



Review Paper

A Small-Scale Farming Intervention Plan for Inclusive Economic Development in Rural South Africa

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Abstract-- Small-scale commercial farming firms play a critical role in achieving the objectives of the African Union's Agenda 2063, and the United Nations Sustainable Development Goals (SDGs) in the rural economies of Sub-Saharan Africa. South Africa has a sizeable number of households engaged in small-scale agriculture to supply rural market demand. Small scale commercial agriculture has become a key source of revenue, employment, and food security for communities in rural areas. As such, the South African government has been assisting small-scale farmers financially via the Micro-Agriculture Finance Institutions of South Africa and the Department of Agriculture, Forestry, and Fisheries. This support aims to alleviate poverty, create jobs, and improve food security by promoting small-scale commercial farming, primarily in rural areas. Despite this assistance, there is no clear strategy for achieving significant and evidence-based development. This study outlines a four-step intervention strategy for promoting small-scale commercial farming as a strategy for rural economic development in South Africa. These steps include defining a small-scale farming development strategy, and delineating production, performance, policy, and control measures.

Keywords: *Small-Scale Commercial Farming, Intervention Plan, Local Economic Development, South Africa*

I. INTRODUCTION

Sustainable agriculture is part of the global long-term economic development strategy for inclusive green growth. Sustainable and inclusive rural development requires a defined intervention plan to aid small-scale commercial farming (SSCF) operations [19, 22]. This sub-sector's potential economic contribution is limited by the current level of productive efficiency (technical and allocative) [5, 24, 31, 26]. In addition, the lack of access to capital, water constraints, and government bureaucracy are impeding SSCF's expansion, [6, 45]. This study provides a well-planned approach that could address these issues, and increase food supply, employment, and revenue generation. This intervention plan will show how SSCF may effectively contribute to SDG's 1 and 2 (no poverty and zero hunger) while also supporting inclusive green growth in rural

South Africa. An in-depth analysis of SSCF in Vhembe district in Limpopo, South Africa influenced the intervention plan [58].

The existing productivity and economic impact literature suggests that this subsector can improve substantially [5, 24, 43, 59]. Those findings show the necessity of this study. The first stage is of the intervention plan is to define SSCF, analyze their existing and projected productivity, economic performance, and process their challenges. The second step involves SSCF development strategies such as identifying important stakeholders, skills development, and access to production factors and inputs. Stakeholders such as extension officers and small-scale commercial collaboration are involved in the third step. Setting performance management criteria and practices for continued SSCF development is also covered. The fourth process involves policy formulation for the prior three stages. Figure 1 below details the intervention plan.

II. STEP ONE: DEFINING SSCF

The first segment defines SSCF in a rural economy. SSCF is a significant subsector for food security, income generation, and job creation. The UN endorsed the 2030 Agenda for Sustainable Development (SDGs) [4]. Agenda 2030 aims to address the social and economic aspects of sustainable development through small-scale farming [4]. Investing in small-scale farming can significantly increase the productivity and revenue of these farmers [24].

As a result, 90% (570 million) of farms worldwide are small-scale, feeding about 3 billion people [46]. SSCF expanded throughout Asia during the last decade, reducing extreme hunger and malnutrition by 14% and eight percent respectively [7, 17]. Small-scale farming is helping some countries but others in some sections of Asia and Sub-Saharan Africa are struggling, where poverty, hunger, and unemployment remain severe [17].

Land size, gender, education level, the type of farming and education levels are important factors for expanding this subsector in China and India [5, 13, 24]. A holistic approach to boosting South African small-scale farming is urgently required

as 81% of all households are informal and 78% rely on small-scale farming [37, 21, 48, 49]. The Department of Agriculture, Forestry and Fisheries (DAFF) 2018 that found a 30% increase in small-scale farmers producing for sale, from 43% in 2011 to 73% in 2018 [10]. Given these findings, defining SSCF is critical to learning more about these farming entities. In line with Agenda 2030, the National Development Plan, the Zero Hunger Challenge, and SDGs 1 and 2, it is critical to identify these farmers and distinguish between productive and unproductive ones.

