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Exploring the role of emerging commercial agriculture in promoting the resilience of food systems: Rapid Case study of Ngqushwa local municipality, Eastern Cape Province in South Africa.

RESEARCH REPORT

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List of Acronyms

AAMP	Agriculture and Agro-Processing Master Plan
ARC	Agriculture Research Council
CASP	Comprehensive Agricultural Support Programme
COGTA	Department for Cooperative Governance and Traditional Affairs
COVID-19	Coronavirus Disease 2019
DAFF	Department of Agriculture, Food and Fisheries (now the Department of Agriculture, Land Reform and Rural Development)
DALRRD	Department of Agriculture, Land Reform and Rural Development
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DEA	Department of Environmental Affairs
DRC	Democratic Republic of the Congo
ECSECC	Eastern Cape Socio Economic Consultative Council
FAO	Food and Agriculture Organisation (of the United Nations)
FGDs	Focus Group Discussions
FPI	Food Price Index
FSPU	Farmer Support Production Unit
HLPE	High Level Panel of Experts on Food Security and Nutrition
IADFP	Integrated Agricultural Development Finance Policy Framework
IDP	Integrated Development Plan
IPC	Integrated Food Security Phase Classification
IPES food	International Panel of Experts on Sustainable Food Systems
KIIs	Key Informant Interviews
KPA	Key Performance Area
MAFISA	Micro Agricultural Financial Institution of South Africa

NPC	National Planning Commission
NDP	National Development Plan
PLAAS	Institute for Poverty, Land and Agrarian Studies
SA	South Africa
SACN	South African Cities Network
SDGs	Sustainable Development Goals
StatsSA	Statistics South Africa
UNDP	United Nations Development Programme
VPN	Virtual Private Network
WWF	World Wildlife Fund (for Nature)

EXECUTIVE SUMMARY

South Africa has one of the highest levels of income inequality in the world, with more than half of the population impacted by moderate to severe food insecurity (Odunitan-Wayas, Alaba & Lambert, 2021). Despite South Africa being food-secure at the national level, there are incidences of chronic food insecurity largely due to income distribution and structural inequalities. Large numbers of households have inadequate access to nutrient-rich, diverse foods (Chakona and Shackleton, 2017). According to Stats SA (2021), almost 23,6 per cent of South Africans in 2020 were affected by moderate to severe food insecurity, while almost 14,9% experienced severe food insecurity. In 2017 almost 21.3% of South African households had inadequate or severe inadequate access to food (Stats SA, 2017). Approximately 1.7 million households experienced hunger during the same year, with more than 60% of these households residing in emerging rural areas. Additionally, more than half a million (611,000) households with children aged five years or younger experienced hunger, constituting 13.1% of households with children aged five years or younger.

In line with these trends, the SA food system is argued to be in a precarious situation with signs of stress from the impacts of climate change, deterioration in food quality, demographic shifts, and emerging commercialization, growing emphasis on sustainable food systems, and shifting dietary patterns (Auerbach, 2020). In addition, food price spikes and limited household purchasing power in the face of sustained poverty have continued to put exert burdens on the resilience of the South African Food system (Holmes, and Bhuvanendra, 2013). South Africa's agricultural value chain has been argued to have suffered less hardships due to the COVID-19 pandemic compared with other business sectors-despite major supply and demand disruptions in national and international agriculture supply chains as well as changes in consumer spending patterns (Farmers Weekly, 2020). It is further argued that before the pandemic, the agriculture sector had survived the extreme negative consequences of droughts and foot-and-mouth disease outbreaks. While these indicate some levels of resilience at the macro level, details of the manifestations of similar resilience at household level are lacking.

It was against this backdrop that a team of researchers from the PaSS unit in the Developmental, Capable and Ethical State Division (DCES) at the HSRC conceived and prepared a proposal for this project as part of the HRSC-surplus funds sponsored project at the end of 2021. The proposal was also informed by issues arising from works that the DCES has implemented and is still implementing on similar topics in other parts of the country.

Project aims and objectives

The overall aim of the study was to explore the role of emerging commercial agriculture in promoting resilience of emerging commercial food systems in South

Africa with special focus on emerging commercial farmers in Ngqushwa Local Municipality in the Eastern Cape.

Specific objectives

- To explore the role of emerging commercial agriculture on food system resilience
- To provide knowledge that contributes towards evidence for emerging commercial food policy making, inform municipal by-laws, and other regulations, and enhance emerging commercial agricultural development in South Africa

Conceptual framework

This study utilised the food system resilience framework based on Béné (2020:16) which focusses on strengthening absorptive/coping capacity, adaptive capacity, and transformative capacity (see Figure 1). These three capacities can be described as follows:

Absorptive capacity is the ability to minimize exposure to shocks and stresses through preventative measures and appropriate coping strategies to recover quickly and avoid permanent, negative impacts (Bene et al., 2016). It is built through various incremental changes and adaptations that people undergo to continue functioning in response to a shock or a growing stress, without making major qualitative changes to the way they operate. These adjustments can take many forms. In the context of rural households affected by food insecurity, examples include the adoption of new farming techniques, the diversification or adjustment of household's livelihood activities and the decision of taking out loans, or connecting to new social networks (Headey et al., 2014). Disaster Risk Reduction/Management (DRR/DRM) supports improved absorptive capacity by helping households and communities reduce risk and absorb the impacts of shocks without permanent, negative impacts to their livelihoods (UNDP, 2015).

Adaptive capacity is the ability to make proactive and informed choices about alternative livelihood strategies based on an understanding of changing conditions. It is the capacity to learn, combine experience and knowledge, adjust responses to changing external drivers and internal processes, and continue operating (Berkes et al., 2003:13). According to Brooks (2003:8); Smit & Wandel (2006:282) adaptation refers to adjustments in a systems' (household, community, group, sector, region, country) behaviour, characteristics, actions, or outcomes that enhance its ability to cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity in order for the system to improve livelihoods. The rural development discourse derives knowledge of adaptation mostly from studying vulnerability to natural hazards and impacts on food insecurity (Grothmann & Patt, 2005; Dilley & Boudreau, 2001).

Adaptation strategies realise that communities can take concrete steps to minimise net losses from climate change including taking advantage of opportunities for gains. Improved adaptive capacity results from adjustments that include livelihoods diversification, asset accumulation, and improved social and human capital.

Transformative capacity refers to system-level changes that enable more lasting resilience at the household and community levels. In recent years, Resilience programming has shifted the balance of effort and resources from short-term humanitarian assistance efforts toward a combination of disaster risk management, climate change adaptation, livelihood diversification, social protection programmes, and longer-term institutional development and systemic change (UNDP, 2015). Transformative capacity enables more lasting resilience at the household and community levels through altering permanently and drastically the system's functioning or its structure to ensure the immediate 'survival' of the household/system. It encompasses the governance mechanisms, policies/regulations, infrastructure, community networks, and formal and informal social protection mechanisms that constitute the enabling environment necessary for systemic change (UNDP, 2015).

Project design and methods

The study adopted an exploratory research design. The exploratory research design helped the team to gain insights into emerging commercial agriculture within the Eastern Cape Province.

A mixed methodological approach was applied to collect qualitative and quantitative data through secondary reviews, Key Informant Interviews (KIIs) with stakeholders in the emerging commercial agriculture value chain and Focus Group Discussions (FGDs) with selected emerging commercial farmers. A total of 8 FGDs were conducted.

Findings

- Farming is a survival strategy because it contributes to poverty alleviation – through farming, farmers can support themselves and their families
- Emerging commercial farmers play an important role in supporting livelihoods and enhancing food and nutrition security in Ngqushwa and the Eastern Cape
- Farming provides farmers with the opportunity to raise income for their households. Participants mentioned that they are faced with unemployment in their communities, and some are living on government grants such as child support grants, but the government support grants are not enough to cover household necessities, *thus* they rely on farming to raise income
- Farming creates job opportunities for those who are unemployed as such people are employed to assist with ploughing
- The level at which farmers can maintain their livelihoods through farming differs each year or each season due to various challenges. This is because the high

dependence of their agricultural production systems on rain-fed agriculture currently faces challenges of viability due to climate change induced hazards including droughts

- Climate change is a major issue affecting agriculture in Ngqushwa and the Eastern Cape. This is exacerbated by limited access to reliable ground water sources for irrigation-affecting both crop and livestock production activities
- There is increasing livestock mortality in the municipality, although the mortality rates could not be established during the discussions. Under Peddie municipality, for example, there was serious water scarcity, the taps were dry, therefore alternative water sources were hard to come by.
- There are limited dams, boreholes, and other water resources, that farmers can depend on in times of drought and other climate change related hazards. Most of the farmers cannot cope when faced with drought as it is commonly the case
- Windmills that used to exist in Ngqushwa and the Eastern Cape and were used for pumping water are no longer in use. They are dilapidated and needs to be repaired
- There is inadequate agricultural infrastructure, and limited access to inputs. Farmer lack agricultural machinery implements, including tractors, and fencing around the farms. The lack of fencing around the fields results in huge loses as crops are destroyed by livestock. In some instances, crop destruction by livestock results in community conflicts since some livestock farmers do not have any control over their animals and they stray to the green fields.
- There is limited access to agricultural finance. Farmer lack the capacity to run their farm enterprises without the assistance of government
- There is limited access to high value markets. Emerging commercial farmers lack marketing skills and access to high value markets to sell their produce
- The Covid-19 pandemic had serious negative impacts on emerging commercial agriculture in the municipality. Strict lockdown restrictions put in place from March 2020 requiring everyone to stay indoors except for essential workers, also meant less of economic activities for farmers, especially those who were cultivated fresh vegetable produce that needed to be sold immediately after harvest
- There is Soil Fertility and Nutrient Management. Some emerging commercial farmers revealed the lack of agricultural nutrient management products as one of their biggest challenges– they do not have the needed products for enhancing soil fertility and soil nutrient management. Emerging commercial farmers mentioned that, within the agro-ecological conditions of the municipality, there is need for proper soil management and application of fertilizers, fumigation, and adequate expertise in soil management to ensure they obtain optimal harvest
- There is inadequate skills and capacity for commercial agriculture. Emerging commercial farmers noted the need for training on crop and animal husbandry,

especially for the younger generation. This would help to broaden knowledge and hopefully learn new systems and technologies to improve agricultural production and capacity to approach farming as a business

- There is limited support from relevant agricultural value chain stakeholders and institutions. Some emerging commercial farmers mentioned lack of support from government and relevant stakeholders in agricultural value chains as a major challenge. Even though most of the farmers have the intention to expand their farming enterprises, they are constrained by limited support from government and other relevant stakeholders

