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Designing a Framework for Assessing Agripreneurship Action for the Green Scheme Irrigation Projects, Namibia

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Abstract: The main aim of this paper is to develop a framework aimed at assessing the agricultural entrepreneurship action for the Namibian Green Scheme Irrigation Projects (GSIP). The paper examine the factors affecting the entrepreneurship action of small-scale irrigation farmers (SSIF) at the Etunda GSIP. The paper used a quantitative research approach to yield descriptive and inferential statistics of the agricultural entrepreneurs' perspective concerning their operations experiences at the GSIP. The study used Microsoft Office Excel 2019 analytical tool pack to analyse the data. The key findings revealed that all the SSIF operating at the Etunda GSIP are not only affected by individual factors but also by policy environment, finance, business support services, market environment, infrastructure as well as ecological factors. This paper addresses specifically one of the Namibian GSIP whereby it only adopted the perspective of SSIF. The study presents a framework that praises sectoral stakeholder connections that would help improve not only the GSIP performance but also the overall performance of the Namibian agricultural sector. The paper offers policymakers and practitioners a blueprint for developing entrepreneurship in an agricultural sector, especially around the Namibian GSIP.

Keywords: Entrepreneurship, Small scale (smallholder) farmers, Entrepreneurial action, Entrepreneurial process, Entrepreneurial performance, and Agricultural entrepreneurship.

1. Introduction

According to Bignotti, Antonites and Kavari (2021) agricultural entrepreneurship as a field of scholarly enquiry and practice represent agricultural entrepreneurship as a discipline and agriculture as an economic sector. In developing countries, researchers Isala, Mburu, and Likuwa (2016) argue that agriculture seems to be the backbone of human lives and economic growth. Namibia is a nation that is gifted with natural resources such as land and water which can be used to advance economic transformation through agricultural entrepreneurship initiatives (Mubita, 2019). In Namibia, The Fifth National Development Plan (NDP5) identifies the agricultural sector as the potential sector to boost economic growth, specifically in addressing challenges of food security, unemployment, and overall poverty reduction (MAWF, 2008); (Mughongora, 2018); (Fiebiger, et al., 2010).

The Namibia Government formulated and approved the Green Scheme policy in August 2003, encouraging the development of irrigation-based agronomic production in Namibia in order to increase the contribution of agriculture to the country's Gross Domestic Product. Nevertheless, according to AgriBusDev (2017), Namibian national food demand has been satisfied mostly by imports rather than local production. For example, in the 2015/16 production year, the total national production equalled 18 000 metric tons, which equates to less than 13% of national food demand. This means that Namibia remains a majority food import country, despite the introduction of Green Scheme projects.

Furthermore, despite the fact that the agricultural sector was pointed out as a high priority in the economy through initiatives such as the green scheme irrigation project, what is more troublesome is the fact that the agricultural sector's contribution to the country's Gross Development Product (GDP), has continued to decline from 16% to 10% between the years 1990 to 2010 before falling further to 7% in 2019 (First Capital Namibia, 2020); (Namibian Statistics Agency, 2020). Similarly, researchers Isala, Mburu, and Likuwa (2016) wrote that GSIP are not adding significant improvements to surrounding communities' livelihoods, whereas First Capital Namibia (2020) argue that the import of crops and vegetables remains remarkably high as Namibia produces 40% of its food consumption and the remaining 60% is imported from other countries. These all raise question such as, what impact has the introduction and expansion of GSIP brought in the economy? Could it be that the entrepreneurial action or the adopted model is not sustainable? Can it be that the integrated SSIF at these projects are hardly capacitated on the needed supports, agricultural technologies, or trends to improve their productivity?

This study, therefore investigated the Etunda GSIP in the Omusati region particularly the factors affecting the project's entrepreneurial action. The key aim of this paper is to provide a framework for agripreneurship action indicators for the Namibian GSIP. The indicators used in this paper are hypothesized to have an impact on the overall development and performance of the GSIP. Additionally, this paper adds to the existing body of knowledge particularly around agricultural entrepreneurship in Namibia, for example, it gives a new comprehensive perspective on the elements affecting the entrepreneurship action of SSIF at the GSIP. This paper may also aid as a useful parameter for upcoming agricultural entrepreneurs who plan to venture into GSIP in the future. The rest of this paper is organised as follows, Section 2 provides a literature review. Section 3 presents the research method. Section 4 to 6 presents and discuss the findings. Based on the findings, sections 7 and 8 presents the GSIP framework for agripreneurship action indicators, additionally, it converse policy implications of the study as well as the future research directions. Section 9 concludes the paper.

2. Literature Review

This section presents an examination of an already documented phenomenon whereby Section 2.1 presents the overview of entrepreneurship in the Namibian agricultural sector, 2.2 the entrepreneurship process and the factors affecting it, 2.3 analyses the recent empirical literature on factors affecting agricultural entrepreneurship in Namibia and other countries and then section 2.3 concludes.

2.1 Overview of Entrepreneurship in the Namibian Agricultural Sector

According to Hosseinzadeh, Foroushani, and Sadraei (2022), entrepreneurship is defined as the capacity to act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social (Bacigalupo, Kampylis, Punie, and Van, 2016) . It is argued that since entrepreneurship is an action-oriented phenomenon, it is meaningfully affected by the environmental drives of the core actor, the entrepreneur (Jafari-Sadeghi, Kimiagari, and Biancone, 2019).

The Green Scheme policy (2008) which this paper is about, is an entrepreneurial initiative by the Namibian government under the Ministry of Agriculture, Water and Forestry (MAWF) facilitated by the Agricultural Business Development Agency (AgriBusDev) to encourage the development of irrigation-based agronomic production in Namibia (Agribusdev, 2015). The aim of the policy is to increase the contribution of the agricultural sector to the country's gross domestic product (GDP) and to achieve social development of communities located within suitable irrigation areas (Agribusdev, 2015). In spite of that, Studies by Shapi (2017), Mubita (2019), and First Capital Namibia (2020) all interestingly agree that Namibia's agricultural

sector is currently underdeveloped as the sector's production, and contribution to GDP declines and the agricultural imports keep increasing.