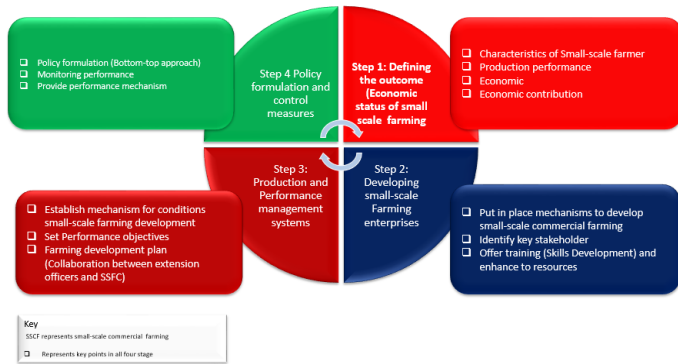


Fig. 1. An intervention plan for small scale commercial farming development

A. Characteristics of South African SSCF

SSCFs raise animals, poultry, fish, and cereals on small plots of land using semi-modern equipment [17]. SSCF is defined by factors including land size, farmer age, farming motive (profit) and land ownership [15, 28]. SSCF farms average 11 hectares in size, and most farmers are aged between 40 to 60 years [23, 34]. They sell 90% of their produce to local markets and mainstream farms. In addition, small-scale commercial farming has a low youth participation rate, necessitating rapid intervention [28]. In Limpopo province, roughly 70% of households are fed by SSCF [48].

B. Production efficiency of SSCF

Several key parameters are considered important to determining output capacity and efficiency of SSCF [1, 11]. These are the ability to measure income generated, number of employees per farm and aggregate amount of farm yields prepared for the next season. These inputs are vital in SSCF in rural areas. SSCF technical effectiveness in Vhembe District ranged from 20% to 96%, with a mean of 54%. [40, 35]. This shows that the majority are below the global average production efficient level of 64% [55]. The probability parameters estimate demonstrated that the farmer's age, education level, farm experience, farm laborers, and government handouts significantly influenced productivity and total output. [35] concluded that the subsector can increase its technological efficiency.

C. Contribution of SSCF to the rural economy

SSCF is recognized as a sustainable livelihood solution to minimize inequality, unemployment and contribute to local economic growth [21, 40]. Agenda 2063, Zero Hunger Challenge 2030, and the National Development Plan for South Africa recognizes that these farmers have the potential for sustainable development in the long run [8]. Given the

government's focus on this subsector, quantifying SSCF contribution is critical to understanding their role in rural development. A ratio analysis used found that the subsector produces roughly 12% of total employment in Vhembe District Municipality [35]. Consequently, the subsector contributed almost 17% of the local GDP of Vhembe District Municipality. Since the district is dependent on farming, improving this sector will improve employment creation, food production and income generation as SSCF expenditures on employee salaries, inputs, and credit servicing benefit the district's GDP.

D. Challenges and lack of skills limiting SSCF in the rural economy

SSCF is recognized as a viable method for local economic development in South Africa's National Development Plan 2030 (NDP) [40]. However, the fragile condition of the economy, natural causes, and a weak agrarian edification system hinder development in this industry. With the COVID-19 pandemic and the supply chain bottlenecks that it induced, demand for food and jobs is rising. Access to finance, water shortages, markets and crops, and animal diseases were identified as the most common issues in this subsector [5]. These farmers lack financial, marketing, packaging, cross-breeding, and human management skills [34]. The next step outlines solutions for addressing some of the issues that SSCF faces.

III. DEVELOPING SSCF ENTERPRISES

Achieving meaningful development calls for sustainable mechanisms designed to develop SSCF in rural areas. These mechanisms include skills development, more research in farming systems, access to market imperatives, access to irrigation water and equipment and channels to information [5]. These mechanisms are detailed below.