Recommendations

There is need to improve the adaptive capacity of emerging farmers. This can be achieved by improving the following adaptive capacity measures:

- Access to credits/micro-finance/traditional saving methods
- Access to irrigation and dry season gardening
- Forging arrangements for improving market led agriculture activities for emerging commercial farmers, possibly through private sector driven partnerships
- Improving capacity for crop and animal husbandry as well as agribusiness skills
- Information on farm issues and extension services
- Access to credits and micro finance as well as traditional saving methods

There need to improve the absorptive capacity of emerging farmers. Improving the absorptive capacity will entail improving the capacity of emerging commercial farmers to take intentional protective action and to cope with known shocks and stress. In this regard, some recommendations include:

- Improving the capacity of farmers to anticipate, plan, cope and recover from specific, known shocks and short-term stresses. This could be done through strengthening early warning and information systems.
- Improving access to rural finance
- Maintaining social capital and social protection schemes that guard against crop loses, including insurance

There is need to improve the transformative Capacity of emerging farmers. Enhancing the transformative capacity will entail intentional structural changes to reduce the causes of risk, vulnerability, poverty, and inequality. In this regard, some recommendations from this study include:

- Addressing deep rooted institutional arrangements that impede service delivery by institutions in the agricultural value chains to improve access to services by merging commercial farmers. Such services will include access to

- extension services, access to agricultural finance, and access to capacity building and agricultural training
- Review policies (local and national) that impede transformation of agricultural production systems in Ngqushwa from subsistence to commercial enterprises
 - Building the capacity of existing producer organisations for effective lobbying for improved service delivery by agricultural value chain institutions and capacity to promote agri-business ventures.

Limitations

- Key informant's interviews were not as exhaustive as initially planned. This was because of the difficulty of meeting the targeted participants due to the Covid 19 pandemic that was still raging across the country and the Eastern Cape at the time

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Introduction

South Africa has one of the highest levels of income inequality in the world, with more than half of the population impacted by moderate to severe food insecurity (Odunitan-Wayas, Alaba & Lambert, 2021). Despite South Africa being food-secure at the national level, there are incidences of chronic food insecurity largely due to income distribution and structural inequalities at the subnational levels. Large numbers of households have inadequate access to nutrient-rich, diverse foods (Chakona and Shackleton, 2017). According to StatsSA (2021), almost 23,6 per cent of South Africans in 2020 were affected by moderate to severe food insecurity, while almost 14,9% experienced severe food insecurity. In 2017 almost 21.3% of South African households had inadequate or severe inadequate access to food (StatsSA, 2017). Approximately 1.7 million households experienced hunger during the same year, with more than 60% of these households residing in emerging rural areas. Additionally, more than half a million (611,000) households with children aged five years or younger experienced hunger, constituting 13.1% of households with children aged five years or younger.

In line with these trends, the SA food system is argued to be in a precarious situation with signs of stress from the impacts of climate change, deterioration in food quality, demographic shifts, and emerging commercialization, growing emphasis on sustainable food systems, and shifting dietary patterns (Auerbach, 2020). In addition, food price spikes and limited household purchasing power in the face of sustained poverty have continued to exert pressure on the resilience of the South African Food system (Holmes, and Bhuvanendra, 2013).

South Africa's agricultural value chain has been argued to have suffered less hardships due to the COVID-19 pandemic compared with other business sectors, this despite major supply and demand disruptions in national and international agriculture supply chains as well as changes in consumer spending patterns (Farmers Weekly, 2020). It is further argued that before the pandemic, the agriculture sector had survived the extreme negative consequences of droughts and foot-and-mouth disease outbreaks. The resilience of the South African food system is further argued to have been illustrated by the increase in GDP from agriculture in the first quarter of 2020 (CNBCAfrica, 2020). The Food and Agricultural Organization's (FAO), Food Price Index (FPI) averaged 93.2 points in June 2020, some 2.2 points (2.4 percent) higher than in May -representing the first month-on-month increase since the beginning of the year (FAO, 2020). Despite COVID-19 market uncertainties, the prices of vegetable oils, sugar

and dairy products recorded multi-month highs after sharp declines in May. Prices in cereals and meat markets remained depressed. While these figures indicate some levels of resilience at the macro level, the manifestations of such resilience at household level are the focus of this research.

Overview on emerging commercial Agriculture

The evolution of agriculture has allowed the world to witness the intensification of production of crops and livestock and how this can lead to food security as well as have large or small financial gains. In this context intensification refers to the *"amount of production per unit of land that is extracted for human use"* (Dastrup, 2019). Agriculture at present is divided into two main sectors, subsistence and commercial, which roughly correspond to the less developed and more developed regions. One of the most significant differences between more and less developed regions is the way people obtain the food they need to survive. There are a larger group people in less developed countries who are farmers, producing the food they and their families and sometimes communities need (Dastrup, 2019). Smallholder farmers are estimated to produce four-fifths (80 per cent) of the developing world's food (Louhichi, Riesgo, Gomez and Paloma, 2020).

Subsistence agriculture is the production of food primarily for consumption by the farmer and mostly found in less developed countries. In subsistence agriculture, small-scale farming is primarily grown for consumption by the farmer, their family and community, sometimes if there is a surplus of food, it might be sold, but that is not common. In commercial agriculture, the primary objective is to make a profit (Dastrup, 2019). The most common type of agriculture practiced around the world is intensive subsistence agriculture, which is highly dependent on animal power, and is commonly practiced in the humid, tropical regions of the world. This type of farming is evidenced by significant efforts to adapt the landscape to increase food production. This form of farming is labour intensive and makes use of limited space, resources and infrastructure. This is a widespread practice in East Asia, South Asia, and Southeast Asia where population densities are high, and land use is limited. The most common form is wet rice fields, but could also includes non-wet rice fields like wheat and barley (Dastrum, 2019).

In more developed countries and regions, they tend to have commercial agriculture with a goal to produce food for sale in the global marketplace called agribusiness. These are *"highly capitalised large-scale and mostly*

white farmers” (Zantsi, Greyling and Vink, 2019). However the food in commercial agriculture is also rarely sold directly to the consumer; rather, it is sold to a food-processing company where it is processed into a product or to markets (Dastrum, 2019). It seems to be a difficult task to define fully “*emerging commercial agriculture*” as there is no clear criteria for defining emerging farmers. (Zantsi, et al, 2019) found that the typical emerging farmer has the following profile; “they are black, situated in a former homeland and is 58 years old, they typically cultivate field crops as a secondary source of food and income, but keeps livestock as primary and secondary sources of income”. Emerging farmers are vital for, food security, poverty reduction and creating employment.

Sustainable Development Goals (SDGs) 2 and 11 call for the achievement of food security and improved nutrition as well as the promotion of sustainable agriculture. The Food Agriculture Organisation (FAO) uses a holistic and systematic approach that focuses on “strengthening the complex linkages between emerging commercial, peri-emerging commercial and rural agriculture which characterize contemporary food systems, with the goal of enhancing the city region’s food security and resilience” (Taguchi and Santini, 2019). In Africa, the FAO supported the development of emerging commercial and peri-emerging commercial agriculture in the DRC, that have advised on regulating titles to 1,600ha of garden areas that were managed by 20 000 growers, their assistance also helped to improve vegetable varieties and upgraded and installed about 40 irrigation structures. This helped production to carry on throughout the year.

Agricultural activity and farming are associated with high costs, South African farmers predominately engage in low-level subsistence agriculture, and emerging farmers receive some government assistance. Agriculture in South Africa is made up of both emerging and commercially developed farmers (Armour, 2014; WWF, 2010). **Table 1** below gives a comparative analysis of the amount of fertilizer used by emerging farmers (limited to grain farming of crops) and commercial farmers in the Free State, South Africa. It also indicates the challenges that emerging farmers face in this province, which can hinder their ability to tap into the commercial farming market. The differences provide a clearer view of their needs, requirements and subsequently, also their buying behaviour (Lotriet, Bisschoff, and Kole, 2017).

Table 1: Comparative analysis of fertilizer use by emerging and commercial farmers in the Free State, 2017

Activity	Average emerging farmer	Average commercial farmer
Finance	Difficult to access finance	Easy to access finance
Government support	High government support	Low government support
Hectares planted	About 90 ha	About 350 ha
Agricultural technology, including machinery and implements	Low to none, use mostly old and second-hand machinery and implements.	Use advanced technology, GPS supported implements and machinery, including precision agriculture
General fertilizer application rates, planting mixtures of NPK (mostly maize) especially planted in the Free State	< 200 kg/ha	> 200 kg/ha
Micro nutrients and speciality products application	Barely	Frequently
Purchasing power	Limited	Extensive
Infrastructure	Mostly under developed	Mostly developed
Management	Low level	High level

Source: Lotriet, Bisschoff, and Kole, 2017

The South African agricultural economy does not provide a big enough platform for emerging farmers. There is no strong support system available to support previously disadvantaged farmers (Chikazunga and Paradza, 2012), causing such farmers to be unable to take advantage of the various opportunities that the South African government has been instituting. Attempts by farmers to market their products are mostly affected by poor infrastructure, inadequate property rights, low education levels amongst the farmers, lack of credit access, absence of innovative production implements needed in-order to increase yield of commodity produced and poor entrepreneurial skills needed to make the efforts of the farmers a success (Bienabe and Vermuelen, 2011).

Policies Framework

Although South Africa has an extensive agricultural policy landscape, the expansion of agricultural production and agricultural value chain development prioritise rural people whose participation in this economic sector is contrasted with the extensive and sustainable agribusiness infrastructure of established who have access to markets and finance. Most legislative and policy frameworks acknowledge emerging commercial agriculture as a practice for economic development or improving food security, nutrition security, employment opportunities and household incomes. These include the National Policy on Food and Nutrition Security (DAFF, 2013) which is intended for ensuring affordable and accessible nutritious food at national and

household levels. The National Food and Nutrition Security Plan for South Africa (2018-2023) puts emphasis on raising the productivity of Smallholder Producers as a way of increasing local access to nutritious foods. This highlights the need to promote emerging commercial agriculture through increasing the production, distribution, and inputs for the emerging agricultural sector. South Africa recently developed the Agriculture and Agro-Processing Master Plan (AAMP), a social compact aimed at accelerating the implementation of the NDP goals by leveraging the private sector's skills, resources and knowledge. The AAMP is designed to drive the sector's recovery from the effects of the COVID-19 pandemic, the violent protests that occurred in July 2021 that impacted on key trade corridors linking the coastal and inland areas, and the conflict between Russia and Ukraine (Ntombela, 2022).