The entrepreneurship process is a course of action that involves all functions, activities, and actions associated with identifying and evaluating perceived opportunities and the bringing together of resources necessary for the successful formation of a new firm to pursue and seize the said opportunities (Bygrave, 1997; Cornwall and Naughton, 2003). According to Baron and Henry (2011), entrepreneurs create and operate viable new ventures through a vigorous application of their ideas, skills, knowledge and talents. The authors argue that the entrepreneurship process comprises four stages:

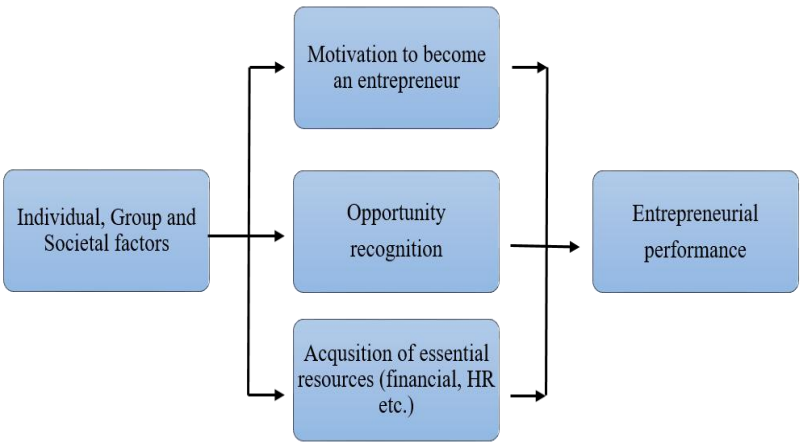
i. Motivation: Understanding the factors that drive individuals towards entrepreneurship.

ii. Opportunity Recognition: Examining the likelihood of individuals recognizing opportunities and the types of opportunities available.

iii. Acquiring Resources: Focusing on the entrepreneur's acquisition of essential resources.

iv. Entrepreneurial Success: Analyzing factors leading to organizational outcomes such as firm performance and survival, as well as founder outcomes like career satisfaction and health.Figure 1 illustrates the process of entrepreneurship action adopted from Baron and Henry's (2011) model.

Figure 1: Basic Model of Entrepreneurship Process



Source: Author's own construct based on the literature reviewed

2.1.1 Individual Characteristics Affecting the Entrepreneurship Process

One of the most prominent theories of work motivation is the expectancy theory, which has been well adopted within the industrial organization (I/O) psychology literature to explain what motivates individuals to engage in certain actions (Vroom, 1964). The expectancy theory proposes that individuals engage in actions to the extent that they believe (expectancy) those actions will lead to outcomes that will be rewarded (instrumentality) and that they must value those outcomes/rewards (valence).

Amongst other, Rauch and Frese (2000) contends that people are motivated to become entrepreneurs because they have a desire for economic wealth. Other research has also shown that an individual's self-efficacy is positively related to the motivation to pursue entrepreneurship (Canedo, Stone, Black, and Lukaszewski, 2013); and that educational level, previous experience, and socioeconomic status (SES) are related to a person's motivation (Rauch and Frese, 2000) . Additionally, various studies found that those with large social

networks gain access to information that cannot be gained in any other way, and such access is positively related to opportunity recognition (Ozgen and Baron, 2007; Shane and Venkataraman, 2000). Accordingly, Table 1 of this paper therefore presents individual characteristics that are capable of affecting the entrepreneurship process of the SSIF at Etunda GSIP.

Table 1: Individual characteristics affecting the entrepreneurship process

1. Motivations
2. Education level
3. Agricultural training
4. Prior relevant experience

2.1.2 Group and Societal Factors Affecting the Entrepreneurship Process

According to Nieman and Nieuwenhuizen (2014) the process of successful entrepreneurship depends not only on what lies within the individual members of the society, but also on the degree of spirit of enterprise which exists in a given environment. In the same context, Stam (2015) argues that the concept of an entrepreneurial ecosystem dictates that entrepreneurship takes place in a community of interdependent actors. Additionally, Isenberg (2010) points out that opportunities are not pursued in isolation of their context, this is supported by Roundy's (2017) claim which refers to the interaction that takes place between various institutional and individual stakeholders to foster entrepreneurship, innovation, and SME growth.

Approaches to assess entrepreneurship ecosystems vary widely and as for this paper, the researcher explicitly adopted the following set of domains that are key to entrepreneurship ecosystems, including those in the agricultural sector. These are listed in Table 2 below.

1. Financial capital

One of the necessary factors for entrepreneurship is the availability of and access to financial capital (Demirdag and Eraydin, 2021). Several authors advise that access to financial capital increases the likelihood of starting a new business (Klapper et al., 2010; De Clercq et al., 2013) and it enables entrepreneurs to develop strategies for discovering and entering new markets (Pena, 2002). According to Demirdag and Eraydin (2021), financial capital includes access to debt, access to venture capital, access to grants, access to angels, banks, microfinance institutions, public capital markets, development finance institutions as well as government finance. Arabi and Abdalla (2020) argue that more developed financial systems allow easier access to finance.

2. Business Support services

Mazzarol (2014) states that entrepreneurial actions need to be facilitated via soft and hard infrastructure such as mentoring and support services, education courses, incubators, co-working spaces, networking forums, and accelerator programs (Arabi and Abdalla, 2020) . Other examples of business services may include industry networks, legal or accounting services, and credit rating agencies.

3. Policy

According to Urban and Dlamini (2020) micro policies are often performed by lower levels in government, whereas macro polices are made at the top of the decision-making levels to improve the business environment. Cited in Arabi and Abdalla (2020), Public policy comprises patterns of action developed and implemented by public officials to achieve particular goals (Edoho, 2016) . To this effect, Levie et al., (2014) reported that the more policymakers

understand what entrepreneurs consider important, the greater the potential for policies to be better aligned with the actions of companies. This paper, therefore, argues that improving the business environment is dependent on the right policymaking and effective implementation thereof.

4. Markets

Access to markets, both domestic and foreign plays a significant role in driving entrepreneurial activities (Kshetri, 2014) . The market hereby includes domestic corporations, international corporations, consumers, distribution networks, retail networks, and other marketing networks. Similarly, Arabi and Abdalla (2020) highlighted a positive relationship between entrepreneurial development, economic growth, prosperity, wealth creation, and the role of markets in driving the process.

5. Human Capital

Demirdag and Eraydin (2021) wrote that human capital is described as a stimulator of entrepreneurial activities and innovation processes. This paper, therefore, argues that human capital is associated with high schools, universities, technical training institutes, and community colleges. Several empirical studies argue that there is a significant association between human capital and the level of entrepreneurial activity (Urban and Dlamini, 2020).

6. Infrastructure

Researchers Kumar and Borbora (2019); Kibler (2013) indicate that metropolitan and urban environments stimulate firm formation by supplying more convenient incubation conditions than rural and less dense areas, as they have more advanced business infrastructures such as a pooled labour market, market proximity and universities and other research centers. This paper therefore argues that infrastructure that supports entrepreneurial action is comprised of electricity providers, transport providers, communications (mobile, internet), and other utility providers (gas, water).