E. Skills development and Stakeholder mobilization

Farm development includes improving skills for financial management, marketing, information management, cross-breeding, water management, and computing [35]. To strengthen capabilities in this subsector, different skill development institutes must design training programs. Universities can collaborate with the DAFF to develop agrarian training programs. Small Business Enterprises (SEDA), Comprehensive Agriculture Support Program (CASP), and National Youth Development Agency (NYD) should also provide training for SSCF. The DAFF should also work with private entities such as the Skills Development Corporation (SDC), Business Process Enabling South Africa (BPESA), and EDU Power to improve skills. These institutions are certified by the Sector Education and Training Authority (SETA) and could provide agrarian skills for SSCF development. The Minister of Higher Education and Training signed the National Skills Development Plan (NSDP) in 2019; It also supports Chapter nine of the National Development Plan, which aims to alleviate poverty and reduce inequality by 2030. After identifying all potential partners, agriculture training should be offered, with priority given to rural agribusinesses. Increasing and keeping skills, tools, and equipment is critical for productivity.

F. Access to factors of production

A productive process relies on several components of production (resources, labor, capital, information, and

entrepreneurship) [30, 44]. Small-scale farming needs access to natural resources including fertile soil, water, and sunlight - sunlight is free, but land and water are frequently controlled by tribal, municipal, and government agencies. Consultation with landowners is required to obtain productive natural resources. But, as advised by President Cyril Ramaphosa, land redistribution projects are being expedited [56]. Land Redistribution for Agricultural Development (LRAD) promotes the transfer of agricultural land to specified individuals or groups and women and youth should be prioritized to access it [38]. Parity in land ownership is also in line with Chapter 6 of the NDP Vision 2030. Irrigated agriculture and dry land production will be expanded, and underused land will be converted for commercial production [2, 29].

For small-scale farming, weekly or monthly newsletters are required for information exchange. Farmers should be able to easily obtain newsletters written in their own language. The adoption of digital applications or social hubs where all farmers may access free agricultural information is required to achieve the 4th industrial revolution's (4IR) aims [3]. As a result, establishing digital apps for information exchange can improve farmers' access to agrarian resources [13]. Farmers need capital to buy assets and manage operations [29]. This implies that small-scale agriculture should emphasize capital generation as an economic development investment. Capital formation raises per capita income and enhances farmer purchasing power, therefore improving yield. Therefore, adequate mechanisms are required to clarify small-scale farmers' access to financing sources. The Land and Agricultural Development Bank of South Africa and Access Bank South Africa provides various financial services to all participants in the agricultural sector [54, 55]. These should have official structures that communicate with agrarian boards in this regard. In order to access money, agrarian boards need to provide proper training. By facilitating access to cash, this strategy can help rural farmers develop skills (entrepreneurship). Moving on to stage three of the intervention plan requires perfecting skills development and access to agricultural resources.

IV. STEP THREE: DEVELOPING SSCF ENTERPRISES

Production and performance management systems are crucial elements in understanding and controlling all aspects of farming processes [19, 32]. The users of these systems can oversee all steps of the production process in a centralized or decentralized environment [32]. Step three comprises of three intertwined parts – namely, the farming development plan, setting performance objectives and establish processes for continuous SSCF development.

G. Farming development plan

The farming development strategy describes how SSCF operates and produces marketable crops. The plan also entails the administration processes that occur inside agribusinesses, which includes ensuring that adequate resources are accessible. However, farmers must be assigned to specific extension officers in their municipality in order to develop a well-structured farming plan. Given the diversity of farming practices, the Department of Agriculture and Rural Development should allocate agricultural extension officers to each municipality to work with a certain number of farmers.

This contributes to the efficiency and effectiveness of resource allocation and management, and production [3]. Coordination between extension officers and the SSCF also involves the establishment of research and marketing platforms that can aid the growth of this subsector's agriculture. Data is required for research, and the collaboration between extension officers and SSCF enables the availability of data. Extension staff help farmers' access to markets by identifying market trends and advising farmers on which cash crops or livestock to raise [42].

Furthermore, the farm development plan may include a specialized commodity approach which creates a competitive advantage for farmers to form part of local and national value chain processes. Thus, agriculture extension officers are useful in coordinating input supply and output marketing [3, 42]. It also allows for the utilization of technology and a limited focus on technical issues. Finally, specialty farming is easier to monitor, assess, and produce at lower prices. Agricultural Extension Officers should be allocated to all farmers as they function as intermediaries, advising farmers on important decisions and facilitating the dissemination and application of knowledge for optimal sustainable output and rural revitalization [57].