The Integrated Agricultural Development Finance Policy Framework (IADFP) for Smallholder Farmers (DAFF, 2015) specifically recommends a strategy for agricultural development including financial support in the form of capital to help smallholder farmers and agri-businesses. This is achieved through the Micro Agricultural Financial Institution of South Africa (MAFISA). MAFISA is the financial support pillar of the Comprehensive Agricultural Support Programme (CASAP). The intervention targets the working poor, smallholder farmers, household producers and micro agro-business entrepreneurs in peri-emerging commercial and emerging commercial areas (National Treasury, 2014). This policy is therefore a lever that can be adjusted by government to achieve-system wide change. Similarly, the National Environment Management Act (DEA, 1998), also supports objectives pertaining to food security.

In the context of sustainable development, emerging commercial agriculture is viewed as part of green infrastructure, emerging commercial planning social development. A study recently conducted in the Gauteng City-Region identifies various reasons households participate in emerging commercial agriculture (Nino, Lane, Okano, Rahman, Peng & Benn, 2020).

Food insecurity (and the linked question of food resilience) is a national challenge; and has led to the introduction of Agri-resource centres (Makhubo, 2013). The food resilience policy was designed to fight food security issues in an emerging commercial context by supporting food gardens, developing informal trade and giving support to micro farmers. This was framed under the department of social development which has not yet given an extensive framework of how this would be achieved.

The agricultural sector is one of the key productive sectors that should be prioritised in the economic recovery phase following the COVID-19 pandemic. The agriculture and agro-processing sectors need to address equity issues to balance the participation of a few large players with smaller enterprises that face challenges of poor access to markets, technologies, and skills. In South Africa the dominant view is that emerging commercial farmers need different policy practices due to various structural challenges (Magidimisha, Chipungu & Awuorh-Hayangah, 2013). These factors tend to also influence the proportion of emerging commercial land use dedicated for food production, the socioeconomic structure of participants and relative benefit derived by different participants.

Impacts of COVID-19 and other Shocks on agricultural and food systems in South Africa

The COVID-19 pandemic exposed the underlying risks, fragilities, and inequities in national, regional, and local food systems in South Africa. Some of the existing fragilities in the South African food systems include underlying structural inequalities, gender inequalities, concentration of market power in a few companies, national supply chains and dependencies on food imports, food insecurity due to price fluctuations, and the harm caused by the industrialized agriculture sector, with severe ecosystem impacts (IPES food, 2020).

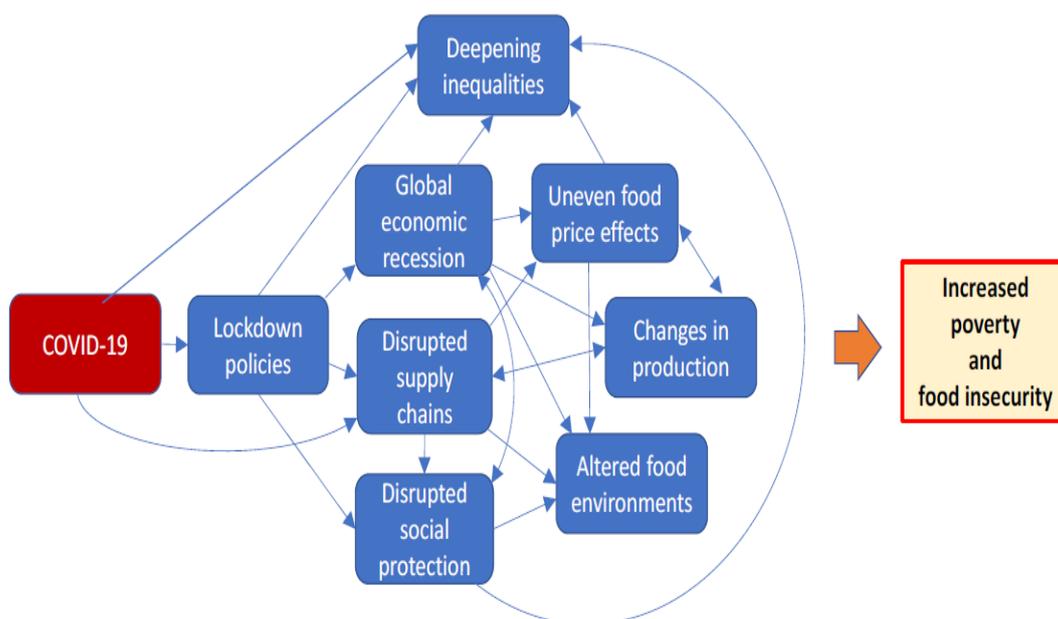
The COVID-19 pandemic exposed the vulnerability of emerging commercial areas and smallholder farmers to food insecurity in times of disasters. For example, in April (2020), it was estimated that 28% of rural households were at risk of hunger and 26% are already experiencing hunger (IPC, 2021). During lockdown, the marginalised and the poor experienced increased food prices and decreased access to food following the suspension of school-feeding schemes and the closure of informal markets and spaza shops, exacerbated by the loss of livelihoods (Wegerif, 2020). The COVID-19 pandemic has shown that an inability to withstand stresses in the food system is produced by on-the-ground social inequality, unequal access to resources, poverty, poor infrastructure, a lack of representation, and inadequate systems of social security, early warning and planning (Moyo, Pereira, and Scholtz, 2020). Generally, food insecurity by smallholder farmers is characterised by low dietary diversity, high malnutrition and obesity, and distinct hunger seasons (SACN, 2015).

The Covid-19 pandemic has raised a lot of concern and speculation, in South Africa on its impact on food systems, agriculture, land rights and food security (Cotula 2021;

PLAAS 2020). COVID-19 pandemic have seen increasing levels of food and nutrition insecurity in South Africa especially among the vulnerable groups. Tempia et al. (2020) posit that very little has been documented about what has happened to agriculture and emerging farmers over more than a year of living with COVID-19. More specifically, what have been the experiences of emerging small- to medium-scale black vegetable farmers. Didiza (2019; 2021) has been suggested that the development of small- and medium-scale market-orientated black commercial farmers has the potential to make the greatest contribution to a more equitable agricultural sector and much needed employment creation.

The COVID-19 pandemic resulted in lower incomes and higher prices of some foods, putting food out of reach for many, and undermining the right to food and stalling efforts to meet Sustainable Development Goal (SDG) 2: “Zero hunger.” Several overlapping and reinforcing dynamics have emerged that are affecting food systems and food security and nutrition thus far, including: disruptions to food supply chains; loss of income and livelihoods; a widening of inequality; disruptions to social protection programmes; altered food environments; and uneven food prices in localized contexts. **Figure 1** highlights some dynamics of COVID-19 that threaten food security and nutrition.

Figure 1: Dynamics of COVID-19 that threaten food security and nutrition



Source: HLPE (2020)

The lockdowns and disruptions triggered by COVID-19 have shown the fragility of people's access to essential goods and services. In health systems and food systems, critical weaknesses, inequalities, and inequities have come to light. These systems, the public goods they deliver, and the people underpinning them, have been under-valued and under-protected. The systemic weaknesses exposed by the virus are currently compounded by climate change and in the years to come. In other words, COVID-19 is a wakeup call for food systems that must be heeded. The crisis has however revamped the urgency needed in ensuring more resilient food systems at various levels (communities, public authorities, academics, civil society, and business).

Theoretical Constructs of the Research

Food systems 'comprise all the elements (natural resources, people, inputs, processes, infrastructure, institutions, produce, etc.) and activities related to the production, processing, distribution, preparation, and consumption of food, as well as the outputs of these activities, including socio-economic and environmental outcomes' (HLPE, 2014:29). According to Schipanski, MacDonald, Rosenzweig, Chappell, Bennett, Kerr, Blesh, Crews, Drinkwater, Lundgren, and Schnarr (2016:601), food systems encompass the network of activities connecting people to their food - operate at multiple spatial scales and include production, distribution, and consumption components connected through complex social, ecological, and economic relationships. They are complex, with multiple interdependent subsystems at various levels, global, national, and local. According to Doherty, Ensor, Heron and Prado (2019), food systems are not only characterised by separate activities resulting in collective outcomes but have dynamic interactions among subsystems defining systemic properties – a disruption in one subsystem can have cascading impacts that may disrupt the holistic functioning of the entire food system.

Resilience refers to the ability of a system to prepare for, resist, and recover from shocks (Cutter, Barnes, Berry, Burton, Evans and Tate, 2008). In recent years, the concept of resilience has increasingly been applied to address food security challenges through conceptualizing complexity of multiple actors in food value chains and impacts of random external shocks such as natural hazards and pandemics (Tendall, Joerin, Kopainsky, Edwards, Shreck, Le, Kruetli, Grant, and Six 2015). Meuwissen *et al.* (2019:3) define food system resilience as the ability of a food system to maintain its societal functions through the system's robustness, capacity to adapt and transform in response to internal and external stress. It entails the capacity of people to produce and access nutritious and culturally acceptable food over time and space in the face of

emerging commercial and change (Schipanski et. al. 2016:601). The resilience of food systems extends beyond the resilience of farms and farmers to the entire value chain (Hooks, Macken-Walsh, McCarthy, and Power, 2017). Doherty *et. al.* (2019) assert that resilience is dependent on three different social-ecological system capacities: absorptive (enabling system persistence); adaptive (enabling incremental system adjustments); and transformative (enabling profound system change by intentionally crossing thresholds). Within this context, Schipanski *et. al.* (2016) argue that although social–ecological resilience research has increasingly addressed adaptive capacity, social justice and inequalities can influence the ability of actors within a system to self-organize through the distribution of rights and access to resources. This implies that, although food systems can be resilient but inequitable. In this regard, efforts to reduce inequalities increase adaptive capacity, supporting a transformation to a more resilient and equitable food system (Ensor, Park, and Hoddy, 2015).

