

Assessing the performance of public funded school food gardens projects in the Sedibeng District Municipality

ZI Mantenta



orcid.org/0000-0003-3909-0560

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Supervisor: Prof LB Mzini

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Student number: 21907765

DECLARATION

I Zola Innocentia Mantenta, I hereby declare that the research work titled “Assessing the performance of public funded school food gardens in Sedibeng District Municipality” is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

.....

SIGNATURE

Zola Innocentia Mantenta

.....

DATE

DEDICATION

To my late mother Nomathemba Selinah Mantenta (1964-2011).

I dedicate this mini –dissertation to you s'thandwa sam. Thank you for always believing in me even when I did not believe in myself. I pray that you are able to see my accomplishments. I find comfort in knowing that you are still present in my life and believing in me in heaven, I hope I will continue to make you proud. Lala ngoxolo Jola, Mangwanya!!!.

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The GDARD for approving the undertaking of the study. Words of gratitude goes to the Food Security Senior Advisor responsible for the SDM established projects.

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Philippians 1:6 *"being confident of this that he who began a good work in you will carry it on to completion until the day of Christ Jesus".*

ABSTRACT

The context of this study focused on school food gardens and performance assessment. School food gardens forms part of the food security programmes initiated by government towards poverty alleviation. Performance assessment forms part of the performance management function in organisations. This research study was aimed at assessing the performance of public funded school food garden projects to determine their relevance and fulfilment of project objectives in Sedibeng District Municipality (SDM). This study is prompted by the poor performance of some public funded community projects aimed to alleviate poverty and the creation of income earning opportunities. Some established projects are discontinued due to lack of participation.

A qualitative research approach was preferred in this study. A set of questionnaires containing open ended questions were designed and issued to the Food Security Senior Advisors at the Gauteng Department of Agriculture and Rural Development (GDARD) and the six selected schools in the SMD respectively to collect data. Literature review was considered to understand the concepts and a content of the study. The results show that school food gardens play a vital role in enhancing food security and creating income opportunities. The study found performance assessment being essential for the government institutions to assess the impact these projects towards improving the lives of the community. It can be said that developing, implementing and monitoring performance measures is higher in support of school gardens.

KEY WORDS: Community food security projects, School garden projects, Project performance assessment, Food gardening, Public funded projects, Sedibeng District Municipality

LIST OF ABBREVIATIONS USED IN THIS STUDY

DtiUK	=	Department of Trade and Industry UK
EPWP	=	Expanded Public Works Programme
FAO	=	Food and Agriculture Organization
FSSA	=	Food Secured Schools in Africa
GDARD	=	Gauteng Department of Agriculture and Rural Development
INS	=	Integrated National Strategy
UNESCO	=	United Nations Educational, Scientific and Cultural Organization
USAID	=	United States Agency for International Development
SMART	=	Specific, Measurable, Achievable, Relevant, Timely
SDM	=	Sedibeng District Municipality
TRADE	=	Training Resource and Data Exchange

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CHAPTER 1: ORIENTATION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

This research is located within the context of project performance management. The research focuses on the performance of public funded community food security projects. The research is a project performance assessment of the school garden projects established in Sedibeng District Municipality (SDM). The school food garden projects are led by the Gauteng Department of Agriculture and Rural Development (GDARD). The GDARD is responsible for agricultural affairs, environmental protection and nature conservation within Gauteng. The department has also established various projects in Gauteng. The study assesses the performance of public funded school garden projects to determine their relevance and fulfilment of project objectives in the SDM. This study is prompted by the poor performance of public funded community food security projects to fulfil project objectives, such as to alleviate poverty and create income earning opportunities (Mtshisazwe, 2018:5).

Performance assessment of these projects is vital in promoting food security (FAO, 2013). Project funders tend to pose two key questions. Firstly, they might seek to ascertain whether their assets are performing. Secondly, sponsors might also need to find out whether there is value for money on the invested projects (World Bank, 2016). Hence, one of the aims of structured finance is to mitigate risk and improve liquidity (World Bank, 2016). All donor funded projects should be able to meet envisaged objectives, improve food security and increase income earning opportunities among beneficiaries (Mtshisazwe, 2018:5). The section below provides a background and motivation of this study. A brief orientation and background to the study is presented on project performance and food security.

1.2 ORIENTATION AND BACKGROUND

According to Heyse *et al.* (2014:173) project performance assessment is defined as a systematic and objective assessment of an on-going or completed project. On-going assessment is undertaken to determine the relevance and fulfilment of project objectives, impact and sustainability. Project performance assessment provides information that is useful in order to incorporate new lessons learned into decisions and optimise

performance. The framework for assessing project performance also promote accountability and transparency by providing reports and feedback on the progress of the projects through parliament, provincial legislature, municipal councils and the public (NDA, 2013). The roles and responsibilities for managing project performance information is to provide guidance on the management of project performance (Devendra, 2013:20). Government institutions should develop assessment systems to collect, collate, verify and store information so that future lessons can be learnt. Mtshisazwe (2018:5) contends that assessing performance of community food security projects remains a challenge in most institutions in South Africa. Therefore, the challenges associated with the performance of community food security projects cannot be ignored. The most apparent difficulties for the farmers, especially the upcoming ones, is the lack of capacity, skills and failure to practice sustainable agriculture (Mtshisazwe, 2018:6).

The Local Economic Development (LED) unit worked with organisations such as Independent Development Trust (IDT) and Agri South Africa (AGRISA) to source help for capacity building of small scale farmers (Sedibeng, 2018:3). To date the IDT and AGRISA gave technical support to farmers in Lesedi Local Municipality in pest control harvesting, marketing and other related agricultural skills (Sedibeng, 2018:3). On the other hand, financial support and non- financial support remains an on-going challenge for the agriculture sector. The SDM submitted 10 cooperatives to IDT to source help for capacity building, funding and project monitoring (Sedibeng, 2018:3).

According to the Sedibeng District municipality annual plan report, it is evident that the performance of community food security projects is not successful in the three local municipalities (Sedibeng, 2018:12). Hence, it is crucial to assess the performance of school food security projects to ensure success by generating income opportunities and alleviating poverty. Furthermore, the establishment of food security projects is aimed at reducing poverty and creating opportunities for income generation. Assessing the performance of projects is critical in the public sector, helping in determining whether the project can carry on in providing goods and services to the citizens. Project performance assessments include external and internal evaluations (Heyse *et al.*, 2014: 173). Evaluations are used to measure progress towards the achievement of policy objectives, to provide political or financial accountability and for public relations purposes (Devendra, 2013:7).

Devendra (2013:7) states that the performance assessment of food security projects enables managers to keep track of the performance of implemented projects. Performance assessments further ensures that the project objectives are attained to:

- empower the community by means of generating income opportunities and gaining control over food provision. Income opportunities and food security can be achieved through access to markets and infrastructure that supports the sale of produce.
- establish social networks and community development through working with other gardeners and networking with them. Furthermore, the gardens can be sustainable when their performance is being assessed and this will contribute to community development and lastly the community will learn more about their produce and this will enhance their knowledge regarding food gardening.
- ensure purposeful work and food security: Providing food to the family and the community at large is meaningful because one will be providing a necessity for survival to the community and the family.
- reduce social alienation and family disintegration: Social cohesion is vital for social development within communities that are united and have good relationships are likely to progress and improve in socio-economic status (Devendra, 2013:7).

According to Van der Merwe (2011:26) poverty in South Africa results from a complex past and such cannot be comprehended without referring to the influence of race. Given the South African history, it is by no means surprising that inequality plays a role in the studies of poverty in the country. It is mostly as a result of this complex past that most of South African citizen resort to food security projects as a means of providing food and creating income earning opportunities. Department of Social Development (2015:16) defines poverty as a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. Until recently, poverty was understood largely in terms of lack of income. Cohen (Mtshisazwe, 2018:4) maintains that a community food security projects assessment is necessary. Food Security Plan published by the Department of Agriculture and Rural Development (2011:29) in Gauteng aims to reduce the 33.3 % of people living in poverty by half in 2030. This figure reflects a percentage of people who are

experiencing food insecurities. According to the Food Security Plan, food insecurity is caused by structural poverty and inequality. The plan is further hinged on the fact that to improve food security, strategies and policies need to be developed that will assist in rapid economic growth with improved income distribution (Department of Agriculture and Rural Development, 2011:29). This means that policies will be developed to create food security projects that will increase economic growth in households and areas of low economic growth. Moreover, poverty and unemployment are contributing factors to food insecurity, not only in South Africa, but in all affected countries.

According to Cesnuiyte and Meil (2019:113) to be poor meant that one could not afford the cost of providing food or a home, however poverty is about more than a shortfall in income. It is about the denial of opportunities and choices that are widely regarded as essential to lead a long healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and the respect of others. Devendra (2013:7) believes that poor project results impede the incorporation of the technology to enhance scaling up and wider development of sustainable production systems. Moreover, poor performance of projects is an unfortunate waste of funds, resources, time and reflective of poor project formulations. Numerous studies have been conducted in Sedibeng District Municipality, however little effort has been focussed on assessing the performance of public funded school food security projects to alleviate poverty and generate income opportunities. This study will therefore assess the performance of public funded school food security projects in Sedibeng District Municipality and more emphasis will be on food gardens.

1.3 PROBLEM STATEMENT

The study will reaffirm the need to fortify the performance of public funded school food security projects in Sedibeng District Municipality. The problem is that there is very little evidence to suggest that the performance of public funded school food security projects are taken seriously. Neglect or failure to conduct performance assessments on these projects is detrimental to the noble objectives of creating employment opportunities and ensuring food security. If not addressed, this situation will result in the failure of food security projects to yield the desired outcome and to attract the necessary funding. Performance assessments of public funded community food security project helps in efforts to arrest resources wastage while contributing to poverty alleviation and creation

of employment opportunities. This study assessed the performance of public funded school garden projects, focusing on the projects implemented in the SDM as a case study.

1.4 RESEARCH QUESTIONS

The following are research questions of the study:

- What does the concept of project performance measurement and food security entail?
- Who is responsible for assessing project performance?
- Which mechanisms are utilised to assess the performance of school food security projects?
- How often is the performance of school food security projects assessed?
- What is the project performance status of school food gardens in Sedibeng?
- Which remedial actions can be implemented to improve the performance of food security projects?

1.5 RESEARCH OBJECTIVES

The following are the research objectives for the study

- To define and provide a theoretical exposition of the concept of project performance measurement in school food gardens.
- To identify and analyse the role players in the assessments of the performance of public funded school food security projects.
- To establish the mechanism employed to assess school food security projects in Sedibeng District Municipality.
- To assess if the employed measures and indicators yield the desired outcomes.
- To determine the project performance status of school food gardens in Sedibeng.
- To offer remedial actions towards fortifying measures and indicators of assessing the performance of public funded school food security projects.

1.6 RESEARCH METHODS

The study employed an explanatory case study method that is qualitative in nature. By employing case study design the researcher explored things holistically and benefited from studying various views and aspects related to performance and generally acquire greater depth (Flick, 2015:10). The research problem and data required to address the aim of the research is influenced by the research design. Therefore, in the case of this study the case study research design was employed. Furthermore, case study looks at a number of cases with various topics and analyse them, and analyse the exploration of a unique quality (Flick, 2015:113).

1.6.1 Data collection methods/techniques

The researcher used semi-structured questionnaires on a one-on-one situation. A semi-structured questionnaire is a qualitative method of inquiry that combines a predetermined set of questions to explore particular themes or responses further (McIntosh & Morse, 2015:7). Therefore, the researcher self-administered semi-structured questionnaires to food security senior advisers from the Vereeniging satellite office of the GDARD, the school principal and school garden managers. The study utilised a set of questions that assisted the researcher to gather adequate and relevant information to draw a precise conclusion.

1.6.2 Questionnaires

Data was collected by utilising qualitative research methods using both primary and secondary research techniques. Qualitative data consists of open-ended information that the researcher gathers from the interviews by allowing the participants to supply answers in their own words (McIntosh & Morse, 2015: 7). Maxwell (2012:32) adds that structured questionnaires can be used in place of interviews. It is important to supply respondents with standardised instructions on how to complete the questionnaire and to explain what is expected from them.

This research study employed qualitative data collection methods by means of semi-structured questionnaires with open-ended questions (McIntosh & Morse, 2015: 7). These semi-structured questionnaires were conducted with food security senior adviser at

Sedibeng District Municipality regional offices of the GDARD, school principals and school garden managers. The responses from the participants assisted the researcher to better understand and explain how the performance of food security projects is assessed.

1.6.3 Theoretical statement

The following theoretical statement has been formulated for the study:

School Food gardens play a vital role in alleviating poverty and creating income earning opportunities. Hence proper assessment of these projects is necessary to realise their intended goals and objectives.

1.7 SIGNIFICANCE OF THE STUDY

The significance of this study is to contribute data to academic debate expansion and support for both the institution and future students.

This study aims to assess the performance of public funded school food gardens to assist in efforts towards poverty alleviation and the creation of employment opportunities. This study also serves as a tool for identifying effective measures and indicators to improve project performance. This research is limited to the jurisdiction of the Sedibeng District Municipality and the public funded school food security projects aimed at alleviating poverty and creating income earning opportunities.

1.8 LITERATURE REVIEW

The literature review covers numerous important aspects of the study area. The literature review of the study should reflect the need for the research and the researcher's knowledge about the area of the study. The literature review correlates the study to the general and larger study's focus area, continues dialogue in the literature about the topic while filling gaps and expanding prior studies (Cooper *et al.*, 2018: 6). The review provides a framework for formulating the necessity of the study, as well as a benchmark for comparing the results of a study with other findings. Moreover, literature review should describe, summarise, evaluate and clarify this literature (Cooper *et al.*, 2018:6).

Therefore, the literature for this study involved a systematic analysis of secondary data such as books, journals, internet articles, Sedibeng District municipal legislative framework, relevant agricultural legislative frameworks and reports. Applied findings were consulted to provide information on the performance of public funded school food security projects and assessed whether the performance measures that are put in place are effective and how they contribute in ensuring that poverty is alleviated and opportunities for income generation are created in Sedibeng District Municipality. Previous research undertaken in related fields and other relevant documentation were consulted from the North-West University library and other South African tertiary institutions.

1.9 SAMPLE POPULATION

A population is defined as members of a defined group that we are studying or collecting information on for data driven decision (Etikan, Musa & Alkassim, 2015:2). A part of the population is called a sample. Furthermore, Kabir (2016:202) refer to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specification. As the study is concerned with assessing the performance of public funded school food garden projects in Sedibeng District Municipality, the targeted population comprise of the food security advisers in Vereeniging satellite Office of the GDARD, school food garden projects selected in the three local municipalities of SDM, school principals and the school garden managers of the selected school gardens.

1.9.1 SAMPLE SIZE

According to Kabir (2016:202) sample size refers to a number of items selected from the universe to constitute a sample. An optimum sample is one which fulfils the requirements of efficiency representativeness and reliability. In addition, Etikan, Musa and Alkassim (2015:2) states that some sample error may occur due to in appropriate sample size which can be controlled by increase in sample size for high level of precision. Therefore, for this research study the sample size for the qualitative data were a total of six (6) school food garden projects that were consulted and observed; and food security senior advisers in Vereeniging satellite office of the GDARD; school principal and school garden managers of the selected school food gardens. The food security senior advisers are responsible for provision of extension services, managing and monitoring the school food gardens established in the SDM. The selection was purposive as informed by their sound

knowledge and expertise in project performance management and food security projects. It is necessary to interview the food security senior advisers in order to fully comprehend the processes and mechanisms utilised to assess the performance of public funded school food security projects. Furthermore, school principals and school garden managers are responsible for detecting if school gardens are yielding the desired outcomes.

After the interviews were conducted, qualitative data analysis utilising thematic data analysis was conducted. According Vaismoradi and Snelgrove (2019:3) thematic data analysis is: “Identifying, analysing and reporting patterns (themes) within data. Thematic analysis minimally organises and describes your data into data set rich in detail. However, frequently it goes further than this and interprets various aspects of research topic.” Thematic data analysis is a search for themes that emerge as being important to the description of the phenomenon (Vaismoradi & Snelgrove, 2019:3).

For the purpose of this study thematic analysis fits the research questions related to people’s experiences and perceptions (Anon, 2016). Thematic analysis is conducted through the process of carefully reading the themes to create established, meaningful patterns (Vaismoradi & Snelgrove, 2019:3). For this study, data to be analysed will include raw data collected from the food security senior advisers, school principal and school garden managers of the selected gardens through the semi-structured questionnaires. It is against this background that data will be analysed qualitatively using thematic analysis. The emerging themes, inter-related themes, or perspectives will be the findings or results that will provide answers to the research questions (Vaismorandi, Jones, Turunen & Snelgrove, and 2016:2).

1.10 ETHICAL CONSIDERATIONS

The proposed research project was implemented in accordance with accepted ethical guidelines subsuming anonymity, confidentiality and dignity of participants which were protected. No direct attempts were made to implicate or incriminate any participants. Participants were informed about the purpose and nature of the study before the interview commenced, in addition to the intentions of the researcher with the detailed information (Resnik, 2015:2). The researcher explained every detail of the research clearly when

inviting participants to participate in this research. The participants were informed that their involvement is purely voluntary and if at any point during the process they feel they need to quit they are welcome to do so. All participants were treated with respect and confidentiality when approached to partake in the research. Participants were asked to indicate their willingness to participate voluntarily by signing a written consent form. The purpose of the research and the participant's responsibilities involved were explained to the participants. The GDARD was approached to request permission to carry out the intended interviews and observations in the established school garden projects.

1.11 CHAPTER OUTLINE

The research project will consist of six chapters, summarised as follows:

Chapter 1: Orientation and background of the study.

Chapter 2: Literature Review on Food Security and Project Performance Measurement.

Chapter 3: An overview of food security project assessment.

Chapter 4: Research Methodology.

Chapter 5: Research results and presentations.

Chapter 6: Recommendations and conclusion.

1.12 CHAPTER SUMMARY

This Chapter described the context of the study. The research problem was provided; it is evident that there is very little evidence to suggest that the performance of public funded school food security projects is taken seriously. Neglect or failure to conduct performance assessments on these projects is detrimental to the noble objectives of creating employment and ensuring food security. Therefore, if not addressed, this situation can lead to failure of food security projects to yield the desired outcomes. Performance assessment of public funded school food security projects assists in efforts to arrest resources wastage while contributing to poverty alleviation and creation of job

opportunities. The research problem has been provided and the motivation of the study. Moreover, the intended research approach, design and methods are described, as well as the sample strategy to be employed to achieve representativeness. This chapter also provides an orientation to the provisional chapter layout of the study. The following chapters will provide in depth insight on each of the aspects outlined in this chapter.

CHAPTER 2: LITERATURE REVIEW ON FOOD SECURITY AND PROJECT PERFORMANCE MEASUREMENT

2.1 INTRODUCTION

This chapter presents the literature review and the exploration of the concepts of food security and performance management with regards to performance measurement. The evolution of food security as an operational concept in public policy has led to the wider recognition of the complexities of the technical and policy issues involved. The chapter begins with a brief explanation of food security and its evolution. The definition of food security evolution is discussed in the next section.

2.2 DEFINITION OF FOOD SECURITY AND ITS EVOLUTION

To gain a clear understating of the concept of food security and its evolution, the discussion is centred on several relevant titles: food security, official concepts of food security, food insecurity, and dimensions of food security. Food security is defined in the next section.

2.2.1 FOOD SECURITY

Food security is a contested concept (Sukhwani *et al.*, 2019:3) with different definitions. Food security is a broad term which is defined in different ways by a number of organisations around the world (Du Toit, Ramonyai & Ntushelo, 2011:2). Food security is a flexible concept. The food security concept is an operational concept, and a tool to address lack of food security. Food security is complex and interdisciplinary (Mtshisazwe, 2018:12). There are many definitions, the main one being from World Food Summit (World Food Summit (WFS), 2013). The formal definition as approved at the summit espoused that food security “exists when all people, at all times have physical, (social) and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life” (WHO, 2018).

The basic definition of food security is that it refers to the ability of individuals to obtain sufficient food on a day-to-day basis. Internationally food security is defined as the ability of people to secure adequate food (Du Toit, Ramonyai, & Ntushelo, 2011:2).

2.2.2 Official concepts of food security

Food security as a concept originated only in the mid-1970s, in the discussions of international food problems at a time of global food crisis (WHO, 2018). Issues on global aspects of food security led to various negotiations, meetings and holding of conferences. The initial focus of attention was primarily on food supply problems (FAO, 2013). A food supply focus concentrated in assuring that there is availability and price stability for consumption of basic foodstuffs at the international and national level (Mtshisazwe, 2018:5).

In 1974, the World Food Conference of 1974 was held. The World Food Conference of 1974 developed a new set of institutional arrangements covering information, resources for promoting food security and forums for dialogue on policy issues (Overseas Development Institute, 2013). The initial focus, reflecting the global concerns of 1974, was on the volume and stability of food supplies (United Nations, 2013). Food security was defined by the 1974 World Food Summit as: “availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices” (Mtshisazwe, 2018:5).

The Food and Agriculture Organization (FAO) expanded the concept in 1983. The expanded concept included the “securing access by vulnerable people to available supplies” (Food and Agriculture Organization (FAO), 2013). The concentration on this expansion aimed to ensure that all people at all times had access to enough food for an active, healthy life. This entailed that there must be a balance between the demand and supply side of the food security equation, in order to ensure that all people at all times have both physical and economic access to the basic food that they need (FAO, 2013). In less than three years during 1986, the World Bank presented its report titled “Poverty and Hunger” (World Bank, 2018). The World Bank report focused on the temporary dynamics of food insecurity (World Bank, 2018). The report introduced the widely accepted distinction between “chronic food insecurity and transitory food insecurity” (World Bank, 2018). In the mid-1990s the concept was recognized as a significant concern, spanning a spectrum from the individual to the global level.

