technological knowledge. They are not capacitated with financial and marketing skills and are unable to meet the quality standards set by fresh produce markets and food processors. Lack of production knowledge leads to lower quality of production. Therefore, an understanding of the miriads of constraints facing these smallholder farmers will not only assist in knowing how to tackle the problem holistically but will also ensure that the right strategy is used in addressing these challenges.

5. Food security and smallholder agriculture-international perspectives

According to Pinstrop-Andersen [28], there is a definition of food security that was agreed upon at the World Food Summit in 1996 to cover all the key points that are attached to the food security at all levels and the definition states that “food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life style”, meaning that it is not food security if there is sufficient food but no access or if there is sufficient food but the food is not safe enough to help lead a healthy lifestyle. Given this definition, the only drivers for enhancing food security are the smallholder farmers because they are closer to the households than the commercial large farmers who are more concerned at enhancing food security nationally because of their market oriented (profit making) approach to food production. In other words, it is possible that food insecurity can still exist

even when there is enough food to feed everyone since the availability (production) of food does not cover the accessibility dimension of food security.

Chamberlin [29] supports the idea that smallholder farmers have different characteristics by stating that although most smallholders in several developing areas may be somehow land constrained, poorly linked to markets, and more vulnerable to risk than commercial large-scale farmers in the same areas. However, it is not all smallholders that are equally land constrained, market-oriented, or vulnerable to risk. So, when defining smallholder agriculture, one should not restrict the definition to a single factor, but they must be as broad as possible. Smallholder farmers hold more or less similar characteristics or face related challenges, yet they are different in other aspects especially because they do not face the same environmental constraints as they are scattered around the world and confronted with different climate and environments.

It is indicated by Christensen et al [30] as cited by Pienaar and Traub [31] that the role of smallholder agriculture is called upon to help feed the estimated 9 billion people in the world by 2050. Hawkes et al [32] as cited by Dioula et al [33] stated that the production of food by smallholder farmers has the greatest potential in either improving or generally influencing the nutrition of their household members directly through consumption or indirectly through the generation of household income which could help them to be able to purchase other food stuff around them so that they can meet their dietary needs. This therefore clearly shows that food production by smallholder farmers could be the most potential driver towards enhancing food security.

Growth in smallholder agriculture is very important; if smallholder agriculture improves then there are high chances that food security could be achieved in all parts of the world. According to the United Nations World Food Programme [34], growth in smallholder agriculture improve the lives of the poor as it increases the food availability and incomes. Increase in food availability does not imply food security but increase in the incomes of the poor where there has been an increase in food availability implies the achievement of food security since the increase in income assures access to the available food produced. [35] stated that over seventy-five percent (75%) of the total agricultural production output in some of the African countries is produced by smallholder farmers with farm sizes that are at least two and a half hectares (2.5 ha) on average and these farmers produce mainly for consumption in their households and also make use of the traditional technologies.

When there is growth in smallholder agriculture, smallholder farm incomes increase and that is when one can suggest that growth in smallholder agriculture will result in food security throughout the world. Food security is one of the development goals that almost all nations aim to achieve with the assistance of farmers. One of the Sustainable Development Goals (SDGs) is to end hunger and achieve food security while improving nutrition and promoting sustainable agriculture [36]. Thus, given the efficiency of smallholder farmers and their ability to provide food at the household level, smallholder agriculture is, therefore, the driver towards attaining food security.

According to World Bank [37], a number of studies in different countries indicated that women farmers normally channel the income they get from farming to being used in the nutrition, health and education of their children. Therefore, smallholder agriculture can be considered as a way of life for women since they are mostly found working in the agricultural sector than any other sectors even though they only make up less than fifty (50%) percent of the agricultural labour force. Thus, one can conclude that the main employer for women is the smallholder agriculture since a very small number of women work in the wage labour market while most of them are found working in smallholder agricultural production. In the small-scale farms, women get to decide on their diets as

they choose what and how to produce. Women working in the smallholder sector assist in achieving food security since they are mostly responsible for the diets of their household members. Women also appear to be particularly effective in delivering improved nutrition outcomes. According to Ukeje [38], there is an increased awareness of women's critical role in food production or rather smallholder agriculture and there is a realisation of the fact that there is a need for empowerment of women in agricultural production since this can cause the sustainable development to take place at a rapid pace.