The concept of resilience is often used interchangeably with that of sustainability. Tendall *et al.* (2015:18) view resilience as an essential means to promote sustainability – since it implies the capacity of a given system to continue providing a function over time despite disturbances. In this regard, resilience can be part of a pathway or trajectory to sustainability. According to FAO and INRAE (2020), sustainable food systems ensure food and nutrition security for future generations while preserving the environment. The transition towards such sustainability needs a multi-stakeholder approach to reconstruction of food systems –through promoting sustainable consumption and production practices, engaging consumers, producing sustainably, and facilitating market access. These issues are in line with Sustainable Development Goal 12 (SDG 12) on “Responsible consumption and production” that provides targets for ensuring sustainable consumption and production patterns

Exploring the role of emerging commercial Agriculture on resilience of Food Systems

Urban food security has long been viewed as secondary to rural food security in Africa, and with the migration of large numbers of individuals from rural to urban settings, it has become crucial to place more focus on urban food security (Nenguda and Scholes, 2022). Emerging commercial agriculture potentially plays a role in generating food system conditions that can enhance food security and build resilience of food systems. It is difficult to assess the actual contribution of emerging commercial agriculture to food security and resilience of food systems (SACN, 2015). Understanding the role of emerging commercial agriculture in emerging commercial food system resilience provides an opportunity to build capacities (coping capacity, adaptive capacity,

transformative capacity) to ameliorate future uncertainty and/or shock. This research aims at assessing the role of emerging commercial agriculture in enhancing the resilience of local food systems in the Eastern Cape Province of South Africa.

Improving food system resilience requires a deep understanding of food system vulnerabilities *i.e.* various ways that food systems can fail in communities. Such understanding will assist policymakers to prioritize and address these vulnerabilities. The need for understanding food system vulnerabilities is at the core of this paper. Schipanski et al. (2016) and (Béné, Headey, Haddad, Grebmer, and K. von, 2016) further assert that a better understanding of resilience can improve food security and governance of food system transformation to prevent instead of remediating food system failures.

Research Objectives

The role of emerging commercial agriculture in promoting resilience of emerging commercial food systems in South Africa is highly contested and there is need for further empirical research. An in-depth understanding of food system resilience provides an opportunity to alleviate faults and build capacities (coping capacity, adaptive capacity, transformative capacity) to ameliorate future uncertainty and/or shock.

In this regard, this research had the following objectives:

- (a) To explore the role of emerging commercial agriculture on food system resilience; and
- (b) Provide knowledge that contributes towards evidence for emerging commercial food policy making, inform municipal by-laws and other regulations, and enhance emerging commercial agricultural development in South Africa

The study answered the following research questions:

- (a) What challenges are female and male small-scale emerging commercial farmers facing when producing food and selling their goods
- (b) How do households practicing emerging commercial agriculture describe the impact shocks on their communities and households and on their access to food?
- (c) To what extent has emerging commercial agriculture contributed towards household food security during the times of shocks?
- (d) What coping strategies did emerging commercial farmers employ?

- (e) How can emerging commercial agriculture contribute towards resilience of emerging commercial food systems?

Conceptual Framework

This study utilised the food system resilience framework based on Béné (2020:16) which focusses on strengthening absorptive/coping capacity, adaptive capacity, and transformative capacity (see **Figure 2**). These three capacities can be described as follows:

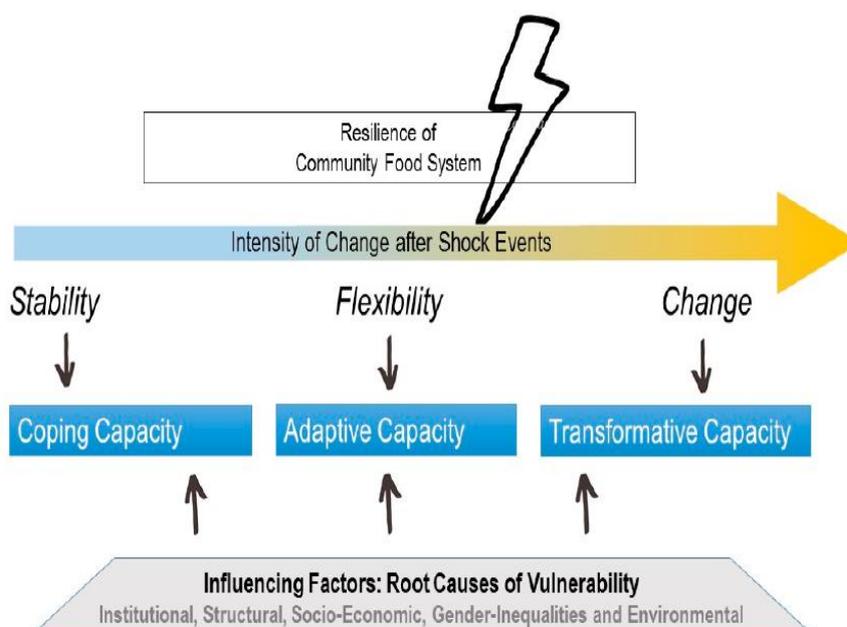
- i. **Absorptive capacity** is the ability to minimize exposure to shocks and stresses through preventative measures and appropriate coping strategies to recover quickly and avoid permanent, negative impacts (Bene et al., 2016). It is built through various incremental changes and adaptations that people undertake to continue functioning in response to a shock or a growing stress, without making major qualitative changes to the way they operate. These adjustments can take many forms. In the context of rural households affected by food insecurity, examples include the adoption of new farming techniques, the diversification or adjustment of the household's livelihood activities and the decision of taking out loans, or connecting to new social networks (Headey et al., 2014). Disaster Risk Reduction/Management (DRR/DRM) supports improved absorptive capacity by helping households and communities reduce risk and absorb the impacts of shocks without permanent, negative impacts to their livelihoods (UNDP, 2015).

- ii. **Adaptive capacity** is the ability to make proactive and informed choices about alternative livelihood strategies based on an understanding of changing conditions. It is the capacity to learn, combine experience and knowledge, adjust responses to changing external drivers and internal processes, and continue operating (Berkes et al., 2003:13). According to Brooks (2003:8); Smit & Wandel (2006:282) adaptation refers to adjustments in a systems' (household, community, group, sector, region, country) behaviour, characteristics, actions, or outcomes that enhance its ability to cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity in order for the system to improve livelihoods. The rural development discourse derives knowledge of adaptation mostly from studying vulnerability to natural hazards and impacts on food insecurity (Grothmann & Patt, 2005; Dilley & Boudreau, 2001). Adaptation strategies realise that communities can take concrete steps to minimise net losses from

climate change including taking advantage of opportunities for gains. Improved adaptive capacity results from adjustments that include livelihoods diversification, asset accumulation, and improved social and human capital.

- iii. **Transformative capacity** refers to system-level changes that enable more lasting resilience at the household and community levels. In recent years, Resilience programming has shifted the balance of effort and resources from short-term humanitarian assistance efforts toward a combination of disaster risk management, climate change adaptation, livelihood diversification, social protection programmes, and longer-term institutional development and systemic change (UNDP, 2015). Transformative capacity enables more lasting resilience at the household and community levels through altering permanently and drastically the system’s functioning or its structure to ensure the immediate ‘survival’ of the household/system. It encompasses the governance mechanisms, policies/regulations, infrastructure, community networks, and formal and informal social protection mechanisms that constitute the enabling environment necessary for systemic change (UNDP, 2015).

Figure 2: Framework for assessing resilience of emerging commercial agriculture



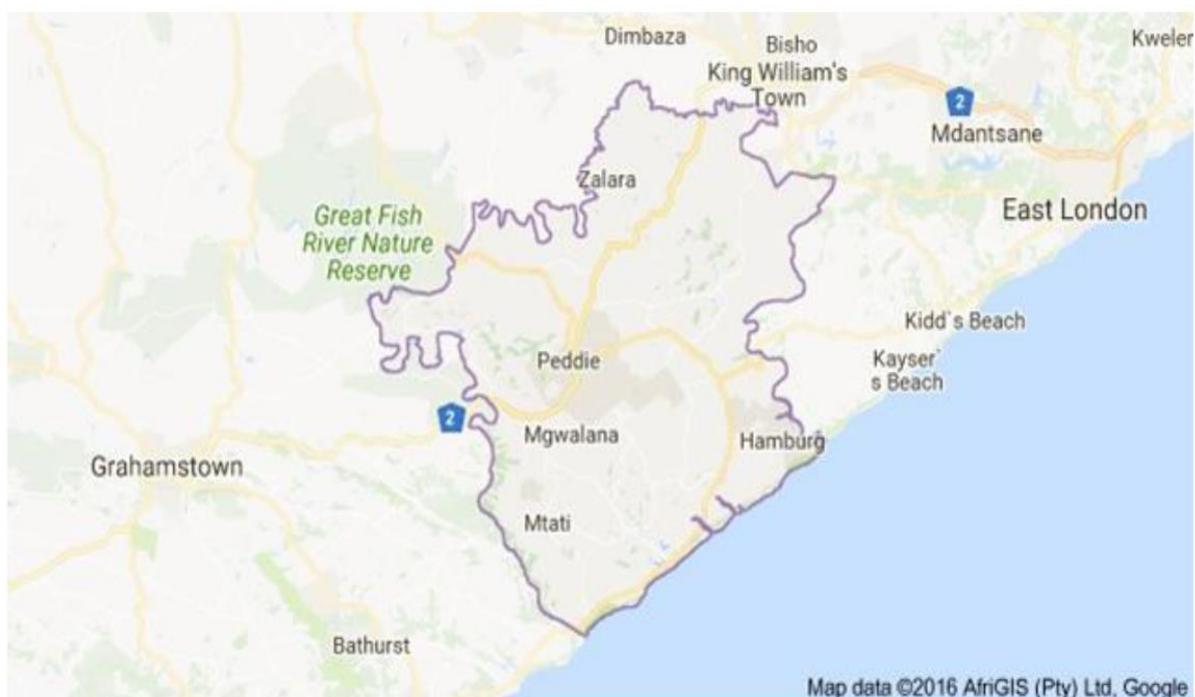
Source: Adopted from Béné (2020:16)

Research Design and Methodological Approach

Description of the Study Area

Ngqushwa Local Municipality is in the Eastern Cape Province of South Africa. It is bounded on the east by the Fish River, the Great Fish River to the west, and on the south by the Indian Ocean (see **Map 1**). The municipality is an amalgamation of two towns namely, Hamburg and Peddie. It is one of the seven municipalities that fall under the Amathole District Municipality (see **Map 2**). Ngqushwa is one of the smaller municipalities in the district, accounting for 10% of its geographical area (Approximately 2,112km²) and it is predominantly rural in nature. The administrative seat of the Ngqushwa Local Municipality is in Peddie and the municipal area is divided into 12 wards. The main economic drivers in the municipality are agriculture and tourism. Ngqushwa Local Municipality has an estimated population of 66 227 with more than half of the household (51.7%) being female headed. (StatsSA: 2016). The municipality has 17,149 households, with an average household size of 3.7. Most of the population (60.8%) fall within the 15–64-year-old age group, while 31.1% are below the age of 15 years¹. The municipality has high rate of school dropouts as well as high unemployment rate (StatsSA, 2016).