Literature by Anderson (1990) cited in Zhou *et al.* (2019:201) distinguished between food security at national and household level. Food security at national level refers to the

condition whereby the nation is able to manufacture, import, retain and sustain food needed to support its population with minimum per capita nutritional standards (Du Toit, Ramonyai, & Ntushelo, 2011:3). At community level food security is defined as the condition whereby the residents in a community can obtain safe, culturally accepted, nutritionally adequate diets through a sustainable system that maximises community self-reliance (Schindler *et al.*, 2017:1287). At household level food security refers to the availability of food in one's home which one has access to. In this case, a household is regarded as food secure when the members of the family do not live in hunger or fear of starvation (Du Toit, Ramonyai, & Ntushelo, 2011:3). Elements of human security were also introduced by the UNDP (UNDP, 2011). This was because the concept is closely related to the human rights perspective on development that has, in turn, influenced discussions about food security (Ayala & Meier, 2017: 44).

The World Food Summit was held in 1996. The 1996 World Food Summit outlined that food security exist at the individual, household, national, regional and global levels (FAO, 2013). Food security on individual level exists when every individual, consistently, has “physical, social and financial access to adequate, safe and nutritious food to meet their dietary needs and sustenance growth to live a healthy and productive lifestyle” (FAO, 2013). There is a clear variation among national and community food security. The variation is that food security at national level is defined as the state whereby the nation is able to make, import and maintain food required to support its citizens with minimum per capita nutritional standards. However, at community level the scenario is different in a sense that food security is defined in a micro perspective whereby the community can access safe, culturally accepted and nutritionally sufficient diet through a sustainable system that maximises community self-reliance. A community is regarded food secure when the community does not live in hunger (Du Toit, 2011:13). Community food security is a “condition in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance, social justice, and democratic decision-making” (Zhou *et al.*, 2019:201).

The concept in its evolution brought new insights which brought new emphasis on consumption and on the entitlements of individuals and households (Mtshisazwe, 2018:6). This was followed by the recognition of “The State of Food Insecurity 2001” (FAO, 2013). The recognition meant that “Food security [is] a situation that exists when

all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2013). The 1996 WFS exemplified this direction of policy by making the primary objective of international action on food security of halving the number of hungry or undernourished people by 2015. It can be concluded that food security as an umbrella term includes:

- (i) the availability of food that is nutritious and safe;
- (ii) an assured ability to procure and acquire food of good quality in a socially acceptable way” (Labadarios *et al*, 2011:891).

Available resources allow people to meet their dietary needs and food preferences for an active and healthy life (WHO, 2018). It is interesting to recognise that poverty cannot be reduced and health and nutrition cannot be improved without ensuring access to physical, social, economic and safe food for all. Unsafe food can harm the food security and livelihoods of the poor. Furthermore, food security is a condition where people are certain of where their next meal will come from. The following section briefly explains the concept food insecurity.

2.3 FOOD INSECURITY

Food security is the capacity to attain the vital nutritional food on a daily basis. Food insecurity is “a condition that occurs when individuals lack secure access to adequate amount of safe and nutritious food for acceptable growth and active and healthy life” Napoli (2011:9). Food insecurity can be associated to impoverishment and both are because of lack of employment and the nature of the economy. Food insecurity becomes evident when individuals are unemployed and therefore struggle to make means meet for survival, which leads to poverty and worsens their standard of living, in a sense upsetting the economy badly and propelling to other social segregation issues (Devendra, 2013:21).

The most vital challenge that is facing South Africa is food insecurity, this challenge has been worsened by the apartheid regime and it affected mostly black, women, men and children. For instance, during the apartheid regime non- whites were confronted with racial discrimination, thus they experienced inequality in numerous ways. In 1951 the

apartheid government created Bantu homelands and this led to further inequalities with regards to access to land and other resources creating household food insecurity, particularly in the rural areas (Van der Merwe, 2011: 26). The Constitution of South Africa is clear in its emphasis of the fact that food security is a basic human right. The Constitution states that everyone has the right to access food. This view is supported by Jones, Ngure, Pelto and Young (2013:481) who stated that “everyone has the right to a standard of living adequate for their health and wellbeing”. People can access food by means of manufacturing their own food or by purchasing it. The manufacturing and purchase of food need to happen without discriminating anybody.

Most African countries are susceptible to food insecurity. Food insecurity is the result of poverty, poor health of the household member or members, and suboptimal livelihood and household management strategies (Van der Merwe, 2011: 26). Food security has been the priority of the South African government for more than a decade. The country was devoted to reducing the number of people experiencing poverty by 50% by 2014 in line with the international drive on food security. However, the government failed in attaining this goal although it has introduced policies and strategies to combat food insecurity. It is vital for every individual to have access to food and school gardens are an attempt by the government to ensure that everyone has access to food, as outlined by the Constitution of South Africa. Because of the central role that food security plays in human development, it is recognized as a universal human right that is currently unmet for billions of individuals globally (Pérez-Escamilla, 2017:1).

Food insecurity negatively affects human physical, social, emotional, and cognitive development throughout the life course and is a major social and environmental disruptor with serious repercussions for planetary health (i.e., the health of human civilization and the state of the natural systems on which it depends) (Pérez-Escamilla, 2017:1). Two types of food insecurity were identified in the literature review and is presented and summarised in Table 2.2.

Thus, countries confronted with the social issue of food insecurity have introduced policies, strategies and projects that are intended to recognise, comprehend and combat it. Many scholars and researchers have recognised the importance of exploring food insecurity due to its implications on the livelihood of people of developing countries,

including South Africa. The veracity and efficiency of policies, strategies and projects aimed at combating food insecurity have been adversely affected by a failure of governments to assess their performance (National Research Council, 2016). The next chapter explains the dimensions of food security.

Table 2.1 Types of food insecurity

Actions	Chronic food insecurity	Transitory food insecurity
Is...	Long-term or persistent.	Short-term and temporary.
Occurs when...	People are unable to meet their minimum food requirements over a sustained period of time.	There is a sudden drop in the ability to produce or access enough food to maintain a good nutritional status.
Results from...	Extended periods of poverty, lack of assets and inadequate access to productive or financial resources.	Short-term shocks and fluctuations in food availability and food access, including year-to-year variations in domestic food production, food prices and household incomes.
Can be overcome with...	Typical long term development measures also used to address poverty, such as education or access to productive resources, such as credit. They may also need more direct access to food to enable them to raise their productive capacity.	Transitory food insecurity is relatively unpredictable and can emerge suddenly. This makes planning and programming more difficult and requires different capacities and types of intervention, including early warning capacity and safety net programmes

Source: FAO, 2014

2.4 THE DIMENSIONS OF FOOD SECURITY

It can be deduced from the discussion that the definition of food security is based on four important pillars. Four elements build the framework of food and nutrition security: availability, access, use and utilization, and stability (WHO, 2018). Food security is related to all the United Nations Sustainable Development Goals (SDGs). Improved food security governance is based on sound, equitable, and sustainable food systems that benefit from modern information and sustainable and equitable agricultural technologies is essential for countries to meet the SDGs (Pérez-Escamilla, 2017:1). Table 2.2 provides a summary of the dimensions of food security.

Table 2.2 Dimensions of food security

Dimension	Description
Physical AVAILABILITY of food	Food availability addresses the “supply side” of food security and is determined by the level of food production, stock levels and net trade.
Economic and physical ACCESS to food	An adequate supply of food at the national or international level does not in itself guarantee household level food security. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives.
Food UTILIZATION	Utilization is commonly understood as the way the body makes the most of various nutrients in the food. Sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals.
STABILITY of the other three dimensions over time	Even if your food intake is adequate today, you are still considered to be food insecure if you have inadequate access to food on a periodic basis, risking a deterioration of your nutritional status. Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on your food security status.

Source: FAO, 2014.

All of these dimensions must be fulfilled simultaneously in order to realise food security objectives. The respective dimensions are briefly described.

2.4.1 Availability

As explained above, food security exists when all people at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences, for an active and healthy life (Ashby *et al.*, 2016:2887). Ashby, *et al.* (2016:2887) explains the concept of availability as the amount of food that is physically present in a country or area through all forms of domestic production commercial imports, including informal cross-border trade and food has to be found there. Food availability in a country, region or local area means that food is physically present

because it has been grown, processed, manufactured, and/or imported (WHO, 2018). For example food can be available because it can be found in markets and shops, it has been produced on local farms or in home gardens and it is available as part of food aid. Food availability refers to all available food in the area which could be fresh or packaged food. Food availability can be affected by disruptions to the food transport and production systems, due to blocked roads, failed crops or changes in import and export tariffs, amongst other factors. Such occurrences can influence the amount of food coming into an area. In addition, food availability is dependent upon seasonal patterns in food production and trading (WHO, 2018). Food availability is measured by using the cereal balance sheet (Ashby, *et al.*, 2016:2887).

2.4.2 Access

The term “access” has been defined in the context of food security as a household’s ability to acquire enough food of sufficient quality and to have all of its members meet their nutritional requirements and lead productive lives (Labadarios, *et al.*, 2011: 891). The right of access to sufficient food is embedded in Section 26 and 27 of the South African Constitutional law of 1996. The Constitution asserts that South African citizens have a right to sufficient food and water; and social security. Ashby *et al.* (2016:2887) identified three elements of access to food namely Physical access, Economic access and Socio-cultural access. Physical access refers to a state where food is available at the location where people can reach without a struggle (Ashby *et al.*, 2016:2887). Households do not necessarily require any means of transport to access food. Households can grow their crops and harvest anytime in respective seasons.

Economic access refers to food that is available where people need it and households have the financial ability to consistently attain enough amounts of food to meet their requirements. Socio-cultural access occurs when food is available and there are no socio-cultural barriers to people consuming it. In light of the above, the Department of Agriculture, Forestry and Fisheries was mandated to develop agricultural policies and support programmes to ensure that South African citizens are given agricultural opportunities that will enable them to meet their basic food needs (Du Toit, Ramonyai, and Ntushelo, 2011:1).

2.4.3 Utilisation

Lawlis *et al.* (2018:182) emphasised that “sufficient food should be available and accessible to people to ensure that people will have a safe and nutritious diet”. Food has to be of good quality and safe, food needs to be used properly. It should not be taken for granted that all people know how to best utilize food commodities. This is even true for displaced persons and refugees. Some training may be required to help optimizing their use of the food that is available and to which they have access. The utilisation dimension thus deal with: quality, nutritive, preparation of food and conservation (Lawlis *et al.*, 2018:182).

2.4.4 Stability

Food security exists when all people, at all time, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and foods preferences for an active and healthy life (Lawlis *et al.*, 2018:182). The conditions described for the three basic dimensions of food security (availability, access and utilization) do not have to occur only at a single moment in time but need to be present at all times and with sustainability. It is against this background that food security can be described incorporating the four dimensions. For a state of food security to be present, all of these components must be attained. These components are perceived as the heart of food security. Food availability is perceived as a condition of physical availability of food, for example if a country or community has enough food available for its people.

2.5 FOOD SECURITY PROJECTS

The sustainability of the project depends on its capacity to generate an income for its beneficiaries (Nesengani, Mudau, & Netshandama, 2016:1). Food security projects are those projects initiated by the government in order to help alleviate poverty (Nesengani, Mudau, & Netshandama, 2016:1). Food security projects have many forms such as food garden, trade related, baking, sewing and dress making and bricklaying. A food garden is a garden that produces vegetables and fruits which are used for human consumption, and they are also referred to as kitchen gardens (Earl, 2011:7). Food gardens comprise

of community food garden, household food garden and school food garden and are explained below.

2.5.1 Community food garden

A community garden is a shared, semi -public space where people in the surrounding neighbourhood share the work, harvest and maintenance can vary greatly from one to the next (Nesengani, Mudau & Netshandama, 2016:113). Mtshisazwe (2018:5) views a community food garden consisting of lots that have been divided into plots for individual use to grow vegetables. Ndobu (2013:314) alluded that one plot can consist of several raised beds whereby neighbours assemble to grow vegetables. A community food garden can be grown in the yard of a house of worship (church) and the harvest is later sold to community members or used for the soup kitchen and food bank. Ownership patterns vary, but these efforts may be opened by municipalities, institutions, community non-profit, land trust or private citizens, some community gardens are considered guerrilla plots (Heyse *et al.*, 2014:222). Participants of the community food gardens do not own the property but they have permission to use such gardens (Ndobu, 2013:314).

Community food gardens have the potential to provide opportunities for communities who do not have land or space to benefit from the food gardens. Community food gardens should be successful so that they form part of the local community food system (Lawlis *et al.*, 2018: 544). Most community food gardens keep production for themselves to supplement their family's diet and income. Some sell their food to put money in their pocket. Other community gardens grow food to donate to local soup kitchens. Community food gardens were found to encourage social cohesion. Gardens can be anywhere from rooftops, in allotments, in parks or unused urban space. These gardens are also acknowledged by policy makers as a vital contributor to economic development, food security and environmental management (Shisanya & Hendricks ,2011:510). However, community gardens need the commitment of leadership, involvement of volunteers and community partners. Moreover, members of the community must participate in order for the garden to perform to its maximum potential (FAO, 2013). Nesengani *et al.* (2016:114) further informs that community food gardens can bring benefits as communities can produce fresh nutritious, diverse fruits and vegetables. Moreover, they can generate income opportunities through the sale of harvested crops. It is the researchers

understanding that community food gardens are vital in ensuring that household are food secure and have stability of food consumption.

2.5.2 Household food gardens

The South African government committed itself to halving poverty between 2004 and 2014. One of the critical components in meeting that objective was household food security (Du Toit, Ramonyai, & Ntushelo, 2011:8). Household food gardens are normally located closest to the house where most fruits and vegetables are grown (Human Science Research Council (HSRC), 2016). Household food gardens are defined as a supplementary food production system which is under the management and control of household members. In addition to food it provides herbs, fuel, medicine, fodder, building material, shade, social or recreational space and beautification. A household garden can be for consumption or market orientated, but at least some of the produce will be consumed by the household (Shisanya & Hendricks, 2011:512). These gardens are functionally secondary and supplementary. Crops are normally grown in small quantities for household consumption. Households may grow crops that will provide a supply of the crop in the off-season (Shisanya & Hendricks, 2011:511).

2.5.3 School food garden

FSSA (2018) defined a school food garden as “any garden where children are taught to grow vegetables while teaching the life history of the plants”. Malberg Dyg and Wistoft (2018: 9) adds that school food garden is “an innovative teaching tool and strategy that lets educators incorporate hands on activities in a diversity of interdisciplinary standards-based lessons”. According to the FAO (2013), an assessment of school gardens programmes over the past thirty years, demonstrated that the functions of school gardens can be categorised as educational and economic with regards to food security.

The garden engages learners in gaining an understanding of ecosystems, to observe, discover, experiment, nurture and learn. It serves as a living laboratory where lessons are drawn from real-life experiences rather than textbook examples allowing student to become active participants in the learning process (Malberg Dyg & Wistoft, 2018: 9). FSSA (2018) further states that, school food gardens are perceived as a training venue for learners and the community as they are taught how to grow, harvest and sell

vegetables. These skills represent potential income generating opportunities for the community and learners once they leave school. In that it alleviates poverty and improves food security. School food gardens also serves as a community-based training space, an inspiration to the surrounding community, an information centre and stress free place of peace and tranquillity. The garden also represents potential examples of the ways to recycle and reuse waste whilst growing healthy, organic vegetables and creating a green and growing place of beauty in the community.

A school is regarded as food secure when the learners of the school and the surrounding community do not live in hunger or fear of starvation (FSSA, 2018). They don't only need a good diet they also need to be taught how to eat well and how to grow their food (FAO, 2012). School gardens are food secure when familiarising school children with methods of sustainable production of food that is applicable to their homestead and important for household food security. When children are familiar with strategies of sustainable production of food they can ensure that their households do not run out of food. In that, their households are always food secure. Furthermore, school gardens are regarded as food secure by promoting income generation opportunities. This is done by means of enabling children and the community to sell the produce and get money in return. This is also perceived to fight unemployment (FSSA, 2018). Thus, the South African government has applied various strategies to address poverty and food insecurity within the country. It has utilised social grants and has established a numerous institutions and programmes emphasizing food security including the National Nutrition Council, the National Nutrition and Social Development Programme (founded in 1990), the Community Based Nutrition Programme, and the Primary School Nutrition Programme (both established in 1994). The Integrated Nutrition Strategy (INS), established in 1994, focused on land reform, agricultural credit provision, infrastructure and comprehensive farmer support as tools to enhance agricultural production (Nesengani *et al.*, 2016: 114).

It is against this background that governments and international development partners are progressively involved in school gardens. They have previously been used for science education, agricultural training and generating income. Nowadays, given the crucial necessity for increased food security, environment protection, more secure livelihoods and good nutrition, perception of the likelihood of school gardens are changing. The belief is that school gardens have the potential to ensure that a nation is healthy and secure.

Therefore, it is necessary for governments to assess the performance of school gardens to ensure they achieve their objectives. School gardens are important for ensuring food availability and diversity. Food availability is defined by Du Toit (2011:12) as the country having enough quantities of food available at both national and household level. In addition, the view is supported in the NDA (2013:3) stating that food availability is the adequate and consistent production and distribution of food. When there is adequate and diverse food people are able to choose and eat what they prefer without the fear of food shortage.

It is interesting that on the three food gardens described above there are vital elements that one can look at to understand the role they play in communities. For example, at the surface school gardens seem to be school orientated but when going into detail it is evident that they can serve the community. School gardens have the potential to serve as a community hub and alleviate household food insecurity. The skills acquired by the students and the community represent potential sustainability and income generating opportunities. Household food gardens are meant for household consumption and income generation opportunities. This is also true for community food gardens. The only difference is the scale each garden serves. For example, household gardens serve household, community serve the community at large and school garden serve the school and community.

2.6 PUBLIC FUNDED PROJECTS

The single most important problem facing the post-apartheid South Africa, as noted in Van der Merwe (2011:4) is breaking the grip of poverty on substantial portion for the majority of its citizens. Therefore, among many other ways, one of the ways to ensure South Africa breaks the grip of poverty is through public funded food security projects. Project funding is defined as “the raising of finance on a limited resource basis, for the purpose of developing a large capital-intensive infrastructure project (Earl, 2011:2). Municipalities are required to set aside a huge amount of money for food security projects as they deal not only with one but a few social issues: poverty reduction, food security and income generation opportunities. Thus, it is worth noting that, the funding of these projects comes from taxation and borrowing amongst other means of raising funds. These funds are then utilized to fund public or government projects (Earl, 2011:2). Substantial

resources are being made available to the local government sphere to provide for poverty relief. Resources are also channelled towards infrastructure delivery and to strengthen the local system through skills development and capacity building (Financial and Fiscal Commission (FFC), 2016:29).

The Constitution of the Republic of South Africa (Section 152 and 153) prescribes that local government to be in charge of the process of development in municipalities and also municipal planning. The constitutional mandate of municipalities to relate their management, budgeting and planning functions to their objectives gives a clear indication of the intended purpose of the municipal integrated development planning. Local government is a key role player in development of South Africa as a developing country. Project funding is usually undertaken by project developers inter alia to:

- eliminate or reduce poverty,
- maximise the leverage of a project on the credit standing of the sponsors and
- allow the lenders to appraise the project on a segregated and stand – alone basis (Earl,2011:2).

Political economists have argued that the basis for expenditure decision determines the allocation of resources (Lutaaya, 2019: 24). In project financing, those providing funding place a substantial degree of reliance on the performance of the project itself (Mtshisazwe, 2018: 6) Government funding has been considered a key mechanism for reducing poverty and promoting growth. It is vital for the government of South Africa to fund food security projects to enhance economic growth, support project implementation and sustainability. Project funding is then perceived as a tool to boost a project especially when it needs funds to be implemented and sustained. The community food security projects competitive grant program funds projects that are meant to meet the needs of low income households and increase or fortify community self-reliance. Funding is also designed to meet specific state needs, including those concerning planning for long -term solutions. Project and performance management concepts are discussed in the next section.

2.7 PROJECT

Clements and Gido (2012: 4) stated that a project is an endeavour to accomplish a specific objective through a unique set of interrelated tasks and the effective utilization of resources. A project is a series of tasks that need to be completed in order to reach a specific outcome. Aaltola (2017:23) stated that a project can also be defined as a set of inputs and outputs required to achieve a particular goal. A project involves a degree of uncertainty. Before a project is started, a plan is prepared based on certain assumptions and estimates. It is important to document these assumptions because they will influence the development of the project work scope, schedule, and budget. Abushaiba and Zainuddin (2012:186) adds that a project is based on unique set of interdependent tasks and estimates of how long each task should take, various resources, and assumptions about availability and capability of those resources, and estimates of the cost associated with the resources. The combination of assumptions and estimates causes uncertainty that the project objective will be completely accomplished. For example, the project scope may be accomplished by the target completion date but the final cost may be much higher than anticipated because of low initial estimates for the cost of certain resources (Aaltola, 2017:23).

2.8 PERFORMANCE MANAGEMENT

O'Toole and Meire (2011:23) defined performance management as a process aimed at optimizing project performance in an organisation. Clements and Gido (2012:5) defined performance management as a process concerned with fortifying the value adding process". It is about making the difference between cost and benefit as much as possible (PMBOK, 2018). Performance management is concerned with the assessing efficiency and effectiveness of the process or product (Aaltola, 2017:23).

The emphasis on process stands out. Defined this way, performance management carries a somewhat negative connotation when considered from the performance perspective as something done to people. A more progressive definition brings the communication aspect to the forefront, as in Weiss and Hartle's (year). A process for establishing a shared understanding about what should be achieved, and how it is to be achieved and an approach to managing people that increases the probability of achieving success.

Performance management is then perceived as the processes of managing performance of an organisation, department and programme. It is done to see to it that tasks and activities are achieved as planned. It is a set of activities that ensure goals are attained within the prescribed time and without wasting resources (funds).

2.9 PERFORMANCE MEASUREMENT

Performance measures are a part of any action plan (Abushaiba & Zainuddin, 2012:187). The intent is to compare actual with expected results. Performance measure is a method of data collection that can be used to inform and benefit those who are responsible for decision making (Vleems, 2018: 23). Performance measures are quantifiable, enduring measures of inputs, output, outcomes efficiencies, and any core items that relate to a business (Abushaiba & Zainuddin, 2012:187).

In globalized world, performance measurement became crucial for enterprises to build best in class operations (Ossovski, de Lima & Da Costa, 2017:3). Performance measurement is one of the most important elements of every organisation, programme and projects. “Performance measurement has become a key mechanism for managing organisational performance” and if effectively executed, the organisation is likely to achieve its desired objectives and detect risks as they occur (Aaltola, 2017:26). Abushaiba and Zainuddin (2012:186) alludes that performance measurement is defined as a concept and approach to assessing the effectiveness and efficiency of projects and programs. O’Toole and Meire (2011:100) supports this view by alluding that performance measures indicate how much or how well a department is doing.