Table 2: Group and Societal factors affecting entrepreneurship process

DIRECT		**PARTIALLY DIRECT**			
Finance	**Support services**	**Policy**	**Markets**	**Human Capital**	**Infrastructure**
Banks	Incubators	National government	Domestic corporation	University	Electricity providers
Venture Capital	Accelerators	State government	International corporation	Technical training institute	Transport providers
Angel investor	Legal services	Local government	Consumers	High schools	Communication (mobile, internet)
Microfinance institution	Accounting services		Distribution networks	Community college	Other utilities (gas, water)
Development finance institution	Technical experts or mentors		Retail networks		
Government	Industry association networks		Marketing networks		

2.2 Empirical Literature on Success Factors for the Entrepreneurship Process in the Agricultural Sector

Adopting an exploratory research design with the purpose of examining the role of entrepreneurship in reducing poverty in agricultural communities of Lower Gweru, Zimbabwe, Dzingirai (2021) conducted in-depth interviews with 20 owners of agribusinesses from various socio-economic backgrounds. The author collected data from the field and analyzed them using thematic analysis. Dzingirai (2021) study's results revealed that entrepreneurship plays a catalytic role in poverty reduction in agricultural communities through food security, skill transfer, employment creation, income generation, and a decrease in food costs. Dzingirai (2021) findings reveal that entrepreneurship plays a catalytic role in reducing poverty in agricultural communities through food security. These results agree with Pawlak and Kołodziejcza (2020) who found that the investment in agricultural production and extension services especially in rural areas is the key driver for improving food access and availability in Poland. Dzingirai (2021) findings are in accordance with the findings of Osabohien et al. (2019) who investigated agricultural development, employment generation, and poverty reduction in Nigeria, and concluded that agriculture provides opportunities for employment of the poor to increase the income to escape the poverty trap.

Using the model of entrepreneurship by Baron and Henry (2011) in understanding and explaining the factors related to the behaviors of Hispanic entrepreneurs, Canedo, Stone, Black, and Lukaszewski (2013) reviewed several pieces of literature on Hispanic entrepreneurs relevant to each stage in the model, and presents testable hypotheses to guide future research on the issue. Among their reviewed literature, Canedo, Stone, Black, and Lukaszewski (2013) study revealed that Hispanics' educational attainment, experience, and skills affect their motivation. In particular, the study indicated that Hispanics with lower educational levels are less likely to be motivated to become entrepreneurs, and are often less successful than those with higher educational levels (Canedo, Stone, Black, and Lukaszewski, 2013).

Adopting a mixed research design to demonstrate the significance and challenges of agricultural development in Namibian Green Scheme Projects, Shapi (2017) administered a structured questionnaire to 135 farmers and interviewed 8 project managers at the eight selected green schemes. The author found that production and access to efficient market challenges emerged as the main stumbling block to the optimal production and sales of small farmers' produce (Shapi, 2017). Additionally, the study also found that farmers at the green scheme projects were obstructed by elements of finance, infrastructure as well as some agricultural or farming supportive resources.

Claiming that to date, there are no empirically verified holistic models focusing on the development of agricultural entrepreneurship in an African context. Bignotti, Antonites, and Kavari (2021) aimed to fill this gap by developing an agricultural entrepreneurial development model (AEDM) that provides a basis for enhancing entrepreneurial performance in the agriculture sector. Firstly, the authors built a holistic conceptual AEDM from the extant literature with a focus on the African context and encompassing dimension of the enabling environment, entrepreneurial performance and its outcomes (Bignotti, Antonites, and Kavari, 2021). Then, they tested the model empirically by conducting a survey with 477 farmers in Namibia who benefit from Namibia's National Resettlement Programme and the Affirmative Action Loan Scheme. This was done statistically using partial least square-structural equation modeling.

Bignotti, Antonites, and Kavari (2021) reveal that a supportive environment (SE), entrepreneurial orientation (EO), and agricultural sustainability all exert a positive impact on entrepreneurial performance (EP) in agriculture, which in turn leads to greater agricultural productivity and increased income for farmers. Their study's results particularly confirmed a

positive and strong relationship between SE and EP, which meant that the supportive environment represented by the regulatory framework, non-financial support, and social capital (networking), is an important component in enhancing entrepreneurial performance in agriculture (Bignotti, Antonites, and Kavari, 2021). The author argues that their findings are in line with the literature on the supportive environment (Carlsson, et al., 2013); (Klyver, Hindle, and Meyer, 2008) which purports that the above factors are necessary for creating an enabling environment for entrepreneurial performance.

Regarding the entrepreneurship cooperative environment (CE), Bignotti, Antonites, and Kavari (2021) study results revealed a non-significant relationship between CE and EP, meaning that the cooperative environment as represented by culture, financial support, education and training, and market conditions does not influence entrepreneurial performance. Interestingly, this outcome contradicts the literature on the cooperative environment (He, 2009; Lans et al., 2014; Morris et al., 2013; Nieman and Nieuwenhuizen, 2014), which advocates the presence of a positive attitude (culture), access to financial resources and the provision of entrepreneurship education and training as important elements for promoting entrepreneurial performance in any setting, including agriculture.

In an African context of investigation, According to Bignotti, Antonites, and Kavari (2021) the literature seems to agree on the positive role played by financial support on agricultural entrepreneurship in Africa (Kanayo, 2021; Nukpezah and Blankson, 2017). However, forms of finance such as unearned or external income (Wale and Chipfupa, 2021) and social grants (Sinyolo et al., 2017) appear to work against agricultural entrepreneurial performance in Africa. Hence, the authors argue that while financial support is crucial for entrepreneurship in the African agriculture sector, a paradigm shift is needed (Wale and Chipfupa, 2021). Finally, while Bignotti, Antonites, and Kavari (2021) findings does not concur with other studies on the positive role played by education and training in improving agricultural entrepreneurial practices in Africa (Adeyanju et al., 2021), this may be arguably due to different pedagogical approaches in entrepreneurship education and training (Nabi et al., 2017).

Examining Nigerian Agripreneurship Development using a Desk Research approach, Otache (2017) explored Agripreneurship development as a strategy for economic growth and development. Though some related literature was reviewed, Otache (2017)'s paper relies heavily on the author's viewpoint regarding how Nigeria can grow and develop its economy through Agripreneurship development. Otache (2017) found that economic challenges that Nigeria faced were blamed on overdependence on the oil sector, bad governance, corruption, leadership failure, policy inconsistency, overdependence on imported goods and ostensible neglect of the agricultural sector. The author claimed that policymakers, economic analysts and the government have advocated strongly for diversification of the economy. According to Otache (2017), there is a consensus among scholars, economic analysts, and policymakers that "agriculture is the answer". This is among the studies that motivated the investigation into the Namibian green scheme project, as it has arguably economic potential ready to be expressed if organised well.

3. Research Methodology

This section presents how, why and what was done to address the paper's objectives.