Map 1: Location of Ngqushwa Municipality



Source: <https://ngqushwamun.gov.za/about-2/overview/>

¹ <https://municipalities.co.za/demographic/1008/ngqushwa-local-municipality>

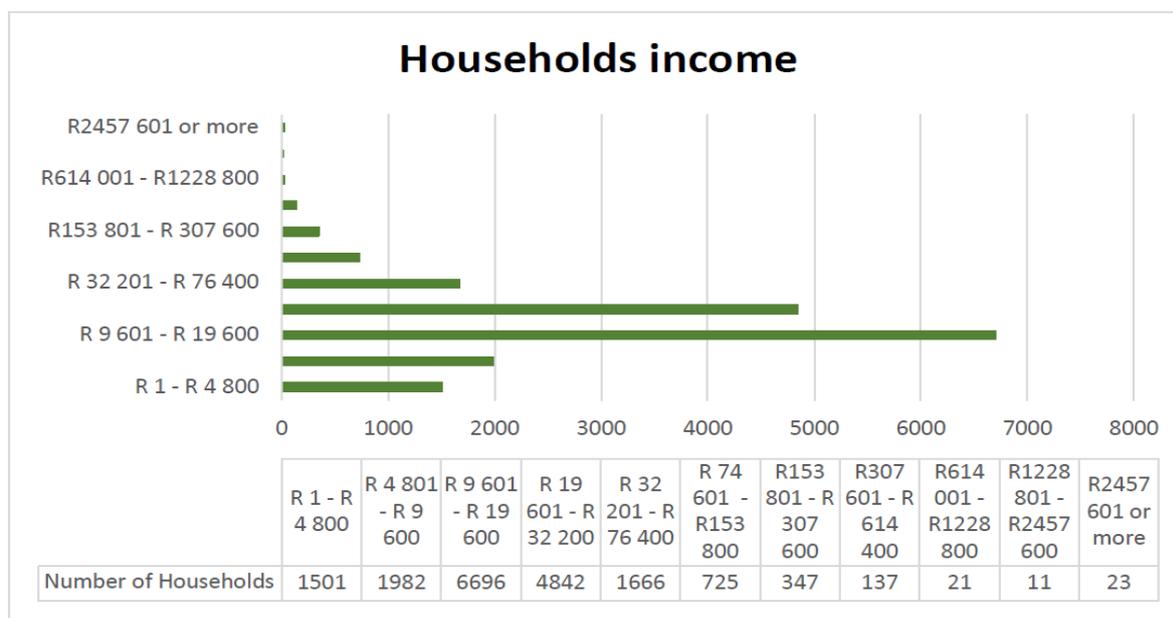
Map 2: Location of Ngqushwa Municipality within Amathole District



Source: <https://municipalities.co.za/map/1008/ngqushwa-local-municipality>

Ngqushwa municipality has an official unemployment rate of 68% and 41% of the population have no means of income (ECSECC, 2019). This results in most households earning very low incomes see **Table 2**.

Table 2: Household income levels in Ngqushwa Municipality



Source: ECSECC, 2019

According to the Ngqushwa municipality Integrated Development Plan (IDP 2020/2021), development of Sustainable Agriculture remains one of the core strategic priorities for the municipality (COGTA, 2021). Ngqushwa comprises rural subsistence communities that rely heavily on agricultural production in addition to the government social security services safety net. In order to reverse the high levels of dependency on social security support and to stimulate agricultural development in Ngqushwa, Key Performance Area 3 (KPA 3) in the IDP, under the Local Economic Development and Spatial Development priority, strives to ensure the creation of wealth using all available resources and strategic partnerships to promote sustainable economic growth. In this regard, agricultural development will play a key role in socio-economic development of the municipality.

Major Components of Local Economic Development Strategy under the IDP 2020/2021 also focus on resilience building, business diversification and product transformation. Diversification includes commodity diversification and enterprise diversification, while product transformation focuses on modification in the form or structure of a product (peeling cashew to make cashew nuts and processing cashew apple into syrup are transformation processes). The municipality also focuses on enhancing equitable access to all natural resources and participation in agricultural opportunities through unlocking agricultural potential. This will aim at reversing high levels of dependency on social grants by stimulating agricultural development. The Municipal Rural Development and Agriculture office currently coordinates agricultural production through the provision of community-based initiatives and the creation of a conducive environment for increased investment in agriculture. In many instances, the office of Agriculture together with relevant sector departments actively intervene and support initiatives to enhance food security, job creation and the quality of life. **Table 3** highlights key agricultural development opportunities in the municipality.

Table 3: Ngqushwa Agriculture Farming Opportunities

Sub-sector	Opportunities
Livestock farming	The Livestock sector within Ngqushwa is dominated by the Cattle, Goats and Sheep enterprises. Beef, sheep, and wool are in most instances farmed as integrated enterprises for optimum utilization of the natural pasture. Livestock also includes Poultry and Piggery farming. The Municipality is assisting the farmers on Livestock Improvement Scheme through provision of infrastructure and production inputs

Sub-sector	Opportunities
Irrigation Schemes/Crop farming	Ngqushwa prides itself with 7 irrigation schemes, which produce various crops, particularly vegetables. The irrigation has potential to turn around the rural economy in the area. Crop farming also entails opportunities for diversified crop production including household vegetables and maize production which is a significant field crop grown within the communal areas of Ngqushwa Local Municipality. The main challenge for sustainability of the irrigation schemes is lack and ageing infrastructure such that the production is negatively affected. Besides providing support on Mechanization program and Irrigation schemes, the Municipality is currently developing business plans to source funding for cropping programmes
Exotic fruit	Citrus, pineapples and pomegranate are the major fruit crops of significance produced in Ngqushwa Municipality. The Department of Agriculture and Agrarian Reform recently launched state of the art packhouse for Citrus production. Plans of expanding citrus production are in place to ensure sustainability of the Packhouse operations.
Agro –processing	Ngqushwa Local Municipality is committed in promoting sustainable agriculture through facilitating value-adding activities/agro processing of agricultural production. Through BIGM program the Municipality is piloting Honey and Aloe production processing. Business Plans have been developed by the Institution to support communities participating in these initiatives.
Honey production processing	The Municipality has taken several meaningful strategic approaches to develop the honey industry in support of local beekeepers. The municipality in the process of constructing a honey processing facility which will be a centre of the honey producing farmers working with strategic partners like AngloGoldAshanti and Amathole District Municipality to ensure effectiveness and sustainability.

Source: Ngqushwa Municipality IDP 2020/2021

The municipality has embarked on the Agri-Park development initiative. This is a network innovation system of agro-production, processing, logistics, marketing, training and extension services. It enables a market-driven combination and integration of various agricultural activities and rural transformation services. The Agri-Park concept involves integrating collective farming, farmer incubation programmes, Agri-Clusters, and Eco-Villages; while also contributing to land conservation and preservation. The Agri-Parks Programme seeks to achieve rural economic development through an all-inclusive approach to development by developing agricultural value chains that are linked nationally. It addresses issues of employment, skills development, and productivity of land. The Municipality is supporting Agri-Park initiatives through establishment of the Farmer Support Production Unit (FSPU).

Research Design

The study adopted an exploratory research design. Exploratory research is conducted when enough is not known about a phenomenon and a problem that has not been clearly defined (Saunders et al., 2009; Brown, 2006). In this regard, an exploratory research design will give deep insights into emerging commercial agriculture within the Eastern Cape Province. According to Grey (2014), an explanatory study design sets out to explain and account for a given phenomenon through seeking to ask 'why' and 'how' questions. In this study, an exploratory research design will *thus* form the basis for more evidence-informed investments in emerging commercial agriculture in the Eastern Cape.

Target Group

The project targeted households practicing emerging commercial agriculture in Ngqushwa local municipality, Eastern Cape Province. The study focused on farmers engaged in crop production². The target groups included the following: youth in Ngqushwa local municipality, Eastern Cape Province (aged 19 to 35 years) practicing emerging commercial agriculture; male and female household heads; key stakeholders in the emerging commercial agriculture value chain (including, government departments, civil society organisations, non-governmental organisations, private sector companies etc).

² It should be noted that most farmers however also kept livestock in addition to crop production (mixed-farming)

Sampling for Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs)

The research utilised a purposive sampling approach to select relevant stakeholder and smallholder farmers through the DALRRD office in Ngqushwa Municipality. Institutions and organisations were also identified through policy document review, review of grey literature and snowballing. The selection focused on national and provincial institutions and organisations that engage in Agriculture and food security at various nodes of the emerging commercial agriculture value chain (Production, processing, marketing, service provision etc).

Data collection approaches

A mixed methodological approach was applied to collect qualitative and quantitative data through secondary reviews, Key Informant Interviews (KIIs) with stakeholders in the emerging commercial agriculture value chain and Focus Group Discussions (FGDs) with selected emerging commercial farmers. A total of 8 FGDs were conducted.

Secondary Reviews

Secondary reviews to analyse the national and international policy framework for emerging commercial agriculture/agro-processing solutions were conducted. Existing policy frameworks were reviewed to get an understanding of how they are implemented, monitored, and evaluated. These frameworks' systems were assessed for adequacy in identifying the relevance, coherence, and sustainability of emerging commercial agriculture/agro-processing solutions. The reviews also looked at the national and international conceptual literature on innovative and contemporary issues on emerging commercial agriculture including agro-processing solutions, technologies that can increase food production, nutrition, and security by optimising land use, intensifying production, enhancing fertility, reducing wastage and market inefficiencies, adding value, and optimising local and global value chains. The secondary review process capitalised on HSRC's advanced information technologies that allow researchers access to a variety of search engines and scientific databases. They include EBSCO, SABINET, SCOPUS, and GOOGLE SCHOLAR. The HSRC library is linked to VPN to enable access to database information and accredited and/or trustworthy reports or articles.

Key Informant Interviews

Key informant interviews were conducted (and are still ongoing) with senior representatives in Ngqushwa Municipality, the national and provincial Department of Agriculture, Land Reform and Rural Development (DALRRD), state agencies, and non-

governmental organisations including non-profit organisations that are responsible for the provision and sustainability of food production and security within various communities.

Focus Group Discussions

Eight (8) FDGs were conducted between 14-18 March 2022. Table 2 gives details of FDGs.