Performance measurement tracks the department’s progress toward achieving its objectives linked to the goals and mission of the organisation. Clements and Guido (2012:11) views performance measurement as a cluster of tools that have a common baseline applied to various practices such as policy analysis and performance appraisals. Performance measurement develops a foundation of activities and specific transformation in activity can be assessed and conclusions can be drawn (Clements & Guido, 2012:11).

In the process managers “select and utilize quantitative measures of capacities, processes and outcomes to develop information about critical aspects of activities,

including their effect on the beneficiaries” (Ossovski, de Lima & Da Costa, 2017:3). Performance measurement is also essential to enable managers to clarify goals, formulate documents that will assist to accomplish the respective goals and to document the benefits received from the venture of each pursued programme (US Department of Health and Human Services, 2016:2). Performance measurement is crucial in service delivery contributing to the total quality management and the total quality performance of the organisation. Performance is measured by the impacts, effects and improvements witnessed by both the beneficiaries and organizations providing the services and measuring the performance (Heyse *et al.*, 2014: 173). Performance measurement refers to the systematic and objective assessment of an on-going or completed project. The aim is to determine the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability (Heyse *et al.*, 2014: 173).

Therefore, performance measurement is a process to assess if the project or department is performing to its full potential. Performance measurement is also perceived as an orderly assessment that seeks to detect if a project is achieving its objectives. Performance measurement is done timely this helps in detecting faults in the early stages so that they can be rectified before they become too much to deal with. Furthermore, it refers to a critical factor in optimising performance. However, the projects if sustained achieve multiple, often conflicting objectives under changing conditions. Moreover, performance incentives are important in motivating employees in an organization (Gerhart, 2017:95). It can also be perceived “as a promise of pay for some objective, pre-established level of performance” which is often physical output (Newman *et al.*, 2017:353).

2.9.1 Performance measurement system and framework

Performance measurement framework consists of four key steps and these steps are better described by the DtiUK (2015:4) as the strategic objectives of the organisation which are converted into desired standards of performance. The development of a performance measurement system can be divided into three main stages: design, implementation and use of performance measures (Bititci *et al.*, 2019:13). Fourth and fifth stages might also be considered: the review and learning (Ossovski, de Lima & Da Costa, 2017:3).

A performance measurement system is better explained in DtiUK (2015:8) referring to it as a SMART process. SMART is an acronym that stands for Specific, Measurable, Achievable, Relevant and Timely. Therefore, performance measures must be specific in a sense that they are clear and measurable relating to the project's objectives. Performance measures must consist of information that is on par with the organisations objectives. There must be a specified period whereby programmes and strategies are established and assessed as the program is executed. A performance measurement system must be carefully developed in a way that permits development, improvement and sustainability within the organisation (DtiUK, 2015:8). Establishing a performance measurement system needs guidelines and principles that must be complied with it (Bititci *et al.*, 2019:13).

2.9.1.1 Performance measures must be specific

Specific performance measure refers to performance measures that are on par with organisations objectives. They are clear as to what needs to be measured and how to measure it. It is quite important for a performance measure to measure what it specific and necessary (Bititci *et al.*, 2019:13). Furthermore, performance measures must be clear, manageable, enhance improvement and must connect to the other goals and key drivers of the organisation. Specific measures are vital in ensuring that the organisations measure what needs to be measured according to its scope. Unlike when you measure what you do not understand it will be difficult for you to produce a worthy report.

2.9.1.2 Performance measures must be measurable

When developing an effective performance measurement system, there are considerable requirements that an organisation and managers must focus on. These requirements are vital for ensuring that the performance measurement system is effective, measurable and useful to the organisation. Performance measurement system should make it a point that employees are rewarded for doing good and that requires fact-based decision -making (Ruzita *et al.*, 2012:45). For every successful process there are principles that require compliance. Complying with principles will guide the process on what should be measured, principles will clarify and provide guidelines for managers Aaltola (2017:27) perceived the following functions as key principles that will assist any organisation to

detect the appropriate measure arguing that measures should have a clear connection with system goals and they should be:

- meaningful and easy to comprehend;
- able to inform an evaluation, plan and assist in making policy decisions:
- supported by adequate data;
- risk analysed p;
- associated with a direct effect on performance
- effective, reliable and responsive (Aaltola, 2017:27).

Ruzita *et al.* (2012:45) alludes that principles provide a system of governance that sets up and monitor the organisation's thoughtful goals and direct the organisation and its strategy in a direction of success. These principles clarify the purpose of performance measures that are connected to the organisation's objectives. The principles direct the organisation towards measuring what is relevant, reliable and informative to the organisation (Bititci *et al.*, 2019:13).

There is no specific standard form of performance measurement, however, numerous organisations have adopted the most popular performance measurement criteria developed by the DtiUK (2013:1). The criteria for performance excellence was developed to ensure that the organisation enhance their competitiveness (Evans, 2011:63). Performance measurement criteria are effective and have the capabilities to ensure that the organisation attains its objectives. A criteria is perceived to be effective when performance is measured. This performance measurement consists of:

- (i) "clear identifying and tracking of progress against goals,
- (ii) identification of opportunities for improvement and
- (iii) comparison of performance against internal and external standards" (DtiUK, 2013:1).

Therefore, if the organisation's performance measurement meets the above-mentioned criteria, it is perceived to be successful (DtiUK, 2013:1). The criteria for measuring performance is explained in Abushaiba and Zauddin (2012:187) asserting that relevant data, performance and information must always be measured in a relevant, clear and unique manner relating to the objectives of the organisation.

Anything that gets measured must contribute and reflect the objectives and goals of the organisation. The measurement must not be biased instead a sense of accountability, transparency and organisational objectives must be emphasised. The performance measure must be trusted to enhance the organisational goals and must always be available and accessible. The measurement system must always show transparency and measure what is necessary to measure.

2.9.1.3 Performance measures must be achievable

The success of performance measurement system depends on the involvement of employees and their understanding of the Performance Measurement System (PMS) process (TRADE, 2013:3). Bourne (2017:29) alludes that execution of measures should follow the principle processes that will produce expected results. When performance measures are executed, strategies are detected and the need for transformation is developed. DtiUK (2015:6) informs that the achievement of performance measures depends on the involvement of employees. The achievement of performance measures is executed in line with the organisation objectives, goals, mission and vision of the organisation (DtiUK, 2015:6).

The performance measurement system must create knowledge through learning from its monitored operations and ensure correct actions are taken always. It is vital that the measured data must be reliable, affordable, and easy to collect, because the success of the measurement depends on that data collected (DtiUK, 2015:6). Thus, it is vital to ensure that information that is collected must be investigated and reliable to utilise. The vital feature of any PMS is to ensure that all essential information and actions are measured and whatever is measured should benefit and enhance and develop the organisation.

The important part of the performance measurement lies in its capacity to enhance suitable measures and performance indicators. Evans (2011:16) alludes to the fact that all measures utilised to measure performance must be on key drivers that are linked to the organisations strategy. The performance measurement must be manageable and must enable potential improvement and benefits for the organisational objectives, as well as benefit the managers and staff (DtiUK, 2015:6). The achievement of performance

measures is to assess the results in a manner that is easily understood. Moreover, performance measurement must present opportunities for potential improvement for the organisational goals and must benefit everyone involved.

2.9.1.4 Performance measures must be relevant

An organisation must develop performance measures that are relevant to its objectives and goals. Relevance in performance measures allows managers to measure organisations objectives without wasting time and wasteful resources. Relevance in performance measures requires specific attributes. Attributes are important in the process and managers must ensure that key attributes are visible when executing the organisations PMS (Evans, 2011:16). Bititci *et al.*, (2019:13) identified the following three attributes namely validity, reliability, responsiveness which are vital for measuring relevancy. Bititci *et al.* (2019:13) further pointed that “decisions must lead to reliable information which is responsive to the goals and objectives of the organisation”. For relevancy, performance measures must “direct the behaviour of managers and staff and increase fairness towards achieving set goals and must emphasise the expectations of the organisation” (Clements and Gido, 2012:6). Measurement must promote liability and allow an organisation to institute an origin for goal-setting. Most importantly it must enhance overall implementation of processes and responsibilities by employees (Bititci *et al.*, 2019:13).

Improvement of performance through reliable and validated feedback is important. The system must help solve problems in an informed manner that provides early warning signs in order to reach the performance targets (Evans, 2011:16). It is vital for performance measures to be relevant to the organisations objectives and goals. This assists the organisation to measure what must be measured. Relevance in performance measures help managers to make valid inputs and decision.

2.9.1.5 Performance measures must be timely

Abushaiba and Zainuddin (2012:186) indicated that organisations must develop performance measures that have a certain period to measure the achieved objectives. Organisations are required to develop performance measures that have a timeframe in which to examine the objectives. Timely performance measures create early awareness

of any mistakes and side-tracking of policies and programs. This process allows managers the opportunity and ability to rectify existing mistakes and avoid any organisational dysfunctions. Performance measures must be assessed on an on-going basis to be useful and facilitate the organisational decision-making process. Timely performance measures depend on a flexible period for assessing organisational objectives, gathering relevant information and concluding reports (Abushaiba & Zainuddin, 2012:186).

USAID (2011:1) points that “time is vital in ensuring that the organisation data is released within an expected period since failures may result in the organisations failing to meet targets and programs delaying to make an impact”. To sum it up The EY Center for Board Matters (2016:1) alluded to the fact that “performance measures can be utilised to provide a connection between financial results and non-financial results performance”, allowing informed and well combined reporting framework within a reasonable time frame. Time is of the essence in every organisation. Performance measures must be time based whereby departments must have monthly, quarterly and yearly assessments. Some departments and organisation release data monthly to give feedback to its employees. Timely reports and feedback assist organisation to know how far they are in achieving the organisations goals and see to it that service delivery is met. It is vital for every organisation to implement the above SMART performance measures. Unfortunately, failure to develop and execute SMART performance measurement will have unfavourable consequences to the organisation.

2.10 HISTORY OF PERFORMANCE MEASUREMENT

The history of performance measurement focuses on the development of performance measurement in organization over the past 500 years. As would be expected, performance measurement over the centuries has been directed providing stakeholders with a picture of their organisation. As the model of business and technology shifted, so did the need for the information to understand the performance of organisation. Models that are viewed as having significant defects today, such as return on investment, did provide useful information for the organisations for which they were designed (Abushaiba & Zainuddin, 2012:190). There is a continuing challenge to develop a measurement

system that effectively and efficiently captures organisational performance in a timely fashion (Fisher, 2019: 27).

2.10.1 Early Measurement System

Luca Pacioli is probably best known for his contribution to accounting. The ideas and processes described in his *Summa de Arithatica, Geometrica, Proportion, et Proportionalita* from 1494 are still applied by many in the accounting professions today (Fisher, 2019: 27). However, he can also be characterized as a pioneer in the area of performance measurement. The *Summa* also includes discussions of the topic of performance measurement as well as internal controls, such as numbering and dating ledgers, journals and memorandum (Fisher, 2019: 27).

In addition to describing the double entry accounting system, Pacioli led businessmen thorough the necessary steps to account for all of their transactions. He identified three things that are required to operate a successful business. Firstly, there must be some sort of market need or justification for the endeavour (Fisher, 2019: 27) Secondly the businessman must be a good accountant and mathematician (Abushaiba & Zainudd, 2012:190). Thirdly, the affairs of the businessman must be arranged systematically so that he may understand the business at a glance (Ruzita, Azhar & Abu Hasan, 2012:45). Fundamentally, this means that the businessman must have an orderly record of the performance of the business. For the merchant of the time, this meant understanding the gain or loss for any particular venture. Pacioli described the specific entries required to recognize a profit or loss. Basic financial measures provided a measures to evaluate the performance of the individual enterprise (Fisher, 2019: 27). From the period of Pacioli, into the 18th century, many businesses were family-run its performance measurement centered on the calculation of profit and loss for project undertaken (Ruzita, Azhar & Abu Hasan, 2012:45). Based on the history of performance measurement presented above, it is clear that performance measurement has been developed to understand the performance of organisation and to have a clear picture of how the organisation is doing.

2.10.2 IMPORTANCE AND BENEFITS OF PERFORMANCE MEASUREMENT

Performance measurement is vital in determining whether the organisation is delivering on its objectives. According to Benkova *et al.*, (2020:6) performance measurement is crucial as it helps to:

- recognize and track the organizational development against organizational objectives,
- recognize prospects for advancement,
- compare the actual performance against set standards at an internal and external level and
- review and formulate the direction of strategic activities (Benkova *et al.*, 2020:6).

Performance measurement play a crucial role as tools that assist organizations to detect challenges and areas that needs to be prioritized and provide feedback for managing the improvements (DtiUK, 2015:1).Performance measurement is important to identify priorities, provide feedback and to ensure that organisations improve their standards (Aaltola, 2017:22). The process further enables manager to detect risks solutions to assess their progress (DtiUK, 2015:1). Performance measurement is important for providing information that is credible and useful, enabling the incorporation of lessons learned into the decisions (Aaltola, 2017:22). Output measures can be used as they are necessary for you to compute efficiency measures, since efficiency is usually defined as the ratio of inputs and outputs (Lutaaya, 2019: 26). Therefore, performance measurement is important in enabling project managers to accumulate value outcomes and assist every organisation to determine how a project team is performing against organisational goals. The process can assist organisations identify vital strengths on which reports can be established and variables measuring organizational progress.

2.11 PROCESS FOR DEVELOPING PERFORMANCE MEASURES

There are several actions you can take to gather this information and develop relevant performance measures (PMBOK, 2018). Six steps were identified which can be used for developing performance measures.

- Step1: Define the desired performance measures based on departments mission, goals and objectives
- Step 2: Assess each performance measures?
- Step 3: Selecting key performance measures to be reported to external customers, stake holders, and policy makers
- Step 4: Determine information needs
- Step 5: Clearly define each performance measures so that all users can easily understand
- Step 6: Establish the performance targets

The key performance measures should reflect success in attaining the objectives and should focus on achieving the expected results' outcome efficiency, and quality indicators will be most useful for external reporting. When developing high quality performance measures that will link up with departments or organisations mission statements, the aforementioned steps must be put in cognisant. These steps will assist in ensuring that performance measures are delivered to their purpose.

2.12 REVIEW OF STUDIES ON PROJECT PERFORMANCE MEASUREMENT

The 2012 Mic Kinsey -Oxford study showed that “large IT projects often spent 45 percent over budget and 7 percent over time on average, while delivering 56 percent less than planned or expected value” (Vleems, 2018: 5). Most organisations are faced with challenges of finding the balance between time, budget and scope. Therefore, organisations intend to attain understanding into the performance of their projects to reduce the time a project takes, reduce how much they cost, and still be able to attain project scope. Therefore, project comparison is perceived as a vital measure of project performance measurement. Project performance measurement based on comparison can help establish new methods to make major improvements in reducing projects duration, reducing project cost and attaining project scope.

The study conducted by Vleems (2018:5) informed that the “performance of twenty-eight projects was measured by comparing current or existing projects with similar historic projects”. Moreover, the key performance indicators of cost, time and scope were also used to measure the performance. Two performance measurement methods were also used; relative performance measurement and absolute performance measurement

(Vleems, 2018:5). *The relative measurement* compared the cost and time medians amongst similar projects, and the outcome showed that these projects deviated from similar projects with regards to cost and time (Vleems, 2018:5).

The absolute measurement “calculated the deviation amongst ideal cost and time and actual cost and time. However, the deviation was due to poor budgeting and the time that was planned exceeded. The deviation was more than ten percent; thus, the project was regarded as a bad performing project “(Vleems, 2018:5).

The relative measurement compared cost and time medians amongst similar projects, and the outcome showed that these projects deviated from similar projects with regards to cost and time. The deviation was that; the project’s cost less than ten percent and duration was less than ten percent. It was then regarded as a good performing project. Moreover, on the 28 projects that were used, only nineteen projects were regarded as good performing projects and nine were regarded as bad performing projects (Vleems, 2018:5). It demonstrates that institutions encounter challenges when they conduct performance measures.

Institutions used to appoint consultants to conduct measurement of performance. As a result, the quality of service delivered by consultant has frequently been a subject of in-depth investigation. Some clients have looked down on the impact of sub tendered consultancy services to the success of a construction project (Vleems, 2018:5). It is found that the work of consultants on measuring performance were not pleasing as there were many delays, cost overruns, and dispute can be blamed back to erroneous design (Silva *et al.*, 2013: 42). The production processes of construction projects were generally non-standardised and compromised quality.

Many companies executed the ISO 9000 series to ensure consistency and improved performance of projects. The ISO 9000 was regarded as an integrated system to ensure consistency and improved performance of projects. In Hong Kong all consultants must have a certified ISO 9000-based QMS prior to bidding for public construction projects (Works Bureau, 2014).

The ISO 9000’s emphasis was placed on customer satisfaction and continual improvements (Lutaaya, 2019:27). Satisfaction measurements were used by equating the

difference between what is ideal and actually received (Silva *et al.*, 2013: 42). Regular improvements can only be met if consultants are cognisant of their faults or shortcomings and make corresponding adjustment to fulfil the expectation of the clients (Lutaaya, 2019:27). Silva *et al.* (2013: 42) informed that in Colombia the project management in the public investment system had a normative framework and methodological components. A normative framework and methodological components enables institutions to carry out their projects with funds from the national budget, provincial or local, equity, foreign credit or cooperation resources (Silva *et al.*, 2013:42).

It is worth noting that project performance measurement varies according to the type of project and its objectives. Nonetheless, according to Lutaaya (2019:27) studies on project performance measurement reflects “that project performance measurement must be able to identify, programs, people and project in which to spend the money of the citizen”. The implementation of public project must be clear regarding the work to be done and it’s monitoring to prevent wasteful expenditure, lower yields and lack of accountability (Davis, 2014:199).

Benkova *et al.* (2020:11) pointed that institutions use balanced scorecard (BSC) measures to address four perspectives: customer, internal, innovation and learning and financial. Benkova *et al.* (2020:12) proposed a model where the development is divided into design, implementation, and use of the performance measures. Lutaaya (2019:27) further alludes to the fact that project performance measurement varies but practitioners are converging on a common understanding. Therefore, when measures are integrated into a framework, the purpose is to track selected performance measures at regular time intervals so as to assess performance and enhance programmatic or organisation decision making, performance and accountability.

It is worth examining the contents to compare the results of the analysis of metrics and categories of body of knowledge, standard and literature. The interest on performance measurement is not new. However, its application is still increasing in companies of most diverse areas and sizes and for different reasons (Silva *et al.*, 2013:49). The governments all over the world are showing a great interest in the measurement of project performance in the public sector. Thus, the media and press are considering the use of performance

targets and objectives in order promote project performance and show that value for tax payer's money is being delivered.

2.13 THEORIES

The agency theory is relevant to this literature review. The agency theory states that the executives or managers act in the best interest of the owners or organization by increasing the amount and quality of information available to the organization to assess the performance of the organisation (Baker, 2019:335). Agency theory seems to be more silent on the situations where both activities are uncertain and outcomes are ambiguous. Agency theory is used to understand the relationship between agents and principals. The agent represents the principal in a particular business transaction and is expected to represent the best interest of the principal without regard for self- interest. This leads to the principal -agent problem (Baker, 2019:335). Moreover, agency theory suggests that the firm can be viewed as a link of contracts (loosely defined) between resource holders. The relationships are not necessarily harmonious; indeed, agency theory is concerned with so called agency conflicts, or conflicts of interest between agents and principal (Baker, 2019:335). Therefore, it is interesting to note that agency theory is more relevant in situations where both activities are certain and outcomes are clear. It doesn't assess situation where activities are uncertain and outcomes are not clear.

Wadongo (2014:685) states that contingency theory of performance measurement states that there is no universally accurate performance measurement system that applies equally to all organisations in all conditions but particular features of the system and its effectiveness will depend on the specific organisational and context factors. Furthermore, the contingency theory has mostly studied interdependence and routines. However, interdependence and routines deal with issues of complexity and not uncertainty. On the other hand, it is both complexity and uncertainty which are driving the organisations need for and use of information through decentralisation and formalization.

Nevertheless, empirically and practically it may be difficult to separate complexity and uncertainty even though the first is a cause and the latter an effect. Moreover, the contingency theory assumes that there is more than one way to achieve effectiveness in

organisations (Wadongo, 2014:685). Each way has varying effectiveness under all situations where one way can be more appropriate for certain situations than another. Therefore, the appropriate match of contingency factors with structural factors will allow for better response to the environment and achieve higher levels of effectiveness. Organisational contingency involves three variables types: Contingency/Context Variables, Structure/Organisation Variable and Performance/ Criterion Variables (Wadongo, 2014:685).

Theorists have identified a number of contingency variables such as environmental complexity, organisational strategy, technology and organisation size, to name a few Hanisch and Wald (2011:6). In the contingency fit theme, the relationship is extended to include a conditional association of independent variables with dependent variables (Wadongo, 2014:685). Contingency theory assumes that the better the match or fit between the independent variables, the better their effect on the dependent variable. The focus of contingency theory follows the same focus of organisation theory which is to explain an organisation's success or failure. Success or effectiveness means being able to achieve defined goals such as efficiency, profitability, employee satisfaction, and/or higher innovation rate. Moreover, effectiveness can be attained through being able to function well as a system and being able to satisfy the stakeholders (Wadongo, 2014:685).

Therefore, contingency theory rests on the 'fit' effect. This effect has to be confirmed empirically through establishing that the fit of structure to contingency affects performance positively and the misfit of structure to contingency affects performance negatively.

2.14 CHAPTER SUMMARY

Food security is a flexible concept. It is an operational concept, and a tool to address lack of food security. Food security is complex and interdisciplinary. There are many definitions, the main one being from World Food Summit (WFS, 2013). Food security is a contested concept which relates to an access of all people at all times to enough food for an active, healthy life.

Assessing the performance of public projects is vital for improving the overall activities of every project. Moreover, it is important to assess the performance of public projects to

determine the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability. Assessing the performance of public food security projects contributes to establishing accountability, improving performance, increasing transparency, and building trust with the public. When a project follows the performance measurement system and framework, it stands a great chance of achieving its objectives within a prescribed time and budget. When a project fails to perform, it delays service delivery and leads to wasteful expenditure on which the public sector cannot afford hence government ought to ensure that all its efforts are cost efficient and satisfy the needs of the people it is serving. The performance of public projects need to be assessed to ensure its effectiveness in delivering services to people.