3.1 Research Design

The study employed a quantitative research approach to produce descriptive statistics on the factors affecting the small-scale farmers when starting up and operating their projects at the Etunda GSIP. Quantitative data was collected using questionnaires.

3.2 Population

The exact current number of farmers registered and operating in Etunda could not be precisely established at the time of conducting this study. However, previous reports and studies (AgriBusDev, 2017) (Shapi, 2017) estimated the total number of farmers operating in the Etunda project to be close to 82 farmers whereby 65 are Small Scale Irrigation farmers (SSIF) and 17 are Medium Sized Irrigation farmers (MSIF). Without concrete data on the contrary, this study therefore concurs with the estimates of the above scholar together with the estimates given by the project managers regarding the number of farmers operating at Etunda green scheme. The assumption held was that there were approximately 75 farmers operating in Etunda, and therefore, the population under study was the 65 SSIF.

3.3 Sampling

A sample of 56 farmers was drawn from the population of 65 SSIF registered and operating in Etunda green scheme project. The sample of 56 was arrived at by using Slovin's Formula of Sampling. The formulas Mathematical illustration used was as follows: $n = N / (1 + Ne^2)$ Where: n = Number of samples, N = Total population and e = Error tolerance (level). The sample size has been calculated at a confidence level of 95 percent, giving a margin of error of 0.05. It is for this computation that Slovin's formula was believed to be effective as per the desired degree of accuracy. This study used the probability sampling method in the form of simple random sampling.

3.4 Data Collection Instrument

The primary research tool used for data collection for this paper was a structured questionnaire. Supported by researchers (Urban and Dlamini, 2020) ; (Arabi and Abdalla, 2020) Policy environment as an enabler was measured by 6 elements, Finance as a key resource that increase the likelihood of starting a new business was measured by 4 elements (Demirdag and Eraydin, 2021) ; (Arabi and Abdalla, 2020) ; (Abubakar, 2015) and business support services was measured by 5 elements (Mazzarol, 2014); (Arabi and Abdalla, 2020) (Brown , Mawsonb, Lee, and Petersona, 2019). A total of 4 elements measured the construct of Market environment (Abubakar, 2015) ; (Arabi and Abdalla, 2020) ; (Kshetri, 2014) . Infrastructure was measured by 6 elements all supported by scholars (Kibler, 2013) (Kumar and Borbora, 2019) ; (Verheul, Wennekers, Audretsch, and Thurik, 2002). As a stimulator of entrepreneurial activities, Human Capital was measured by 4 elements (Demirdag and Eraydin, 2021) ; (Dvoulety and Mares, 2016) (Urban and Dlamini, 2020). Finally, a total of 8 elements measured the General business environment (Ding and Abetti, 2003); (Demirdag and Eraydin, 2021) (Arabi and Abdalla, 2020).

3.5 Validity and Reliability of the Instruments

The research instrument was aligned with the objectives of the study and were given to experts in the field to validate them. In the same vein, a pilot study was conducted to test the reliability of research instruments. The philosophy that supported the preliminary test of collecting data was to determine the practicability of the method intended to be used by the researcher in the main study (Taherdoos, 2020). The preliminary collection of data determined the reliability of the research tools since it permitted modification and correction of difficulties or concerns that were encountered while the data collection was in progress (Li, 2016). Therefore, in order to ensure that the data that assembled would be truthful, the study employed a close-ended questionnaire method of collecting data which gave assurance of reliability, credibility and honesty.

3.6 Administration of the Questionnaire

The content of the questionnaire was carefully explained and reviewed with the respondents and all queries were dealt with before handing it out for the actual survey. The research began with a background information of the visit to the respondent’s location or field, presenting the research cover letter to evidently support the aim of the visit and strongly explained to all the

respondents that the study aimed to examine elements affecting their operation at the Etunda green scheme project. The questionnaires were self-administered by the researcher. This was done in order to clarify where respondents felt it was necessary. The researcher highlighted to each respondent any ethical issues, such as their rights, privacy and confidentiality of information during the data collection process. After questionnaires were administered, they were collected for analysis. Out of the 56 questionnaires that were administered, only 42 were successfully retrieved.

3.7 Data Analysis

The data collected was cleaned, coded and edited for errors, mistakes, uniformity and completeness. Microsoft Office Excel software version 2019 was used to generate descriptive statistics. Quantitative data collected was presented in tables and graphs using Microsoft Office Word and Excel 2019 computer applications. Descriptive statistics were used to interpret the data and compare the responses of respondents regarding individual and commercial elements affecting their operation at the project. Concerning hypothesis development and testing, this study used the Aspen Network of Development Entrepreneurs (ANDE) framework indicators as a guiding source, which is tailored and modified to fit the Namibian context. In the end, all the information collected was summarized and synthesized to obtain the overall results of the study.

4. Data Analysis and Interpretation

This section organised into three sections namely the Response rate, demographical data of the respondents as well as commercial factors affecting the entrepreneurial action of the SSIF.

4.1 Response Rate

	Distributed	Retrieved	Not Retrieved
Questionnaires	56	42	14
Percentages	**100%**	**75%**	**25%**

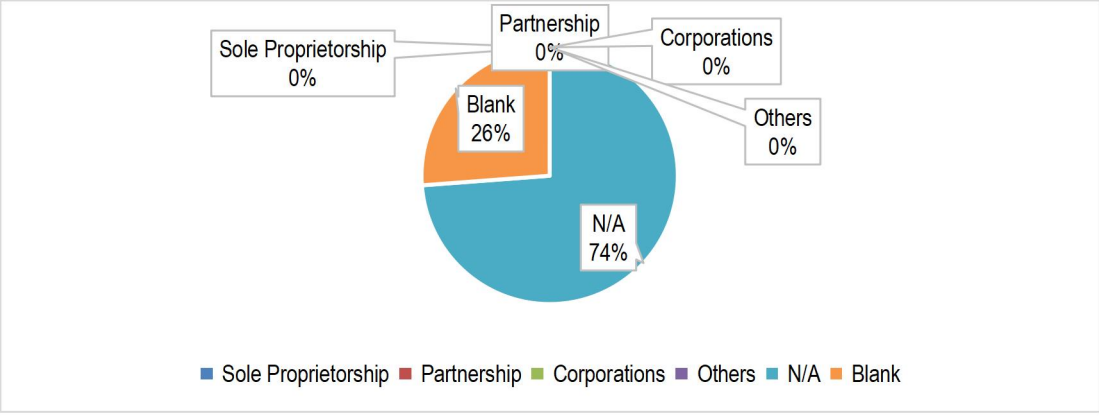
Table 1: Response rate Source: Survey results (2021)

4.2 Demographical Data of the Respondents

4.2.1 Legal Ownership Classification Status

First and foremost, the respondents were asked to indicate the form of legal entity of which they have registered their project. According to figure 1 none of the project were registered as a legal entity.