H. Set performance objectives and standards

There are three main performance targets: farm output, profit maximization, and sustainable economic development [76]. Market trends (commodity-based strategy) and climate conditions should be addressed while planning agricultural production. Market trends help farmers and extension officers choose a commodity that can be sold locally and nationally. Climate, soil type, and pesticide availability should all be considered while choosing a crop. Efficiencies in resource allocation and utilization are key to maximizing profits. Farmers should be able to plan for external concerns such as labor laws, health and safety standards, and local and national policies. Profit maximization should thus be considered throughout the production process. Importance of employment creation, food security, and income generating. Because agribusinesses are community development champions, the final result should be more jobs, more food in local markets, and more revenue for farmers.

I. Processes for continuous small-scale commercial development

Specific, Measurable, Achievable, Relevant, and Time-Bound (SMART) goals should be set in the performance management system. They should encompass all farmers' output trends. Resources and performance management systems must also be implemented. Unlike crop or forestry farming, animal husbandry has distinct seasons and resources and performance management should be tailored to each agricultural style. Second, performance management objectives should be quantifiable. The initiatives should be determinable once the performance management systems are set. For example, performance management objectives should be quantifiable. All actions from ground preparation to harvest should be scheduled for if seasonal crops are planted in a certain time frame. All SSCF should therefore adhere to meaningful production management procedures. Achievable SSCF production targets should be set from planning until harvest, and each step should have specific objectives.

V. STEP FOUR: POLICY FORMULATION AND CONTROL MEASURES

Finally, effective SSCF intervention plan involves several key stakeholders, namely SSCF, agriculture extension officers, policymakers and implementers. These stakeholders form part and parcel of the whole policy formulation spectrum. Policy formulation and control measures involve three correlated approaches, namely promoting performance management mechanisms, monitor performance and formulate policies.

J. Performance management mechanisms

Performance management mechanisms is a system for measuring how farmers are consistently performing [41]. These mechanisms allow policymakers and implementers to achieve a common goal which is adding on to local development through SSCF. There are three mechanisms essential for policy formulation and these include stakeholder involvement, learning and development initiatives and ongoing evaluations [60].

1) Stakeholder involvement

Step two identifies key stakeholders in farming processes. Farmers are accountable for the real job, which should benefit the entire community. Extension officers are government employees who help farmers run effective businesses by providing resources and market connections [5]. Higher education institutions and other research bodies can help farmers uncover viable agribusiness channels. Finally, the whole farmed produce should be able to reach diverse actors in the value addition processes [23]. Small-scale farmers working with extension officers should be involved in the performance management process.

2) Learning and Development

After all parties have contributed, farmers need to know and use the knowledge [7]. This mechanism is ongoing as new farming methods are developed using current technologies. Existing farming possibilities should be guided by current and future economic and climatic conditions [9]. For improved agricultural performance, the learning and development mechanism should be altered periodically. This means that all the challenges identified should then be assessed regularly. This means learning the challenges and putting together development measures such as continuous training and farm visits for quality assurance.

3) Ongoing Evaluation

The plan brings other three performance mechanisms (stakeholder involvement, learning and development and feedback and coaching goals) together. To improve, there is a need for repetitive consultations by essential stakeholders [14]. Repetitive consultations enable practical exercises in promoting SSCF development and are an essential part of all stakeholders to add more value possible and able to identify risks and mitigation strategies before practice [4, 47].

K. Monitor Performance

Monitoring performance which involves reviewing agribusinesses performance is essential to check if there is progress in the subsector [7]. This involves checking the effects of mechanisms put in place to improve productivity and development in the subsector. Monitoring performance in SSCF

can be done in five successive steps which are critical because they facilitate continuous improvement [14, 52].

1) Create a continuing process

Output targets, skill development, and finally performance monitoring are all aims here. Reminding all stakeholders of the goals reached necessitates additional mentoring after feedback meetings. Farmers should submit their performance to research and training institutions. If more coaching is required, the approach should involve feedback from important stakeholders. The procedure should also include regular consultations. Provide SMART feedback that encourages learning and allows for adjustments to accomplish step three goals. Determining how best to develop constructive feedback should be a priority for the Department of Agriculture and Rural Development (DARD) or the Department of Food and Agriculture (DAFF). Comprehensive performance reviews should include timely feedback sessions or quarterly reports.