CHAPTER 3: AN OVERVIEW OF FOOD SECURITY PROJECT ASSESSMENT

3.1 INTRODUCTION

In recent years particular attention has been paid to access to food and its measurement. Millions of dollars are spent annually on food aid programmes intended to alleviate hunger and poverty. It is crucial that managers understand the importance of assessing projects and how this can assist them to ensure that projects yield the desired outcomes. The organisation's failure to assess projects may lead to dysfunction within the organisation and can make it difficult for managers to track if the organisation is on the right track. This chapter emphasises the importance of assessing project performance and implementing performance measures effectively and efficiently for projects to yield the desired outcomes. This chapter explores the performance of school food security projects and the effectiveness of school gardens internationally and locally, identifying challenges for poor performance of the food security projects. In view of the scope above, factors influencing performance of food security projects will be discussed and a set of recommendations will also be identified.

3.2 REASONS FOR FOOD SECURITY ASSESSMENTS

Food security is multidimensional in nature as has already been discussed. Accurate measurement and policy targeting remains a challenge due to many dimensions involved (Du Toit, Ramonyai, and Ntushelo, 2011:8). Researchers in South Africa are using various methods to assess food security at household's level depending on the objectives and purpose of their study. Food security assessments can serve a number of different functions and among them include:

- Understand how affected populations normally secure food,
- Understand risks, causes, and impact of a disaster on immediate and future food security,
- Identify the most appropriate responses to address both transient and chronic food insecurity,

- Recognize and support household coping mechanisms (United States Agency for International Development (USAID), 2011).

3.2.1 Status of Food Security in Sedibeng District Municipality

The executive mayor for SDM Busisiwe Modisakeng, on 04 May 2016, addressed the masses on the plan the municipality has in improving lives in the area. According to the SDM mayor, in 25 years, the population of the province will increase by double to 25 million people. The issue of food security will be a critical factor in the wellbeing of a growing society. How is this going to be achieved? she alluded to the fact that the answer lies in the vast open spaces of Sedibeng and especially in Lesedi and Midvaal local municipality and parts of Emfuleni. She further alluded to the fact that SDM has a great potential in all kinds of agriculture that includes livestock farming to small gardens for sustenance (Sedibeng, 2018)

The mayor alluded to the fact that SDM is confronted by poverty and high unemployment levels that cannot be addressed overnight. She further stated that SDM shall double their efforts to ensure that established agriculture associates join them to strengthen their potential to halve poverty and unemployment. She concluded that agriculture sector is the best hope for economic survival and for future progress for SDM community. SDM has the potential to serve as Gauteng food basket thus the Gauteng province has established a flagship project called Agri-tropolis which aims to provide answers to this looming challenge (Sedibeng, 2018).

3.3 ASSESSING THE PERFORMANCE OF FOOD SECURITY PROJECTS

Different institutions use different methods to assess food security. According to Labadarios, *et al.*, (2011:895) the following were identified as examples of some of the national surveys conducted to assess food security status in the country:

- National Food Consumption Survey (NFCS);
- Food Insecurity and Vulnerability information and Mapping System (FIVIMS);
- General Household Survey (GHS);
- Income and expenditure Survey (IES);

- Community Survey (CS);
- South African Social Attitudes Survey (SASAS);
- Labour Force Survey (LFS) (Labadarios *et al.*, 2011:895).

Due to the complexity of food security, these methods yield different results. The South African government policy formulation process is currently informed by the GHS, IES, LFS and Community Survey which are implemented by Statistics South Africa (Du Toit, Ramonyai, and Ntushelo, 2011:9). It has been established in prior discussions that food security is a flexible concept, that it is an operational concept and a tool to address lack of food security. It has also been established that food security is complex and interdisciplinary. According to Ashby *et al.* (2016:2889) assessing the performance of food security projects is important for us to identify if the project is yielding the expected objectives. So that if the project is not performing, it can be amended in time before it's too late and nothing can be done correct it. Assessing food security projects broadens our knowledge and understanding of why food insecurity exists and the impact it has on the development of a country. This information assists in ascertaining who is more susceptible to food insecurity. To that end, policy makers can come up with policies and strategies to combat food insecurity.

Assessing the performance of food security projects assist in pointing out if the project is experiencing challenges or not. Assessments of performance helps in deciding if the projects must be kept or terminated depending on severity of the challenge they may be confronted with. At times the challenge faced by projects may be minimal to an extend that there is no need for the project to be terminated (Ashby *et al.*, 2016:2889). As previously stated in chapter 2, performance assessment is defined as a concept and approach to assessing the effectiveness and efficiency of projects and programs, it is vital for the measures to be effective. Thus, effectiveness refers to a measurement of the extent to which an aid activity attains its objectives. Moreover, performance assessment is a regular measurement of outcomes and results which generates reliable data on the effectiveness and efficiency of projects. Performance measures indicate how much or how well a project is doing. It tracks the projects progress toward achieving its objectives (Malberg Dyg and Wistoft, 2018:9).

When assessing the performance of food security projects, it is important to ensure that the designated indicator is the right one for assessing the performance, the researcher must be sure that the chosen indicator is able to assess proper and relevant aspects of performance. The chosen indicator must be associated with the characteristics of legitimacy and equivalence. Legitimacy is referred to as the usefulness of the indicator to afford appropriate, valuable and critical data for a given purpose, in a well constituted, consistent and precise manner (Leroy *et al.*, 2015:171). Equivalence is perceived as the indicators capability to be consistent in making, measuring and teaming -up the data, and permitting more meaningful comparisons for most purposes (Leroy *et al.*, 2015:171).

Headey and Ecker (2012:3) alludes to the fact that projects differ widely and are, therefore, are associated with a universal set of criterion to assess performance and using a single universal performance definition for all projects could be a challenge. Project performance can be assessed in four levels. They are called levels because when they are vertically connected, the relationship among them becomes clearer. (Malberg Dyg & Wistoft, 2018:9). The levels as proposed in Leroy *et al.* (2015:171). include:

- Project process: this level consists of the criteria utilised to assess the actions taken to provide the needed deliverables. Examples of such criteria are meeting budget, schedule and efficiency of implementation.
- Product and deliverables: this level consists of the criteria used to judge the technical necessities and qualities of the product or deliverables resulting from the project. For instance, technical validity, manufacturability and technical performance.
- Business: this level consists of the criteria utilised to assess the benefits and returns or losses of the project to the stakeholders. For instances: the input of the project to the strategic mission of the firm. Preparing for the future and satisfying the requirements of the users.
- Context and externalities: this level consists of the criteria utilised to assess the project based on compliance with the contextual circumstances and externalities that affect it. For instances, the political situation, regime and climate. The project team or organisation doesn't have much control over these externalities (Leroy *et al.*, 2015:171).

To sum up this view, Jones *et al.* (2013:31) alludes to the notion that it is not possible to capture all dimensions of food security using a single indicator. This view is supported in FAO (2013:2) recommending that it is better to utilise more than one single indicator when assessing performance of food security projects. Leroy *et al.* (2015:171) further postulated that a combination of indicators will assist in improving the performance measurement of food security projects. Moreover, the status quo is that there is no standard measure of assessing food security projects. As a result, it makes it difficult for policy makers to assess the performance of food security projects. However, there are indicators that have been introduced to assess the food security projects and these indicators are not able to provide accurate and reliable assessment results on their own compelling evaluators to combine these indicators based on the nature and complexity of the project being assessed.

3.4 FACTORS INFLUENCING PROJECT PERFORMANCE

Critical success factors are those inputs in project management system that directly increase the likelihood of influencing a project to perform to its peak (Lutaaya, 2019:32). Nguyen, Ongulana and Lan (2004) as cited by Abylova and Salykova (2019:7) identified critical success factors as:

3.4.1 Comfort

According to Lutaaya (2019:32) an understanding attitude and cordial human relations could go a long way in encouraging a more productive workforce whereas being constantly critical and distant and persistently finding fault with one's employees will have the opposite effect. To spur workforce on greater productivity, one needs to hand-pick high -calibre persons for leadership posts. Their charisma should be able to motivate employees to perform at their peak and their persuasive personalities should foster positive ethos or culture throughout the entire enterprise or institution. Besides contribution to decreased productivity, insensitive management may well be the undoing of an institution or project.

The sensitive manager view is supported by Mtshisazwe (2018:5) when alluding to the fact that it is vital to appoint a competent project manager and such an individual must be skilled in the field of project performance and have acquired knowledge of structures and

have conflict resolution, team management skills, emotional intelligence and transformational leadership skills.

The comfort dimension alludes to the fact that for a project to perform, it requires the involvement of primary and secondary stakeholders. Projects involve stakeholders who have a relationship that is direct and legal to the project and secondary stakeholders such as community forums don't form a direct part of the project but play a vital role in decision making processes. Stakeholder's needs must be prioritised and influenced in a way that ensures optimal performance of a project (Lutaaya, 2019: 32).

Resource management plan must be formulated by all relevant stakeholders to ensure that the project does not run short of resources. There is usually a competition of resources in any project. Unforeseen changes during the implementation of the project must be taken care of and can be done through resource planning. There must be enough funding during the course of the project. A monetary plan, which take into consideration the activities scheduled in a project, must be formulated (Lutaaya, 2019:14)

Lastly, for the performance of a project to be assessed, all relevant stakeholders need to sign a contract that will outline in detail activities, roles and responsibilities. It is vital to have clear specification of cost, time and quality. For performance to be assessed, all activities outlined in the contract must be seen to have been performed (Benkova, 2019:14).

3.4.2 Competence

Often the pace of technological change is so fast that it becomes almost impossible to keep abreast of the latest developments skilled personnel is a necessity (Lutaaya, 2019:14). Employees could suffer from technophobia and other sorts of challenges generated by new-fangled gadgets and unfamiliar machinery (Lutaaya, 2019:33). Consequently, continuous training and retaining are required to keep personnel up to date with evolving technology. Owing to the often prohibitive cost of such training, employers may prefer on the job to extramural training. However, on the job training is not always the ideal choice as stinting on proper formal training could result in a temporary or even permanent lowering of productivity (Abylova & Salykova (2019:7).

Conversely, improved equipment and technology together with the necessary expertise to utilise it could lead to increased project performance. Moreover, numerous aspects are critical to the performance of projects. Firstly, adaptation of current technology as advocated for in Davis (2014:198) who stated that selecting the right new technology and proper usage is vital to project performance. Secondly, there must be accurate records of past experiences. According to Abylova and Salykova (2019:7) implicit knowledge is crucial at this point. Furthermore, it is important that implicit knowledge acquired from the project must be kept safe in order to learn from previous faults and avoid repeating the same mistakes in future projects. Thirdly, Abylova and Salykova (2019:7) alludes that it is necessary for team members to possess the relevant skills. This will call for a need to do a skills audit to detect the gaps in skills so that steps can be taken to fix the challenge posed by lack of skills.

3.4.3 Commitment

Working as a team goes a long way and support from top management is vital (Lutaaya, 2019:14). Top management need not only support the project by proving funds and resources, it is also important to provide political support (Davis, 2014:198). Lutaaya (2019:33) alludes to the fact that commitment is linked to a feeling of collectivism, than that of individualism, team members need to be in a space that motivates them and give them a sense of satisfaction with the job that they do, in that, they feel part of the team. It is important to clarify objectives and scope so that team members can be guided accordingly as to what is expected from them. Objectives and scope must not be complicated to make it easy for project team members to carry out their duties. It is not a secret that change will happen during the implementation of the project, therefore, adaptation and flexibility are crucial in ensuring that projects perform to their peak. Seeing that numerous projects are public projects, commitment from non-governmental organisations and the party in power is highly important and required at the same time (Mtshisazwe, 2018:5).

3.4.4 Communication

Communication is important in leading, assisting people to work together and in decision making process. The vision of a project must be communicated to everyone involved in the project. The project leader must be able to recognise the interest of all relevant

stakeholders and make it a point that there is massive support to the project (Jen, 2016:11). When the project targets are set and the scope is made known to all relevant stakeholders, there has to be continuous advancement during the course of the project. Activities allocated to team members must be assessed to see to it that the main goals are attained. The findings must be reported to the relevant stakeholders. This will assist to keep track on the progress of the project (Davis, 2014:198). A comprehensive communication plan is a necessity for the distribution of reports. Thus, it is vital to have project meeting consistently to ensure that the project is on track and if it not then it can be fixed in time for optimal performance (Jen, 2016:11).

For a project to perform to its optimal peak these four communication aspects must be adhered to, which are Comfort, Competence, Commitment and Communication. A project must be implemented by a leader that is able to motivate others to perform to their optimal peak. A skilled and qualified leader must be appointed and employees must be trained to adapt to the changing technological environment to ensure smooth running of the projects. All involved stakeholders must be vested in the projects, meaning that they must not only support the projects financially but must also make it a point that they are well informed of the activities and they are part of the decisions taken. Communication is regarded as a basis of a good relationship. In every project communication is vital, to ensure that everybody involved is updated on the progress of the project to ensure that reports are submitted to the relevant stakeholders in time.

3.5 ASSESSING FOOD SECURITY: INTERNATIONAL PERSPECTIVE

In 1990 an act of the United States Congress established a criterion assessment tool for food insecurity and shortage of food for US as its main mandate (FAO, 2014). The US government agencies and experts from private sector embarked on a journey to collaborate for the establishment the Food Security Measurement Project. The project implemented vital activities of the ten year Comprehensive plan for the nutritional monitoring and research program during the year 1992. The U.S Census Bureau implemented the first food security supplement named the Current Population Survey in 1995 (Ashby *et al.*, 2016:2887). It then served as the foundation of the FSM Project. The data provided by the Current Population Survey was analysed in a systematic manner through a numerical food scale. The US Government has utilised the CPS as the main

food security measure due to its success in establishing stability and robustness in assessing food security (FAO, 2014).

Assessing school food security encompasses dynamics within and around schools, in that, most of the information needed depends on the school gardening surveys. While food security is referred as economic and physical access to food, strategies and methods that measure food security reflects how food is acquired and consumed (Jones *et al.*, 2013:490). When assessing food security, it is vital to detect and distinguish between the levels at which data is attained and measurements are made (Leroy *et al.*, 2015:169).

Numerous authors share the same sentiments when it comes to assessing food security, they believe that food security must be assessed through four dimensions of food security: availability, access, utilisation and lastly, stability. This notion is backed by the FAO definition of food security. Jones *et al.* (2013:484) believes that it is vital that measures assessing food insecurity are linked to the purpose that they were established for. As stated previously in this chapter there is no single criteria to assess the performance of food security projects. This notion is backed in United Nations (2013) stating that numerous food security authors have established that currently the available measures of assessing the performance of food security at both national, household, community and school level are unclear, inadequate and need to advance. It is debated that these measures cannot work as islands but they must work in collaboration.

Assessing food security has progressed over the past decades in order to assess the performance of projects, assisting in improving accountability and thereby trust between public institutions and citizens. Food security assessments also assist to detect the accuracy and effectiveness of the government's responses to food insecurity (Headey and Ecker, 2012:3). Due to endless debates by numerous academics that the performance assessment of food security projects must be aligned with the FAO definition of food security irrespective of the level at which it is being assessed. It is undoubtedly that food security is a performance measure on its own that assess how well a project is attaining its objectives by ensuring that people have sufficient food at all times.

Assessing the performance of school food security projects should not be an impossible task to perform, nonetheless, it requires that projects must be assessed in an orderly manner. Assessment strategies should have different features in an instance where a

single measure may not be able to determine if a project is a success or not. Assessing school food security must also consider aspects such as cost and comparability measures (Headey and Ecker, 2012:3).

3.6 ASSESSING SCHOOL FOOD SECURITY: SOUTH AFRICAN PERSPECTIVE

In the 2010/2011 financial year food security was reprioritised as one of the top priorities for South African government (Du Toit, Ramonyai, & Ntushelo, 2011:1). This is in line with South Africa's millennium development goal which aims to halve the proportion of people who go hungry over the period 1990 and 2015 and to halve poverty and unemployment by 2014 (Sottile *et al.*, 2016:1). The Department of Agriculture, Forestry and Fisheries (DAFF)'s major role is, among others, to ensure that opportunities are created to encourage South African citizens to participate in agriculture and produce to reduce food insecurity in the country (Du Toit, Ramonyai, & Ntushelo, 2011:1). The department has since initiated a number of programmes that are meant to contribute positively to food security in the country (Du Toit, Ramonyai, & Ntushelo, 2011:1). The department of agriculture has invested heavily in a number of agricultural projects at community and household level (Sottile *et al.*, 2016:1).

Currently there is no identified and accepted way to assess food security in South Africa. This has given rise to challenges in identifying methods, targets and approaches for assessing and combating food insecurity. The perspective is supported in The Intergovernmental Panel on Climate Change (2012:18) which stated that the lack of methods and strategies for assessing food security poses a challenge when designing appropriate policy targets and performance measurements. These challenges can result in failure for policy makers to come up with strategies and interventions to address food insecurity. It is vital to assess the projects and comprehend the performance of school food security projects. Moreover, to acknowledge consequences of school food insecurity and ways in which schools address such challenges.

Ndobo (2013:311) posited that it is vital for the government of South Africa to develop appropriate performance assessment tools to ensure food security projects are assessed orderly to understand the causes of food insecurity. Appropriate measures will assist public officials to assess the performance of food security projects and in a way combat food insecurity.

According to Sottile *et al.*, (2016:1) South Africa utilises direct indicators to assess food insecurity. Direct assessment indicators are recognised as those assessments that involves observing school gardens and conducting in depth interviews with food security advisors with the intention to gather knowledge about factors influencing assessment of school food gardens. There are numerous factors influencing the performance assessment of school food gardens and they will be discussed in-depth later in the chapter.

South Africa is no exception amongst countries lacking a single and standardised food insecurity assessment tool or method that can assess the different dimensions of food security. However, assessments of school gardens utilises the Sustainable Agri-Food Evaluation Methodology- Garden (SAEMETH-G) that is able to quantifiably guide the sustainability assessment of different school gardens, but this tool lacks the ability to assess all the dimensions of food security. This tool has the potential to assist public officials to understand the performance and sustainability of school gardens all over the world (Sottile *et al.*, 2016:1). The SAEMETH-G method was established as an attempt to make the concept of sustainability operative in school gardens, taking in cognisant the triple bottom line of social, environmental and economic sustainability.

According to DAFF (2013:14) The government of South Africa has formulated and executed a food and nutritional security that intends to define and assess the food nutritional security in the country by supplying a food and nutritional security guiding programme that will encourage all the opportunities in every public strategy and programme and to lead in the SADC by contributing to the region. The importance of South Africa finding appropriate performance measures is highlighted in Heady and Ecker (2012:5) arguing that it is vital for South Africa to develop appropriate performance measures by highlighting the absence of a baseline determinant of food security. The belief is that it is impossible to monitor the progress towards combating food insecurity.

School gardens are less documented in Southern Africa and at times have to face the challenge of not being institutionalised in official school curricula. The following indicators have been identified as those that are most relevant for assessing school food security projects in South Africa (Lyons and Dlamini, 2013:3 Malberg Dyg, & Wistoft, 2018: 11)

- Number of students who benefit from the garden disaggregated by type of benefit (instruction, school feeding, take vegetables home). Students can benefit from school gardens in numerous ways. This indicator will simultaneously highlight the breadth and depth of the impact;
- Number of hours of instruction time per week, disaggregated by subject. This indicator reflects the degree to which the garden is used for educational purposes, and the variety of topics integrated into garden activities;
- Quantity of production disaggregated by crop. The main outcome of this indicator is production for consumption and income generating opportunities, through sales of the produce.
- *Number of household who ate or sold produce from school gardens, disaggregated by level of vulnerability:* Even though this indicator doesn't capture the type or degree of impact, this is a core indicator that cuts across most activities supported by the FAO.
- *Cropping intensity:* Cropping intensity is the ratio between the total amount of the are cultivated summed over all growing cycles in a year, divided by the physical area prepared for cultivating. It is a measure of intensity of the land and captures whether a garden is being fully utilized.
- *Income generated from the garden sales:* Income is an important asset for livelihood security and one the desired outcomes of many household and community garden projects
- *Percentage of beneficiary households who practice garden skills for a second year with little or no direct support:* This is one of the long-term indicators that reflects the level of sustainability of an activity.

3.7 FOOD SECURITY PROJECT PERFORMANCE MEASURES

There is no single criteria to assess the performance of food security projects. However, when combining the four dimensions of security one can better understand, assess and attain good results with regards to performance measures of school food security projects. It is the researchers understanding that each of these dimensions are important when assessing the performance of food security projects. If a food security project does

not meet all these components, that project cannot be regarded as a performing food security project.

Performance measures for food security projects must be able to measure if everyone involved in the projects is having enough food. Food availability includes factors such as national production, import capability, food stocks and food assistance from other organs of the state (United Nations, 2013:1). Access to food promote and permit production and agricultural practices that cater for and protect susceptible groups (NDA, 2013:3). Food access has three features, that are already explained in chapter 2, which are physical, economic and socio –cultural ability to access food (FAO,2014). Access to food consist of factors such as money to buy food, income level, market related issues and infrastructure such as transport (United Nations, 2013:1).

Thus, performance measures of food security projects must be able to measure if food is used in a safe manner. Food must be safe, properly prepared and preserved for consumption. Du Toit (2011:3) posited that food utilisation refers to an appropriate utilisation of available resources in a stable and productive manner as well as having safe and nourishing food. Utilisation constitutes of factors such as safe drinking water and adequate sanitary facilities, to avoid the spread of diseases, increase awareness of food preparation and storage procedures (FAO, 2014). The utilisation dimension does not only refer to the quality and safety of food but also to the preparation and the storage procedures (Napoli, 2011:20). Performance measures must also be able to detect if food is safe for consumption at all times, clean production practices and provision of food that meets the dietary quality and diversity of food security (United Nations, 2013:1). Performance measures must be able to recognise intervention programs that will improve treatment and knowledge of all diseases, with the intention to encourage and fortify better food utilisation (NDA, 2013:3).