Wiggins and Keats [39] provide evidence of the potential of smallholder agriculture in achieving food security by stating that globally and more especially in the developing countries, food production level has increased to be above the level of increase in population growth in the past fifty years and most of the increase in food availability is the result of the production from the smallholders. They also highlighted that since the 1960s, world food production per person (that is per individual smallholder) has increased by one out of three.

In the developing countries, namely Asia, South America and Africa, the production of food has increased as a result of smallholder agriculture and the results are as follows; in Asia for instance, food production quantity has increased by hundred percent meaning that production has actually doubled. In South America, food production increased by more than 80%, and only for Africa has production increased slowly than the world average. Although food production in Africa was increasing at a slower rate than in Asia and South America, production has increased a little more than the continent's population growth. This raised food production can lead to a decrease in real prices of food, especially for staple foods. The decrease in real prices benefits those vulnerable consumers in the market who have to buy most of their food.

Considering, the fact that there is an inelastic demand for staple food, one needs to know that small increases in supply ahead of demand can lead to fairly large price falls. Between 1960 and 2000, the prices of staples such as maize, rice and wheat constantly decreased by 69%, 72% and 66% respectively throughout the world markets. And noting that smallholder farming contributed a lot to the increased production, we realise then that the smallholder agriculture contributed to the fall in the prices of staple food and thus increasing more chances of the poor being able to access food and thus driving the world towards food security. Since around the mid-2000s, prices have reached the maximum and remained above their 2000 levels, but they are still well below prices in 1960 [39].

When looking at the smallholder agriculture as the driver of food security, one has to consider the challenges that the smallholder farmers come across. There are a number of constraints faced by these smallholder farmers as they embark on the goal of producing as well as during the production process. According to Dioula et al [33], these challenges include production constraints, lack of land policy, lack of equipment, lack of investments, social constraints and environmental constraints. The constraints related to the access and ownership of land are the most constraints faced worldwide by the smallholder agriculture and these are constrained related to unequal access to land as well as lack of a mechanism to transfer the land rights and combine the plots.

Global warming is another significant constraint facing smallholder agriculture and it is the cause of reduced agricultural production and productivity in many parts of Africa [35]. Given the fact that most crop and livestock farming is practiced by smallholder farmers and is dependent on rain for water, the weather fluctuations affect production and thus affect the production of food. With the increasing land degradation, the dependence on land has been reduced and the effects of drought and flooding aggravates the stress.

There are many more constraints that are faced by smallholder agriculture which could hinder the smallholder farmers from being productive enough to feed the world and overcome food insecurity. Therefore, taking these constraints more seriously and coming up with ways to overcome them can be a solution towards enhancing food security with the smallholder agriculture as the main driver. According to Seesion [40], smallholder farmers are resource-poor with limited capability to respond quickly to the price incentives and sometimes end up not being able to benefit at all. Another challenge for smallholder agriculture is price volatility resulting from climate change and since climate change is likely to increase in the upcoming years, uncertainty in the production of food will be encountered especially in smallholder agriculture because smallholder farmers are the ones who are mostly vulnerable to the changes in climate. Smallholder farmers will be discouraged from investing in food production since they are already burdened with the stress of the higher input costs like the costs of fertilizers and mostly transport costs.

Smallholder agriculture is designated by South Africa's National Development Plan (NDP) to drive the development in rural areas and improve the living standards of about 370,000 people more especially in the former homelands. Government's intervention is necessary for assisting the smallholder agriculture to achieve the goal of feeding the world and achieving the food security. Commitments of government in developing the smallholder agriculture will eventually lead to food security as the constraints become more limited and the opportunities of the smallholder agriculture begin to make more sense to the world. In South Africa, the ANC-led government has committed itself to increase the number of smallholder producers selling their produce to 500,000 smallholders towards 2020 [41] as cited by Pienaar and Traub [31].

Globally, the way food prices change tells us about food availability worldwide. Those that can access and afford food in the world markets are the ones who are food secure when the food prices are low, but the world food prices do not give a direct indication of the attainable food security since food availability at the national level does not guarantee food security at the household level. It is highlighted by Godfray et al [42] that the past few years marks the period of the generally decreasing prices of the gross food and this levelled off the three decades that have just passed. The study also provided information that during 2008, there was a rapid increase in food prices and this swift price increase was unexpected and the cause is still to be discussed and debated since it is not yet well known. Most people who are actively participating in coming up with the reason why there was an increase in food price during 2008 have predicted that this spike proclaims a period of growth and most variable prices of food are controlled primarily by the increasing demand for food from the rapidly growing population in developing countries.