Figure 1: Legal Ownership Status

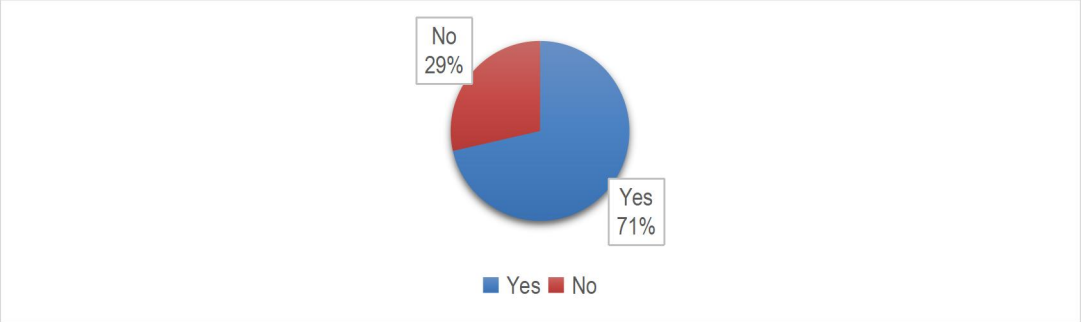


Source: Survey Results (2021)

4.2.2 Agricultural Training Skills of the Research Participants

Figure 2 presents that majority (71%) of the respondents confirmed to have received agricultural training.

Figure 2: Agricultural Training Skills



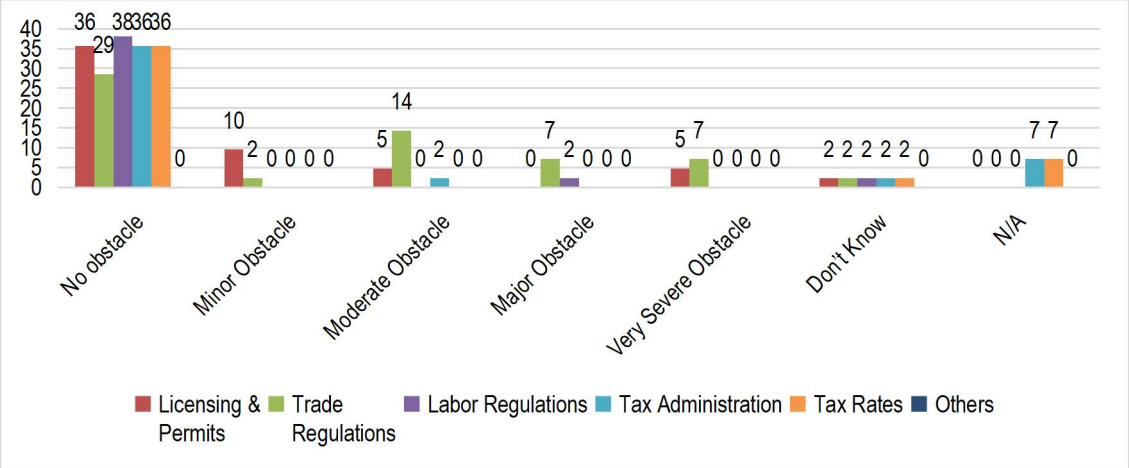
Source: Survey Results (2021)

4.3 Commercial Elements Affecting SSIF's Entrepreneurial Action

This section presents the statistical data about the respondent's perception concerning their entrepreneurial action. The paper focuses on key indicator such as policy environment, finance, business support services, market environment, infrastructure, human capital and other general elements that are arguably able to potentially distress the SSIF entrepreneurial action.

4.3.1 Elements of the Policy Environment

Figure 3: Elements of Policy Environment

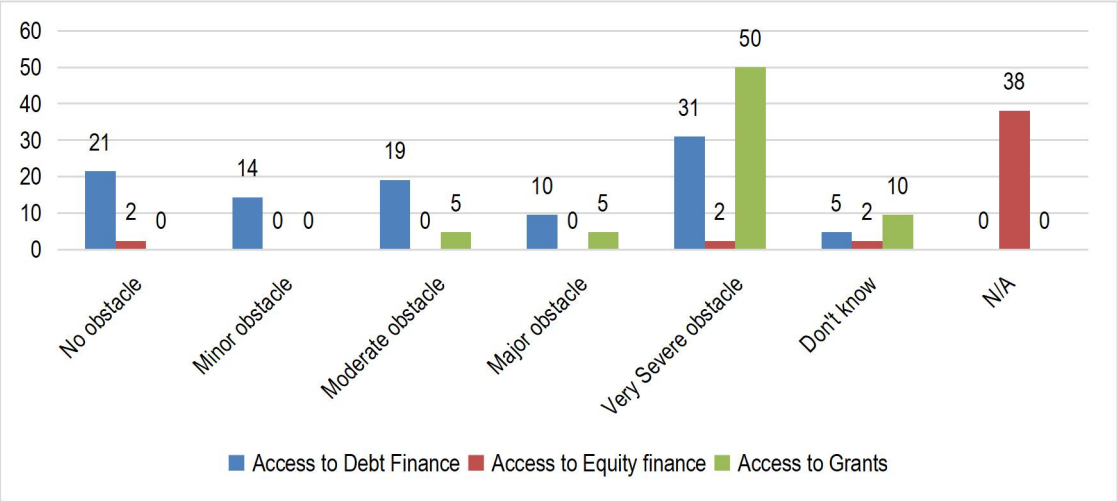


Source: Survey Results (2021)

The respondents were asked that to what extent the element of policy environment obstructed their project operations. Majority of the respondent indicated that they do not experience any obstacle around the Business licensing, trade regulations, labour regulations, tax administration as well as tax rates.

4.3.2 Elements of Finance

Figure 4: Elements of Finance

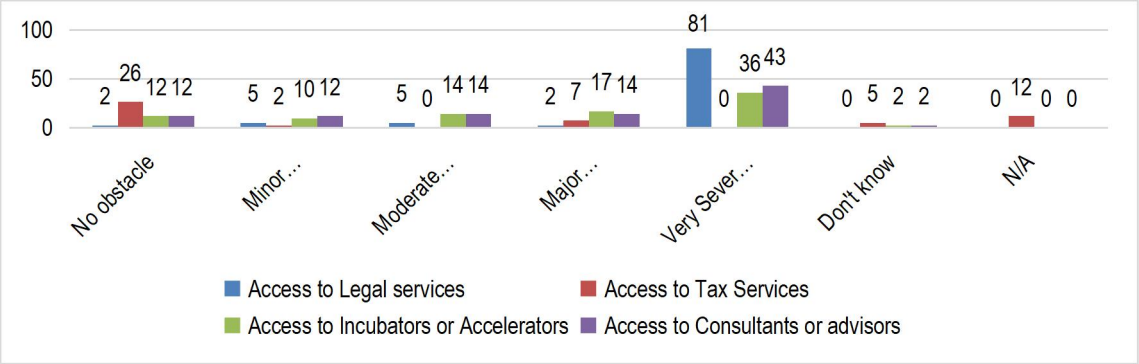


Source: Survey Results (2021)

In the very next query, the respondents were also asked that to what extent the element of finance obstructed their project operations. According to figure 3, Majority of respondents (31%) regard access to debt financing as a very severe obstacle to their project operations. Furthermore, concerning access to grants, majority (50%) of respondents regard it as a very severe obstacle.