Performance measures must be able to assess the ability to meet food security in a sustainable manner. Sustainable in the sense that it can place emphasis on the importance to reduce the risk of adverse effects on the other three dimensions listed above. Performance measures, must also be able to assess if a population, household or individual is guaranteed the availability of food, access to satisfactory food and appropriate food utilization at all times and in a stable manner (Ashby *et al.*, 2016:2890).

Food stability is vital, because even if one has enough food currently, they are still considered to be food insecure if community have challenges to access food daily. Risking a deterioration of your nutritional status. Adverse weather conditions. Political instability, or economic factors such as lack of employment, inflation rate of food prices might have influence food insecurity.

Performance measure must be able to assess the stability of supply and access to food by looking at factors such as weather challenges, fluctuating food rates, political and economic instability. In addition, NDA (2013:3) alludes to the fact that maintaining stability calls for policies and intervention of risk analysis and management. Since there is no standardised method of assessing the performance of food security, scholars and researchers have been assessing food security utilising different methods. Therefore, a failure to recognise a standard method lead to challenges in assessing food security and detecting the right measures to address it (Sottile *et al.*, 2016:1).

Performance measures must be able to assess the four dimensions of food security to ensure that projects that are meant to address food insecurity perform to the best of their potential or are successful. If a project is able to address the four food security dimensions, in discussion, that can mean that the project can address food insecurity successfully.

3.8 CHALLENGES AFFECTING OF SCHOOL FOOD GARDEN PERFORMANCE

The core function of food security projects is to eliminate uneven distribution of food, inequality, and poverty amongst households as a result of a lack of purchasing power, poor nutritional status and weak institutional support network. However, beside their good intentions, the performance of school food security projects is hampered by many challenges thus impeding the success and progress of what they are design to address Amongst many other challenges the most apparent include adverse weather conditions, lack of training, weak support networks and disaster management systems, lack of interest, lack of resources (funds), gardening experience and ineffective integration into the curriculum (Gumede, 2013:14).

According to Gumede (2013:14) adverse weather conditions and droughts not only impact negatively on the performance of school gardens but also on the farm level. The implication of poor performance at farm and school garden levels is that these projects will fail to serve and sustain the requirements of communities. In addition, Mtshisazwe (2018:22) highlighted the challenge of training arguing that in order to undertake any activity in which food security project is aiming at attracting the market, gardening experience and appropriate skills must be encouraged. Lack of gardening skills and experience might affect the performance of school gardens as a result of poor decision making. For instances experience may come in handy when deciding what to grow during which season and which organic fertilizer works best.

School gardens suffer from the weak support network systems and do not benefit from disaster management systems that South Africa has in place. Malberg Dyg and Wistoft (2018:12) states that the development of new policies and the implementation of food security programmes is dependent on the ability of policy-makers at all levels of government to comprehend the information on the conditions of food demand and supply in different parts of the country. In addition, the Human Science Research Council (HSRC, 2016: 22) stated that the ability to fully comprehend this information can be used to identify risky and vulnerable areas with respect to food access and utilisation. South Africa does not yet have a structured system of dealing with food security disasters such as droughts or floods. These disasters, which occur at regular intervals can substantially threaten the performance of school gardens and the welfare of agriculture-based households. With few reserves to draw on, school gardens are hit hard by crop failure and asset loss (Heady & Ecker, 2012:5).

School gardens are faced with challenges of lack of resources. such as funding. Funding is scarce for school gardens. Without enough funding school gardens won't see the light of the day. Funding is vital for the implementation and sustainability of projects. Access to funds enable projects to pay for water, irrigation systems, the purchase of tools or equipment, to and the repair of tools when they are broken. Lack of financial resources impact negatively on the performance of projects. Moreover, the ineffective integration into the school curriculum is a challenge especially in cases whereby a teacher that was leading the program is transferred to another school or is no longer leading the project due to illness and death (Malberg Dyg & Wistoft, 2018:12).

Gender inequality possesses a challenge to the performance of school gardens as is reflected by the poor participation of men in such projects. According to Gumede (2013:1) women hold the key in the provision of food security. Mtshisazwe (2018:25) weighed in upon this argument and stated that although men were aware of the food situation in their households, they often regarded it as a woman's territory. It was also a gender historical trend for women to consider the production of food for their families as being one of their primary household gender roles.

Furthermore, most communities prefer to invest their time in labour that pays off immediately like in weeks or monthly, rather than investing in labour that will pay later such as school gardens. The argument is validated by such issues relating to the heat wave or droughts that could destroy all the time and resources invested, thus in reality, the best intentions to support struggling families might fail because of the tough financial realities they face (Gumede, 2013:1). School gardens are confronted with a lot of skepticism and consequent lack of support. Therefore, this lack of support poses a challenge for school gardens seeking to perform at their best potential and to obtain services such as garbage disposal. To establish and maintain a school garden is a challenge, however, this does not mean communities must lose interest in establishing and sustaining them because some still manage to perform well despite these challenges. These challenges highlight the importance of establishing a broad base of support for the school garden project between teachers, administrators at the school site, parents, sponsors and the community at large.

3.9 SUSTAINABILITY OF SCHOOL FOOD GARDENS

Several factors are acknowledged in building performing and sustainable school gardens. There are various ways to initiate and manage a school garden. The American Community Garden Association (ACGA) has presented literature on recommendations for building a successful and sustainable school garden (Laurie *et al.*, 2017: 83) which include:

- *Location*

A school garden must be on a highly visible site. For instances on the school grounds, the site has to be drained and must be exposed to adequate sunlight. There has to be enough

water and minimal soil compaction. The soil has to be appropriate for produce to grow well. The location must be agreed upon by all relevant stakeholders.

- *Permanence*

Everyone involved in the school garden must know and understand the rules regulating what is expected from every individual. Consistent feedback on how the garden is doing. It is vital to share update to everyone involved. So that people can feel ownership of the garden.

- *Organic gardening*

To ensure the health of the beneficiary's one should forbid the utilisation of synthetic pesticide and of chemical fertilisers. As this can have negative effects on the health of the beneficiaries. Soil fertility improves through crop rotation, cover crop and compost.

- *Organisation*

As stated previously in the chapter that an understanding attitude and cordial human relations could go a long way in encouraging a more productive workforce whereas being constantly critical and distant and persistently finding fault with one's employees will have the opposite effects (Lutaaya, 2019:14). To ensure that a school garden is sustainable, the project leader must be able to motivate employees and share information with regards to the project and ensure to engage all relevant stake holders in the decision-making process. When people feel sense of ownership and belonging they ensure to

- *Crop diversity*

A school garden must have different kinds of vegetables, fruits and flowers for encouraging a variety of beneficial insects as well as soil micro-organisms. Consider companion plants that encourage growth and suppress pesticides.

- *Curriculum integration*

Engage school administrators, teachers and community partners to integrate the garden into the curriculum and school feeding scheme. For instances environmental studies, economics, mathematics and business studies can integrate school garden in them. keep the project dearly in their hearts, this can influence project sustainability.

- *Administrative and school board support*

A school garden has to raise awareness about importance of school gardens and how they impact the lives of the community. It is important for the community involved to understand that school gardens require support to perform at their best potential. There must also be a garden taste test, where the garden produce will be presented to all relevant stakeholders to witness the product of their hard work.

- *Commitment*

Gardeners must be committed to ensuring that the school garden becomes a success and is maintained at all times. A school garden must be assessed regularly so that it can improve and be able to rectify where it is not meeting its objectives. It is true that assessments are an eye opener and if you do not get the opportunity to be assessed you will never know where you are lacking.

- *Celebration and Acknowledgement*

A gardener must be able to show appreciation to sponsors, volunteers and donors. A school gardener may share the surplus produce and flowers to the community and the needy people. Encourage social capital through garden potlucks and harvest celebration.

- *Asset based*

School gardens must be implemented based on the concept of asset based community development which includes process of identifying school and community needs, being internally focused on school needs in terms of time and energy putting an emphasis on building local capacities and being relationship driven. It is important to ensure that school gardens are maintained for future generations to benefit from them. This is very important when looking at the dimensions of food security, a sustainable food system supports food security. Food and nutrition security is a basis of sustainable diets and food consumption patterns. The community has a greater chance to remain food secure if school gardens are sustained.

3.10 CHALLENGES AFFECTING PERFORMANCE ASSESSMENT

The assessment of performance of school food security projects follows case studies rather than a methodology of scientific rigour. The aim would be to understand the

environment in which these projects are functioning at community level. School food security projects have been established as a response to perceived needs in schools and communities resulting in increasing poverty. Furthermore, projects such as these have been established through charitable or non-profit organisation. However, the assessment of these projects has been insufficient for numerous reasons (Mtshisazwe, 2018:23)

- *Unclear assessment tools:*

One of the most difficult tasks facing any public service is to develop assessment tools for efficient, effective and economical government and administration. This difficulty is exacerbated by the fact that public institutions usually pursue social and political goals rather than simple commercial objectives.

- Assessment of these projects may be centred only towards the needs of the funders in that an assessment is more focused in revealing that funds were not mismanaged.

Most governments today are indeed becoming increasingly cost-conscious. However, ways and means of achieving more services for less money are sometimes scarce more than ideal. Public managers are consequently being put under tremendous pressure to select those assessment tools and analytical techniques which will economise on resources and promote greater efficiency. Moreover, assessment tools do not seek to reveal positive benefits that these projects yield. They over-look other elements such as assessing whether the project is yielding the vital outcomes to combat food insecurity, encouraging income generating opportunities and food sustainability. Assessment of these projects must also be centred towards community involvement in that communities will feel sense of ownership and ensure that these projects are successful.

- These projects are often small scale and they lack funding for long-term development and are mainly established to have local impact.
- Practitioners may be focused on the implementation of activities and service delivery of services.

This is evident when their focus is centred on daily activities and not paying attention to assess if a project is a success provided they attach project goals and objectives on the assessment tools.

- They might be faults in the logic of assessment measures.

Challenges that are common with evidence success indicators include the utilization of personal testimony, program, output, increase and external correlation.

- Sharing of knowledge or information and communication:

One can conclude that performance assessment information encourages accountability and transparency, it also assists in making sound decisions for the project moving forward. Poor dissemination of feedback on project assessment can lead to insufficient assessment of projects, if information is not shared to the involved stakeholders (Mtshisazwe, 2018:23). It is for this reasons that a comprehensive communication plan is a necessity for the distribution of reports. Thus, it is vital to have project meeting consistently to ensure that the project is on track and if it not then it can be fixed in time for optimal performance (Jen, 2016:12).

Assessment of food security projects should not be difficult to perform. However, it requires appropriate performance assessment measures. Assessment measures must have various features, so that, in an instance were by a single measure may not be able to determine performance of a project, different features may be able to do so.

3.11 CHAPTER SUMMARY

It is evident that assessing the performance of school food security project is a challenge due to insufficient performance measures, it vital for the government of South Africa to establish performance measures that can assess the dimensions of food security and the impact these projects have in improving the lives and food access of the community at large. It is highly important to assess the performance of food security project to determine if a project is yielding the desired outcomes, failure to assess the performance of the project will result in failure to detect if these projects are performing to the purpose they were established for (Jen, 2016). School gardens are mostly likely to perform when critical success factors are considered. Nguyen, Ongulana and Lan (2004) as cited by Abylova and Selykova (2019:7) identify and group success factors under four categories which are referred to as the four coms, that is comfort, competence, commitment and communication. It is against this background that South Africa and the world at large need to assess project performance in order to address food security and poverty in a sustainable manner.

CHAPTER 4: RESEARCH METHODS

4.1 INTRODUCTION

This chapter discusses the research methods utilised in this research study in assessing the performance of public funded school garden projects in Sedibeng District Municipality. The methodological chapter is organised to discuss the structure of the research approach, data collection technique, population sampling, data recording and the way the data was analysed. The research design utilised in this study was fashioned in a manner best suited to search for, attain the important and relevant information and knowledge regarding the topic at hand. This chapter also reviews the ethical consideration underpinning the study.

4.2 RESEARCH METHODOLOGY

Research is a process of discovering new facts about a specific topic. It is vital for every researcher to understand all the theoretical assumptions and research methods required to construct a knowledgeable research study (Mishra and Alok, 2017: 60). Research is a “scientific and systematic search for related information on a specific topic” (Mishra & Alok, 2017:60). A research study must be fashioned from the understanding and implementation of research methods that are imperative in discovering vital information on the preferred topic (Ingwenagu, 2016: 76).

Research methodology is a theory of how an inquiry should proceed by analysing the procedures, principles and assumption that should be employed (Flick, 2015: 13). Furthermore, methodologies explain and develop a researchable problem and ways in which the problem can be investigated in an effective manner. A methodology also assists the researcher to choose and develop effective and efficient means of collecting data (Cooper *et al.*, 2018:7).

The success of a research study depends on the researcher’s ability to best use suited research methodology (Cooper *et al.*, 2018:7). The research examined the performance of funded school gardens in Sedibeng District Municipality. A qualitative study was undertaken to enable the researcher to gather all relevant data for the completion of this

study. Sample questions were prepared to aid the administering of the semi-structured questionnaires, however, the researcher was not limited to this sample of questions.

4.3 QUALITATIVE RESEARCH

A qualitative study was utilised to ensure the researcher gathers all relevant data for the success of this study. Aspers and Corte (2019:10) described qualitative research as the situated activity that locates the observer in the world. It involves interpretive and naturalistic approach to the world, for instance, qualitative researchers study phenomenon in their natural settings trying to make sense of, or interpreting phenomenon in terms of the meaning people attach to them. Qualitative research refers to unlimited verbal responses providing the researcher with first-hand information and the opinions of the interviewees while allowing the researcher to gather adequate and specific data. The researcher got to know the target population, observe and interpret their life style which could assist the researcher when analysing data (Aspers and Corte,2019:10). Qualitative researchers are interested in understanding how people construct their words in interpreting their experiences and what meaning they attributed to their experiences. According to Merriam (2002) as cited by Masholungu (2015:22) qualitative research approach enables the researcher to get deeper understanding into their research problem.

Furthermore, a qualitative study enabled the researcher to ask relevant and in- depth questions to the participants and gain relevant information with regards to the problem statement of this research study. The researcher chose this research methodology as it was the best method to permit insight, perspective and theoretical knowledge that would enable the accurate and effective evaluation of the performance of school gardens in Sedibeng District Municipality. Based on the semi-structured questionnaires administered and observation conducted the following were achieved:

- Generation of vital data based on the performance of food security projects,
- Accessed necessary data on the performance of school gardens in SDM,
- Build knowledge on the implementation of performance measures of school gardens in SDM,
- Identified important elements when assessing the performance of school gardens SDM,

- Incentivised challenges and ways to improve the performance of school gardens,

All findings and validations of the information as well as the evaluation of the entire research were based on the in-depth analysis of the responses from the participants and literature controlled. This study employed a qualitative research method, through which the researcher assessed the performance of public funded school food gardens in SDM.

4.4 DATA COLLECTION METHODS

Collection of data is very important stage in any research study. It establishes necessary and basic data of a research study. Collecting research data is time consuming and overwhelming activity which is vital and must be done in a correct way (McIntosh & Morse, 2015: 1). In that, information interpreted by the researcher widens peoples understanding and knowledge of the performance of school gardens in SDM. The description of the instrument the researcher utilised in collecting data for this study is discussed in the next section.

4.4.1 Literature Review

The literature review of the study reflects the focus area of the research and the researcher's knowledge about the area of the study. Literature review provides the background and the context of the research problem. The literature review covers numerous important aspects of the research. Done correctly, a literature review correlates the study to the larger and general study area and continues dialogue in the literature about the topic while filling in gaps and expanding prior studies (Cooper *et al.*, 2018:7). This view is supported by Denney and Tewksbury (2013:7) by alluding that literature review provides a benchmark of comparison of data and outline for shaping and highlighting the importance of a study. It is against this background that the researcher was guided by the literature review in structuring a framework for the assessment of performance in school food garden projects.

In Chapter two a literature review was conducted to explore and establish a theoretical framework for food security and project performance measurement system. In reviewing existing literature the researcher's intentions were to analyse the importance and benefits of performance measurement and the qualities vital for formulating performance

measurement system and framework. Based on this analysis, it is evident that there is clear connection between the success of the project and an accurate performance measurement system and framework. Moreover, an additional literature review was conducted in Chapter three. Chapter three was conducted to formulate critical project performance factors, the framework and indicators that are utilised internationally and locally when assessing the performance of food security projects. This analysis provided theoretical and conceptual precision on the performance of food security projects. The researcher utilised e-journals, journals, e-publications and books as the primary sources as an addition to the literature source for this research study. The literature review outcomes were used to controls the findings by comparing data analysis outcomes with the literature to confirm trends and identify gaps.

4.4.2 Questionnaires

Semi structured questionnaires assisted the researcher to attain accurate and specific information from participants. The SDM was contacted personally after the researcher had sought and received written permission to conduct the research with the SDM extension officers at GDRAD. The researcher was given access to the Senior Food Security Advisor who is responsible for food security projects within SDM. The social interaction between the researcher and respondents provided the researcher with a deeper understanding, insight and meaningful interpretation of the data. The researcher also collected useful data relevant to assessing the performance of school gardens in SDM. The semi-structured questionnaires were prepared and administered by the researcher guided by the research objectives. The interviews were prepared as follows:

4.4.2.1 Key Informant Interviews

Key informant interviews were conducted with the senior food security adviser. The interview was formulated and conducted in an open and adaptable manner allowing the researcher the opportunity to ask follow-up questions about the performance of school gardens. These interviews were designed to investigate and attain more information regarding the performance of school gardens and the performance measures utilised within the SDM to assess school gardens. One interview with a food security senior advisor within SDM was conducted to generate information regarding the performance of school gardens. The key Informant Interview to established and clarified the objectives of

the research study with regards to assessing the performance of public funded school gardens. The interviews permitted the researcher to gather clean information on the school gardens. The responses of the interviewee allowed the researcher to ask in-depth questions, attain specific and thorough information relevant to this research study.

4.4.2.2 In-depth interviews

In-depth interviews were conducted with the school principal and the garden managers of the school gardens within the SDM. These interviews assisted the researcher to establish and clarify the objectives of the research in terms of assessing the performance of the school gardens. The data gathered from the interviews allowed the researcher to obtain clear information on the performance of school gardens. The responses of the interviews enabled the researcher to ask in-depth questions and obtain relevant and thorough information relevant to this study. Moreover, semi structured questionnaires were administered to validate the impact of the school gardens on the lives of the beneficiaries and how this is assessed. The purpose of this was to assess if the impact of the school gardens on people's lives are assessed by then district. A total of six (6) school principal and six (6) school garden managers were interviewed and they were referred to as school interviewees (2-7).

4.4.2.3 Observation

Observation is a systematic data collection approach. This is when a researcher uses all their senses to examine people or situation in a natural occurring situation (Smith and Onwuegbuzie, 2018: 15). A total of six school food garden projects within SMD were consulted and observed. Observation was used by the researcher to provide rich and detailed descriptions of the school food garden. The researcher observed the school garden directly. The objective for observing school gardens was to discover if school gardens are functional, in order to validate the information acquired from the school (principal and garden manager) and to see if there is correlation between the observations and the data from the interviews. The observations were undertaken as a means to test validity and reliability in the data. Furthermore, the observation was documented by means of photographs and field notes. The observation determined the state of the garden as reflected by the location, location in space, access to water and security properties. The observations permitted the research to gather information on the

performance of school garden. Observation made to the school gardens is catalogued as observation (8-13). Annexure 4 consists of the sample questions and observational guide that was prepared by the researcher to guide interviews and observations. However, the researcher was not limited to this sample, as the responses allowed the interviewer to ask relevant and vital in-depth questions. A total of seven (7) interviews were conducted and six (6) school food gardens were observed.

4.5 TARGET POPULATION SAMPLING

Population is defined as members of a defined group that we are studying or collecting information from for data driven decision (Kabir, 2016:202). A part of the population is called a sample. Furthermore, Aspers and Corte (2019: 13) refer to the population as “an aggregate or totality of all the objects, subjects or members that conform to a set of specification”. This study focused on three local municipalities within the SDM namely Emfuleni, Lesedi and Midvaal. These local municipalities were specifically targeted for this research as they form the Sedibeng District Municipality. All interviews were conducted within the SDM. According to Kabir (2016:202) a sample size refers to a number of items selected from the universe to constitute a sample. An optimum sample is one which fulfils the requirements of efficiency representativeness and reliability. The sample in this study was selected to determine if there will be identical responses to the questions asked and observations made, thus a small group interviewed would represent the larger group.

The sample was chosen with the purpose to fulfil the objectives of the study stated in Chapter One. A total of thirteen (13) individuals were interviewed one (1), food security senior adviser and six (6) school principals and six (6) school garden managers, comprising of six (6) school gardens that were observed. The researcher deemed it necessary to interview the food security senior adviser working on the food security projects within SDM, as she was responsible for the provision of extension services, managing and monitoring the school food gardens established in the SDM. This selection is purposive and motivated by the need to tap into the sound knowledge and expertise in project performance management in food security projects. It was necessary to interview the food security senior adviser to fully comprehend the processes and mechanisms utilised to assess the performance of public funded school food garden projects. The

interviewer was able to determine the performance measures established to assess the performance of school gardens within the SDM.

Six (6) school principal and six (6) garden managers were interviewed and provided useable, reliable and verifiable information regarding the school garden. They gave information regarding the performance of school gardens and the elements crucial in sustaining these projects. Through their responses, the interviewer assessed the performance of school gardens in SDM. Six (6) school gardens were consulted and observed, two from each local municipality in SDM. These school gardens were consulted to authorise the observations which would assist in checking the reliability of the information provided by the food security senior advisers, school principal and garden managers.

Good research sampling is vital to decrease the probability of the researcher interviewing and selecting inappropriate sample for the study and increases the validity and reliability of the research study. Aspers and Corte, (2019: 13) defines sampling as a process in which data can be collected in an appropriate manner, restricting it to a set of persons with relevant information for the research. It is against this background that the researcher interviewed the people who are responsible for the monitoring, assessing and managing of school gardens (one, food security senior advisers), those that are at the ground implementing these projects within SDM (six, school principals and six, school garden managers).