Date(s)	Details on FDGs
15 March 2022	2 FDGs at Qhugqwala Community Hall (Ward 2)
16 March 2022	3 FDGs in Phaphama lower Gwalanda (Ward 10)
17 March 2022	1 FGD at Bell Community Hall in Tuwa (Ward 5) 2 FDGs at Qawukeni (Ward 3).

Data analysis and Management

Qualitative data was descriptively analysed through categorization, patterns and interpretation was done in line with the themes to be developed from the conceptual and theoretical literature. Qualitative data were analysed using thematic analysis according to Braun and Clarke (2006). The researchers utilised NVivo software. Themes, concepts, and categories generated from the data were creatively integrated guided by conceptual and theoretical frameworks adopted. As part of the analysis process, researchers needed to be certain about the subjective meaning of the text they were interpreting. Regarding the underlying theorem for the analysis, the researchers used an interpretive understanding of Weber's concept of social interaction (Foon, 1987).

Limitations

- Key informant's interviews were not as exhaustive as initially planned. This was because of the difficulty of meeting the targeted participants due to the Covid 19 pandemic that was still raging across the country and the Eastern Cape at the time

Results and Discussion

Role of emerging commercial farmers in supporting livelihoods

Respondents were asked what the role of emerging commercial farming in supporting livelihoods and the extent to which the role was achieved. Participants mentioned that the role of emerging commercial farming/urban farming was on improving livelihoods. Such livelihood improvements included: (i) improving food security and access to nutritious food, and (ii) raising household income levels. However, participants noted that the extent to which farming was able to support their livelihoods differed due to various challenges (explained in the following section) that they experienced.

Role of emerging commercial agriculture towards livelihoods

Most of the respondents pointed to the important role played by emerging commercial agriculture in supporting livelihoods and enhancing food and nutrition security. Some farmers noted the complementarity between crop and livestock production as highlighted in the following quotation:

"Firstly, planted food is always fresh, unlike the food kept at the storage for until the year it will come to be given to people, with no more vitamins on it. That's why you see us supporting the fact that we are planting."

Considering high unemployment rates in the country, some participants mentioned that they are dependent on farming as a survival strategy because it contributes to poverty alleviation – they can support themselves and their families.

"As an inhabitant of this village, cultivating the land has helped me. I stopped working in 2003 and came back home to stay. I survive on cultivation, and with the produce I get, my family can get food. I can also sell and put my children in school; since 2003, I have been surviving on cultivation. Thank you."

"If you don't have a job, you can't support yourself but if you farm you can support yourself, simple."

In addition to food security and nutrition, farmers indicated that farming provides them with the opportunity to raise income for their households. Participants mentioned that they are faced with unemployment in their communities, and some are living on government grants such as child support grants therefore, the government support grants are not enough to cover household necessities, *thus* they

are involved in farming to raise income. During the Focus Group Discussions (FGDs), farmers alluded to the fact that when the land is cultivated, they also get to sell their produce to the communities therefore, with the money they receive from selling they can provide for their families through paying school and maintaining their households.

“As we are experiencing unemployment, when you cultivate the land, you can sell your produce, buy shoes, and school uniforms for your child although you are not employed. Thank you”.

Some participants, mentioned that the money they receive from selling their produce allows them with maintaining their farming projects

“Now, when you have sold these, you receive money which helps you with your farm or helps develop your project and when your project has developed you also have something left to feed your children at home.”

Respondents mentioned that farming also creates job opportunities for those who are unemployed as they employ people to assist with ploughing. Lastly, some farmers stated that they like farming because farming does not limit them on what they can plant – they get to plant variety of products depending on seasons.

Participants highlighted that the level at which they can maintain their livelihoods through farming differs each year or each season due to various challenges. For example, they mentioned the high dependence of their agricultural production systems on rain-fed agriculture which currently face challenges of viability due to climate change induced hazards including droughts.

“The only problem is that there may be drought in a particular year, and you may not produce the same as you may do this year for example. You see this year is promising. It has rained, but we have suffered because we did not receive materials in time. But those that have planted will benefit because we received enough rain”.

“We depend on the rain, we depend on the rain . . . it happens then, as the years are not the same and also that we depend on the rain, you find out that on the other year we have failed in our crops because of not having rains, but that does not mean we will stop because we have failed that year.”

Challenges that have affected emerging commercial farmers

To find out challenges that affect emerging commercial farmers and how these challenges influenced their farming activities; during the FDG's, farmers were asked the question: "are there any challenges that have affected emerging commercial farmers in the last five years? and to what extent did these challenges impact agricultural activities?" Farmers alluded to several challenges they faced, these challenges included environmental changes, insufficient agricultural inputs and access to technology, and the Covid-19 pandemic.

Climate Change induced drought

The issue of climate change came out prominently, some of the challenges that respondents mentioned that are directly related to climate change are, drought, bad weather and floods. The issue of drought was exacerbated by limited access to reliable ground water sources for irrigation-affecting both crop and livestock production activities. There were reports of increasing livestock mortality in the municipality, although the mortality rates could not be established during the discussions. There was mention that, under Peddie municipality, there was serious water scarcity, the taps were dry, therefore alternative water sources were hard to come by. The following quotations highlight the impacts of draught:

"It has damaged a lot and with the livestock, the livestock died because of drought."

"There is a lot of water here; I am talking underground water; there were many windmills when I was growing up that people were using those windmills for irrigation. But in this government of ours, I will not avoid politics completely. They are ignoring reviving those windmills. That is a big challenge to us as a community because it is very expensive to revive those windmills; just one would cost us a lot."

One of the groups had a farming community that were part of a agricultural co-operative. This allowed farmers collectively find means to continue farming despite the challenges. For instance, they were engaged in rainwater harvesting, through rolling drums with collected rainwater to their fields and gardens and were able to create an irrigation system and continued farming and selling of agricultural produce. They also had a water tank that was given to them by the Department of Agriculture, however there is no generator to collect the water. Regardless, they are one of the groups that is better off as they can sustain their production systems under harsh conditions.

Research suggest that drought is one of the significant disasters affecting farm productivity especially in local areas (Pili and Ncube, 2022). Emerging farmers usually suffer the most due to limited resources (Pili and Ncube, 2022; Malan, 2018). Some farmers even find themselves unable to continue farming unassisted when this happens. Research suggests that one way of dealing with the challenges posed by drought is to use boreholes and dams to get water for irrigation. This approach has been successfully used by small and emerging farmers in places such as the Overberg District in the Western Cape Province. What happened in the Overberg district was that small or emerging farmers addressed the challenge posed by drought by purchasing fodder and transporting water from sources such as the river and dam to the farm.

The above experience was echoed by emerging farmers in the Ngqushwa local municipality in the Eastern Cape during a recent study in the region. To most of the emerging farmers in Ngqushwa, drought is also a major challenge. And dealing with drought requires them to draw water from dams and boreholes. But with limited dams, boreholes, and resources, most of them are unable to cope when faced with drought as it is commonly the case. They need assistance from government and the private sector to be able to cope when faced with drought. According to one of the local farmers:

"Boreholes and dams are crucial for the work we do in this local municipality. This is because drought is a major problem, especially to us, emerging farmers with limited resources. Few dams exist but are always filled with mud, making it difficult to depend on them when drought strikes. We would appreciate if the government and the private sector can assist us to clear and clean the dams, as well as provide us with generators that can be used to draw water from them. Moreover, we also have the big water source as you go up toward Lujiko. However, the water gets depleted soon and there is nothing we can do. If the government could help dig up the water source for us, it would be full and all of us would use that water. It only needs to be dug deep and cleaned" (emerging farmer, Ngqushwa local municipality, March 2022).

The above extract points to the extent to which storing water for emerging farmers is important in the Ngqushwa local municipality in the Eastern Cape. But it also highlights what it takes to be an emerging farmer in a modern economy such as South Africa,

that was never designed to accommodate them, and the need for truly transformative structural change to the economy and systemic change to the food system.

Furthermore, some farmers suggested that they used to cope in the past using windmills, but they are no longer functioning. It will be helpful if government and the private sector can assist in renewing the windmills. As one of the farmers note:

“Windmills could be renewed so that when there is no water in the dams or there is none in the Amathole Water, the boreholes would work, the windmills would work. I think we have boreholes here because we used to have windmills here. But the thing is now they just need people to renew them or draw . . . if electricity is needed to draw this water, then whatever is needed to draw the water must be made because I remember there next to my home, they drove down there in two years’ time. The councillor was still Kolisi. I saw a car going down there and when I asked what was happening, I was told they were looking for a borehole, and I said there was one down there next to my home, down next to the stream. The boreholes are there. The only thing needed is people to renew them, you see. The truth is that they are needed because if they were there at least we would not struggle so much for water” (emerging farmer, Ngqushwa local municipality, March 2022).

Again, we see in the above extract, emerging farmers concerned for some of the alternative water providing and storing services that existed but are now dilapidated. Their only wish is for government or the private sector to assist and get these resources back to working mode so that farmer do not suffer when affected by drought.

Inadequate agricultural infrastructure, implements limited access to inputs

In addition to the shortage of water, the farmers reported unavailability of water stage infrastructure. Other limiting factors included lack of agricultural machinery implements, including tractors, and fencing around the farms. The lack of fencing around the fields resulted in huge loses as crops were destroyed by livestock. In some instances, crop destruction by livestock resulted in community conflicts since some livestock farmers do not have any control over their animals and they stray to the green fields.

“The damage to your planted crops causes delays because if your crops are damaged, you cannot fence your fields; that is the problem we are facing because of stray animals, cows and goats. Even with two feet, there are even chickens; they come and finish your crops.”

The inland areas do not have large rivers or dams to allow them utilise irrigation when there is drought. The issue is when they have water but do not receive materials in time. The farmers reported the 2021 season as being the first year in five years that the weather had been favourable for them. Although there have been episodes of good rains in the last decade, rainfall patterns have become highly erratic. However, some respondents felt that lack of equipment was the biggest challenge compared to drought as highlighted in the following quotation:

“Another challenge we face is a shortage of equipment, which affects us a lot. Yes, we do have droughts, but they are not that severe. What I see as the biggest challenge is the equipment.”