According to Baiphethi and Jacobs [18], households in rural areas did more of producing their own food rather than buying from the market and it has recently been discovered that there is an increase in the dependence on markets by rural households. Rural households have recently started buying most of their food rather than producing for themselves. It was further stated in the study that households spend over sixty to eighty percent of their low incomes on purchasing food from the markets. Smallholder agriculture in rural areas can help reduce the vulnerability of rural people by increasing production and thereby selling staple food at low prices for rural people to afford their dietary needs.

6. The importance of focusing on smallholder agriculture as drivers of food security in South Africa

According to World Bank [43], the promotion of smallholder agriculture may be the best option in addressing food security and asserted that smallholders' agricultural production may be efficient or more so than that of large-scale estates. On a more convincing note, smallholder agriculture may generate more employment per hectare than large estates and smallholders' income may be 2–10 times what they could obtain from wage employment only. Population increase, urbanization and income growth will drive the demand for food while high energy prices, stress on natural resources, and climate change may act to constrain supply. To feed the country's growing population, it will be necessary to boost the production of food and to do so, the smallholder agriculture sector should be supported and put in the forefront.

It has also been projected that most of the population growth will occur in developing countries, where smallholder agriculture dominates and food insecurity is rampant. An important element in addressing food security in these countries and the world at large is a higher promotion to be given on small farms to increase productivity [37]. Some of the benefits of engendering interest in smallholder agriculture are highlighted below.

6.1. Food utilization

The smallholders' capacity to ensure food utilization is measured through assessing smallholders' capacity to diversify their diets. Food utilization comprises those aspects that interfere between having food and this translating into adequate nutrition. Food utilization includes the way that food is distributed, how it is prepared, and the health of those eating the food. Since each of these considerations can be quite complicated, this element is not always fully appreciated. Wiggins and Keats [39] refer utilization to people's ability to select, store, prepare, distribute and eat food. This ability should be in a way that ensures adequate nutritional absorption for all members of the household.

According to Hart and Shammah [44], availability of safe water, sanitation, nutrition education and health care services also influence the ability to attain nutritional health. This makes it demanding to pay attention to issues of food safety, quality and sufficiency. Smallholder agriculture ensures food utilization. Smallholder agriculture can play a key role in improving dietary patterns, both for smallholders themselves and for urban populations, with an enabling infrastructure, market and policies at broader levels. For example, the Green Revolution Programme (GRP) in India provides an outstanding example of a successful development pathway combining technical, organizational and institutional dimensions within an inclusive, policy-oriented scheme, which made it possible to keep up with quality market-driven demand and income generation for poor and less poor farmers, including landless or marginal farmers (owning at least a cow). It is also a remarkable achievement in terms of improving nutrition in rural areas [12]. Some of the elements of India's green revolution programme include extensification, use of chemicals, expansion of irrigation and use of High Yielding Variety seeds (HYVs) to mention a few. Although the gains of the GRP have been eroded by corruption, exclusivity policy, population growth and low level of education.

6.2. Smallholder agriculture ensures stability in food security

Smallholder agriculture contributes to food security as far as stability is concerned through providing a cushion to price volatility, market-related and other shocks [39]. Smallholder agriculture's asset in terms of the stability dimension of food security is clear from the fact that they produce for themselves. Smallholders keep a variable but widespread share of their production to feed the family and engage in reciprocal relations within the community. Smallholder farmers usually keep a share of their production to be safe and provide as a means of being protected from market volatility. HLPE [12] suggests that this share of self-provision is a key component of the smallholders' risk management strategies, towards a certain level of autonomy regarding access to food and managing scarcities and risks in the face of imperfect and volatile markets.

In smallholder livelihood strategies, the farm plays an important role of economic refuge in case of crisis: Household members having left the farm could eventually come back to the farm if they have lost employment in other sectors. This contributes to the stability dimension of food security, and also to the resilience of the economy as a whole [12].

6.3. Smallholder agriculture in food and nutrition security

The links between smallholder agriculture and food security and nutrition have long been recognized and a number of conceptual frameworks were developed to show the pathways in which agriculture is affecting food and nutrition security [32,45,47]. Most of these frameworks were built upon the widely known UNICEF's framework which identified three main determinants of good nutrition: Availability and access to food; optimal quality of feeding and caring practices; and a healthy environment and adequate access to health care services. At the same time as the simplicity of the UNICEF's framework aids communication between multiple stakeholders and sectors, it is not necessarily optimal for highlighting specific pathways [46]. As such the UNICEF framework has been adapted and applied to the needs and interests of different stakeholders and institutions.