4.6 DATA COLLECTION AND ANALYSIS

The sections below briefly explain data collection and analysis

4.6.1 Data Collection

Data collection was undertaken with the aim of writing and observing all the responses in a meaningful manner that noted all relevant data collected during the course of the interviews. The researcher did not use any recording device. All the interviews were conducted face to face and transcribed by the interviewer. The interviewees were presented with the transcribed responses to sign to confirm that the transcribed information is in the correct context of their expressions. The researcher then analysed

the responses from the food security senior adviser, school principal and school garden managers, and observations made from the school food garden.

The data gathered was transcribed using codes such that no names were written/recorded in the transcripts. Coding of names was done to adhere to the ethical considerations that were established to be relevant to this study. The responses were coded in the form of numbers. The food security senior adviser were coded from Interviewee 1, school principal and garden managers were coded from interviewee 2-7, to as their individual identities and the observation of school food gardens were coded from interviewee 8-13.

4.6.2 Data analysis

The researcher used thematic analysis. For the purposes of this study thematic analysis was used to analyse the data where all the responses from the interview were categorised into themes in order to assess the performance of school gardens within SDM. Thematic analysis refers to analysing data using themes and categories of correspondences and differences in a qualitative study and referencing codes that fall under the themes that have been identified (Vaismoradi, Jones, Turune and Snelgrove, 2016:2). Observations using observation guide from the researcher were also recorded and analysed.

Thematic analysis assisted the researcher to classify and analyse information in a story-line. This research study classified important aspects in terms of the assessment of the performance of school gardens within the SDM. Response from the interviews were scrutinised using deductive and inductive coding, where the researcher assessed the objectives of school gardens to see whether or not school gardens are performing.

Observation from the researcher were also analysed and recorded. The food security senior adviser, school principal and garden manager within the SDM were provided with their interview questions and answers to certify that the information recorded is true representation of their views and opinions.

4.7 RESEARCH ETHICS

Ethical research is defined by Resnik (2015:2) as a manner that the researcher is collecting data and this manner is characterised by integrity and a responsible conduct.

Therefore, the empirical data of this study was collected ethically throughout. The researcher requested, and was granted, written permission from the department of agriculture and rural development to conduct the research within their extension offices in Vereeniging. The permission letter from the gate keeper is attached to this study as annexure 1. All the participants were presented with consent letters to sign. Consent letters are attached as Annexure 2-for senior advisers and Annexure 3 for school principal and school garden managers. The researcher explained the purpose of the study and gave them an opportunity to participate voluntarily. All the interviewees participated freely, volunteered to take part in the research and completed the consent forms willingly. The researcher ensured that there was no violation of privacy or confidentiality during and after the collection of the empirical data.

All the identities of the participants were kept confidential and all participants were informed that they could withdraw from participation at any time if they felt the need to. After the researcher had conducted the interviews, participants were allowed to go through the transcribed interview and sign it to verify information. The names of the interviewees were not recorded; rather the interviewees were assigned names namely interviewee 1 to Interviewee 7. The observations were also given names such as observation 8 to13.

4.8 CHAPTER SUMMARY

The chapter's intentions were to explain the research methodology that the researcher employed in conducting the empirical study. The research study used a qualitative approach to address the research problem that was identified. The chapter discussed the sample population, data collection, data recording and data analysis techniques that were utilised in assessing the performance of school gardens in SDM. A total of seven (7) interviews and 6 school food gardens were observed and these were analysed to assess the performance of school gardens in SDM. The findings of this empirical study are presented, analysed and discussed in the next chapter.

CHAPTER 5: RESEARCH RESULTS AND PRESENTATIONS

5.1 INTRODUCTION

This chapter present and discuss the results of the empirical study conducted within the Sedibeng District Municipality. The discussions are based on the observations conducted in the respective school food gardens interviewed. The analysis of the empirical study was done within the context of the literature reviewed in chapter two and three of this study. Data was collected from observations made on the school food gardens and from administering two sets of semi-structured interviews to six schools in the SDM and the Food Security Senior Adviser from GDARD. The participants in the semi structured interviews were the school principals and school garden managers in the respective schools.

5.2 RESULTS FROM THE SCHOOLS

The participants, the school heads, were required to provide the number of learners in the respective schools. The respondents provided the number of the learners in respective schools as shown in Table 5.1 below.

Table 5.1 Number of learners in school

Grade	Total number of students	
	Female	Male
INTERVIEWEE 2 (991 learners)		
1	73	77
2	79	70
3	67	63
4	84	119
5	53	59
6	72	65
7	55	53
INTERVIEWEE 3 (553 learners)		
1	59	40
2	46	44
3	39	40
4	33	37
5	41	35
6	40	39
7	37	23
INTERVIEWEE 4 (1817 learners)		
1	152	148

2	145	132
3	144	131
4	133	132
5	130	137
6	111	119
7	110	93
INTERVIEWEE 5 (912 learners)		
1	83	75
2	73	63
3	45	60
4	61	72
5	77	53
6	66	67
7	61	56
INTERVIEWEE 6 (1311 learners)		
8	147	151
9	162	152
10	209	180
11	84	105
12	61	60
INTERVIEWEE 7 (509 learners)		
1	38	38
2	40	42
3	34	37
4	30	35
5	42	36
6	40	38
7	34	25

In assessing the performance of school food gardens it become necessary to profile the beneficiaries. Beneficiaries' demographic profiles provides context for the performance assessments. The primary schools and high schools from low income locations are more likely to have food insecure learners. The number of learners are presented in Table 5.1 also showing the gender demographic variables of the learners. The responses based on table 5.1 included five primary schools (Interviewee 2, 3, 4, 5, 7) and one high school (Interviewee 6) identified for this study. Interviewee 2 enrolled a total of 483 female learners and 506 male learners.

The enrolment for the school identified as Interview 3 comprised of a total of 295 female learners and 258 male learners. Interviewee 4 enrolled 925 female learners and 892 male learners. Interviewee 5 had an enrolment of a total of 466 female learners and 446 male learners. Interviewee 7 enrolment comprised 258 female learners and 251 male learners. The high school (Interviewee 6) enrolled 663 female learners and 648 male learners.

From the response provided in Table 5.1, the schools enrol an almost equal number of male and female students. These schools were identified as being susceptible to hunger or being food insecure by the Department of Basic Education.

5.3 LEARNERS PARTICIPATING IN THE GARDEN

Participants were asked to provide the number of learners who were participating in the gardens. The responses are presented in Table 5.2.

Table 5.2 Learners participating in the garden

Schools	Total Number of learners (Frequency)	Learners participating in Garden
Interviewee 2	991	690 (69%)
Interviewee 3	553	0 (0%)
Interviewee 4	1817	0 (67%)
Interviewee 5	912	618 (67%)
Interviewee 6	1311	0 (0%)
Interviewee 7	509	0 (0%)

The responses indicate that only two schools of the five schools had learners participating in school gardens. Of those schools with learners participating in the garden projects, interviewee 2 and 5, only 69% and 67% of the learners were involved respectively. The rest of the learners in the sampled schools were not participating in the school gardens project at their school. However, participant 7 indicated that grade 7 learners from the school had participated in the school garden project only discontinuing after EPWP officials had took to assisting the school with the project. Therefore, based on the responses, it is evident that schools would prefer having workers in the projects rather than having learners participating. However, according to FSSA (2018) participation of learners is crucial in ensuring that they learn how to care for the environment and increases interest in vegetables by being involved in the school garden. This then shows that if learners are not participating in the gardens this may affect their performance and consequently may limit the benefits of the school gardens.

The skills acquired by learners in the school gardens must be transferred to the communities, a lack of learner's participation limits the ability of the school garden projects to benefit the respective communities. The preference by schools to have outside participants other than learners need to be reviewed, in the context of expanding the benefits of the school gardens. The school food gardens cannot be just about performance in having the garden produce but also fostering food security in the community.

5.3.1 Number of hours per week working in the garden

A follow up question required participants to provide information about the extent of the learner's participation. Participants were asked about the number of hours utilised per week working in the garden. Only two responses were received for the posed question in line with the number of schools where there were learners participating in school garden projects. The responses from the two schools participating in the garden projects show that only an hour was utilised per week to engage in garden work as part of life orientation and natural science subject work. Based on the responses it is evident that schools consider the garden projects as peripheral to their curriculum. Nonetheless, the integration of school garden in the curriculum will be important to enhance the involvement of children in the garden. This is important to keep them motivated. Moreover, teachers may be more encouraged when the school garden will no longer be an extra task in their job (FSSA, 2018). The more hours given to learner's participation in the garden projects, the more likely they are going to consider agronomy as a carrier, such efforts would blend well with national strategies on promoting entrepreneurship amongst learners.

5.3.2 Existence of feeding scheme programme in schools

The participants were asked to specify if there were feeding programmes in the schools. A follow-up question required the school to indicate if the harvested crops are used in the feeding programmes. Interviewee 1 informed that the feeding programme is established by the Department of Basic Education to assist learners from identified schools that are prone to hunger and food insecurity. The school garden projects are supposed to supplement the feeding programme with vegetables and fruits. All six schools (Interviewee 2-7) reported that there is a school feeding programme in their respective

schools. The participants further indicated that the crops harvested are used when the food is cooked in the respective schools. However, participants indicated that the supply from the school food gardens was unreliable although the food they served helped learners to be food secure.

School feeding is an “important social protection instrument and a component of South Africa’s social protection system implemented since 1994” (Devereux et al., 2018:1). Food security through food gardens aims to “improve the health and nutritional status of school-going children” (Devereux, et al., 2018:1; Bundy, Silva, Horton, et al., 2018: ix). A food garden is linked to the objective of education as it aims to “improve learners’ school attendance, attentiveness and performance” (Devereux et al., 2018:1). The crops harvested in school gardens are incorporated to the school feeding programme as it is cooked as per menu planned for learners. Devereux et al. (2018:1) indicated that food gardens are aimed to “improve food production knowledge and skills, natural resource protection and school meals”. The benefits are especially great for the poorest and most disadvantaged children (Bundy, Silva, Horton, et al., 2018: ix). Participation of community in school garden programme will allow learners to eat healthy and enhance learner’s academic development. Devereux et al. (2018:1) alludes to the fact that the school feeding programmes provides daily meals to approximately 9 million children in more than 20,000 public schools across South Africa. Home Grown School Feeding offers similar benefits to the community, in this case through the returns to the local farmers (Bundy, Silva, Horton, et al., 2018: xx).

5.3.3 Frequency of meals provided per day to learners

The schools were asked to identify the frequency of meals provided daily. The results of the frequency of the meals served per day are presented in Table 5.3.

Table 5.3 Frequency of meals provided per day to learners

Days	Meals
Monday	<i>Breakfast:</i> Creamy Instant Maize Meal (Vanilla) <i>Lunch:</i> Pilchards stew with rice and yellow vegetable in season
Tuesday	<i>Breakfast:</i> Instant Sorghum (Banana) <i>Lunch:</i> Sugar bean stew with samp and green vegetable in season

Wednesday	<i>Breakfast:</i> Creamy Instant Maize Meal <i>Lunch:</i> UHT Milk or Pasteurized Amasi with maize pap and fruit in season
Thursday	<i>Breakfast:</i> Instant Sorghum (Vanilla) <i>Lunch:</i> Sugar bean stew with samp and yellow vegetables in season
Friday	<i>Breakfast:</i> Instant Sorghum (Banana) <i>Lunch:</i> Soya mince stew with maize pap and green vegetable in seasons

Developed by the researcher

The response from Interviewee 2-7 show that the meals are provided every day of the school week from Monday to Friday. The indication is that each school (Interview 2-7) serves two meals per day which are breakfast and lunch. The meal plan presented in this section is a standard meal plan and it is used for all schools which provide feeding scheme to learners. The meals plan provided form part of the school feeding programme. The meals identified in Table 5.3 represent the meal issued for five days. Same meal plans are provided, the only difference is that the meals are served in different days. All schools (Interview 2-7) provide porridge for breakfast and solid warm plate/food for lunch. For example, if interviewee 2 serves breakfast: creamy instant maize meal (vanilla) and lunch: pilchards stew with rice and yellow vegetable in season on Monday. Interviewee 3 serves breakfast: instant sorghum (banana), lunch: sugar bean stew with samp and green vegetable in season on Monday. Then on Tuesday interview 2 will serve what interview 3 served on Monday and interview 3 will serve what interview 2 served on Monday. It was noted that fruits were not included on meal plans as compared to vegetables. The World Health Organisation (WHO, 2018) recommends that an individual should consume at least 2 fruits and 3 vegetables a day. Only Interview 3 indicated that a fruit is given to learners on Wednesdays. Meal plan must be nutritious where the serving consists of fruits, vegetables, proteins and carbohydrates. Thus, it is evident from the meal plan that all the six schools that were interviewed serve nutritional foods.

5.3.4 List of meal plan servings for the last seven days

Another question required the schools to identify the meal plans for the last seven days as the interviews were held. The schools were asked to also identify the number of days in which the meal plan was served. The details of the list for meal items served are presented in Table 5.4.

The details in Table 5.4 identify the manner in which the meal items are given to learners in those schools identified to have food insecure learners. All six schools indicated that protein, carbohydrates and fatty acids foods are served to learners. Schools are required to provide protein, starch, vegetable or a fruit on a daily basis. Two schools (Interviewee 2 & 6) did not indicate the existence of any meal plan for the seven day when the study was conducted. Interviewee 4 and 5 provided a tick of X and did not specify frequency of meals provided. The results show that maize, leafy vegetables, potatoes, beans and fish were offered almost on a daily basis for a week. Cereal is provided on daily basis. Some food items such as poultry, fortified blended food were not part of the food plan, the consisted of mostly freshly cooked meals. Eggs form part of protein, but they are not offered to learners.

Table 5.4 List of meal plan servings for the last seven days

Items for meal plan	I 2*	I 3	I 4	I 5	I 6	I 7
Maize, maize porridge	-**	5	X	5	-	5
Other cereal (e.g. Rice, sorghum, millet)	-		X	X	-	-
Cassava	-	5	X	0	-	-
Potatoes, sweet potatoes	-	-2	0	0	-	0
Sugar or sugar products	-	0	X	X	-	-
Beans and peas	-	5	X	X	-	-
Groundnuts and cashew nuts	-	-	0	0	-	-
Vegetables /relish /leaves	-	5	X	X	-	-
Bread, pasta	-	0	0	X	-	-
Fruits	-	1	X	X	-	-
Beef, other red meat	-	0	X	X	-	-
Poultry	-	0	0	0	-	-
Pork	-	0	0	0	-	-
Eggs	-	-	0	0	-	-
Fish	-	2	X	X	-	-
Oils/fats/butter	-	5	X	X	-	-
Milk, other dairy products	-	2	0	-	-	-

Fortified blended food	-	0	x	x	-	-
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**I 2- I 7 = Interview 2 - Interview 7*

*** - = no answer, 0 = none, 1 = once; 2 = twice, 3 = three times, 4 = four times, 5 = five times, X = unspecified response*

5.4. OUTCOME FROM THE SCHOOL GARDEN PROJECTS

The following section presents data on the outcome of the school garden projects.

5.4.1 Selling of harvested crops

In this section, the participants from the schools were asked to indicate if produce from the gardens were sold for commercial purposes and what the proceeds were used for. The response indicated that only four schools (interviewee 2-5) were able to sell the produce grown in the garden. Whilst the other two schools (interviewee 6-7) informed that the crops are not sold. Interviewee 6-7 further informed that selling of garden produce depends on the crops produced from the garden. In this instance if the gardens have enough produce the school will be able to sell some of the produce and if the garden does not have enough produce it won't be able to sell. In terms of the harvested crops, Interviewee 2 informed that the crops are only for needy learners. Interviewee 3 further indicated that the crops produced benefit learners and the clinic.

The performance of the garden is vital in determining if the garden can generate income opportunities. Interviewee 2-7 indicated that the money generated supplement the buying of seeds and tools for sustaining the garden and this ensures that the garden has enough seed to plant for every season. Furthermore, it was stated that the money raised serve to pay stipends for people who assist in the gardens. It is crucial to ensure that opportunities such as these are utilised especially in communities experiencing poverty and unemployment. In a sense, it is possible to have self-sustainable school food garden projects as is indicated by the data.

5.4.2 Number of learners taking harvested crops home

Another question was meant to establish if the interviewed schools had learners who take items grown in the garden home. The results are shown in Table 5.5 below. Interviewee

2-7 indicated that all learners take veggies home. Table 5.5 shows that most of the students eat food supplied from the school gardens. These schools are mostly located in low-income areas found in rural areas, farms and townships. Thus, most of these schools have learners that are susceptible to food insecurity because they come from poverty stricken families.

Table 5.5 Learners taking vegies home

Schools	Total Number of Students Frequency	Take Veggies Home
Interviewee 2	991	991 (100%)
Interviewee 3	553	553 (100%)
Interviewee 4	1817	1817 (100%)
Interviewee 5	912	912 (100%)
Interviewee 6	1311	1311 (100%)
Interviewee 7	509	509 (100%)

Interviewee 2-7 informed that the learners are issued with vegetables to share with their families every Friday afternoon. The veggies given weekly allow the learners and their families to eat during the weekend.

5.4.3 School holidays and coordinating the maintenance of school garden

The question posed under this section sought to gain understanding of what happens to school garden during school holidays. The schools were also asked to indicate who coordinates the maintenance of the school garden. All the participating schools indicated that the projects continue to function during school holidays. Four of the participants indicated that the school garden projects are attended to by the Expanded Public Works Programme (EPWP) officials. Two schools indicated that the gardens are managed by the Community Work Programme (CWP) members. Participants indicated that the South African government employs EPWP and CWP officials to clean the school and manage environmental activities in the schools. The officials help with the project's upkeep especially when schools are closed and during holidays.

Maintenance and responsibilities of garden coordinators

The schools were also asked to indicate who coordinates the maintenance of the school garden and to identify the responsibilities of such coordinators. All participants alluded to the fact that the maintenance of school gardens is vital for the project performance. The role of external help is more urgent during school holidays when teachers and learners are not available to maintain the school garden. If the school garden is not taken care of, the performance of the garden will be negatively affected. The respondents also indicated that EPWP and CWP workers make it possible to maintain the gardens. The maintenance of these projects is crucial to ensure that the school garden performs to its potential. The presence of EPWP and CWP officials during holidays also ensure that gardens are safe since garden may be susceptible to theft. The school garden coordinator is responsible to ensure that the activities for implementing and maintaining school gardens are properly performed. Furthermore, the respondents had the following to say with regards to responsibilities attached to garden coordinator:

- distribute the seeds, fertilizers and garden tools (Interviewee 2, 6)
- implement the school garden (Interviewee 3, 4)
- manage absenteeism (Interviewee 2-7)
- encourage team-work amongst the gardeners (Interviewee 6)
- manage the produce and decides on the amount of the produce to be sold and taken to the school feeding programme (Interviewee 7)
- Assist with the selling of crops produced (Interviewee 7)

The responses in this section show that it is vital for every school garden to have a maintenance coordinator who will ensure that the school garden is performing to its potential.

5.4.4 Observation made to school gardens participants

The schools were asked if there were observation made to school gardens. All participants indicated that they observed that most garden participants were happy with the projects. The following were points verbalized by the respondents:

- Interviewee 2 indicated that the school has challenges with regards to water and lack of space to grow vegetables. However, the school gardens participants made it easier by using the available space to grow vegetables.
- The response from Interviewee 3 and 7 were to the effect that the project is good for older persons as it gives them a sense of ownership and wellbeing.
- Interviewee 4 informed that the project alleviates poverty among participants and enabled the school gardens participants to gain extra income for stipend as they sell the produce to the community.
- Interviewee 5 mentioned that the school gardens participants gained a sense of responsibility whereby they pack the food parcels for learners and ensure that all learners receive their packs each Friday.
- Interviewee 6 informed that the projects enhanced the school gardens participants to be team players in the school.

Based on the information above it is evident that school garden participants have enough motivation to work in the garden as they also benefit by gaining interpersonal and leadership skills. Gardeners gained financial independence because they are provided with a source of income. A sense of fulfilment is generated as they help and participate in the supply chains for the school feeding programme. It was also mentioned that the school gardens participants have brought a sense of relief to the teachers since they had to manage the garden projects without external help. These findings are supported by the FSSA (2018) whereby most schools encounter challenges to start up a school garden and can be seen as a burden for teachers. For the latter, a solution was proposed: involving parents for maintenance and supervision of the school garden. Moreover, review of Ohly et al. (2016) states that school gardens can have positive impacts on beneficiary's health and wellbeing, not only on fruits and vegetables consumption, but also on physical activities. For instance, promoting social cohesion and relieving stress. Promising effects of school gardening on physical activity were also reported in the studies of Wells et al. (2014).

5.4.5 Garden based professional development

The question in this section required beneficiaries to indicate if they received garden based professional development.

The majority (4) of the schools had received professional training on gardening. Two participants had not received any training. According to Lutaaya, (2019:33) professional development to the school” projects is necessary to train and retain personnel especially when scarce resources are experienced. Such training must be flexible and up-to-date with evolving technology. There are new technological develops which could be incorporated to harness the skills of coordinators. Developments of Training opportunity can be formal or informal to improve productivity (Abylova and Salykova, 2019:7). Improved equipment and technology together with the necessary expertise to utilise it could lead to increased project performance. The FAO (2014) emphasized that professional development is necessary develop skills and knowledge required to implement and sustain successful school gardens.

Table 5.6 Garden based professional development

Interviewee	Training received: Y/N In the past 3 years	Institution who provided training	Skills Transferred
Interviewee 2	Yes	Arcelor Mittal	How to grow produce
Interviewee 3	Yes	GDARD, Arcelor Mittal, Clinic	Crop production Crop maintenance
Interviewee 4	No	-	-
Interviewee 5	Yes	GDARD	How to start a garden and planting How to use containers and type of vegetables Pest control Compost making
Interviewee 6	No	-	-
Interviewee 7	Yes	GDARD, Seta	Treatment of vegetables Upkeep of crops

Developed by the researcher

Interviewee 3 informed that it received training from GDARD. The training provided by GDARD was accompanied by the provision of garden tools. Interviewee 2 and 3 indicated that they received training from Arcelor Mittal in 2017, a local company in its corporate social responsibility program. Two schools (Interviewee 5 and 7) indicated that training was received but did not indicate who provided training. A nearby clinic also provided training to (Interviewee 3). There is evidence that both the private and public sector is playing a role in supporting the school garden project.

5.4.6 Assessment and issues concerning sustainability of school gardens

The schools were asked to identify the types of assessment conducted and to describe issues that concern sustainability of the school garden project.