The farmers do not have tractors of their own, individually or as a collective and this means they must hire whenever they want to plough their fields. Reliance on hired equipment was stated as a big challenge since this affected timely land preparation. Farmers also struggled with access to fertilizer, pesticides, and herbicides. Labour shortages were also cited as most of the youth who are able bodied opted to migrate to towns for non-agricultural income sources. The following quotations elaborate some of these challenges:

“So now we have to pay cash for the tractors because the operators are not playing games. If they want R1 500 for the whole operation: ploughing, disking, planting, etc. you need to have R1 500. So now one has to sacrifice the money received for old age grant forego other things. If there is no rain, then they are in trouble, we will be in trouble.”

“Even the production is affected due to lack of equipment because you have prepared the soil first. You must prepare your seedbed thoroughly to plough your seedbed and ensure that the weeds do not interfere with your seeds. So the lack of equipment does affect the production a great deal because now you plough although you can see that the soil is not well prepared, we don't have equipment.”

Limited access to Agricultural Finance

Access to finance was identified as a key constraint. Farmers highlight lack of capacity to run their farm enterprises without the assistance of government. In previous years, the government had helping them with a tractor that they did not have to pay for, however this has stopped. Alternatively, they have to pay for this service out of their

own pockets and this can cost as much as R1,000 to plough a hectare of land. However, the high rates of unemployment for many of the farmers results in low household savings and disposable income to invest in farming enterprises. This results in households mostly depending on social security grants (mostly SASSA pension funds for those of age).

Limited access to high value markets

Another challenge facing rural emerging commercial farmers is the lack of marketing skills and lack of high value market to sell their produce. The farmers highlighted marketing problems since some felt they were running loses due to lack of developed markets in Ngqushwa or Peddie where they could supply their produce. This resulted in most farmers selling to residents who are not always able to pay on the day and often must wait for month end. As a result, the produce is spoilt and ends up going to waste.

During the discussions, participants mentioned that although most farmers in the municipality felt that they had a market, in reality they did not have a suitable market because (i) some sell products to local residents who sometimes take months to pay and (ii) some do not have a defined market and cannot predict where they will sell their produce, as a result they are not progressing or expanding in businesses. Additionally, the farmers indicated need for help with marketing their products/business to expand and get access to bigger/high value markets. It was mentioned that most farmers relied on posting their products on social media such as WhatsApp statuses and word of mouth. Farmers expressed the need for a well-developed market information system. The following quotations highlight some of the market related constraints:

"The challenges we have about ploughing are we don't have the market here in Peddie; for instance, we ploughed potatoes; I think they have shown you the truck full of potatoes but there is no market for it, they will only be sold to the local residents, and they will pay the following month. They take a bag and pay a month or two months later from their social grant money. So they end up being spoiled because of the lack of the market."

"We want to do this for commercial purposes; always planting to eat these potatoes and pumpkins will not take us anywhere; we need to get into the markets. And we are interested in seeing the trucks coming in to collect our

produce to other places, but if we don't have an infrastructure supporting those ideals, we are just building castles in the air."

"But there will not be much improvement from our side because financially we are suffering."

Impacts of the COVID-19 pandemic

The Covid-19 pandemic had serious negative impacts on emerging commercial agriculture in the municipality. Towards end of March 2020, the country was put under strict lockdown regulations, which required everyone to stay indoors except for essential workers, these different levels of lockdown restrictions also meant less of economic activities. During the FDG's, farmers pointed to out that the Covid-19 pandemic affected them because everything was on stand still. They mentioned not being able to operate during the lockdown periods, leading to loss of income and increasing hunger levels. Furthermore, some farmers lost their lives and some who were infected by the Covid-19 virus and lost their energy and strength to continue farming.

"The challenge we have had in recent past years is the COVID-19 pandemic, which led us to not do any activities and stay indoors. That also led to hunger in households, as there was no food, we could not afford to buy other necessities because we didn't plough. Thank you."

Poor Soil Fertility and Nutrient Management

Some emerging farmers revealed lack of agricultural nutrient management products as their biggest challenge– they do not have the needed products for enhancing soil fertility and soil nutrient management. It was mentioned that, within the agro-ecological conditions of the municipality, for farmers to obtain optimal harvest, there is need for proper soil management and application of fertilizers, fumigation, and adequate expertise in soil management. Farmers also stated that their soil/land was not tested to provide adequate information and recommendations on suitability of various crops across different seasons, this is highlighted in the following quotation:

"Another challenge is that we don't have fertilisers to prepare the soil because you would think that certain things destroy your crops, which is a big challenge. There are certain chemicals to weed the soil, but we don't have those chemicals."

“They must come to test the soil because here we just plant, we don’t know exactly what crop is suitable for this soil; you only realise after planting your crop doesn’t grow properly, and you notice that a crop has burned and then you suspect that the soil was not suitable for that crop. That is how we test it by having your crops damaged. You plough, but you know what you are ploughing will fail.”

“They must come out to test our soils to know what we can plant for a particular season. Now they are sitting there with information; when we were growing up, we knew that you plough a particular crop; during winter, you plough a particular crop. But because of global change, the global warming now we are a bit miserable. We know that information is there because somewhere they do tackle us, you will grow a crop thinking it needs the summer rains where it might not be, and it doesn’t materialise.”

In recent years the importance of sustainable agriculture has risen to become one of the most important issues in agriculture. In addition, plant diseases continue to play a major limiting role in agricultural production (Dordas, 2007). The control of plant diseases using classical pesticides raises serious concerns about food safety, environmental quality, and pesticide resistance, which have dictated the need for alternative pest management techniques. In particular, nutrients could affect the disease tolerance or resistance of plants to pathogens (Dordas, 2007). One of the first observations of the effects of nutrients on disease development was that fertilisation reduced the severity when plants were under deficiency, as fertilization optimised plant growth. Farmers in the Ngqushwa local municipality pointed out during a recent study on the coping strategies of emerging farmers in the region that they depend largely on fertilizers to fight insects destroying their crops.

But the challenge is not limited to insects, they also extend to the soil type. As one of the farmers observed:

“First, when we plant soil, we don’t look at what type of a soil is this. Is this soil right for tomatoes, or is not right. . . you just plant it? And we have seasonal foods, in summer we plant mealies, in winter we plant. . . we used to plant wheat. Because we got the peas, we got now challenges like birds, there are lots of birds. They wake up, I think 4 o'clock you must be awake if you plant wheat and peas. . . peas, yes. So, we’ve got that challenge, so we have that challenge. Now we run out of that because of that challenge, we don’t want to wake up, because its cold in winter. So now, planting peas it’s a hell of a job, you rather plant mealies. But even mealies, there is this worm that is eating it. We got lots of challenges really.

But if we can have eeh, eeh somebody to help us address the challenges, what is call eeh. . . soil science, to say, you can't plant a pumpkin, but you cannot plant something else because the soil is good for this..." (emerging farmer, Ngqushwa local municipality, March 2022).

Inadequate skills and capacity for commercial agriculture

In addition to the physical resources, the farmers further mentioned the need for training on crop and animal husbandry, especially for the younger generation. This would help to broaden knowledge and hopefully learn new systems and technologies to improve agricultural production and capacity to approach farming as a business. Some participants alluded to the point that they have land to farm (gardens and fields) however, amongst other challenges, the challenge that some have is that they do not have the correct experience to properly cultivate land and plant so that they produce products that are up to the right standard. These farmers further highlighted use of 'old farming techniques' as a major constraint to meaningful agricultural production. Others mentioned that they needed training on diversification *i.e.*, how to plant and grow different vegetables/fruits other than what they are used to. This would allow them to expand their farming enterprises and venture into high value markets. These issues are highlighted in the following quotations:

"Another thing I forgot to mention, which I think is important regarding challenges around cultivation, if we can get training on how to cultivate, sometimes you cultivate your garden with any experience, and you will have challenges because you will put a piece of cabbage close to another one. You will find that you might have had a good yield if you knew how to plough the right way. It could help us have some training to cultivate and reduce these challenges."

"We once travelled to Ngqushwa regarding pineapple farming. There is a place that we saw there but we did not meet the people there. It was across the place we were visiting. So, we would like to have a place like that. We would like to have a place where we could grow pineapples for business purposes so that people could travel to Qugqwala to purchase pineapples. That is what I would like to see that we also could grow pineapples."

Limited support from relevant agricultural value chain stakeholders/institutions

The farmers mentioned lack of support from government and relevant stakeholders in agricultural value chains as a major challenge. Some participants indicated intentions

to expand their farming enterprises, however, they are constrained by limited support from government and other relevant stakeholders. For example, they mentioned that extension officers from the department of agriculture did not interact well with farmers and the frequency of interactions for extension advice was low. There is considerable exchange of information amongst farmers in the absence of consistent extension services. For example, a study by Gwala, Yusuf and Monde, (2022) on access to extension by livestock farmers in the Eastern Cape Province indicated that approximately 30.2% of cattle farmers highlighted they receive information from other farmers within the community. The quotations below highlight some of the challenges with delivery of agricultural services:

“That is why we think as the department of agriculture has an agricultural officer to oversee each area, the official should not sit in the office; they should come out and gather the farmers together to see that Mr Mbongi [pseudonym] has planted butternut, Mr Bones [pseudonym] has planted potatoes and Mr Babyface [pseudonym] has planted maize, Mr Ndlela [pseudonym] has planted pumpkin, and Mrs Sokhela [pseudonym] has planted this, so on and on. They need to have a database and know that they know when they started, so should the disaster strike and damage crops, at least there is some relief/ compensation to motivate us to go back to plough knowing that the government will support us.”

However, a review of literature indicates that the South African government has implemented several programmes to improve the living conditions of farmers. Such programmes include Comprehensive Agricultural Support Programme (CASAP), the livestock development strategy (Department of Agriculture, Land Reform and Rural Development [DALRRD]. 2021). Industrial Development Corporation (IDC), Lima, Small Enterprise Development Agency (SEDA), Eastern Cape Development Corporation (ECDC) and non-governmental organizations (NGOs) (Sikwela and Mushunje, 2013).

The South African agricultural sector is currently undergoing transformation, as well as decolonising the sector from decades of neglect, suppression and discrimination against black farmers through instruments that excluded them from participating in the mainstream economy and from legal ownership of land, such as the 1913 Land Act (Vink & Van Zyl, 1998). After the democratically elected government in 1994, transformation policies were put in place to remedy the injustices of the past. These transformation policies manifest through the Land Reform Policy and the other support measures intended to aid previously disadvantaged farmers. In the land

redistribution pillar of the Land Reform Policy, emerging farmers are identified as the potential beneficiaries, although not much is understood about who they are (Zantsi et al, (2019).