2) Perfect the performance review

The small-scale commercial agricultural performance review should include a comparison of actual and potential outputs. SSCF resources are quantifiable, as is prospective production. These aspects should be used for performance appraisal based on the potential SSCF have to increase output, employment, and income. Key contribution indicators including income generated, food security, and job creation should be included in the performance review. The performance assessment procedure should also allow small-scale farmers to provide feedback.

3) Link performance with rewards and recognition

Reward and recognition are important factors in motivating farmers. Without strong performance management advances that are fair and equitable for all farmers, the performance awards cannot be effectively established. An objective assessment of farm performance enables for correct recognition of productive farming. This can be done through informal public recognition, official recognition ceremonies, or private feedback. The benefits of a consistent reward for performance procedure across the small-scale commercial agricultural sub-sector should be noted. Here, a dependable procedure promotes equity and all-inclusive farming activities in the subsector. It is important for all farmers to realize that a livestock enterprise can be recognized as a top performer and rewarded similarly to a cash crop or mixed farmer.

4) Encourage full participation for all stakeholders

Several key stakeholders play a vital role in the supply chain system. In this sense, the government should encourage all participants to fully participate in the growth of SSCF. Performance management must ensure value at all stages of development. Not enforcing compliance may result in pushback from key stakeholders. Performance management must be transparent, efficient, and simple to follow. Considering the 4IR, incorporating technology into performance management is critical. As such, a system with automated reminders and scheduling tools should be implemented to help maintain accountability. The role of the upper-level management support staff in rural agriculture is very important. In addition to verbal encouragement, involvement in the same performance management process for evaluations is required. Performance

management should include regular farm visits and discussions with extension officers and farmers.

L. Policy Formulation

The development of effective and acceptable methods to address socio-economic difficulties usually focuses on raising a country's standard of living. As development research evolves, the need for evidence-based policy design is critical [46]. Small-scale farming is recognized as a sustainable development option in rural areas [36, 53]. In the last decade, the government has sought to eliminate extreme poverty, generate jobs, and self-sustaining income-generating companies. Evidence is now important to development policymaking [46]. This strategy suggests a comprehensive analysis of the four-step intervention plan. As illustrated in step 1, SSCF enterprises can increase rural welfare by providing money, jobs, and food security. A number of issues, mentioned in Step 1, prevent these farmers from producing optimally. Thus, measures that directly address the issues faced by small-scale agribusinesses are required.

Bottom-up policymaking demands evidence-based formulation and execution. Regarding step two, which focuses on procedures to establish SSCF operations, the government should obtain the necessary data through local agrarian departments. Agrarian data is easily accessible via broad research platforms. As a result of the national call for research in local and global economies, the policies in step four of the proposed intervention plan should consider data gathered in all steps. Throughout this regard, evidence from businesses should impact policy players' responsibilities and functions in all policy phases.

1) Practical Implications of the Intervention Plan

Small-scale commercial agricultural development requires repeat farm visits, research, discussions, experimental planting, and training [4, 7]. According to the Figure 1 intervention plan, some procedures require ongoing mobility of multiple stakeholders, such as agrarian extension officers and small-scale commercial farmers. In this aspect, the present national lockdown restricts movement and prevents big gatherings [46]. It is critical to provide practical methods that require information sharing and reporting among key stakeholders. First, social media and radio stations can increase information distribution [41]. The usage of farmers' databases allows extension officers to engage with farmers via SMS and MMS. The above-mentioned forms of communication have been proven to be effective and dependable when dealing with huge crowds [18]. Using the following strategies also aids South Africa's 4IR, which uses disruptive technology to better people's lives and work [25]. Second, enhancing small-scale farming firms' production capacity increases food production. Food shortages were already widespread before the Covid-19 epidemic, especially in Africa and Asia [48] There may be as many as 828 million hungry people worldwide (see Figure 2 below) and the number of severely undernourished people increased from 135 million to 345 million from 2019 to [51].