Assessment conducted

Interviewee 2-7 reported that the schools do not conduct assessments. The assessments of school gardens are conducted by GDARD. However, Interviewee 3 informed that the only assessment activity done is when they check around the school gardens in the early morning (8am) and afternoons for disease and pests on the crops. This is done twice a week. Interviewee 5 reported that an assessment was done once in 2019. A relaxed approach to assessments mean that the performance of school garden projects takes a back sit and the projects may be done to tick a box without deliberate expectations of an improvement in the outcomes. One of the ideal outcomes would be to drive the garden projects to sustainability.

Issues concerning sustainability of school gardens

Several factors are acknowledged in literature as relevant to building performing and sustainable school gardens (Laurie *et al.*, 2017:83). There are various ways to initiate and manage a school garden. In terms of the six schools interviewed the following are the issues as it concerns to sustainability of projects:

- Commitment

The schools alluded to the importance of permanent and committed gardeners, a lack of commitment and passion can have negative effect on the performance of the garden.

Interviewee 2 indicated that the people working in a project must be committed whereby the manager does not need to run after them. Interviewee 3 mentioned that a project must have dedicated people since the projects are intended to uplift the standard of food insecure communities. Interviewee 5 indicated that passionate people are required for developing the community especially in the schools Lutaaya (2019:33) also confirms that commitment is linked to a feeling of collectivism than, that of individualism, team members need to be in a space that motivates them and give them a sense of satisfaction with the job that they do, in that, they feel part of the team. It is important to clarify objectives and scope so that team members can be guided accordingly as to what is expected from them.

- Capacity building and appointment of school garden coordinators

Interviewee 2 indicated that permanent gardeners will work to attain the sustainability of the garden. Interviewee 5 mentioned that it was crucial to train garden participants.

- Resources allocation

Based on the response from the six schools that were interviewed, five schools (Interviewee 2-6) indicated that school gardens require adequate space to be properly implemented. The other challenge that seemed to cut across all the six schools was the issue of water supply. Water is perceived to be the engine for the school gardens to perform. Interviewee 4 identified lack of water for plant production and believes that government needs to intervene in assisting schools to acquire boreholes for their crops. Interviewee 2 indicated that mistreatment by the leaders and co-workers can result in gardeners not coming to the garden anymore and there will be no one to maintain the garden. To the effect, staff development aimed at improving working relations is a relevant resource for garden projects. Interviewee 5 stated that a frequent monitoring system for school gardens and water supply in the form of irrigation system can boost sustainability.

- Support structures and ethics

Interviewee 2 to 7 perceived that support structures were important in any organisation. They also indicated that the support from the school administrators, teachers, learners and the community would boost the morale for garden coordinators.

The above results show that school garden projects are important and have value towards attaining food security. School gardens have played an increasingly important role in engaging students in the natural environment and promoting the health benefits of eating fresh vegetables and fruit (Garwood, Wasserstrom, Logan, and Steeves, 2016:4). A sustainable agriculture is crucial to ensure food security. Schools have dedicated personnel to manage the gardens. However, the participants raised concerns which call for a review in the recruitment of additional staff to enhance sustainable school gardens. It is evident that a lot of investments are required to ensure sustainable food security.

Therefore, it is evident that the assessments of school gardens is mostly conducted by GDARD and some private companies such as the Acerlor Mittal. Nonetheless, schools do not conduct any formal assessments of their own. Thus, it is important that every school conducts its own assessments and not rely entirely on the GDRD. As monitoring, must happen frequently. In order, for faults to be detected in time and be corrected for improved project performance. Furthermore, it is crucial to note that commitment by the gardeners is important in ensuring the sustainability of the garden. Commitment by the gardeners fosters good working relations amongst gardeners and the involved stakeholders. When gardeners feel a sense of ownership to the garden they will be committed in ensuring that it performs well. Moreover, the issue of water supply cuts across all the six schools (interview 2-7). Water is the engine for the sustainability of school gardens. Thus, it is crucial for the government to assist in providing schools with boreholes to ensure sustainability of school gardens, as every school garden needs water to survive.

Moreover, capacity building is crucial in ensuring that gardeners obtain skills, knowledge and tools, to do their job exceptionally well especially in this technological era and this will in turn contribute to the performance of school gardens.

5.5 RESULTS FROM GDARD

This section provides results of the interviews conducted with the GDARD food security senior adviser in SDM. The questionnaire consisted of six (6) questions based on the following six themes presented in the sections below:

- Process evaluation
- Outcome evaluation
- Economic evaluation
- Appropriateness, effectiveness and efficiency
- Tools for assessing performance
- Incentives for performing school gardens

5.5.1 Process Evaluation

This section inquired about process evaluation on school food gardens implemented in the respective schools in the SDM. Process evaluation is increasingly recognized as an important component of effective implementation research (Limbani, Goudge, Joshi, Maar, *et al.*, 2019: 953). This section comprised of six (6) questions and the results are presented in the following paragraphs.

5.5.1.1 Programme implementation

The researcher asked the food security senior adviser (interviewee 1) to indicate how the food security programmes are implemented particularly the school food garden projects. The response received from Interviewee 1 indicated that the GDARD implements various food security programmes such as community food gardens, household food gardens and school food gardens. In terms of school food gardens the Interviewee 1 informed that the GDARD receive requests for intervention from the Department of Basic Education. In that the requests include a compiled list of identified schools that are prone to food insecurity and high levels of hunger in the respective low income townships. Interviewee 1 informed that the GDARD employs agricultural officers to implement the respective projects. The extension officers assist schools to implement school gardens. The researcher believes that it is important that fieldworkers are knowledgeable of all vital process for the program to be effective.

Interviewee 1 also indicated that the officials are agricultural professionals who are capable and competent in their field of work, for instances they know all about the implementation processes. The extension officers visit the respective schools to check if they do have land (space) and water. When that is verified, they then provide the school

with tools for gardening and seeds to plough and grow vegetables and fruits. Such officers are responsible for various functions relating to food security such as agricultural extension officers, agricultural technicians, agricultural scientist and agricultural economist. The participant also informed that the implementation process is undertaken in different phases, whereby the initial phase comprises of various activities. These officers officiate the implementation of the respective projects from its infant stage (feasibility study or project start-up). The officers visit the respective schools and assess the land (space) where the school garden will be implemented. The implementation process involves resource allocation for farming equipment such as spades, forks, rake, hosepipe, seeds and seedlings and protective wear. The implementation also involves giving agricultural advices, project take-up support and continuous monitoring.

5.5.1.2 Appropriateness of the processes as compared with quality standards

Under this section a questions was posed as how current processes compare to standards. The response received indicated that the process is not appropriate at times. This is caused by delayed list of identified schools as it is received late. It was indicted that some schools are not accessible hence the process is not appropriate especially the schools located in rural areas or farms. The respondent informed that the delayed information compromises the quality standards, because some schools are not assisted as expected.

5.5.1.3 Correctness of the implementation

The food security senior adviser (interviewee 1) was asked if the programme is being implemented correctly. Process evaluation assesses project implementation (Berkowitz, Huhman, Heitzler, Potter, Nolin and Banspach, 2008:222). Process evaluation helps us to “understand the planning process” (Bess, King, and LeMaster, 2004). The response received was positive with a reply of “yes”. Although the respondent informed that the implementation process is sometimes strenuous since it is difficult to make ends meet when they start the project. The respondent also informed that “nonetheless these schools that are identified as food insecure are assisted with everything that is necessary to start a school gardens”.

5.5.1.4 Reaching participants as intended

The researcher asked the food security senior adviser (interviewee 1) if the programme participants are reached as intended. It can be said that process evaluation enable programme staff members to identify needed interventions and change programme components to improve service delivery (Bowie and Bronte-Tinkew, 2008). The response received indicated that some of the participants are reached as intended. Also other participants are not reached as intended and they are not easily accessible. The respondent also informed that the department end up not being able to reach the participants in time. It was said that the programme participants may be reached in person or by telephone or cell phone call. Since they deal with different schools, an effective way to contact the participants is by means of a phone call as they cannot visit the school premises on daily basis. Therefore, they resort to call as it is an effective way. However, it was also informed that the cell numbers changes from time to time. The schools in the farm area lack network coverage in other days.

5.5.1.5 Satisfaction of program beneficiaries

This question inquired if the beneficiaries were satisfied with the programme. A process evaluation examines the extent to which a programme is operating as intended by assessing on-going programme operations and determining whether the target population is being served (Bronte-Tinkew, Horowitz, Redd, Moore and Valladares, 2007).

The response given indicated that the beneficiaries are satisfied with the programme implemented. Furthermore, it was reported that the learners in some schools are pro-active in the garden. The respondent also informed that the beneficiaries residing in the farm areas have a challenge of water supply and this makes the beneficiaries to be unsatisfied with the programme. Without water the garden is at risk of producing spoilt vegetable or no vegetable at all. It is for this reason that monitoring of projects must be done from the implementation phase and throughout the life cycle of the project. However, the department made means to provide JoJo tanks and helped to develop water reservoir by collecting rain water.

5.5.1.6 Innovation

In this question the researcher asked what has been done in an innovative way for the project. The respondent indicated the department is in talks with different stakeholders. The reported stakeholder includes the Rand Water who provide advice and assist to install irrigation systems in schools for school gardens. Interviewee 1 alluded to the fact that the school garden project is an initiative by the Department of Basic Education and it's implemented by the Gauteng Department of Agriculture and Rural Development. Interviewee 1 had the following to say:

- that the Department of Basic Education is also a stakeholder as it enables the incorporation of the curriculum to school food gardens.
- The Department of Basic Education also identifies and submit the schools that are likely to participate in food security programmes so that the department can reach schools in time.

5.5.2 Outcome Evaluation

This section focused on outcome evaluation. Evaluation and implementation research that focus on impact have been deemed critical to determine the effectiveness of programmes being implemented (Diaz, Guenther, Oliphant, and Muñiz, 2014:2). Outcome evaluation assesses the short-term and long-term changes that result from programme activities (Berkowitz, Huhman, Heitzler, Potter, Nolin, and Banspach, 2008:222). This section comprised of six (6) questions and the responses are presented below.

5.5.2.1 *Effect of the programme*

This question asked how well did the programme worked. The response from Interviewee 1 indicated that the programme went very well and mentioned three positive roles attached to the programme. The three positives include food parcels, feeding scheme and income generation.

- *Food parcels*

It was reported that school garden projects enable the schools to provide harvested crops as a supplement to food parcels issued to the learners. It was informed that due to the

susceptibility of learners to poverty, the school then provides them with food parcels (fruits, samp, mealie meal etc) every Friday afternoon to take home. It can be concluded that the food issued to learners enable them nutritional food intake over the weekend which will contribute largely to the household dietary requirements and household food security. The response indicated that food parcels can help learners that are prone to food insecurity and hunger to have access to nutritional food intake even when they are not at school. Paying attention to the responses it can be expressed that food parcels are perceived to be vital to the beneficiary's food access and nutritional food security, with the intentions to alleviate hunger and food insecurity amongst learners and household. When leaners take the food parcels home it's not only for their beneficiary but their families are able to benefit as well. This improves household access, availability and utilisation of food.

- *Feeding scheme*

Further the response reported that school garden projects supplements the feeding scheme. The feeding scheme is a project initiated by the department of basic education to assist learners that are identified as prone to hunger and food insecurity. The school garden projects supplement the feeding scheme with the crops harvested as the vegetables are cooked and served to school children during lunch time. Interviewee 1 indicated that this then suggests that learners are assisted in coping with their livelihood. The response provided by Interviewee 1 suggest that food gardens plays a vital role in ensuring that learners have access to nutritional food intake to combat food insecurity and hunger.

- *Income generation*

Another point noted from the response was that the food gardens create income generation opportunities only when the school garden performs to its maximum. By that, the school garden must be able to grow enough produce to supplement the feeding scheme and food parcels. The income generated results when members sell the vegetables to the community members. Interviewee 1 further indicated that it would be possible for the beneficiaries (community members) to sell the produce for profit, and the profit will assist them to cope with their lively condition. Therefore, seemingly school gardens do not only assist school to provide nutritional foods and alleviate hunger and food insecurity but they also provide income generation opportunity.

Based on the responses, it is evident that school gardens afford learners an opportunity to access and availability of nutritional food intake, household dietary requirements and safe utilisation of food. Food gardens can be effective as it enables learners and their families to be food secure and afford the community an opportunity to make a living out of school gardens by selling the produce. Indeed, their impact to assist beneficiaries is undisputed.

5.5.2.2 Programme contribution to the intended outcomes

This question asked whether the programme contributed to the intended outcomes in the short, medium and long term. A positive response was received, whereby Interviewee 1 said “Yes” and indicated that school gardens are helpful to the learners and their impact is undisputed. It was also stated that the programme has long term effects. In terms of programme contribution, Interviewee 1 alluded that the programme intends to improve nutritional food access, reduce hunger levels and improve food security. It was also indicated that through these activities (food parcels, feeding scheme and sale of produce) the beneficiaries will then have access to nutritional food, reduced hunger levels and access to income generation opportunity to sustain them for very long time.

5.5.2.3 Outcomes of the programme and change attribution to the programme

The question posed in this section inquired if the outcomes were produced. The response from Interviewee 1 indicated that the school gardens are meant for the learners and partially for the community. The respondent outlined two project effects; namely *intended* and *unintended* outcomes and are presented below.

In terms of intended outcomes, Interviewee 1 informed that the school gardens are intended to improve nutritional food access, availability and reduce hunger levels and improve food security to food insecure schools. The response also indicated that school gardens ensure these schools get the minimum hunger level and higher dietary intake. Interviewee 1 also reported a positive outcome whereby the project keeps participants busy and relieves stress. However, Interviewee 1 further reported that projects often have negative effects. The negative effect reported for this study indicated that the schools encounter increased water bills because the school gardens do not have irrigations systems or boreholes.

In terms of change attribution to the programme Interviewee 1 reported that to a greater extend, the school water bill can affect the performance of school gardens. Consequently, this jeopardise the budget of the school. Furthermore, the response given indicated that this affects the programme implementation, because without water school gardens are bound to fail especially with rain being so scarce these days.

5.5.2.4 Features of the programme and its influence

This question inquired whether there are features of the programme and context that made a difference. Interviewee 1 informed that school gardens are able to help to decrease high levels of hunger and contribute in creating income generation opportunities. Further it was reported that the projects make people to come together as communities and be one. It was echoed that this makes a huge difference in their lives.

5.5.3 Economic Evaluation

This section asked about economic evaluation. Slothuus (2000) informed that it is necessary to “have an economic evaluation of various food security interventions”. Measuring programmes and projects is not easy especially when scarce resources are managed (Slothuus, 2000). Economic evaluation aims to aid decision-makers with their difficult choices in allocating care resources, setting priorities and moulding health policy (Miller, 2009: 42).

5.5.3.1 The ratio of costs to benefits

The researcher asked about what has been the ratio of costs to benefits. The response from Interviewee 1 alluded that the cost of implementing and ensuring that school garden projects perform to the best of their ability is not higher compared to the benefits of school gardens. Interviewee 1 made an example that “for instance, the issue of the water bill continues to be a challenge in most schools”. This was alluded to the schools in Emfuleni Local Municipality (ELM), because currently the ELM has a crisis of water shortage and that affects schools and residence of ELM.

Furthermore, Interview 1 indicated that the climate change affects the benefits of school gardens, especially when it’s too hot and when there is no rain. Lack of rain in expected days of the season have an effect to spoil the crops and at times the seeds do not grow.

Moreover, it was indicated that the school garden produces insufficient crops. However, Interview 1 indicated that this does not mean that the cost outweighs the benefits. Furthermore, Interview 1 remarks indicated that one cannot confidently say that the cost outweighs the benefits.

5.5.3.2 Most cost-effective option

This section asked about what is the most cost-effective option on the projects implemented. Interview 1 response indicated that the most cost-effective option is to introduce the irrigation system or borehole structure, this will reduce the school water bills.

5.5.3.3 Intervention and cost-effectiveness

The researcher asked if the intervention has been cost-effective. Interview 1 responded by indicating that the effectiveness of the project depends on a proper process adherence when projects are implemented. Interview 1 also informed that there are no other alternatives that are implemented at the moment either than implementing irrigation systems. Part of the response indicated that the climate change is a worldwide challenge, and advised that people must act to fight climate change and develop new initiatives to mitigate the problem. On this point, Interview 1 further advised that communities can continue growing their own foods such as (school gardens) to avoid chemical fertilizers, insecticides and herbicides.

5.5.3.4 Programme and the best use of resources

This section asked whether the programme is the best use of resources. A positive response “yes” was received from Interview 1. It was informed that all the tools issued by the department has provided to the schools are being used in a proper manner. Further the seeds given to the schools to grow vegetable and fruits are also used correctly as intended.

5.5.4 APPROPRIATENESS, EFFECTIVENESS AND EFFICIENCY

The aim of this section was to ascertain whether a programme is appropriate, effective and efficient.

5.5.4.1 Appropriateness

Three questions were posed in this section.

5.5.4.1.1 Programme identifying the need

The first question asked whether the programme addressed the identified need. The respond obtained from Interviewee 1 indicated that the programme has identified the need of a project to a greater extent, through supplementing the feeding scheme, creating income generation opportunities and providing food parcels to the learners. From the interview conducted with the food security senior adviser (interviewee 1), it was clear that the main objectives of the school garden projects are to assist schools that are identified as susceptible to hunger or that are food insecure. It was informed that these are schools that are mostly located in rural areas and low income townships and poverty stricken families. It was noted that the projects assist schools to: gain access to nutritional food intake, ensure that schools utilise the food in the most safe and effective way, and to ensure that all targeted beneficiaries are food secure. This means that the identified schools have access and affords nutritional dietary requirements in their food intake.

From the above objectives, the following particular objectives were also discovered, since the projects aims to ensure that targeted schools

- have access to nutritional minimum required food intake;
- have access to nutritional food intake, which will help them stay at school and avoid being sick now and again;
- reduce the level of poverty, by alleviating poverty and hunger rates within the community;
- learners living in households that are susceptible to food insecurity are assisted to coping with their lively condition; and
- community members working in the school garden are able to have access to nutritional foods and in some instances, they are able to sell the produce from the garden and with the money or profit they get they are able to spend it for their needs.

5.5.4.1.2 Programme alignment with government and agency priorities

The second question asked if the programme is aligned with government and agency priorities. Interviewee 1 alluded that the programme is aligned with the government and agency priorities, the South African government in its attempts to deal with food insecurity and hunger. Interviewee 1 indicated that the department prescribes to section 26 and 27 of the Constitution of the Republic of South Africa of 1996 in its attempts to deal with food insecurity and hunger. Moreover, the bill of rights states that “every citizen has the right to have access to sufficient food, water and social security”. In this case school gardens are one of those measures that the bill of rights is alluding on.

5.5.4.1.3 Programme representing a legitimate role for government

The third question asked if the programme represent a legitimate role for government. *The response from* Interviewee 1 indicated that the programme represents a legitimate role for government to realise the right to have access to sufficient food, water and social security. Based on the sentiments shared by the Interviewee 1, it can be said that school garden projects are perceived as the vehicle to bring about the dimensions of food security known as, availability of food, access to food, utilisation of food and food stability.

5.5.4.2 Effectiveness

This section comprised of two questions.

5.5.4.2.1 Programme achieving the intended outcomes

The first question asked whether the programme achieved the intended outcomes. In terms of *outputs*, Interviewee 1 indicated that, to a certain extent the programme does not reach all the intended schools, due to their location not being easily accessible, especially schools in the farms or rural areas. It was reported that the projects is accessible to schools which seek to participate. In terms of *outcomes* the respondent indicated that school gardens intend to improve nutritional food access, reduce hunger levels, improve food security and assist learners to cope with their lively condition. Food access focuses on providing minimum required nutritional food to the food insecure schools, and to ensure these schools get the minimum hunger level and higher dietary intake. Through

the school garden, the beneficiaries will then have access to nutritional food and reduced hunger levels and income generating opportunities. Thus, the objectives of these school garden projects is to provide the school with the basic and quality services which are useful and helpful, as a result delivering satisfactory services to the community of SDM by combating food insecurity and generating income opportunities for the beneficiaries.

5.5.4.2.2 Programme producing worthwhile results

The second question asked if the programme produces worthwhile results. Interviewee 1 informed that school gardens intend to improve nutritional food access, reduce hunger levels, improve food security and assist learners to cope with their lively condition. The responded further informed that food access focuses on providing minimum required nutritional food to the food insecure schools, and to ensure these schools get the minimum hunger level and higher dietary intake. The response from Interview 1 indicated that through school garden, the beneficiaries will then have access to nutritional food and reduced hunger levels and create income generating opportunities. It was further reported that the objectives of these garden projects provide the school with the basic and quality services which are useful and helpful, as a result deliver satisfactory services to the community of SDM.

5.5.4.3 Efficiency

This section comprised of two questions presented below.

5.5.4.3.1 Outcomes representation on programme value for money

This question asked if the outcomes of the program represent value for money. Interviewee 1 indicated that the programme represents value for money in a sense that the funds are invested in the programme are utilised in the best way. The respondent further informed that a school garden is provided with resources (seeds for ploughing and growing vegetables and fruits, garden tools and Jojo tanks) and these presents value for money. The response also indicated that no funds go to waste and all costs are accounted for. Moreover, every learner benefits through the feeding scheme and the most vulnerable ones get to take food parcels home. Another value for money input reported was that these projects bears income generating opportunities and this depends on how well a garden is performing. An example given during the interview for *value for money* was

such gardens that produced enough to feed the learners and which also made financial gains whereby the project is able to maintain itself.

5.5.4.3.2 Relationship between inputs and outputs

The second question asked about the relationship between inputs and outputs to expected standards. The response from Interviewee 1 indicated that relationship is good. However, the respondent said one cannot overlook the issues of climate change and water supply as this jeopardises the expected standards. Interviewee 1 informed that some crops struggle to grow or becomes spoilt as a result the community becomes unsatisfied with the quality and the amount of produce they get from the school garden.

5.5.5 Tools for Assessing Performance

The purpose of this section was to determine the tools used in the department for assessing performance of food security projects. For this section only five questions were asked as presented below.