4.3.3 Elements of Business Support Services

Figure 5: Elements of Business Support Services

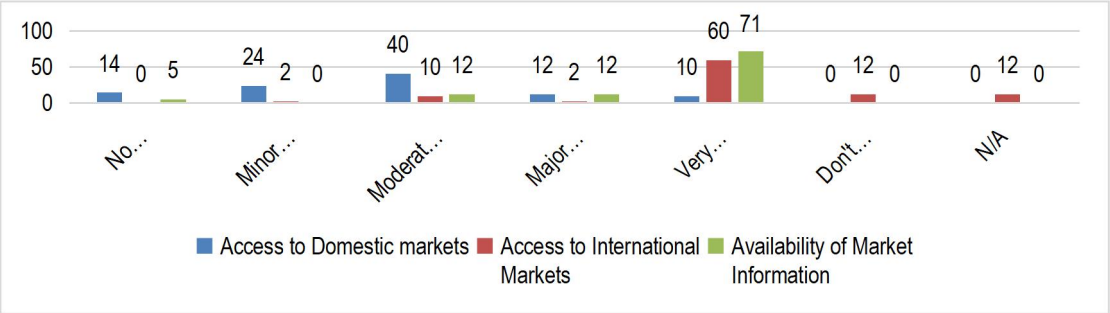


Source: Survey Results (2021)

Figure 5 presents respondents perspectives of the extent to which business support services obstructed their operation. The majority (36%) of respondents indicated that access to legal services presents a very severe obstacle towards their operation. Regarding access to incubators/accelerators, the majority also (36%) indicated very severe obstacle and concerning access to consultants/advisors 43% of the respondent also thought of it as a very severe obstacle.

4.3.4 Elements of the Market Environment

Figure 6: Elements of the Market Environment

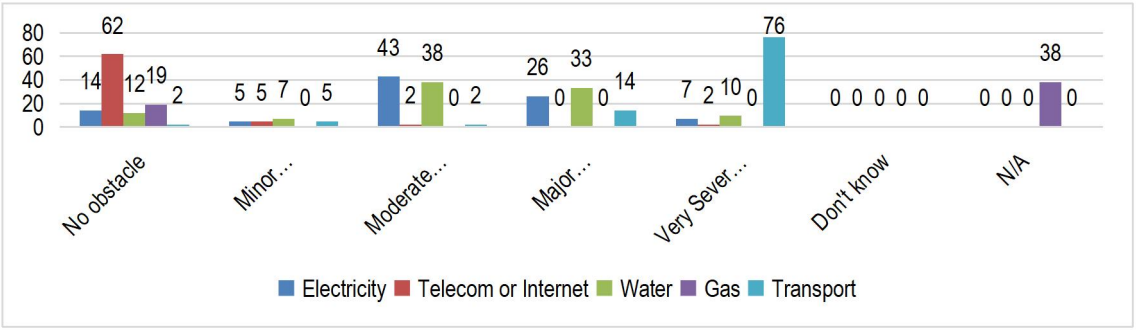


Source: Survey Results (2021)

Figure 6 summarizes that the majority (40%) of the respondents showed that they find accessing domestic markets a moderate obstacle. As for accessing international markets, 60% of the respondents indicated very severe obstacle. Figure 6 also presents that majority (71%) of the respondents regard availability of market information as a very severe obstacle.

4.3.5 Elements of Infrastructure

Figure 7: Elements of Infrastructure



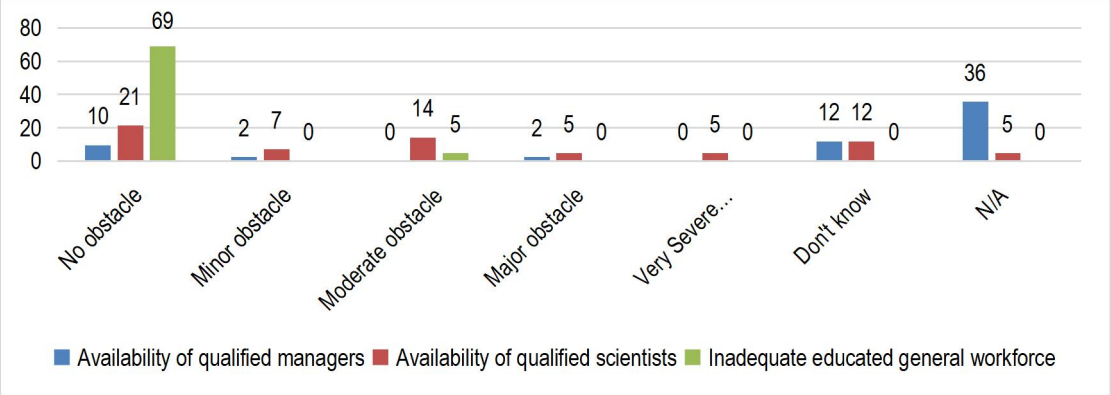
Source: Survey Results (2021)

In the next question, the respondents were also asked that to what extent the element of infrastructure obstructed their project operations. According to Figure 7, majority (62%) of the respondents indicated that they do not regards telecom or internet as an obstacle. However, majority (43%) indicated that electricity presents a moderate obstacle for them. Last but not least, approximately 76% (majority) of the respondents indicated that transport presents a very severe obstacle.

Figure 8 summarizes that the majority (69%) of respondents indicate that they do not experience any obstacle when looking for educated general workforce. On the other hand, 36% indicated that availability of qualified manager is not applicable to their project operation, so is 5% of the respondents in regards to availability of qualified scientist.