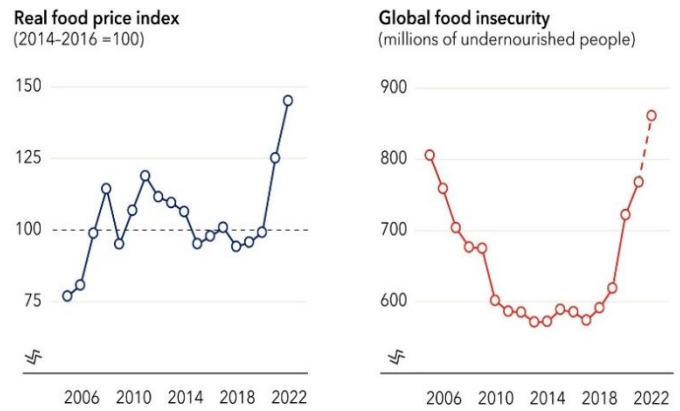


Fig. 2. Millions go hungry
Source: IMF (2022)

Small-scale commercial farmers can help provide food security in the above-mentioned continents in this post COVID environment. While 2.24 million jobs were lost during the initial lockdown from March to June of 2020, the total number of jobs was still 1.44 million lower in the second quarter of 2021 [39].

VI. RECOMMENDATIONS RELATING TO THE INTERVENTION PLAN

Methodologies and statistical tools: It is important to understand the methodology and statistical tools used to support the conclusions of evidence-based policies. Research used to develop policies should better comprehend the characteristics, performance, and outcome of SSCF's overall contribution to the rural economy. In accordance with the peculiarities of small-scale commercial agricultural companies, it is essential to standardize the national definition of these farmers. A uniform approach should also consolidate income, employment and food security capacity. The preceding evidence helps define and include small-scale commercial farmers in national statistics. The definition and evidence-based contribution help understand district, provincial, and national agriculture censuses and surveys. The qualities, economic performance, and socio-economic impact should be recognized in legislative and regulatory measures.

Productivity and efficiency of SSCF: Productivity and efficiency challenges impact a farmer's ability to provide farm returns, jobs, and food. In this context, agricultural policies should aim to improve production efficiency, therefore prioritizing strategy implementation. Then there is a need to distinguish between full-time farmers and those who do supplementary farming for extra revenue. The policy should then support full-time farmers first, before assisting part-time farmers. Part-time and full-time farmers are distinct in terms of productivity.

Encourage the adoption of the Intervention Plan: The Intervention plan presented in this paper shows steps which are crucial to enhance rural development through farming. The steps presented help in understanding processes which can be used to improve the production efficiency of small-scale commercial farmers in rural areas. It helps in identifying the resources needed to develop this small-scale farming hence, access to

inputs such as financial capital and land. Forms of labor needed and jobs created can be enhanced through the adoption of the intervention plan into national policy formulation platforms. The intervention plan presents opportunities to adopt several methodologies which can assist in agricultural intervention measures. The plan can further assist in developing agricultural employment measures and rural farming survey systems which in turn can be used to measure multiple performances and identify challenges faced.

Access to information and resources: Information facilitates productive decision-making. Agrarian policies should prioritize information access for small-scale commercial farmers. Processes or platforms for information sharing should be established and linked to traditional and institutional dissemination of study-based outcomes. Governments should invest more in agricultural research, education, and extension services. Finally, secondary public investments (enterprise management training), subsidized bank and money lending institution (micro-credit firms) loans, and donor loans could supplement government financial resources.

Limitations of the study: Differences in geographic location, economic policies, weather, and government supporting mechanisms, may not accurately reflect how small-scale commercial farmers are faring in other regions that do not form part of this study. The survey also only included small-scale commercial farmers who are not engaged in subsistence farming. As a result, the recommendations may not apply to subsistence farming.

VII. CONCLUSION

An intervention for SSCF in rural South Africa was developed in four steps. The intervention strategy includes numerous techniques to increase SSCF, hence increasing food output, employment, and revenue. An intervention plan with four steps was presented. In this aspect, the strategy is only effective if policymakers and enforcers understand and incorporate it into their development plans. The establishment of a sustainable rural livelihood strategy requires an all-inclusive design. As a result, each step should be well-informed. Finally, the article makes the following recommendations for SSCF development, which impacts the rural economy.

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