5.5.5.1 Performance measures used to determine the performance of school gardens

The researcher asked about which performance measures are used to determine the performance of school gardens. This question asked the participant to indicate whether the department has performance measures used to determine the performance of school gardens. The response from Interviewee 1 indicated they don't have performance measures to determine the performance of school gardens. However, what they do is to assess the size of the land or space and amount of produce they land produces. If the land is big it must produce enough vegetables and fruits and if it's big and produces less than this would mean the project is not performing.

5.5.5.2 Policy to track progress against the goals of the school gardens

This question asked if the department has a policy to track progress against the goals of the school gardens? Interviewee 1 responded that, the department has no policy to track progress against the goals of the school garden and as a result there is no performance measurement system employed to assess the performance of school gardens. Consequently, the department cannot tell which school gardens are performing and which ones are not performing.

5.5.5.3 Usage of performance measurement system

This question the researcher aimed to ask how does the department use the performance measurement system. Interviewee 1 reported that they do not have any performance measurement system. For this negative response, the researcher believes that the measurement of food security programmes is critical for targeting food and economic aid. Usage of sound performance measurement system may enable managers to develop sustainable food security programmes which informs government policy across many sectors (Jones, Ngure, Pelto, and Young, 2013:481).

5.5.5.4 Performance measurement system tools and its frequency

This question aimed to determine which tools, the frequency and the people involved when measuring performance school gardens. The response indicated that the department don't have tools to measure performance. In terms of the people involved to measure progress the response indicated that the department employs permanent agricultural extension officers who undertakes the issues of food security in the province. In terms of frequency, Interviewee 1 also reported the agricultural extension officer's visit the respective projects on scheduled days to monitor progress of established food gardens. Interviewee 1 further indicated that the schools need boreholes and trackers. It was also reported that the department need extension garden co-ordinators that can work with them directly from the respective school. The researcher thought that the submission from Interviewee 1 is important as extra capacity could enhance the process to realise the intended goals.

5.5.6 Incentives for Performing School Gardens

This section comprised of two (2) questions.

5.5.6.1 Incentives for performing school food gardens

The first question asked aimed to determine if there are incentives for performing school food gardens. Interviewee 1 indicated that the Sustainable Resource Management Unit is the one dealing with incentives or competitions of school gardens. Nonetheless, during the interviews conducted with interviewee (2-7) the researcher discovered that Lesedi and Midvaal local municipality in SDM host competitions for performing school

gardens. For instance, the Lesedi local municipality runs a project called Can Grow and Heidelberg Mall Greenery. Can Grow encourages learners to grow vegetables and fruits in a can and the school which can do so, gets a prize for best Can Grow School. Moreover, the Heidelberg Mall Greenery runs an annual project to check if the school has a functional garden and it's well maintained. The best school garden will then win a prize.

5.5.6.2 Criteria applied for selecting the performing school food gardens

The second question inquired if the department has a criterion to select the performing school food gardens. According to interviewee 1 GDARD does not have a standard and formal criterion for selecting the performing school garden, but it looks at the ability of the school to conserve their natural resources, save water and keep the garden green.

5.7 CHAPTER SUMMARY

The responses from the interviews indicated that the SDM does not have performance measures system in place to assess and track the performance of school gardens towards set objectives. These projects are not assessed throughout the life cycle of the project and the food security senior adviser is not able to identify opportunities for improvement. The literature that was reviewed in Chapter three, alluded to the fact that performance measures must be able to assess the four dimensions of food security: food availability, food accessibility, food utilization, and food stability, as stated by the (United Nation, 2013:1). This will ensure that projects address food insecurity and perform to the best of their potential.

Based on the interviews and observations from the school gardens, it is evident that school gardens contribute to food availability, accessibility, utilization and sustainability. For instance, learners can eat from the school feeding scheme and take food parcels home. Nonetheless, food sustainability was a bit of a struggle, because out of six school gardens that were interviewed and observed two alluded that they are not consistent in supplementing the school feeding scheme.

CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter summarizes the research study. The researcher begins with an overview of the chapters, followed by the realisation of the research objectives as stated in Chapter 1. The researcher then provides recommendations on how to improve the performance of the public funded school garden projects in Sedibeng District Municipality and concludes the study.

6.2 THE SUMMARY OF THE STUDY

The research project consisted of six chapters, summarised as follows:

Chapter One

Chapter one formed the basis of this study. Chapter one provided orientation and background of the study. The chapter presented the concept of performance assessment, school gardens project and food security. The chapter also stated the research questions and objectives together with the research methods undertaken for this study.

Chapter Two

Chapter two focused on literature review to provide understanding of the concept food security and project performance measurement. It demonstrated a theoretical framework on the qualities that an effective project performance encompasses. It concluded by demonstrating the importance of performance measurement and the theories of project performance measurement.

Chapter Three

The basis of Chapter Three was to offer an overview of food security project assessment. The chapter focused on assessing the performance of food security projects. A review of the types of performance assessments is presented. It demonstrated the factors influencing project performance and what constitutes a performing school garden. The International and South African perspective of assessing food security was explored about the performance of school food security projects and the effectiveness of school gardens.

Chapter Four

Chapter four discussed the research methods used in this study. The chapter demonstrated an overview of the research methods and research instruments utilised in collecting and analysing data presented in the empirical study. The researcher preferred a qualitative approach and this explained in the chapter. The chapter described the target population and data sampling, data recording and data analysis and concluded with the ethical aspects followed in obtaining the data.

Chapter Five

Chapter five presented the results of the study undertaken about the performance of public funded school gardens established within the SDM. The results of the research are based on the analysis of the data that were collected through interviews and observations conducted within SDM to assess the performance of school gardens.

Chapter Six

Chapter Six provides the summary, conclusions and recommendation of the study. The study was concluded by focusing on the realisation of objectives and providing recommendation for improving the performance of school gardens in Sedibeng District Municipality.

6.3 REVIEW OF THE STUDY OBJECTIVES

The main purpose of this study was to assess the performance of public funded school garden projects to determine their relevance and fulfilment of project objectives in the SDM. The objectives of the study can be restated as follows:

- To define and provide a theoretical exposition of the concept of project performance measurement in school food gardens;
- To identify and analyse the role players in the assessments of the performance of public funded school food security projects;
- To establish the mechanism employed to assess school food security projects in Sedibeng District Municipality;

- To assess if the employed measures and indicators yield the desired outcomes.; and
- To offer remedial actions towards fortifying measures and indicators of assessing the performance of public funded school food security projects.

6.4 SUMMARY OF FINDINGS

The summary of the findings are presented in the following sections:

Theoretical exposition of the concept of project performance measurement in school food gardens:

The study aimed to provide a theoretical exposition of the concept of project performance measurement in school food gardens. A literature review was conducted to understand the concepts. Through reading it was found that there is a universal definition of food security. There are different forms of performance measurement and assessments. Forms of assessments were discussed in chapter 3.

Project performance measurement in school food gardens:

The researcher found that performance assessment is vital to determine the relevance and fulfilment of objectives. This was confirmed to be true through literature provided. It is highly important to assess the performance of food security project to determine if a project is yielding the desired outcomes, failure to assess the performance of the project will result in failure to detect if these projects are performing to the purpose they were established for.

Analysis of the role players in the assessment of school gardens:

The study aimed to identify and analyse the role players in the assessing the performance of public funded school food security projects. The study found that there are dedicated personnel who manage the establishment of school garden throughout South African provinces. The identified officials included the Food Security Senior Adviser and the extension officers who are based in Vereeniging satellite office of the GDARD. The food security senior advisers are responsible for provision of extension services, managing and monitoring the school food gardens established in the SDM. Some officers are spread throughout the Gauteng province. School principal and school garden managers were

also identified as role players in the of the selected school food gardens. Furthermore, school principals and school garden managers are responsible for detecting if school gardens are yielding the desired outcomes.

Identification of mechanism employed to assess performance and its indicators:

This section of the objectives aimed to establish ways that SDM assess the performance of public funded school food garden projects. The researcher discovered that there is no standard measure and indicators in place to assess the performance of public funded school food garden projects. The absence of performance indicators creates gaps in the performance of school food security projects. As a result, managers are unable to detect faults and they cannot see to it that school gardens attain their objectives. Performance indicators are vital, useful, provide informative information and most importantly, are able to create and detect opportunities that will improve the performance of school garden projects (Ossovski, de Lima, and Da Costa, 2017:3).

6.5 RECOMMENDATIONS

School gardens are implemented due to their potential to promote socio-economic and educational status of their communities. There are numerous ways to implement a performing school gardens as the numerous challenges that can hinder the performance of school gardens. Therefore, the following recommendations are based on improving the performance of school gardens.

a) Develop and review of performance measurement systems

The researcher therefore concludes that the GDARD must properly develop ways to assess the performance of school garden projects. It is crucial that managers understand the importance of assessing projects and how this can assist them to ensure that projects yield the desired outcomes. The organisation's failure to assess projects may lead to dysfunction within the organisation and can make it difficult for managers to track if the organisation is on the right track. This can be done by considering the following process for developing high-quality performance measures. Six steps were identified through literature review whereby managers implement the following steps for the success of the organisations performance:

- Step 1: Define the desired performance measures based on departments mission, goals and objectives
- Step 2: Assess each performance measures?
- Step 3: Selecting key performance measures to be reported to external customers, stake holders, and policy makers
- Step 4: Determine information needs
- Step 5: Clearly define each performance measures so that all users can easily understand
- Step 6: Establish the performance targets

A performance measurement system is better explained in DtiUK (2015:8) referring to it as a SMART (Specific, Measurable, Achievable, Relevant and Timely) process. This will help in ensuring that the performance of school garden and other food security projects is assessed in an appropriate manner. A performance measurement system must be carefully developed. This can be complemented by establishing guidelines to comply with the principles.

b) Develop performance measurement indicators

The institution may develop and implement performance measurement indicators which will assist in assessing food performances. These indicators must be able to assess not only those schools that are food insecure but must include schools and communities that could be in danger of food insecurity.

c) Assessment of school gardens

Assessment of school gardens and other food security projects is vital and must be given out most attention. The only way to know whether a project is performing is by assessing its performance. Regular assessment is vital to detect faults and rectify them in time.

d) Structured system of dealing with natural disasters

The South African government must have a structured system of dealing with food security disasters, such as droughts and floods. These disasters can threaten the performance of school gardens hence they must be protected against their occurrences.

e) Integration into the curriculum

The government of South Africa must come up with a policy that will ensure that school gardens are part of class activities, whereby the context of school gardening is integrated into the curriculum. School gardening can be taught with other subjects such as environmental studies and home economics. The integration can inform on learning how to grow produce, preparing and conserving them.

f) Policy Recommendation

Poor nutritional intake and hunger leads to impaired educational development. Thus, it is vital that the government comes up with a policy that will ensure that we fully reap the benefits of school gardens. A policy must emphasis on the importance of assessing the performance of school gardens and people must take accountability when a garden is not performing.

g) Garden Knowledge

All stakeholders and government must hold trainings, workshops and teach gardeners everything they need to know about implementing and sustaining a garden.

h) Support

All the stake holders must participate in the school garden including the teachers, parents, community members and learners. If everybody is hands on the garden chances of the garden failing are slim, because everybody will feel a sense of ownership and want to everything in their power to have a successful school garden.

i) Dedicated garden coordinator

Based on the findings of the research a committed and dedicated garden coordinator was alluded to as one of the necessary requirements that could contribute to the sustainability of the garden. The researcher proposes that a dedicated and committed garden coordinator is need for improved garden performance and sustainability.

j) Partnership

School garden projects produce a variety of vegetable and fruits, hence it is advisable that they partner with private business such as Shoprite, Pick n Pay and Fruit n Veg, to provide them with the produces so that they can receive income.

k) Policy Development

Policy makers in SDM should re-evaluate the district policies by establishing them in a manner that promotes food security, equality, fairness and efficiency bearing in mind the composition of families they serve, their health conditions and geographical areas.

6.6 CONCLUSIONS

Assessing the performance of school gardens projects needs an effective performance measurement system. The government of South Africa must employ a performance measurement system that constitute of all the important and appropriate elements that are SMART. It is the government's duty to ensure that every citizen has access to food as it is stated in the South African Constitutional Law of 1996, section 26 and 27. Moreover, the bill of rights prescribes that "every citizen has the right to have access to sufficient food, water and social security". Thus, it is important for school gardens to perform in order for the government to realise this right. However, due to the lack of performance measures in SDM, proper tracking of the progress of school gardens projects against set objectives is not done. This leads to the SDM being unable to identify opportunities for improvement. It has been established in the literature that the lack of performance measures is linked to the lack of performance assessments and that this will lead into limited growth and poor performance of school food gardens projects. The SDM must develop, implement and monitor a performance measurement system to assist with the assessments of the performance of school gardens.

Assessing the performance of school gardens is a challenge in the whole world including South Africa. Thus, scholars and researchers are still developing performance measures that are capable of assessing the performance of school gardens and other food security projects. There has been a consensus among numerous researchers that the assessment of the performance of food security projects must involve and assess the four dimensions of food security: food availability, food accessibility, food utilisation and food stability according to the FAO definition of food security. The study concludes that school gardens are not performing to the best of their potential. However, they are still playing a pivotal role in combating high levels of hunger, food insecurity and promotion of nutritious

food intake and income generation opportunities. There has been a consensus among numerous researchers that the assessment of the performance of food security projects must involve and assess the four dimensions of food security: food availability, food accessibility, food utilisation and food stability according to the FAO definition of food security. Therefore, the case for developing, implementing and monitoring performance measures is higher in support of school gardens.

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ANNEXURE A: QUESTIONNAIRE FOR FOOD SECURITY SENIOR ADVISERS

Enquiries: Ms. Z.I Mantenta (Master student)

Author: Ms. Z.I Mantenta (Master student)

Supervisor: Prof Tumi (LB) Mzini

Title: Assessing performance of public funded school garden projects in the Sedibeng District Municipality

The objective of this study is to conduct a comprehensive study on Project Performance. This study is conducted by Ms. Zola Innocentia Mantenta within the field of Public Management and Administration under the guidance of Professor Loraine Boitumelo Mzini. This study assesses performance of public funded school gardens projects in the Sedibeng District Municipality. These questions have been designed to capture the required information. Thus, the information gathered will be utilized in the Masters dissertation to ensure effective performance of funded school food security projects. All the information you provide will be treated with **STRICT CONFIDENTIALITY** and will only be utilised for academic purposes only.

Instructions and Information in completing the interview questions.

- Please answer the following questions with honesty and transparency
- Participants can provide extra information if the need arises
- The term “beneficiaries” in this interview questions is used to refer only to community members who are participating in school food gardens.

QUESTION 1: PROCESS EVALUATION

- 1.1 How is the program being implemented?
- 1.2 How appropriate are the processes compared with quality standards?
- 1.3 Is the program being implemented correctly?
- 1.4 Are participants being reached as intended?
- 1.5 How satisfied are program beneficiaries?
- 1.6 What has been done in an innovative way?

QUESTION 2: OUTCOME EVALUATION (OR IMPACT EVALUATION)

- 2.1 How well did the program work?
- 2.2 Did the program produce or contribute to the intended outcomes in the short, medium and long term?
- 2.3 For whom, in what ways and in what circumstances? What unintended outcomes (positive and negative) were produced?
- 2.4 To what extent can changes be attributed to the program?
- 2.5 What were the particular features of the program and context that made a difference?
- 2.6 What was the influence of other factors?

QUESTION 3: ECONOMIC EVALUATION (COST-EFFECTIVENESS ANALYSIS AND COST-BENEFIT ANALYSIS)

- 3.1 What has been the ratio of costs to benefits?

- 3.2 What is the most cost-effective option?
- 3.3 Has the intervention been cost-effective (compared to alternatives)?
- 3.4 Is the program the best use of resources?

QUESTION 4: APPROPRIATENESS, EFFECTIVENESS AND EFFICIENCY

Three broad categories of key evaluation questions to assess whether the program is appropriate, effective and efficient are often used. This aim of this question is to ascertain whether a program is appropriate, effective and efficient.

4.1 Appropriateness

- 4.1.1 To what extent does the program address an identified need?
- 4.1.2 How well does the program align with government and agency priorities?
- 4.1.3 Does the program represent a legitimate role for government?

4.2 Effectiveness

- 4.2.1 To what extent is the program achieving the intended outcomes, in the short, medium and long term?
- 4.2.2 To what extent is the program producing worthwhile results (outputs, outcomes) and/or meeting each of its objectives?

4.3 Efficiency

- 4.3.1 Do the outcomes of the program represent value for money?
- 4.3.2 To what extent is the relationship between inputs and outputs timely, cost-effective and to expected standards?

QUESTION 5: TOOLS FOR ASSESSING PERFORMANCE

- 5.1 What performance measures do you use to determine the performance of school gardens?

- 5.2 Does the Department have a policy to track progress against the goals of the school gardens?
- 5.3 How do you use your performance measurement system?
- 5.4 When are the tools used and what is the frequency?
- 5.5 Who is involved in the process?

QUESTION 6: INCENTIVES FOR PERFORMING SCHOOL GARDENS

- 6.1 Are there incentives for performing school gardens?
- 6.2 What criteria is applied for selecting the performing gardens?

Additional details:

.....

Thank you

ANNEXURE B: QUESTIONNAIRE FOR THE SCHOOL PRINCIPAL AND GARDEN MANAGERS

Enquiries: Ms. Z.I Mantenta (Master student)

Supervisor: Prof Tumi (LB) Mzini

Title: Assessing performance of public funded school garden projects in the Sedibeng District Municipality

The objective of this study is to conduct a comprehensive study on Project Performance. This study is conducted by Ms. Zola Innocentia Mantenta within the field of Public Management and Administration under the guidance of Professor Loraine Boitumelo Mzini. This study assesses performance of public funded school gardens projects in the Sedibeng District Municipality. These questions have been designed to capture the required information. Thus, the information gathered will be utilized in the Masters dissertation to ensure effective performance of funded school food security projects. All the information you provide will be treated with **STRICT CONFIDENTIALITY** and will only be utilised for academic purposes only.

Instructions and Information in completing the interview questions.

- Please answer the following questions with honesty and transparency
- Participants can provide extra information if the need arises
- The term “beneficiaries” in this interview questions is used to refer only to community members who are participating in school food gardens (garden manager and principal).

QUESTIONS:

1.1 Number of students in school?

Grade	Total number of students		Total number of OVCs		Work in Garden		Eat from garden		Take Veggies Home	
	F	M	F	M	F	M	F	M	F	M
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

F= Female, M= Male

1.2 Do student work in the garden?

1.3if yes, for how many hours per week and is the work part of class?

Grade	% who learn in the garden	Hours per week			
		Agri Science	Home Economics	Other	Other
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

1.4 Do you have a feeding program in this school? does it source from the garden?

.....

.....

.....

1.5 How many meals per day

.....

.....

1.6 In the last seven days what was the meal plan or how many days did you serve?

Maize, maize porridge						
Other cereal (e.g. Rice, sorghum, millet)						
Cassava						
Potatoes, sweet potatoes						
Sugar or sugar products						
Beans and peas						
Groundnuts and cashew nuts						
Vegetables /relish /leaves						
Bread, pasta						
Fruits						
Beef, other red meat						
Poultry						
Pork						
Eggs						
Fish						
Oils/fats/butter						
Milk, other dairy products						

1.7 Are any of the items grown in the garden sold? If yes, what is the money used for?

.....

1.8 Do students get to take items grown in the garden home? If yes, which students

.....

1.9 What happens to school garden during school holidays?

.....

1.10 Who coordinates the maintenance of the school garden?

.....

1.11 What are the garden coordinators responsibilities?

.....

1.12 Which positive or negative observation have you made in school gardens participants?

.....

1.13 In the past three years what type of garden -based professional development has the beneficiaries received?

.....

1.14 What type of assessment has been conducted for school gardens and how often was the assessment conducted?

.....

1.15 Describe issues concerning sustainability of the school garden project?

.....

Additional details:

Thank you

ANNEXURE C: PERMISSION TO CONDUCT RESEARCH



GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Enquiries: Riaan Beukes
Directorate: HRD
Tel: +27 (0)11 240 2607
riaan.beukes@gauteng.gov.za

Professor LB "Tumi" Mzini
North West University

Dear Professor

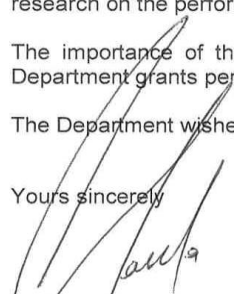
RE: PERMISSION TO CONDUCT RESEARCH ON PERFORMANCE OF SCHOOL FOOD GARDENS

The Department has reviewed the request submitted by Ms ZI Mantenta to conduct research on the performance of food school gardens.

The importance of the study for the Department has been considered. Therefore the Department grants permission to Ms Mantenta to conduct research.

The Department wishes Ms Mantenta and the team all the best in the research.

Yours sincerely


Ms M Gasela
HEAD OF DEPARTMENT: AGRICULTURE AND RURAL DEVELOPMENT

Date: 05 JUNE 2019

ANNEXURE D: REPORT FROM LANGUAGE EDITOR



ABC SOLUTIONS

ACADEMIC AND BUSINESS COACHING SOLUTIONS

Cal/Law/04/2020

ADDRESS

WEST END BUILDING
3RD FLOOR, OFFICE 30310
51 LEASK STREET
KLERKSDORP: 2670

CONTACTS

C: 073 700 0192
D: 083 536 6821
E: MAKETSHEMUC@YAHOO.CO.UK
W: WWW.CALLINKINVESTMENTS.CO.ZA

Monday, 20 April 2020

CERTIFICATE OF ENGLISH EDITING

To whom it may concern

This is to certify that the dissertation with the title **Assessing the performance of public funded school food garden projects in the Sedibeng District Municipality**, to be submitted by ZI Mantenta (21907765) to the North-West University has been edited for language by ABC Solutions, a division of Cal Link Investments. Neither the research content nor the author's intentions were altered in any way during the editing process.

ABC Solutions guarantees the quality of the English language in this paper, provided our editor's changes are accepted and further changes made to the paper are checked by our editor. The referencing and sources were checked, as far as was possible, as per the university's referencing guidelines.

The final corrections and adjustments remain the responsibility of the author.

Callen W Maketshemu (MBA, DME, MACP)

Lead Academic and Business Coach, ABC Solutions

Cell: +27 73 700 0192/ +27 66 237 0561

Mail: maketshemuc@yahoo.co.uk

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