While benefits may vary for different emerging farmers, local emerging farmers in the Ngqushwa municipality depend on or expect support from the government in terms of agricultural resources such as tractors, nets, fertilizers, bulls, goats and sheep. According to one of the emerging farmers in the municipality:

“Government should provide agricultural resources such as tractors during farming seasons to assist farmers in ploughing the soil. Even though this has been the case in the past, most of the tractors always arrive late, mostly after farmers have finished ploughing the soil using rudimentary tools, which at times makes them to end up with poor harvest, and starvation – while some may go without cultivating in that particular season because of the difficulties of ploughing the soil without tractors. A possible solution is for the government to ensure that the tractor arrive the municipality and farmers before the farming season begins...”
(Local farmer, Ngqushwa municipality, 20th March 2022).

Moreover, other farmers highlighted the need for government to consider supporting them with resources such generators that can be used to draw water from the dams and rivers. Some pointed out the challenges they face rolling water in drums from the source to the farms for irrigation during the farming season. As one of the farmers note about government’s failure to help with drums:

“Yes mam, we made efforts to ask and we did not succeed. We had to roll drums Mam, for instance here is our garden here, we as Mbherane Co-op. We were rolling drums to the dam that you passed there. We were irrigating and so on. We were able therefore to seem as if we are coping but not enough, just because you cannot . . . if you could calculate the kilometres or measure the distance from there to this garden, someone is going to blame someone else that they are not putting enough effort into rolling the drums. But then Mam we were able to cope and we manage to sell something, even if it is a cabbage or an onion. We need support there, even if it is a generator to draw water from that dam...” (Local farmer, Ngqushwa municipality, March 2022).

Still in terms of agricultural resources from the government, farmers in the Ngqushwa local municipality expressed the need for government loans and financial support, as

one of the strategies that can help them to continue in their farming activities. While some emerging farmers indicated that government loans do exist, others pointed out that not everyone is able to access them because more attention is given to large-scale or commercial farmers than the locals who work to provide food to their families and communities. Changing this practice, will help emerging farmers to cope. It is important to note that:

"We need financial support because as an individual you cannot stand for yourself because you need money for a tractor, you need money for seeds, you need money for fencing. Even if you have already harvested, you are going to need money for marketing. Then you do not have a truck to go to the market. Now the middleman who has a truck is going to take all your profit and it becomes his. Like for example, we have got sheep here but when we shear them, we do not sell at the market. There is just somebody who comes to collect the wool, just like empty bottles, and goes to sell at the market himself. And then he comes back and says here is something as a bonus. We were not there we don't know but we have the sheep. The sheep are ours, but the wool is not ours. Somebody goes around and collects the wool from our sheep and goes to sell it. So, there is a middleman between me and the market. Now I want a plan to remove this middleman so that I can go myself to the market and sell my own sheep's wool but without financial support from the government, I cannot afford..." (Emerging farmer, Ngqushwa Municipality, March 2022).

Again, the above extract highlights the fact that, emerging farmers in the Eastern Cape are unable to cope if not assisted.

The National Development Plan (NDP) emphasises the need to train extension officers who can respond to the needs of smallholders (NPC, 2011). This, however, is not always the case with emerging farmers in Ngqushwa since extension officers are few or non-existent in some of the rural areas in the municipality. The absence of extension officers highlights the importance of addressing the needs of a specific group of farmers by paying attention to getting to know them better. This is important since understanding the client determines the appropriateness and relevance of the advisory service to be rendered by an extension officer. However, literature shows differing perspectives with regards to a common understanding of what an emerging farmer in South Africa is. In the study of Rother *et al* (2008), extension officers were asked what an emerging farmer is to their knowledge, and they all provided different definitions. Therefore, a common understanding of what emerging farmers are, is important to the agricultural

extension field as they have an important role to play in developing emerging farmers by rendering a relevant and appropriate advisory service.

Fortunately, one of the participants who was present in the focus group discussions (FGD in Ngqushwa was an extension officer and had this to say:

"I am the field extension officer, working as a senior adviser. My work involves working with rural communities from Peddie area focusing on commodities such as vegetable production, grain production, crop production, piggery production, poultry production and so forth. So those are the commodities I'm working on with different groups, including those of women and the youth..."

While extension officers may be few or non-existent, those that are there know what to do and are assisting emerging farmers to understand what they do better, and to improve on their produce and be able to support their families, communities and themselves.

Given the multiple challenges faced by emerging farmers in Ngqushwa local municipality, the role of extension officers cannot be over-emphasised. Extension workers will assist in collecting and analysing data and samples of produce, feed, soil and other factors affecting production. Additionally, extension workers will provide advice to farmers and farm managers on technology for improving the production of crops and livestock and alternative agricultural options especially in times of drought. However, research suggests that extension officers have not had the intended impact on emerging farmers (Nkosi, 2017). This is due to the vast number of people requiring assistance, and the relatively few and inadequately trained and resourced extension workers (DAFF, 2012). Agricultural education and training report indicated that most public sector extension officials in South Africa do not have the required education and training to respond to the needs of farmers they are servicing (ARC, 2011). As a result, the level of access to agricultural extension and advisory services is not adequate (Nkosi, 2017). As a result, a major part of access to quality extension and advisory services in Ngqushwa will depend on the ratio of extension officers to farmers.

Conclusions: Strengthening the role of emerging commercial agriculture in promoting the resilience of food systems

The research results clearly indicated the important contribution of emerging commercial agriculture in Ngqushwa Municipality to livelihoods, food security and

nutrition security, poverty alleviation through improved household disposable income, and employment creation. However, emerging commercial farmers encounter a myriad of challenges along the agriculture value chains. The contributions and challenges are summarised in the findings below:

Findings

- Farming is a survival strategy because it contributes to poverty alleviation – through farming, farmers can support themselves and their families
- Emerging commercial farmers play an important role in supporting livelihoods and enhancing food and nutrition security in Ngqushwa and the Eastern Cape
- Farming provides farmers with the opportunity to raise income for their households. Participants mentioned that they are faced with unemployment in their communities, and some are living on government grants such as child support grants, but the government support grants are not enough to cover household necessities, *thus* they rely on farming to raise income
- Farming creates job opportunities for those who are unemployed as such people are employed to assist with ploughing
- The level at which farmers can maintain their livelihoods through farming differs each year or each season due to various challenges. This is because the high dependence of their agricultural production systems on rain-fed agriculture currently faces challenges of viability due to climate change induced hazards including droughts
- Climate change is a major issue affecting agriculture in Ngqushwa and the Eastern Cape. This is exacerbated by limited access to reliable ground water sources for irrigation-affecting both crop and livestock production activities
- There is increasing livestock mortality in the municipality, although the mortality rates could not be established during the discussions. Under Peddie municipality, for example, there was serious water scarcity, the taps were dry, therefore alternative water sources were hard to come by.
- There are limited dams, boreholes, and other water resources, that farmers can depend on in times of drought and other climate change related hazards. Most of the farmers cannot cope when faced with drought as it is commonly the case
- Windmills that used to exist in Ngqushwa and the Eastern Cape and were used for pumping water are no longer in use. They are dilapidated and needs to be repaired
- There is inadequate agricultural infrastructure, and limited access to inputs. Farmer lack agricultural machinery implements, including tractors, and fencing around the farms. The lack of fencing around the fields results in huge loses as

crops are destroyed by livestock. In some instances, crop destruction by livestock results in community conflicts since some livestock farmers do not have any control over their animals and they stray to the green fields.

- There is limited access to agricultural finance. Farmer lack the capacity to run their farm enterprises without the assistance of government
- There is limited access to high value markets. Emerging commercial farmers lack marketing skills and access to high value markets to sell their produce
- The Covid-19 pandemic had serious negative impacts on emerging commercial agriculture in the municipality. Strict lockdown restrictions put in place from March 2020 requiring everyone to stay indoors except for essential workers, also meant less of economic activities for farmers, especially those who were cultivated fresh vegetable produce that needed to be sold immediately after harvest
- There is Soil Fertility and Nutrient Management. Some emerging commercial farmers revealed the lack of agricultural nutrient management products as one of their biggest challenges– they do not have the needed products for enhancing soil fertility and soil nutrient management. Emerging commercial farmers mentioned that, within the agro-ecological conditions of the municipality, there is need for proper soil management and application of fertilizers, fumigation, and adequate expertise in soil management to ensure they obtain optimal harvest
- There is inadequate skills and capacity for commercial agriculture. Emerging commercial farmers noted the need for training on crop and animal husbandry, especially for the younger generation. This would help to broaden knowledge and hopefully learn new systems and technologies to improve agricultural production and capacity to approach farming as a business
- There is limited support from relevant agricultural value chain stakeholders and institutions. Some emerging commercial farmers mentioned lack of support from government and relevant stakeholders in agricultural value chains as a major challenge. Even though most of the farmers have the intention to expand their farming enterprises, they are constrained by limited support from government and other relevant stakeholders

Based on the above, the study makes the following key recommendations for improving the resilience of the food system through emerging commercial agriculture in the municipality:

Recommendations

There is need to improve the adaptive capacity of emerging farmers. This can be achieved by improving the following adaptive capacity measures:

- Access to credits/micro-finance/traditional saving methods
- Access to irrigation and dry season gardening
- Forging arrangements for improving market led agriculture activities for emerging commercial farmers, possibly through private sector driven partnerships
- Improving capacity for crop and animal husbandry as well as agribusiness skills
- Information on farm issues and extension services
- Access to credits and micro finance as well as traditional saving methods

There is need to improve the absorptive capacity of emerging farmers. Improving the absorptive capacity will entail improving the capacity of emerging commercial farmers to take intentional protective action and to cope with known shocks and stress. In this regard, some recommendations include:

- Improving the capacity of farmers to anticipate, plan, cope and recover from specific, known shocks and short-term stresses. This could be done through strengthening early warning and information systems.
- Improving access to rural finance
- Maintaining social capital and social protection schemes that guard against crop losses, including insurance

There is need to improve the transformative Capacity of emerging farmers. Enhancing the transformative capacity will entail intentional structural changes to reduce the causes of risk, vulnerability, poverty, and inequality. In this regard, some recommendations from this study include:

- Addressing deep rooted institutional arrangements that impede service delivery by institutions in the agricultural value chains to improve access to services by merging commercial farmers. Such services will include access to extension services, access to agricultural finance, and access to capacity building and agricultural training
- Review policies (local and national) that impede transformation of agricultural production systems in Ngqushwa from subsistence to commercial enterprises
- Building the capacity of existing producer organisations for effective lobbying for improved service delivery by agricultural value chain institutions and capacity to promote agri-business ventures.

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