4.3.6 Elements of Human Capital

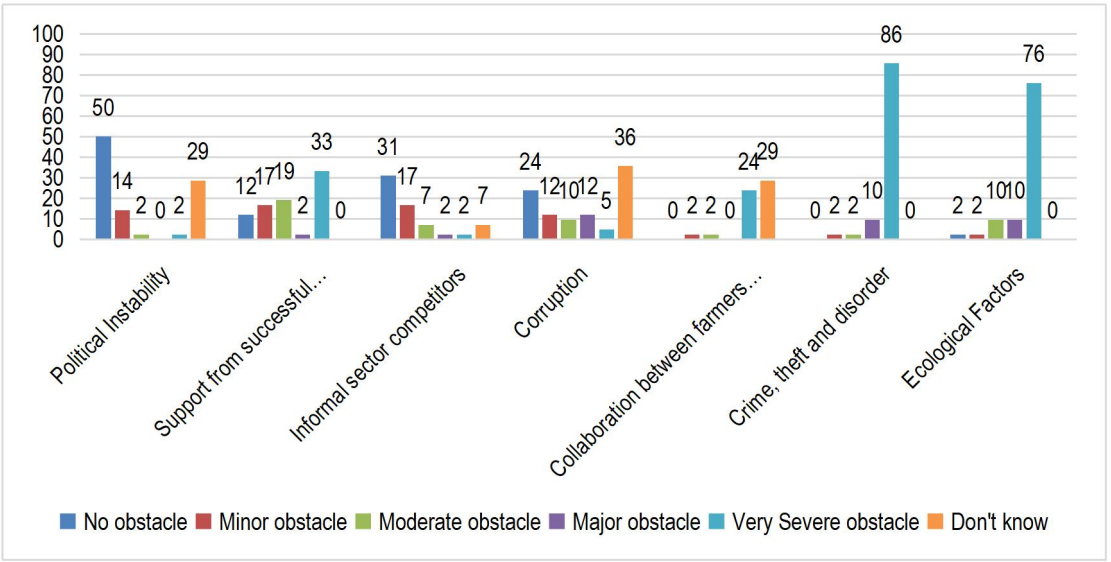
Figure 8: Elements of Human Capital



Source: Survey Results (2021)

4.3.7 Elements of the General Business Environment

Figure 9: Elements of General Business Environment



Source: Survey Results (2021)

In the next question the respondents were also asked that to what extent the element of general business environment obstructed their project operations. According to figure 9 crime, theft and disorder negatively affected the majority (86%) of the respondents as they indicated it as a very severe obstacle to their operations. The figure also presents ecological factors as one of the elements of the general business environment, whereby majority (76%) see it as a very severe obstacle. As for Political instability and corruption, majority of respondents (50%) indicated that they are not obstructed by it.

4.4 Interpretation

This paper's discussion is presented under the heading, the agricultural entrepreneurship indicators towards SSIF's entrepreneurial action with each key entrepreneurship indicator presented as a subheading.

4.4.1 The Agricultural Entrepreneurship Indicators Towards SSIF Entrepreneurial Action at Etunda Farm.

Table 2: Limiting Elements affecting SSIF Operation at Etunda GSIP

Limiting factors at Etunda GSIP	
Legal ownership status	Registration of a trading entity
Elements of the policy environment	Customs and trade regulations
Elements of Finance	Access to debt finance Access to equity finance Access to grants
Element of Business Support services:	Access to legal services Access to incubators/accelerators Access to consultants/advisor
Element of Market environment	Access to domestic markets Access to international Markets Availability of market information
Elements of infrastructures	Electricity Water Transport
Elements of the general business environment	Level of support from successful businesspeople in the region Research/development collaboration between businesses and university researchers Crime, theft and disorder Ecological factors (Pest, temperature)

Source: Survey Results (2021)

1.Elements of Policy Environment

The findings from this paper revealed that an average farmer operating at Etunda GSIP is not operating as a registered legal entity. This indicate that the SSIF do not trade directly as legal business entities and it is therefore the argument of this paper that this is nurturing trade limitations for the SSIF operating at the Etunda GSIP. Davari, Zehtabi, Negati and Zehtabi (2012) argues that a registered entities are more acceptable for business agreements and that only registered entities are able to engage in activities or deals such as the opening of commercial bank accounts, entering into trade contracts or even becoming liable under their own names and not necessarily that of their owner. Bignotti, Antonites and Kavari (2021) wrote that regulatory framework is an important component in enhancing entrepreneurial performance in agriculture.

2. Elements of Finance

This paper shows that majority of the SSIF looked at accessing debt financing as a very severe obstacles, with some of the respondents commenting that it is not necessarily that they do not have access but rather the method of debt given to them by the government. This

paper found that the funding given to the SSIF from the government is not in the form of cash money but rather in the form of a voucher which according to the result of the study is sometimes limiting in terms of acquiring of other needed resources. It seems that the voucher was used to enforce the correct use of the funds by the SSIF together with the issue of their non-registration status, however the fact that the result shows that the trading partners where the voucher could only be used did not arguably always have the needed or necessary resources (such as fertilizer or pesticides), this somehow presented a challenge for the SSIF, resulting in either losing their harvests, thereby affecting their income and consequently unable to make loan repayments. The study also showed that the majority of the respondents indicated that access to equity financing was not applicable. This also meant that the SSIF at Etunda GSIP do not have the option of selling equity in their project and raise extra funds in order to expand or improve their project's operation.

3. Elements of Business Support Services

The study also found that majority of the respondents were severely obstructed by access to legal service, access to incubators/accelerators as well as access to consultants or advisor as they operated at the Etunda GSIP. To the researcher, this sadly meant that whenever these farmers experienced obstructions, for example in a form of theft, they seem to not necessarily have a reliable representative in place. As for the other two elements, access to incubators/accelerators and access to consultants/advisor, the study's results shows that SSIF do not necessarily have a reliable direct representative concerning business supporting services that could benefit them with the technicalities they experience when running their projects at Etunda GSIP. This seems to not agree with researcher that new ventures in virtually every industry require legal, accounting, banking, insurance and information technology services to function successfully (Isenberg, 2010) . Ideally, an entrepreneurship ecosystem should contain professionals of these varieties that are adept at working with entrepreneurs in this case the SSIF and are willing to tailor their services and even their compensation structure, to suit early-stage undertakings (Isenberg, 2010) (Arabi and Abdalla, 2020).

4. Elements of the Market Environment

According to Urban and Dlamini (2020) access to a market is a key driver of entrepreneurship growth as it can increase competition, lower prices and maintain pressure on suppliers and producers and keep them innovative and efficient (Herrington, Kew, and Mwanga, 2017) . Findings from this paper revealed that the majority of SSIF are currently experiencing severe, major and moderate obstacles concerning access to domestic markets, access to international markets as well as availability of market information. The literature shows that one of the critical impediments to the growth of an enterprise is access to markets (Urban and Hwindingwi, 2017). In this regard, the Namibian government has a role to play in ensuring that agricultural entrepreneurs are able to access markets through addressing market inadequacies and providing a favourable space for farmers to compete in the marketplace (Urban, 2015).