The agriculture-nutrition advantage framework postulates that agriculture helps ensure good nutrition, and good nutrition builds human capital, which is also an input for agricultural production, creating a circular pathway between agriculture and nutrition. One of the advantages of this framework is that it takes a new approach by integrating a gender approach and the issue of livelihood sustainability.

6.4. Smallholder agriculture as a livelihood strategy

In the production of food, the smallholder farmer is a central player in ensuring that food security is guaranteed through increased diversification of agricultural activities, for example, crop production, livestock production, fishing (artisanal fishing and aquaculture fishing). Chapman et al [48] further elaborate that while farming still remains important for rural households, people are looking for diverse opportunities to increase and stabilize their incomes. Therefore, rural livelihoods are based not solely on agriculture but on a diverse array of activities and enterprises. The extent of dependence on non-farm income sources varies across countries and regions.

Chapman et al [48] and Barrett et al [50] point out that the extent to which the rural population are able to feed themselves depends on non-farm income as well as on agricultural production since

non-farm income is used by many to purchase the staple grain. As supported by this evidence, therefore, the issue of smallholder agriculture development needs to be understood in this context of diversified income sources. Smallholder agriculture contributes to food security as one of the livelihoods strategies of the rural population. It should be noted that since most people in the rural areas are dependent on agriculture, other options are available as well to supplement its role in ensuring food security but agriculture, however, remains the central focus amongst these livelihood strategies.

According to Wiggings and Keats [39], smallholders are people who are actively engaged in improving their livelihood through the development of a resource base that allows, among other things, for agricultural production. They also states that smallholding is small because resources are scarce, especially land, and it is used to generate a level of income that helps fulfil basic needs. To achieve a sustainable livelihood consequently requires a high level of total factor productivity, requiring, in turn, a significant level of investment. Smallholder farmers often make investments by using their family labour. This means that the quality of life in terms of food security and access to basic domestic services is of primary importance. This is also accurate for education and training to improve farmers' skills. Smallholders are largely part of the market economy even though their participation varies considerably. HLPE [12] notes that the rural poor depend on a number of livelihood strategies for their survival, but the majority will depend on smallholder farming as their main means of earning a livelihood for almost their entire lives. Hazell et al. [49] state that agriculture is likely to be central to both rural development and rural poverty alleviation.

7. Conclusions

Smallholder agriculture is a key to achieving the goal of ensuring food security for all and the potential effectiveness and efficiency of smallholder farmers gives us the light on how important these farmers are to the nations especially in the developing countries. However, these farmers cannot achieve the food security if not supported by the government and other relevant stakeholders (private sectors in particular) through developing and implementing different agricultural policies such as credit policy, input policy, mechanization policy and many more given the peculiarities of smallholders' characteristics in terms of their simple production systems, use of outdated technologies, low income, seasonal labour fluctuations, unstable policy environment leading to poor planning and management, price fluctuation and the recent wave of climate change. From the foregoing review, a number of evidence has alluded to the pivotal role of smallholder agriculture in enhancing and assuring food security for all and provision of the necessary impetus through creating agricultural production-friendly environment will go a long way in enhancing the welfare of all and sundry.

Smallholder agricultural development can be an excellent way to deal with hunger in low income or developing countries. Emanating from the above, the following recommendations are made:

(1) Access to farm inputs, finance and insurance for smallholder farmers must be improved because this could make farming for smallholders much easier, increase their production of food and also their access to markets and which will, therefore raise their farm incomes.

(2) Increasing access and protecting the smallholder farmers' rights to land will motivate them to increase their scale of operation and encourage increased production.

(3) Smallholder farmers should also be encouraged to diversify their production and focus more on producing other food types that provide nutrients so that the nutrition aspect on the food security

definition can be achieved too. Accessibility to food without adequacy in terms of nutritional component of diets will make food security incomplete.

(4) Education about nutrition, health and child care can also be done so provide smallholders farmers with more knowledge on how best to go about their business of production.

(5) Gender mainstreaming of policies to encourage and enhance women women's rights to resources especially land will boost agricultural production in Africa.

Conflict of interest

The author declares that there is no conflict of interest.

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