5. Elements of Infrastructure

This study revealed that electricity, water and transport are among the obstacles or challenges majority of SSIF are currently worried about. Roundy (2017) wrote that successful ecosystems are built on a foundation of several layers of infrastructure (Isenberg, 2010) . In order for entrepreneurs to engage in the activities required to create and scale new ventures, they are dependent on the physical components of their surrounding such as the transportation infrastructure, stock of affordable housing and available office space (Roundy, 2017) . A thriving entrepreneurial ecosystem is also dependent on sufficient technological infrastructure, such as telecommunications technologies and high-speed internet access (Roundy, 2017).

6.Elements of the General Business Environment

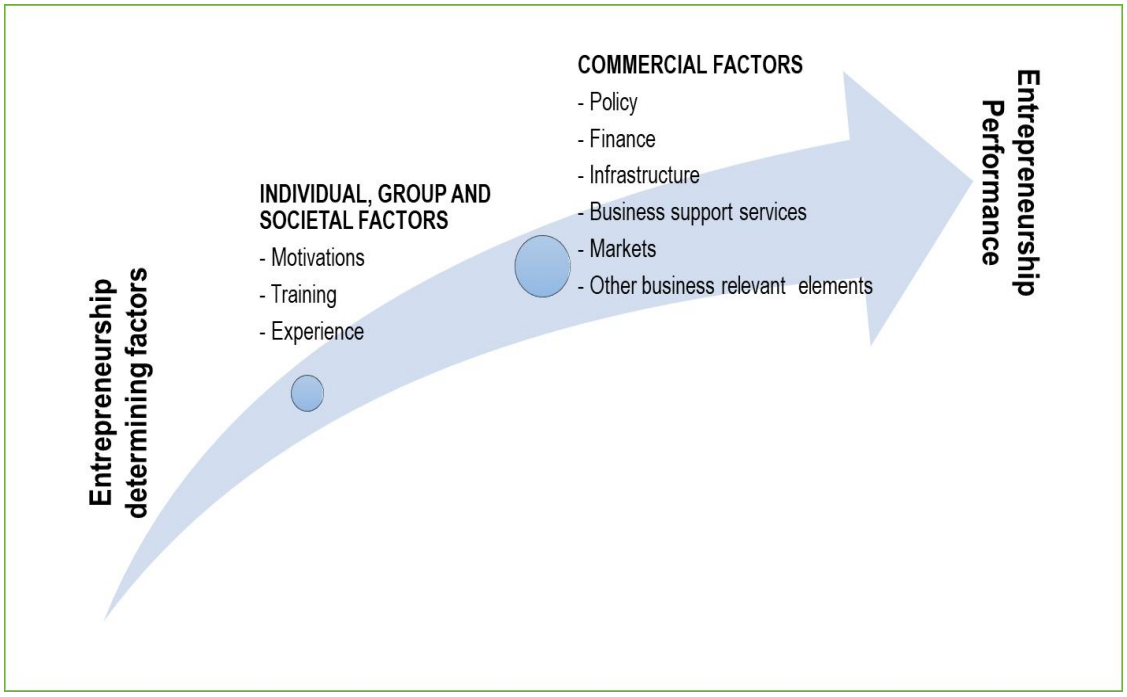
This paper findings indicates that the level of support, collaboration between the SSIF, local businesspeople and university researchers, crime and ecological factors are among the limiting factors affecting SSIF operations at Etunda. This paper therefore agree with the researcher Roundy (2017) that there is a need for collaboration between individuals (e.g., entrepreneurs, investors, researchers) and organisations (universities, support agencies, government, and large corporations) (Neck, Mayer, Cohen, and Corbett, 2004) . Table 2 below presents a summary of the findings of the limiting factors currently affecting SSIF entrepreneurship action at Etunda GSIP.

5. Conclusion and Recommendations

Through assessing the elements of GSIP entrepreneurial ecosystems, this paper sought to develop a GSIP framework for agricultural entrepreneurship action indicators in Namibian. The final empirically tested conceptual GSIP framework for agricultural entrepreneurship indicators is therefore depicted in figure 10 below. In developing the framework, the paper also identified several theoretical perspectives and phenomena related to each determining factor. These are listed in Table 3 below.

In the Namibian agricultural sector, the GSIP can be regarded not only as one of the best agricultural-entrepreneurship ideas by the government but could also be potentially viewed as one of the effective ways of reducing the poverty rate, which currently stands at 43.3% (Namibia Statistic Agency, 2021). This study's findings highlight a significant entrepreneurship performance development dimension to institutions engaged in the entrepreneurial development of agricultural activities. In particular, the framework emphasises the importance of collaboration (e.g., between farmers, Universities and local businesspeople as per this study) and at the same time ensuring that certain enabling-environment conditions (e.g., availability of market information and access to market) are in place as they collectively foster favourable entrepreneurial performance.

Figure 10: GSIP Framework for Entrepreneurship Action Indicators



Source: Survey Results (2021)

Table 3: Theoretical phenomena related to entrepreneurship determining factors

ENTREPRENEURSHIP DETERMINING FACTORS	THEORETICAL PERSPECTIVES AND PHENOMENA
INDIVIDUAL, GROUP AND SOCIETAL FACTORS	**Motivations** • Financial reward • Freedom • Status etc. **Training** • Knowledge • Skills/expertise **Experience** • Relevant work experience
COMMERCIAL FACTORS	**Policy**: • Licencing **Finance**: • Access to debt • Access to grants • Access to equity funding **Infrastructure**: • Electricity • Water • Telecommunications **Business support services:** • Access to legal services • Access to Incubators/accelerators • Access to advisor/consultants **Markets**: • Availability of market information • Access to domestic markets • Access to international markets **General business environment:** • Collaboration between SSIF and Universities/researchers • Support from local business people

Source: Survey results (2021)

This study was firstly limited to the fact that it broadly focused on agricultural entrepreneurship development holistically, as opposed to studies that may focus on a few or individual aspects of the entire GSIP/agricultural entrepreneurship ecosystem. Other studies with a similar objective may include other development dimensions based on their theoretical lens and context of the investigation. Another limitation is that all the items used in the data collection instrument were self-reporting measures. While this choice was made to collect data that is most applicable to each respondent's specific individual perception, an alternative approach could be to collect more objective data about the project such as from the perspective of the management of the GSIP and that of the commercial farmers operating at the projects. Finally, whilst providing a rather not lengthy description of the sample to ensure the study's replicability and the generalizability of its results to other green scheme projects,

the inability to use probability sampling across the entire population of Namibian green scheme small-scale farmers means that future research should substantiate the results of this study in similar contexts before making practical use of the designed GSIP framework for entrepreneurship performance indicator.

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